ICPLA 2014

PROGRAMME

15th ICPLA Conference 2014
June 11-13
Stockholm, Sweden

Dear Colleagues and Friends,

It is our great pleasure to welcome you to the 15th ICPLA Conference in Stockholm, Sweden, June 11-13th, 2014.

It is our sincere hope that basic and clinical scientists in the field of language, speech and communication will join. The topics for the conference presentations are voice, prosody, nasality, articulation & phonology, grammar, semantics & pragmatics, multi- & bilinguality, reading & writing, motor speech control, intelligibility, language comprehension, talk-in-interaction, ACC & multimodal communication and psycho- & neurolinguistics. In addition there will be six panels and three plenary lectures.

The ICPLA 2014 is held at Karolinska Institutet, Solna, which is close to the city center. Discover Stockholm, a city like no other - a city built on 14 islands, where you are never far from the water. Well-preserved medieval buildings stand alongside modern architecture. And just outside the city, the archipelago of 24 000 islands is waiting to be explored.

We welcome you to Stockholm!

The local organization, scientific and programme committees

Local Organizing Committee

Anette Lohmander

Francisco Lacerda

Ellika Schalling

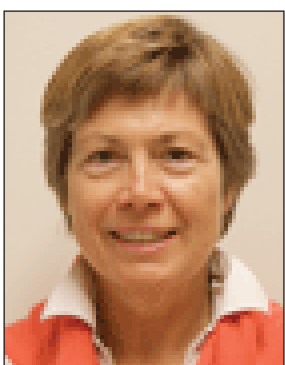# Local Scientific and Programme Committee

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Mattias Heldner

Francisco Lacerda

Anette Lohmander

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Per Östberg

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	Ingrid Behrns	University of Gothenburg
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	Ulrika Ferm	DART - Centre for AAC and Assistive Technology
	Åsa Wengelin	University of Gothenburg
The Netherlands	Roelien Bastiaanse	University of Groningen
USA	Martin Ball	University of Louisiana at Lafayette

Programme

Wednesday, June 11

			Abstr. No.
10.00-13.00	Registration Location: Conference venue, Berzelius väg 3		
13.00-13.30	Lecture hall: A	Welcome	
13.30-14.30	Plenary lecture I Lecture hall: A	How speech works: Theory and experiment in the pursuit of a unified account. *Björn Lindblom*	
14.30-15.00	Coffee / tea		
15.00-16.20	Session 1:1 Voice Lecture hall: C Chair: Leena Rantala	Reliability of voice SPL estimations with an air-coupled microphone fastened to the neck. *Samuel Sonning*	201
		Automatic classification of counterpart fricatives in hearing impaired children's speech WITHDRAWN Viktória Horváth, *András Beke,* Gráczi Tekla Etelka	202
		Tracking endurance of voice-healthy individuals in a vocal loading test including long time voice measurement. *Susanna Whitling,* Viveka Lyberg Åhlander, Roland Rydell	115
		Voice use in vocally healthy elderly speakers studied with a portable voice accumulator. *Joakim Gustafsson*, Johanna Dahlbäck, Elisabet Renklint, Ellika Schalling	158
	Session 1:2 Prosody Lecture hall: B Chair: Christina Samuelsson	Acquiring prosodic focus marking in Swedish and Dutch. *Anna Sara H. Romøren*, Aoju Chen	99
		The ability of left- and right-hemisphere damaged individuals to produce prosodic cues to disambiguate Korean idiomatic sentences. *Seung-yun Yang*, Diana Sidtis	126
		Task effects in pitch and intensity variability in patients with Parkinson's disease under deep brain stimulation of caudal zona incerta or subthalamic nucleus. *Fredrik Karlsson*, Jan van Doorn	197
		The 'Intonation in Interaction' Profile (IIP) *Bill Wells*	193

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	Session 1:3 Articulation/ Phonology I Lecture hall: A Chair: Carol Stoel-Gammon		Phonetic learning abilities in ageing francophone speakers. *Veronique Delvaux*, Julie Cano-Chervel, Kathy Huet, Myriam Piccaluga, Bernard Harmegnies	20
			Stress or position: Deciding between prominence and position in prosodic development. *Avivit Ben-David*	118
			Learning to speak and learning to talk: phonetic variability as a product of conversational sequence in speech development. *Nisreen Al-Awaji,* Sara Howard, Bill Wells	164
			Development of phonological representations in young children. Stephanie Ainsworth, *Anne Hesketh*, Stephen Welbourne	192
16.30-17.30	Session 2:1 Psycho-/Neuro-linguistics I Lecture hall: C Chair: Fredrik Karlsson		Distributed cognition and aphasia. *Nicole Müller*, Brent Archer	81
			Formulaic language in Parkinson's and Alzheimer's disease: Complementary effects of subcortical and cortical dysfunction. *Diana Van Lancker Sidtis*, JiHee Choi, Amy Alken, John Sidtis	134
			Cognitive predictors of language in infants with Down syndrome Emily Mason-Apps, *Vesna Stojanovik*, Carmel Houston-Price, Sue Buckley	122
	Session 2:2 Language Comprehension Lecture hall: B Chair: Hanne Gram Simonsen		Individual differences in the impact of speech rate on perception of conversational speech. *Xaver Koch*, Esther Janse	39
			The effect of mode of presentation on accent comprehension in adults with aphasia. *Caroline Newton*, Amy Watkins, Carolyn Bruce	155
			An event-related potential (ERP) study on word processing in 12 to 24-month-old children Eeva Klintfors, Ellen Marklund, Francisco Lacerda, Petter Kallioinen, *Marie Markelius*	190
	Session 2:3 Articulation/ Phonology II Lecture hall: A Chair: Bill Wells		The importance and added clinical value of supplementing phonological screening data in a systematic and principled way: case presentation using the Phonetic and Phonological Systems Analysis (PPSA). Lucie Cragg, *Sally Bates*	198
			Observation of babbling in typically developing children at 10-18 months of age compared to clinical groups – a possible screening procedure. *Anette Lohmander*, Sofie Eriksson, Katarina Holm, Lena Höglund Santamarta, Jenny Karlsson, Marion Lieberman	225
			Gradient evaluation of /k/-likeness in typical and misarticulated child speech. *Sofia Strömbergsson*, Giampiero Salvi, David House	140
17.30-	Welcome reception Location: Conference venue, Berzelius väg 3			

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Thursday, June 12

Time	Session	Details	Abstr. No.
08.00 -	Registration Location: Conference venue, Berzelius väg 3		Abstr. No.
09.00-10.00	Plenary lecture II Lecture hall: A	Free energy and phonological dynamics. *Karl Friston*	
10.00-10.30	Coffee / tea		
10.30-11.30	Session 3:1 ACC/Multimodal Communication Lecture hall: C Chair: Katja Laakso	Gesture-language 'mismatches' during narratives spoken by people with aphasia: what do they tell us? *Lucy Dipper*, Naomi Cocks, Madeleine Pritchard, Gary Morgan	172
		Literacy through blissymbolics - a case study. *Kirsten Meyer Bjerkan*, Torun Einbu	103
		Dependence of the McGurk effect on age and hearing status. *Vesna Mildner*, Arnalda Dobric	156
	Session 3:2 Multi-/ Bilingualism I Lecture hall: B Chair: Kristian Emil Kristoffersen	Home language environment and English vocabulary development in bilingual hearing-impaired children. *Merle Mahon*, Rimah Choudhury, Rebecca Bunting	107
		Identification of language impairments (SLI/LI) in monolingual and multilingual children speaking Turkish. *Seyhun Topbas*, Ayse Aydin, Deniz Kazanoglu, Elcin Tadihan-Ozkan	138
		Intentional communication. Formulating goals for child language intervention beyond language form. *Christina Reuterskiöld*, Anna Eva Hallin	71
	Session 3:3 Articulation/ Phonology III Lecture hall: A Chair: Anneli Yliherva	Fricatives in Icelandic- versus English-speaking children with protracted phonological development. Lisa Leonhardt, *Thora Másdóttir*, B. May Bernhardt, Joseph P. Stemberger, Gunnar Ólafur Hansson	27
		Using ultrasound visual biofeedback to treat children with persistent speech sound disorders. *Joanne Cleland*, James M. Scobbie, Zoe Roxburgh, Alan Wrench	117
		Competence-performance gaps in young children with cleft palate: evidence from assessment and intervention. *Nancy Scherer*, Jennifer Frey, Ann Kaiser	211
11.30-13.00	Panel 1. Lecture hall: C		
	Panel 2. Lecture hall: B	Study guidelines in cleft palate speech. Chair: Sandra Neumann Sell D, Willadsen E, Persson C, Lohmander A, Lagerberg T.	

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	Panel 3. Lecture hall: A	Word-initial rhotic cluster acquisition in European Portuguese, Icelandic, Slovene, Spanish and Zapotec. Chair: Bernhardt B May Bérubé D, Lleó C, Másdóttir T, Ozbič M, Ramalho M, Stemberger J.P., Vivar P.	
13.00-14.00	Lunch		
14.00-15.00	Session 4:1 Semantic & Pragmatics I Lecture hall: A Chair: Mick Perkins	Norwegian words: A lexical database for researchers and clinicians. Marianne Lind, *Hanne Gram Simonsen*, Pernille Hansen, Elisabeth Holm	60
		Lexical skills in Swedish children with different degrees of hearing impairment. Tina Ibertsson, Lena Asker-Árnason, Siri De Geer, Birgitta Sahlén, *Kristina Hansson*	68
		Pragmatic verbal repetition: Review and application of a new method of quantification. *Rachel Wolf*, Diana Van Lancker Sidtis	130
	Session 4:2 Motor Speech & Intelligibility Lecture hall: B Chair: Ellika Schalling	Benfits of topic key words for the intelligibility of dysarthric speech. *Ben Rutter*	79
		Speech function after cervical spinal cord injury: Habitual and maximum speech performance in relation to respiratory function. *Kerstin Johansson*, Åke Seiger, Malin Forsén, Jeanette Holmgren Nilsson, Lena Hartelius, Ellika Schalling	170
		Instability in simple speech motor sequences - an overview of measures and what they really quantify, *Fredrik Karlsson*	235
	Session 4:3 Hearing & Perception I Lecture hall: C Chair: Traci Flynn	Auditory development of infants with hearing loss. *Anna Persson*, Traci Flynn	110
		Cochlear implantation before 9 months of age is beneficial for the outcome of spoken language – a longitudinal study. Eva Karltorp, Martin Eklöf, Anders Freijd, *Elisabet Östlund*, Filip Asp, Henrik Smeds, Sten Hellström, Ulrika Löfkvist	147
		Speech of cochlear implant patients: An acoustic analysis of vowel production. *Veronika Neumeyer*, Florian Schiel, Phil Hoole	173

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15.00-16.00	Postersession I + Coffee / tea		
16.00-17.00	Session 5:1 Grammar Lecture hall: A Chair: Martin Ball	Comprehension of quantifiers and numerals in Williams Syndrome. Nausicaa Pouscoulous, *Alexandra Perovic*	34
		MetaTaal': Enhancing complex syntax in children with specific language impairment: a metalinguistic and multimodal approach. *Rob Zwitserlood*, Marjolijn van Weerdenburg, Frank Wijnen, Ludo Verhoeven	59
		Phonological and morphosyntactic minimal pairs: Evidence for different processing. *Luca Cilibrasi*, Vesna Stojanovik, Patricia Riddell	62
	Session 5:2 Reading & Writing I Lecture hall: B Chair: Vesna Stojanovik	Predicting reading performance with a phonological input and output task: Evidence from Italian. *Luca Cilibrasi*, Vesna Stojanovik, Patricia Riddell	63
		Can Pinyin knowledge facilitate Chinese literacy development? *Dustin Kai-Yan Lau*, Man-Tak Leung, Yuan Liang, Jason Lo	165
		Language, reading, and psychosocial adjustment in 10-year-old children born with cleft palate *Ragnhild Aukner,* Tone Særvold, Kristin Feragen Statped sørøst, Oslo, Norway	80
	Session 5:3 Talk-in-interaction Lecture hall: C Chair: Anu Klippi	Retrospection in intervention for children with language impairment. *Christina Samuelsson*, Charlotta Plejert	29
		Exploring the world with dementia: Distributed cognition in conversation. *Nicole Müller*, Zaneta Mok, James Spahr	82
		Linguistic recycling in typical and atypical conversation: evidence of 'memory-for-interaction'? *Mick Perkins*, Sara Howard, Hilary Gardner, Maggie Vance	114
17.00	Lecture hall: A	ICPLA Business Meeting	
19.30	Dinner Location: Restaurang Solliden, Skansen		

Friday, June 13

			Abstr. No.
08.00 -	Registration Location: Conference venue, Berzelius väg 3		
09.00-10.00	Plenary lecture III Lecture hall: A	Early identification of language deficits: When do benefits exceed harms? *Christine Dollaghan*	
10.00-10.30	Coffee / tea		
10.30-11.30	Session 6:1 Psycho-/ Neurolinguistics II Lecture hall: A Chair: Ingrid Behrns	Age effects on visual and auditory statistical learning. *Thordis Neger*, Toni Rietveld, Esther Janse	45
		Phonemic and tonal awareness in Mandarin-speaking children at their school entrance. *Lili Yeh*, Bill Wells, Joy Stackhouse, Marcin Szczerbiński	51
		Which skills are involved in repeating words and non-words? *Hannah Hockey*, Chloe Marshall, Lucy Dipper	61
	Session 6:2 Reading & Writing II Lecture hall: B Chair: Lisen Kjellmer	Emergent literacy outcomes in multilingual preschoolers. *Karla Washington*, Katie Felts, Brittany Moore, Katie Bettner, Woody Rule, Genese Warr-Leeper	12
		Factors influencing reading comprehension abilities of deaf students in bilingual educational setting: ASL proficiency. *Iva Hrastinski*, Ronnie Wilbur	146
		Examining socio-pragmatic skills in German adults with Asperger syndrome *Antje Orgassa*, Jana Loh, Kirsten Breunsbach, Ingo Hermsen, André Herrmann, Annelore Lemmens	132
	Session 6:3 Hearing & Perception II Lecture hall: C Chair: Kristina Hansson	Hearing but not reading lips? Speechreading impairments in dyslexia. *Thomas Kaltenbacher*, Peter Hummer	66
		How does the teacher's voice and back-ground noise in the classroom affect childrens' comprehension and learning? V. Lyberg Åhlander, M. Haake, J.K. Brännström, S. Schötz, *B. Sahlén*	233
		Real-time registration of listener reactions to unintelligibility in misarticulated child speech. *Sofia Strömbergsson*	234
11.30-12.30	Postersession II		

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12.30-13.30	Lunch		
13.30-14.30	Session 7:1 Semantic & Pragmatics II Lecture hall: C Chair: Christina Reuterskiöld	Comprehension of novel metaphor in autism spectrum disorders. Nausicaa Pouscoulous, *Alexandra Perovic*	34
		Hemispheric roles in the perception and production of famous proper nouns. *Seung-yun Yang*, Diana Sidtis	124
		A comparison between British and Finnish children's use of emotion and mental state words in narratives *Kerttu Huttunen*, Nuala Ryder, Samantha Clark, Robyn Guyton	204
	Session 7:2 Multi-/ Bilingualism II Lecture hall: B Chair: Roel Jonkers	Code switching in the grammar of young Jamaican children. *Karla Washington*, Sharynne McLeod, Maureen Samms-Vaughan, Hubert Devonish, Sarah Hamilton, Allison McFarland, Nancy Creaghead	11
		Facilitating home language maintenance in an English-dominant context. *Sarah Verdon*, Sharynne McLeod, Adam Winsler	13
		Is it an advantage to be a multilingual?: The development of language and literacy skills in French immersion programs. *Daniel Berube*	136
	Session 7:3 Articulation/ Pho-nology IV Lecture hall: A Chair: Anita McAllister	The utility of videofluoroscopic measurement and linear regression analysis to predict the risk of acquiring hyperna-sality from maxillary osteotomy in patients with cleft lip and palate. *Valerie Pereira*, Jyrki Tuomainen, Peter Ayliffe, Norman Hay, Michael Mars, Malcolm Birch, Archna Suichak, Debbie Sell	32
		Teaching typically developing children new articulations with ultrasound visual biofeedback. *Joanne Cleland*, Satsuki Nakai, James M. Scobbie	105
		Improving access to EPG intervention: Can school-based learning assistants deliver intervention following training? *Sara Wood*, Claire Timmins, Zoe Grayson	184
14.30-15.00	Coffee / tea		

			Abstr. No.
15.00-16.30	Panel 4 Lecture hall: A	Conversations-based intervention - How does it work? How do we show it works? Chair: Suzanne Beeke Wielaert S, Dammers N, v.d. Sandt-Koenderman M, Sage K. Johnson F, Beeke S, Best W, Brunou R, Rautakoski P Klippi A. Fox S, Eriksson K, Forsgren E, Hartelius L and Saldert C.	
	Panel 5 Lecture hall: B	Teaching and learning in clinical linguistics and phonetics. Chair: Rachael-Anne Knight Whitworth N, Setter J, Dipper L, Bates S.	
	Panel 6 Lecture hall: C	Children's speech assessment: cross-cultural considerations. Chair: Sharynne McLeod Verdon S, Wong S, Masso S, Baker E, McCormack J, Washington K.N., Devonish H, Samms-Vaughan M, Hopf S, To C.K.S., Ng K.	
16.30-17.00	Lecture hall: A	Closing incl. bid for ICPLA 2016	

Saturday, June 14

09.00-17.00	50th Anniversary of the Study Program in Speech and Language Pathology in Sweden. Location: Aula Medica, Karolinska Institutet, Solna Celebration with scientific symposium at Karolinska Institutet followed by a dinner in the City Hall.

I. How speech works: Theory and experiment in the pursuit of a unified account

Björn Lindblom
Senior Professor
Stockholm University &
University of Texas at Austin Texas

Spoken language is studied from numerous vantage points. Many academic disciplines offer their contributions to this complex topic. At this point seeking a synthesis may seem like a tall order. Nevertheless, the need to know more persists fueled by numerous factors including educational goals and the search for methods of diagnosis and therapy of speech and language disorders. Historically, two milestones are notable in the growth of the scientific study of speech: (i) The post-World-War-II era gave a huge boost to communications research as new tools (spectrograms, computers, a quantitative theory of how speech signals are produced) became available. Acoustic phonetics became a game changer. It moved the study of speech sounds (traditionally a pursuit for the liberal arts) in the direction of the natural and behavioral sciences. (ii) The past few decades have witnessed the advent of functional brain imaging techniques that are safe for use on human subjects and which offer opportunities of raising new and deeper questions and collecting large amounts of data on brain processes during speech and language tasks. The good news is of course that, in principle, these developments now put basic and applied projects in an unprecedented position to address in earnest how speech works and to fill in missing links. And the bad news? In reply one might suggest that growth carries the seeds of fragmentation – unless of course there are strong intellectual forces opposing it. Currently how strong are those forces? In aiming at an overview of where we stand on how spoken patterns are produced by speakers, perceived and understood by listeners and acquired by learners, I will indirectly try to shed some light on that question.

Björn Lindblom's field of research is speech physiology and phonology. One of his major themes has been the adaptive nature of speech production. His early work underlies major directions of subsequent work in linguistics. After receiving his doctorate from Lund University (1968), he became Director of the Phonetics Laboratory at Stockholm University where, in 1973, the Swedish Research Council created a personal chair for him as Professor of Speech Physiology and Speech Perception. In his first contributions he proposed an approach that inspired much subsequent work on how universal phonological patterns can be given explanatory accounts in terms of the constraints imposed by the speech motor system. His seminal paper on the structure of vowel systems is an early example on how sound patterns can arise by self-organization. It highlights the role of the listener and introduces the Adaptive Dispersion hypothesis which guided later developments including research on child language

II. Free energy and phonological dynamics

Karl Friston FRS
Wellcome Principal Research Fellow and Scientific Director
Wellcome Trust Centre for Neuroimaging
Professor: Institute of Neurology, University College London
Honorary Consultant: The National Hospital for Neurology and Neurosurgery, UK

How much about our interaction with – and experience of – our world can be deduced from basic principles? This talk reviews recent attempts to understand the self-organised behaviour of embodied agents, like ourselves, as satisfying basic imperatives for sustained exchanges with the environment. In brief, one simple driving force appears to explain many aspects of action and perception. This driving force is the minimisation of surprise or prediction error that – in the context of perception – corresponds to Bayes-optimal predictive coding (that suppresses exteroceptive prediction errors). We will look at some of the phenomena that emerge from this principle; such as hierarchical message passing in the brain and the perceptual inference that ensues. I hope to illustrate the brain-like dynamics – that this scheme entails – by using models of bird songs that are based on attractors with autonomous dynamics. This provides a nice example of how dynamics can be exploited by the brain to represent and predict the (phonetic) sensorium.

Karl Friston is a theoretical neuroscientist and authority on brain imaging. He invented statistical parametric mapping (SPM), voxel-based morphometry (VBM) and dynamic causal modelling (DCM). These contributions were motivated by schizophrenia research and theoretical studies of value-learning – formulated as the dysconnection hypothesis of schizophrenia. Mathematical contributions include variational Laplacian procedures and generalized filtering for hierarchical Bayesian model inversion. Friston currently works on models of functional integration in the human brain and the principles that underlie neuronal interactions. His main contribution to theoretical neurobiology is a free-energy principle for action and perception (active inference). Friston received the first Young Investigators Award in Human Brain Mapping (1996) and was elected a Fellow of the Academy of Medical Sciences (1999). In 2000 he was President of the international Organization of Human Brain Mapping. In 2003 he was awarded the Minerva Golden Brain Award and was elected a Fellow of the Royal Society in 2006. In 2008 he received a Medal, Collège de France and an Honorary Doctorate from the University of York in 2011. He became of Fellow of the Society of Biology in 2012 and received the Weldon Memorial prize and Medal in 2013 for contributions to mathematical biology.

III. Early identification of language deficits: When do benefits exceed harms?

Christine Dollaghan
Professor
University of Texas at Dallas

Efforts to identify children with language deficits at young ages have yielded disappointing results. Early vocabulary size, for example, has been a popular approach to language screening despite evidence that that it fails to predict later language skills in individual children. This presentation will begin with a brief explanation of standards for evaluating the predictive accuracy of early identification approaches at the level of the individual child. We will then describe current evidence on methods used to detect speech and language deficits in children younger than four years of age. The presentation will conclude with a discussion of some special ethical issues to be considered when weighing the balance of benefits and harms associated with efforts to detect language and other developmental deficits in asymptomatic children.

Chris Dollaghan is a professor at the University of Texas at Dallas who studies theoretical and practical issues surrounding communication disorders. Her research interests include pediatric speech and language disorders, the validity of diagnostic measures, and the latent structure of diagnostic categories. A number of her publications, including The Handbook for Evidence-Based Practice in Communication Disorders (2007),have focused on the sources and quality of evidence available for use in clinical decision-making. Chris is a Fellow of the American Speech-Language-Hearing Association (ASHA) and received the Honors of the Association in 2012. She chaired ASHA's Research and Scientific Affairs Committee (2001-2004), its Advisory Committee on Evidence-Based Practice (2005-2007) and its Science Advisory Board (2007-2012). She also has served as associate editor for the Journal of Speech, Language, and Hearing Research and as a standing member of the Behavioral and Biobehavioral Processes subcommittee of the U.S. National Institutes of Health.

Thursday, June 12

ACC & Multimodal communication

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| 1. | Meaning making supported through use of comic books. | *Judith Oxley*, Megan Holland, Christina Tausch | 214 |

Articulation and Phonology

2.	What evidence is there for the distinction between conso-nantal-/r/ and vocalic-/r/ in American English found in the speech pathology literature?	*Martin Ball*, Sarah Lockenvitz, Karrie Kuecker	6
3.	Characteristics of speech output in children aged 5: Findings from a prospective population study.	*Yvonne Wren*, Elisabeth Joy Newbold	22
4.	Early speech development and its relationship to interaction patterns in one year olds.	*Yvonne Wren*, Lydia Morgan	23
5.	Force of articulation as an explanation for the foreign accent syndrome.	*Roel Jonkers*, Dicky Gilbers, Fennetta van der Scheer	24
6.	Phonological development of Kuwaiti arabic-speaking children with Down syndrome.	Hadeel Ayyad, *Barbara (May) Bernhardt*, Fatema Ayyad	31
7.	A cross-linguistic comparison of lexical selectivity of Danish- and English-speaking toddlers with and without cleft palate	*Elisabeth Willadsen*, Kathy Chapman, Mary Hardin-Jones	33
8.	Different transcription conventions for syllable-final /r/ in American English: Acoustic evidence.	*Nicole Müller*, Martin Ball, Karrie Kuecker, Sarah Lockenvitz	41
9.	Developing a clinical measure for phonological develop-ment: the case of PMLU.	Mieke Beers, Marianne van Wee, Ellen Gerrits, *Gerda Bruinsma*	46
10.	Cleft speech characteristics in speech production of Farsi-speaking children with repaired cleft palate.	*Baharak Baranian*, Bill Wells, Anne Harding-Bell	47
11.	An exploratory study of covert contrasts in children with cleft palate.	*Abebayehu Messele Mekonnen*, Sara Howard, Bill Wells	65

Poster Sessions

Articulation and Phonology

Grammar

Hearing and Perception

Abstr. No.

23.	Hearing in children and young adults with cleft palate.	*Traci Flynn*	19
24.	Acquiring bimodal bilingualism: A deaf twin mediated in a deaf family.	*Emelie Cramér-Wolrath*	26
25.	The effect of sound intensity on speech hearing and perception in cases of auditory attention problems.	*Agnes Jordanidisz*	40
26.	Correlates of auditory speech discrimination in older adults.	*Thordis Neger*, Esther Janse, Toni Rietveld	44
27.	Perceptual performance in children on the fricative identification task.	*Larissa Berti*	94
28.	More linguistic or more acoustic: Tone represented in Chinese pinyin.	*Qiang Li*, Shuang Wang, Yunling Du, Judith Oxley, Nicole Müller	129
29.	Quantitative analysis of multimodal perception in cochlear implant wearers.	Habil. Phil Hoole, *Caroline Gluth*	179
30.	Meeting the challenge of simultaneous talk for cochlear implant users.	*Bill Wells*, Guy Brown, Harriet Crook, Amy Beeston, Emina Kurtic, Erica Bradley	206

Motor speech control & Intelligibility

31.	Speech productions in children with Down's syndrome: A comparison of picture naming, real-word repetition, and reading.	Scilla Kurtz, *Racahel-Anne Knight*	57
32.	The multi-word utterances of children with persisting speech difficulties: articulatory and prosodic effect on intelligibility.	*Jane Speake*, Sara Howard, Maggie Vance	86
33.	Quantitative measurements of tongue shape using ultrasound imaging data collected with and without head stabilisation.	*Natalia Zharkova*, Fiona Gibbon, William Hardcastle	92
34.	Assessing intelligibility and acoustic changes in individuals with advanced Parkinson's disease: a pre-/post-treatment study.	*Beate Redecke*, Sara Neuhauser, Adrian P. Simpson, Christoph Redecker	93

Poster Sessions

Motor speech control & Intelligibility

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35.	The effects Deep Brain Stimulation on vowel space in Parkinson's disease.	*John Sidtis*, Amy Alken, Diana Van Lancker Sidtis	133
36.	Oralmotor function in preterm children.	*Anneli Yliherva*, Anita McAllister, Mari Liedes	143

Multi-/bilinguality

37.	A longitudinal study of a Japanese-English-Chinese trilingual family with a HFASD child: Mother's language use pattern and compensatory speech of parents with different native language (CSPDL).	*HiuKei Li*, Manabu Oi	52
38.	Language development of Icelandic CODA children and comparison with bilingual children of foreign origin.	*Thóra Másdóttir*, Agnes Steina Óskarsdóttir	58
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Semantics and Pragmatics

Voice

Other

Panel 2   **Study guidelines in cleft palate speech**

Chair: Sandra Neumann, SLP, PhD, Pedagogics and Therapy in Speech-Language Disorders, Faculty of Human Sciences, University of Cologne

In 2012 the International Confederation for Cleft Lip and Palate and Related Craniofacial Anomalies (Confederation CPCA) constituted 5 Task Forces working on standards for multi-center trials and research projects. At the 12th International Congress (cleft2013) in Orlando/USA the Task Force "Beyond Eurocleft" decided at their meeting to create manageable sized working groups on different topics. Around 15 speech-language pathologists (specialized in cleft palate speech) from all over the world established a working group to develop "Study guidelines in cleft palate speech". In accordance with the CPCA constitution (section 2b), the working group's objective is to encourage the establishment of internationally agreed standards and methods of speech assessment and documentation that will permit comparison of results of different methods of treatment worldwide in cleft inter-centre and interlanguage outcome studies. These study guidelines are a long-term, realistic goal for the cleft2017 congress in Chennai/India.

The panel represents the beginning the international discussion on the development of standardized methods of data collection and analysis of speech samples that will result in valid and reliable speech outcome data that can be compared across centres. In this face-to-face meeting of experts, general problems and different published standards of documentation and analysis of articulation, resonance, overall score (VPC-sum), intelligibility and speech activity/participation (ICF/ICF-CY) will be presented, compared and discussed.

 Panel structure: 6 short presentations of 10 min. + 30 min. of discussion

1.   Description of the problem with perceptual assessment and reliability (D. Sell)
2.   Methodology for analysis and documentation of articulation (E. Willadsen)
3.   Methodology for analysis and documentation of resonance/hypernasality (C. Persson)
4.   Methodology for analysis and documentation of overall score (VPC-sum) (A. Lohmander)
5.   Methodology for analysis and documentation of intelligibility (T. Lagerberg)
6.   Methodology for analysis and documentation of speech activity/participation (ICF/ICF-CY) (S. Neumann)

Panel 3 **Word-initial rhotic cluster acquisition in European Portuguese, Icelandic, Slovene, Spanish and Zapotec**

Chair: B. May Bernhardt, School of Audiology and Speech Sciences, University of British Columbia, Canada

Crosslinguistic data provide an opportunity to determine the extent of language-universal versus language-specific acquisition patterns. Clusters and rhotics are generally later- acquired phonological elements. Monolingual preschoolers' acquisition of word-initial (WI) rhotic clusters (CC) will be compared in European Portuguese [EP], Granada [GS] and Chilean Spanish ([CS]), Icelandic, Quiavini Zapotec, and Slovene, discussing:
1. Accuracy and developmental patterns.
2. Constraints concerning complexity, features, timing units, sonority, contiguity, stress.

The panel will include a general overview, specific within-language descriptions and a final discussion concerning implications of the patterns and related constraints.

Inventories: In WI clusters, the rhotic is/ɾ/ in all the languages (with optional trill in Slovene and Icelandic). Zapotec /ɾ/ can be C1 or C2. Singleton rhotics vary: trill (Icelandic: voiced; voiceless; tap, [ɹ] variants); tap/trill (Slovene), phonemic tap and trill (Spanish, Zapotec), phonemic /ʀ/ and tap (EP). The /l/ is apical. Initial syllables may be stressed or unstressed (Icelandic: only stressed).

Participant groups: Children were aged 3-5 years (except CS: 1;6-2;8). Cross-sectional data were audio-recorded for GS, Slovene and Icelandic from children with typical (TD) and protracted phonological development (PPD) and for EP, CS and Zapotec, cross-sectionally from TD children and also longitudinally for CS, Zapotec.

Overall results: Results showed lower accuracy for clusters than singletons, especially in initial unstressed syllables, and for rhotics compared with /l/. Consonant deletion in clusters (usually C1) was common early on; later, sonorant substitutions for rhotics and /l/ in clusters prevailed. Language-specific details follow.

EP (6 of 50 children): /ɾ/-clusters showed 30% match at age 3, and /l/-clusters, 19%; at 5, both had >87% match. C2 deletion was common early on; substitutions (glides) occurred for cluster/l/ but not cluster /ɾ/. /l/-clusters had more vowel epenthesis.

Icelandic (437 TD; 31 PPD): TD WI r-clusters showed 55% match at age 3, and 90% by 5. Few children with PPD used rhotics (73% used/l/). C2 deletion was common early on; the TD and older PPD groups deleted rhotics, or substituted glides or [l] in clusters/singletons.

Spanish (GS-30 TD, 29 PPD; CS, 9 TD): TD GS children's rhotic clusters showed 50% match at age 3, and 90% by 4. The PPD group had low cluster accuracy throughout. Either C1 or C2 (/ɾ/) deleted early on: later, [j], [l] or lateralized tap replaced/l/ and rhotics. For the youngest CS children, C2 deleted in /ɾ/-clusters whereas C1 but more often C2, deleted in/l/-clusters. Later, glides replaced the liquids.

Slovene (34 TD; 20 PPD): Clusters showed both deletion and substitution (rhotic variants, [l], glides, [v]) of rhotics. Vowel epenthesis also occurred. Singleton /l/ was generally accurate although cluster /l/ sometimes deleted. Younger TD children and the PPD group had more frequent mismatches, especially deletion.

Zapotec (9 TD). Rhotics were acquired later than /l/. C1 (ɾ/ or obstruent) generally deleted, although C1 labials were usually maintained. [j], [ð], or [l] appeared for singleton taps.

Constraints overall: Complexity was high-ranked early on for structure (especially in initial unstressed syllables) and segments. Deletion often reflected sonority sequences. In diconsonantal productions, [+sonorant] faithfu ness was often high-ranked.

Panel presenters:
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Panel 4   **Conversation-based intervention - How does it work? How do we show it works?**

Panel chair: Dr Suzanne Beeke, University College London, UK.

The inability to use language effectively to converse, and thus to maintain personal relationships and interact with the environment has a major impact on everyday life, and can lead to social isolation, depression and a reduced quality of life. This is not surprising; conversation (talk-in-interaction) is central to human relationships and constitutes our primary use of spoken language. In aphasia rehabilitation over recent years, conversation therapies (also known as interaction therapy) based on qualitative methodologies such as Conversation Analysis have attracted much attention (Wilkinson 2010; Wilkinson & Wielaert, 2012). A systematic review has concluded that conversation training is effective in improving the communication of the non-aphasic conversation partner (Simmons-Mackie et al 2010). Conversation-based approaches are also gaining ground in the rehabilitation of other client groups including those with progressive neurological conditions (Forsgren et al, 2013) and have long been influential in the form of parent-child interaction approaches.

With conversation therapy becoming an established intervention method, research has begun ask new questions such as: who does it work for, and how does it work? Both of these issues are closely linked to the challenge of reliably measuring the outcomes of conversation therapy. For example, studies have begun to train PWA (not just their partners) to implement strategies in conversation (Beckley et al, 2013; Wilkinson et al, 2010), yet we still do not fully understand which factors influence whether PWA are able to learn to implement strategies in daily conversation. In addition, behaviour change research in health psychology is beginning to have an impact on our understanding of the mechanisms by which rehabilitation might change human behaviour; this addresses the problem of specifying the 'black box' of language interventions. Factors of potential relevance include participants' capabilities (e.g. cognition), their motivations (e.g. identity, beliefs), and their opportunities (e.g. environment) (see Michie et al, 2011). This panel will consist of five 15 minute-long presentations addressing: (i) how conversation therapies change behaviour, including factors that make a person a good candidate for such therapy, factors that influence outcomes, and mechanisms by which the therapy process itself aims to alter patterns of behaviour; and (ii) reliable measures of the outcomes of conversation therapy. Presentations will focus on research in aphasia, but the themes to be explored are relevant to across the range of communication disabilities. There will be 15 minutes at the end for questions and discussion.

Title Authors

1. Introducing conversation training in aphasia in The Netherlands Sandra Wielaert[1], Nina Dammers[1], Mieke v.d. Sandt-Koenderman[1,2] and Karen Sage[3] [1]Rehabilitation Centre Rijndam, Rotterdam, The Netherlands; [2]Erasmus-MC, Rotterdam, The Netherlands; [3]University of Manchester, UK.
2. Identifying active ingredients in conversation therapy: how intervention content produces its
3. outcomes Fiona Johnson, Suzanne Beeke and Wendy Best, University College London, UK.
4. Challenges of intensive communication therapy for people with aphasia and their partners Riikka Brunou1, Pirkko Rautakoski2 and Anu Klippi1 1University of Helsinki, Finland; 2Åbo Akademi University, Finland.
5. Using eye gaze to manage collaboration in repair: successful adoption of a strategy in chronic aphasia Sarah Fox, Manchester University, UK and Leeds NHS Trust, UK.
6. Interaction therapy with professional carers of persons with aphasia in long term residential care
7. Karin Eriksson, Emma Forsgren, Lena Hartelius and Charlotta Saldert, University of Gothenburg, Sweden.

References

Beckley, F., Best, W., Johnson, F., Edwards, S., Maxim, J., & Beeke, S., 2013, Conversation therapy for agrammatism: Exploring the therapeutic process of engagement and learning by a person with aphasia. International Journal of Language and Communication Disorders, 48 (2), 220-239.

Forsgren, E., Antonsson, M. and Saldert, C., 2013, Training conversation partners of persons with communication disorders related to Parkinson's disease-a protocol and a pilot study. Logoped Phoniatr Vocol. 38(2), 82-90.

Michie S., van Stralen, M.M., and West, R., 2011, The behaviour change wheel: A new method for characterising and designing behaviour change interventions. Implementation Science 6:42 doi:10.1186/1748-5908-6-42

Simmons-Mackie, N., Raymer, A., Armstrong, E., Holland, A. and Cherney, L.R., 2010, Communication partner training in aphasia: a systematic review. Archives of Physical Medicine and Rehabilitation, 91, 1814-1837.

Wilkinson, R., 2010, Interaction-focused intervention: A conversation analytic approach to aphasia therapy. Journal of Interactional Research in Communication Disorders, 1 (1), 45-68.

Wilkinson, R., Bryan, K., Lock, S. and Sage, K., 2010, Implementing and evaluating aphasia therapy targeted at couples' conversations: a single case study. Aphasiology, 6, 869-886.

Wilkinson, R. and Wielaert, S.M., 2012, Rehabilitation for aphasic conversation: can we change the everyday talk of people with aphasia and their significant others? Archives of Physical Medicine and Rehabilitation, 93 (Supp 1), 70-76.

Abstracts Panels

Panel 5   **Teaching and Learning in Clinical Linguistics and Phonetics**

Chair: Rachael--Anne Knight, Senior Lecturer, City University London

Linguistics (including phonetics) forms an integral part of the education of Speech and Language Therapists/Pathologists (SLT/Ps). For example, many aspects of clinical assessment and diagnosis require a firm grounding in the linguistic sciences, as do the interventions which are used with clients. Furthermore, linguistic knowledge and related skills (such as phonetic transcription and syntactic analysis) are specified by national regulatory bodies as essential aspects of SLT/P curricula. However, these curricula are often extremely comprehensive, as they must cover a number of academic disciplines (such as psychology, audiology, and biology), as well as provide a broad range of experience with clinical populations. Thus the time available for teaching and learning linguistics on clinical programmes is likely to be limited. Due to this limit on available teaching time, it is frequently argued that only selected aspects of linguistic content should be emphasized, specifically those that relate directly to students' future clinical work. Therefore, it is often proposed that the teaching of clinical linguistics and phonetics requires different content, methodologies and assessment approaches than those generally found on traditional courses. This panel aims to highlight the teaching and assessment methods of lecturers in clinical linguistics and phonetics, and will showcase the best practice of teaching and learning in these areas. We will consider sub--disciplines of linguistics separately, and cover issues such as:
• What linguistic content is essential for students of SLT/P, and what, if anything can safely be left aside?
• Which aspects of linguistic theory or practice are best suited to post--registration or continuing professional development (CPD) opportunities for clinicians?
• How can teaching methods be adapted for students of SLT/P in comparison to students on a general linguistics course?
• In what ways can assessments be used to facilitate the learning of linguistics for trainee SLT/Ps?

We envisage a general introduction setting out the context for the panel, followed by short (15 minute) presentations from each of the contributors, focussing on their specialist area of linguistics, and addressing the questions raised above. We plan to incorporate considerable audience discussion as an integral part of the panel, so that we can fully consider the potentially controversial issues that will be raised in an international and cross--disciplinary context. We will also ask the audience to comment on those sub--disciplines not represented by the contributors.

Proposed contributors are:
• Acoustic Phonetics: Nicole Whitworth, Principal Lecturer, Leeds Metropolitan University
• Articulatory Phonetics: Jane Setter, Professor, University of Reading
• Phonology: Rachael--Anne Knight, Senior Lecturer, City University London
• Syntax: Sally Bates, Senior Lecturer, University of St. Mark and St. John.

All contributors are award winning lecturers, with extensive experience in teaching student SLT/Ps. They are also contributors to a forthcoming edited collection entitled 'Methods of Teaching and Learning in Clinical Linguistics and Phonetics', (2014, J&R Press).

Panel 6   **Children's speech assessment: Cross-cultural considerations**

Chair: Sharynne McLeod, Charles Sturt University, Australia

Children's speech assessment practices, tools, analyses, and outcomes will be considered from five continents.

International approaches to the assessment of children with speech sound disorders
Sarah Verdon, Sharynne McLeod, Sandie Wong
Little has been documented regarding the clinical reality of SLPs' practice with multilingual children around the world. Less still has been documented regarding effective assessment of, and intervention for, speech sound disorders within this population. Examples of innovative and expert practices from five continents, including South America, North America, Europe, Asia and Australia were observed and collated to improve understanding of multilingual practice and to provide SLPs with new understandings of effective ways to engage in practice with
multilingual children.

Phonological processing assessments in English for young children with speech sound disorders
Sarah Masso, Elise Baker, Sharynne McLeod, and Jane McCormack
Phonological processing is important for the development of literacy, and consists of three skills: phonological awareness, phonological access and phonological memory. We will present the results of a systematic overview of research investigating the assessment of phonological awareness skills in young children with speech sound disorder. We will also present evidence to support the assessment of broader phonological processing skills (including phonological access and phonological memory) in these children, including the clinical implications of these assessments.

Code switching in the speech of young Jamaican children
Sharynne McLeod, Karla N. Washington, Hubert Devonish, and Maureen Samms-Vaughan
Within Jamaica, spoken language is represented along a continuum from Jamaican English to Jamaican Creole. Young children engage in code switching early in life. This presentation considers code switching practices in the speech of 3- to 6-year-old children who live in Jamaica. Children's speech was assessed using the Diagnostic Evaluation of Articulation and Phonology in two modes: with a Jamaican Creole-speaking speech-language pathologist (SLP) and with an English-speaking SLP. Code switching (e.g., "tank you" vs "thank you") was evident in children's interactions between the two assessors.

Cross-cultural considerations when assessing the speech of young children from Fiji
Suzanne C. Hopf and Sharynne McLeod
Fiji is a diverse multicultural, multilingual society with two major ethnic groups: the indigenous iTaukei Fijians and the Indo-Fijians. We will explore the phonology of Buaun Fijian, the lingua franca of the iTaukei Fijians, Fiji Hindi, the community language of the Indo-Fijians and transfer patterns from each of these languages in the speech of Fijian English language learners. This information is a starting point for speech-language pathologists interested in the differential diagnosis of speech sound disorders in the Fijian population.

Intelligibility in Context Scale validation for Cantonese-speaking children in Hong Kong
Kaylor Ng, Carol K. S. To, and Sharynne McLeod
The Traditional Chinese version of the Intelligibility in Context Scale was validated on 72 Cantonese-speaking preschoolers. The measure showed good internal consistency, test-retest reliability, and a moderate positive correlation with the percentage of initial consonants correct. There were significant differences in the mean scores between children with and without speech sound disorders. Thus, the ICS-TC may be a valuable clinical tool for screening Cantonesespeaking children's intelligibility.

PARTICIPANTS
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Abstr. No.

6 **Poster** Articulation and Phonology	**What evidence is there for the distinction between consonantal-/r/ and vocalic-/r/ in American English found in the speech pathology literature?**

Martin Ball, Sarah Lockenvitz, Karrie Kuecker
University of Louisiana at Lafayette, Lafayette, Louisiana, USA

The terms consonantal-r and vocalic-r are encountered in the American speech pathology literature on English rhotics, but rarely in the phonetics literature. The term vocalic-r is usually applied to all syllable final occurrences of rhoticity, not just to r-colored vowels. Phoneticians, on the other hand, recognize that rhotic vowels in those accents of English that have post-vocalic /r/ are restricted to a subset of the vowel system. This modification takes place throughout the duration of the vowel, thus is coterminous with it. However, other vowels in English are not r-colored, but the tongue shape responsible for producing rhoticity is assumed at the end of the vowel.

The claimed distinction between consonantal-r and vocalic-r is probably rooted in the acoustic differences between pre- and postvocalic /r/, or slight articulatory differences. However, these differences are within the range of variability found with other consonants. Indeed, work using magnetic resonance imaging (MRI) has shown no regular major articulatory differences between pre- and postvocalic /r/ in American English. A study in 1975 found that regardless of which allophone of /r/ was trained, correct usage usually generalized to others.

It is difficult to imagine good phonological reasons to posit two different rhotics (other than the rhotic vowels): a syllable-initial consonantal-r and a syllable-final vocalic-r. This view results in an unnecessary expansion of the phonological system, it does not appear to reflect regular, significant articulatory differences, and it does not seem to be reflected in phonological patterns either.

In this presentation we review phonetic and phonological evidence for separate consonantal and vocalic /r/s, together with evidence from the realizations of target /r/ in disordered speech, and evidence from therapeutic intervention. We conclude that the consonantal/vocalic distinction for /r/ is not well motivated.

7 **Poster** Psycho- and Neuro-linguistics	**Aphasia, code-switching and sociolinguistics in South Africa**

Brent Archer, Martin Ball
University of Louisiana at Lafayette, Lafayette, Louisiana, USA

Code-switching is a common feature in multilingual conversation. Some authors have suggested that code-switching might feature in therapy provided to multilingual people with aphasia. We explore possible applications for this phenomenon that could be developed across a range of therapy types (processing oriented methods as well as more socially situated interventions). Multilingualism is very wide-spread in South Africa, and code-switching tends to be viewed positively by Black South Africans. Therefore, South Africa would appear to be an optimal location for establishing research and clinical endeavours related to code-switching. Unfortunately, professionals in South Africa have been lukewarm in their assessments of code-switching. We argue that this mismatch between clients and clinicians has its genesis in transethnic attitudinal differences as regards code-switching. This poster concludes with some suggestions concerning SLP training which may bring about better alignment between South African therapists and the communities they serve.

Abstracts

11 **Oral** Multi-/ bilinguality	**Code switching in the grammar of young Jamaican children** <u>Karla Washington</u>[1], Sharynne McLeod[2], Maureen Samms-Vaughan[3], Hubert Devonish[3], Sarah Hamilton[1], Allison McFarland[1], Nancy Creaghead[1] [1]University of Cincinnati, Cincinnati, Ohio, USA, [2]Charles Sturt University, Bathurst, NSW, Australia, [3]University of the West Indies, Kingston, Jamaica, Jamaica

Introduction: The Jamaican language is represented by a continuum of language use evidenced by code switching from Standard Jamaican English (SJE) to Jamaican Creole (JC), a language with vocabulary mainly derived from English. However, most speech-language assessments focus on children's production in one standard dialect. To guide SLPs' practices and to be able to differentiate between difference and disorder, it is important to understand the code-switching practices of Jamaican children during SLP assessments.

Purpose: Investigate code switching practices in Jamaican children attending similar schools in urban settings in Jamaica.

Research Question: Do 3-to-6-year old Jamaican children engage in code switching during grammar assessments with different SLPs?

Method: Participants: 52, 3-to 6-year old typically developing children recruited from public schools (n=3) in Kingston, Jamaica that had speakers representative of the Jamaican language continuum (JLC). The sample included 28 boys and 24 girls.

Procedure: To facilitate code switching examination in expressive language, the Word Structure subtest of the Clinical Evaluation of Language Fundamental–Preschool (CELF-P2; Wiig, et al., 2004) was administered during two different sessions in authentic classroom environments at children's schools. Testing was conducted in SJE with an English-speaking SLP and in another session, JC was used with a JC-speaking SLP. Counterbalancing was addressed. A list of expected response provided by the Jamaican Language Unit guided raw scoring of productions along the JLC.

Results: A cross-sectional design was utilized. On average, code switching calculations revealed: (a) for SJE prompts - 84% produced in SJE, 5% produced between SJE & JC, 9% produced in JC; and 2% no response; and (b) for JC prompts - 39% produced in SJE, 37% produced between SJE & JC, and 24% produced in JC, with changes in morphology and syntax observed across the JLC.

Conclusion: Young Jamaican children demonstrate code switching in their language skills, reflective of the JLC when prompted for SJE and JC productions. Insights from children's spontaneous language samples and testing context will be offered.

12 **Oral** Reading and Writing	**Emergent literacy outcomes in multilingual preschoolers** <u>Karla Washington</u>[1], Katie Felts[1], Brittany Moore[1], Katie Bettner1, Woody Rule[1], Genese Warr-Leeper[2] [1]University of Cincinnati, Cincinnati, Ohio, USA, [2]University of Western Ontario, London, Ontario, Canada

Introduction: Preschool English language learners (ELL) are considered at-risk for failure in developing emergent literacy skills in English. However, parents' reading with their preschooler during joint book-reading activities is thought to be effective in supporting these preschoolers' emergent literacy development.

Purpose: To compare print concept outcomes (e.g. knowledge of book orientation, letters and words) in English before, after, and following a break in a parent shared-reading program for preschoolers who are ELL.

Research Question: Do preschool ELL who participate in a parent shared-reading program experience significantly greater print concept outcomes over time (i.e. pre-intervention to post-intervention to 2-months post-intervention) compared to controls?

Method: Participants: Twenty-six, 3- to 5-year-old typically developing ELL recruited from a daycare in Ohio, USA. The sample included 12 males and 14 females.

Procedure: Preschooler-parent dyads were randomly assigned to an intervention (n=14) or control (n=12) condition. All preschoolers completed pre-, post- and 2-months post-intervention assessments using the Preschool Word and Print Awareness test (PWPA; Justice & Ezell, 2001) to evaluate print concept outcomes. Intervention dyads also participated in 15-minute once weekly sessions for 8-weeks with a speech-language pathologist. A technique of the week (e.g. point to and talk about letters) along with a chosen book (e.g. Spot's First Walk) was used to achieve a specific literacy target category (e.g. print/word concepts, including alphabet knowledge). At the end of each session, intervention dyads took the book and an instruction sheet home to facilitate ongoing shared-reading. Control participants did not receive the intervention.

Results: A randomized controlled trial design was utilized. A 2X3 ANOVA showed that intervention preschoolers experienced significantly greater print concept outcomes at post and 2-months post compared to controls.

Conclusion: Participation in a parent shared-reading program provides a therapeutic advantage over no intervention for preschool ELL. Insights from parental comments on children's literacy skills are provided.

13	**Facilitating home language maintenance in an English-dominant context**

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Oral

Multi-/bilinguality

Australia, like many other English-dominant nations, embodies a rich tapestry of linguistic diversity. This diversity has long been documented, from the languages spoken by the original Indigenous owners of the land, through British colonisation, and various waves of migration that have ensued since. However, little has been documented on the language diversity of Australian children. This paper draws on two large-scale Australian datasets: the nationally representative Longitudinal Study of Australian Children (LSAC) (n = 5,107) and the Longitudinal Study of Indigenous Children (LSIC) (n = 715). Language diversity is a common feature among Australian children in both studies with around 1 in 6 (15.3%) Australian children speaking a language other than English by 4- to 5-years of age and Indigenous Australian children speaking up to six languages. The most commonly spoken languages other than English were: Arabic, Italian, Greek, Spanish, and Vietnamese. Personal and environmental factors that facilitated the maintenance of languages other than English among young children were considered in both studies. Factors found to facilitate language maintenance included parental language use, type of early childhood care, first- and second-generation immigrant status, geographical location, and support from the educational environment.

16	**Quality of communication life in individuals with nonfluent aphasia – preliminary investigation**

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Poster

Psycho- and neuro-linguistics

There are a few studies concerning communication as a factor of life satisfaction and the impact of communication disorders on quality of person's life.

The aim of this study was to examine the quality of communication life in patients with nonfluent aphasia. A total of 18 patients, aged 53-71 participated in this study. All patients were right-handed, with a single left hemisphere CVA; they were at least six months post-onset without visual deficits and/or dementia. The patients were classified in two groups using Boston Diagnostic Aphasia Examination (Goodglas and Kaplan, 1983). The first group comprised 10 patients with Broca's aphasia and the second group comprised 8 patients with transcortical motor aphasia. According to the aphasia severity rating scale, all patients were devided in three gropups: 1. severe aphasia, 2. moderate aphasia and 3. mild aphasia.

The Quality of Communication Life Scale (QCL) was applied to determine the impact of a aphasia disorders on an adult's relationships and interactions with communication partners and on participation in daily life activities.

The results have shown that type of aphasia has a significant impact on the quality of communication life in the aphasic; patients with Broca's aphasia have lower scores on the QCL compared to the patients with transcortical motor aphasia. At the same time, a significant correlation between the severity of aphasic disorder and quality of life has been shown; patients with severe forms of aphasia have a lower score on the QCL compared to the patients with moderate and mild aphasia.

The quality of communication life analysis in aphasic patients can assist in patient management.

Key words: nonfluent aphasia, severity of aphasia, the quality of communication life

Abstracts

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Poster

Prosody

Effects of speech therapy on intonation in children with developmental dysarthria

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The speech of children with cerebral palsy (CP) and dysarthria is associated with imprecise articulation, and issues in respiratory control and phonation. Difficulties with breathing and phonation can affect prosody and intonation, i.e. the way pitch and stress are varied across utterances. Although the importance of these for intelligibility in acquired motor speech disorders (MSDs) is well recognised, studies on prosody and intonation in developmental dysarthria are scarce. In particular it is unclear whether or how far gains in intelligibility as a result of speech therapy are associated with intonational changes.

This study examines the effects of speech therapy on intonation in developmental dysarthria due to CP. We compare the nature and use of intonation patterns pre- and post-therapy. This is achieved by analysing the intonation patterns of connected speech samples of 16 children with dysarthria and CP (7 males; age 12-18 years). The samples recorded prior to and after speech therapy are annotated using the autosegmental-metrical (AM) framework of intonational analysis. Subsequent analysis focuses on the inventory and distribution of pitch movements as well as their realisation in terms of phrasing and accentuation.

Preliminary results reveal changes in intonation pertaining to all aspects investigated, i.e. inventory, distribution and realisation. Most importantly, it was found that following therapy the children show a wider variety of pitch movements, along with an increase in occurrences of pitch movements.

This finding suggests speech therapy has a measurable effect on production of intonation patterns in children with dysarthria and CP. Further analyses will examine the relationship of these changes to intelligibility levels before and after therapy.

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Poster

Hearing
and
Perception

Hearing in children and young adults with cleft palate

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Objective: A high percentage of young children with cleft lip and palate or cleft palate (CP±L) present with conductive hearing loss associated with otitis media with effusion (OME). This hearing loss may continue into adolescence and become permanent. However, little is known about the effects of a higher prevalence of OME on hearing over time.

Methods: Hearing sensitivity from children with CP±L and children without CP±L at 1, 1.5, 3 and 5 years of age, and adolescents with CP±L with and without additional malformations at 7, 10, 13 and 16 years of age was examined. Also, speech recognition performance and binaural processing from a group of young adults with CP±L was analyzed.

Results: When OME was present, children with CP±L presented with significantly higher hearing thresholds than children without CP±L. Adolescents with CP±L presented with worse hearing in the low and mid frequencies which normalized by 13 years of age. However, the hearing thresholds in the higher frequencies did not improve. Adolescents with CP and additional malformations exhibited the most elevated high frequency thresholds. In young adults, poorer speech recognition performance existed in those with OME on the day of testing as compared to those without OME.

Conclusion: When a hearing loss associated with OME is present, children with CP±L experience higher hearing thresholds than those without CP±L. Adolescents have poorer high frequency hearing which could potentially lead to challenges in academics. It may also lead to difficulties understanding speech in social situations. Therefore, individuals with CP±L need regular audiolgical follow-up to ensure management is appropriate and timely to ensure optimal speech, language, and auditory development as the presence of OME effects hearing outcomes.

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Oral

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Phonology

Phonetic learning abilities in ageing francophone speakers

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This study is part of a larger research project aiming at investigating phonetic learning abilities in speakers affected by speech disorders, focusing here on ageing francophone speakers.

Our goals are twofold. First, we seek to characterize the ability of aged non pathological speakers to acquire new phonetic variants in the context of the debate on the flexibility, in adult life, of the cognitive mechanisms involved in speech production and perception. Second, we intend to use the paradigm so developed in order to comple-ment the diagnosis of a variety of pathologies, affecting in particular patients with brain damage who, in practice, are mostly aged patients. We aim at contributing to the development of valuable speech-based assessment tools applicable to (non-)pathological francophone speakers.

Eighteen French native speakers (9 male, 9 female) aged 60 to 80 participated in the experiment. Stimuli were 5 C[t]V[a] pseudo-words of respectively 20-, 40-, 60-, 80-, and 100-ms VOT (all other acoustic properties similar). The paradigm consisted first in an AX discrimination task, then in a reproduction task (instructions: "please repeat as faithfully as possible") involving all stimuli. Another reproduction task involving only 60-ms VOT stimuli was also performed before discrimination, after discrimination and after the main reproduction task. On the following day, speakers performed a denomination task (French words "pas", "tas", "k") and were submitted to a linguistic biography questionnaire, an air conduction audiometry test, and an anamnestic interview.

Overall, discrimination performances proved to be moderate, exhibiting large inter-individual variability and gene-ral improvement over time. The statistical analysis of manually measured VOT revealed that: (i) overall, response VOT fairly matched stimulus VOT in the main reproduction task; (ii) the reproductions of 60-ms VOT stimuli were significantly closer to the target after than before the main reproduction task. The significant interaction between Speaker and Task will be discussed at the conference, based on the relationships between individual (linguistic, medical) history and performances in both discrimination and production.

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Poster

Prosody

List intonation in preschool children with normal and disordered language development

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This study investigated intonation in ten 4-year-olds with language impairment (LI) and ten 4-year-olds with nor-mal language development (NL). Consistent with the typical profile of deficits in the most common type of LI, all of the children with LI demonstrated impairments in morphology and syntax (grammar), systems that are represen-ted on the segmental level of linguistic organization. The hypothesis of this study, however, is that children with LI are not impaired in grammatical capacities that are based on intonation and represented on the melodic level. To assess the children's intonation, an experimenter interacted with each participant in play vignettes designed to elicit list constructions, e.g., Pig, cat, duck, horse. The structural and tonal simplicity of items in a list clearly illustrates the idea that grammar is represented on two levels, that is, list intonation parses sentence constituents on the melodic level in a manner analogous to the application of phrase structure rules on the segmental level. An added benefit of targeting lists is that multi-constituent sentences of this type appear to be highly representative, stable, and universal acquisitions in 4-year-olds. Indeed, all 20 of the participants produced one or more adult-like lists with little or no prompting. Acoustic analysis specified the pitch direction and measured the pitch range of each final and non-final list constituent. Between-group comparisons did not provide any evidence that children with LI produced list intonation differently than age-mates with NL. In sum, children with LI demonstrated normal grammatical uses of intonation in spite of moderate to severe deficits in similar functions encoded by word order and grammatical morphemes. The findings do not support the traditional view that LI fundamentally is a disorder of linguistic knowledge in areas such as grammar. Rather, children with LI are impaired in language systems repre-sented on the segmental versus melodic level. The advantage of melodic over segmental processing is discussed in relation to the continuous versus transient nature of f0 signals and the inherently emotional versus arbitrary meanings of intonation.

Abstracts

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Articulation
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Phonology

Characteristics of speech output in children aged 5: Findings from a prospective population study

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Standardised testing of children's speech typically uses a picture naming task which generates a single word sample. Whilst this is useful for identifying patterns in speech and obtaining normative scores, it does not reflect every day connected speech which occurs in conversation and narrative use (Howard, 2013). This paper reports on a study which investigated speech output in 779 samples of narrative speech in children aged 5 in the ALSPAC (Avon Longitudinal Study of Parents and Children) study.

ALSPAC is a longitudinal prospective population study which recruited 14,541 expectant mothers in 1991/1992 in the region of Avon in the UK. Ten percent of the babies born to these mothers were followed as part of the Children in Focus study and were invited to attend a speech and language assessment at age 5. In addition, a wide range of data relating to a range of child, family and environmental factors were collected through other assessments and questionnaire completion by the children's mothers and their partners.

Recordings of narrative samples taken at age 5 were transcribed orthographically and phonetically using the PROPH program within Computerized Profiling (Long et al, 2006). Transcription was carried out by a qualified speech and language therapist experienced in phonetic transcription. Measures of accuracy, error type and syllable structure were taken.

Descriptive statistics for each of the core measures will be presented for the sample as a whole. Secondary analysis relating the speech measures to demographic factors will also be reported.

If available, further results will be reported based on logistic regression analysis of the relationships between speech output measures and other language and developmental variables.

References

Howard S (2013). A phonetic investigation of single words versus connected speech production in children with Persisting Speech Difficulties relating to Cleft Palate. Cleft Palate-Cran J, 50, 207-223.

Long SH, Fey ME, Channell RW (2006). Computerized Profiling (MS-DOS version 9.7.0).

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Poster

Articulation
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Early speech development and its relationship to interaction patterns in one year olds

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Evidence suggests that differences in early childhood are associated with later speech and language development. Specifically, patterns of interaction between parents and children have been shown to be associated with language development (Zimmerman et al, 2009) while very early speech behaviours such as phoneme inventory and syllable patterns are linked to later speech patterns in toddlers and beyond (McCune and Vihman, 2001; Oller et al, 1999; Vihman and Greenlee, 1987).

This paper will report on the findings from an investigation which used LENA (Language ENvironment Analysis) technology to examine the relationship between patterns of interaction and early speech output. LENA consists of a recording device, worn by children in customized clothing over a 16 hour period, and accompanying analysis software. Participants were 20 mothers and their one year old children.

The LENA system was used to analyse the recordings and provide information on the following interaction measures: number of conversational turns, number of adult words used to the child, number of child vocalizations and audio environment. The LENA recordings also provided speech samples which were analysed in terms of phonetic inventories and syllabic babbling patterns.

Information on the interaction measures and speech analysis will be presented in terms of descriptive statistics and associations. Implications of these findings for future research in longitudinal studies and for clinical interventions for children at risk for speech disorder will be discussed.

References

1. McCune, L., & Vihman, M. M. (2001). Early phonetic and lexical development: A productivity approach. JSLHR, 44, 670-684.
2. Oller, D. K., Eilers, R. E., Neal, A. R., & Schwartz, H. K. (1999). Precursors to speech in infancy: The prediction of speech and language disorders. JCD, 32, 223-245.
3. Vihman, M. M., & Greenlee, M. (1987). Individual differences in phonological development: Ages one and three years. JSHR, 30, 503-521.
4. Zimmerman, F. J..., & Yapanel, U. (July 2009). Teaching by listening: The importance of adult-child conversations to language development. Pediatrics, 124, 342-349.

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Poster

Articulation
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Force of articulation as an explanation for the Foreign Accent Syndrome

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The Foreign Accent Syndrome (FAS) is a speech disorder occurring after brain injury leading to a perceived presence of a new accent in the speech of the patient. A clear explanation for FAS has not yet been proposed. In this paper we hypothesize that people perceive a foreign accent because of a larger amount of force of articulation put in the speech of the FAS speaker.

Languages differ with respect to the force put in the articulation of certain segments. FAS transformations from a more lenis language, such as English, to a more fortis language, such as French, are often seen. We recently described a Dutch FAS speaker, whose accent was perceived as among others German (Gilbers et al. 2013). We showed that he implemented the contrast of voiced and voiceless plosives in an altered system of Voice Onset Time contrasts, characterized by more force of articulation after his stroke resembling the German system of plosives rather than the Dutch system. In our study we pointed out that different aspects of force of articulation contributed to the perception of different foreign accents in the same subject with FAS.

Currently, we investigate whether a change in force of articulation could be an explanation for the interpretation of a foreign accent in FAS in general. We aim to make a review of all presented FAS cases in this respect. For the underlying paper, we tested our hypothesis on the overview of 29 cases described by Edwards et al. (2005). We considered important characteristics of fortition like longer VOT duration, release burst, occlusion time, syllable isochrony and lack of vowel reduction and assimilation. The perceived accent of 26 cases can be explained on the basis of an increase of force of articulation leading to the perception of a language with more fortition. For the remaining three cases we are able to provide other explanations, like a case described by Roth et al. (1997) in which an originally Dutch speaker, who moved to the US at age 5 and from then on spoke English, after stroke fell back to his Dutch accent.

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Poster

Grammar

Profiling relative clause constructions in children with Specific Language Impairment

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Purpose: This paper highlights the importance of error analysis in providing a comprehensive account of an individual's grammatical ability with regard to relative clause constructions. The aim was to identify distinct error patterns in the production of relative clauses by English-speaking, school-aged children with SLI, and to relate them to their level of competence with these structures.

Method: Children with SLI (mean age = 6;10, n = 32) and two control groups – a typically developing group matched for age (AM-TD, mean age = 6;11, n = 32) and a younger typically developing group (YTD, mean age = 4;9, n = 20), repeated sentences that contained relative clauses representing a range of syntactic roles. The relative clauses were either attached to the predicate nominal of a copular clause or to the direct object of a transitive clause. All responses were coded using a detailed categorization system that allowed for the identification of a range of non-accurate responses.

Results and Conclusions: Three error patterns were particularly evident in the responses from the children with SLI – the provision of simple sentences instead of relative clause constructions, obligatory relativizer omission in subject relatives, and conversions -- the production of relative clauses other than the target construction. These error patterns were also evident in the YTD group (who were on average two years younger) but at a significantly reduced level. We argue that these errors relate to different levels of competence with these forms. Results from the children with SLI, showing strong negative associations between the first two types and syntactic accuracy scores on relative clause constructions, and a positive association between conversions and accurate productions lend credibility to this view. The clinical implications of the error patterns are discussed.

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Hearing
and
Perception

Acquiring bimodal bilingualism: a deaf twin mediated in a deaf family.
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This longitudinal case study aims to describe critical changes in processes of mediated, bilingual, bimodal acquisition within an interactional frame. Naturalistic interchanges between the Deaf parents and their fraternal twins, with different hearing statuses, were studied from the twins' age of 10 months until they were 8 years old.

This presentation focuses the acquisition and mediation of spoken Swedish after acquired Swedish Sign Language (SSL). Diana was born deaf and received a cochlear implant (CI) at the age of 35 months Diana. She had no formal training in hearing and speech. Her impressive spoken language skill at the age of 8 years was assessed to reach age adequate level for normal hearing children. While her expressive level was equivalent to the time she had her CI.

Method: Data was triangulated through video-observations, field notes, interview with the parents and information from the CI records. Interactions in the family were video-observed in their home on 18 storytime and playtime sessions.

Patterns of critical changes were found though two types of analyses. The first inductively explored and in-depth analysed (Creswell, 2007) the transcribed interchanging episodes. These were constantly compared between participants and in-detail described (Yin, 2009). This material was compared in a second and abductive process with information from the CI records and with literature within the field.

Findings: The findings illuminate sequential language acquisition and elucidate self-scaffolding and bimodal and bilingual mediation over time.

Two areas are focused. Firstly, Diana's first-language with which she self-scaffolded her spoken language. Interacting with her twin Diana soon after the CI was activated simultaneously added speech sounds to her SSL. These utterances were understood and responded to by her hearing twin. After two years the mother was able to speech-read Diana's utterances and mediated by e.g. expanding Diana's utterances and grammar.

Secondly, Diana's simultaneous self-scaffold bilingual utterances, including private speech (Bodrova & Leong, 2003), were inserted into a model inspired by Mediated activity (Vygotsky, 1987).

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Oral

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Fricatives in Icelandic- versus English-speaking children with protracted phonological development
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The current paper compares fricative acquisition in Icelandic- versus English-speaking children with protracted phonological development (PPD, aged 3 to 5 years). Crosslinguistic research provides an opportunity to determine both universal and language-specific influences in acquisition. Previously, Bernhardt, Romonath and Stemberger (in press) compared patterns of fricative acquisition in German- versus English-speaking preschoolers with PPD. Similarities in acquisition reflected phonological complexity, age and developmental level, e.g., earliest mastery of labiodentals, especially /f/, more stop substitutions early on; more subsidiary than major place changes. Between-language differences in acquisition reflected between-language differences in types and frequencies of phonological form. The current paper extends the study of Germanic language fricative acquisition by comparing patterns in 31 Icelandic-speaking preschoolers, versus the same cohort of 30 English speakers. Native speakers audio-recorded and transcribed single-word speech samples. Using a nonlinear feature framework, fricatives were analyzed first within language; fricatives common to the two languages were then compared. Accuracy and mismatch patterns differed across word positions and ages, with increased accuracy and fewer multiple feature mismatches (place plus manner, manner plus laryngeal, etc.) by age. Both groups showed frequent glottal substitutions: the Icelandic speakers more [h] substitutions, and the English speakers, more [?] substitutions, possibly reflecting between-language differences, e.g., a higher frequency of the feature [+spread glottis] in Icelandic. As with the German-English comparison, developmental similarities reflected complexity and developmental level/age, whereas between-language differences reflected differences in phonological inventories/frequencies.   Bernhardt, B., et al. (in press). A comparison of fricative acquisition in German and Canadian English-speaking children with protracted phonological development. In M. Yavaş, (Ed). Unusual productions in phonology: Universals and language-specific considerations. Hove, UK. Psychology Press

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Poster

Talk-in-interaction

Analysis of trouble and repair in conversation - a comparison between conversations involving people with dementia and people with aphasia

Christina Samuelsson, Lars-Christer Hydén
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People with dementia, PWD, and people with aphasia, PWA, experience problems in conversation due to their cognitive and linguistic impairment. Conversational repair (Schegloff, Jefferson & Sachs, 1977) has been claimed to be an area where both PWD and PWA have specific problems (Orange, Lubinski & Higginbotham, 1996; Watson, Chenery & Carter, 1999; Lindholm, 2010; Beeke, Beckley, Best, Johnson, Edwards & Maxim, 2013). However, in previous research these two groups have not been compared to one another regarding this aspect of conversation. Therefore, the aim of the present study is to compare the conversational repair trajectories/strategies in PWD and PWA, since this comparison may shed light on how different cognitive processes affect interactional strategies. The present study comprises ten joint interviews with five couples where one of the spouses has dementia, and five couples where one of the spouses has aphasia. The interviews are video recorded and transcribed according to conversation analytic principles. Repair sequences are analysed regarding the full cycle of repair: T(rouble indication) => R(epair) => A(cceptance) and also by statistical analysis of the probability of certain types of TRA through the use of "sequential analysis" (Bakeman, & Gottman, 1997). Results demonstrate that there are more and longer repair sequences in conversations involving PWD than PWA. It is also demonstrated that PWD produce more T:s in the shape of questions indicating uncertainty, e.g. "we were 19, weren't we" than PWA. From the part of the healthy spouse there are more corrections in conversations involving PWA. These results have clinical implications for teaching conversational skills for healthy spouses.

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Oral

Talk-in-interaction

Retrospection in intervention for children with language impairment

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Models of speech and language intervention for communicative disabilities vary from very structured programmes to more interactive and ecological methods (Fey 1986). In order to capture factors of everyday interaction that are relevant for children, for their parents, and for therapy, there are a few intervention programmes that utilize video as a reflective tool, i.e. retrospection (Aarts 2000, Ovreeide and Hafstad 1996, Pepper and Weitzman 2004). The aim of the present study is to explore retrospection based on CA-methodology as a potentially useful method to be employed in language intervention for children with language impairment, LI. Four children with LI participated in the study. Three SLTs participated in the study, as well as parents, siblings, pre-school staff, and peers of the children. The data used as the basis for retrospection consist of video recordings from three settings: Speech and language therapy sessions, interactions with relatives and friends at home, and interactions at the children's pre-schools. Data also comprise interviews with children, parents, pre-school staff and SLTs. Retrospections and interviews were audio recorded.

The analysis of the retrospections generated four categories of phenomena relevant for intervention and everyday interaction: well-functioning interaction strategies, less well-functioning interaction strategies, positive assessment of self-performance, and comments relating to intervention. The results also show that retrospection may be used to raise the participants' awareness of their own interactional behaviours, and provide the opportunity to discuss strategies relevant for both intervention and everyday interaction. Retrospection, as it was employed in the present study, highlights interactional strategies in different settings, points out how intervention is carried out, and raises the awareness among participants of interactional phenomena and their effect in conversation. It is demonstrated that retrospections may be a useful clinical tool in intervention with children with LI.

Abstracts

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Poster

Future
visions

The benefit of an early intervention in preterm children: Analyzing mother-child-interactions in communicative situations and their interrelation to the child`s language acquisition

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Despite a rising chance of survival in preterm born children, the health-related complications and the development of disabilities still represent a serious risk for preterm born children (Kiese-Himmel 2005, Schirmer et al. 2006). Previous findings concerning early communicative and linguistic abilities of preterm born children are insufficient for developing specific early interventions.

The aims of the study are - on the basis of mother-child-interaction analyses -
1.   to determine early indicators of language impairments in preterm born children
2.   to derive first concepts for prevention strategies from the results.

Participants are fourteen extreme and very preterm born monolingual German mother-child-pairs (experimental group (EG): average birth weight 1022 g, average gestational age 28 weeks) as well as twenty-six term born monolingual German mother-child-pairs (control group (CG): average birth weight 3378 g, average gestational age 39 weeks). This follow-up study examines early (pre-) verbal communication in mother-child-interaction and the state of development (Griffiths Mental Development Scales) in the (corrected) age of twelve months. In the (corrected) age of twenty-four months an investigation of the language development (SETK-2) takes place.

The data shows, that there are significant differences concerning the developmental age and quotient in the (corrected) age of twelve months with the preterm born children still reaching average outcomes (developmental age in months: EG: 12, CG: 13; developmental quotient: EG: 105, CG: 113).

This presentation serves to discuss work in process: On the one hand the actual results concerning the language development of both groups in the (corrected) age of twenty-four months are to be presented. Furthermore first analyses of the early (pre-) verbal communication in mother-child-interaction are expected. On the other hand the correlation between interactive coordination processes between mother and child, especially joint attention and language development should be debated.

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Phonology

Phonological development of Kuwaiti Arabic-speaking children with Down syndrome

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This study aims to compare the production of Kuwaiti Arabic speech by children with Down syndrome in Kuwait with those of 4-year-old typically developing children (Ayyad, 2011). There is no previous research on Arabic phonological development of children with Down Syndrome, and a relative lack of literature for English. Stoel-Gammon (2001) reports English speakers with Down Syndrome to show mismatch patterns parallel to those of typically developing children, with greater variability and persistence of mismatches. The current study investigates, for a language with a large consonant inventory, the match proportions across sound classes plus mismatch patterns.

The framework of nonlinear phonology will be adopted to describe word structures, stress patterns, segments and features of the children's speech. Ten verbal children with Down Syndrome from age 6 - 12 years will be recruited from the public special education schools and integrated kindergarten schools. A clinical psychologist will administer a IQ test on the participants with Down Syndrome. The 90 single-word stimuli are the same used to test the normally developing children. Hearing levels will be determined. A trained native speaker of Arabic will test the children and do a narrow IPA transcription with reliability conducted by another native speaker of the language and a trained phonetician. Ultrasound images for typical mismatch patterns will be collected and compared with normal speech images. Typically developing 4-year-old Arabic speakers have relatively strong word shapes; most consonants except affricates, rhotics and /s/ are established. The Down Syndrome children are predicted to have less well-developed word structures, and a greater proportion of mismatched segments, particularly for fricatives, and liquids.

1.   Ayyad, H. (2011). Phonological development of typically developing Kuwaiti Arabic-speaking   preschoolers. PhD Dissertation, University of British Columbia.
2.   Stoel-Gammon C. 2001. Down syndrome phonology. Down Syndrome Research and Practice. 7, 93-100.

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Oral

Nasality

The utility of videofluoroscopic measurement and linear regression analysis to predict the risk of acquiring hypernasality from maxillary osteotomy in patients with cleft lip and palate

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Patients with cleft lip and palate (CLP) are at risk of acquiring hypernasality following maxillary osteotomy (MO). The correct identification of who is at risk depends on knowing the valid predictors. Potential predictors include pre-operative borderline velopharyngeal status. However, previous studies are retrospective, have not used statistical methods to identify predictors or evaluated reliability of the measurement methods. The purpose of this study was to identify valid predictors using multiple linear regression analyses and a comprehensive range of speech and velar parameters.

Twenty patients with CLP undergoing MO under a single surgeon were seen pre-operatively(T1), 3-months(T2) and 12-months(T3) post-operatively for perceptual and instrumental assessments of articulation, nasality and velopharyngeal function. Reliability studies were undertaken for all outcomes. Multiple regression models were tested at all timepoints, with hypernasality (rated both on an ordinal scale and a visual analog scale) and nasalance (NasometerTM) as the dependent variables. Ten speech and velar parameters were entered into the regression models. Only T3 regression models with nasality rated perceptually were a good fit e.g. when an ordinal scale was used, the range of predictors accounted for 92% of the variance in the model. Two variables were significant (or almost significant) for all three models: proportion of palate contacting the posterior pharyngeal wall (rated perceptually) and closure ratio (measured quantitatively). The latter was a significant predictor for all three models and the most important predictor for nasality rated on an ordinal scale.

The evidence points to lateral videofluoroscopy as a key assessment tool in the identification of patients at risk of acquiring hypernasality from MO. A combined measurement procedure of visual perceptual ratings and quantitative analyses using specified methods is necessary. The clinical significance of these findings relates to the informed consent process to surgical intervention and an appropriate speech care pathway. Measurement uncertainties and reliability issues related to the measurement method are discussed.

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Poster

Articulation
and
Phonology

A cross-linguistic comparison of lexical selectivity of Danish- and English-speaking toddlers with and without cleft palate

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Research examining the lexical development of Danish-speaking toddlers has suggested that they are delayed compared to English-speaking toddlers of the same age (see Bleses et al., 2003). Further, separate studies of lexical selectivity in toddlers with cleft palate (CP) learning either Danish (Willadsen, 2013) or English (Hardin-Jones and Chapman, in press) have shown both similarities and differences in their patterns of lexical selectivity. The purpose of this study is to compare the words produced by Danish-speaking and English-speaking toddlers with CP to examine 1) lexical selectivity and 2) lexical usage cross-linguistically. Additionally, to examine the possible influence of the surrounding language, mothers' word usage will be examined. Next, comparisons will be made between the two groups of toddlers with CP and the two comparison groups of noncleft toddlers (NC) (one Danish-speaking and one English-speaking) to determine the impact of clefting separate from the impact of language/phonology on the toddlers' lexical development. Sixty-eight toddlers; 17 in each of four groups (Danish-speaking cleft palate [DSCP]; Danish-speaking noncleft [DSNC]; English-speaking cleft palate [ESCP]; English-speaking noncleft [ESNC]) will participate in the study. The toddlers participated a longitudinal of speech development of either English-speaking or Danish-speaking children with CP. Data collected at 17 - 18 months of age will be analyzed for this study. All toddlers had undergone closure of the hard and soft palate at approximately 12 months of age. The toddlers were videorecorded while interacting with their primary caregivers during a spontaneous sampling session. Samples were phonetically transcribed and lexical status (word/non word) determined. Descriptive and parametric statistics will be employed to describe and compare the 1) DSCP and the ESCP groups; 2) DSCP and the DSNC groups; 3) ESCP and the ESNC groups; and 4) DSNC and the ESNC groups. The implications of clefting, the toddlers' language environment, and the interaction of the two will be discussed.

Abstracts

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Oral

Semantics
and
Pragmatics

Comprehension of novel metaphor in autism spectrum disorders

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Children with Autism Spectrum Disorder (ASD) experience noticeable difficulties with figurative language. These have been linked to their impaired theory of mind (Happé 1993) or to the overall linguistic - and especially semantic abilities (Norbury 2005). Yet, immature linguistic skills might affect the comprehension of figurative language regardless of autistic symptomatology (Gernsbacher & Pripas-Kapit 2012).

This study investigates comprehension of novel, rather than conventional metaphors, the latter of which require previously acquired knowledge, in 21 English-speaking children with ASD (Chronological Age (CA):5;5-15;3; non-verbal IQ SS:40-127; M=76.7; BPVS-2 SS:40-121, M=82), matched to younger typical controls (CA: 2;4-7;3) on non-verbal and verbal Mental Age (MA).

We used a task minimising cognitive demands to determine where the difficulties with metaphor comprehension arise - i.e., insufficient vocabulary knowledge, difficulty with taking context into account, or inability to make a pragmatic inference. In an act-out reference assignment task, children were shown pairs of minimally different toys and asked to choose the one matching the metaphorical description (e.g., 'a car with a sick foot'). Children were subsequently also tested on their knowledge of the key vocabulary used in the metaphorical items.

A regression analysis model showed no statistically significant difference between groups, with both performing near ceiling on all 6 experimental items. Performance of the ASD group was not linked to their CA, but was highly correlated with non-verbal and verbal MA. In the control group, CA was somewhat relevant to their success in interpreting novel metaphors, but again non-verbal and verbal MA played a more important role.

Contrary to the literature showing that metaphor comprehension is significantly impaired in ASD, our results indicate that a methodology that controls for vocabulary knowledge and minimizes the cognitive demands of the interpretation process helps children with ASD correctly interpret novel metaphor on par with younger controls.

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Oral

Grammar

Comprehension of quantifiers and numerals in Williams syndrome

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Our use of quantifiers (no, some, all) and numerals (one, two, three) relies on both syntactic and pragmatic knowledge, along with the general ability to assess small quantities. The meaning of quantifiers is determined by reliance on pragmatic inferencing: 'some balls are red' implies 'at least some but possibly all balls are red' (Levinson 1983). This process of implicature derivation is known to pose difficulties to young children (Noveck 2001).

Numerals refer to exact quantities but have also been argued to behave like quantifiers in being able to allow for non-exact interpretations (Carston 1998). However, young children show excellent comprehension of numerals while failing to compute scalar implicatures for some (Hurewitz et al 2006), which goes against claims that children rely on quantifiers for their number development (Carey 2004).

Investigating knowledge of linguistic constructs that refer to quantity seems particularly relevant in Williams syndrome (WS), a population known for relatively strong verbal skills but poor number and counting skills. Using an act-out task, we tested the comprehension of quantifiers and numerals in 18 English-speaking participants with WS (CA: 8-19; M=13;09; BPVS-2 SS: 40-99, M=58.65; Pattern Construction SS: 55-69; M=56.06), matched in gender and verbal MA to 18 typical controls (CA: 3;07-8, M=5;08).

Participants with WS scored below their matched counterparts on all measures. However, the pattern of their errors on quantifiers was identical to TD controls: while performing well on no and all, they failed to compute the scalar implicature for some, treating it as compatible with all. A different pattern emerged in the participants' performance on numerals. TD controls made few errors, but participants with WS showed a significant difficulty in their response to sentences involving two and three, which require simple addition and subtraction of objects in front them. Furthermore, the performance of a sizeable proportion of children with WS revealed a surprising pattern which involved 'spreading' the numeral so that it modified an incorrect noun phrase, suggesting an atypical trajectory in the acquisition of numerals in WS.

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Poster

Prosody

Dual processing of language hypothesis: Prosodic evidence from Swedish proverbs

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The dual processing of language hypothesis states that formulaic expressions – conventionalized, familiar expressions such as proverbs – are stored and processed holistically in contrast to novel (newly created, propositional) language. Two predictions accompanying this hypothesis are 1) proverbs are spoken with a characteristic prosodic pattern stored with the form of the utterance and 2) processing benefits for formulaic language lead to a faster speaking rate in proverbs. To test these predictions, seven Swedish proverbs and matched control sentences were read in a naturalistic context by 15 Swedish females (10 adults, 5 children). Prosodic measures were tonal patterns and speech rate. All sentences were transcribed with the Swedish Tonal Transcription and distribution of the tonal patterns that were common to five participants or more were compared with chi-square tests. Two common tonal patterns were found per sentence pair, one pattern with typically more initial and final stress (A), and one "less stress" pattern (B). Results confirmed the predictions for adults: tonal pattern distributions were significantly different between sentence types ($\chi2(2, N = 140) = 17.1$, $p < 0.001$), where proverbs had a higher than expected frequency of the "less stress" tonal (B) pattern ($p < 0.01$), and matched control sentences had a higher than expected frequency of the tonal pattern (A) with more stress ($p < 0.01$). Furthermore, proverbs were spoken with a significantly faster rate than control sentences (Mproverb=4.56 syllables/second (SD=1.119), Mcontrol=4.04 syllables/second (SD=0.750), $t(69) = 3.320$, $p = 0.001$, Cohen's d=.58). Children also showed a significantly faster speaking rate in proverbs the reported being familiar with but showed more variability in tonal patterns, and distributions were not significantly different, possibly due to less exposure to the proverbs and/or to cerebral maturational factors underlying acquisition of formulaic language. The results indicate that proverbs have distinctive prosodic characteristics and give further support to the dual processing of language hypothesis.

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Oral

Language comprehension

Individual differences in the impact of speech rate on perception of conversational speech

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This study investigates speech perception performance in younger (18 to 30 yrs.) and older adults (60 to 80 yrs.) as a function of naturally varying speech rate in conversational speech. In contrast to earlier studies on speech rate effects on speech perception, the present study uses conversational speech corpus materials, with a natural variation in speech rate, rather than lab-recorded read aloud stimuli that are subsequently artificially time-compressed. The research question was whether older adults would be more affected by increased speech rate than younger adults and which auditory, cognitive and linguistic individual listener characteristics would predict the impact of increased speech rate on speech processing. We set up a visual-world eye-tracking experiment in which 50 participants had to click which of four words on a visual display they detect in a conversation. Hearing sensitivity ranged from normal hearing to mild hearing loss and no participant met the Dutch hearing aid prescription criterion. Apart from the target word two distractor words were presented (one semantically and one phonetically related to the target word), plus a word unrelated to the target word. Mixed-effect linear regression analyses of the click RTs show that increasing speech rate makes sentence processing more difficult for both younger and older listeners. In line with previous results, both high frequency hearing loss and processing speed (Digit Symbol Substitution Test) are predictors for perception performance in the older adults. Contrary to earlier findings, however, younger adults are more affected by increased speech rates than older adults. Analyses of the gaze proportion data suggest that this discrepancy may relate to different task related strategies for the two age groups: older adults show similar effects of contextual probability on target detection as younger adults, but do seem to show more gazes to semantic competitors than the younger participants in an early time window after target word onset. Additionally, pupillometry results will be presented as pupil dilation is associated with cognitive effort. Implications of these results will be discussed.

Abstracts

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Poster

Hearing and Perception

The effect of sound intensity on speech hearing and perception in cases of auditory attention problems

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Auditory processing plays a key role in verbal comprehension and learning. AP disorder is a common factor in a variety of developmental disorders (Sharma et al.2009). Children with these problems often complain about painful hearing. According to Hungarian research, many children with literacy problems show poor word perception (Gósy M.- Horváth V. 2007). In the present research it was hypothesized that children with hypersensitive hearing are not able to properly process the modulated speech sounds of the short Hungarian words due to the distraction of their attention by the irritating intensity.

In the present research, 20 Hungarian children's hearing for speech was assessed on both ears by GOH word hearing and perception test at two different levels of intensity: (65dB and 55dB) level. Subjects had to repeat 2 x 10 words per ear projected through headphones. Test words were synthesized and the sound spectrum modulated by the MONDOM-2000-GOH digital device. The age range of the subjects fell between 8 -14 years, which means that the expected norm would be 100%. Subjects were children diagnosed with different learning disorders, had normal clinical hearing and poor auditory attention and painful hearing according to a survey. The results were statistically analyzed.

The results confirmed the hypothesis and revealed the following findings: (1) Subjects performed significantly poorer with the stronger intensity. Increased intensity negatively influenced word perception in children with learning problems. (2) Right ear showed greater sensitivity to increased sound intensity. (3) In the stronger intensity, the results showed similar features to cases of hearing loss (Gósy M.- Horváth V. 2007). The results point out the importance of the intensity of spoken instruction for optimizing auditory attention and the learning process.

References

Gósy, M. and Horváth, V. 2007.Óvodások és olvasási nehézséggel küzdő kisiskolások beszédhallása. In: Gósy, M.(Ed.) Beszédészlelési és beszédmegértési zavarok

Sharma, M., Purdy, S. C. and Kelly, A. S. 2009. Comorbidity of Auditory. Processing, Language and Reading Disorder.in: Journal of Speech, Language, and Hearing. Research . Vol.52 706-722

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Poster

Articulation and Phonology

Different transcription conventions for syllable-final /r/ in American English: Acoustic evidence

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There is a divergence between the usage of SLPs and that of phoneticians as regards the transcription of syllable final /r/ in American English. It is not clear whether we are dealing with different (but equally valid) ways of transcribing the same thing, or whether there is an actual sound difference. In this presentation acoustic evidence is discussed that informs a choice between these conventions.

Preliminary points:

1. Rhotic vowels have coterminous rhoticity, i.e. the rhotic tongue shape is simultaneous with the vowel gesture.
2. General American has a central vowel position that is rhotic. Usually, two central rhotics are identified: stressed /ɝ/, and unstressed /ɚ/, though the later is also transcribed [ɹ̩].
3. Other examples of syllable final 'r', however, appear to be controversial in terms of their transcription.

Transcribing final /r/:

1. There are two ways of transcribing vowel+/r/ other than the rhotic central vowels. Either: [ɑɹ], [ɔɹ], [iɹ], [ɛɹ], etc (for 'car', 'core', 'gear', 'care'); or: [ɑɚ], [ɔɚ], [iɚ], [ɛɚ], etc.
2. The first way seems to be preferred by phoneticians, the second by SLPs.

Questions that arise are:

1. Can one produce a difference between a monophthongal [ɑ] followed by [ɹ], and a diphthongal [ɑɚ] (and so on). Could transcriptions such as [ɑɚ] be interpreted to denote a diphthongal quality, even if this is not intended by the transcriber?
2. Do the final parts of '-ar', '-or' etc syllables resemble [ɚ] more than [ɹ], or vice versa? Or is there no difference?

In this presentation we present spectrographic data from 15 speakers of a rhotic accent of American English, who were recorded producing /r/ tokens in a variety of syllabic contexts. Also recorded were phoneticians attempting to distinguish between diphthongal and monophthongal final 'r' words. Preliminary results for the latter investigation suggest that a difference can be made. Analyses are ongoing for the former investigation.

We aim to provide an evidence base for the selection of appropriate and unambiguous transcriptions for final /r/ in American English; a sound that is frequently problematic in clients with child speech sound disorders.

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Poster

Other

Verbal competence when retelling in 5-year-olds born with cleft lip and palate

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Background: Research regarding expressive language in children born with cleft palate is sparse. The relationship between early limitations of articulation and phonology and later expressive language also needs to be further explored. Earlier studies point towards a relationship between early limitations of speech/phonology and general linguistic constraints in children born with cleft palate.
Aims: To compare verbal competence when retelling in children born with and without cleft palate at 5 years of age, and to assess if verbal competence at the same age was related to articulation and phonology at 3 and 5 years of age.
Method: A total of 49 children, 29 with unilateral cleft lip and palate (UCLP) and a comparison group of 20 children (COMP), were included. The speech was audio recorded longitudinally. At ages 3 and 5 the children were presented with a single word test by word naming, and at age 5 the Bus Story Test (BST) was used. The results of BST were assessed according to test manual. The recordings with the single word test were phonetically transcribed and per cent correct consonants (PCC) were calculated. Differences between the UCLP and COMP groups in verbal competence when retelling, and the relationship between the results of the BST and the PCC scores at ages 3 and 5 were analysed.
Results: No significant group differences or correlations were found. There was a trend (p = .051) towards better information score in the COMP group (median = 22, range = 4-38) than in the UCLP group (median = 14, range 0-31). However, this trend decreased when one child with attention deficit hyperactivity disorder in the UCLP group was excluded.
Conclusions: No significant differences between the children with and without UCLP regarding verbal competence when retelling appeared. Performance on the retelling task in the group with UCLP at age 5 years did not correlate with articulatory and phonological competence. Further research is needed in order to identify subgroups of children born with cleft palate at risk of having a more general language disorder.

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Poster

Hearing and Perception

Correlates of auditory speech discrimination in older adults

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Auditory discrimination of speech is an essential prerequisite in speech and language therapy, e.g., in dysarthria rehabilitation. While discrimination of non-speech stimuli has been shown to rely on auditory and cognitive abilities, it is remarkably unclear which abilities are associated with speech discrimination. Before patients' performance is evaluated, it is crucial to determine which mechanisms underlie speech discrimination performance in a healthy population.
As individuals with dysarthria are typically over 60 years of age, speech discrimination performance was evaluated by testing 96 healthy participants of the same age. Participants were asked to compare meaningful words and sentences on the speech dimensions loudness, pitch and speech rate. Auditory functioning was assessed by means of pure-tone audiometry. Cognitive measures included auditory short-term memory, working memory, processing speed and language proficiency. Factor and linear regression analyses showed that discrimination performance was associated with cognitive measures only. Discrimination accuracy correlated with measures of language proficiency, education level, processing speed, working memory and age. Discrimination speed was influenced by processing speed and working memory.
Our results raise the question whether these findings generalize to clinical populations and if so, whether patients with better cognition and, therefore, with better auditory discrimination skills may benefit more from a discrimination-based approach of speech therapy. This remains for follow-up research.

Abstracts

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Oral

Psycho-
and
Neuro-
linguistics

Age effects on visual and auditory statistical learning

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Statistical learning plays a key role in language processing. The ability to implicitly detect probabilistic regularities in the input has been shown to be essential in language acquisition (e.g., Kidd, 2012). It has also been shown to be affected in agrammatic aphasics (Christiansen, et al., 2010) and to predict language processing performance in adults (e.g., Misyak et al., 2010; Conway et al., 2010; Conway, Karpicke & Pisoni, 2007). However, age-related declines in perception and/or cognitive abilities might affect statistical learning ability. In a previous study, we found that older adults showed no statistical learning in the visual domain, whereas younger adults did. As a follow up, we studied statistical learning ability in the auditory domain in both age groups to investigate whether age differences are found in both modalities.

A subsample of the participants of the visual statistical learning study were asked to also participate in an auditory artificial grammar learning task (the subsample consisting of 30 normal-hearing younger adults and 30 older adults varying in hearing sensitivity from normal hearing to slight hearing loss). The grammar in the auditory experiment (based on adjacent dependencies) was of equal complexity as the one in the visual experiment. Measures of hearing acuity, selective attention, inhibitory control and sound recognition were collected to explore which individual abilities predict auditory statistical learning within age groups.

As a group, older adults showed the same amount of auditory statistical learning as younger adults. Our results imply that statistical learning ability is preserved throughout the lifespan but that auditory stimuli may be processed more attentively than visual stimuli. In older adults, statistical learning performance increased with better inhibition of irrelevant task information. Although participants were normal-hearing or had only slight hearing loss, hearing acuity correlated with auditory statistical learning performance. This tendency could be observed in both age groups, indicating that perceptual effort comes at the cost of processing required for statistical learning.

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Poster

Articulation
and
Phonology

Developing a clinical measure for phonological development: the case of PMLU

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In the clinical setting either a phonological contrast analysis or a phonological process analysis can be used to determine a child's phonological age. Both procedures, however, have their limitations. Phonological contrast analysis is more exhaustive than a process analysis. A contrast analysis reveals the inventory of all acquired and missing segments and contrasts. A phonological process analysis only shows the developmental status of a predetermined set of segments and contrasts. More importantly, both procedures focus on the production accuracy of individual segments and not on whole-word productions. Variability in accuracy of individual segments often depends on lexical factors, such as word frequency and phonological neighbourhood density (correspondence between segments in number of features). For clinical use a measurement tool for determining phonological age is required that includes a child's acquired and non-acquired phonemes, takes production variability into account and is straightforward to use.

 This presentation will show the results of a study of the clinical relevance of Phonological Mean Length of Utterance (pMLU). Like MLU this measure determines at the word level the mean length of a set of words targeted by a child, taking into account the number of correctly produced segments in each word. Using phonological analysis data based on spontaneous speech samples from 45 normally developing Dutch children between 1;0-4;0 years, analyses of variance showed significant increase of PMLU across age groups. Also for each child individually, significant increase of PMLU occurred between samples with an interval of 6 months. No significant differences were found comparing different sample sizes (25, 50, 75 and 100 words).

The results show that the pMLU is an exhaustive clinical tool, including segmental and lexical factors, that sufficiently distinguishes PMLU across age groups, even for small sample sizes.

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Poster

Articulation
and
Phonology

Cleft speech characteristics in speech production of Farsi-speaking children with repaired cleft palate

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While similar patterns of atypical speech production have been reported across a variety of different, mainly European, languages, studies on cleft speech production in typologically different, non-European languages, may provide important insights into how truly universal cleft speech characteristics are. Farsi, the national language of Iran, may present a particular and interesting challenge in speech production of individuals with cleft palate, on account of its phonological system. This report presents the results of an on going study, aiming to identify the speech characteristics of Farsi speaking children and to compare these with features reported in cleft palate research for other languages.

Speech samples were obtained from 21 Farsi-speaking children aged between 5 and 10, with a repaired cleft palate, and a control group of 5 typically-developing children, also aged between 5 and 10. Audio and video recordings were made of the participants' speech production in a variety of contexts including single word production and sentence repetition using a Farsi adaptation of the GOS.SP.ASS (Great Ormond Street Speech Assessment: Sell, Harding and Grunwell, 1999). A descriptive research design, which involved perceptual phonetic analysis, using narrow phonetic transcription, was employed.

Results indicate that the Farsi-speaking children with cleft palate used a range of features previously identified as cleft speech characteristics for other languages. However, some unusual speech features such as retroflex articulation were noted in the data showing different compensatory strategies in different languages. Some of the identified speech behaviours (e.g., realization of a tap as an approximant) are attributed to the particular phonetic inventory and phonological system of Farsi.

This study indicates that not all characteristics of cleft palate speech are universal. There is evidence of some Farsi specific features. However since the Farsi data does contain many of the cleft-related articulatory and phonological characteristics reported in English and other languages, finding from this study supports the proposal to base a Farsi cleft speech assessment on the UK GOSSPASS assessment.

Sell, D., Harding, A., & Grunwell, P. (1999). GOS.SP.ASS.'98: an assessment for speech disorders associated with cleft palate and/or velopharyngeal dysfunction (revised). International Journal of Language and Communication Disorders, 34(1), 17-33.

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Poster

Grammar

Linguistic profile of Persian-speaking children with primary language impairment: how can it be clinically applied?

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Introduction: Iranian Speech & Language Therapists have limited access to reliable ways of evaluating developing language. Using Evidence-Based Practice as a clinical research framework this phase 1 diagnostic study examines the use of a linguistic profile to identify children with primary language impairment (PLI) and differentiate them from children with typically developing language (TDL), in Persian.

Methodology: Twenty seven children with TDL and 24 children with PLI, aged 42 to 54 months, were recruited. Language samples were recorded within the context of children's free play with their mothers and analysed using a version of the SALT computer program developed for this project to accommodate the prefix-rich feature of Persian. A Persian Transcription Conventions Protocol was developed to supplement the set of standard SALT conventions.

Language sample measures (LSMs) were selected based on those with diagnostic competence in other languages like English and Spanish. Additional, Persian specific and composite measures were developed.

Results: This phase I diagnostic study resulted in between-group differences for 29 out of 36 measures. Children with PLI performed less accurately in general measures of language and also had a significantly higher number of errors than children with TDL. With regard to Persian-specific measures, children with PLI expressed significantly less total number of language measures and indicated higher missing rates.

Clinical diagnostic accuracy of these measures was scrutinized through a phase II diagnostic study by applying ROC curve analysis which resulted in determining the most clinically powerful measures.

Conclusion: The measures have been reliably assayed through this first diagnostic accuracy study in Persian, not only in the field of child language but also in the field of Iranian speech therapy in general. This study has provided well-grounded evidence on the clinical applicability of the robust framework of EBP for child language assessment.

Abstracts

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Poster

Semantics
and
Pragmatics

Interpretation of novel noun compounds by aphasic and non-aphasic speakers

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Compound interpretation requires interpretation of the component words as well as the implicit link between the components. There are two views of the nature of the interpreting process. The dual processing theory (Wisniewski 1996, Estes 2003) claims two distinct mental processes: comparison and integration, whereas the relational theory (Gagné 2000) claims only one process of interpretation: integration. Integration can be classified into different relations, some of which are more frequent than others. So far no studies have compared these two theories based on data from speakers with aphasia.

Given the dual processing theory, one would expect speakers with different types of aphasia (fluent vs. non-fluent) to perform differently when interpreting novel noun compounds. Speakers with non-fluent aphasia (with syntagmatic deficits) would be expected to use the comparison strategy more often, while speakers with fluent aphasia (with paradigmatic deficits) would be expected to use integration more often. Given the relational theory, one would not expect differences based on aphasia type, but one would expect speakers with aphasia in general to interpret fewer compounds using the comparison strategy compared to speakers without aphasia, resorting instead to the easier integration strategy.

8 speakers with aphasia (5 fluent and 3 non-fluent) and 18 neurologically healthy speakers were presented with novel noun compounds and asked to choose between a comparison-based and an integration-based interpretation. For instance, for the compound "elephant truck" the speakers had to choose between "big truck" (comparison) and "truck for transporting elephants" (integration). The differences between the groups were evaluated statistically with contingency tables and Fisher's exact test. The difference between the speakers with fluent vs non-fluent aphasia was not statistically significant, contrary to what the dual processing theory predicts. There was a statistically significant difference between the neurologically healthy speakers and the speakers with aphasia though, supporting Gagné's hypothesis that low-frequency relations are more difficult to process.

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Oral

Psycho-
and
Neuro-
linguistics

Phonemic and tonal awarenessin Mandarin-speaking children in the first two years of school

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Mandarin is a tonal language which has a highly constrained sound structure (Zhu, 2006). Its phonotactics is: (C)(V)V(C)T, segments in the parentheses indicating a non-compulsory part. Two approaches to the analysis of this structure have been proposed. Traditionally, it has been segmented into initial, medial vowel, syllable ending and tone (Chen, 1999; Roger, 2005). The other approach is simpler: it does not include the supra-segmental part (i.e., tone), neitherdoes it distinguish the non-compulsory medial vowels from the nucleus (Zhu, 2006). One place to look for evidence to evaluate these different proposals is the development of phonological awareness (PA) in Mandarin-speaking children. We hypothesize that if the traditional approach is psycholinguistically valid, then tonal and phonemic (i.e., medial vowels or coda) awareness should emerge from the child's usage of spoken language. Otherwise, the second approach would be preferable as it presumes a less complex representation. The current study aims to examine which of the two approaches is supported by evidence from the development of PA.

Data were collected longitudinally over a two-year period from a sample of 92 Taiwanese first graders (mean age of 6;7), who were followed up until grade two. Computerized tasks were designed to measure children's performance on phoneme and tonal PA tasks, requiring cognitively implicit (matching) as well as explicit (common unit identification) processing. Information was also collected on children's non-verbal intelligence.

The results showed a low percentage of participants scoring above the guessing criterion in the implicit awareness tasks of both the phoneme (14%) and tone (25%) levels at their school entrance. Error analysis of the children's performance on the implicit phoneme awareness task showed that first-graders could not consistently detect /ŋ/ (one of the two coda consonants) or /u/(one of the three gliding vowels). For /u/, this pattern continues until grade two. The trajectory of PA development in Mandarin-speaking children does not offer strong support for the traditional analysis of Mandarin syllable structure since, based on their spoken language experience, children only acquire awareness of syllable, onset and rime. The implication of the above results for the clinical assessment of Mandarin-speaking children will be considered.

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Poster

Multi-/
bilinguality

A longitudinal study of a Japanese-English-Chinese trilingual family with a HFASD child: mother's language use pattern and compensatory speech of parents with different native language (CSPDL)

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Background: With only few studies concerning multilingualism in children with Autism Spectrum Disorders (ASD), it is important to take a closer look in order to provide adequate supports to the parents. A study by Chevalier (2012) suggested that active trilingualism in children is strongly influenced by their caregivers in interaction. Thus, observing the pattern of language use of caregivers would allow us to better understand their autistic children's language development.

Objectives: 1) To observe/analyze mother's patterns of language use, code switching (CS) and code mixing (CM). 2) To observe/analyze compensatory speech of parents with different native language (CSPDL).

Method: Subjects: Family composition: a Japanese father, a Taiwanese mother, a high-functioning ASD boy "H" (7;5) and a girl (4;3). Father's native language is Japanese, mother's is Chinese and English is their common language. The children were raised in Japan under a Japanese-Chinese-English environment. Procedure: One hour video-taped playroom sessions were performed to observe family natural conversation. Conversation analysis was used to examine mother's patterns of language use, CS, CM and CSPDL. Language assessments of H were taken annually.

Results: H's most recent language assessments demonstrated a balance development, with above or within average scores. Several changes were observed in mother's pattern of language use, CS and CM. Chinese was the most spoken language between mother and children; English and Japanese were equally used towards father in session 1 & 2 but Japanese became dominant in session 3 & 4. In session 1 & 2, mother often code switched in her conversations; however, the frequency was reduced by almost 50% in session 3 & 4. On the other hand, CM was stable throughout all sessions. The function of mother's CS and CM patterns were categorized into 11 groups. CSPDL were separated into two categories: mediator and attention getting. The frequency and function of CSPDL were stable throughout.

Conclusions: The patterns of mother's language use and CSPDL could be explained by many factors including the development of children's language proficiency and family language policy. It was found that mother's language use and CSPDL influenced the child's development and the quality of family communication.

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Poster

Motor
Speech
Control

Differential diagnosis in childhood apraxia of speech. Developing a test for dynamic assessment of motor speech skills in swedish; dynamisk motorisk talbedömning (dymta)

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Children with severe speech sound disorders (SSD) may be unintelligible or very difficult to understand. SSDs may have different etiologies and the affected level of speech production needs to be assessed. Is it the linguistic/phonologic level or the motor speech level that is impaired, or both? Differential diagnosis is very important since intervention strategies are based on the diagnosis.

Strand (Strand et. al, 2013) has developed a test; Dynamic Evaluation of Motor Speech Skills (DEMSS), that is designed to identify motor speech disorders in young children and/or in those with more severe impairments and difficulties with praxis of speech, i.e. Childhood Apraxia of Speech (CAS). The DEMSS has been shown to have good reliability and construct validity when assessing children 3 to 6 years of age (Strand et. al, 2013).

There is a great need of a similar tool for differential diagnosis of children with (suspected) CAS in Sweden and in the present project we have developed such a test based on the linguistic properties of Swedish. CAS occurs on a continuum from severe to mild. The DEMSS was constructed to identify children with severe speech disorder and ceiling effects have been found in children with milder problems. The Swedish DYMTA project included developing a second level of the test with more demanding subtests and utterances with respect to speech movement planning and length.

We will present the Swedish test DYMTA and the rationale behind the choices of tasks, as well as results from the collection of norm/reference data from children with typical speech and language development aged 3 and 5 years. We will also present preliminary data from children with speech sound disorders including Childhood Apraxia of Speech.

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Poster

Intelligi-
bility

Speech productions in children with Down's syndrome: A comparison of picture naming, real-word repetition, and reading

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The majority of children with Down's syndrome (DS) experience speech impairments that impact on their intelligibility (Cleland et al, 2010). Although phenotypic physical abnormalities contribute to their speech difficulties, research has concluded that breakdowns in speech processing also contribute to their speech impairment (Dodd & Crosbie, 2005; Cleland et al, 2010). These breakdowns appear to be caused by poor verbal working memory skills, yet it seems that children with DS have strong visual working memory skills (Frenkel & Bourdin, 2009). These findings have led authors to suggest that reading, which provides visual access to the word form, could improve the intelligibility of children with DS, and therefore be used as an intervention method (e.g. Dodd and Crosbie 2005, Buckley and Bird, 1993). However, little empirical evidence currently exists for this suggestion (Laws 2010). This study aimed to determine whether the speech of children with DS improved when they read words compared to when they named pictures or repeated words from auditory input.

Eight children (2 male) with DS (aged 11 to 14) were participants. Three productions of the same 10 words were recorded in reading, picture naming, and real-word repetition conditions. The productions were analysed for intelligibility (via ratings of 12 trained listeners), per cent of consonants correct (PCC), and phonological inconsistency between repetitions.

For intelligibility, scores from the reading and picture naming conditions were significantly higher than those from the repetition condition. In addition, reading scores were significantly higher than those from picture naming on the PCC measure. PCC scores also improved significantly between the first and third repetitions in the reading condition but not in the remaining conditions. There was no significant difference in inconsistency between conditions.

The study concludes that accessing the visual word form through reading improves the speech production of children with DS. Findings are discussed in relation to the possible explanations for the results, implications for intervention, and further studies needed to assess if generalisation occur to conditions when the written word is no longer available.

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Poster

Multi-/
bilinguality

Language development of Icelandic CODA children and comparison with bilingual children of foreign origin

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Research on bilingualism has mostly concentrated on children who use two spoken languages. Little is known about the linguistic abilities of children of deaf adults (CODA) who are also raised in a bilingual environment; with a vocal language as well as a sign language. Research on CODAs in Iceland, although scarce, indicate that they have more linguistic problems than their age equivalent peers. This study attempts to compare two different groups of bilingual children; one that is bilingual with two vocal languages, Icelandic and Polish (IP group), and the other, which is bilingual with one spoken language (Icelandic) and Icelandic Sign Language (IS-group). Typically developing children with normal hearing children served as controls (C-group). Standardized language tests were administered and language samples in Icelandic were collected from all subjects. In addition, language samples in Icelandic Sign Language were collected from the IS-group. The total cohort of CODA children in the specific age range aimed for in this study is very small in Iceland, or 10 children. Parents of five children agreed to participate. The total number of subjects were 13 children, 2;3 to 7;3 years old. The IS group was matched with children who are raised in two languages, Icelandic and Polish, and to the control group. Only 3 IP-children were located who matched the IS-children. The main findings portrayed relatively scattered language abilities within each group. Four of the five children in the IS and C-groups received age equivalent language scores. Nonetheless, the IS-group showed rather strong disadvantage in some of the subtests as compared with the C-group. One of the five IS-children was judged to have age equivalent ability to use sign language. Only one of the IP-children in the IP-group exhibited language scores in Icelandic considerably above average. They were all judged to have age equivalent language abilities in Polish. In short, at this young age CODAs seem to have relatively typical language development, however, their language samples showed some common trends that were not to be found in the C-group. A comparison will be made with previous studies.

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Oral

Grammar

'MetaTaal': Enhancing complex syntax in children with specific language impairment: a metalinguistic and multimodal approach

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Currently, most research on effective treatment of (morpho-)syntax in children with SLI pertains to younger children. In the last two decades, several studies have provided evidence that intervention for older school-age children with SLI can be effective (Ebbels, 2007; Hirschman, 2000; Levy & Friedman, 2009). These metalinguistic intervention approaches used two-dimensional visual support and reading or writing activities to teach grammatical rules explicitly.

The present study examined the effectiveness of a combined metalinguistic and multimodal approach. The intervention was adapted to suit poor readers and targeted the improvement of relative clause production. Relative clauses still pose difficulties for older children with SLI (Levy & Friedman, 2009). 'MetaTaal' uses Lego® bricks of different shapes and colours as abstract representations of word classes and grammatical functions. Children effectively learn to build sentences with the material. In addition to providing visual support, the tactile/kinesthetic and motor channels are also deployed in this approach.

Participants were 12 monolingual Dutch children with SLI (mean age 11;2). A quasi-experimental multiple-baseline design was chosen to evaluate the effectiveness of the intervention. A set of tasks was constructed to test relative clause production and comprehension. Two balanced versions were alternated in order to suppress a possible learning effect from multiple presentations of the tasks. After 3 monthly baseline measurements the children received protocolled individual intervention twice a week during 5 weeks. Tests were repeated directly post-therapy and 3 months later. During the programme, the speech therapist delivering the treatment remained blind to the test results.

Results showed that children improved significantly on the production tasks, but not on the comprehension task. The gains were maintained 3 months later. The motor and tactile/kinesthetic dimensions of 'Metataal' can be regarded as a valuable addition to the existing metalinguistic approaches.

References:
- Hirschman, M. (2000). Language repair via metalinguistic means. International Journal of Language & Communication Disorders, 35(2), 251-68.
- Ebbels, S. H. (2007). Teaching grammar to school-aged children with Specific Language Impairment using Shape Coding. Child Language Teaching and Therapy, 23, 67-93.
- Levy, H., & Friedmann, N. (2009). Treatment of syntactic movement in syntactic SLI: A case study. First Language, 29(1) 15-49.

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Oral

Other

Norwegian words: A lexical database for researchers and clinicians

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Norwegian Words is a searchable lexical database with approximately 900 nouns, 500 verbs and 200 adjectives selected from different language assessment tools, including the Norwegian versions of CDI (Kristoffersen & Simonsen, 2012), VAST (Bastiaanse, Lind, Moen & Simonsen, 2006), PALPA (Kay, Lesser & Coltheart, 2009) and Cross-Linguistic Lexical Tasks, a new assessment tool for multilingual children (Haman et al., 2013). Words from a corpus of semi-spontaneous, oral picture descriptions by speakers with and without aphasia are also included (Lind, Kristoffersen, Moen & Simonsen, 2009).

All the words are categorized for various properties that may affect acquisition, storage and processing of words in children and adults with and without speech and language difficulties. These properties include word class, word length (in letters, sounds and syllables), measures of phonological and morphological complexity, grammatical properties (e.g. gender for nouns and transitivity and valency for verbs), phonological neighborhood density, imageability, subjective age of acquisition and frequency.

The database interface allows for three search options:
- Looking up single words: e.g. what are the properties of the word stol ('chair')?
- Finding words matching a given set of properties: e.g. which masculine nouns in the database are highly imageable and have few phonological neighbors?
- Listing words from particular assessment tools: e.g. how imageable and frequent are the verbs in the VAST?

Norwegian Words can be used freely for non-commercial purposes. In addition to a presentation of the database, we will demonstrate its utility with two case studies: one from clinical practice (speech-language therapy with a person with aphasia) and one from research on lexical development in children. Further opportunities for use of the database, in particular use for cross-linguistic and bilingual purposes, will be discussed.

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Oral

Psycho-
and
Neuro-
linguistics

Which skills are involved in repeating words and non-words?

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Background: Children with language disorders find non-word repetition difficult. Previously thought to be a pure measure of phonological short-term memory (pSTM), subsequent studies have emphasised the influence of existing linguistic knowledge. Some studies have suggested that children's accuracy repeating real words also identifies language difficulties. However, different methods of crafting non-words, selecting real words and scoring performance have resulted in unclear findings about the language processing skills involved. Successful identification of these skills would enable clinicians to plan targeted therapy.

Aims: This study aimed to identify the contributions to word and non-word repetition of: 1) stored word knowledge, 2) pSTM, 3) phonological and articulation skills.

Methods and Procedure: 54 children aged 3–3 ½ years (32 male) participated, half from NHS speech therapy caseloads. They repeated English words and phonologically-matched non-words, and completed a test of word knowledge (picture naming task) and a word span task.

Results: Effects of word knowledge: In line with previous findings, there was a significant effect of word knowledge: words were repeated more accurately than non-words (t=5.368, p<0.001). Repetition of known words was more accurate than unknown words (t=4.78, p<0.001). There was no significant difference between repetition of unknown words and non-words.

Effects of pSTM: There was a significant effect of item length for non-words but not words. A significant correlation between non-word repetition and word span (r=0.60, p<0.001) was maintained when variance explained by word repetition was partialled out (r=0.42, p<0.005).

Effects of phonological/articulation skills: Speech skills affected repetition. Comparison of repetition accuracy before and after discounting phonological errors showed significant effects for words (t=6.18, p<0.001) and non-words (t=3.58, p<0.005). The effects of word knowledge and pSTM remained when speech errors were discounted.

Implications: Word knowledge is important in children's word repetition accuracy. PSTM is important in repetition of non-words and unknown words, but is not a factor in real word repetition.

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Oral

Grammar

Phonological and morphosyntactic minimal pairs: Evidence for different processing

Luca Cilibrasi, Vesna Stojanovik, Patricia Riddell

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Minimal pairs are defined as pair of words in a particular language which differ in only one phonological element and have a different meaning. In many languages bound morphemes used to mark inflection generate minimal pairs. For instance, in English, the present third person singular morpheme -s and the past tense morpheme -ed generate in most cases minimal pairs, such as "asks / asked". Several authors (Stemberger and MacWhinney, 1986, Bertram et al, 2000) have argued that inflected forms may be stored in the lexicon as units, i.e. together with the bound morpheme. If this is the case, discriminating phonological minimal pairs and morphosyntactic minimal pairs should not be different processes.

In this study we addressed this question presenting 20 native speakers of English with phonological and morphosyntactic minimal pairs, and with pairs of identical words. Participants were asked to press "white" if words were different and "black" if words were identical. Conditions were matched on word length. Results show that subjects are significantly faster in discriminating words generating a purely phonological pair, such as "back / badge" than words generating a morphosyntactic (and phonological) pair, such as "asks / asked", t (19) = -4.486, p < .001. The result shows that more complex operations take place for the processing of inflected verbs, suggesting that verbs are decomposed in root and affix in order to be analysed. Interestingly, and quite oddly for proposals which assume inflected forms to be stored as units, a third condition with infrequent verbs (less than 5 per million in the British National Corpus) revealed that their processing for this task is faster than that of frequent verbs t (19) = 2.120, p < .05. Even if this may be related to attention arousal for unexpected stimuli, the results together are quite problematic for the idea that inflected forms are stored as units, and underlie that minimal pairs generated by bound morphemes are substantially different entities from what are normally considered minimal pairs, even if they meet the requirements of the definition.

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Oral

Predicting reading performance with a phonological input and output task: Evidence from Italian
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Reading and Writing

Phonological clusters (sequences of consonants) repetition has recently been shown to be a reliable method to detect developmental reading difficulties (Marshall and Van der Lely, 2009). Difficulties with clusters repetition correlate with reading problems, but it is not clear if clusters can be used to predict reading performance also in Typically Developing (TD) children. Furthermore, performance in cluster repletion tasks is informative about output representations, but it is not informative about the role of input representations. In this study, a specifically designed task addresses these questions. Thirty-three Italian children aged 8;3 to 10;1 were asked to complete an input task and an output task based on the use of trisyllabic non-words containing phonological clusters. The input task was a minimal pairs discrimination task, while the output task was a non-words repetition task. Reaction times (RTs) were also measured in the input task. The results show that both the performance in the input and the output tasks correlates significantly with reading performance (for what concerns the input task not only accuracy but also RTs correlated significantly with reading performance). The main finding of this study is that reading at a single word level is related to input and output phonological representations. This result extends the finding of Marshall and Van der Lely (2009) to TD children, and it contributes to phonology based explanations of Dyslexia. Difficulties with the production of consonant clusters associated with poor reading reported in the literature may be caused by input representational problems. Considering the processes involved in reading, this input deficit may lead to cascade effects that influence ability to associate graphemes to phonemes during reading acquisition.

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Poster

An exploratory study of covert contrasts in children with cleft palate
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Articulation and Phonology

Studies have shown that during typical speech development (e.g., Berti, 2010; Edwards et al., 2011), and in atypical speech production including speech associated with cleft palate (e.g., Howard, 1993; Gibbon and Crampin, 2001), there are contrasts (e.g., in voicing or place of articulation) which are covert: they may not be perceptually apparent but can be detected using different instrumental techniques. This study examines the use of covert contrast between pulmonic and non-pulmonic (ejective) consonants in the speech of children with cleft palate speaking the national language of Ethiopia, Amharic, which has contrastive ejective and pulmonic consonants.

The study takes four children with cleft palate who could not signal the pulmonic-ejective contrasts effectively from the listeners' perspective and compares their realisations of pulmonic plosives and ejectives with those of typically-developing children and a group of typical adult speakers on three acoustic parameters: voice onset time (VOT), total closure duration and relative intensity. For each child, tokens of target singleton pulmonic denti-alveolar and velar voiceless and ejective stops (/t̪/ /t̪'/ and /k/ /k'/), were chosen from speech samples elicited under two conditions: single word naming and sentence repetition. A total of 96 tokens were sampled for acoustic analysis, which was performed using Praat®.

The examination of the acoustic parameters suggested that three of the children with cleft palate were aware of the pulmonic-ejective contrast and signalled it but in such a way that the listener could not perceive the contrast. Making a distinction between a contrast that is simply absent from an individual's phonological system and a contrast which is perceivable through instrumental analysis has significant clinical implications, as individuals' atypical phonological systems are assessed and managed based on perceived lack of contrast in their speech (Scobbie et al., 2001). This study extends the notion of covert contrast to a previously unreported language.

Abstracts

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Oral

Hearing
and
Perception

Hearing but not reading lips? Speechreading impairments in dyslexia.

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Among the linguistically oriented approaches to the underlying problem in dyslexia, the most prominent one is the phonological deficit hypothesis. Working towards a psycholinguistic theory that might explain the origin of this deficit, we have created an experimental eye-tracking and behavioural paradigm that allowed us to study 64 participants' (33 subjects, 31 SES matched controls, mean age: 20.7) reaction to phonological stimuli in visual-only, acoustic-only and audiovisual conditions.

The ability to process audiovisual stimuli simultaneously, thereby allowing effects like the McGurk illusion to be triggered, seems to be a linguistic universal. We expected that dyslexic subjects would differ significantly from non-dyslexic controls in their susceptibility to McGurk items. It was further expected that dyslexic subjects were either not susceptible to the McGurk effect at all, or that the effect was not as robustly elicited as in controls. Dyslexic subjects who showed no McGurk effect would display a strong tendency to process the audio signal and ignore the visual speech signal. In order to rule out that the McGurk effect was not triggered by subjects as a result of not watching the speechreading areas in a talking face, trials where subjects' fixations lay outside theses areas were excluded from the data.

Participants' eye movements were monitored throughout the experiment while they had to a) visually identify syllables and target words (exclusively lip-readable stimuli), b) process audiovisually congruent and incongruent stimuli from a talking face (McGurk stimuli, both with syllables and nonsense words) and c) read out pseudowords aloud. The data we obtained suggest that dyslexics a) show significantly poorer lipreading skills b) show little to no susceptibility to the McGurk effect, c) show poor results in pseudoword tasks.

In our talk we will discuss these results with regard to current theories of the phonological deficit hypothesis in dyslexia research together with the explanatory power of the audiovisual deficit and its implications for future diagnostics of dyslexia and therapeutic approaches.

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Poster

Multi-/
bilinguality

Narratives of a bilingual who stutters: A comparative analysis of themes

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The purpose of this study is to uncover the way VB, a bilingual fluency client, constructs his experience as a person who stutters through his English and Spanish narratives. Narratives are laden with meaning not only in regard to the actual information being transmitted but also by the way they are constructed by their narrators. The creation of a narrative involves making decisions about how we enter into transactions with others linguistically and by what exchanges, how much we wish to do so (Bruner, 1986). These decisions and motivations VB makes in constructing his narrative are what this study will examine.

In order to record and adequately describe the nuances within VB's narrative, qualitative methods were used for both the collection and the analysis of the data. The data obtained for this study were collected during five sessions in the university clinic setting. Sessions one and two were conducted by researcher AG in English while sessions three and four were conducted in Spanish by researcher MY. Session five was conducted in English by clinician MA who is a PWS. Ethnographic interviewing (Westby, 1990) was also used to elicit narratives from VB about particular topics that related to his experiences with stuttering.

The researchers transcribed their respective sessions. Transcripts were read multiple times and researchers made comments about segments of talk. This process allowed the researchers to identify information-rich quotes (Anderson & Felsenfeld, 2003). These quotes were grouped according to their relatedness. This preliminary grouping procedure provided a basis for emerging categories and themes (Smith & Osborn, 2007; Cresswell, 2009). The preliminary groups were collapsed to avoid redundancy of themes. The common principles that were definitive of each remaining group were identified and used to derive the final thematic categories presented (Agar, 1996). The researchers shared findings and discussed the similarities and differences of themes found in their respective data. The results of this study have clinical implications for both linguistically diverse populations as well as for fluency clientele.

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Oral

Semantics
and
Pragmatics

Lexical skills in Swedish children with different degrees of hearing impairment

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Studies of vocabulary skills in children with hearing impairment (HI) often report this as an area of weakness (Boons et al., 2013; Schorr et al., 2008), but that within-group variation is large. No single factor (e.g., age at diagnosis, working memory, parental involvement) can explain this variation. Most studies on vocabulary in children with HI are based on formal assessments. Lexical diversity and density in written texts has been investigated in adolescents with mild/moderate HI and hearing aids (HA) and found to differ from controls with normal hearing (Asker-Árnason et al., 2012). In this study we investigate these two measures in oral language data, collected during a referential communication task, in Swedish children with different degrees of HI, comparing with controls with normal hearing. The lexical measures are related to age at fitting, formal assessment of word retrieval, sentence comprehension and nonword repetition, a measure of phonological skills and a clinical marker of language impairment. Participants were 16 deaf children with a cochlear implant (CI), aged 5;3-8;0, nine children with mild/moderate HI and HA, aged 4;11-7;8 and 16 children with normal hearing, aged 5;0-8;0. The data from the referential communication task were transcribed and analysed with respect to lexical diversity and density (% lexical words). Preliminary results from parts of the data indicate lower lexical diversity in the groups with HI, who also performed significantly lower than the controls on nonword repetition and sentence comprehension. Nonword repetition tended to be associated with measures related to lexical skills, whereas there was no association between age at fitting and language variables. Given the large inter-individual variation, the data will also be analysed from an individual perspective to identify subgroups of children. The results will be discussed with respect to implications for assessment of language in children with HI in order to identify those children who are at risk for problems.

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Poster

Semantics
and
Pragmatics

Intentional communication. Formulating goals for child language intervention beyond language form.

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According to Lahey (1988) goals for child language intervention should be based on what the child already knows. It should not be determined by what is missing from the child's language in comparison with the language of age-peers.
We will present a method to describe children's intentional communication, which is based on two existing approaches: The Content/Form/Use (C/F/U) coding (Bloom & Tinker, 2001; Lahey, 1988) and the SALT program (Miller & Iglesias, 2012). Intentional communication is coded in terms of the interaction of language Content, Form and Use within each utterance. Language Content encompasses concepts and propositions, Form includes syntax and grammar and language Use combines communicative function, and linguistic and non-linguistic context. Bloom & Lahey created a three-dimensional plan for language learning, describing 8 phases of language development with specified behaviors representing the interaction of language Content/Form/Use in each phase. The model describes a developmental hierarchy in which each behavior is necessary for the next to develop. An assessment protocol consists of five levels of analysis from pre-linguistic behaviors through narrative skills.
The SALT software allows for quantitative analyses of language transcripts using a coding system and incorporating databases for normative data. A review of the Intentionality model, and a demonstration of how the C/F/U-analysis can be incorporated into the SALT program will be presented. Illustrations will include sample transcriptions in English and Swedish, coding keys as well as the automatic SALT outputs. A demonstration of how goals for intervention can be formulated based on the method will be included.
References
- Bloom, L., & Tinker, E. (2001). The intentionality model and language acquisition: Engagement, effort, and the essential tension in development: Society for Research in Child Development.
- Lahey, M. (1988). Language disorders and language development (Revised ed. of Language development and language disorders/Bloom & Lahey, 1978). Upper Saddle River, NJ: Macmillan.
- Miller, J., & Iglesias, A. (2012). Systematic Analysis of Language transcripts (SALT): SALT Software LLC.

Abstracts

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Poster

Psycho-
and
Neuro-
linguistics

The development of verbal morphology in Japanese typically developing children at 2-years-of-age

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It has been said that the acquisition of grammatical knowledge affects speech production, and as a result, speech disfluency or stuttering may occur (Bernstein Ratner, 1997; Rispoli, 2003). It is natural to assume that the development of verbal morphology also affects speech production. Therefore, to truly investigate the onset of speech disfluency and/or stuttering, we have to first examine the relationship between the development of verbal morphology and syntactic development in typically developing children. The purpose of this study was to investigate the development of verbal morphology in Japanese typically developing children around 2 years of age. The participants were 95 nursery school children from the ages of 1;9 to 2;11. They were divided into 3 groups according to the Stages of grammatical development in LARSP (Language Assessment, Remediation and Screening Procedure, Crystal, 1992). 11 were Stage II children, 49 were Stage III children, and 35 were Stage IV children. Four types of verb forms were used as targets: the past-tense form V-ta, the non-past tense form V-ru, the aspectual form V-te-i-ru, and the negative marker V-nai. Several different kinds of elicited production tasks were used in order to ensure that each child would produce examples of all four types of verb forms. The results were as follows. The children who produced only one form used the past-tense V-ta form, and those who produced two forms tended to use the negative marker V-nai, in addition to the past-tense V-ta form. Moreover, the children who produced three forms used the abbreviated aspectual form V-teru or the non-past tense form V-ru, in addition to the two other forms. While the percentage of children who used all four forms was only 9.1% in the Stage II children, it increased to 59.2% in the Stage III children and 94.3% in the Stage IV children. It is well known that syntax develops rapidly around 2 years of age. This phenomenon is known as the 'syntax spurt' (Radford, 1990), which corresponds to the period from Stage II to Stage III in LARSP. Therefore, these results suggest that verbal morphology develops remarkably around the period of the syntax spurt.

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Poster

Articulation
and
Phonology

Articulation and nasality in all four-year-old Norwegian children born with Cleft Lip and Palate (CLP)

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The methodology for this study was presented on ICPLA 2010 in Oslo. The two CLP teams in Norway cooperated on a project studying articulation and nasality in all four-year old children born in 2005 with a CLP in Norway. In total, 96 participated. All children followed the national protocol for surgery.
This presentation is a detailed description of the findings regarding these following research questions:
1) How many four-year-olds born with CLP develop articulation deviances?
2) What are the most frequent articulation deviances?
3) How many four-year-olds born with CLP develop nasality deviances?
4) What are the most frequent nasality deviances?
Assessment of articulation and nasality was based on SVANTE-N; a Swedish Articulation and Nasality Test. The test has been translated and phonetically balanced into Norwegian. The test consists of a word part, a sentence part, and a spontaneous speech part. The assessment was video recorded in the same standardized manner by both teams.
Narrow phonetic transcriptions of the target sounds in the 59 test words, were carried out by four SLTs, two from each team. Resonance was scored on high vowel sounds and spontaneous speech. Inter- and intra-reliability tests were performed.
With regard to articulation, the results revealed that 59% of the children had articulation deviances. The most frequent deviation was /s/ deviation (37%), followed by active nasal fricatives (13%), glottal articulations (11%) and retracted articulation (7%). 26% of the total deviations are regarded as cleft specific deviances, while the other deviations are seen as developmental deviations.
The deviations were classified as anterior or posterior to velopharynx. 70% of the deviations were anterior to velopharynx, and the remaining 30% were deviations posterior to velopharynx.
The analysis of nasality revealed that 42% of the children had nasality deviations. The most frequent deviations were weak articulation (48%), followed by nasal air emission (25%), nasal turbulence (15%) and hypernasality (13%). Grimaces were observed in 29% of the children.

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Poster

Articulation and Phonology

Independency vs Stability: A comparison of the sonority hierarchy and phonological make-up in child Japanese

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The type of script that is employed in a particular language has an impact on how the brain recognizes written words (Su et.al. 2009: 199). Over 400 orthographies are used around the world (McDougall et al. 2009: 4), so it comes as a surprise that the learning problems that a child faces in acquiring reading is quite similar across languages (Goswani 2009: 23).

Japanese learners are said to recognize and produce sound sequences based on the mora (not the syllable), due to its syllabic orthography (Kugi 2004). If so, then no distinction should be observed between the behavior of normal CVs and that of the special moraic phonemes /Q/ (geminates), /N/ (nasal codas), /R/ (long vowels) and /J/ (second element of a diphthong). However, studies have indicated that a head vs. non-head relationship exists between these two groups, and furthermore, there also exists a hierarchy among the four moraic phonemes. On the one hand, studies based on segmentation tasks, etc. have shown that the hierarchy of moraic phonemes can be dealt with by referring to the sonority scale (Independency) (e.g. Ueno 1984, Machida 1988, Nakajo 1989). On the other hand, data obtained from perception tasks and compound clipping have indicated that rather than sonority, the phonological make-up of the moraic phonemes, i.e., whether they constitute an independent node or not, is crucial (Stability) (e.g. Otake 1992, 1993, Matsuzaki 1996, Nasu 2009).

In order to test which hierarchy plays a more important role in Japanese, we conducted reversal tasks on elementary school students (27 first graders and 31 sixth graders). The results show that while the three-morae nonsense words favor the hierarchy Q(98.1%)>>N(88.2%)>>R(74.5%)>>J(72.2%) in both grades (correctness rate in parentheses), surprisingly, for the four-morae nonsense words, both grades prefer the ranking of J(26.3%)>>R(22.05%)>> N(20.65%)>>Q(14.8%). The difference was statistically significant. This difference in the ranking among the moraic phonemes of three and four morae words may be accounted for by the two constraints ALIGN-L and PEAK PROMINENCE of Optimality Theory. Furthermore, the hierarchy based on Stability (and not Independency) plays a more important role in accounting for the error patterns observed.

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Poster

Prosody

Morpho-prosodic constraints affect German plural and participle formation in children with SLI

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The study of Specific Language Impairment (SLI) has often been framed in terms of grammatical difficulties. However, the grammatical difficulties have so far not been considered with respect to morpho-prosodic aspects. In German there are morpho-prosodic constraints that determine both nominal plural formation as well as participle formation. Specifically, a prosodically well-formed plural form ends with a trochaic stress pattern, whereas a prosodically well-formed participle form begins with a weak syllable. The present study investigates (a) whether these two morphological paradigms are problematic for German children with SLI and (b) whether children with SLI are sensitive to prosodic constraints that guide plural and participle formation. The performance of 14 German-speaking children with SLI (mean age 7;5) was compared to age-matched and younger language-matched controls. The elicitation tasks consisted of controlled sets of 60 regular words and 20 pseudowords for each plural and participle formation task. The results clearly showed that both groups of typically developing children performed significantly better than children with SLI in both morphological paradigms. Moreover, children with SLI produced more plural forms that did not meet the optimal prosodic shape of a noun plural, though their participles mainly followed the required prosodic shape of participles. Further detailed analyses on the SLI group suggested that morphological performance on participle formation was weaker in the presence of phonological impairments. In conclusion, the results indicate that plural as well as participle formation is problematic for children with SLI, while the results on plural formation additionally implicate that the prosodic structure of inflected words seems to be vulnerable in children with SLI.

Abstracts

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Poster

Articulation
and
Phonology

Syllable complexity in canonical babbling - A comparison between children with cleft palate and healthy children at the age of 11-14 months

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A detailed analysis of prosodic and segmental properties of early vocalizations of typically developing infants as well as of infants at risk for language impairment, like children with cleft palate, is a complex and important issue. It provides the basis for a better understanding of the first steps into language production and offers the chance to find early risk markers for an impaired speech and language development.

Beyond developmental criteria like age at onset of canonical babbling, structural properties of babbling syllables are found to be a possible predictor for later speech and language production in children with cleft palate (e.g. Lohmander, Persson 2008, Scherer et al. 2008). To identify possible developmental delays in babbling, the age of 12 months is postulated as suitable (Scherer et al. 2008).

While there is evidence of deviations in canonical babbling of English and Scandinavian infants with cleft palate (CPO), only little is known about syllable structure in German infants. Aim of this pilot-study is a multi-layered analysis of syllable structure in canonical babbling of German infants with CPO as a basis for cross-lingual comparisons. Observation-period is the age from 11 to 14 months, i.e. the time period around surgical closure of the palate at about 12 months, an event that embodies a dramatic break in pre-speech development, exactly within the postulated sensitive period for an early identification of babbling deficits (Scherer et al. 2008).

Participants were 10 infants (5 CPO, 5 infants without cleft =NC). Properties of canonical babbling syllables were compared between the CPO-group and the NC-group at 3 points in time: (1)3 weeks before palatal closure (2)3 and (3)6 weeks after palatal closure of the CPO-group (at 52 weeks, range 46-55 weeks). Vocalizations were recorded for 30 minutes. A standardized mother-child-interaction was chosen and a fixed set of toys used. Syllable properties were analysed using PRAAT. We focussed on the analysis of vocalization type and syllable-complexity. This is an ongoing longitudinal research project. We will put the results of the first 10 consecutively recruited infants to the conference as a basis for discussion.

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Poster

Articulation
and
Phonology

Clinical use of electropalatography (EPG) in Norwegian children born with cleft lip and palate(CLP).

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Aim: The aim of this project is to investigate the use of electropalatography in the clinical work with children born with cleft lip and palate (CLP).

Background: Cleft lip and palate (CLP) is the most commonly known congenital deformity of the face. The cleft can vary in type and size. A cleft in the palate can lead to articulation and/or nasality deviations. A common articulation deviation for this group is retraction of speech sounds. In such cases, EPG can be a useful tool in clinical speech therapy (Lee, Law and Gibbon (2009); Lohmander, Henriksson and Havstam (2010)). In Norway, EPG has mainly been used for research, but it has also been applied clinically in CLP children in a few cases (Pedersen, 2004; Holmefjord, 2006).

EPG is a computer-based instrument which allows the user to get visual display of the tongue's contact with the hard palate during speech. A custom-made artificial palate with electrodes is created and provides real-time visual feedback of the location and timing of the tongue patterns.

Methods: The target group is primary school CLP children with retracted articulation patterns who have failed to make progress in speech therapy. In this preliminary study we will present a pilot study of two of these children.

A detailed EPG training program is developed for each child. The CLP speech therapist is in charge of weekly training sessions. Alveolar target sounds are introduced in word-initial, -medial and -final positions. The child's tongue activity is recorded. Visualized articulation patterns are displayed and compared to those of the speech therapist, and annotation points for the target speech sounds are identified. The annotations containing spatial and timing information are analyzed. Three annotation points are identified; 1) approach to closure, 2) maximum constriction, and 3) articulatory release.

Perceptually-based speech assessment is carried out before, during and after EPG training. The speech assessment is based on SVANTE-N (Swedish Articulation and Nasality Test, Norwegian version). Narrow phonetic transcriptions are made by trained CLP speech therapists.

Preliminary findings from this pilot study will be presented.

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Oral

Intelligi-
bility

Benfits of topic key words for the intelligibility of dysarthric speech
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Increases to the intelligibility of disordered speech can be achieved by attempting to modify both the signal itself and by providing signal-complimentary information. In the area of dysarthria research both topic knowledge and listener familiarisation are being explored as potential methods of achieving the latter and hence facilitating intelligibility increases (Hustad, 2007). Existing research indicates that providing listeners with topic knowledge can significantly increase intelligibility levels (Utianski et al, 2011). However, questions remain regarding the method used to enhance topic knowledge and whether different methods (e.g. providing listeners with the global topic or providing several topical key-words) have different benefits. This study explores the method of providing topical key-words and its effect on the transcription accuracy of dysarthric speech by naive listeners. Listeners were assigned to one of two groups and asked to transcribe a passage of dysarthric speech. One group were provided with a set of key-words prior to transcribing the passage while the other group were not. The transcriptions were analysed according to transcription accuracy at various levels. Analysis focused on (i) global differences between the two groups in transcription accuracy, (ii) increases in the transcription accuracy of key-words alone, (iii) increases in the transcription accuracy of words with a close semantic relationship to the key-words, and (iv) increases in the transcription accuracy of words local to the key words (e.g. within the same clause). Error analysis was also carried out on the incorrectly transcribed words to determine if key-word provision may lead to the incorrect identification of other words as key-words (i.e. false positives). The results indicate that the provision of key-words increases global intelligibility scores and that this effect generalises to the entire passage rather than just the key-words themselves. Both a proximity effect and a semantic relationship effect seem to be triggered. It is suggested that prior knowledge of key-words provides a perceptual anchor for listeners and allows them to more easily locate word boundaries within the dysarthric speech. Implications are discussed for theories of speech perception, and approaches to speech and language therapy which focus on enhancing the conversational style of dysarthric speakers.

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Oral

Reading
and
Writing

Language, reading, and psychosocial adjustment in 10-year-old children born with cleft palate
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Purpose: The purpose of this study was to examine language and reading skills and psychosocial adjustment in 3 complete birth cohorts of 10-year-old children born with cleft palate (CLP/CPO). All children were included in the study, whether there was some additional difficulties or not, in order to explore the needs of subgroups, that are often excluded.
Methods: 140 children participated. Assessments with standardized Norwegian tests of language and reading skills were performed by speech and language therapists in the Oslo-team.
Test battery: Language: a standardized Norwegian language screening test (Språk 6-16), assessing sentence repetition, serial recall, vocabulary and phonological awareness.
Reading: a Reading Comprehension Test, consisting of 60 sentences, and a Word Chain Test, testing phonological skills, decoding.
Articulation and nasality: SVANTE-N (a Swedish Articulation and NAsality-TEst).
Psychosocial assessment: psychosocial adjustment was performed by the team's psychologists, using standardized instruments such as the SDQ, which was completed by one of the child's parents and by the child itself.
Results: Outcomes for the different groups (children with or without additional difficulties), as well as for the complete cohort, will be presented, highlighting associations between language, reading and psychosocial functioning. Preliminary results indicates that the children with a cleft only have language and psychosocial adjustment scores within the normal range, while children with additional difficulties have lower language scores and more problems with psychosocial adjustment.

Abstracts

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Oral

Other

Distributed cognition and aphasia

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Background: There is a growing body of work in cognitive science that stresses the fundamentally distributed nature of human cognition, such that the boundaries between 'wetware' (our brain) and its functions, and 'wideware' (devices and strategies distributed in our environments) become blurred. To date, little of this thinking has been integrated into clinical linguistics and speech language pathology, and most assessment and intervention approaches continue to strongly privilege the functioning of the individual, unaided brain. In addition, it is accepted practice to assume clear divisions between language disorders (e.g. aphasia) and cognitive disorders (e.g. amnestic disorders of dementia). Against this background, we propose a presentation discussing why clinical linguists and speech-language pathologists should interest themselves in distributed, and semiotics-driven accounts of cognition.

Data: Twelve video-recorded sessions of group aphasia therapy.

Method: A qualitative case-study layering multiple interactions, focusing on one individual's efforts to situationally distribute communicative and cognitive effort through the use of various tools, and of other group members.

Results, Theoretical and Clinical Implications:

While the brain may be selectively damaged in thinkers with aphasia, the wider problem-solving network remains adaptive. Individual-centered and modular impairment categories lack explanatory power, because language and cognition are mutually mediated and contextually situated. Traditional assessment and intervention methods (based on modular processing accounts) have limited ecological validity in terms of capturing functioning, since they pretend that thinking happens in the brain, and ignore the cognitive activity that happens in the world. Even intervention that advocates real cognito-communicative settings (i.e. conversation) as therapy environments places very little emphasis on developing cognitive orthotics. In addition, therapy methods that focus on so-called compensatory adaptations need to optimize tools within the social, cultural, communicative as well as cognitive parameters of dynamic interactive networks.

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Oral

Other

Exploring the world with dementia: Distributed cognition in conversation

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Background: The diagnosis and staging of progressive dementia typically include a combination of norm-referenced tests and examinee and caregiver clinical interviews that focus on the deterioration of skills. These assessments rest on several strong, but typically unspoken assumptions, namely that dementia is a condition that resides in one individual, and that the documentation of decontextualized splinter skills (e.g. immediate and delayed recall, verbal fluency) can be combined to arrive at a valid picture of an individual's cognitive functioning. The assessment process typically ignores how persons with dementia cognitively explore their environment, manage information, strive to learn, and how they use their environment to distribute cognitive effort.

Data and Method: A longitudinal, qualitative case-study involving the analytical layering of twelve recorded conversations between a person with dementia and several conversation partners (with and without dementia), and recordings of dementia screenings. Data were analyzed using Systemic Functional Linguistics. In terms of interpersonal meanings, we focus on the use of speech function moves that assign roles to conversation participants and are used to steer the content of an interaction, and to distribute cognitive tasks such as factfinding, or information rehearsal. Process and participant configurations (experiential meanings) reveal how interactants construe and integrate new and old knowledge. At the textual level, cohesion analyses show how interactants engage in active learning management by, for instance, multiple repetitions and minor variations.

Results and Implications: While this work is ongoing, intermediate results show that the ability to use language to actively explore one's environment, the 'drive to know', is preserved until well into what is conventionally called a 'moderate' or even 'moderate to severe' dementia stage, with the crucial caveat that the environment needs to be configured such that it supports the fundamentally distributed nature of human cognition. We discuss implications for the development of more valid assessment tools for dementia.

85	**Using PhonBank and Phon in studies of phonological development and disorders**

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Poster

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Articulation and Phonology

Research in the area of child language development and disorders has benefitted immensely from the tools and shared corpora now available through the internet. For example, the Child Language Data Exchange System (CHIL-DES; MacWhinney 2000) allows us to compare language samples across children differing in age and language background. For studies of phonological development and disorders, we now have PhonBank, part of the CHILDES system, which consists of longitudinal and cross-sectional data sets from children acquiring various languages, and includes audio-visual and phonetically transcribed files of babble and meaningful speech (Rose & MacWhinney, in press). The PhonBank corpora allow us to examine a broad array of phenomena relevant to phonological development and to test hypotheses regarding the phonological acquisition within and across languages. PhonBank data can be analyzed with Phon, a software program capable of performing independent analyses (e.g., consonant and vowel inventories; syllable and word shapes; stress patterns) and relational analyses (comparing the child's productions with the adult target). Phon can identify substitutions and deletions based on a single phoneme or phoneme class, and can compute Percent Consonants (or Vowels) Correct, and as well as different "whole-word" accuracy measures. In this presentation we provide a detailed example of the use of PhonBank and Phon for research on phonological development. We focus on velar fronting, a process which can apply either in an "across-the-board" or a positionally-determined fashion, and examine how it interacts with the remainder of the child's phonological system, an issue with both theoretical and clinical ramifications. We use PhonBank data to compare cross-sectional data from three children with phonological disorders (English-Chiat corpus) with the longitudinal data of a typically developing child (English-Inkelas corpus). We analyze the variability within and across these datasets against the overall shape of each child's phonology, including inventories of attempted and produced phones, tabulated according to positions within the syllable and relative to word stress.

86	**The multi-word utterances of children with persisting speech difficulties: Articulatory and prosodic effects on intelligibility**

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Poster

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Intelligibility

In spite of intervention, a small number of school-aged children with developmental speech difficulties continue to have significant speech production problems and their intelligibility in conversation is often markedly reduced; this group has been described as having 'persisting speech difficulties' (PSD) (Pascoe, Stackhouse, & Wells, 2006). There has been relatively little attention paid to PSD in the literature, although it has been suggested that one important issue for such children may be located at the level of connected speech production, where the overall processing demands of multi-word utterances (MWU) present crucially different challenges to speech production capacity than does the production of words in isolation (Howard, 2007).

This study presents a detailed phonetic and phonological analysis of the speech production of four children (age range 6;5 to 7;3), all of whom had reduced speech intelligibility accompanying PSD. Qualitative and quantitative analysis, with a particular focus on word juncture behaviours, revealed inter- and intra-speaker similarities and differences in the production of words in isolation and in MWUs (drawing on data from picture naming, sentence imitation and conversational speech) which reflected the interplay between segmental and prosodic levels of organisation. The data are considered in relation to previous findings (e.g., Newton & Wells, 2002; Howard, 2007) and their theoretical and clinical implications are explored in relation to speech production, speech development and intelligibility.

References

1. Howard, S. (2007). The interplay between articulation and prosody in children with impaired speech: Observations from electropalatographic and perceptual analysis. International Journal of Speech-Language Pathology, 9(1), 20-35.
2. Newton, C., & Wells, B. (2002). Between-word junctures in early multi-word speech. Journal of Child Language, 29, 275-299.
3. Pascoe, M., Stackhouse, J., & Wells, B. (2006). Persisting Speech Difficulties in Children: Children's Speech and Literacy Difficulties 3. Chichester, UK: Whurr Publishers Limited.

90	**Talking and making speech sounds is of greater concern for parents and teachers of 4- to 5-year-old children than other aspects of development**

Poster

Sharynne McLeod[1], Kathryn Crowe[1], Sarah Masso[1], Elise Baker[2], Jane McCormack[1], Yvonne Wren[3], Sue Roulstone[3]

Articulation and Phonology

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Early childhood is a time of maturation of skills including communication, motor, behavioural, social and academic learning skills. Most children succeed in these skills and are ready for school; some children have difficulties. Parents and teachers of 270 4- to 5-year-old Australian children within the first year of the Sound Start Project completed the 10 questions from the Parents Evaluation of Developmental Status (PEDS) (Glascoe, 2000) documenting areas of concern. There were 135 (50.0%) boys and 135 (50.0%) girls. The majority of children (76.3%) spoke English only, 21.1% spoke English + one other language, and the remainder spoke English + two or three other languages. Parents' (P) and teachers' (T) major areas of concern were children's "talking and making speech sounds" (P=16.7%; T=16.3%), "understanding what you say" (P=6.7%; T=8.9%) and "behavior" (P=7.8%; T=3.0%). The other areas were generally of less concern: "learning preschool/school skills" (P=5.6%; T=3.0%), "getting along with others" (P=4.1%; T=4.4%), "using hands and fingers" (P=4.1%; T=4.4%), "using arms and legs" (P=3.7%; T=3.3%), and "learning to do things for self" (P=3.3%; T=3.3%). Whilst there are similarities between the concerns of parents and teachers, there were also differences. Understanding the source of these differences will be important to the planning of appropriate interventions. These comparative results show that parents and teachers identified preschool children's speech and language as the major area of concern. The results underscore the importance of communication assessment and intervention to support children's transition to school.

91	**Gestural and lexical development in Cri du Chat Syndrome: a case study**

Kristian E. Kristoffersen

Poster

University of Oslo, Oslo, Norway **WITHDRAWN**

Language Comprehension

MacArthur-Bates Communicative development Inventories (MCDI) are widely used to assess lexical and grammatical development in children, and there have also been some studies using this instrument to investigate these skills in children from atypical populations (cf. Dale & Penfold, 2011).

Recently a large population-based study was conducted using the Norwegian adaption of the MCDI, providing norms for development and variation in typically developing children learning Norwegian (Kristoffersen et al. 2013; Simonsen et al. 2013). In the current study the use of the Norwegian adaptation is extended to children with Cri du Chat Syndrome, a genetic disorder associated with a deletion on the short arm of chromosome 5. Clinical features include mental retardation as well as motor problems. Individuals with CDCS experience language problems to varying degrees, see Kristoffersen (2008) for a review.

Data from one boy with CDCS will be presented, focusing on his gestural and lexical development over a period of 29 months. Data have been collected when the boy was between 2;5 and 5;6 by means of the Norwegian MCDI form Words and gestures to assess his development. Results will be displayed in growth curves for communicative gestures, receptive vocabulary and productive vocabulary. His skills in these areas will be compared to the norms for TD children learning Norwegian, drawn from the population study referred to above.

References

1. Dale, P. S., & Penfold, M. (2011). Adaptations of the MacArthur-Bates CDI into non-U.S. English languages. 2011(1114). Retrieved from http://www.sci.sdsu.edu/cdi/documents/AdaptationsSurvey7-5-11Web.pdf
2. Kristoffersen, K. E. (2008). Speech and language development in cri du chat syndrome: A critical review. Clinical Linguistics & Phonetics, 22(6), 443-457.
3. Kristoffersen, K. E., Simonsen, H. G., Bleses, D., Wehberg, S., Jørgensen, R. N., Eiesland, E. A., Henriksen, L. Y. (2013). The use of the Internet in collecting CDI data - an example from Norway. Journal of Child Language, 40(3), s 567- 585
4. Simonsen, H. G, Kristoffersen, K. E., Bleses, D., Wehberg, S., Jørgensen, R. N. (2013). The Norwegian Communicative Development Inventories – reliability, main developmental trends and gender differences. Accepted for publication in First language.

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Poster

Motor
Speech
Control

Quantitative measurements of tongue shape using ultrasound imaging data collected with and without head stabilisation

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Previous studies reporting the use of ultrasound tongue imaging with clinical populations have generally provided qualitative information on tongue movement (e.g., [1]; [2]). Meaningful quantitative measures for use in the clinic normally require the speaker's head to be stabilised in relation to a transducer, such as through wearing a headset. However employing a headset limits the use of ultrasound for clinical purposes, as it may be uncomfortable, and it is unsuitable for young children. Quantitative measures producing similar results regardless of whether the head is stabilised or not would be useful in clinical research. This is explored in the current study by comparing ultrasound data collected with and without head stabilisation. Ten 13-year-old speakers of Scottish English were recorded producing CV syllables with the consonants /p, t, s, ʃ/ and the vowels /i/ or /a/ in two conditions, with or without head stabilisation. In the latter case the transducer was hand-held by the experimenter. Midsagittal tongue curves at mid-consonant are compared across the two conditions (headset versus non-headset) and across vowel contexts, using several measures of tongue shape and position. Preliminary results on a subset of the data including the consonant /p/, presented in [3], identified a measure of tongue shape that was unaffected by the headset/no-headset condition. Further analyses are taking place examining the other consonants, and the results will be reported in the paper.

References
1. Bacsfalvi, P. & Bernhardt, B.M. (2011). Long-term outcomes of speech therapy for seven adolescents with visual feedback technologies: ultrasound and electropalatography. Clinical Linguistics & Phonetics, 25, 1034-1043.
2. Bressmann, T., Radovanovic, B., Kulkarni, G.V., Klaiman, P. & Fisher, D. (2011). An ultrasonographic investigation of cleft-type compensatory articulations of voiceless velar stops. Clinical Linguistics & Phonetics, 25, 1028-1033.
3. Zharkova, N. & Hewlett, N. (2013). Quantitative analysis of ultrasound data collected with and without head stabilisation. Poster at Ultrafest VI (Ultrasound meeting), Edinburgh University, Edinburgh, UK, 6-8 November 2013.

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Poster

Intelligi-
bility

Assessing intelligibility and acoustic changes in individuals with advanced Parkinson's disease: a pre-/ post-treatment study

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Parkinson's disease (PD) is a progressive neurological disorder which impairs all aspects of speech and voice resulting in hypophonic dysarthria in more than 80% of patients. The loss of intelligibility considerably impacts on activities of daily life and thereby also on the desire to communicate.

Patients with advanced PD and dysarthria were included into an ongoing randomized controlled study with pilot character. They received either two weeks of a daily treatment with focus on phonation, respiration, articulation and prosody or two weeks of a daily treatment following fundamentals of oral interpretation and performance. Different assessment methods of intelligibility such as word identification (e.g. Münchner Verständlichkeitsprofil (MVP)), transcription and scaling techniques (e.g. National Technical Institute for the Deaf (NTID) -scale) were used. Additionally, acoustic parameters were measured. Both analyses were conducted on word and sentence level as well as in read and spontaneous speech. Scores were taken before and immediately after treatment, and also after three months.

Based on the assumption that there are perceived enhancements in all data from the later measurement points, we expect two essential findings: (1) better intelligibility valuations correlating with acoustic changes such as in vowel space area and changes in variance of sound pressure level, and (2) changes to the patient's self-perception (assessed by Parkinson's Disease Rating Scale (UPDRS), Parkinson's Disease Questionnaire (PDQ) and Voice Handicap Index (VHI)).

First results reveal a significant improvement of intelligibility in read and spontaneous speech, but individually heterogeneous effects on the level of words and single sentences. Vowel formant analyses showed that F2 for vowels /i:/ and /a:/ are significantly reduced in the post-treatment data suggesting a retracted position of the tongue. Analyses of sound pressure level showed increased variance for individual speakers indicating enhanced articulation precision in post-treatment recordings. Since there seems to be no consistent way to determine intelligibility we discuss the implications and limitations that arise out of the present research.

Abstracts

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Poster

Hearing
and
Perception

Perceptual performance in children on the fricative identification task

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A number of studies have shown that the perception of speech develops throughout childhood and adolescence for individuals with normal hearing. Relatively little is known about the prior development of children's ability to perceptually identify the fricative contrasts in Brazilian Portuguese (henceforth BP). In this study, we investigated the ability of children to identify the contrast among fricative sounds of the BP. The aims of this study were: (i) to verify if there is a determined contrast among fricative sounds that presents a greater difficulty in its identification; and, (ii) in case there is, to verify whether the contrast of greater difficulty follows - or not - the same trend described in previous researches. There are six fricative phonemes in BP: /f/, /v/, /s/, /z/, /ʃ/ and /ʒ/. A forced-choice minimal-pair identification task involving the six fricatives was conducted with 62 children, 4-5 years old, using PERCEVAL software. The stimuli used in the identification task consisted of a typical adult's recordings of the familiar disyllabic words (minimum pairs) contrasting the fricatives sounds. The acoustic stimulus was presented to the children using headphones and they needed to choose which stimulus-correspondent picture was shown on the computer screen. Both presentation time and reaction time of the stimulus were measured by PERCEVAL software. Our results showed that the perceptual accuracy was 75,42% of correct response. The reaction time of the incorrect response was significantly higher than the reaction time of the correct response (t=-2,10, df=61, p=0,03). According to the confusion matrix, the perceptual difficulty varies due to the fricative contrasts: voicing cues are more robust than place cues. Within the place error category, there is a perceptual asymmetry, in which the phonetic distance plays a key role in the perceptual salience. That is, the longer the phonetic distance is; the smaller the similarity perceptual will be, enabling the identification of contrast among the fricatives. The auditory perceptual mastering of the fricative contrast in BP occurs gradually and, within this class, there seems to be a hierarchy in the perceptual mastering.

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Poster

Articulation
and
Phonology

The impact of speech rate and loudness on vowel (co)articulation in Parkinson's Disease

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Objective : Hypokinetic dysarthria is a common speech disorder encountered in Parkinson's Disease (PD). It is characterized by acoustic alterations such as changes in speech rate, decreased loudness and reduced vowel articulation. Some modification in C-V coarticulation patterns can also occur. The relationship between speech rate, loudness and vowel articulation/ coarticulation has not been studied in a systematic way. These acoustic variables are of particular interest because they are known to contribute directly to speech intelligibly.

Methods : The present study investigated the impact of speech rate and loudness on vowel articulation and co-articulation in C-V sequences in PD. We report the acoustic data of 10 PD subjects with moderate hypokinetic dysarthria, before, immediately after, then one and two months after receiving a speech therapy intervention program known to modify loudness and speech rate in hypokinetic dysarthria. For the articulation measurements, F1 and F2 formant values of the vowels /i/ /u/ and /a/ were taken at the 25ms stable portion in controlled consonant contexts, then maximal vowel space area was calculated. For the coarticulation measurements, locus equations were derived from C-V syllables then the acoustical distinctiveness between each of these equations was calculated. The relationships between both variables, and speech rate and loudness were analysed

Results : On articulation: Results show that speech rate has a strong impact on vowel articulation, with maximum vowel space area values being higher with slow speech and longer vowel. However, loudness does not appear to have an influence on vowel articulation. On coarticulation: Results show that loudness has a strong impact on C-V coarticulation, with locus equation distinctiveness being more important with louder speech. On the other hand, these coarticulation patterns are not influenced by speech rate. This ongoing study will help document the impact of speech rate and loudness on vowel articulation and coarticulation in PD. These results may explain some already reported clinical results of speech therapy with PD, while providing some complementary therapeutic goals.

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Poster

Articulation
and
Phonology

Acquisition of obstruents in children with cleft palate: Evidence from an intervention study

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Young children with cleft lip and palate (CLP) are at risk for early speech and vocabulary delays. There have been few data-based investigations of specific early intervention approaches to remediate these early delays. This study examined the acquisition of obstruents in a group of children with CLP before, during and after an early speech and language intervention to identify the changes that occurred in the sound system as the children engaged in early intervention. Participants included 18 children with nonsyndromic cleft lip and/or palate (CLP) between 15 and 36 months (MN Age 22.5; MN IQ: 107) received a clinician administered naturalistic language and speech intervention in 32 sessions over four months. The children were tested prior to intervention, midway through the intervention and immediately after the conclusion of intervention. Speech assessment, the Profiles of Early Expressive Phonological Skills (PEEPS; Williams & Stoel-Gammon, 2010)) was administered at each time point. This newly developed age-appropriate assessment focuses on single words. Whole word phonetic transcriptions were completed by a clinician trained in transcription of children with CLP. Transcription reliability, assessed with a second transcriber, was 89%. The intervention was a hybrid naturalistic language and speech intervention that targeted production of obstruents. Acquisition of place, manner and voicing features across the 3 time points was examined for error features during intervention. Error pattern changes are compared to measures for consonant inventory by word position and place of production, and percentage of consonants correct (PCC). Profiles of speech acquisition will be discussed relative to typical performance. This preliminary data provides information regarding the acquisition of early speech production of obstruents for children with clefts. The data will assist clinicians to make evidence-based decisions about the effectiveness of early speech interventions.

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Poster

Grammar

The languages of LARSP project

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It is over 30 years since LARSP (Language Assessment, Remediation and Screening Procedure) for English was published (Crystal, Fletcher & Garman, 1976). This text, along with others (e.g. Crystal, 1979, 1982), form the bedrock of the English version of the procedure. As a framework for profiling the development of grammar, LARSP has not been superseded. It continues to be taught to student clinicians, and to be used in clinics for assessment and as a basis for intervention.

In the years since LARSP was first published, a number of versions in languages other than English were drawn up. With the current growth of speech-language pathology worldwide it became clear that a 'Languages of LARSP' project would be worthwhile. This poster describes the current state of the project.

The first outcome of this project was the publication in 2012 of 'Assessing Grammar: The languages of LARSP' (Ball, Crystal & Fletcher; Multilingual Matters). This collection included LARSP-like procedures for 12 languages, including several produced specifically for the volume. Currently work is ongoing on a second collection dealing with 15 more languages, and a third collection of over 20 further languages. Languages spoken in Europe, Africa, Asia are included in the project, and currently one indigenous north American language.

We also report on a Workshop held for those drawing up new versions of LARSP, and for users of the current versions. Fittingly, the workshop was held at the University of Reading, where the original authors were based at the time LARSP was published.

The poster will illustrate aspects of profiles devised for a variety of different languages and focus on the solutions to language-specific aspects of syntax and morphology requiring adaptations to the traditional chart layout.

References
1. Crystal, D. (1979). Working with LARSP. London: Arnold.
2. Crystal, D. (1982). Profiling linguistic disability. London: Arnold.
3. Crystal, D, Fletcher, P., & Garman, M. (1976). The grammatical analysis of language disability. London: Arnold.
4. Crystal, D., Fletcher, P., & Garman, M. (1989).The grammatical analysis of language disability (2nd edition). London: Cole & Whurr.

Abstracts

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Poster

Talk-in-interaction

Como un término grotesco: An SFL analysis of a mother's talk about stuttering

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The purpose of this study is to examine the way in which OM, the mother of bilingual who stutters, linguistically constructs her beliefs about and experiences with her son's stuttering. Data was collected during a Spanish intra-dyad conversation between OM and her adult son, IH, who identifies as a person who stutters. Prior to the recording of the conversation the researcher advised IH to have a conversation about his stuttering with his mother. Particular topics were not specified by the researcher thus allowing the participants to talk about stuttering-related topics that were of importance to them. The researcher was not present at the time of the recording. The 60-minute audio recording was transcribed by the researcher. The content of the transcript was analyzed using Systemic Functional Linguistics (SFL), a theory of language use described by Halliday and Matthiessen (2004). The use of this analytic tool revealed the ways in which OM linguistically constructed her experience as a mother of a person who stutters. In particular, the three metafunctions of speech as described by Halliday & Matthiessen (2004) were examined. Analysis of the experiential metafunction uncovered how OM positioned herself in relation to IH's stuttering. The interpersonal metafunction was investigated through analysis of the Appraisal system which allowed the researcher to see how OM conveyed attitude through the meanings of specific, charged words and whole clauses (Eggins & Slade, 1997). The textual metafunction was investigated through analysis of themes and examination of coherence patterns which gave insight on the actual information OM was transmitting as well as the dominant topics in her talk. This study has clinical implications for family counseling and education. Findings are pertinent to multicultural populations and fluency clientele.

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Oral

Prosody

Acquiring prosodic focus marking in Swedish and Dutch

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Swedish and Dutch speakers use prosody to flag new or important information, often referred to as focus. Because children's prosodic focus marking has mainly been studied in languages that lack lexical uses of pitch1-3, we investigate children's prosodic focus marking in two languages that display different labor divisions between prosodic cues and their functions, asking how such differences affect acquisition. Because prosodic impairments are frequently reported in atypical populations4, increased understanding of what typical acquisition of prosody entails becomes increasingly important.

We used an interactive picture game to collect SVO sentences with initial, medial and final focus from Dutch and Swedish 4-to-5-year-olds and adult controls. Phonetic and phonological analyses were conducted using Praat5, combining automatic and manual measures.

Mixed effect modelling was used to examine the effect of focus on minimum pitch, maximum pitch, pitch range, word durations and pausing. Our results show that the Dutch children significantly manipulate pitch and pauses to mark narrow focus both medially and finally, but that they are less consistent in their use of duration and accent choice. Preliminary results from the Swedish children suggest that they on the other hand do make use of duration for marking focus. We present the complete analysis from both Dutch and Swedish-speaking children, discussing how characteristics of the children's languages affect their path to adult prosodic focus marking.

References

1. Chen A. (2011). The developmental path to phonological focus-marking in Dutch. In: Frota S, ed. Prosodic categories: Production, perception and comprehension. Studies in natural language and linguistic theory 82. Springer Science and Business Media B.V.
2. Müller A, Höhle B, Schmitz M, Weissenborn J. (2006). Focus-to-stress alignment in 4 to 5-year-old German-learning children. Proc. GALA, 2005.
3. MacWhinney B., Bates E. (1978). Sentential devices for conveying givenness and newness: A cross-cultural developmental study. Journal of Verbal Learning and Verbal Behavior.
4. Stojanovik, V., Setter, J. (2011). Speech Prosody in Atypical Populations: Assessment and Remediation. Guildford, Surrey: J&R Press
5. Boersma P, Weenink D. (2010). PRAAT: Doing phonetics by computer (version 5.1.25) [computer program]. http://www.praat.org/

100	**Vocal milestones and early lexicon of Finnish twins**

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Other

Singleton studies have established vocal milestones for typically developing children. Recently, a retrospective Finnish study reported the mean appearance of first words in twins to be 14,6 months of chronological age (Latvala et al., 2013) and a mild language delay for twins has been reported at 20 months of corrected age (CA) (Rutter et al., 2003). It is yet to establish, whether twin children's vocal development follows singleton norms and is the emergence of first words in fact delayed even after excluding prematurity.

The aim for this study was to track down the emergence of canonical and variegated babbling in a sample of Finnish twins (n=20) and their receptive and expressive vocabularies at 12 months of CA. The information was gathered from parent reports using standardized questionnaires: Finnish MCDI (Lyytinen, 1999) and Longitudinal developmental checklist (Lyytinen et al., 2000).

The results show, that twins began canonical babbling within singleton norms before 11 months of CA. However, variegated babbling emerged significantly later than for singletons and twins had smaller expressive vocabularies as well as substantially smaller receptive vocabularies at 12 months of CA. Current findings are discussed in the light of speech and language research on twins and multiple children.

References

1. Latvala, A., Rose, R. J., Pulkkinen, L., Dick, D. M., & Kaprio, J. (2013). Childhood verbal development and drinking behaviors from adolescence to young adulthood: A discordant twin-pair analysis. Alcoholism: Clinical and Experimental Research, doi: 10.1111/acer.12254

2. Lyytinen, P. (1999). Varhaisen kommunikaation ja kielen kehityksen arviointimenetelmä (Finnish Manual for Communicative Development Inventories, MCDI). Jyväskylä: University Press.

3. Lyytinen, P., Ahonen, T., Eklund, K. ja Lyytinen, H. (2000) Ääntelyn ja motoriikan kehityksen seurantamenetelmä. Jyväskylä: University Press.

4. Rutter, M., Thorpe, K., Greenwood, R., Nothstone, K. & Golding, J. (2003). Twins as a natural experiment to study the causes of mild language delay: I: Design; twin - singleton differences in language and obstetric risks Journal of Child Psychology and Psychiatry 44, 3, 326–341.

102	**Real words and non-words learning under or without attention by children with SLI**

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Poster Modyco, Nanterre, France

Psycho- and Neuro- linguistics

Garagnani, Shtyrov and Pulvermüller (2009) showed that strong attention was necessary for adults with normal language performance to allow them to memorize new words. In the case of low attention, the subjects could not remember unknown words but only known words. The link between attention and learning new words could explain the comorbidity between attention disorders and language impairment in young children.

We wanted to test whether young children with or without SLI were able to learn new words with or without attention to the task. Our hypothesis was that learning new words would be especially difficult for children with SLI, which means that their performance would drop more when learning new words without attention than in any other situation.

Ten children with SLI were matched by age to ten children with typical language development. Age ranged from 6;9 to 10;03. Children were presented during training with lists containing four non-words and four real words. Training was conducted under attention or without attention. Testing contained three non-words distractors and three real words distractors in addition to the words presented during training.

Results showed that control children had better results than children with SLI, $t(317) = 2.97$, $p = 0.003$, that results under attention were better than results without attention, $t(317) = 3.69$, $p = 0.0002$, and that real words were better memorized than non-words, $t(317) = 4.31$, $p < 0.0001$. There was an interaction effect between Children's type (Ctrl vs. Sli) and Attention (with vs. without), but only with real words, $F(1,76) = 5.88$, $p = 0.01$, not with non-words. Our main hypothesis was only partly confirmed, but results showed that children with SLI had clear problems with learning non-words and learning words under no attention. Full results will be presented and discussed during the presentation of the paper.

Garagnani, M., Shtyrov, Y., & Pulvermüller, F. (2009). Effects of attention on what is known and what is not: MEG evidence for functionally discrete memory circuits. Frontiers in human neuroscience, 3, 10.

Abstracts

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Oral

AAC

Literacy through blissymbolics - a case study

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Studies have shown that literacy skills can be hard to achieve for people with congenital complex communication needs (CCN) (Larsson and Dahlgren Sandberg 2008). People with CNN have severe motor difficulties affecting the ability to use oral language. Research on dyslexia has shown that phonological awareness is a strong predictor for literacy acquisition (Hulme and Snowling 2009). Can the poor literacy skills in people with CNN be explained by phonological deficits alone? It is likely that the lack of articulatory experience will affect the phonological development and lead to some degree of phonological deficit. However, some children or adolescents with CNN have reasonably good phonological skills and learn to read despite their motor difficulties (McNaughton 2003), whereas others do not. Graphic symbols other than letters may aid the literacy development. The use of blissymbolicss has been shown to have this effect (McNaughton 2003). Blissymbolics is a semantic graphical language where symbols can be used productively, and markers can be added to form complete and grammatically correct sentences (www. blissymbolics.org).

We will present an adolescent boy with cerebral palsy, spastic quadriplegia, with severe motor difficulties and no functional oral speech. He uses blissymbolicss for communication, and at the age of 15 he has not learned to read. Tests of receptive language show low scores, but he is able to understand and learn in class. A focused literacy programme was started in the autumn of 2013. It has an emphasis on phonological awareness, and bliss is used as a means of communication and to enhance linguistic awareness in general. So far, the results seem promising, and the programme will continue through spring 2014. The outcome will be presented.

References

1. Hulme, C. and M. Snowling. 2009. Developmental Disorders of Language Learning and Cognition. West Sussex: Wiley-Blackwell.
2. Larsson, M. and A. Dahlgren Sandberg. 2008. Memory Ability of Children with Complex Communication Needs. Augmentative and Alternative Communication, 24, 139-148.
3. McNaughton, S. 2003. Blissymbol learners, their language and their learning partners: development through three decades. In S. von Tetzchner and N. Grove (Eds). Augmentative and Alternative Communication. Developmental Issues. London: Whurr Publishers.

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Poster

Grammar

Production of morphological complexity's markers in French-speaking children with specific language impairment (SLI).

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Background: The project is based on a cognitive linguistic and usage-based perspective. According to Diessel (2004), a complex sentence is defined by grammatical constructions that express a relationship between two (or more) situations in two (or more) clauses. Children with SLI produce less complex structures (Thordardottir & Ellis Weismer, 2002). The current study focused on complex syntax production in children with SLI, especially the presence of morphological complexity in their spontaneous speech.

Hypotheses: We hypothesized that children with SLI would have more difficulties with the very infrequent verbal forms. We also expected an effect of type of task on the children's productions.

Participants: Fifteen French-speaking children with SLI (aged from 108 to 163 months) matched on maternal education and lexical reception to 15 children with TL (aged from 72 to 120 months) participated to the study.

Methodology: Each child produced four spontaneous speech samples of 5 min each. For one sample, the children were asked to tell a story about a cartoon that they had just been show. For another sample, an interview (about school, family or leisure) was conducted with the children (Evans & Craig, 1992). For the third sample, the children were exposed to a referential communication task. For the last sample, the children described the pictures of a book without accompanying text. All the children's produced utterances were recorded, transcribed and analyzed.

Results & discussion: Not all grammatical markers did result in a significant difference between the two groups. Children with SLI produced less verbs in the imperfect than their peers. Otherwise, the children produced more complexity's markers when they had to narrate a cartoon that they had just been show. Other verbal forms investigated were so infrequent that they didn't appear in spontaneous production. The use of the imperfect appeared to be the best marker of verbal morphological complexity for these children.

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105 **Oral** Articulation and Phonology	**Teaching typically developing children new articulations with ultrasound visual biofeedback** Joanne Cleland, Satsuki Nakai, James M. Scobbie CASL, Queen Margaret University, Musselburgh, UK

An increasing number of small n studies are examining the effectiveness of ultrasound tongue imaging (UTI) as a visual biofeedback device for treating speech sound disorders. However, no studies examine the use of UTI in a randomised control trial, partly because it is a relatively new technique in the speech therapy clinic, but also because homogeneous groups of speech disordered individuals are hard to define. Here we present a pseudo-therapy experiment where we compare the ability of typical children to learn new articulations with and without biofeedback from UTI.

Thirty Scottish children aged 6-12 were randomised to one of two groups. Group A were taught speech sounds using UTI plus imitation (of a pre-recorded UTI of a phonetician producing the segments), modelling, articulatory descriptions and feedback on performance. Group B were taught the same speech sounds using the same methods but in the absence of UTI visual biofeedback.

Both groups firstly imitated the non-Scottish-English sounds: [u,ɯ,y,c,ʂ,b͡g] in isolation and in [aCa] or [dV]. They were then taught to produce the segments and their best attempt was recorded. Phonetically-close segments were also recorded for tongue-shape comparisons. For example, a correct production of [y] was classified as a similar tongue shape to [i] (already in the children's phonetic inventories) with rounded lips. All recordings were made with simultaneous high-speed ultrasound (121fps), audio and video of the lips. Teaching sessions were no longer than 35 minutes.

Preliminary analysis indicates that both groups of children learnt to produce the segments with the exception of the high back vowels [u,ɯ]. UTI conferred a small advantage for learning the palatal stop (Group A 67%; Group B 40%) and the labial velar double articulation (Group A 80%; Group B 70%), both of which contain strong lingual components.

In conclusion, UTI may be useful for teaching new articulations to children, however, it confers little advantage over traditional speech therapy techniques. Nevertheless, the benefits may be greater in children with persisting speech sound disorders for whom learning new articulations is especially difficult.

106 **Poster** Articulation and Phonology	**The use of ultrasound for assessment and treatment of speech sound disorders associated with cleft palate** Zoe Roxburgh, Joanne Cleland, James, M. Scobbie, Sara Wood CASL, Queen Margaret University, Edinburgh, UK

Many studies investigating speech characteristics and intervention in cleft palate (CP) are based on conventional approaches. For speech and language therapists using these conventional approaches, there is a risk of compensatory articulations being unidentified, with possible misdiagnosis and subsequent inappropriate intervention. Electropalatography (EPG) and Ultrasound Tongue Imaging (UTI), indirectly show the effects of the cleft. Gibbon and Wolters (2005) and Bressmann et al. (2011) have explored compensatory articulations in CP speech using UTI, concluding that it has the potential to become a useful tool for investigating cleft palate speech. In addition, Zharkova (2013) has identified ultrasound as a potentially useful tool for the assessment of speech in speakers with CP. However its clinical applications remain to be tested.

The current study tests and compares the clinical application of articulatory animations and UTI for speech sound disorders (SSD) in children with a repaired CP. It uses a single-subject multiple-baseline design. Participants are two males, ages 6;3 and 9;2, with a SSD as a result of repaired CP. Participants received 6 assessment sessions and 16 therapy sessions, using both ultrasound and the Speech Trainer 3D app for the iPad.

Ultrasound data was recorded using an Ultrasonix® SonixRP machine remotely controlled via Ethernet from a PC running Articulate Assistant AdvancedTM (AAA) software (Articulate Instruments 2010). A probe stabilising headset was used, to ensure accurate measurements were gathered. To ensure that headset movement was accounted for, a video from a headset-mounted micro-camera was used, which also captured lip data. A headset-mounted microphone was also used to record audio data.

A preliminary analysis of ultrasound data confirmed accurate phonetic transcriptions for both speakers. It also revealed covert errors such as double articulations. Lip data revealed additional silent labial, linguolabial and interdental articulations. Preliminary results from treatment data showed improvement in percent consonant correct for both speakers post-intervention. Further analysis of findings will be presented.

Abstracts

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Oral

Multi-/
bilinguality

Home language environment and English vocabulary development in bilingual hearing-impaired children.

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This small scale study investigated the influence of home language environment (HLE) on receptive vocabulary development of hearing-impaired (HI) children from bilingual/multilingual families where English is an additional language (EAL).

The study was conducted with children and their parents from a primary school with a specialist provision for HI children within an ethnically diverse Borough in the East End of London. 8 HI children, aged 3 to 5 years were matched for chronological age and home language with 7 hearing children. Languages spoken in their homes were Somali, Panjabi, Gugarati, Urdu, Bengali/Sylheti, Romanian and English. Parents were interviewed using an adapted version of the HLE Questionnaire (McCarthy 2009) for information about family background and languages spoken at home. Receptive vocabulary was assessed at the beginning and end of the academic year using the British Picture Vocabulary Scales II (BPVS II). Teachers were interviewed about languages spoken in class.

Findings showed notable variation in language exposure at home for all the EAL children with the EAL HI children exposed to higher amounts of English than the hearing EAL children. Parental variables (e.g. country of birth, country and level of education and preferred language) influenced the languages to which the children were exposed. At school, children were exposed mainly to English. All the children showed improvement in BPVS II scores over time, but the EAL HI children scored lower at both times than did their EAL hearing peers. Correlational analysis indicated that there was a relationship between the amount of English children were exposed to at home, and their receptive vocabulary scores.

The findings emphasize that variations in individual families with respect to HLE do impact on EAL HI children's spoken language outcomes. In spite of the small sample size, this highlights the need to take HLE into account in clinical and educational settings.

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Oral

Hearing
and
Perception

Auditory development of infants with hearing loss

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Background: Children with hearing loss are at risk for delays in auditory, speech, and language development. Since the introduction of UNHS there has been an increase in the number of children identified with hearing loss earlier in life. Young children are challenging to assess due to limitations and validity of behavioral responses. For this reason, it becomes increasingly important to rely on the observations of the parents. A parental questionnaire (LittlEars) has been developed which focuses on the auditory, speech, and language milestones for children with normal hearing from 0-24 months of age.

Method: LittlEars was translated from English to Swedish. The questionnaire consists of 35 yes/no questions. The questionnaire has been used with 32 children with a mean age of 8:4 months (range: 3 to 22 months). The children present with cochlear implants (n=7), bilateral, sensorineural hearing loss (n=18), unilateral, sensorineural hearing loss (n=2), and conductive hearing loss (n=5).

Results: Total scores from each of the groups were analyzed by chronological and hearing age (age at which the child received amplification). The scores obtained were compared to the "at-risk" scores. Preliminary analysis indicates the following trends. First, children who received a cochlear implant were within at-risk scores when their points were analyzed by their chronological age but not within at-risk scores when their hearing age was used. Secondly, the children with bilateral sensorineural hearing loss demonstrate a large variation, ranging from above age appropriate to at-risk scores. The children with unilateral sensorineural hearing loss and conductive hearing loss were within normal limits when chronological and hearing ages were used for comparison.

Conclusions: Most children were not within at-risk scores when their hearing age was used for analysis. However, when chronological age was utilized, children with cochlear implants and one third of the children in the bilateral hearing loss were at risk for their auditory, speech, and language development. This tool can be used to identify those children who are at risk for delayed auditory, speech, and language development. This preliminary data demonstrates a need for additional assessments in the areas of speech and language order to evaluate individual progress.

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Oral

Talk-in-interaction

Linguistic recycling in typical and atypical conversation: evidence of 'memory-for-interaction'?

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There is plentiful evidence of the human ability to recall with great precision utterances which have just been spoken. This phenomenon is for the most part researched by cognitive psychologists interested in what is generally referred to as short term memory (STM). Their work typically focuses on the ability to repeat stimuli such as sentences, digits, words and non-words. In the clinical domain, problems with STM, in conjunction with phonological, grammatical and semantic ability, have been shown to affect the language production of, for example, children with specific language impairment (e.g. Riches, 2012; Hesketh & Conti-Ramsden, 2013). For the most part, research carried out in this area is experimentally based and uses pre-designed stimuli. In contrast, in this presentation we approach STM indirectly through its role in the ordinary conversation of a small group of children with a range of developmental speech and/or language difficulties as they interact with adults. We do this by examining the relationship between current and prior utterances in terms of the partial or entire repetition of words and constructions, paying particular attention to transformations (e.g. phonetic or syntactic) effected by both child and adult. In particular, we aim to show that:

• the ability to 'recycle' immediately prior utterances plays a key role in both typical and atypical language production
• good recycling ability – underpinned by STM – may provide a means of compensating for impaired linguistic ability
• prior utterances effectively 'prime' subsequent ones
• the collaborative interaction of both participants sequentially and across turns is crucial to this enterprise

We conclude by suggesting that studying STM through the use of decontexualised, artificially constructed stimuli in the laboratory, may usefully be supplemented by examining its role in ordinary conversational interaction. Indeed, we speculate that STM may have evolved as a key component of a specialised 'cognition-for-interaction' (Levinson, 2006) precisely in order to meet the requirements of conversation.

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Oral

Voice

Tracking endurance of voice-healthy individuals in a vocal loading test including long time voice measurement

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This study served to develop a vocal loading task for a clinical setting. For this purpose 11 voice-healthy individuals (6F/5M) took part. The subjects read a text in ambient babble, aired through a loudspeaker, at increasing SPL (55-85 dB SPL). The subjects were told to stop reading when or if they felt any discomfort from the throat. Time spent on the task was recorded, to learn when voice-healthy subjects experience vocal strain. Reasons for withdrawing from the vocal loading task were recorded. To track any vocal or physiological changes in voice production the task was preceded and followed by standard clinical voice recordings (analyzed for changes in F0, intensity and speech range), high speed films of the vocal folds and measurements of phonation threshold pressure (PTP). Voice analyses were made using Swell, Phog and two blind expert panels: 3 phoniatricians assessing high speed imaging and 3 SLP's assessing perceptual voice quality. Four days of voice use were accumulated for each subject, yielding Information on vocal baseline and on recovery from the vocal loading task, which took place day two. A voice accumulator (VoxLog) and a study-specific structured voice activity journal were used.

The task was deemed successful as all subjects reported vocal strain post loading. A comparison of voice accumulation data showed the degree of vocal loading during the task going unmatched in the everyday life of the subjects (regarding phonation time, F0, voice intensity level and self-perceived vocal strain).

The subjects differed greatly regarding time spent performing the task (3-30 minutes). Voice recordings showed each subject phonating at higher intensity levels promptly after the vocal loading task than before the task. Nine subjects either maintained or raised their F0 levels. The speech range profiles changed for all subjects, most of them increasing their intensity and frequency areas after vocal loading. The LTAS show most of the subjects' voices to be more hypofunctional after loading. The PTP increased in six of the subjects and decreased in four. The expert assessments did not correlate regarding vocal loading task outcome.

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Poster

Articulation and Phonology

Phonological characteristics of children with speech impairments and typically developing controls

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Swedish is one of 13 languages studied within a cross-linguistic child phonology project which aims to determine similarities and differences in the phonology of children with protracted versus typical phonological development. A new Swedish assessment tool with 109 target words has been developed. In addition to examining the segmental inventory of Swedish, the test also evaluates Swedish word structure and stress patterns. The assessment tool enables a non-linear analysis of the children's phonology.

In the present study the phonology of 13 monolingual Swedish speaking children with phonological impairment is compared to the speech of age and gender matched controls.

The children, three girls and ten boys aged 3;6 - 5;0 years (mean age 4;3) were referred for phonological assessment to a clinic in the south-east of Sweden. Age and gender matched controls were recruited from pre-school units in the same region. A native speaker elicited and transcribed the speech samples in accordance with transcription conventions developed through discussion of the project team. The data were entered into Phon 1.6.2 (Rose & Hedlund, 2013) for quantitative analyses

The results show that the children referred for SLP assessment had substantial difficulties on all levels of the phonological hierarchy. The studied children had 41.4% word structure mismatches with adult targets and 17.7% segment substitutions. The controls had some problems with single segment substitutions (5,.6%) but very few word structure mismatches with adult targets (6%). The control's word structure mismatches primarily concerned cluster reduction, whereas the children with speech impairment also had segment deletions, syllable deletions, consonant epenthesis and vowel epenthesis. The results highlight the importance of including word structure in assessment and treatment of phonology.

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Oral

Articulation and Phonology

Using ultrasound visual biofeedback to treat children with persistent speech sound disorders

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Most types of speech intervention rely heavily on auditory skills, in that clients must listen to their own productions and modify them using auditory cues. Speech intervention that uses visual feedback may benefit people for whom visual skills are stronger than auditory skills, with visual feedback potentially most useful when the target articulation is hard to describe or see. Ultrasound Tongue Imaging (UTI) is gaining popularity as a visual biofeedback tool that is cost-effective and non-invasive. In this study UTI was used to treat children with persistent speech sound disorders that have been unresponsive to traditional therapy approaches.

A single-subject multiple baseline design was employed. Simultaneous high-speed ultrasound (121fps), audio and lip video recordings were made for 6 children (aged 6;0 to 11;0) during completion of the DEAP (Dodd, B., Hua, Z., Crosbie, S., and Holm, A. (2002) Diagnostic Evaluation of Articulation and Phonology. London: The Psychological Corporation.) and during untreated wordlist designed to probe each child's specific errors at five different time points (before, during and after intervention). The children received 12 individualised therapy sessions using real-time visual feedback from ultrasound.

Prior to intervention, the DEAP percentage consonants correct (PCC) scores indicated a range of speech sound disorders from mild (PCC=88) to moderate (PCC=65). Ultrasound analysis indicated errors including velar fronting, /r/ errors, sibilant distortions and sequencing difficulties. Therapy focussed on achieving new articulations and post-treatment all of the children were able to achieve these new articulations. Further results will be discussed, including the maintenance and generalisation of newly acquired articulations.

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Stress or Position: Deciding between prominence and position in prosodic development

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Prominence and position are known as the two main factors which influence children's truncations from target words as has been reported for the phonological acquisition in many languages. Children usually preserve stressed and final syllables and tend to omit un-stressed and non-final ones (e.g. /ba'nana/ à /'nana/). This preference is explained mainly by the relative perceptually salience of the stressed and final syllables. However, there were almost no attempts to investigate/examine the interactions between these two factors. Thus the goal of this study was to examine the relative influence of stress prominence and final position on children's prosodic development. The language that has been chosen to examine these factors is Israeli Hebrew (IS) which has penultimate stress in almost 30% of content words in Child-directed speech.

Data have been collected from 115 typically developing children aged 1;7-2;5 and 30 children with atypical phonological development aged 3;4-4;8. All the participants were Israeli-Hebrew-speaking (children?) with no hearing impairment or other developmental disorders.

The results showed that in both groups the final syllables were produced more correctly than the stressed syllables. These results are compared with data from other languages like English and Dutch.

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Poster

Semantics
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Longitudinal study on expressive vocabulary acquisition among japanese children with ASD

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A number of studies have focused on the pragmatic aspect of communication among children with autism spectrum disorders (ASD); however their early vocabulary acquisition has not been fully investigated. Kjellmer, et al. (2012) found that primary contribution to verbal language skills in preschool children with ASD is related to cognitive level. Fujiue & Otomo (2009) found that a variety of repertoire of early words produced by children with ASD tended to be limited to nouns. Since the aforementioned study was a cross-sectional study, we attempted a longitudinal study in order to investigate the developmental process of vocabulary acquisition among children with ASD. This study aimed to compare expressive vocabulary acquisition among ASD children with and without intelligence impairment.

Participants were 18 children with ASD. They were further divided into two groups: 7 children with intelligence impairment (Low Intelligence group) and 11 children without intelligence impairment (High Intelligence group). The participants' mothers were asked to check their child's expressive vocabulary repertoire by using The Japanese MacArthur Communicative Development Inventory once a year at the child's age of 4, 5 and 6. Scores were calculated based on the ratio of words expressed by each child to the listed words in each of 7 vocabulary classes such as nominal, common nouns, proper nouns and people, routine, verbs, predicates, and grammatical functional words.

Results were: (1) No difference was found between HI group and LI group at age of 4; (2) Significant progress was seen at age 5 among HI group while no progress was recognized among LI group; (3) At age 4, children in both groups acquired nouns more than words in other classes; however at age 5, HI group acquired vocabulary of various classes overall while LI group showed the same tendency seen at age 4. Overall results supported previous research results that cognitive level contributes to vocabulary acquisition and vocabulary acquisition is unbalanced in terms of classes. It is noteworthy that rapid progress of vocabulary acquisition including socially-related words was recognized at age 5 only among HI group.

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Other

Establishing discourse norms for assessing speakers with aphasia

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Background: Discourse often presents challenges for adults with aphasia following stroke. Language for communicating beyond basic needs is something people with aphasia describe as a priority for therapy (Worrall et al., 2011). However, clinical work directly targeting discourse is not widely completed (Rose, Ferguson, Power, Togher, & Worrall, 2013). This may be for a number of reasons, including 1) limited knowledge of how neurologically healthy speakers use language in discourse; 2) limited knowledge of how language varies across discourse genre; and 3) limited knowledge of how microlanguage, such as such as syntax, affects more functional 'real world' variables, such as information content.

Aims & Methods: This study aimed to address these challenges, and is one of the largest studies focusing on micro and macro features of language across a range of genres to date. We collected personal, fictional, procedural, and picture description discourses produced by 60 neurologically healthy speakers; and analysed 10 micro and macro structural discourse variables.

Results and Conclusions: Findings indicated variable patterns of micro language across genres, and links between the features of language. These findings illustrate the range of normal language use across a number of discourse tasks, and provide a benchmark for speech and language therapists and researchers completing discourse-focused assessment and therapy.

Rose, M., Ferguson, A., Power, E., Togher, L., & Worrall, L. (2013). Aphasia rehabilitation in Australia: Current practices, challenges and future directions. International Journal of Speech-Language Pathology, Early Online, 1-12.

Worrall, L., Sherratt, S., Rogers, P., Howe, T., Hersh, D., Ferguson, A., & Davidson, B. (2011). What people with aphasia want: Their goals according to the ICF. Aphasiology, 25(3), 309-322.

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Oral

Psycho-
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linguistics

Cognitive predictors of language in infants with Down syndrome

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Individuals with Down syndrome (DS) typically have marked delays in language development relative to their general cognitive development, with particular difficulties in expressive compared to receptive language, and syntax compared to vocabulary. Yet knowledge is limited with regard to which factors in very early childhood may predict language outcomes at age 3. The aim of this longitudinal study was to assess a group of infants with DS (n=14) and a group of typically-developing (TD) infants (n=35) at three time points over a period of 12 months on a variety of factors that have been shown to be related to language in typically and atypically developing infants, in order to investigate which of these factors are the strongest predictors of later language. The infants were assessed in a dedicated infant laboratory and sessions viode recoded for later coding. The factors included: Non-Verbal Mental Ability, Speech Segmentation, Initiating Joint Attention, Initiating Behavioural Requests, Responding to Joint Attention, Parental Responsivity, Object Categorisation, and Symbolic Play. Longitudinal analyses of the relationships between predictor measures and language outcome measures showed that Speech Segmentation and Initiating Joint Attention were the most important predictors of later language in the typically-developing group, whereas Non-Verbal Mental Ability and Responding to Joint Attention were the strongest predictors of later language for the infants with DS. These results are considered in relation to findings from previous research, and the theoretical implications of the findings are discussed, with the findings largely being argued to support a neuroconstructivist view of language acquisition.

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Evaluation of multisyllabic word production (MSW) in Canadian French-speaking children within a nonlinear phonological framework

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The current study evaluates multisyllabic words (MSWs) in eight monolingual Canadian French speaking preschoolers with protracted phonological development (PPD), adopting a nonlinear phonological framework. MSWs are especially vulnerable to phonological mismatches because they are less frequent (less practiced) and contain many interacting phonological elements. For example, comparing 'balançoire' (/balɑ̃ˈswaʁ/) and 'hôpital' (/ʔɔpiˈtal/), 'balançoire' would be expected to show more phonological mismatches because it includes more complex interacting phonological information: multiple phonological features including a nasalized vowel and a complex sequence of consonants, including a medial cluster. The current study adapts a whole-word scoring rubric from English [1] and Spanish [2] that aggregates mismatches across all levels of the phonological hierarchy, and also notes potential influences from other words (including bilingual transfer, relevant in the dialect area). The outcomes of the analysis rubric are compared with other global measures: Percent Consonants Correct [3] and Phonological Mean Length of Utterance [4]). The additional information from the nonlinear phonological hierarchy may help interventionists better understand the complexities of MSWs, and inform assessment and intervention practices with children.

1. Bernhardt, B. & Mason, G. (2011). Assessment in nonlinear phonology in English and other languages. Mini-seminar, BCASLPA, Victoria, Canada
2. Schretlen, C. E. (2013). Prosodic structure patterns in multisyllabic word productions of Granada Spanish-speaking children with typical versus protracted phonological development. Master's thesis, Vancouver, Canada
3. Shriberg, L. D., et al. (1997). The percentage of consonants correct (PCC) metric: Extensions and reliability data. Journal of Speech, Language and Hearing Research, 40, 708-722.
4. Ingram, D. (2002). The measurement of whole-word productions. Journal of Child Language, 29, 713-733.

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Oral

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Hemispheric roles in the perception and production of famous proper nouns

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Background: The goal of this study was to further investigate hemispheric specialization for proper and common nouns by examining the ability of individuals with left hemisphere damage (LHD) to perceive and verbally reproduce famous names and matched common names compared with the performance of matched normal control participants.

Method: Ten individuals with LHD due to cerebrovascular accidents (CVA) and 16 age-and education-matched healthy controls (HC) completed identification and production tasks of famous proper (derived from surveys) and common nouns. Three sets of 200 stimuli were utilized for the three response conditions: The manual (button box), yes/no verbal, and verbal production of name. All different tasks were designed as split-visual field experiments, modeled after Ohnesorge & Van Lancker (2001).

Results: Famous proper nouns were recognized more often than common nouns presented to both visual fields (hemispheres) for HC, which is consistent with the findings from Ohnesorge & Van Lancker (2001). Significantly decreased performance in correctly identifying common nouns was found in participants with LHD, while these participants correctly identified proper nouns at a level similar to HC. For the verbal production task, normal control participants exhibited significantly better performance in producing proper nouns and common nouns presented to the right visual field/left hemisphere (RVF/LH) compared to the left hemisphere/right hemisphere (LVF/RH). Significantly decreased performance in correctly producing both proper and common nouns was found in individuals with LHD.

Conclusion: The findings support that (1) both hemispheres can process famous proper nouns, possibly due to right hemisphere advantage for the processing of familiar or personally relevant stimuli, and (2) impaired production of proper nouns is associated with LHD.

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Prosody

The ability of left- and right-hemisphere damaged individuals to produce prosodic cues to disambiguate Korean idiomatic sentences

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Background: Speech prosody plays a significant role in signaling speaker's intention to convey literal or non-literal meanings (i.e., idioms). Relatively little research has been done on role of prosody in the production of idiomatic expressions by brain-damaged individuals. The primary focus of this study is to examine the contribution of the left and right cerebral hemisphere in producing prosodic features of "ditropically ambiguous" (having either a literal or an idiomatic meaning, e.g., David spilled the beans) Korean sentences.

Method: Individuals with left- (LHD) and right-hemisphere damage (RHD) due to cerebrovascular accidents (CVA) and age- and education-matched health controls (HC) produced 6 ditropically ambiguous sentence pairs in two different conditions, an elicitation task and a repetition task. Healthy listeners' identification of the sentence types was assessed. The data collected in the elicitation and repetition tasks were further analyzed using listeners' perceptual ratings and acoustic measures.

Results: Native Korean listeners were successful in discriminating the intended idiomatic and literal meanings of ditropic sentences produced by HC. However, they showed decreased performance in discriminating utterances produced by brain-damaged individuals during the elicitation tasks, especially those produced by RHD. During the elicitation tasks, participants with LHD differed significantly from HC in durational measures. Significant differences between participants with RHD and HC were seen in measures of fundamental frequency. However, for the repetition tasks, acoustic and perceptual analyses showed that the LHD and RHD groups produced utterances comparable to HC performance.

Conclusion: The findings support that (1) healthy listeners successfully identified idiomatic and literal versions of ambiguous sentences produced by healthy speakers but not by RHD speakers; (2) LHD negatively affected the production of durational cues; (3) RHD negatively affected the production of fundamental frequency cues; (4) Productions in brain-damaged participants approximated HC's measures in the repetition tasks, but not in the elicitation tasks.

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Semantics and Pragmatics

The ear craves the familiar: Pragmatic repetition in left and right cerebral damage

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Background:. Pragmatic repetition, defined as verbal repetition in normal conversational use, has been rarely investigated in disordered language. Hemispheric contributions to communication lead to the hypothesis that unilateral cerebral damage will affect verbal repetition differently. A higher incidence of repetition was predicted in persons with left hemisphere damage (LHD) than those with right hemisphere damage (RHD) or healthy control (HC) speakers. Previous studies suggested greater repetition of formulaic (than novel) expressions following LHD than the other two study groups.

Method: Transcripts of spontaneous discourse by 10 persons diagnosed with a single cerebral vascular accident to the left (n = 5) or right (n = 5) hemisphere and from age and education matched HC participants (n = 5) were examined. Using the morpheme as a unit of measure, verbal repetitions were quantified proportionally in the respective corpora and characterized in terms of localness (distance from the original utterance), preservation of the original target (same or altered), source (self or other) grammatical unit of speech, phrase type (formulaic or novel), and functions (form, content, social).

Results: Significantly more repetition was found for LHD (27%) than RHD participants (19%) or the HC group (18%). The proportion of formulaic expressions repeated by the LHD group was significantly higher (57%) than the RHD group (30%). Fewer repetitions were used by the LHD group (25%) for the function of enhancing the content of talk as compared to the HC group (40%), while the RHD group used the least repetition for socialization (15%).

Discussion: The method described allows for measurement of pragmatic repetition and its characteristics in normal and disordered language. The findings support previous results for pragmatic and formulaic language behaviors in these populations. This study provides new information on the roles of repetition in conversation and on the impact of neurological damage on this function. Identification and measurement of repetition will inform perspectives on evaluation and rehabilitation of discourse.

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Perception

More linguistic or more acoustic: Tone represented in chinese pinyin

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Background: Lexical tones are pitch patterns that discriminate word meaning. The brain localization debate of tone processing concerns whether tone, owing to strong linguistic features, is dominant in the LH, or whether all pitch patterns, including tone, are RH dominant. In fact, tone as a complex signal contains many different acoustical components that carry linguistic, paralinguistic and non-linguistic information (Gandour, 1998). Tian & Li (1999) found that tone perception deficits exceeded tone production across all four tones in Chinese aphasics. Among Chinese LH-damaged aphasics, recognition of linguistic function of the tones in the LH is impaired, but the non-linguistic function of tone in RH is intact. This latter finding could be used to facilitate tone perception. To do so, pinyin with tone diacritic, may serve to guide the attention of Chinese LH-damaged aphasics to the necessary cues for meaning specification.

Method & Data: A listen-and-match task will be presented through the E-Prime program. Participants listen to a sound stimulus and judge if it matches the screen representation, which could be a pinyin with diacritic, a Chinese character, or a pure diacritic. Stimuli are high-frequency nouns. Participants will be 10 Chinese aphasics secondary to LH-damage, but with other conditions controlled. Accuracy and reaction time will be recorded.

Results & Implications: This study is ongoing. A pilot study shows a significantly higher accuracy in matching sound stimuli with Chinese character than pinyin in nonaphasic participants, while no significant difference in aphasic participants. If the proposed experiment results show better perception under the pinyin condition, Chinese LH-damaged aphasics may benefit from a treatment protocol exploiting pinyin as a supportive modality.

Reference:

1.   Gandour, J. (1998). Aphasia in tone languages. In P. Coppens, Y. Lebrun & A. Basso (Ed.), Aphasia in atypical populations (pp. 117-141). New York, NY: Psychology Press.
2.   Tian, H. Li, S. L. (1996). Analysis on the Results of Chinese Four-tone Examination in Aphasia Patients. Chinese Journal of Rehabilitation, 2: 57-58.

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Pragmatic verbal repetition: Review and application of a new method of quantification

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Background: The use of "pragmatic repetition," the iteration of one's own speech or the speech of a co-partici-pant, while known to occur plentifully in conversation, has been overlooked in the language sciences. This study presents a method for establishing incidence, characteristics, and functions of pragmatic repetition during conver-sational exchanges.

Method: Three discourse samples were analyzed: a screenplay, a television reality show, and an unscripted te-lephone conversation. Using the morpheme as a basic unit of measure, the analysis characterizes each repetition in terms of localness (immediate, delayed, or distant in the discourse); degree of preservation (identical or alte-red); source (self or other); the linguistic unit (word, phrase, clause, or sentence); and type of phrase (formulaic or novel). Three functional categories were identified: maintaining conversational form, enhancing content, and fostering social purposes.

Results: Twenty-two percent of the telephone conversation and 19% of the reality show conversations constituted repeated material as compared to 9% in the screenplay. Analysis of the characteristics and functions of pragmatic repetition defined in this study revealed significant differences between samples.

Discussion: Findings from this study verify the newly developed quantification methodology, solidify the role of repetition in the pragmatics of language, and lead to better understanding of normal discourse.

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Oral

Reading & Writing II

Examining socio-pragmatic skills in German adults with Asperger Syndrome

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To date, relatively little research has been done examining the socio-pragmatic abilities in adults with Asperger Syndrome (e.g., Colle et al., 2008; Volkmar, 2010). Studying these indi-viduals is of interest because it offers the opportunity to test if and how social-interactive abilities are affected among individuals in the absence of cogni-tive malfunctioning and, hence, contributing to the identification of (dis)abilities that are unique to ASD beyond child-hood.

Discourse organization (general linguistic abilities, cohesive and coherence devices and turn taking) and several general social-interactive abilities (e.g. focus, fluency, clarity, affect) will be compared in 16-to-50 year-old German adults with ASD (n=7) and without ASD (n=7) along two narrative genres: three different dialogue tasks by using the Social Skills Performance Assessment (Patterson, 2001) and a story-retell task by using the narrative Frog whe-re are you (Mayer, 1969). These tasks were chosen as they require both the suc-cessful integration of linguistic and socio-pragmatic skills.

The participants with autism have all been diagnosed as having Asperger Syndrome. They all attended main stre-am education and they had to score above the cut-off score of 111 of the German version of the 'Autism Spectrum Quotient' (AQ; Hoekstra et al., 2008). Participants were included in the non-Asperger group if they had no official diagnosis of Au-tism Spectrum Disorder and if they had scored below the cut-off score of 111 on the AQ. They all had also finished secondary mainstream education.

We predict no significant differences in general linguistic abilities (morpho-syntactic and lexical accuracy and com-plexity) between the Asperger and non-Asperger group, but specific socio-pragmatic difficulties in the Asperger group. We predict that they use fewer referential expressions, personal pronouns, plot structures, less adequate topic maintenance, turn taking and negotiation abilities.

As assessment of adults with Asperger Syndrome is less frequent than at younger ages, a qualitative analysis of narratives might prove a useful alternative. This will be dis-cussed in light of the results together with some impli-cations for the clinical practice.

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Poster

Motor Speech Control

The effects of Deep Brain Stimulation on vowel space in Parkinson's Disease

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Purpose - Individuals with Parkinson's disease (PD) experience problems with speech production, which do not re-spond to pharmacological and neurosurgical therapies of this disorder. To study the effects of subthalamic nucleus stimulation on speech motor control in Parkinson's disease (PD), vowel space measurements were obtained from sustained vowel productions. As movement initiation is a prominent symptom of PD, measurements for the initial portion of the productions were compared to measurements at the midpoint of the productions.

Methods - Eight right-handed male subjects with idiopathic PD treated with bilateral deep brain stimulation of the subthalamic nucleus and seven age-matched male control subjects produced sustained productions of the vowels /a/, /i/, and /u/. Participants with PD were studied with the stimulators turned on and off. Vowel spaces were cal-culated for the initial 250 msec and for a 2 sec midpoint portion of the sustained productions.

Results - Both normal and PD participants with their stimulators turned off began their productions with a larger vowel space than was measured at the mid-portion of the production. However, with the stimulators turned on, the initial vowel space was reduced to the area measured at the mid-portion and did not reduce further. The initial vowel space reduction was observed at the front and central vowels, but not the back vowel. The change in vowel space area was most influenced by second formant values.

Conclusions - Deep brain stimulation in PD can constrain initial articulatory gestures for vowel production and may inhibit dynamic changes in these gestures. The stimulation associated reductions in vowel space did not produce dysarthria, but may contribute to the subjective complaints that deep brain stimulation makes speech more diffi-cult in individuals with PD.

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and
Neuro-
linguistics

Formulaic language in Parkinson's and Alzheimer's disease: Complementary effects of subcortical and cortical dysfunction

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Background: Studies reveal that formulaic language (speech formulas, idioms, and other conventional expressions) makes up 25% of normal conversation. Recently, specific effects of neurological damage on incidence of formulaic expressions in spontaneous speech have been reported. Alzheimer's disease (AD) has been associated with abnormally high proportions of speech formulas. Because subcortical nuclei remain intact until late in the course of AD, subcortical dysfunction was predicted to be associated with impoverished production of formulaic expressions.

Method: Spontaneous speech samples during a conversational interview were recorded and transcribed from 14 individuals diagnosed with Parkinson's disease (PD), 7 with Alzheimer's disease (AD), and 13 healthy age and education comparable healthy control speakers (HC). Subjects were free of other neurological or psychiatric diagnosis. Following the interview, participants were given a structured test of knowledge of formulaic expressions (NEFIPSS), which presents brief social scenarios followed by a 4 choice response.

Results: Proportions of formulaic expressions in PD speakers differed from HC and AD corpora. The PD group had significantly lower (15.43 (SD 6.12)) proportions of formulaic expressions than either HC = 25.15 (SD 6.15), t = 4.115, df 25, p < 0.0001 or AD speakers: AD = 31.43 (SD = 9.62), t = -1.787, df 18, p < .01. Structured testing using the NEFIPSS yielded opposite contrasts: PD speakers showed higher performance than the AD speakers: PD = 93.9% (SD 6.12), AD 31.43 (SE 9.62), t = 4.134, df 21, p < 0.0001; and did not differ from the HC group: HC = 95.5 (SD = 5.69).

Discussion: The finding that persons with PD produced significantly lower proportions of formulaic expressions than those with AD suggests that subcortical nuclei play a role in modulating production of formulaic expressions. Contrasting results on formal testing, such that AD performed significantly worse than PD, indicate differential effects on procedural and declarative knowledge associated with these neurological conditions.

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Poster

Grammar

RARSP: developing a LARSP-like profile for russian

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Aleksandr Gvozdev published his nearly decade-long diary study of child language development in the late 1940s. His work, which is the only comprehensive chronicle of its kind for Russian to date, continues to inform research that is interested in the shape and character of language development in Russian children. Unfortunately, his work was based on the observations of just one child-his own-making it difficult to draw generalizations from his conclusions. Since then, others have stepped in with Russian child language data of their own, but their research has been more focused on tackling very specific features of the language rather than addressing the question on the whole. Additionally, a large body of this research deals more with bilingual Russian children and heritage speakers. As a result, there is still very little in the way of developmental norms for Russian that can be used by speech-language pathologists who work directly with Russian-speaking children suspected of having a language disorder. US-based practitioners also report a lack of assessment tools specially designed for use with Russian, compelling them to report on a child's language using English-normed tools in ways that were not intended.

This project has two aims. The first is to provide a current look at Russian language development in children. This work will be based on multiple language samples from multiple monolingual Russian children, to allow for as many patterns to be found and generalizations to be made as possible. The analysis of these language samples will be nestled within the framework of the Language Assessment, Remediation, Screening Procedure. That is, stages will be developed based on the comprehensive and systematic view of syntactic performance at different ages, which has been successfully done for several other languages. The final product (the second aim of this project) is a LARSP-like profile appropriate for clinical use with monolingual Russian speakers.

The RARSP prototype was presented in poster form at the previous ICPLA meeting in Cork. This presentation will be an updated look at the project in its near-final form.

Abstracts

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Oral

Multi-/
bilinguality

Is it an advantage to be a multilingual?: The development of language and literacy skills in French immersion programs

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According to the 2011 Canadian Census, there is a recent and notable increase of multilingual residents in Canada (in this case, those who speak a home language other than the country's two official languages, English and French). By extension, there are a growing number of multilingual students enrolled in French immersion (FI) programs in Western Canada—yet little is known about the acquisition of their English and French skills [1]. This study explored the bidirectional transfer of oral language skills and reading proficiency in English and French of multilingual students in Grades 4 and 6. Participants included 114 students belonging to two groups in FI programs selected from public schools in Western Canada: 57 multilingual students and 57 bilingual English-French students. Students were tested at the beginning of Grade 4 (T1), when English instruction is first introduced in FI programs, at the end of Grade 4 (T2), and again at the end of Grade 6 (T3), using standardized measures of English and French vocabulary knowledge (PPVT-III, ÉVIP), listening comprehension, reading fluency, and reading comprehension (WLPB-R, WIAT).

Results from a series of mixed ANOVAs revealed that multilingual students developed reading skills in both English and French that were as strong as those of bilingual English-French students. By contrast, the multilingual students demonstrated weaker vocabulary knowledge and weaker listening comprehension skills in English but they demonstrated equivalent oral language proficiency in French at all test points. The results from this study also showed that vocabulary knowledge in French was a stronger cross-language predictor of reading comprehension in English for the multilingual students. Together, these findings suggest that FI programs provide an academic environment in which multilingual students develop strong oral language proficiency and reading skills in Canada's two official languages. Implications for multilingual literacy development and education in a Canadian context will be discussed.

1. Genesee, F., & Jared, D. (2008). Literacy development in early French immersion programs. Canadian Psychology, 49(2), 140-147.

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Poster

Multi-/
bilinguality

Swedish assessment of dysarthria in typical speakers older than 65 years with Finnish accent

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Background. Language disorders in bilingual adults has been studied, however, speech and more specifically clinical assessment of accented speech in relation to bilingualism has received limited attention in previous research. More than 200 languages are currently spoken i Sweden, Finnish being the most common foreign language. There is a growing number of elderly bilingual individuals in Sweden, speech and language therapy services need to be appropriately adapted to meet the specific needs of this population. Reliable and valid assessment tools are essential to, for instance, avoid under- or overdiagnosis of motor speech disorders.

Aim. The overall aim of the study was to explore if and how accented speech had an impact on clinical assessment of speech.

Method. 40 typical speakers with Finnish accent, aged 65-84 years, performed in speech assessment with Dysartribedömningen, a Swedish dysarthria assessment instrument. Their results were compared with results of a matched Swedish native speaking reference group. Both groups were assessed in areas of function/structure, prosody/intelligibility and with a survey on communicative participation.

Results and conclusions. Results indicate that the performances of the Finnish participant group were estimated as more deviant than the Swedish, considering all areas. The Finnish participants were deviant in articulation and they had a significantly lower speech rate in reading. They also had significantly lower scores on intelligibility compared to the reference group. The results of the survey of communicative pariciption showed that the Finnish participants estimated their levels of activity and participation to be significantly more limited compared to the reference group. Results raise the question if the speech assessment Dysartribedömningen can be considered fully valid in assessment of accented speech.

138	**Identification of language impairments (SLI/LI) in monolingual and multilingual children speaking Turkish**

Oral

Multi-/
billinguality

Seyhun Topbas, Ayse Aydin, Deniz Kazanoglu, Elcin Tadihan-Ozkan
Anadolu University, Eskisehir, Turkey

Until today, detailed language profiles of monolingual and bilingual Turkish children with SLI living outside Turkey were limited due to several reasons such as lack of standardized tests, misdiagnoses, staff and lack of awareness about SLI. In the light of these, a national project had been conducted to examine several language measures of SLI children derived from psychometric tests and spontaneous language samples by quantitative and qualitative methods. Alongside with the national project several tasks have been developed within the COST Action IS0804. The purpose of this talk is to present the final results of this research (from 15 TD-MO, 15-TD-SLI & TD-BI-children compared to 30 typically developing children) as follows:

1. Comparative data on tasks that are adapted and standardized in Turkish (TELD-3 & TOLD-P:4) and newly developed LITMUS-Sentence Repetition Test-TR,
2. The results will be discussed to answer the question of "how children with MO-SLI would differ from their typically developing peers in grammatical development?" with evidence from a non-Indo-European agglutinating language. The results will highlight some key aspects of grammatical limitations that might be central and/or potential clinical markers for identifying children with specific language impairments in Turkish.
3. Finally, the error patterns of MO-SLI Turkish children will be compared with a small sample of bilingual typically developing Turkish children and then discussed with implications for Turkish BI-SLI children (alongside with studies conducted in COST Action IS0804).

139	**Nonword Repetition Test-Turkish and LITMUS-Quasi-Universal NRT: Comparison with TD, TD-BI and SLI children**

Poster

Articulation
and
Phonology

Seyhun Topbas, Dilber Kacar, Handan Kopkalli-Yavuz
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The number of children growing up in a multilingual society has been increasing day by day. When these children come to school age, they have more than one language and a language pattern looks like those of children with Specific Language Impairment (SLI). In other words there is an overlap on the language features of bilingual and SLI children and it brings about a methodological and clinical ambiguity. Nonword repetition test is one of the tools that have been developed to evaluate and diagnose BI-SLI children.

Research shows nonword repetition test is a task that makes a distinction between SLI children and their typically developing peers. Turkish Nonword Repetition Test and Quasi-Universal Nonword Repetition Test are developed as an assessment tool in COST Action.

The last version of Turkish Nonword Repetition Test (Multi-NRT-TR) consists of 16 nonwords (8 language like – 8 language unlike) with two, three, four and five syllables. While forming the non-words, frequencies of different syllable structures as well as the phonotactics of real Turkish words were taken into consideration. Quasi-Universal Nonword Repetition Test also consists of 16 nonwords with two, three, four and five syllables which was developed by Shula Chiat. The nonwords in the test involve the sounds that are common in all languages. The nonwords on both tests were recorded as sound file and then converted into a parrot animation on computer.

The purpose of this study is to compare the nonword repetition test performances of three groups on Turkish Nonword Repetition Test and Quasi-Universal Nonword Repetition Test. Groups are consisted of 15 monolingual typically developing (M-TD) children, 15 monolingual SLI children and 15 bilingual typically developing (BI-SLI) children ages between 5-7. Bilingual group's L1 was Turkish while their L2 was German. Differences between groups on administered tests were analysed.

Abstracts

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Oral

Articulation and Phonology

Gradient evaluation of /k/-likeness in typical and misarticulated child speech

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Phonetic transcription is an important instrument in the evaluation of misarticulated speech. However, this instrument is not sensitive to fine acoustic-phonetic detail - information that can provide insight into the processes underlying speech production [1]. An objective and fine-grained measure of children's efforts at producing a specific speech target would be clinically valuable, both in assessment and when monitoring progress in therapy. Here, we describe the first steps towards such a measure.

This study describes the perceptual and acoustic evaluation of children's successful and inaccurate efforts at producing /k/. A corpus of 2990 recordings of isolated words, beginning with either /tV/ or /kV/, produced by 4-8-year-old children, was used. The recordings were labelled with regards to whether they were a) correct productions, b) clear substitutions (i.e. [t] for /k/, or [k] for /t/), or c) intermediate productions between [t] and [k].

In the perceptual evaluation, 10 adult listeners judged 120 typical and misarticulated productions of /t/ and /k/ with regards to a scale from "clear /t/" to "clear /k/". The listeners utilized the whole scale, thus exhibiting sensitivity to sub-phonemic detail. This finding demonstrates that listeners perceive more detail than is conveyed in phonetic transcription. However, despite their experience of evaluating misarticulated child speech, the listeners did not discriminate between correct productions and clear substitutions, i.e. they did not distinguish successful productions of [t] for /t/ from cases where [t] was a misarticulated production of /k/ (and vice versa).

In order to explore the existence of covert contrasts, i.e. sub-perceptual differentiation between correct productions and clear substitutions, acoustic analysis was performed. Here, a frequently described approach [2] to the analysis of voiceless plosives was compared to more recent methods. We report on the performance of the different methods, regarding how well they modelled the human evaluations, and to their sensitivity to covert contrast.

1. Munson, Edwards, Schellinger, et al. (2010). Deconstructing phonetic transcription: Covert contrast, perceptual bias, and an extraterrestrial view of Vox Humana. Clin Ling Phon, 24, 245-260.
2. Forrest, Weismer, Milenkovic, & Dougall (1988). Statistical analysis of word-initial voiceless obstruents: Preliminary data. J. Acoust. Soc. Am., 84, 115-123.

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Poster

Language Comprehension

A new tool for assessing child mandarin receptive vocabulary

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It is increasingly common for children to learn Mandarin as a second language (L2) around the world. Yet, there are very few tools widely accessible to researchers and practitioners to assess L2 Mandarin proficiency of young children. As an initial attempt to document L2 Mandarin competence in Hong Kong (HK) preschool children, we constructed a tool to assess children's Mandarin receptive vocabulary.

Based on the early vocabulary inventory of Mandarin-speaking children in Beijing (Hao et al. 2008), the tool assesses comprehension of 98 words from 14 semantic categories. Children were presented with 4 pictures showing the target word, a phonological distracter, a semantic distracter, and an unrelated distracter, and were asked to point to the picture that matched a spoken word.

We report data from 1163 HK children (age 3-6, L1 Cantonese) who learn Mandarin as an L2. These children come from 4 input condition groups, which differ in the amount of Mandarin exposure time children regularly receive in school, ranging from 15-20 minutes to more than 150 minutes per week. We also tested 288 children in Beijing (age 3-6) who learn Mandarin as their first language (L1). Results indicate that input condition is the strongest factor influencing the test score (p < .05, effect size: 0.655), demonstrating that input quantity influences child L2 competence (De Houwer 2011). Error analyses reveal a significant interaction between distracter type, age group and input condition group (p < 0.001), with L2 and L1 children showing distinct profiles in how the distribution of error types changes across age. The tool offers researchers and clinicians a useful screening test and an alternative to parental checklists such as the Chinese Communicative Development Inventory (Tardif et al 2008) and the early vocabulary inventory for Mandarin Chinese (Hao et al. 2008) to assess receptive vocabulary competence in Mandarin.

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Poster

Motor
Speech
Control

Oralmotor function in preterm children

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Many preterm children are too weak to breastfeed. Nasogastric tube-feeding is common followed by bottlefeeding due to the weakness and the inability to do a coordinated sucking. Several researchers have suggested that the oral or nasogastric tube may be an explanation for sensory problems in the oral region (Dodrill et al.2004; Törölä et al. 2012). Both hypo- and hypersensitivity occur, but hypersensitivity is most commonly reported (Dodrill et al 2004; Törölä et al 2012). Preterm toddlers around 2-years old are often messier in eating skills compared to full term children (Cerro et al 202; Törölä et al 2012). Samara and coworkers (2010) found that even at the age of 6 years old preterm children showed many eating difficulties that could be linked to oral hypersensitivity, behavioral eating problems and poor oral motor skills. Very low birth weight and neuro-developmental problems increased the risk for eating difficulties (Samara et al 2010).

The Nordic Orofacial Test, Screening (NOT-S) is designed to screen for orofacial problems in children and adults (Bakke et al 2007). However, NOT-S has not previously been used to assess oralmotor function in preterm children. In our study sample 5- to 6-year-old preterm children (N=46) were assessed with NOT-S and compared to the Swedish data on typical full-term children (=79) at the same age. In our analysis it was found that the preterm children still at the age of 5 to 6 years had more sensory problems, and specially the preterm children at the age of 6 years. In addition 6-year-old preterm children had the most problems in Habits (e.g. Do you bite your nails, or suck your fingers, or other objects every day?) and Chewing and swallowing (e.g. Do you find it difficult to eat foods with certain consistencies?) As a conclusion the 6-year-old preterm children may have more oralmotor problems than typical full term children. This may be due to several factors such as developmental age or a result of neonatal difficulties.

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Poster

Future
vision

Claims about games in speech and language therapy

Ellen Gerrits, Gerda Bruinsma

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This study investigated the use of serious games in speech and language therapy.
New technologies like smart phones and tablet computers change the perspectives of traditional speech and language therapy practice. It introduces a new set of interactive tools for therapists to use for play-based learning. Play-based therapy is one of the basic principles of speech and language therapy in young children (Van den Dungen, 1991). During play the child is actively engaged and intrinsically motivated. Speech therapists recognize that children love to play games on tablets. They also see that the motivating, interactive and intuitive use of iPad and apps offers a wide range of possibilities for use in language stimulation, at home and in a therapy session. Games can detect, track and recognize motion, gestures, speech or touch and are getting more and more available for young children. The question is how to use serious games effectively and viably. There appears to be a lack of general education in using tablets or smart phones as a therapist tool.
In this study we conducted a systematic literature search on tablets and serious games in speech and language therapy and education. In addition, speech therapists with tablet and game experience were interviewed to share their best practices. Non-users, the majority of speech therapists in the Netherlands, were questioned about facilitating and limiting factors in implementing tablets and digital games as a learning tool. We developed a checklist with rubrics for review of games for speech and language therapy. The results of this study will be discussed in relation to communication goals in speech and language therapy.

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Poster

Articulation and Phonology

Early speech production development in infants at risk of childhood apraxia of speech

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Curtin University, Perth, Australia

A distinction is typically made between childhood speech sound disorders arising from an underlying problem in the phonological organization of spoken language (e.g., a phonological disorder) and childhood apraxia of speech (CAS), which is taken to be a disorder of articulation or speech motor planning. If CAS is caused by deficits originating within articulation, then impairment should be detectable in early speech development, such as in infant babbling. The research described in this presentation compared the development of speech and language in infants at familial risk of CAS (n = 8) with infants who were not-at-risk (n = 8). Analysis of growth curves from standardized assessments at ages 9 to 24 months, showed poorer speech sound development and expressive language, but not receptive language, in the at risk group. Two out of 8 at-risk infants and no not-at-risk infants were delayed in expressive language at 2 years. The at-risk group also showed fewer advanced forms of canonical babbling and acoustic analysis of simple CV canonical babbles revealed overall longer durations and greater standard deviation of fundamental frequency, compared to not-at-risk infants. These findings support predictions of high heritability of deficits associated with CAS. Further, in infants at familial risk of CAS there were signs of less efficient articulation and atypical intonation that implicate an underlying deviance in early speech motor development. This is consistent with CAS originating, at least in part, from deficits within speech motor control.

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Oral

Reading and Writing

Factors influencing reading comprehension abilities of deaf students in bilingual educational setting: ASL proficiency

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The goal of this project is to examine the influence of American Sign Language (ASL) proficiency on reading comprehension abilities and overall academic performance of deaf signing students. The main question of the present study is whether deaf and hard-of-hearing students who are highly proficient in ASL perform better on reading comprehension assessments and other tests of academic achievement compared to their classmates who are labeled as having medium and poor proficiency in ASL.

Reading, English, and math scores were obtained for a total of 80 deaf and hard-of-hearing 6th-11th graders, all without additional diagnoses. Reading comprehension ability was assessed via two tests: Northwest Evaluation Association (NWEA) Reading subtests and Stanford Achievement Test (SAT-10) reading results. English language knowledge and math skills assessments were obtained through NWEA Language Usage and Math subtests. ASL proficiency was assessed by school personnel using an age-appropriate diagnostic procedure. The majority of students were highly proficient in ASL (42 or 52.5%); twenty five students (31.3%) were described as having a medium ASL proficiency and only 13 students (16.25%) exhibited low ASL proficiency. All participants attended an American deaf school offering a bilingual-bicultural educational approach, which fosters the development of ASL skills as a linguistic foundation for literacy development in English. Correlations between proficiency rating and assessment scores were conducted with SPSS.

Deaf students who were highly proficient in ASL scored better in reading comprehension tasks and other measures of academic achievement than those who were rated low to medium in proficiency. Interestingly, no significant differences were noted between the scores of deaf students with medium and low ASL proficiency, possibly related to insufficient statistical power from too few students in each group. Results on the effects of ASL proficiency emphasize the educational benefits of superior ASL skills, which can be developed by early acquisition of ASL and exposure to native or highly fluent signers early on, especially in educational settings.

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Oral

Hearing
and
Perception

Cochlear implantation before 9 months of age is beneficial for the outcome of spoken language – a longitudinal study

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Previous studies have shown that early cochlear implantation is beneficial for an optimal spoken language development. However, it is still unclear how early one should implant deaf infants and what other factors that influence on the known variation of language outcome with CI. The aim of this study was to investigate whether prelingually deafened children who received a cochlear implant (CI) before nine months of age developed age-equivalent spoken language abilities to a higher degree compared with children who were implanted at higher ages. Furthermore, the study aimed to describe a cohort of children with CI without exclusions like bilingualism. The study was initiated at the Cochlear Implant Clinic (CIC), Karolinska University Hospital in 2002 and had a prospective approach. The study included a cohort of 137 children with CI. They were divided into five groups depending on age at 1st implantation; Group 1: < 9 months (n= 20), Group 2: 9-11 months (n= 31), Group 3: 12-17 months (n=33), and Group 4: 18-23 (n=30) and Group 5: 24-29 months of age (n=23). Speech recognition, language understanding (Reynell III), vocabulary (PPVT III & Boston Naming Test), output phonology and speech intelligibility were assessed at follow-up visits. Some children were followed for 11 years (mean 6.8 years) and 86 children (63 %) were followed for more than 5 years. The longitudinal results showed that earlier age at cochlear implantation was associated with faster linguistic development compared to levels for children implanted at higher ages. CI intervention before nine months resulted in a higher number of children who acquired language understanding and receptive vocabulary without delay and more equivalent to children with normal hearing (NH). Bilingualism and etiological factors had a negative effect on language outcome for sub-groups and will be further analysed in the project. To conclude, cochlear implantation before nine months of age is an important factor to provide the majority of prelingually deafened children with a spoken language acquisition that is similar to their NH peers. Other factors besides from age at implantation also need to be considered when trying to explain the variety of outcome within the population.

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Poster

Other

Language screening at age 4 - construction and standardization of a new test to be used at health centers in Sweden

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The purpose of this study is to construct a reliable and valid language-screening instrument with optimal sensitivity and specificity in identifying children with language problems at age 4. In Sweden almost all preschool children attend the program for health controls. A comprehensive screening for language and communication ability is carried out at age 4. Existing instruments tend to mainly capture children with phonological problems, which may lead to both unnecessary referrals and to a risk of missing children with other types of language problems. Research has shown that problems with lexical, grammatical, and language comprehension skills are indicative of more severe problems and that tasks tapping phonological short-term memory are better candidates as clinical markers for language impairment.

We constructed a new screening instrument to be used by health nurses at the four-year assessment of language and communication, including tasks from different linguistic areas. This instrument has been used by 11 nurses at five health centers during November 2012 to October 2013. In total 335 children were assessed (179 girls, 156 boys, age range 3;10-4;2). Using a (generous) cut-off, based on pilot studies, 55 children (24 girls, 31 boys, age range 3;11-4;2) were referred to a speech-language pathologist to be assessed with a battery of language tests, including output phonology, grammatical production, sentence comprehension, and identification of the central theme in a thematic picture.

The data will provide norms for typical performance at age 4 and will be used to finally set a cut-off for referral to a speech-language pathologist and to document sensitivity and specificity. At this stage we will only be able to identify false positive cases, but a follow-up at age 5;6-6;0 in the form of a survey to the parents of the children is planned to assess the occurrence of false negatives. In our presentation we will convey the properties of the test and address the predictive power of the different subareas included in the test.

Abstracts

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Poster

Motor
Speech
Control

Perceptual assessment of dysarthria: comparing overall and detailed assessment protocols

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The present, preliminary study was designed to investigate whether the results of the use of a detailed assessment protocol ad modum the Mayo Clinic rating of dysarthria and that of a more overall assessment protocol, corresponding to ratings of speech production processes, differed primarily in terms of reliability.

Recordings of 20 patients with various degrees of dysarthria, consecutive visitors to a neurology clinic, were included. Seven patients were women and 13 were men. The selected speech material in each case was the reading of a standard text. Six recordings were reduplicated for calculation of intra-judge reliability. The detailed assessment protocol contained 30 perceptual dimensions and covered different domains: Voice and breathing (14), Resonance (2), Articulation (5), Prosody (8) and Overall assessment of severity of speech disorder (1). The overall assessment protocol included assessment of five parameters, representative of the different domains. Lists of definitions of all dimensions and domains were created. The 30 dimensions of the detailed assessment protocol as well as the 5 domains of the overall assessment protocol were rated using a 0-3 descriptive interval scale. Five clinicians, certified speech-language pathologists with extensive experience in assessment of neurogenic communication disorders, assessed all sound files.

Results indicated that in the detailed protocol, the dimensions monotony, imprecise consonants and harsh voice were the most prominent. The overall assessment protocol identified perceptual deviations in the same domains as the detailed assessment but failed to specify the particular audible symptom. However, the overall assessment protocol was carried out with higher intra- and inter-judge reliability compared to the more detailed assessment protocol. The conclusion was made, that an overall assessment protocol is sufficient to reliably identify problem areas and indicate type of dysarthria but needs to be complemented with a short description of most prominent audible symptoms and an assessment of intelligibility.

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Poster

Multi-/
billinguality

Lexical assessment with Cross-linguistic Lexical Tasks (CLT) in bilingual Polish-Norwegian children, their monolingual peers and children with SLI - A study on the effects of language use in the family, socio-economic status and psycholinguistic properties of the target words

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Multilingualism represents a common language development path in Europe due to enhanced migration. Bilingual children are prone to have smaller vocabularies in at least one language compared to monolinguals (Bialystok, Luk, Peets, & Yang, 2010).This means that typical bilingual language development can be hard to disentangle from Specific Language Impairment (SLI) (Leonard, 2000). This study investigates lexical skills in Polish-Norwegian preschoolers, compared to monolingual peers and children with SLI, using the Cross-Linguistic Lexical Tasks (CLT), a new assessment tool constructed within the European program COST IS0804, aiming to be comparable across a wide range of languages.

The CLT assess comprehension and production of nouns and verbs through picture choice and naming. The tasks, currently ready for 20 different languages, are based on morphological and phonological complexity and subjective age of acquisition (AoA) for a set of words with quite consistent meanings across 34 languages. Culturally-neutral colored pictures were made specifically for the CLT.

We will present this assessment tool along with results from an ongoing study, so far including 37 bilingual children living in Norway with at least one Polish parent, 37 monolingual Norwegians, 65 monolingual Polish children and a small group of children diagnosed with SLI, all aged between 3;0 and 6;11. Parents have filled in a background questionnaire about their child's development, language input and socio-economic background.

All groups score higher on comprehension than production. Both bilinguals and their monolingual peers score higher and respond faster on nouns than verbs. For Norwegian, the monolingual SLI children score lower than the other monolinguals, but higher than the bilinguals. For Polish, the difference is smaller. Length of exposure to each language may account for some of the difference between the groups. The words' AoA affects performance, but it seems the complexity does not. We will investigate this further applying data on amount of exposure to Norwegian and socio-economic background, along with data on imageability and phonological density for the Norwegian results.

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Poster

Articulation
and
Phonology

Supporting a system-wide view as the basis of principled clinical decision-making in developmental speech sound disorders: a cost-benefit analysis using the Phonetic and Phonological Systems Analysis (PPSA).

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We discuss the need for agreed best practice standards in relation to the analysis of phonetically transcribed speech data to support clinical decision-making and suggest that the Phonetic and Phonological Systems Analysis (PPSA) could support this goal. The PPSA is a new charting and analysis tool which is free to download under a creative commons licence from http://www.qmu.ac.uk/ppsa .

The approach incorporates elements from both phonological process analysis and contrastive analysis and is designed to provide the clinician with an easily interpretable, at-a-glance overview of a speaker's sound system, vowels as well as consonants. Consonants are organised in linguistically meaningful groupings so as to facilitate identification of error patterns both segmental and structural at each position in word structure. (Non-systemic errors are also accomodated.) A separate analysis sheet is included for vowels. The analysis format highlights areas of contrastive strength and weakness and, where sufficient data is available, any variability within the system, so guiding further investigation.

The PPSA can be used with data from any phonetically transcribed speech sample. This means that data collected within the same time frame from, for example, a screening tool and follow-up probing, can be charted together to provide a richer profile. Profiles from data taken at different time points can also be easily compared to establish where progress towards the target system has been made. Alternatively, data from different sampling conditions can be charted separately to highlight distinctions which might be diagnostically significant. For example, a comparison can be made between a speaker's ability to pronounce sounds in real versus non-words or in isolated single words versus spontaneous speech production.

We present exemplar profiles to demonstrate the importance and added value of this type of system-wide approach in relation to diagnosis, intervention and outcome measure. While our clinical focus is children with specific speech impairment, the approach is applicable to any client where difficulty with speech intelligibility forms part of the profile.

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Poster

Psycho-
and
Neuro-
linguistics

The effects of imageability and phonological neighborhood density in speech processing in informants with and without aphasia

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The factors imageability, how easily a word gives rise to a mental sensory image, and phonological neighborhood density (PND), how many words that are similar-sounding to a target word, have both proven to have an influence on lexical access (Bird et al. 2001, Middleton & Schwartz, 2010). Although the two factors have been studied extensively independently, few attempts have been made to see if, and how, they interact and influence lexical access together.

In this study 30 neurologically healthy native Norwegian adults and three native Norwegian speakers with aphasia were tested on production (picture-naming) and perception (auditory lexical decision) of four sets of bisyllabic nouns: 23 words with high imageability and high PND, 23 words with high imageability and low PND, 23 words with low imageability and high PND and 23 words with low imageability and low PND. In the auditory lexical decision task, 32 non-words were added as distractors.

Based on previous research I expected high-imageability words to be recognized and produced faster and more correctly than low-imageability words. High-PND words were expected to behave in the same manner in production, but to have longer response times in perception. In this study, however, only imageability behaves according to the predictions. Phonological neighborhood density does not show any significant effects, nor does there seem to be any interaction between the two factors. There is a tendency, however, that high phonological neighborhood density slows down both perception and production of words, which is a quite unexpected finding, based on previous research. It seems that a word's imageability is a more important factor for lexical access than the phonological properties of the word. The informants with and without aphasia show similar patterns for the two tasks, which indicates that speech processing is controlled by the same mechanisms for speakers with and without acquired, focal language deficits.

Abstracts

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Poster

Grammar

Examination of children's comprehension of relative clauses using a recently developed sentence-to-picture matching tool

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Purpose: Many experiments investigating children's comprehension of relative clauses have been somewhat constrained in that they have tended to contrast only the subject and object roles of the relativized noun phrase within the relative clause. In addition, most studies have investigated relative constructions that (i) don't reflect the lexical constraints of relative clauses used in the ambient language (Kidd, Brandt, Lieven & Tomasello, 2007) and (ii) emerge very late in the acquisition process (Diessel & Tomasello, 2005). The complexity of the main clause (which impacts children's performance) has also not been systematically controlled. The current work builds on that of Diessel and Tomasello (2005) and Frizelle and Fletcher (in press). The aim of this research is to examine English-speaking children's comprehension of relative clause constructions using a recently developed tool (sentence-to-picture matching) in which the above characteristics are controlled for. In that way we will obtain a more complete profile of children's understanding of these complex structures.

Methods: Typically developing children (between 3 and 10 years) performed a sentence-to-picture matching task designed to assess children's comprehension of relative clauses. Children listened to 62 sentences consisting of relative clauses in which the relativized element represents a wide range of syntactic roles. The relative clauses were attached to (i) the predicate nominal of a copular clause (i.e. single proposition relatives), or (ii) the direct object of a transitive clause (i.e. dual proposition relatives).

Results: 21 Children have been assessed to date. Preliminary results show (i) a developmental trend in the comprehension of different types of relative clauses, (ii) an effect of main clause, whereby children experienced fewer difficulties with single proposition relatives than dual proposition relatives, and (iii) an effect of the relativized syntactic role. These findings are consistent with previous research by Diessel & Tomasello (2005) and Frizelle and Fletcher (in press). Results from the full cohort will be presented at the conference.

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Oral

Language and Comprehension

The effect of mode of presentation on accent comprehension in adults with aphasia

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One result of global and internal immigration is that people frequently interact with speakers who have different accents. Such variation has an impact on the comprehension of adults without language impairments (Gass & Varonis, 1984), and this is more marked for adults with aphasia (Bruce et al., 2012). In these studies stimuli are presented auditorily, but people with aphasia may benefit from being able to see the unfamiliar-accented speaker. This study investigated the effect of mode of presentation on accent comprehension in adults with aphasia. Forty English-speaking adults participated in the study: 20 people with aphasia and 20 control participants. The impact on comprehension of two accents (Southern British English; Singaporean English) and two modalities (audio-only; audio-visual) was measured using a grammaticality judgement task. Performance was recorded in terms of accuracy and response time. Before hearing each speaker, the participants rated their expectations of the familiarity of each speaker's accent based on their visual appearance alone. Ratings indicated that listeners expected both speakers to have a moderately unfamiliar accent. Both groups made significantly more errors on sentences produced in the unfamiliar accent than in the familiar accent. For adults with aphasia, there was no significant effect of presentation mode on comprehension, although many participants were more accurate when the auditory information was presented alone. These findings were mirrored in the response time results. The findings suggest that the availability of visual information may not be important in facilitating accent comprehension. It is also possible that top-down processes may have been active during the audio-visual condition and listeners' comprehension was negatively affected by their expectation of how the speaker would sound.

References
1. Bruce, C., To. C,T., Newton, C. (2012). Accent on communication: The impact of regional and foreign accent on comprehension in adults with aphasia. Disability & Rehabilitation, 34, 1024-9
2. Gass, S. & Varonis, E. (1984). The effect of familiarity on the comprehensibility of nonnative speech. Language Learning, 34, 66-85

156	**Dependence of the McGurk effect on age and hearing status**

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Multimodal communication

The McGurk effect is a perceptual phenomenon that is taken as evidence of sensory integration, specifically of auditory and visual information. It occurs when the visual and auditory input are incongruous: e.g. in the presence of the visual stimulus ga and auditory stimulus ba, the typical response is da. Although it is a robust effect, it has been found to depend on factors such as brain lesions, disorders (e.g. SLI, dyslexia, aphasia, ASD), language, gender, etc. Among these factors is age: on the one hand, there is evidence that the strength of the effect in children increases with age; on the other hand, there are reports of unimodal dominance in school-age children. Studies of the relationship between age at cochlear implant surgery and the effect have shown, for instance, that individuals who were implanted early exhibit a stronger McGurk effect, whereas those who were implanted at a later age rely on visual cues. The aim of our study was to investigate the McGurk effect in children of different ages and hearing status and look for (i) possible relationship between the strength of the effect and age; and (ii) for the relationship between the effect and hearing level. Our subject pool consisted of 40 children with normal hearing (20 pre-schoolers and 20 elementary school children) and 40 children with varying levels of hearing impairment. We hypothesized that older children would exhibit a stronger McGurk effect compared to the younger group and that in children with hearing impairment the ratio between unimodal dominance and the presence of the McGurk effect would be directly proportional to the severity of hearing loss. A male speaker recorded syllables ba, pa, da, ta, ga, ka. These were edited to produce combinations of audio-visual stimuli which were presented to the subjects in 2 bimodal conditions (congruent audio-visual, incongruent audio-visual), and 2 unimodal conditions (auditory only, visual only). The results mostly support our hypotheses, with some differences among the children who are hearing-impaired, which may be attributed to the rehabilitation method. The results indicate the importance of multisensory approach in hearing impairments therapy.

157	**Repetition of words and non-words in typically developed children: the role of prosody**

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Prosody

Children's ability to repeat non-words correlates with grammatical and lexical development, and has potential as a clinical marker of language impairment. Non-word repetition is a complex task, tapping several abilities used in perception, processing and production of spoken language. Successful repetition has been suggested to rely mainly on phonological working memory, and long-term lexical knowledge. Repetition performance is also influenced by various properties of the non-words, including length, wordlikeness, phonological complexity and prosody. The overall aim of the current study was to investigate the role of prosody, as well as age differences, in repetition of non-words and real words. A repetition task with 25 non-words and 25 words matched for number of syllables, stress pattern and tonal word accent was administered. The participants were 44 typically developed, Swedish speaking children aged 4;0-4;11 and 5;0-5;11 years. The results demonstrated that the older children repeated both segments and stress patterns more successfully than the younger ones. Unstressed syllables were omitted more frequently in pre-stressed than in post-stressed position, but only by the younger children. Both younger and older children performed near ceiling when repeating tonal word accents. However, accent significantly affected repetition on the segmental level. In the older children, segment accuracy was better for accent II than for accent I in both real words and non-words, while this difference between the accent conditions was present only in non-words for the younger children. In conclusion, the ability to repeat real words and non-words improves between the ages of 4 and 6. Also, repetition performance is influenced by prosody, but the role of prosodic properties seems to develop with age.

Abstracts

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Oral

Voice

Voice use in vocally healthy elderly speakers studied with a portable voice accumulator

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Voice is typically studied in the clinic using perceptual assessment or acoustic analysis of recorded speech. However, there is reason to believe that analysis of voice recordings made in controlled environments in a studio or treatment room in the clinic may not be entirely representative of the individual's actual voice us in everyday life. In real-world environments other factors, such as stress, background noise, humidity etc can affect the voice. Information on voice use in everyday life has previously only been possible to investigate through subjective assessments from the speaker or their communication partners. Today's technology allows for real time registering of objective data on voice use in ambulatory settings through the use of portable voice accumulators. Such information is important because it can be used as a basis for planning of both therapeutic and preventive measures and to further evaluate the efficacy of voice therapy.

The data on voice use that have been reported so far is very limited and has mainly focused on disordered voices or individuals with high-risk vocal loads such as teachers or singers. However, to be able to interpret and understand the information gathered regarding these groups, there is a great need for reference information on how vocally healthy speakers use their voice in ambulatory settings.

The presentation will report data from ongoing research where information on voice use is being collected in an ambulatory setting for eight consecutive days. Voice parameters studied includes phonation frequency (Hz), voice sound level (dB SPL), phonation time (%) and level of background noise (dB SPL). Subjects include healthy speakers (age range 65-70) with the aim to compile reference information that can be used in research of voice use in late life neurological disorders.

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Poster

Grammar

Dissociation between procedural learning of visuo-motor and auditory sequences in children with Specific Language Impairment

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Ullman and Pierpont (2005) suggested that Specific Language Impairment (SLI) results from a procedural learning deficit (PDH). To date, the SRT task has been studied extensively in Specific Language Impairment in order to examine motor procedural learning (for review see Lum et al., in press). But, only a few studies have examined language procedural learning in this population and only one study has tested these different aspects simultaneously in a single study (Gabriel et al., 2012). A direct comparison between language and motor procedural learning using the same experimental procedure will be interesting in order to understand the nature of procedural learning difficulties in SLI.

For that purpose, we created a variation of the standard SRT task inspired from the Serial Search Task (SST; Goschke et al., 2001). Four pictures are presented on the screen in each trial, followed by the name of one of these 4 pictures presented auditorily. Children have to touch the location on the screen to indicate the location of the auditory name of the picture in the visual display. All children are administered three versions of this task. In the first version, both the auditory stimuli and visual stimuli follow a repeating pattern. In the two others versions, the arrangement of the visual pictures is changed from trial to trial so that either the visual stimuli (response sequence version) or the auditory stimuli (picture names sequence version) follow a repeated pattern, while the other sequence is random. The task allows examining whether participants acquire knowledge about a sequence of events in the absence of a regular response sequence, and vice versa.

Twenty school-aged children with SLI will be included in this study. They are selected if they score below -1.25 SD of the expected normative performance in at least 2 language areas. The data collection will be completed by April 2014. If implicit learning may involve multiple subsystems (Conway & Christiansen, 2006), we predict that the deficit in procedural learning in children with SLI will be more pronounced in the picture names sequence learning compared to the motor sequence learning.

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Poster

Reading
and
Writing

A study of writing development: from the perspective of orthographic units of different grain sizes

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The properties of phonetic radical and semantic radical of a Chinese phonetic-semantic compound character would produce different effects on the process of writing output (Meng et al., 2000; Meng, Shu, Zhou, 2000; Luen et al., 2001). The regular relationship between the pronunciations of phonetic radical and that of the Chinese character shortens the response time required for the process. Studies have been conducted to investigate the effects of phonetic radicals and configuration of Chinese characters on writing output, focusing on specific error made. However, the relations between different writing errors types and the children's writing performance across grades have yet been studied. The present study attempts to categorize children's writing error types from the perspectives of orthographic units to investigate the effects of various error types on the writing of Chinese characters and its developmental change.

A total of 90 subjects of Grade2 and 3 students, 30 from each of three primary schools randomly selected in Shenzhen (a city in the South of China) to participated in the a writing-to-dictation task. Based on the database established on Chinese primary textbooks (People's Education Press (PEP) version), 24 phonograms were selected as target characters, evenly distributed across high, mid and low frequencies. Each target stimulus character was presented as one of the component characters of a two-character word in order to minimize the effect of homophone. For example, 马，白马的马 (ma, baima de ma; horse, horse in white-horse).

Statistic analyses have been conducted. The following significant results were found. First, the percentage of semantic-radical errors decreases but that of phonetic-radical error increases from Grade2 to 3. Second, homophone substitution is the most frequent error, and its rate reduces from Grades2 to 3. Third, deletion is the major errors type. Younger children tend to use the whole character when they are learning to master sub-character structure and the rate of logograheme errors increases from Grade2 to 3.

All the error patterns will be further analyzed from the developmental perspective. Their theoretical implications and its implications on the experiment tasks for writing investigation will be discussed.

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Poster

Language
Compre-
hension

What do interpretations of proverbs reveal about linguistic-cognitive skills of a person with dementia? Pilot study

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The aim of this study was to investigate if proverbs interpretation can be used as a quick and stress-free tool for an initial assessment of dementia. The research consisted in asking patients with dementia to explain proverbs and to elucidate if explanation skills had connections with linguistic tests and Minimental State Examination (MMSE). Participants were seven females and seven males, eight of them (aged 58-74; MMSE: 14–28 scores; max 30) with semantic dementia (SD) and six (aged 60-80; MMSE: 16–29 scores) with progressive nonfluent aphasia (PNFA). Seven healthy people (aged 54-76) served as controls. The participants were asked to explain three well-known proverbs that had different linguistic features. The situation was videotaped and the answers were transcribed.

The results showed that all the patients found difficulties in interpreting proverbs but the controls did not. The patients gave six different kinds of answer types (called answer classes). It was typical that the patient preferred the same answer class in all his/her explanations. The most typical class was to give a concrete explanation (28 % of the answers). Furthermore, abstractness and concreteness of the nouns used in the proverbs appeared to have an effect: if the proverb contained an abstract noun the participants gave a more accurate explanation than in the case of concrete ones. The patient's linguistic skills ($r = 0.74$, $p = 0.003$) and MMSE scores ($r = 0.57$, $p = 0.026$), correlated positively with the explanations she/he gave. No differences were found between the patients with SD and PNFA.

According to the results, asking for interpretations of proverbs proved to be a comfortable mean to perform an early assessment of linguistic-cognitive skills of a person with even slight symptoms of dementia.

Abstracts

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Poster

Grammar

Can-LARSP analysis of language samples from Cantonese-speaking children with and without language impairment

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LARSP (Crystal, 1979; Crystal et al., 1989) has been used as a practical procedure for grammatical analysis of children with language impairment, and been found informative on children's grammatical difficulties by illustrating where their strengths and weakness. LARSP's results have been used as a basis for therapeutic management (Tommerdahl and Drew, 2008). Grammar (morphology and syntax) has been regarded to play an important role in child language development (Crystal, 1979), children with language impairment are found having difficulty in syntax (Leonard, 1998; Paul, 2001). However, for Cantonese-speaking children in Hong Kong, no tailor-made Chinese friendly grammatical assessment and remediation tool like LARSP is available.

The present study aims to compare syntactic differences between Cantonese-speaking children with and without language impairment in Cantonese LARSP (Can-LARSP) profile, developed by adapting the framework of LARSP and taking reference to Zhu's grammar (1982). Based on data collected through120 native Cantonese-speaking children aged from 2;0 to 6;0 living in Hong Kong since birth. Eighteen spontaneous language samples of open-ended conversation between one examiner and a child are obtained. Ten 15 to 20-minute samples are from children with normal language development, aged from 2;0 to 5;0, distributing from Stage Ito Stage Vin Can-LARSP; eight 30-minute from children with language impairment (four are suffering form Autism Spectrum Disorder, four from Special Language Impairment). All children's utterances are analyzed in the Can-LARSP profile. Both quantitative and qualitative comparisons between utterances of children with language impairments and their peers are made. The implication on the use of Can-LARSP as an assessment tool for Chinese speaking clients will be discussed.

1. Cheung, H. N. (2007). Cantonese as spoken in Hong Kong. Hong Kong: The CUHK.
2. Crystal, D., Fletcher, P., and Garman, M. (1989). Grammatical analysis of language disability. 2nd edition. London: Cole and Whurr.
3. Martin J, B., Crystal, D., and Fletcher, P. (2012). Assessing grammar: the languages of LARSP. Bristol: Short Run Press Ltd.
4. Tommerdahl, J. and Drew, M. (2008). Difficulty in SLI diagnosis: A case study of identical twins. Clinical Linguistics & Phonetics 22(4-5), 275-282.
5. Zhu, D.X. (1982). Yufa jiangyi (Notes on Chinese grammar). Beijing: Commercial Press.

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Poster

Articulation and Phonology

Speech production in Arabic-speaking children with repaired cleft palate

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This study explores the phonetic and phonological features of speech production associated with cleft palate in Arabic-speaking children. It examines data collected using a version of the GOS.SP.ASS (Sell et al. 1999) developed specifically for Arabic, to provide an account of the ways in which a history of cleft palate may affect the development of speech in Arabic, and to consider the implications of these findings for our understanding of universal versus language-specific features of speech associated with cleft.

The study used speech data taken from 21 Arabic-speaking children aged from four- to seven- years old, and a control group of 5 normally developing children aged between four and five, from Saudi Arabia. Audio and video recordings were made of the participants' speech production in various contexts, including single word production and connected speech production.

The data were transcribed using narrow phonetic transcription, and the transcriptions formed the basis for completion of Arabic GOS.SP.ASS forms for each individual participant. Phonological analysis was also carried out on the data from each participant. From these analyses, descriptions of atypical speech production features were made, and categorized into those associated with the cleft palate, and those related to non-cleft developmental difficulties. Furthermore, descriptive analysis was carried out to determine the most and least accurate segments and to explain the relationship between accurately produced segments and the following variables (age, age at repair and type of cleft). Individual case studies were also conducted to illustrate individual differences from the speech of four of the children with cleft palate who have contrasting speech output patterns. These case studies contribute to an exploration of inter- and intra-speaker variability in speech production associated with cleft palate.

The results of this study indicate that the speech characteristics of Saudi children with cleft palate are not entirely consistent with previous cross-linguistic studies of cleft palate speech: a series of different compensatory strategies and unusual speech production features emerged in the data which appear to reflect the phonetic and phonological properties of Arabic. Theoretical and clinical implications for assessment and intervention for speech difficulties related to cleft palate are discussed.

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164 **Oral** Articulation and Phonology	**Learning to speak and learning to talk: phonetic variability as a product of conversational sequence in speech development** Sara Howard University of Sheffield, Sheffield, South Yorkshire, UK

A notable feature of young children's early language is the phonetic variability exhibited in their repeated productions of individual words and phrases. This has variously been attributed to immature motor control, underspecified phonological representations, and emerging speech impairment (Davis, 2012). Significantly, however, from an interactional perspective it can also be seen as a product of conversational sequence and action, as for example in repair and correction sequences, where following the child's production of a word, the mother receipts it in such a way as to elicit a 'repaired' version in next turn position by the child. Such sequences are commonly-occurring phenomena in mother-child interaction in the early stages of communication development (Laakso & Soininen, 2010).

The current study reports on the phonetic variability encountered in eight hours of spontaneous conversational interaction (free play) between a mother and a typically-developing child, recorded between the ages of 2;00, and 3;00. A careful sequential analysis of the conversations was combined with auditory and acoustic phonetic analysis. Multiple tokens of the mother and child's realisations of specific items were tracked both within and across age-points and the phonetic analyses allowed a detailed investigation of variability of the child's productions across different tokens within specific conversational sequences. Phonetic variability in both the child's and mother's same-word repetitions are shown to be associated with different types of repair sequence and to the accomplishment of additional conversational actions.

Significantly for the disciplines of speech development and speech pathology, the data show that apparently random phonetic variability in young children's word productions can be related systematically to the design of conversational sequences and allow us to observe the child simultaneously learning to speak and learning to interact.
References

1. Davis, B. (2012) Variability in speech development and developmental speech disorder. Presentation at the 14th Conference of the International Clinical Phonetics and Linguistics Association, 27th-30th June 2012, Cork, Ireland.
2. Laakso, M. & Soininen, M. (2010) Mother-initiated repair sequences in interactions of 3-year-old children. First Language, 30: 329-353.

165 **Oral** Reading and Writing	**Can pinyin knowledge facilitate Chinese literacy development?** Dustin Kai-Yan Lau[1], Man-Tak Leung[2], Yuan Liang3, Jason Lo[1] [1]Hong Kong Institute of Education, Hong Kong SAR, Hong Kong, [2]Hong Kong Polytechnic University, Hong Kong SAR, Hong Kong, [3]Shenzhen University, Shenzhen, China

In China, Han Yu Pin Yin is explicitly introduced at the beginning of the first grade. In general, children in China are taught to (a) recognize all Pinyin-symbols and their associated phonological forms (onset / rhyme), (b) assembling the phonological forms of Pinyin-symbol strings to represent real syllables of the language, and (c) spelling Pinyin-symbol strings to represent real syllables. Pinyin-symbols are presented alongside each Chinese character in school textbooks until their third year where only newly introduced characters Pinyin-symbols are presented alongside Pinyin-symbols. It is believed that this approach of presenting Pinyin symbols with Chinese characters makes self-teaching possible and fosters Chinese reading development. The current study attempts to verify this belief.

Six hundred grade 2 and grade 3 children studying in mainstream primary schools in mainland were recruited. Their character naming abilities, writing (dictation) abilities, Pinyin knowledge and metalinguistic awareness were assessed and corresponding quantified data were obtained. Measures of Pinyin knowledge include children's ability to name Pinyin symbols in isolation (PY_Iso), their ability to name strings of Pinyin symbols representing real syllables (PY_Real), and their ability to blend sounds to assemble the pronunciations of pseudo-syllables (PY_Pseudo). Multiple regression results show that both PY_Iso and PY_real, but not PY_Pseudo, significantly predict Chinese character naming and Chinese character writing after age, non-verbal IQ and RAN are controlled.

Results suggest that PY_Pseudo does not facilitate Chinese reading and writing abilities in children. The belief that Pinyin knowledge introduction equips children a self-teaching strategy that foster literacy development is questioned. It is more reasonable to interpret the strong correlations between the abilities to name and write Chinese characters and PY_Iso and PY_Real as a reflection of the significance of pair-associate learning - a common skill required in learning to read and write Chinese characters and Pinyin symbols. Educational implications will be discussed.

Abstracts

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Poster

Articulation and Phonology

A phonetic perspective on the phonological complexity of early words

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Aerodynamic and acoustic principles account for how sound is produced in the speech apparatus. The child's anatomy and sensory-motor affordances are given, and imply natural constraints for vocalizations or production of speech sounds. As parents naturally interpret children's vocalizations as speech through a phonological filter, feedback given to the child in the ecological setting forms a critical framework for the target language.

Children's articulatory limitations may be described in phonological aspects which in turn can be arranged hierarchically from an independent phonetic perspective. The Word Complexity Measure (WCM) has been used for describing children's phonological skills in production of English (Stoel-Gammon, 2010). This measure makes it possible to compare child phonology in production of words over time and also to compare child production with target words.

Several studies have showed that there is a relationship between phonological and lexical development (e.g. Stoel-Gammon, 2011). A previous study has shown that there is a relationship between phonological complexity and vocabulary size in 30-month-old Swedish children (Marklund, Sundberg, Schwarz and Lacerda, 2011). A Swedish adaptation of the WCM was used, Word Complexity Measure for Swedish, WCM-S, including eight phonological aspects that are expected to be acquired at different stages throughout Swedish children's speech production development. Pilot data using a different measure for phonological complexity has also shown that there is a significant interaction between the complexity levels of parent reported words and child age (Marklund, Lacerda and Schwarz, 2010).

This paper will discuss why the phonological aspects used in WCM-S can be difficult for the child to produce, and how they can be organized in a hierarchic phonetic perspective. The WCM-S will be used to compute phonological complexity in children's word production, reported by parents. Data from Swedish children aged 17 to 26 months will be used to study development of phonological complexity related to vocabulary growth.

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Poster

Motor Speech Control

Syllable repetition and finger tapping in adults without speech difficulties and adults with developmental fluency disorder

Maria Sundqvist[1], Katja Laakso[1], Per Alm[2], Lena Hartelius[1]

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The focus of this study was to investigate and describe the motor timing ability in the millisecond range, which is an automatic system localized within the motor system of the brain, in adults without speech- and/or language deficits and persons with developmental fluency disorder (DFD). Previous studies have shown that people who stutter exhibit difficulties performing rhythmical motor timing tasks, and are more variable in speech motor timing than persons who do not stutter.

Aim: The aim of the study was to explore timing ability regarding differences between a) finger tapping and syllable repetition, b) synchronizing with a metronome and continuing alone, c) three different tempi, and to explore if age, gender and musical experience were correlated to the parameters above.

Methods: 100 adults without known speech- and/or language deficits (HC) have been tested with finger tapping and repetition of the syllable /pa/ in a synchronization-continuation test using a metronome, in three different tempi (slow, medium, fast), and an additional task of self-initiated maximum rate. The same test method is now being used to collect data from 40 persons with DFD. Timing ability is here defined as the time difference between each participants´ response and the closest metronome click. Significant main effects and interactions are analyzed using repeated measures of ANOVA and followed by relevant regression analyses.

Results: Results in the HC group show that the timing ability is better using finger tapping compared to syllable repetition in the slow tempo, as opposed to the fast tempo. Timing ability is significantly better during synchronization than continuation being mostly evident in the slow tempo. Results from the DFD group will also be presented. Discussion: The results from both groups will be compared and discussed in relation to previous published studies.

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Poster

Prosody

Prosody and dysprosody in spoken interaction
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A goal of our research is to formulate a holistic model of prosody, which captures how voice quality along with f0 and temporal dynamics combine in signalling linguistic and paralinguistic aspects of prosodic expression.

In this presentation we are exploring how these features are used to regulate inter-speaker coordination (e.g., turn taking, accommodation, backchannels) in the co-construction of discourse and in the expression of speakers' engagement. Many of these functions may be disrupted in the prosody associated with neurological disorders: for example, the voice of individuals with Parkinson's disease is often described as monotonous, soft, lacking rhythmic, stress and pitch contrasts and abnormally breathy or creaky. Such features impede the normal prosodic expression in a way that has inevitable consequences for the quality of the interaction, affecting not only the information exchange but also the establishment and maintenance of the desired interpersonal relationship.

Although most of our interaction research to date has focused on normal speech, we discuss here how the insights gained so far are essential to understanding dysprosody in a variety of neurological and psychological conditions. We illustrate with comparisons of normal and pathological data.

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Poster

Prosody

The role of voice in prosody and its relevance to understanding dysprosody
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We present an overview of our ongoing research on the role of voice quality modulation in the expression of prosody and discuss its importance to understanding dysprosody. One of our goals is to formulate a holistic model of prosody, capturing how voice quality, f0 and temporal features combine, and bringing together the linguistic and the paralinguistic aspects of prosodic expression. We look at the voice source, f0 and temporal correlates of intonational features such as accentuation/deaccentuation, focus, declination, phrase boundaries. We further examine the role of these same features in the regulation of discourse and in the realisation of paralinguistic signalling of speaker-attitude. It is our hypothesis that a fuller understanding of the paralinguistic prosody rests on a better grasp of the more inherently linguistic aspects. As a corollary, we speculate that linguistic prosody cannot be understood without considering how it is embedded in the paralinguistic system.

We argue in this presentation that this holistic approach can be useful to describe not only the fuller picture (characteristics, acoustic and temporal) of dysprosody but also their link to the functionally different types of dysprosody that arise in different physical, neurological and psychological conditions. At one level, structural problems such as vocal fold lesions or hearing impairment may interfere with the speaker's ability to realise the acoustic cues for effective prosodic signalling (e.g., of focus, or question intonation). Equally, structural problems may result in long term voice qualities, which have the consequence for the paralinguistic prosody and can result in mis-signalling the speaker's mood or attitude. At another level, psychological conditions are often marked by changes in prosodic expression which may result in inappropriate paralinguistic signalling.

Abstracts

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Oral

Voice

Speech function after cervical spinal cord Injury: Habitual and maximum speech performance in relation to respiratory function

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Purpose: The purpose of this study was to conduct a detailed investigation of respiration, voice, and speech following cervical spinal cord injury (CSCI), compared with a group of non-injured matched speakers (CG), and to address how relevant aspects of the injury were related to respiration and speech after CSCI. Based on the few previous studies on speech following CSCI, reduced speech function compared with a CG was expected. More impaired respiration and speech, when physical aspects, such as level and completeness of the injury, were pronounced were also expected.

Method: Spirometry data, and voice and speech samples of 19 individuals with CSCI, level C3 - C7, were analyzed with quantitative methods and compared with the data of 19 matched non-injured controls.

Results: The group with CSCI performed significantly worse than the CG on maximum respiratory, voice, and speech performance tasks; for example, vital capacity (VC), sound pressure level (SPL), and voice range profiles were significantly reduced. The participants with a VC of less than 50 % of the expected performed significantly worse on several speech tasks compared with participants with a VC above 50 % of the expected. The level of injury had an impact on respiratory function in individuals with a complete injury, but other aspects did not correlate with respiration or speech.

Conclusion: Individuals with CSCI may have respiratory-related voice and speech dysfunction, specifically affecting challenging speech tasks and, therefore, risk restrictions in communicative participation.

Key words: Cervical spinal cord injury, respiration, subglottal pressure, sound pressure level, maximum phonation time, voice range profile, dysarthria, acoustic analysis, speech, voice

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Poster

Prosody

The perception and production of diomatic and literal meanings in Korean ditropic sentences

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Background: A number of experimental and psycholinguistics studies have shown that formulaic expressions are processed differently to novel expressions. An idiom, a classic example of formulaic language, is a string of words for which the meaning is not derivable from the meanings of the individual words comprising that string. Some idioms are "ditropically ambiguous," which have either an idiomatic or literal meaning (e.g., David spilled the beans). This study took these observations a step further by investigating listeners' ability to discriminate between literal or idiomatic exemplars of ambiguous utterances and determining the acoustic features underlying this distinction in a non Indo-European language.

Method: Ten ditropically ambiguous sentences were audio-recorded by 4 native speakers of Korean, each once with a literal and once with an idiomatic meaning. Fifteen native Korean listeners completed identification and goodness rating tasks. The data were also analyzed by acoustic measures.

Results: Native Korean listeners discriminated between idiomatic and literal meanings of ditropic sentences from the acoustic signal alone, whether the sentences were presented in single utterances (70.65%) or in pairs (75.67%). There was also a significant correlation between identification of the meaning of the utterance and goodness ratings on utterances. Acoustic analysis revealed that literal sentences had significantly longer durations and greater variation in syllable durations, while idiomatic utterances were characterized by greater mean intensity and intensity variation. Another significant difference was seen in the last two syllables of sentences: idiomatic sentences featured rising fundamental frequency contour, while literal sentences were produced with falling fundamental frequency contour.

Conclusion: The findings suggest that acoustic cues serve to consistently distinguish literal and idiomatic utterances and that native Korean listeners reliably discriminate between them. The results generally support that there may be distinctive mental representation of literal and idiomatic utterances.

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Oral

Multimodal communi-cation

Gesture-language 'mismatches' during narratives spoken by people with aphasia: what do they tell us?

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Background: There is limited research investigating the gestures produced by people with aphasia alongside verbal narratives, with a larger proportion of studies focussed on gestures produced without speech. Speech and Language Therapists rarely analyse iconic co-speech gesture when assessing a client with aphasia, despite evidence from unimpaired populations suggesting that language and gesture are closely related (McNeill, 2000; Kita & Özyürek, 2003).

Aims: The aim of this study was to explore mismatches in the semantic content of gestures and the concurrent spoken language, in order to determine whether gesture reflects or conversely compensates for impaired language.

Methods and Procedures: 29 people with aphasia and 29 controls were asked to produce three narratives, from which four key event verbs (and their associated gestures) were analysed: "swing", "roll", "fold" & "put". Gesture and language were coded as either semantically matched or mismatched.

Outcomes and Results:

Each group produced both matches and mismatches between speech and language. Speakers with aphasia produced more mismatches than controls. Within the set of mismatched gestures, speakers with aphasia were significantly more likely than controls to pair semantically rich gestures with semantically light verbs. Importantly, there were notable differences relating to specific verbs and to the narrative-type. These findings emphasise that both modalities should be considered in clinical assessment and therapy and they suggest that there may be different expectations from each modality depending on both linguistic factors and the narrative genre.

1. Kita, S., & Özyürek, A. (2003). What does cross-linguistic variation in semantic co-ordination of speech and gesture reveal? Evidence of an interface representation of spatial thinking and speaking. Journal of Memory and Language, 48, 16-32.
2. McNeill, D. (Ed.). (2000). Language and gesture (Vol. 2). Cambridge University Press.

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Oral

Hearing and Perception

Speech of cochlear implant patients: An acoustic analysis of vowel production

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The aim of this study was to analyse the vowel production of cochlear implant patients, and compare it with the speech of hearing controls. The German vowel system with its numerous vowels and their dispersion in the vowel space provides a versatile opportunity to get a precise overview of the articulation of vowels by cochlear implant patients. Because of the inhomogeneity of cochlear implant patients, in this investigation they were divided into four groups, depending on whether they are prelingually or postlingually deaf speakers and the period of time between the onset of deafness and the implantation (more or less than 2 years). Each group was compared with an age and sex-matched control group consisting of normal hearing speakers. Measurements were made of F0, F1 and F2 of seven German vowels /a:, e:, i:, o:, u:, 2:, y:/.

The results showed a lower F1 for all four cochlear implant patient groups compared to their associated control groups. Compared to their normal hearing control speakers, there are lower F2 values for the prelingually deaf cochlear implant patients who got their implant shortly after deafening. The F2 values show a significant centralization of the vowel space of prelingually deaf patients who obtained their implants two or more years after deafening. For the two groups with postlingually deaf speakers there are no clear tendencies in F2.

Both groups with prelingually deaf cochlear implant patients have a higher F0 compared to their associated control groups. The results of the postlingually deaf cochlear implant patients indicate just the opposite: their F0 is lower than that of normal hearing control speakers.

The main differences between the groups are interpreted in terms of the role of auditory feedback during speech acquisition and during the period between deafening and implantation, taking into account factors such as impaired control of subglottal pressure (in production) and the effect of spectral shifts of the prosthetic hearing (on the perceptual side).

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Poster

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linguistics

The linguistic schema in the minds of two generations of native speakers

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Background: Formulaic expressions, including conversational speech formulas, idioms, and proverbs, are characterized by stereotyped form (certain words in a determined order, such as She has him eating out of her hand) and conventionalized meaning (usually emerging beyond the lexical items). An interesting subtype of formulaic expression is the schema: a formulaic expressions with a mandatory open slot for insertion of a novel word or phrase (e.g., *I'm not a big _____ person; That was a _____ and a half*). This study aimed to 1) determine whether native speakers of American English endorse knowledge of the precise forms of the schemata and reveal flexibility for the open slots; 2) compare knowledge of schemata and idioms in two generations of speakers, and 3) quantify use of semantic categories for schemata in comparison with the other test expression types (idioms and novel sentences).

Method: Four kinds of expressions were probed: 40 standard idioms, 40 novel (newly created, propositional) sentences, 40 schemata with their mandatory open slots left blank (schemata-open), and 40 schemata with a word entered in the mandatory open slots but with open slots in the fixed portions (schemata-fixed). Twenty native English-speaking participants ages 21-33 (mean = 25.5) and 20 participants ages 47-90 (mean = 59.8), comprising two generations, entered a word for each blank.

Results: There was a significant effect of sentence type [F(3, 312) = 113.61; p = 0.001] on the number of unique words: significantly fewer unique words appeared for the formulas and schemata-fixed stimuli, while a greater number of unique words were produced for novel and schematic-open exemplars. There was no significant effect of age group in knowledge of formulaic expressions or in number of semantic categories.

Conclusion: These studies confirm that schemata, as a specific type of formulaic expression, are known to native speakers across generations. Schemata exemplify the creative interplay between novel (propositional) lexical retrieval and fixed formulaic expression and may take a place in a continuum of cohesiveness for linguistic constructions.

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Effects of varying stimuli in imageability processing in Croatian Aphasics

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Semantic processing in aphasia is commonly assumed to be affected by a specific language impairment. According to modular models (MM), this is due to the impairment of a specific module or pathway, and according to Dual-code theory (DCT), the impairment is relative to a specific modality of mental representation. In this paper, we examine the extent to which the modality of stimuli facilitates recognition of high-low imaginable nouns in varying types of aphasia and reconsider relevance of integrating semantic category of imageability into current models of semantic processing and mental lexicon.

To verify the hypothesis that each type of aphasia can provide a pathway specific evidence for DCT, we tested 24 Croatian aphasic patients on the adapted version of Picture and Word Semantics battery of tests from PALPA: Psycholinguistic Assessments of Language Processing in Aphasia. Experiment results differentiated between 3 types of aphasia (sensory, nominal and motor). Collected data was used to conduct two follow up studies. First study concentrated on stimulus modality and check for the facilitating effects picture of high imaginable nouns has on semantic processing in 3 types of aphasia. This study analysed data collected on Spoken and Written Word-Picture Matching and Picture Naming tests. Second study focused on semantic category of imaginability and compared the effect spoken and written stimuli have in semantic processing of high and low imaginable nouns with respect to 3 types of aphasia. This study included data collected on Auditory and Written Synonymy judgment tests.

Results allowed us to confirm the existing variations in the organisation of processing pathways specific to each type of aphasia as imagined by MM, and to correlate these variations with the interaction of the stimulus modality and the facilitating effects as predicted by DCT.

Keywords: Aphasics, Modality, Imageability, Semantic processing, Modular model, DCT

References: Kay, J., Lesser, R. and M. Coltheart (1992) Psycholinguistic Assessments of Language Processing in Aphasia – PALPA. Psychology Press. Paivio, A. (2010) Dual coding theory and the mental lexicon. The Mental Lexicon 5(2).

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Poster

Multi-/
bilinguality

Language and cognitive processing of bilingual preschool children with clefts

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Purpose: Research shows that monolingual children with cleft lip and/or palate (CLP) have a high incidence of cognitive-linguistic deficits and limited academic success. This suggests that bilingual children with CLP are especially vulnerable given the demands of acquiring two languages. We assessed whether English-L1/Mandarin-L2 speaking bilingual preschool children (aged 3-6 years) with CLP score lower than their typically developing (TD) bilingual peers on receptive vocabulary, verbal and visuo-spatial memory.

Method: All participants were attending English-medium preschools but they are expected to learn Mandarin as a second language. Using a matched-pairs design controlling for age, first language, and socio-economic status; 40 children with CLP and 40 TD children completed assessments of English and Mandarin vocabulary using a word-picture matching task, verbal and visuo-spatial short-term and working memory, after screening out those with hearing or articulation deficits.

Results: Receptive vocabulary and memory scores for the two groups were equivalent in both languages but hierarchical regression analyses revealed that verbal working memory (operationalized as a listening recall task) was a significant predictor of English vocabulary acquisition only for the bilingual children with CLP.

Conclusions: The results revealed clear differences in the underlying cognitive-linguistic processing of the children with CLP. Given that deficits in verbal working memory are known to put children at-risk of language and literacy problems, the finding has important implications for routine clinical assessment, and for the development of optimal classroom intervention programs.

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Atypical subcortical aphasia: A case report

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Introduction: Background and Purpose
Studies in subcortical aphasias have pointed out the lack of fine grained analysis of impairments of language and emphasized the need for (cognitive/ neural) model oriented description of subcortical aphasias (Cappa & Wallesch, 1994). The objective of the present study is to offer a comprehensive description of a case of subcortical aphasias and to discuss the symptoms in relation to some contemporary cognitive-neural models of language functions (Crosson, 1985).

Method: A longitudinal case study approach was undertaken to describe the patterns of language impairment in SE, a 69 year-old female who had a sudden onset of aphasia and left hemiplegia. In acute phase: A C.T scan done at three days post onset reveled hemorrhage in the putamen. S.E was globally aphasic. At six weeks post onset S.E's language and speech were characterized to be severe auditory comprehension deficits for following simple commands, profound apraxia of speech, neologistic speech, nonfunctional verbal expression and limb apraxia. At three months post onset the patient's symptom complex included severely impaired auditory comprehension of conversational speech, Broca's aphasia, apraxia of speech and semantic phonemic paraphasias. At two years post onset the following test instruments were used: Boston Diagnostic Aphasia Examination, Apraxia Battery for Adults, Boston Naming Test and Token Test (short version). Test results confirmed the observations made at three months post onset. At six years post onset, S.E's linguistic performance was analyzed using the following tasks: phonological analysis of spontaneous speech and naming responses, grammaticality judgment, writing to dictation and discourse production.

Results and Discussion: As predicted by Crosson's model (1985), at six years post-onset, S.E's linguistic performance was characterized by reduced ability to make grammaticality decisions, decreased use of story schemas, agrammatic speech and writing.

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Caregiver linguistic responsiveness and language outcomes in children with Down syndrome and in typically developing children

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Caregiver responsiveness to children's initiations of communication plays a key role in infant language development (Tamis-LeMonda et al., 2001). Caregiver responsiveness is however influenced by the communicative abilities of the infants, meaning that infants who are delayed in this respect are likely to receive less linguistic input (Iverson et al., 2006). The aim of the current study was to compare caregiver responsiveness in typically developing (TD) infants and infants with Down syndrome (DS) to assess the extent to which frequency and type of caregiver linguistic responses is related to language outcomes.

This was a longitudinal study involving 10 TD infants (9 and 22 months) and 9 infants with DS matched to the TD infants on non-verbal mental age (18 and 36 months). The infants engaged in a 15min play session with their caregiver at time point 1 (9 months for the TD, 18 months for the DS group). Language outcomes at Time point 2 (22 months for the TD and 36 months for the DS group) were measured using the Pre-School Language Scales-4.

For the TD group, only the number of descriptive questions used by the caregiver at 9 months was significantly related to children's language comprehension scores at 22 months. For the DS group, however, the findings were different. The number of directives used by the caregiver at time point 1 were positively related to expressive language scores at time point 2, however the number of complex clauses used by the caregiver at time point 1 was negatively correlated with total language scores at time point 2. Interestingly, use of complex clauses at Time point 1 was also negatively correlated with expressive language at Time point 2 for the TD group but this did not reach statistical significance.

These findings suggest that using directives with infants with DS at an early stage of linguistic development may be beneficial for their future language outcomes and that use of complex clauses may not help children with developing their language skills at an early age. These will be further discussed in light of theories of language acquisition and implications for early interventions.

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Poster

Hearing
and
Perception

Quantitative analysis of multimodal perception in cochlear implant wearers

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To analyze quantitatively to what extent cochlear implant wearers rely on visual and somatosensory cues in comparison to normal hearers, we designed a threefold perception test measuring all in one subject the auditory acuity for speech perception, the visual acuity for speech movements, and the haptic acuity of speech organs.

Each of the three parts of the experiment follows equivalent protocols. A quasi-continuum of stimuli is presented to the subject by picking tokens from that continuum and testing whether the subject is able to distinguish between them. If the subject succeeds, the value in question is decreased; if the subject fails the value is increased. We add more stages until the distance of the tokens reaches a steady state. We associate this value with the just-noticeable difference.

To measure the auditory acuity, we recorded two carrier words VsV or VSV and manipulated the target sounds [s] and [S] to obtain a continuum of sibilants. A sequence of two items from the continuum of a given distance was presented to the subject. On successful determination the following pair of items was chosen with a smaller distance.

To test the visual acuity, we used a continuum of video recordings. A test person had articulated two carrier phrases containing the target vowels [i], and [y] respectively. We built our continuum by video morphing between the two video recordings and proceeded similarly as in the auditory experiment.

To determine the haptic acuity, we used a grating orientation test. We applied semispherical domes (JVP) with defined grating widths in one of four directions to both the lower lip and the tongue tip. On successful determination we decreased the width of the grating.

By testing auditory, haptic, and visual perception for each subject in one experiment, this study will contribute to a better understanding of sensory-motor skills of cochlear implant wearers.

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Poster

Reading
and
Writing

'Simon say´s ... Can observational learning improve argumentative text writing in students with hearing impairment?

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Observational learning is a pedagogical strategy in which a learner acquires a skill through the observation of a peer performing this skill. In the present study, we focus on the effect of observational learning on writing argumentative texts in university students with and without hearing impairment (HI). The overall aim was to find out whether imitation of a model writer is an effective tool for improving argumentative text writing.

Recent studies have shown that observational learning has a beneficial effect on the result of a writing assignment. Three groups participated in this study: two experimental groups and one control group that did not undergo intervention. The first experimental group consisted of four students with hearing impairment; mean age 28 years. The second group consisted of ten students with normal hearing (NH); mean age 23 years. The control group consisted of ten normal hearing students, mean age 23 years.

Their assignment was to write argumentative texts. The procedure involved three steps: first independent writing then an observational learning moment followed by the opportunity to rewrite and adjust texts after the model. The participants watched three videos with a model writer thinking aloud about important aspects of the writing process: organizing the text, modulation of sentences and choice of words (lexicon).

We analyzed the following variables: The number of word tokens, lexical diversity, lexical density, the number of center-embedded clauses, the number of words per clause, the writing time, the pause time, and the number of characters deleted. The last three variables were measured with the keystroke-logging program ScriptLog.

While we found significant group and text differences on some of these variables, the effects could not clearly be related to the video training. On the basis of this result, we cannot definitely conclude that observational learning is an efficient learning strategy for this particular target group, but we leave the possibility open for discussion. These conclusions and further implications will be discussed at the conference.

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Intelligi-
bility

Validation of Croatian Intelligibility in Context Scale

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Intelligibility in Context Scale (ICS - http://www.csu.edu.au/research/multilingual-speech/ics) is a parent report questionnaire assessing functional speech intelligibility of children. Among other languages, the ICS questionnaire has also been translated into Croatian. Similar questionnaire for kindergarten teachers has been developed in order to compare the assessment of children's speech between the two groups of adults. Since ICS is a simple and easily administered tool, the report from both parents and teachers could be useful for kindergarten SLPs screening procedure.

In this study, the speech of 486 preschool children (246M and 240 F) was assessed by both parents and teachers. Children were aged between 1;2 and 7;3 years. The mean value on the ICS for parents was 4.44 (SD = 0.59, minimum score = 2.42, maximum score = 5.00) and 4.52 for teachers (SD = 0.62 minimum score = 3.12, maximum score = 5.0). Parents' ratings showed that by the age of three children's speech is always (5) or usually (4) understood by family members and usually (4) or sometimes (3) by strangers. Although the overall results show that mean value of teachers' assessment in the entire sample is higher, the results for younger children (1;2-3;0) are slightly lower. Older children are almost always (5) intelligible to their family members and usually (4) to strangers, reported by both parents and teachers. When compared, the results show that parents are more critical about the intelligibility of their three- and four-year olds being in the intensive period of speech sound development, while after the age of five there is no difference in the assessment of the two adult groups. Statistical analysis (descriptive statistics determining response frequencies for each of the seven items, tests of inter-item consistency, Cronbach's alpha and factor analysis) for both questionnaires confirmed that the Croatian ICS is valid and internally reliable measure of the construct of functional intelligibility.

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and
Writing

The joy of writing – peer learning in written narrative intervention

Emily Grenner[1], Viktoria Åkerlund[1], Victoria Johansson[1], Lena Asker-Árnason[1], Martine Braaksma[2], Birgitta Sahlén[1]

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We developed a writing intervention program. The method used is an action-reflection-learning approach where students watch films, reflect on certain aspects, share their views with the rest of the class and finally sum up the learning. Previous studies of peer learning show learners' text quality (holistic measure) improves when "achievable models" are at hand (Rijlaarsdam et al., 2008).

Five films were produced, where 10-14-year-old children worked on important aspects of narrative writing. Each film was used in the intervention program aiming at improving narrative writing for students in the fifth grade (11-12-year-olds). Factors that were trained were the writers' reader awareness, their editing skills, and their metaknowledge of narrative structure. In the intervention group (n=28), five Swedish lessons were given by a PhD student and a project assistant (two of the authors) during the students' ordinary Swedish classes at their school. In the control group (n=19), the students received their ordinary Swedish lessons. As pre- and post-tests, the children wrote narratives recorded by the keystroke-logging program ScriptLog.

Preliminary results suggest that text quality improved in the intervention group, based on a holistic assessment of the texts. The effect was foremost increased in the girls' texts. Our prediction is that the intervention will also result in effects on the writing process, including increased text revision, differences in pause patterns (as shown from the keystroke logging of the writing process) and time on task. Preliminary results regarding the writing process will be available in the first half of 2014. Starting in January 2014, we will use the intervention program at a school for children with mild to moderate hearing impairment.

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Oral

Articulation
and
Phonology

EJ KLAR

Improving access to EPG intervention: Can school-based learning assistants deliver intervention following training?

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EPG-based intervention targeting speech production in children is typically delivered within clinics by a specialist speech and language therapist (SLT). It is a proven technique for remediating many speech production difficulties and previously thought intractable speech disorders (Wood, Wishart, Hardcastle, Cleland & Timmins (2009), Scobbie, Wood & Wrench (2004), Gibbon & Wood, (2003).

Following the success of a MRC-funded EPG intervention project at a UK based University where therapy was delivered by a specialist SLT at the University clinic to children with Down's syndrome (DS), funding was sought to investigate the feasibility of training learning assistants (LA) to deliver EPG therapy to children with DS aged 6 to 10 years in schools. Both mainstream and special schools were included in the project. An EPG assessment was undertaken at the University by a SLT specialising in EPG and an individualised EPG-based therapy programme was drawn up. Each LA attended a workshop which targeted speech and language development and learning styles in children with DS and training in the use of EPG. Following this initial training the therapy programme was explained to the LA and the initial therapy session delivered by the SLT. The LAs were then instructed to carry out the intervention on a daily basis, where possible, for 10-15 minutes per day, for 12 weeks using a Portable Training Unit (PTU). The SLT continued to support the LA in the form of regular visits to monitor progress and made modifications to the programme where necessary.

Following completion of therapy, the children attended the University clinic for post therapy, and 3 and 6 month post therapy EPG recordings. This paper presents a case study reporting on pre- and post-therapy perceptual and EPG results (COG, variability) from 1 child who initially presented with double-articulations and fronting of velar targets. After 12 weeks of therapy, gains had clearly been made in velar production. The data will be presented alongside qualitative information regarding the service delivery and the experiences of the LA, the school and the parent. The benefits and limitations of such a model will be discussed.

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Poster

Intelligi-
bility

Measurement of intelligibility using speech recognition software

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Background: Children with speech sound disorder (SSD) constitute a high proportion of referrals to SLT services (Broomfield & Dodd, 2004). Outcome measures generally assess their accuracy of production on single words. In contrast, the societal consequence of SSD is everyday unintelligibility. Correlations between accuracy and intelligibility are significant but weak (Ertmer, 2010); intelligibility should be assessed in its own right.

Intelligibility is difficult to assess in a way which is sensitive, valid, reliable and yet feasible. Transcription accuracy of an unfamiliar listener is time-consuming. Rating scales are quicker, but limited in their reliability and sensitivity, (Flipsen, 2006).

Speech recognition software may potentially offer a quick, objective measure of intelligibility. However, commercial software has been developed for business purposes; there is no data on its processing of child speech. As a first step, it was necessary to trial its capacity with children with typical speech development.

Methodology: Speech samples (words & sentences) were collected from 25 children age 59-79 months with typical speech. Samples were recorded directly to Dragon Dictation on an iPad mini, and to a high quality digital voice recorder. Dragon Dictation provides an instant transcription of the signal. The digital recording was transcribed by adults unfamiliar with the children or speech material.

Results: All children were easily intelligible to unfamiliar listeners (100% single words recognised correctly and 90-100% words in sentences). Voice recognition software succeeded on 0-65% words and 3-82% words in sentences. It was affected by age of child, presence of speech immaturities, and volume and pitch of speech. Reliability was high for both human and software transcription across two separate recordings.

Conclusions: Results of detailed analyses (effect of age, gender, specific sounds, word frequency) will be presented, and the possible application to children with SSD as a broad measure of change will be discussed.

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Poster

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Applying constructivist theory to language in aphasia: An examination of noun pluralization errors in relation to frequency

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Constructivist theory proposes that language is acquired holistically from the input (Ambridge & Lieven 2011) and thus language usage should be affected by the frequency with which forms are encountered. Despite being employed with apparent success in, for example, child language (e.g. Brandt et al. 2011), constructivist theory remains relatively unapplied in aphasia; yet its use in this area could provide insight into both aphasia and language storage and processing, in particular how this may be shaped by usage. To exemplify this, the current paper discusses noun pluralization errors in aphasia and how these might be driven by frequency.

Noun pluralization errors involve the production of a noun's plural form when the singular would be expected from the narrative or linguistic context, for example

one . one (2.5) one . shoes (Case IB reported on the PATSy database, Lum, et al. 2012)

Spoken narrative data is presented from twelve stroke survivors with a range of aphasia severities, including five participants from the PATSy database (Lum, et al. 2012). Error patterns appear to support constructivist theory: if the plural is produced when the singular is seemingly required, it may be that the plural is retrieved holistically rather than, for instance, generated via the application of a rule to inflect the singular. Also, the forms erroneously used were always more frequent than those required (measured using the British National Corpus, Davies 2004-), supporting the usage-based view that language is acquired holistically from the input, and that more frequent forms are thus likely to be more entrenched and perhaps more easily retrieved. Furthermore, in participants who could produce the nouns involved in the errors more flexibly (that is, in both their singular and plural forms), the erroneous usage was always on the first production of the noun, suggesting that the first retrieval may be most difficult and that people with aphasia could rely more on more frequent forms in such cases. However, errors do not always occur as would be predicted in this way; therefore other potential factors driving production, such as n-gram frequency, are also briefly discussed.

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Other

Effectiveness of speech and language therapy to young children with severe developmental language disorders in an educational setting

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Introduction: Most children with severe developmental language disorders receive speech-language therapy and educational support. Over the world there is a wide variety of service delivery models for therapy and education. Little is known about the effectiveness of these different models (Cirrin & Gillam, 2008). There is also a lack of research on child and therapy factors influencing effectiveness.

To improve care, professionals, policymakers and researchers need information about the short-term and long-term effects of different service delivery models. In the Netherlands insights in data driven education have led to improvements in the documentation of school results of children with developmental language disorders. Data on language performance however are not recorded systematically. Therefore in this study a solid and efficient follow-up system is designed to collect data on language skills and to investigate the effects of speech and language therapy of large cohorts in different service delivery models.

Methods: In close cooperation with professionals a systematic follow-up system of language skills is put up for 4 and 5 year old children with severe receptive and expressive language disorders.

On fixed moments in time results of obligatory language tests are recorded. Important characteristics of the children, such as intelligence, social economic background and mono- or multilingualism are registered. Factors concerning the service delivery model are also documented for each child. These factors include amount and frequency of intervention, type of therapy used, educational model, type of educational support and school and group characteristics, for instance class size, teacher-pupil ratio and social economic background of the pupils.

In the future the data will be used in a prospective cohort study to determine the effect of speech and language therapy and to detect predicting factors.

Conclusion: This study supports sustained evaluation of results of speech and language therapy and gives insight in the effectiveness of service delivery to children with developmental language disorders. This will lead to improvement of care.

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Oral

Language Comprehension

An event-related potential (ERP) study on word processing in 12 to 24-month-old children

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This study investigated the event-related potential (ERP) N400 on word learning in 12 to 24-month-old Swedish children. The experiment structure is a classical N400-paragidm in which the participants were presented with spoken words that are typically acquired early, while images of the corresponding objects were presented on a screen. In half of the trials, the word and the image matched (congruent condition), and in the other half of the trials, the word and the image did not match (incongruent condition). The results presented at the conference are related to the incremental nature of the speech signal, that is, the way information is sequentially made available. A comparison of the ERP-responses to two-syllable words and one-syllable words indicate that syllable structure and length of the words presented to the child do not affect N400-latency. A slight difference in amplitude of the ERP signals can be observed for the two word types but the signals do not differ temporally. The point in time at which conclusions are drawn about the semantic content of the word does not seem to vary depending on syllable structure and length of the word processed. This analysis is one part of a greater analysis in an extensive longitudinal study in a wide age perspective.

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Oral

Articulation and Phonology

Development of phonological representations in young children

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There is substantial debate in the literature about how children's phonological representations (PRs) develop and how they interact with phonological awareness (PA), vocabulary size and letter-sound knowledge. While the lexical restructuring model proposes that vocabulary growth drives PR segmentation down to the phoneme level (Metsala & Walley, 1998), grain size theory suggests that phonemic representation emerges only once children learn about phonemes through alphabetic instruction (Ziegler & Goswami, 2005). In addition, children may be influenced in their processing of words by global similarity or phonetic-level features of lexical items as much as their phoneme by phoneme structure (Carroll & Myers, 2011). Preliminary findings suggest that manner of articulation and position of shared features in the word influences children's judgements of word similarity. Past research has focussed predominantly on the development of children's explicit phonological awareness with relatively little investigation into the development of the underlying phonological representations themselves, and without controlling for global or sub-phonemic similarity of test stimuli.

Data has been collected from 90 nursery and reception-age children, using novel and implicit measures of PR segmentation to test predictions made by the key competing models of PR development. Stimuli were controlled for phonemes in common, and for global similarity based on phonetic features. Analysis will explore the influence on children's judgements of a number of hypothesised predictive factors (manner of articulation, word position, vowel length) as well as the degree of segmentation required to complete a task. Results will be discussed in relation to the competing theories of PR and PA development, and their implications for speech and literacy development and intervention.

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Oral

Prosody

The 'Intonation in Interaction' Profile (IIP)

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Equipping the speech and language therapist with a functionally useful way of describing a client's intonation (dis)abilities presents the clinical linguist with theoretical and practical challenges. Crystal's PROP profile, 30 years on, has not been widely adopted despite its strong linguistic basis. Tests of intonational competence, such as PEPS-C, cannot be used with clients too young or too cognitively impaired to undergo formal testing. I will present an alternative approach, the IIP. Like PROP, it is based on a recorded sample of talk-in-interaction, transcribed orthographically with accompanying intonational notation. The transcript can be produced on the basis of perceptual observation, in conjunction with acoustic analysis where feasible. The profile itself is completed through a process of interpreting the recording and transcript in relation to fundamentals of talk-in-interaction. The 4-page form consists of questions about the client's ability to use intonation to handle Turns, Topics, and Actions. The section on Turns includes questions about floor management and turn allocation, e.g. "Does C use the Tonic to project the end of her/his turn?" There are also questions about turn construction, e.g. "Does C use the Head to create an Intonation Phrase / Turn Constructional Unit of more than a single word?" The questions relating to Topic management include "Can C highlight the topically salient item in the turn, by locating the Tonic on that word?" Examples of questions relating to Actions are: "Can C use Tonal Matching to align with the action of the co-participant's prior turn?" Following the methods of Conversation Analysis, answers to these questions are arrived at by reference to the observable behaviour of the participants rather than to the intuitions of the profiler. The profile questions derive from extensive research into the phonetics of talk-in-interaction, involving typical adult speakers and young children. In this talk, its use will be illustrated with data from children with developmental difficulties who display interesting intonation features.

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Articulation and Phonology

Effect of task demands on phonological acquisition : the acquisition of phonemes in French speaking children aged 30 to 53 months in four different contexts

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When children first begin to produce the phonemes of their language, their productions are characterized by a high degree of variability (e.g., Ferguson & Farwell, 1975) and are influenced by task demands (Khami, Catts, & Davis, 1984). As children's phonological representations become more defined, their productions become more stable and less influenced by the task demands. Despite the clinical significance of phonological variability, there exists no normative data that can be used to objectively describe this variability in French. The goal of the present study was to describe variability and consistency among French-speaking children between the ages of 30 and 53 months, according to task demands. A total of 153 children participated in the present study and were equally distributed in four groups (aged 30-35, 36-41, 42-47, and 48-53 months). We created a picture identification task with 65 target words, which contained the consonants of French in word initial, medial and final position. The children were asked to produce these words in four different contexts : 1) picture naming ; 2) word repetition ; 3) sentence repetition ; 4) spontaneous language. Two measures of consistency were used. (1) A consonant level analysis that investigated the stability of phonological accuracy. (2) A word level analysis that investigated the consistency of productions across the four tasks. We predict that younger children will be more influenced by changes in task complexity than older children.

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Articulation and Phonology

The impact of dual-tasking on verbal short-term memory in children with Specific Language Impairment

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It has been proposed that the poor verbal short-term memory (STM) performance of children with SLI is due to limitations on general processing capacities. Previous studies have found that the STM performance of children with SLI decreases to a larger extent in comparison to their unaffected peers with increasing processing demands (e.g., Ellis Weismer, et al., 2005; Montgomery, 2000a,b). However, in these studies, the increase in attentional processing demands was combined with an increase in linguistic processing demands. Since children with SLI experience language processing problems, it is not clear whether it is general attention problems or language processing problems that are at the root of this greater performance decrease as compared to unaffected peers. This study aimed to directly assess the hypothesis that limitations on general attentional capacity are responsible for the poor STM performance of children with SLI, using an attentionally demanding visual search task administered concurrently with a nonword repetition task.

Twenty-three children with SLI, 23 age-matched children, and 23 nonword span-matched children performed an immediate serial recall task with nonwords. The STM lists were presented either alone or concurrently with the target detection task, and the target detection task either stopped or continued at the moment of recall.

Results showed a main effect of dual task condition on both nonword repetition accuracy and target detection accuracy. SLI children's performance was not more affected by a concurrent visual attention task during nonword list presentation than that of control children. However, nonword recall seemed to be more challenging for children with SLI than for age-matched controls. SLI children's performance on the visual task was inferior to that of age-matched controls, but not nonword span-matched controls.

196	**Toward automatic extraction of semantic units of thought in physician reasoning processes**

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Poster   Rochester Institute of Technology, Rochester, NY, USA

Semantics
and
Pragmatics

Medical reasoning errors cause misdiagnoses that are expensive and have serious consequences for patients. If we can understand how medical experts reason, this will improve computer-based decision support in healthcare and training of medical professionals. An issue in prior work on diagnostic expertise and reasoning is the lack of software for identifying the cognitive reasoning steps that a physician steps through when diagnosing. Manual annotation lacks scalability and is costly and time-consuming, compared to automatic processing. Responding to this need, we will report on a project that aims to build a semantic annotation tool that automatically identifies and names cognitive diagnostic steps, such as identifying the patient's demographics, recognizing the lesion type, determining the set of possible diagnoses, and offering a final diagnosis, based on physicians' spoken narrative descriptions of diagnostic cases.

We focus on dermatology as a use case. Dermatologists, as domain experts, have built up a conceptual, latent knowledge base with training and practice. Through verbal diagnostic descriptions we can tap into the physicians' tacit knowledge that they use to reason over diagnostic cases. Our long-term research goal involves advancing the understanding of experts' decision making behaviors and identifying error patterns in medical reasoning. Annotating individual diagnostic reasoning steps helps us investigate the characteristics of accurate vs. erroneous medical reasoning.

197	**Task effects in pitch and intensity variability in patients with Parkinson's disease under Deep Brain Stimulation of Caudal Zona Incerta or Subthalamic Nucleus**

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Oral   Umeå University, Umeå, Sweden

Prosody

Patients with Parkinson's disease are frequently reported to show a reduction in variability in pitch and loudness (mono pitch and mono loudness) compared to healthy control speakers. Pitch and loudness are both perceptual correlates used in signalling of prosodic distinctions, and changes in levels to create peaks or valleys is the predominant way in which pitch and loudness is used in this context. Therefore, a suitable span and variability in the acoustic manifestations of pitch and loudness (f0 and intensity) is a prerequisite in the appropriate signalling of prosody. Reductions in f0 and intensity variability observed in patients with PD is likely to cause, perhaps small, errors in signalling of prosodic contrasts, such as levels of prominence. Consequently, an increased variability in pitch and loudness may be considered a positive effect of treatment.

Deep brain stimulation of the subthalamic nucleus (STN-DBS) is an accepted treatment for PD, and DBS in caudal zona incerta (cZi) has been proposed as an alternative treatment, with an initial report showing more beneficial effects in gross motor performance compared to STN-DBS. Speech has been proposed to be affected by DBS, with reports showing both negative and positive effects depending on target and speech subsystem analysed. In a previous report, we have shown that pitch variability increased 12 months post-op in a read speech task due to STN-DBS, but remained at the reduced level due to PD in patients under cZi-DBS stimulation. The present study investigated speech samples in terms of combined variability pitch and intensity 6 and 12 months post-op, in order to provide a comprehensive overview of both mono pitch and loudness in the patients. 2860 intonational phrases produced by 23 patients (11 STN and 12 cZi) were analysed. The results show consistent patterns of reduced pitch variability but increased intensity variability due to cZi-DBS. For STN-DBS, however, the results showed a more diverse pattern, with signs of differential effects of both speech task and recording session. The results are discussed in terms of effects of DBS, microlesional effects and L-dopa.

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The importance and added clinical value of supplementing phonological screening data in a systematic and principled way: case presentation using the Phonetic and Phonological Systems Analysis (PPSA)

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Children with developmental speech sound disorders form a diverse group in terms of their presenting speech characteristics and underlying processing skills. Even children within the same clinical sub-group may present with very different profiles of impairment. In view of this, it is concerning that many UK clinicians rely on screening tools for their primary or even sole data source (Joffe and Pring, 2008). While screening tools can provide a useful initial speech sample, the data is typically not sufficient to allow adequate exploration of any variability in production and hence form an understanding of the nature and extent of the error patterns and how they might be impacting on the child's contrastive system.

In this paper we discuss the importance and added value of supplementing screening data with further targeted data collection and analysis. We present data from three children with phonological delay, elicited using (a) the South Tyneside Assessment of Phonology (Armstrong & Ainley), a popular screening tool and (b) an additional, individually-tailored word-list. The word-list was devised following analysis of the screening data using the Phonetic and Phonological Systems Analysis (PPSA) (Bates & Watson, 2012). The PPSA is a new charting and analysis tool which provides a graphic representation of the speaker's phonological system. The format also clearly shows how many times a given consonant or cluster has been tested at a given word position, highlighting strengths and limitations within the sample and thus guiding stimuli selection for further sampling. Consideration was also given to factors such as word-length and phonetic context.

We compare profiles obtained for each child in both sampling conditions and demonstrate how the supplementary date in each case provides important additional insights into the child's system which is directly relevant to the selection of appropriate treatement targets and therapy approach.

References
1. Armstrong, S. & ainley, M. (2012) South Tyneside Assessment of Phonology 3. Stass Publications.
2. Bates, S. & Watson, J. (2012) PPSA (Phonetic and Phonological Systems Analysis) [online] Available at: http://www.qmu.ac.uk/ppsa/
3. Joffe, V. & Pring, T. (2008) Children with phonological problems: A survey of clinical practice. International Journal of Language and Communication Disorders, 43(2), 154-164.

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Poster

Intelligi-
bility

Parent-reported intelligibility ratings and speech delay at ages 3, 4, and 6 years

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Coplan and Gleason (1988) reported a screening measure consisting of a parent's choice among four possible answers to a single question: How clear is your child's speech? That is, how much of your child's speech can a stranger understand? We examined the measure's potential utility in screening for speech delay in a representative sample of children (N > 693) at ages 3, 4, and 6 years. Audio recordings of conversational language samples were analyzed using the Speech Disorders Classification System (Shriberg, Shriberg, Austin, Lewis, McSweeny, & Wilson, 1997). Children with age-inappropriate omission and/or substitution errors on > 4 consonants, and/or an Intelligibility Index score < 75%, were classified as positive for Speech Delay (SD+); all others were classified as negative for Speech Delay (SD-). Positive likelihood ratios for parent ratings below 50% at age 3, and at or below 50% at ages 4 and 6, had 95% confidence intervals with lower bounds in the range described as "suggestive" of SD+, but additional testing would be needed for the diagnosis. By contrast, negative likelihood ratios for higher intelligibility ratings were uninformative for identifying children without Speech Delay (SD-).

Parent-reported intelligibility may hold promise for efforts to develop low-cost, accessible methods for large-scale and/or remote surveillance to identify children most likely to benefit from further speech assessment. Studies combining the parent-reported measure with other risk factors for speech delay are warranted, as are studies of whether a failed screen at age 3 increases risk for SD+ at a later age.

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Phonological delay and deviant phonological disorders in Hebrew-Speaking Children
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It is common to classify speech sound disorders (SSD) as "delayed" or "deviant" (sometimes called idiosyncratic) error patterns. Delayed error patterns are phonological errors which are common in young children with typical development. Deviant errors are non-developmental error patterns which are very rare or not found at all in typical phonological acquisition.
In order to classify the error patterns in a specific language it is important to have a big data pool on typical phonological development in that language. This is necessary since children from different languages show different typical phonological errors (i.e. a phonological error can be typical in one language and atypical in another).
The goal of this research was to examine and analyze phonological errors of children with SSD in Hebrew and to compare them with data from Hebrew speaking children with typical phonological development in order to classify the errors as "delayed" or "deviant".
The participants were 23 Hebrew-speaking children with SSD between the ages 3;6 and 5;0. All the children had moderate to severe SSD. The data were collected using picture naming task. The Children's errors were compared to data collected from 150 Hebrew-speaking children with typical development. The results showed great similarity between the errors of the children with SSD and the children with typical development. Thus most errors found in the children with SSD were "delayed". There were only very few errors which were found only within the SSD group and could be classified as "deviant".

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Oral

Voice

Reliability of voice SPL estimations with an air-coupled microphone fastened to the neck
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Some characteristics of the voice, such as the sound pressure level (SPL), can be estimated by means of an accelerometer or a microphone fastened to the neck. The relationship between acceleration level at the skin and SPL has been studied earlier. This study examined the relationship between SPL as measured by an air-coupled microphone fastened to the neck, and SPL as measured by a microphone placed at a fixed distance in front of the mouth, in order to determine the reliability of using the SPL value as measured at the neck as an estimate of voice SPL. Test subjects read out loud a text passage, and were recorded by a microphone fastened to the neck as well as by a reference microphone 30 cm in front of the mouth. The SPL values of the frames of the recording were compared in order to derive a linear model for the relationship between the measurements of the reference microphone and the neck-fastened microphone. The error when assuming slope = 1 and intercept = 0 was also quantified. The results show that there is a clear linear relationship between the variables, and that the errors when assuming the aforementioned model parameters are within reasonable bounds. They also show that there is some inter-subject variation, but that this variation might be small enough to motivate using a single model for prediction, depending on the application.

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Oral

Voice

Automatic classification of counterpart fricatives in hearing impaired children's speech
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WITHDRAWN

Hearing impaired (HI) children have difficulties in the language acquisition because of the lack of the typical auditory feedback. Both the segmental and suprasegmental features in HI children's differ from the typical developing children's speech production. The way their speech production differs is interrelated to the characteristics of the hearing impairement. Voicing and consonants production are also some of the common difficulties in their articulation. The question may arise if and how phonological contrasts are preserved in HI speakers' speech. In the present study, intervocalic fricatives (labiodentals, alveolar, and postalveolar) were analysed in ten HI children's spontaneous speech, and compared to ten typical developing children's and ten adults speakers' results who did not have any speech or hearing problems. 5 male and 5 female Hungarian monolingual speakers participated in each group. Zero-crossing rate, CoG, spectral slope, short term energy, and duration were measured, and also automatic classification (GMM-UBM and MAP adaptation) showed that i) the results are in interrelation with the characteristic of the children's hearing impairment, ii) the consonants in their speech are more various, and the contrasts are less preserved than that in the two control groups.

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Semantics
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A comparison between British and Finnish children's use of emotion and mental state words in narratives

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In childhood, the understanding and use of mental-state language is related to the development of Theory of Mind skills, i.e., the cognitive ability to understand other people's mental states to explain and predict their behavior. We explored whether cross-cultural differences exist in young children's use of words that refer to emotions and other mental states on the basis of narratives.

British (N=119, 61 males and 58 females) and Finnish (N=56, 23 males and 33 females) 2- to 8-year-old typically developing, monolingual children were asked to narrate from three picture sets each comprising four pictures. References to affective and cognitive states such as emotions were counted; words referring to perception (e.g. "watch", "peek", "notice", "hear"), emotion/affect ("afraid", "surprised", "happy"...), reality-orientated cognition ("decide", "think"...) and imagination-orientated cognition ("pretend", "play", "really", "trick"...) were identified from the children's narratives.

The use of mental state vocabulary increased by age, particularly from four years of age. The British children produced, on average, 2.31 (SD 1.34, range 0-12), and the Finnish children 2.19 (SD 1.66, range 0-7) mental state words in each story they told. The profile of their use of mental state subcategories differed somewhat by nationality; in the stories of the Finnish children, the majority of the mental state words referred to emotions and perception whereas the British children used emotion words most often overall and imagination-orientated category words were the next in terms of frequency of use. In both groups the children not only named emotions or other mental states but they gave reasons for and described consequences of emotions and mental states of the characters in the picture sets. In both countries, females used, on average, more mental state terms than males. We conclude that the British and Finnish children used words referring to the emotions and other mental states of the characters in their narratives fairly equally. Clear developmental change was seen in the use of mentalizing vocabulary at the age of four years. Compared to males, females from both nationalities produced a higher mean number of mental state terms in their narratives.

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Poster

Hearing
and
Perception

Meeting the challenge of simultaneous talk for cochlear implant users

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Although people do not usually talk at the same time, simultaneous speech by two or more speakers is surprisingly frequent. In casual conversations among young British adults recorded for a recent project it occupies 16% of total talking time, while 41% of speaker turns are overlapped by another speaker. Simultaneous or overlapping talk is known to be a particular problem for individuals who have a hearing loss, even when using a conventional hearing aid or cochlear implant (CI). In the past, professionals have steered clear of advising CI users about overlapping talk; however, recent improvements in the signal processing strategies used in CIs mean that it is now realistic for users to attempt to engage in conversations where overlapping talk occurs. In our current 12-month project the research team is engaging with a group of adult users of cochlear implants in order to develop software-based training materials for handling overlapping talk in conversation. These materials draw on the corpora and the findings from a recently completed cross-linguistic project on overlapping talk in casual conversation. In this poster we present an interim report, three months into the new project. We identify the specific issues that overlapping talk raises for CI users, based on direct questioning, via focus group and questionnaire survey and by observation of recorded naturalistic conversations. We describe our first steps in devising training software and activities for CI users, their families and professionals. The project team consists of clinical phoneticians / linguists with expertise in interactional analysis; computer scientists; an audiological scientist and a speech and language therapist.

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Poster

Voice

The effect of language and speech task on articulatory and vocal characteristics in bilingual speakers

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Background: While there exists a substantial literature on the subject of inter- and intra-speaker variability of vocal and articulatory quality, effect of language on individuals' speech characteristics has received less attention. The present study compares acoustic parameters in bilinguals when using two languages across different speech tasks to determine the effect of selection of language and task type on speech characteristics.

Method: 11 native Korean speakers and 11 native Mandarin speakers, who were all proficient in English, performed three speech tasks in their two spoken languages: a reading passage, monologue, and picture description. Measures of fundamental frequency (F0), pitch variability, intensity (dB), and speaking rate (syllables per second) were obtained.

Results: Paired-sample t-tests showed that Korean-English speakers consistently exhibited a significantly higher mean F0 in Korean compared with English across tasks. For the Mandarin-English bilinguals, the average F0 was significantly higher in Mandarin (M=226.9 Hz, SD=32.7 Hz) than in English (M=216.7 Hz, SD=30.5 Hz) only for reading task (t(10)= -.2.967, p= 0.014). Speaking rate during the reading task was significantly lower in speaking English for both groups compared with Korean (t(10)= -5.52, p < 0.001), and Mandarin (t(10)= -5.557, p < 0.001). Independent t tests showed a between-group difference for intensity as the native Mandarin speakers had a significantly higher value (M=58.06 dB) compared with the Korean speakers (M=53.07 dB) but there was no difference across task types or languages.

Discussion: Findings suggest that bilinguals produce a different vocal pattern depending on their selection of language, when acoustic measures of F0 and rate are explored. The difference implies that language alone can be a manifestation of within-speaker variability of vocal characteristics. In addition, it is suggested that speech sample is a crucial factor to differentiating acoustic profiles, as task effect occurs within individuals. Future studies should investigate vocal features of speech in bilinguals for a better understanding of bilingualism and its effect on natural speech.

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Poster

Other

Children with autism spectrum disorders who have not developed functional speech at age 4 to 6: Proportion and characteristics

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There is uncertainty about the proportion of children with autism spectrum disorders (ASD) who do not develop the ability to express themselves verbally during the preschool years. The main purpose of the present study was to examine this ratio in a representative group of children. The study cohort consisted of 165 children (141 boys, 24 girls) with ASD aged 4-6 years who had been followed longitudinally over 2 years during which time they had received intervention at a special habilitation center. In the current study, data collected at the two-year follow-up was used. Three categories of verbal ability were defined: non-verbal, non-functional speech, and functional speech. Data from the Vineland Adaptive Behavior Scales-II was used to measure verbal ability. A secondary objective of the study was to analyze factors that may be linked to verbal ability, viz. child age, cognitive level, autism subtype and severity of core autism symptoms, developmental regression, presence of epilepsy or other medical conditions, and intensity of intervention. The proportions of children who met the criteria for the categories non-verbal, non-functional speech, and functional speech were 15%, 10%, and 75% respectively. The most important factor linked to verbal ability was the child´s general cognitive level such that all children classified as non-verbal or non-functional speech also had an intellectual disability.

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Poster

Motor
Speech
Control

A comparison of language and speech characteristics in individuals with AOS due to stroke versus progressive AOS

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Apraxia of speech (AOS) is a sensorimotor speech disorder occurring due to deficits in planning/programming movement for speech production. Along with aphasia, AOS is common sequelae of stroke. A number of studies have shown that AOS also occurs with aphasia in progressive neurodegenerative disease (e.g. Josephs et. al., 2012) and is sometimes the first or only sign of degenerative neurologic disease (Duffy, 2006). AOS is less recognized in the Neurology community as part of the phenotype of primary progressive aphasia (PPA). This is due in part to the lack of any biomarkers, making observations of specific speech characteristics the primary method of identifying PAOS. There is little research examining the relationship of characteristics of AOS due to stroke to those of progressive AOS (PAOS). This data may facilitate the identification of PAOS as one phenotype occurring in PPA. In this descriptive study, a variety of language variables are compared to examine the range of co-occurring aphasia with AOS following stroke, as we as type and severity of progressive aphasia with PAOS. The Apraxia of Speech Rating Scale (ASRS) is used to examine the presence or absence and relative frequency and severity of each of 16 characteristics reported to be frequently associated with the diagnosis of AOS in both groups of apraxic individuals. Neuroimaging findings across the two groups will be compared. Results indicate the heterogeneity of severity of aphasia co-occurring with AOS and PAOS, although type of aphasia accompanying PAOS was typically non-fluent or agrammatic. Discussion will focus on the importance of identifying PAOS as one phenotype of the speech -language dementias.

References
1. Duffy J. (2006). Apraxia of speech in degenerative neurologic disease. Aphasiology, 20: 511-27.
2. Josephs, K., et.al., (2012) Characterizing a neurodegenerative syndrome: primary progressive apraxia of speech. Brain, 135 (Pt 5): 1522-36.

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Oral

Articulation
and
Phonology

Competence-performance gaps in young children with cleft palate: evidence from assessment and intervention

Nancy Scherer[1], Jennifer Frey[3], Ann Kaiser[2]
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Young children with repaired Cleft Lip and/or Palate (CLP) are at risk for delays in the development of both language and speech. We will relate the findings from two studies of a group of children with CLP and noncleft peers. The first study compares the language skills of toddlers with CLP to those of age and gender matched typically developing children. Participants: Forty-eight children participated: 24 children with non-syndromic, repaired CLP and 24 children with typical speech and language development matched for age and gender. All children included (a) were between 15 and 36 months old; (b) for children with CLP, palate repairs occurred prior to 12 months. Procedures: Children participated in language evaluations in the clinic. Language skills were assessed using standardized, norm referenced assessments. Results. No significant differences were observed on standardized cognitive and language measures; however, significant differences in spoken language were observed. The second study investigated the effects of EMT+PE intervention on the language and speech skills of 19 toddlers with CLP using a randomized group comparison design. Participants: Nineteen children were randomized into a hybrid naturalistic intervention and a business as usual (BAU) control group. Procedures: Children in the EMT+PE treatment group received intervention during 48 30-minute sessions delivered by a speech language pathologist. Results: Children who received the Enhanced Milieu Teaching with Phonological Emphasis (EMT+PE) intervention performed better on all language and speech measures than children who did not receive the intervention. Significant differences in receptive language and speech skills between groups at the end of intervention were observed. Effect sizes for all language measures were positive, indicating on average children in the treatment group performed better at the end of the study than children in the control group. The results of these studies will be discussed in terms of implications for early speech language assessment and intervention for children with CLP.

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Poster

Multimodal
Communi-
cation

Meaning making supported through use of comic books

Judith Oxley[1], Megan Holland[1], Christina Tausch[2]

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Background: Individuals with Charge Syndrome typically have a range of impairments impacting hearing, vision, cognition, and other systems. They have been, until recently, excluded from candidacy for cochlear implants. Successful participation in the community and within family is enhanced when adequate supports are in place for maximizing the individual's developing skills. Young adults with CHARGE syndrome are at a disadvantage because typical habilitation programs for cochlear implant recipients are inappropriate: intellectual impairment and impoverished educational and social experiences further complicate the situation. Auditory verbal methods are popular, but modifications are necessary for people with multiple impairments.

Data and Method: This descriptive case study reviews the multimodal communication development of a young man with CHARGE Syndrome. A therapy program with a focus on negotiation of meaning via any modality available was implemented to enable him to communicate successfully with non-signing people. This program supplemented auditory verbal techniques. Language development was addressed through pragmatic and semantic supports afforded by various technologies (e.g. iPad and iPhone) and printed language in the form of a comic book series. Comic book formats provide ideal support for people who need simplified text, but more importantly, they embed referential support in terms thought bubbles and speech bubbles, together with rich illustrations. Data include: transcripts of multimodal conversations captured via audio and video recording between the young man and several therapists over the course of three years. Conversational analytic tools were used to capture changes in the quality and quantity of his topics, moves, and the emerging roles of his iPad and iPhone as enablers of his access to the community. Supplemental data include: measures of speech intelligibility; distribution of communication across sign language, natural gesture, pantomime, natural speech, and use of technology.

Results and Implications: The main finding was a shift away from his reliance on imitative responses as an interaction tool with non-signing partners, to what we call an authentic style characterized by initiations, expression of diverse communication purposes, and use of more topics and wider content. Slow emergence of functional hearing and speech continues within overall communication development. Distributed cognition provides a useful framework for interpreting findings.

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Poster

Motor
Speech
Control

Durational patterns in normal speakers vs. individuals with hypokinetic dysarthria secondary to Parkinson's disease

Marie Klopfenstein

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As several studies have suggested that individuals with hypokinetic dysarthria secondary to Parkinson's disease (PD) have perceptually more rapid speech, researchers have looked at the duration of speech segments as confirmation of this observation. These reports indicate that for a small proportion of PD subjects, phrase, syllable, or segment durations are indeed shorter than those of normal speakers (Canter, 1963; Forrest et al., 1989; Uziel, Bohe, Cadilhac, & Passouant, 1975; Weismer, 1984; Weismer, Kimelman, & Gorman, 1985). Another study (Ludlow, Connor, & Bassich, 1987) found that PD patients had impaired control of sentence duration, which may result in the perceptually abnormal speaking rates of individuals with hypokinetic dysarthria.

However, these studies have not looked at how duration varies between normal speakers and PD subjects in a variety of speech tasks, including spontaneous speech. Spontaneous speech is more closely related to speech in activities of daily life and its lack in research may explain why there aren't more robust findings of durational patterns in hypokinetic dysarthria given the widespread perceptual impression of speech rate abnormalities. To address this shortcoming, this study proposes to analyze the speech of eight individuals; four individuals with hypokinetic dysarthria secondary to Parkinson's disease and four age and gender matched individuals with no neurological impairment or history of speech or language disorders. Subjects will be recorded reading short sentences, a short story, during spontaneous speech in a conversation dyad, and retelling the sequence of events after watching a short video. Durational measures will include phonation time, articulation rate (number of syllables per phonation time), average syllable duration (speaking time per number of syllables), pause time, number of pauses, and the duration of vowel segments in sentence-final position, controlled for by the effect of adjacent voiceless and voiced consonants vowel duration.

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Poster

Nasality

Nasalisation of vowels versus nasal realisation of vowels: a subtle perceptual distinction with substantial diagnostic implications

Anne Harding-Bell[2]

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Four speech samples containing syllabic nasals will be presented and discussed in the context of listener perception, transcription conventions, phonetic description, phonological attribution, differential diagnosis and clinical management . Videofluoroscopy extracts will demonstrate that whilst syllabic nasals markedly increase perceived hypernasal resonance this phenomemna cannot be attributed to velopharyngeal dysfunction. Of the four cases in this presentation two presented with a history of cleft palate and associated fluctuating conductive hearing loss, one had submucous cleft palate and a late diagnosis of hearing loss and one child was referred with suspected non-cleft VPD and a history of recurrent otitis media. High vowels [i u] were realized as nasal stops in all four cases. Transcription data and video clips will be presented.

- AM 'soap' [s.m̩p̩]; 'sand' [s.n̩d]; ; school bus [n̩ː bʌ]
- MT 'Me go in water' [ŋ ŋ ŋ ŋ̩.ə]
- CS 'Fish' [m̩m̩̃] ; 'elephant' [ɛm̩̃m̩]
- HT 'horrible to me' [hɒrəmn̩ km̩ mŋ]

Conclusion: Nasal realisation of vowels is perceptually similar to, but mechanically distinct from, nasalisation of vowels. All 4 cases acquired normal vowels with therapy but VPD had been considered and misdiagnosis could have led to unnecessary surgery..

These data indicate that when hypernasality is perceived in speech assessments detailed transcription of high vowels , weak syllables and all unusual vowels is essential in order to provide evidence that vowels have been assessed. Accurate distinction between nasalised vowels and syllabic nasals would minimise the risk of misdiagnosis of syllabic nasals as hypernasal resonance.

Since these cases of syllabic nasals seem to be associated with low frequency hearing loss a hearing assessment should be considered for children presenting with this speech feature and therapy activities may benefit from an emphasis on visual and tactile sensory input to support an unstable auditory signal.

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Poster

Multi-/
bilinguality

Vocabulary and literacy acquisition in trilingual and bilingual pre-school children

Mary Lay Choo Lee, Susan J. Rickard Liow, Sylvia Si Wei Ng

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Systematic studies of processes underlying vocabulary and literacy acquisition in multilingual children seem lacking. We compared 4 year-old trilingual and bilingual children (26 pairs matched for age, nonverbal intelligence, first language and mother's education) on tests of single-word receptive and expressive vocabulary, and short-term memory (digits forward). The bilingual group had been exposed to English and Mandarin at home, while the trilingual group had been exposed to a second Chinese language (e.g., Cantonese, Hokkien) as well as English and Mandarin. Results showed that receptive and expressive vocabulary performance for the two groups was equivalent in both English and Mandarin, but subsequent regression analyses revealed that both short-term memory and receptive vocabulary in Mandarin, contribute significantly to Mandarin expressive vocabulary for the trilingual group, but not for the bilingual group. The reading and spelling performance of bilingual and trilingual children a year later was also compared. Results showed no significant difference in literacy acquisition for the two groups but their relationship with vocabulary and memory varied. These data suggest there are qualitative differences between trilinguals and bilinguals in the process of vocabulary and literacy acquisition and that pre-schoolers' exposure to a third language does not appear to have adverse consequences.

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Poster

Articulation and Phonology

Voicing contrast in Hungarian word-initial stops by children at the age of 5;6

Éva Tar

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In this study, the speech of Hungarian-speaking children were investigated through a VOT-analysis considering the voicing distinctions among word-initial stops, at the age when phonemes are acquired by more than 90% of children. Sixteen monolingual 5;6-6;0-year-old children (8 boys and 8 girls) with typical development were sampled. Data collection was based on a picture-naming task involving at least four different pictures for each word-initial stops /p b t d k g/ being in CV sequences. The audio-recorded data were evaluated, by gender, in terms of accuracy (by considering the presence of language-specific knowledge regarding cuing with prevoicing) and the duration of VOTs. Findings revealed that target voiced stops exhibited bimodal distributions, 70-90% of them were realised with prevoicing. There were gender differences in the prevalence of negative VOTs for /b d/ but /g/, with girls realising more prevoiced stops than boys. Regarding their durations, average VOTs for voiceless realisations fall in the category of short lag VOT, and were longer for velars than for bilabials or alveolars; VOTs for /b d g/ failed to vary as a function of the place of articulation. VOTs for unvoiced target voiced stops did not differ from those for their voiceless cognates. Excepting for average VOTs for /t k/ in girls, VOTs for /p t k/ were longer, and VOTs for /b d g/ were shorter than those found in adults. The effect of phonetic context on both the number of prevoiced realisation and the duration of VOTs will be discussed in the presentation; and, by paying attention to previous findings on the acquisition of the voicing contrast (e.g. Smit et al., 1990; Whiteside and Marshall, 1998; Karlsson, Zetterholm and Sullivan, 2004; Nissen and Fox, 2009), assumptions will be made about the possible reasons why gender differences exist for some stops and do not for others.

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Oral

Articulation and Phonology

Observation of babbling in typically developing children at 10-18 months of age compared to clinical groups – a possible screening procedure

Anette Lohmander, Sofie Eriksson, Katarina Holm, Lena Höglund Santamarta, Jenny Karlsson, Marion Lieberman

Karolinska Institutet, Stockholm, Sweden

Background: Normally, typical repeated syllable chains, canonical babbling (CB), is established at 10 months of age at the latest. First words generally include the syllable types and consonants mastered during the early vocal stages. Several studies have documented the continuity between sounds in babble and children's early words. Oral stop consonants and anterior placements are most common in typically developing children whereas a lack of these has been reported in clinical groups such as children born with cleft palate or hearing impairment. A reliable observation of CB and the typical consonant pattern would be a useful tool for early identification of children in need for intervention. The primary aim is to present normative data from observations of valid and reliable variables at 10 to 18 months of age. I addition, preliminary comparisons with clinical data will be performed.
Method: Subjective observation of presence or absence of CB, high pressure consonants/oral stops and anterior/alveolar place of articulation was carried out in typically developing children (TD) at 10 (n=30), 12 (n=20) and 18 (n=20) months of age.
The observations took place during a standardised video recorded play session with a care giver. All observations were performed live by a single observer using a simple proforma. Thirty per cent of the video recordings were later observed by a second observer using the same proforma. A similar procedure had been undertaken at 12 and 18 months on children born with cleft palate (n=42).
Results: All children with TD had CB, oral stops and anterior placement at all ages. At 12 months of age 97% of the children with cleft palate had CB, but only half of the group used the typical consonant sounds. Differences related to surgical procedure will be analysed.
Conclusion: Reliable subjective observations showed that all children with TD mastered the variables chosen to be important precursors for speech production. The children with CLP showed poorer skills but will be further analysed and data on infants with hearing impairment added.

Abstracts

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Poster

Articulation
and
Phonology

Articulation, nasality and phonology in typically developing Swedish individuals: normative data from the SVANTE-test at 3 to 19 years of age

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Normative language based data is important for comparison of speech performances of clinical groups. The Swedish Articulation and NAsality test (SVANTE) was developed for assessement of speech in individuals with difficulties related to structural of neurological deficits. The aim of the presentation is to demonstrate normative data on articulation, nasality and phonology in Swedish children, adolescents and young adults.

Method: Single word production, sentence repetition and connected speech was collected using the SVANTE-test in 3 (n=102), 5 (n=103), 7 (n=61), 10 (n=60), 16 (n=55) and 19 (n=62) year olds. All assessments were performed independently by SLP 4-year students from audio recordnings using phonetic transcription and rating scales. Inter and intra agreement were calculated for each variable in each group. Mean (SD) of the variables percent correct oral consonants, frequency of articulation errors in front of and behind the velopharyngeal area respectively were calculated, as well as frequency of s-deviances and prevalences of nasality variables. For the 3 and 5 years olds phonological inventory and processes were determined.

Results: The mean values for percent correct oral consonants varied ranged from 77% at age 3 to 99% at 19 years of age. However, a mean level of 96% was reached already at 5 years of age. The errors were mainly in front of the velopharyngeal port and was dominated by s-distortions of various kind. A few speakers were judged to have mild degree of hypernasality or few occurrences of audible nasal air emission. The 3 year-olds had between one and three operative consonant processes. In the 5-year-olds the phoneme inventory was completely established in the age group with the exception of /s/, /r/, /ɕ/ and /ɧ/. Phonological processes included simplifications of these phonemes and cluster reduction.

Conclusions: The norms on SVANTE will be useful in any assessment of speech production in clinical groups from 3 years of age to young adulthood.

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Poster

Grammar

EJ KLAR

Measures of severity of language impairments in atypically developing children

Reza Nilipour

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In the present talk we report on five linguistic markers as measures of severity of impairments in two Persian speaking school-aged (8 and 9) children diagnosed as atypically developed based on their performance on 9 linguistic tasks as compared to their aged-matched peers. The quality of their descriptive speech was rated and compared with the means of their age-matched peers as a measure of severity of their impairments. The rated linguistic markers were number of content words, number of function words, type-token ratio, MLU and inflectional morphology. The ratings indicate that the atypically developed children are in significant disadvantage in all linguistic measures as compared to the means of their age-matched typically developed children. The comparison indicates to a wide spectrum of gap at both lexical and grammatical levels and argues against proposals of monolithic nature of linguistic impairments in atypically developed children. It is recommended that the proposed linguistic markers are good indicators of severity of impairments and can be implemented for diagnosis of atypically developed children as well as for assessing therapy efficacy in clinical linguistic settings.

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Poster

Articulation
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Phonology

Whole-Word Multisyllabic Word Production (MSW) scoring using integration of nonlinear phonology and phonological processing models

G. Kelly Mason[1], B. May Bernhardt[1], J.P. Stemberger[1], J.J. Masterson[2]

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For multisyllabic words (MSWs), a combination of factors related to language processing and the structure of linguistic units, likely contributes to phonological mismatches developmentally; however, there is no complete theoretically motivated scoring method for long words. Available phonological scoring methods have focused primarily on syllable structure and segmental production in preschoolers' speech, which has few MSWs. One specific measure for MSWs tallied the frequency of phonological processes [1]. Scores provided by these models are restricted to quantitative accuracy of linear phonological production without reference to processing theories that could explain how a combination of mismatches occurs within a word.

A whole word scoring rubric has been developed with reference to connectionist and parallel licensing models of processing, plus semantic neighborhood influences; this rubric both quantifies and explains phonological mismatches for all levels of the nonlinear phonological hierarchy. The rubric will be compared to other current measures (e.g. Percent Consonants Correct [2] and Phonological Mean Length of Utterance [3], among others) using MSWs elicited from typically developing 5- and 8-year-olds, and will explicate complex patterns within and across distant phonological levels. This additional information will help clinicians differentiate children with protracted MSW development, and inform intervention, with the expectation of mitigating risk for literacy acquisition. The basis of the rubric in both linguistic and language processing models will also contribute to theory verification.

1. James, D. G. H. (2006). Hippopotamus is so hard to say: Children's acquisition of polysyllabic words. Unpublished dissertation. University of Sydney, Australia.
2. Shriberg, L. D., Austin, D., Lewis, B. A., McSweeny, J., & Wilson, D. L. (1997a). The percentage of consonants correct (PCC) metric: Extensions and reliability data. Journal of Speech, Language and Hearing Research, 40, 708-722.
3. Ingram, D. (2002). The measurement of whole-word productions. Journal of Child Language, 29, 713-733.

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Poster

Psycho-
and
Neuro-
linguistics

Sensory-specific anomic aphasia following left occipital lesions: Data from free oral descriptions of concrete word meanings

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Semantically specific nouns (e.g. 'robin') can be assumed to be more closely related to sensory information than less specific nouns in the same lexical semantic hierarchy (e.g. 'animal') [1]. In particular, visual information may be crucial for accessing specific noun meanings. Following this, damage to visual (occipital) cortex might selectively affect specific nouns. Supporting this idea, concrete nouns (e.g. 'table') and verbs (e.g. 'kick') activate brain regions involved in experiencing their referred objects and actions [2], and lesions in visual brain areas result in difficulties accessing words related to the visual modality [3]. Previous patient studies have focused on comparing different modes of presentation (e.g. visual/tactile/verbal). However, it could further be hypothesised that when visual areas are damaged, the degree of visual semantic content also affects performance.

The present study investigated hierarchical lexical semantic structure in free oral descriptions of concrete word meanings produced by a subject (ZZ) diagnosed with anomic aphasia due to left occipital lesions. The focus of the analysis was production of a) nouns at different levels of semantic specificity (e.g. 'robin'-'bird'-'animal') and b) words describing sensory or motor experiences (e.g. 'blue', 'soft', 'fly'). In contrast to healthy and aphasic controls, who produced words at all levels of specificity and mainly vision-related sensory information, ZZ produced almost exclusively nouns at the most non-specific levels and words associated with sound and movement, suggesting that his anomia is sensory-specific and dependent on the modality of the semantic content of words.

References
1. Rosch, E. (1978). Principles of categorization. In: Rosch, Eleanor and Barbara B. Lloyd, eds., Cognition and Categorization. Hillsdale, NJ: Lawrence Erlbaum, pp. 27-48.
2. Pulvermüller, F. & Fadiga, L. (2010). Active perception: sensorimotor circuits as a cortical basis for language. Nature Reviews Neuroscience 11, 351-360.
3. Manning, L. (2000). Loss of visual imagery and defective recognition of parts of wholes in optic aphasia. NeuroCase 6(2), 111-128.

Abstracts

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Oral

Hearing
and
Perception

How does the teacher's voice and back-ground noise in the classroom affect childrens' comprehension and learning?

V. Lyberg Åhlander[1], M. Haake[2], J.K. Brännström[1], S. Schötz[3], B. Sahlén[1]

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The spoken word is the major means of communication in the classroom. The teaching profession is aknowledged as an occupation with high vocal demands and a heavy voice load. Back-ground noice and adverse room acoustics have been shown to affect listerners memory and recall of information. The child's perception of speaker's voice quality and the possible consequences for comprehension and learning has rarely been researched. We hypothezised that the verbal content communicated by a dysphonic voice due to the voice's deviant acoustic properties may cause the child to allocate cognitive capacity to the processing of the voice-signal; and that a hoarse teacher voice in combination with background noise will affect the childs' performance more severely. The children's working memory capacity and executive functioning will be important for their performance. A total of 95 eight year old children were recruited. After testing cognitive capacities (complex working memory and executive functioning) two groups were costructed where n=40 and n=45 children were included. The groups were comparable regarding cognitive capacity, age and gender. The groups were digitally presented with the Test for Reception of Grammar through recordings of the same female speaker in different voice qualities, Group A with a typical voice, and Group B with a hoarse voice. The same design was applied in a second study, although with the voices recorded in ambient babble-noise. The results from the first study showed that the hoarse voice affected the children's performance. In the "hoarse" group the frequency of mistakes increased concurrently with increase of the test's grammatical/linguistic complexity. Also the frequency of the children's auto-corrections where increased already at the easier tasks. The result suggests that more cognitive resources are needed for coping with a dysphonic voice and we predict that the effect will be even more significant when back-ground noise is added to the voice signal.

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Oral

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Perception

Real-time registration of listener reactions to unintelligibility in misarticulated child speech

Sofia Strömbergsson[1], Ivonne Contardo[2], Anita McAllister[2]

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Children with speech disorders often present with systematic speech error patterns. As a communicative consequence, intelligibility is reduced. There is an apparent value in knowing how specific speech error patterns contribute to decreased intelligibility, as intervention targeting those error patterns that are most detrimental to intelligibility will potentially be most rewarding in terms of functional gains. Although indirect links between specific speech errors and their effects on intelligibility have been described (e.g. [1]), the correlation between specific speech errors and what reactions they evoke in listeners is still poorly understood. Here, we describe a novel approach for examining direct links between speech error types and the extent to which they contribute to reduced intelligibility. Conversational speech was recorded from 7 preschool-aged Swedish children, who exhibited speech production deficits, as assessed by a clinical test of speech production. Sequences of continuous speech were sequentially concatenated to form 10 one-minute speech samples. For all speech samples, misarticulations were manually marked and labelled, and the Percentage of Consonants Correct (PCC) [2] was calculated.

30 listeners were recruited to perform a web-based evaluation of intelligibility; 13 of whom were practicing clinicians, whereas 17 were untrained listeners. The listeners were instructed to listen to the speech samples and to click any keyboard key whenever they perceived something unintelligible during playback. The distribution of listener clicks was then related to the manually annotated misarticulations, and to the PCC.

The analysis revealed no difference between the experienced and unexperienced listeners with regards clicking frequency. The number of clicks per speech sample correlated strongly with PCC. The ranking of speech error types with regards to how often they evoke reactions in listeners reflected that certain speech errors (e.g. /r/-weakening) occur often but do not impair intelligibility to the same extent as less frequently occurring speech errors like assimilations and voicing errors.

1. Hodson & Paden (1983). Targeting intelligible speech: A phonological approach to remediation. San Diego, CA: Collage-Hill Press.
2. Shriberg & Kwiatkowski (1982). Phonological disorders III: A procedure for assessing severity of involvement. Jo Speech Hearing Dis, 47(3), 256-270.

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Oral

Motor
Speech
Control

Instability in simple speech motor sequences - an overview of measures and what they really quantify
Fredrik Karlsson

The sequencing of speech motor gestures may be impaired in patients with conditions that affect either the functioning of active articulators or regions in the brain involved in speech motor control. Oral diadochokinesis is an established tool for the assessment of speech motor function, and has primarily been studied in terms of rate and stability in the syllable productions. Syllable rate has achieved a coherent quantification across reports due to the simple nature of what is being quantified. Attempted quantifications of the concept of syllable production instability, however, are much more diverse, with most measures being incomparable to the others due to different underlying definitions of the concept of instability. In this talk, I will present and overview of recently used quantifications of instability or regularity of speech production, and illustrate which aspect of instability they could claim to quantify. Specific cases of measures that may either lead to erroneous conclusions to be drawn or be of reduced scientific value due to high levels of uncertainty in the interpretation will be highlighted.

General Information

Conference venue	Karolinska Institutet (Solna campus) Address: Berzelius väg 3, Solna Phone: +46-(0)18-67 15 27
Conference Secretariat opening hours	Wednesday, June 11, 10:00-15:00 Thursday, June 12, 8:00-14:00
Name badges	Your name badge serves as your admission to the scientific sessions, coffee breaks and lunches. It should be worn at all times during the conference.
Exhibition	The exhibition will be in the foyer. Exhibitors are welcome to set up their exhibition on Wednesday, June 11, from 12:00. The exhibition should be dismantled on Friday, June 14 after coffee and by 15:30 at the latest.
Coffee breaks and lunches	Coffee and lunch will be served in the exhibition area.
Welcome reception	Welcome reception with some refreshments will be held in the restaurant near poster area on Wednesday, June 11 at 17:30. It is included in the registration fee.
Dinner	Dinner at Skansen open-air museum on Thursday, June 12, restaurant Solliden, at 19:30. Skansen is situated on the island Djurgården and is known for it's wild animals and culture and out-door exhibitions of Sweden cultural heritage. It is also the stage from where entertainment programmes are often shown live on TV. The dinner is not included in the registration fee for the delegates. Price: SEK 500 + VAT A pre-registration to the dinner is required. It takes about an hour to walk to the restaurant from the city centre, or you can take a bus/tram. From T-Centralen in the city centre you can take bus 69 or bus 69K and change to the No.7 tram at Norrmalmstorg, Nybroplan, Styrmansgatan or Djurgardsbron to stop Skansen. You have to buy the ticket before you enter the bus/tram. You can buy tickets at SL center at the Central Station or at "Pressbyra", or on vending machines at the bus/tram station.

Transportation between Stockholm and Arlanda International Airport

Arlanda International Airport is located 42 km north of Stockholm. Flygbussarna have a new route between Liljeholmen and Arlanda. The new route will depart every 20 minutes for most of the day. The bus will go from Liljeholmen by Hornstull at Södermalm cross Västerbron to Kungsholmen and continue through Vasastan to Karolinska University Hospital. After this the route will go direct to Arlanda airport. Travelling time from Liljeholmen is 50 minutes and from Vasastan is 30 minutes. For more information, please see http://flygbussarna.se/en/arlanda

Bus, metro or commuter train to Campus Solna

You can take direct bus nr. 69 between the Central Station and Karolinska Institutet or bus nr. 3 from/to St.Eriksplan metro station. For time tables please visit SL Journey planner http://sl.se/en/Visitor/Plan-your-journey/

Trains

Arlanda Express a high-speed train that will take you from Arlanda to Stockholm Central Station in 20 minutes. The Arlanda Express terminal is at the Central Station (T-Centralen) Price: adult one way 260 SEK https://www.arlandaexpress.com/

Taxis

Journey time: 30 minutes. Taxi Stockholm has phone number 08-15 00 00. Ask for the fixed price, it should be about 550 SEK. If you need to get to another airport, please ask for information at the conference secretariat or look under http://akademikonferens.ki.se/sshno2014/

Banking service, currency

Swedish Krona (SEK) is the official currency in Sweden. There are many exchange offices in the centre of Stockholm. To mention one, Forex is located at the Central Station (T-Centralen). There are plenty of ATMs . Major international credit cards are accepted in most hotels, shops and restaurants.

Shopping in Stockholm

Most stores are open 10:00-19:00 on weekdays and 10:00-17:00 on Saturdays. Many stores in the city centre are open on Sundays 12:00-17:00. Grocery stores have longer opening hours every day.

Local conference secretariat

Academic Conferences
P.O. Box 7059
750 07 UPPSALA Sweden
tel: +46-(0)18-67 15 27
www.icpla2014.se
registrationicpla@slu.se

Wednesday, June 11

08.00	**LECTURE HALLS** A = Jacob Berzelius – ADAM B = Andreas Vesalius – BERTIL C = Gustaf Retzius – CESAR

10.00 Registration (Conference venue, Berzelius väg 3)

13.00-13.30 Welcome (A)

13.30-14.30 Plenary lecture (A)
How Speech Works: Theory and Experiment in the Pursuit of a Unified Account
Speaker: Björn Lindblom

14.30-15.00 Coffee/tea

15.00-16.20 Parallel sessions
1. Voice (C)
2. Prosody (B)
3. Articulation/Phonology I (A)

16.30-17.30 Parallel sessions
1. Psycho-/Neurolinguistics I (C)
2. Language Comprehension (B)
3. Articulation/Phonology II (A)

17.30 Welcome reception at the Conference Venue

Thursday, June 12

08.00 Registration (Conference venue, Berzelius väg 3)

09.00-10.00 Plenary lecture (A)
Free energy and phonological dynamics
Speaker Karl Friston

10.00-10.30 Coffee/tea

10.30-11.30 Parallel sessions
1. ACC/Multimodal Communication (C)
2. Multi-/Bilingualism I (B)
3. Articulation/Phonology III (A)

11.30-13.00 Panels
1.
2. Study guidelines in cleft palate speech (B)
3. Word-initial rhotic cluster acquisition in European Portuguese, Icelandic, Slovene, Spanish and Zapotec (A)

13.00-14.00
LUNCH

14.00-15.00 Parallel sessions
1. Semantics & Pragmatics I (A)
2. Motor Speech & Intelligibility (B)
3. Hearing & Perception I (C)

15.00-16.00
Poster session I + coffee/tea

16.00-17.00 Parallel sessions
1. Grammar (A)
2. Reading & Writing I (B)
3. Talk-in-interaction (C)

17.00 ICPLA Business Meeting

19.30 Dinner at Skansens Restaurang Sollliden

a Glance

Friday, June 13	Saturday, June 14

08.00 Registration (Conference venue, Berzelius väg 3)

09.00-10.00 Plenary lecture (A)
Early identification of language deficits: When do benefits exceed harms?
Speaker Christine Dollaghan

10.00-10.30 Coffee/tea

10.30-11.30 Parallel sessions
1. Psycho-/Neurolinguistics II (A)
2. Reading & Writing II (B)
3. Hearing & Perception II (C)

11.30-12.30
Poster session II

12.30-13.30 LUNCH

13.30-14.30 Parallel sessions
1. Semantics & Pragmatics II (C)
2. Multi-/Bilingualism II (B)
3. Articulation/Phonology IV (A)

14.30-15.00 Coffee/tea

15.00-16.30 Panels
1. Conversation-based intervention - How does it work? How do we show it works? (A)
2. Teaching and learning in clinical linguistics and phonetics (B)
3. Children's speech assessment: Cross-cultural considerations (C)

16.30-17.00
Closing incl. bid for ICPLA 2016

Saturday, June 14

50th Anniversary of the Study Program in Speech and Language Pathology in Sweden

Location: Aula Medica, Karolinska Institutet, Solna

Celebration with scientific symposium at Karolinska Institutet followed by dinner in the City Hall

Separate registration