International Conference on Bilingualism and Comparative Linguistics

15-16 May 2012

The Chinese University of Hong Kong, Shatin

Organized by

Childhood Bilingualism Research Centre
兒童雙語研究中心

Department of Linguistics and Modern Languages
語言學及現代語言系

Co-organized by

Research Institute for the Humanities
人文學科研究所

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Welcoming remarks

On behalf of the Childhood Bilingualism Research Centre and the Department of Linguistics and Modern Languages, I extend a warm welcome to you as we begin the International Conference on Bilingualism and Comparative Linguistics. The two parallel areas of research, namely bilingualism and comparative linguistics featured in our conference are also identified as strategic areas of strength in the Department of Linguistics and Modern Languages.

The Conference is a signature event creating a regional and international platform which gives bilingualism and comparative linguistics prominence and raises our visibility in the international academic community. We are very honored to have such an illustrious cast of keynote speakers:

Patricia Kuhl, University of Washington
Fred Genesee, McGill University
Gillian Sankoff, University of Pennsylvania
Audrey Li, University of Southern California
William Labov, University of Pennsylvania
William S. Y. Wang, Chinese University of Hong Kong

Invited speakers:
Bryan Gick, University of British Columbia
Patrick Wong, Northwestern University
Alan Yu, University of Chicago

The Conference also features three invited panels: (1) bilingualism and the brain (2) learner corpora of modern languages and third language acquisition and (3) the phonetics and phonology of language contact. We thank the panelists for putting together the presentations on the panels.

There are 53 paper presentations and 17 poster presentations at this Conference. The presenters come from Australia, Belgium, Canada, Hong Kong, India, Italy, Japan, Korea, Macau, Mainland China, New Zealand, Singapore, Taiwan, United Kingdom and United States. We appreciate their enthusiasm and support for the conference.

Bilingualism investigates how the bilingual individual acquires, processes and produces two languages. Bilingual development in early childhood and the acquisition of second and third languages in adulthood in turn draw on insightful comparison of the two or more languages being used or acquired, while findings in bilingualism can provide an important source of evidence for the study of comparative linguistics.

Comparative linguistics investigates the similarities and differences between languages of the world from various theoretical perspectives, illuminating our understanding of universal properties and principled variation among these languages and ultimately the universal characteristics of human language. Together, bilingualism and comparative linguistics shed light on language and its relationship with the human mind and brain from an interdisciplinary perspective.

CUHK's Department of Linguistics and Modern Languages stands at the nexus of humanities and sciences, combining knowledge and insights from a wide range of disciplines including psychology, cognitive and neuroscience, engineering and medical and health science to shed light on the study of language and specific aspects of the mind and brain. Working with our collaborators and research teams, we apply scientific methods and techniques to address basic and fundamental questions about how language works and ultimately how the mind and brain work.

We gratefully acknowledge the funding support from our Department, Faculty of Arts and the Research Institute for the Humanities which is a co-organizer of the Conference. Special thanks are due to members of the Organizing Committee:

Candice Cheung, Hsiung Ping Chen, Jiang Ping, Thomas Lee, Stephen Matthews, Peggy Mok, Yanhui Zhang and Ulrich Wannagat.

Thank you for being here with us, and we hope you enjoy the Conference!

Virginia Yip
Professor and Chairperson, Department of Linguistics and Modern Languages
Director, Childhood Bilingualism Research Centre
Chinese University of Hong Kong
May 2012

MISSION OF THE CHILDHOOD BILINGUALISM RESEARCH CENTRE (CBRC)

Our mission is:

- to achieve excellence in research in childhood bilingualism and multilingualism
- to serve children and parents in Hong Kong and the region by studying childhood bilingualism and propagating its positive outcomes
- to document the development of bilingualism in bilingual children from its inception to maturity and demonstrate their achievements in attaining bilingual competence in childhood
- to raise the public's awareness of Hong Kong children's development of biliteracy and trilingualism
- to study and support revitalization of minority and heritage languages in the context of bilingual and multilingual education

我們的使命：

- 致力發展兒童雙語及多語研究並達致卓越成果
- 通過研究兒童雙語發展及傳播其正面效果，服務香港及鄰近區域的兒童及家長
- 記錄雙語兒童從獲得語言初期到語言能力逐漸成熟的雙語發展過程，展示他們在童年階段的雙語能力
- 提高社會各界人士對香港兒童發展兩文三語的意識
- 研究並支持少數民族語言和繼承語在雙語及多語教育環境下的振興

CBRC LOGO

Childhood Bilingualism Research Centre
兒 童 雙 語 研 究 中 心

The Centre's aims and aspirations are represented in its Logo containing three symbolic elements: a vine leaf, grapes embedding the Centre abbreviation CBRC, and rainbow colours represented in the leaf and grapes. The vine represents growth and development in childhood. It is during early childhood, the most extraordinary period in one's lifetime that the bilingual child develops the knowledge of multiple languages. Just as the vine clings by its tendrils to the trellis, children need the support of a nurturing environment in order to grow toward maturity in their multilingual development; and as a newly established research centre, CBRC needs to be informed by a range of interdisciplinary perspectives in order to grow and bear fruit in its research. The grapes represent the fruition and end point of development when the child attains competence in multiple languages. We also hope that our research will bear fruit in its season. As educators and researchers, we all labour in the vineyard of education and research laboratories: fruitfulness and productivity are our aspirations.

The three colours, cerulean 蔚藍 for Cantonese, magenta 品紅 for Mandarin and emerald 翠綠for English represent three different languages in contact, giving rise to a spectrum of combinations of derived colours. The three languages in the Hong Kong speech community refer to Cantonese, Putonghua and English which are designated as official languages according to the HKSAR's bilingual policy of liang wen san yu 兩文三語 "two written languages and three spoken codes": Liang wen "two written languages" refers to written Chinese, Zhongwen 中文 and English Yingwen 英文, while san yu "three spoken codes" comprises spoken Cantonese Yueyu 粵語, Putonghua 普通話 and spoken English Yingyu 英語. While acknowledging the importance of English as an international language, we are also committed to the promotion of Chinese language and culture, and dedicated to the preservation and development of indigenous language and culture as an invaluable part of our rich bilingual and bicultural heritage in the local community. It is our Centre's central mission to raise the public's awareness of the importance of nurturing childhood bilingualism in these languages within a multilingual setting.

The colours of the rainbow also suggest diversity in theoretical approaches, empirical data and methodology. We believe that each theoretical approach has its own strengths. We aim to combine insights from language acquisition, typology, processing and developmental psycholinguistics in our research. Our centre encompasses expertise in these areas which have the potential to complement and synergize each other in illuminating complex phenomena in childhood bilingualism. We also embrace the diversity of languages and language pairs: childhood bilingualism will be better understood when investigated against a rich background of linguistic diversity, using a range of methodological approaches including corpus-based and experimental techniques. The creation of multimedia corpus and experimental data that are audio- and video-linked will continue to be a prominent feature of our work. We especially welcome opportunities for collaboration with international researchers from interdisciplinary fields around the world who share our interests.

Finally, some of the bilingual and multilingual children our Centre investigates are children of rainbow colours, being of multiple ethnic descent as in the case of my own children. My youngest daughter once had a dream in which she saw a magnificent rainbow outside the window. To illustrate, she drew the rainbow in one of the most beautiful pictures I've ever seen her produce, bringing to mind Wordsworth's line: "My heart leaps up when I behold a rainbow in the sky."

Virginia Yip, Director of CBRC

Program Schedule

15 May 2012 (Tuesday)

8:30am – 9:15am	**Registration**		
9:15am – 10:00am	**Opening Ceremony (Lee Shau Kee Building Lecture Theatre 6)** **Welcoming remarks:** **Henry Wong, Pro-Vice-Chancellor,** Chinese University of Hong Kong **Leung Yuen Sang, Dean of Faculty of Arts,** Chinese University of Hong Kong **Hsiung Ping Chen, Director of Research Institute for the Humanities,** Chinese University of Hong Kong **Virginia Yip, Chairperson, Department of Linguistics and Modern Languages** **Director, Childhood Bilingualism Research Centre,** Chinese University of Hong Kong		
10:00am – 11:00am	**Keynote speech (Lee Shau Kee Building Lecture Theatre 6)** **The linguistic genius of bilingual babies** **Patricia Kuhl** University of Washington **Chair: Virginia Yip** Chinese University of Hong Kong		
11:00am – 11:30am	**Coffee Break (Lee Shau Kee Building 1/F Foyer)**		
	Lee Shau Kee Building, Lecture Theatre 1	**Lee Shau Kee Building, Lecture Theatre 2**	**Lee Shau Kee Building, Room 514**
	Chair: Peggy Mok	**Chair: Candice Cheung**	**Chair: Ruying Qi**
11:30am – 11:50am	**Invited panel: Bilingualism and the brain** (11:30am - 12:40pm) Neural bases of second language learning: multiple pathways to success **Patrick Wong (invited speaker)** Northwestern University	Ambiguity resolution and evolution of word order **Mieko Ogura** Tsurumi University	Profiling the frog story narratives of Cantonese heritage speakers in the U.S. **Sik Lee Dennig and Genevieve Leung** Stanford University and University of Pennsylvania

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11:50am – 12:10pm	The temporal dynamics of second language acquisition: the role of AoA, L2-proficiency, L1-transfer and training environment as reflected by ERPs **Karsten Steinhauer** McGill University Neural basis of learning to read a second language: Evidence from artificial language training studies **Chuansheng Chen, Leilei Mei, Gui Xue and Qi Dong** University of California, Irvine		Japanese and Korean causatives and passives are compared and unified **Ji Young Shim and Takashi Nakajima** CUNY Graduate Center and Toyama Prefectural University	Gesture precedes speech in the acquisition of the discourse principle in unbalanced bilinguals **So Wing-Chee and Tan Seok-Hui** National University of Singapore
12:10am – 12:30pm			The exclamation in The Analects of Confucius (Lun Yu): What does it tell us about Chinese word order change? **He Yuanjian** Chinese University of Hong Kong	Bilingualism and Comparative Linguistics: the case of right-dislocation in Cantonese-English bilingual children **Ge Haoyan, Lawrence Cheung, Stephen Matthews and Virginia Yip** Chinese University of Hong Kong and University of Hong Kong
12:30pm – 2:00pm	**Lunch Break**			
2:00pm – 2:45pm	**Keynote speech (Lee Shau Kee Building Lecture Theatre 6)** **The transmission and diffusion of sound change across three generations** **William Labov** University of Pennsylvania **Chair**: **Feng Shengli** Chinese University of Hong Kong			
2:45pm – 3:30pm	**Keynote speech (Lee Shau Kee Building Lecture Theatre 6)** **The status of linguistics as a science** **William S-Y. Wang** Chinese University of Hong Kong **Chair**: **Thomas Lee** Chinese University of Hong Kong			
	Lee Shau Kee Building Lecture Theatre 1	**Lee Shau Kee Building Lecture Theatre 2**	**Lee Shau Kee Building Room 514**	**Lee Shau Kee Building Room 515**
	Chair: Ulrich Wannagat	**Chair: Yao Yao**	**Chair: Robert Bauer**	**Chair: Mary Erbaugh**

3:30pm – 3:50pm	**Invited panel: Learner corpora of modern languages and third language acquisition** (3:30pm - 4:40pm) L3 acquisition of the voicing contrast in Spanish by Cantonese learners **Isabel Briz Hernandez, Qin Zhen and Peggy Mok** Chinese University of Hong Kong Effects of orthography on Cantonese learners' pronunciation of Sino-Korean words **Ellen Yun, Yanhui Zhang, Donghui Zuo and Peggy Mok** Chinese University of Hong Kong Learner corpora of modern languages at CUHK **Yanhui Zhang and Peggy Mok** Chinese University of Hong Kong Learner Corpora and cross-linguistic influence in third language acquisition **Virginia Yip and Stephen Matthews** Chinese University of Hong Kong and University of Hong Kong	The bilingual advantage in phonetic learning **Mark Antoniou, Eric Liang, Marc Ettlinger and Patrick Wong** Northwestern University	Prepositions in Cantonese-English code-switching **Brian Hok-shing Chan** University of Macau	Ultimate attainment in the interlanguage of a Turkish-English and a Spanish-English endstate speaker: The case of English articles **Vasfiye Geēkin and Katherine Demuth** Macquarie University, Bogazici University and Potsdam University
3:50pm – 4:10pm		Reconfiguration of the perceptual space during second language speech learning **Lan Shuai and Tao Gong** City University of Hong Kong and University of Hong Kong	Why Chinese-English code-switching is so difficult to avoid: medium-of-instruction-induced code-switching in Hong Kong and Taiwan **David C. S. Li** Hong Kong Institute of Education	The L3 acquisition of zibun by Chinese learners of Japanese **Noriko Yoshimura, Mineharu Nakayama, Atsushi Fujimori and Koichi Sawasaki** University of Shizuoka and Ohio State University
4:10pm – 4:30pm		Phonological development of Mandarin-English bilingual children in New Zealand: patterns and interactions between languages **Lee Taiying and Elaine Ballard** University of Auckland	The dynamic nature of parallel processing of the target language during source language comprehension in interpreting **Yanping Dong and Jiexuan Lin** Guangdong University of Foreign Studies	Chinese-English bilingual speakers' processing of temporal concepts **Nian Liu** University of Hawaii at Manoa
4:30pm – 5:15pm	**Poster Presentations and Coffee Break (Lee Shau Kee Building 1/F Foyer)**			

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5:15pm – 6:00pm	**Keynote speech (Lee Shau Kee Building Lecture Theatre 6)** **Language development in internationally-adopted children from China: a special case of early dual language learning?** **Fred Genesee** McGill University **Chair**: **Catherine McBride** Chinese University of Hong Kong			
	Chair: Ulrich Wannagat	**Chair: He Yuanjian**	**Chair: Lawrence Cheung**	**Chair: Cheung Him**
6:00pm – 6:20pm	**Invited panel:** Interactional feedback in foreign language immersion classrooms: a case study at two bilingual schools in Senegal **Leticia Vicente-Rasoamalala** Chinese University of Hong Kong	Outer and inner modifiers: The non-uniformity of Mandarin de and Cantonese ge **Candice Cheung and Li Haoze** Chinese University of Hong Kong	The effects of bilingualism on novel word learning **Vishnu K.K Nair, Jeff Mathew, Sapna Bhat and Katherine Demuth** Macquarie University	Sentence repetitions of bilingual children: a multi-factorial study examining individual differences in the first language **Sonali Nag, Jelena Mirkovic and Margaret J. Snowling** University of York
6:20pm – 6:40pm	Second language acquisition in Content and Language Integrated Learning (CLIL) settings - processes and strategies **Ulrich Wannagat** Chinese University of Hong Kong	Licensing extra argumentality **Barry C.-Y. Yang** National United University	The bilingual acquisition of English and Mandarin: Chinese children in Australia **Ruying Qi** University of Western Sydney	Investigating the transitive and intransitive constructions in English, Chinese, and Japanese: A functional perspective **Zoe Luk** University of Pittsburgh
6:40pm – 7:00pm	The Spanish Ministry of Education bilingual program in eastern Europe and China: Las secciones bilingües de español **Eduardo Méndez Marassa** Chinese University of Hong Kong	On modification of whole and its theoretical consequences **Liao, Wei-wen Roger** Hong Kong Polytechnic University	Comparative L2 English C[r] cluster production by Cantonese and Mandarin Speakers **Yizhou Lan and Sunyoung Oh** City University of Hong Kong	Literacy development among school-age bilingual Chinese heritage children **Yanhui Zhang, Chin-Lung Yang and Keiko Koda** Chinese University of Hong Kong, City University of Hong Kong and Carnegie Mellon University

16 May 2012 (Wednesday)

8:30am – 9:00am	**Registration**			
9:00am – 9:45am	**Keynote speech (Lee Shau Kee Building Lecture Theatre 1)** **A comparative study of argument structure and lexicon** **Audrey Li** University of Southern California **Chair**: **Hsiung Ping Chen** Chinese University of Hong Kong			
9:45am – 10:30am	**Keynote speech (Lee Shau Kee Building Lecture Theatre 1)** **Why they didn't learn in school: The L2 French of young adults in Montreal** **Gillian Sankoff** University of Pennsylvania **Chair**: **Stephen Matthews** University of Hong Kong			
10:30am – 11:00am	**Coffee Break (Lee Shau Kee Building 1/F Foyer)**			
	Lee Shau Kee Building **Lecture Theatre 1**	**Lee Shau Kee Building** **Lecture Theatre 2**	**Lee Shau Kee Building** **Room 514**	**Lee Shau Kee Building** **Room 515**
	Chair: Peggy Mok	**Chair: Stephen Matthews**	**Chair: Chuansheng Chen**	**Chair: Tony Hung**
11:00am – 11:20am	**Invited panel: Phonetics and phonology in Context** (11:00am-12:30pm) Individual differences in context-dependent speech perception and production **Alan Yu (Invited Speaker)** University of Chicago	Being faithful: tone-melody relationship in Cantonese **Elaine Lau** University of Hawaii at Manoa	An event related brain potentials study of semantic processing in Kannada-English typical bilingual individuals **Sunil Kumar. R, Shyamala K. C. and Vijay Kumar. N.** All India Institute Of Speech and Hearing	The influence of language experience on tone categorization in the context of multiple talkers **Peng Gang, Zhang Caicai and William S-Y. Wang** Chinese University of Hong Kong and Shenzhen Institutes of Advanced Technology

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11:20am – 11:40am	Phonological modification through bilingual speakers: the case of word-tone system in coastal Chinese topolects **Picus Ding** University of Hong Kong An experimental investigation of contact-induced sound change in Shanghainese **Yao Yao and Charles Chang** Hong Kong Polytechnic University and University of Maryland	The impact of music on early language instruction and acquisition and collaborating with parents to foster bilingualism in young learners **Angelica Manca** Kindermusik International USA: Early Childhood Music and Movement Education	Confrontation and generative naming performance in bilingual persons with aphasia and dementia: A preliminary study **M. Sri Pallavi, Shylaja. K, Shyamala K.C. and Sunil Kumar. R** All India Institute Of Speech and Hearing	Tonal effect on Mandarin intonation perception: a comparative study of listeners with different language backgrounds **Jiang Ping and Chen Aishu** Chinese University of Hong Kong
11:40am – 12:00pm	Sociophonetic variation and the 'ladder of abstraction' in speech sound development **Benjamin Munson, Jan Edwards and Mary Beckman** University of Minnesota, University of Wisconsin and Ohio State University	Why sound change is quantal **Bryan Gick (Invited speaker)** University of British Columbia	The perception of Chinese tone by foreign students **Shi Feng and Wang Ping** Nankai University	Learners' sensitivity to phonetic dimensions of Mandarin tones **Li Bin and Lan Shuai** City University of Hong Kong
12:00pm – 2:00pm	**Lunch Break**			

16 May 2012	
	Post-Conference Event **Organizers:** **Department of Linguistics and Modern Languages** **Department of Chinese Language and Literature** **Language Acquisition Laboratory**
2:00pm – 5:30pm	**A dialogue on sound change: past, present and future** **William Labov and William S-Y. Wang** University of Pennsylvania Chinese University of Hong Kong **Venue: Cho Yiu Conference Hall** **Coffee break: 4:00pm – 4:30pm**
5:30pm – 6:00pm	**Closing Ceremony (Cho Yiu Conference Hall)**
7:00pm	**Conference Dinner**

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Biographical Sketches of Keynote Speakers

Patricia K. Kuhl holds the Bezos Family Foundation Endowed Chair for Early Childhood Learning. She is Co-Director of the University of Washington Institute for Learning and Brain Sciences, Director of the NSF-funded Science of Learning Center, and Professor of Speech and Hearing Sciences. A recipient of multiple prestigious awards, she is internationally recognized for her research on early language and brain development. Professor Kuhl's research has played a major role in demonstrating how early exposure to language alters the brain. It has implications for bilingual education and reading readiness, developmental disabilities involving language, and research on computer understanding of speech.

Professor Kuhl is a member of the National Academy of Sciences, the Rodin Academy, and the Norwegian Academy of Science and Letters. She was awarded the Silver Medal of the Acoustical Society of America in 1997, and in 2005, the Kenneth Craik Research Award from Cambridge University. She received the University of Washington's Faculty Lectureship Award in 1998, and in the 2007, Prof. Kuhl was awarded the University of Minnesota's Outstanding Achievement Award. Prof. Kuhl is a Fellow of the American Association for the Advancement of Science, the Acoustical Society of America, the Cognitive Science Society and the American Psychological Society. In 2008 Prof. Kuhl was awarded the Gold Medal from Acoustical Society of America for her work on learning and the brain. In 2011 in Paris, she was awarded the IPSEN Fondation's Jean-Louis Signoret Neuropsychology Prize.

Professor Kuhl was one of six scientists invited to the White House in 1997 to make a presentation at President and Mrs. Clinton's Conference on "Early Learning and the Brain." In 2001, she was invited to make a presentation at President and Mrs. Bush's White House Summit on "Early Cognitive Development: Ready to Read, Ready to Learn." Her co-authored book *The Scientist in the Crib: Minds, Brains, and How Children Learn* (2000, Morrow Press) presents innovative research into the mind and brain of children.

Professor Kuhl has a strong media presence, appearing in the TED on-line talk series, the Discovery television series "The Baby Human", the NOVA series "The Mind", and "The Power of Ideas" and "The Secret Life of the Brain" on PBS. She has discussed her findings on early learning and the brain at NBC's Education Nation as well as on The Today Show, Good Morning America, CBS Evening News, NBC Nightly News, NHK, CNN, and in The New York Times, Time, and Newsweek.

William Labov, John and Margaret Fassitt Professor of Linguistics, Director of the Linguistics Laboratory, University of Pennsylvania, was born in Rutherford, New Jersey, in 1927 and obtained a B.A. from Harvard College in 1948. He worked as an industrial chemist in the following eleven years, and returned to academic life in 1961, receiving an M.A. in Linguistics from Columbia University in 1963 and Ph.D. in 1964. He taught in the Linguistics Department at Columbia until 1970, when he moved to the University of Pennsylvania.

Professor Labov's major work is on the study of linguistic change and variation. His Master's essay was a study of the social motivation of a sound change on the island of Martha's Vineyard, and his dissertation dealt with the social stratification of English in New York City (a revised edition was published in 2006). In these studies, he introduced techniques for the quantitative study of language variation on the basis of recordings of spontaneous speech, approaching the vernacular of everyday life. Based on this work, Labov's analysis of oral narratives of everyday life has been widely used in the expanding field of narrative studies.

In the 1970s, Professor Labov conducted a large-scale study of language change in Philadelphia with the goal of defining social location of the leaders of linguistic change. His 1981 presidential address to the Linguistic Society of America aimed at resolving the Neogrammarian controversy by defining the domains of regular sound change and lexical diffusion. His contributions to historical linguistics, based on the observation of linguistic change in progress, are summed up in three volumes of Principles of Linguistic Change (I: Internal factors, 1994; II: Social factors, 2001; III: Cognitive and cultural factors, 2010). In 2006, he published the *Atlas of North American English* (with co-authors S. Ash and C. Boberg), which showed increasing diversity in regional dialects across the continent. His 2007 paper in Language on "Transmission and Diffusion" proposed that different learning modes of children and adults led to the family tree and wave models of linguistic evolution.

Throughout his career, Professor Labov has been involved in studies of African-American Vernacular English [AAVE], and its relation to literacy. His paper "The logic of non-standard English" defended this dialect as a system well-formed for learning and reasoning. This work also introduced the quantitative study of internal constraints on linguistic variation with results published in Language in the Inner City (1972). In 1986, Professor Labov published his findings that AAVE was not converging with other dialects, as often assumed, but diverging from them. He is a senior author of Houghton-Mifflin's Portals to Reading, an intervention program to raise reading achievement in grades 4-8.

Professor Labov is a member of the National Academy of Sciences, and a fellow of AAAS. He served as president of the Linguistic Society of America in 1979, and held Guggenheim fellowships in 1970 and 1987. He is co-editor of Language Change and Variation. He holds honorary doctorates from the Universities of Uppsala (1985), Liège (1990), York (1998), Edinburgh (2005), and Paris X (2007).

William Shiyuan WANG received his early education in China. As an undergraduate at Columbia College, he had his first course in linguistics from Joseph Greenberg. He did graduate work at the University of Michigan under Gordon Peterson. His dissertation was an early study on speech recognition, combining methods from phonemic theory and acoustic phonetics; portions of this work was published in the *Journal of the Acoustical Society of America* and in the anthology, *Readings in Acoustic Phonetics*.

He went on to temporary positions at the IBM Research Center (Yorktown Heights), and at the Research Laboratory of Electronic at M.I.T. His teaching career began when he returned to Michigan to teach in the new interdisciplinary program in Communication Sciences. Then he helped establish departments in linguistics and in East Asian studies at the Ohio State University, before his appointment as Professor of Linguistics at the University of California in 1966, a position he held till his retirement in 1995.

At Berkeley, he founded the Phonology Laboratory, and the Journal of Chinese Linguistics. He also initiated a series of workshops at the Project on Linguistic Analysis, bringing together leading scholars for informal and in-depth conversations. Continuing an interdisciplinary perspective on language, he collaborated with colleagues in several neighboring fields, including Luca Cavalli-Sforza (Genetics), David Freedman (Statistics), Vincent Sarich (Anthropology), and Ovid Tzeng (Psychology).

With C.C.Cheng and others, he developed an early computerized data-base called Dictionary of Computer (DOC), largely based on pronunciations of words in Chinese dialects first compiled at Peking University. Working with large corpora, he proposed a theory of language change called Lexical Diffusion, first stated in a paper in *Language* in 1969. This theory has found support in many languages, and continues to stimulate discussion to this day. In concept, lexical diffusion is part of a much more inclusive perspective on language evolution. He first formulated his ideas on language and evolution in a series of lectures given at the Diamond Jubilee Celebrations of Osmania University in India. His work continues to be based on the premise that language can be best studied as a behavior which has emerged from biological factors interacting with social factors through evolution.

He has held many fellowships, including: Guggenheim Foundation, Fulbright Program, Rockefeller Foundation (Bellagio), Institutes of Advanced Studies at Kyoto and at Stanford. He has published in *American Scientist*, *Annals of New York Academy of Sciences*, *Nature*, *Proceedings of National Academy of Sciences*, *Scientific American*, as well as in many specialized journals. He was elected to the Academia Sinica in 1992, and was the first president of the International Association of Chinese Linguistics at its formation. He is Honorary Professor of Peking University, and of Beijing Language and Culture University. Currently he is Wei Lun Research Professor at the Chinese University of Hong Kong, based in the Department of Electronic Engineering and in the Department of Linguistics and Modern Languages.

Fred Genesee is a Professor in the Psychology Department at McGill University, Montreal. He has conducted extensive research on alternative forms of bilingual and immersion education for language minority and language majority students. His current research interests also include language acquisition in pre-school bilingual children, internationally-adopted children, second language reading acquisition, and the language and academic development of students at-risk in bilingual programs. He is the recipient of the Canadian Psychological Associate Award for Distinguished Contributions to Community or Public Service and the 2-Way California Association for Bilingual Education Award of Promoting Bilingualism. His work has sought to debunk persistent myths surrounding bilingualism and second language acquisition in early childhood.

Professor Genesee is the author of numerous professional and scientific research reports and books, including *Learning Through Two Languages: Studies of Immersion and Bilingual Education* (1987), *Educating Second Language Children* (1994), *Classroom Based Evaluation in Second Language Education* (1996), *Beyond Bilingualism: Multilingualism and Multilingual Education* (1998), *Dual Language Instruction: A Handbook for Enriched Education* (2000), *Trends in Bilingual Acquisition (2000), and Dual Language Development and Disorders* (2004).

He has served as a consultant on second/foreign language and bilingual education in countries around the world, including Japan, Spain, Germany, Estonia, Hong Kong, Latvia, Switzerland, Italy, Russia, and Italy.

Yen-hui Audrey LI received her doctoral degree in linguistics from the University of Southern California and is Professor of Linguistics and East Asian Languages and Cultures at USC. She is interested in the structural properties of natural languages: how and why human languages are the way they are, and how and why they differ. The theme of her work is that languages differ in principled and systematic ways. Meaningful cross-linguistic comparison is based on in-depth investigation of individual languages. The topics of her research include issues of constituency and word order at the sentential and nominal level, the interpretive mechanisms of universal grammar and the well-formedness conditions on the interpretation and spell-out of syntactic structures. The data have been mainly drawn from English and East Asian languages from a comparative perspective. As Director of the East Asian Languages and Cultures Chinese language Program, Prof. Li is also interested in issues regarding language acquisition and pedagogical implications. Her important publications include 6 books: *The Syntax of Chinese* (with James Huang and Yafei Li), 2009 Cambridge University Press, *Essays on the representational and derivational nature of grammar: the diversity of wh-constructions* (with Joseph Aoun) 2003, MIT Press. *Functional Structure(s), Form and Interpretation*, (ed. with Andrew Simpson) 2003, Routledge Curzon Press. *New Horizons in Chinese Linguistics*, 1996 by Kluwer Academic Publishers, Dordrecht (ed. with James Huang). *Syntax of Scope*, 1993. MIT Press (with Joseph Aoun), *Order and Constituency in Mandarin Chinese*, 1990, Kluwer Academic Publishers, Dordrecht.

Professor Li has served as the President of the Chinese Language Teachers Association of the US and is currently serving as President of the International Association of Chinese Linguistics (IACL). She has also served on the editorial or advisory board for many journals and book series on theoretical linguistics or language education and has been a frequent reviewer of manuscripts for a large number of publications and publishers, evaluator of grant proposals and promotion dossiers for institutions in America, Asia, Australia and Europe. She also reviewed many programs in the US, including federally funded language programs, and study-abroad programs in Asia.

A native of Montreal, **Gillian Sankoff** studied anthropology and languages at McGill University. Her 1968 Ph.D. dissertation was a study of a trilingual village in Papua New Guinea, and follow-up research (four more field trips to Papua New Guinea during the 1970s) included a study of the creolization of Tok Pisin by the new generation of child and adolescent native speakers. She taught in the Anthropology Department of the Université de Montréal from 1968-79, where with David Sankoff and Henrietta Cedergren, she designed and carried out a major sociolinguistic study of Montreal French. That study was repeated in 1980s and 19950s by former students, and this longitudinal corpus is now the basis for her current trend and panel studies of change and variation. Since 1979, she has been a member of the Linguistics Department at the University of Pennsylvania, chairing that department from 1988- 1993. In 1993-94, she returned to her long-term interest in language contact, carrying out (with Pierrette Thibault) a study of Montreal Anglophones bilingual in French. Her general interests in linguistic microevolution have led her to the historical study of the differentiation of the three southwestern Pacific English-based creoles: Bislama, Solomon Islands Pijin and Tok Pisin. Her 1980 book, *The Social Life of Language*, included papers on both of her major interests (language contact in New Guinea and Montreal French); she is currently working on a book on real-time change in Montreal French.

Biographical Sketches of Invited Speakers

Bryan Gick is Professor of Linguistics and Director of the Interdisciplinary Speech Research Laboratory at the University of British Columbia in Vancouver, Canada. He is also a Senior Scientist at Haskins Laboratories, and was the invited Visiting Professor of Articulatory Phonetics at the Linguistic Society of America Summer Institute at UC Berkeley in 2009. A pioneer in the use of portable ultrasound imaging for speech research, he has been a featured author in Nature magazine (Nature. 462. 388. 2009), and his work in articulatory phonetics and multimodal perception has been featured on NOVA, NPR Morning Edition and BBC Radios Naked Scientist. His co-authored book *Articulatory Phonetics* published by Wiley-Blackwell is coming out in 2013.

Patrick Wong, Ph.D., CCC-SLP is Associate Professor of Communication Sciences, Otolaryngology, and Neuroscience at Northwestern University, where he is the director of the Communication Neural Systems Research Group. He received his undergraduate degree in linguistics and PhD in cognitive neuroscience from the University of Texas at Austin. Supported by grants from the National Institutes of Health and the National Science Foundation in the US, research by his team explores language learning, speech perception, the interactions between language and music, and speech processing disorders. He is a licensed speech-language pathologist with clinical interests in neurogenic communication disorders. His scholarly publications have appeared in broadly interdisciplinary journals such as Nature Neuroscience and The Journal of Neuroscience. His work and scientific commentaries have been covered by the public media, including The New York Times, The Economist, and National Public Radio.

Alan Yu is Associate Professor of Linguistics and Director of the Phonology Laboratory at the University of Chicago. He specializes in phonological theory, phonetics, language typology, and language variation and change. He is the author of *A Natural History of Infixation* (2007, Oxford University Press) and co-editor of the *Blackwell Handbook of Phonological Theory 2nd Edition* (Wiley-Blackwell, 2011). He is currently editing a volume titled *Origins of Sound Change: Approaches to Phonologization* to be published by Oxford University Press. Professor Yu is also the director of the Washo Documentation Project. He is compiling an online dictionary for this language and is currently writing a book on the phonology and morphology of the Washo language. He has published in *Public Library of Science One*, *Language*, *Phonology*, *Journal of Phonetics*, and *Journal of East Asian Linguistics*. His documentation of Washo, a native American language close to extinction was featured in the Los Angeles Times.

ABSTRACTS OF KEYNOTE SPEECHES

The linguistic genius of bilingual babies

Patricia Kuhl, *University of Washington*
Tuesday, May 15th, 10:00-11:00am, LSK LT6

As shown by studies on the "Critical Period" for language learning, children are geniuses at learning language(s) during their first 7 years, but the ability to learn a new language systematically declines after puberty. This "window of opportunity" for language learning can be seen in speech experiments done all over the world: we have shown that at birth infants have innate linguistic abilities that make them "citizens of the world"—they can discriminate the sounds used in all languages and are ready to learn any language. However, by the end of the first year of life, culture produces a dramatic transition. Infants' abilities narrow: their ability to discriminate sounds from other languages decreases dramatically. In this talk, I will describe new studies on bilingual language learners who have been exposed to two languages from the beginning of life. These studies suggest that bilingual infants stay "open" longer to new languages. Moreover, specific cognitive skills related to flexible thinking are enhanced in bilingual children, making bilingual children faster and more accurate at problem solving. Neuroscience measures indicate that infants' early listening experience alters brain structure fundamentally, which has implications both for typically developing children and those with developmental disabilities. The study of language learning in children may help explain the extraordinary neural plasticity of the child's mind, and also why adults are less able to learn new languages. Understanding children's extraordinary capacities to learn language may eventually allow us to create learning technologies that improve second language learning throughout the lifespan.

The transmission and diffusion of sound change across three generations

William Labov, *University of Pennsylvania*
Tuesday, May 15th, 2:00-2:45pm, LSK LT6

In the past several years, considerable progress has been made in the development of methods for the automatic measurement of vowel systems in spontaneous speech, so that sound changes in progress can now be traced with much greater detail and accuracy than before. The FAVE programs (forced alignment automatic vowel extraction) have been applied to a corpus of yearly studies of Philadelphia neighborhoods from 1972 to 2010, yielding three quarter of a million measurements that trace the vowel systems of 358 speakers with dates of birth ranging over a century. Two of the Philadelphia sound changes display a pattern of linear transmission and incrementation across the entire century, while two others are reversed for speakers born after 1950. The explanation for these developments may be found in the continent-wide competition of regional dialects in North America and the social evaluations associated with them.

The FAVE programs have allowed us to trace the progress of lexical diffusion in Philadelphia as well as regular sound change. They may be accessed on the FAVE web site for general use with transcribed English sound files and are being adapted for other languages as well.

The status of linguistics as a science

William S.-Y. Wang, *Chinese University of Hong Kong*
Tuesday, May 15th, 2:45-3:30pm, LSK LT6

In his seminal discussion of the status of linguistics as a science, Edward Sapir urged linguists to look 'beyond pretty patterns' and relate the study of language to 'human conduct' in general. In a similar vein, William Labov cautioned against a 'monastic' linguistics, uprooting language too far from its biological and social foundations. Building on this empirical perspective, I will explore avenues of studying language that connect it to its dual roots: to brain processes which make language possible in the first place, and to multilingual societies which it typically serves. A central issue I will discuss within this perspective is the interactions among language, brain, and behavior.

Language development in internationally-adopted children from China: a special case of early dual language learning?

Fred Genesee, *McGill University*
Tuesday, May 15th, 5:15-6:00pm, LSK LT6

This presentation will review the results of a longitudinal evaluation of the language development of internationally-adopted (IA) children from China. The language development of these children is of theoretical interest and of practical significance because they can be considered unique second language (L2) learners. Like typical L2 learners, they have delayed exposure to their L2. In contrast to typical L2 learners who continue to learn and use their birth language and, thus, divide their learning time between two languages, IA children cease learning the birth language upon adoption and they have total exposure to the L2. Adoptees from China are of particular interest from a language learning point of view because their pre-adoption environments are relatively favorable and have been shown to have no, or limited, adverse effects post-adoption. Our results revealed that there were no significant differences between the IA children and carefully matched non-adopted children of the same age, gender and socio-economic status on indices of socio-emotional, health, and general cognitive development. However, the IA children exhibited significant lags in language development at each testing time (4-5, 7-8, and 10-12 years of age). They also exhibited significant lags relative to the control children on measures of verbal short-term and working memory, but not on visuo-spatial memory. It is hypothesized that the IA children's lags in language can be explained by weaknesses in verbal memory which in turn may be linked to delayed exposure to the L2 or attrition of the birth language.

A comparative study of argument structure and lexicon

Audrey Li, *University of Southern California*
Wednesday, May 16th, 9:00-9:45am, LSK LT1

This work brings together two seemingly disparate phenomena that have hitherto not been treated in the same vain: noun incorporation (NI) in Northern Iroquoian (Mohawk, Cayuga, Onondaga) and non-canonical objects in Mandarin Chinese, building on a novel discovery that the same range of (im)possibilities exists regarding what can undergo noun-incorporation in place of the typical canonical object or what can replace a canonical object in the object position. It will be argued that the (un)availability of such "object usurpers" is related to the absence of morphological case markings, and the licensing of arguments by Ps. The issues have implications for the distinction between analytic and synthetic type of language (Huang, 2005) and the notion of satellite-framed vs. verb-framed languages (Talmy, 2000, among others).

Noun Incorporation: NI in Mohawk and other Northern Iroquoian languages is not restricted to direct objects (Mithun, 1984). Instruments, paths and locations often productively incorporate (and temporals in some cases， sensitive to morphological constraints). Furthermore, adverb incorporation has been attested in other languages with NI (i.e., Chukchi, Spencer, 1995). However, comitatives, sources, benefactives and goals cannot undergo NI in virtually any language. This is the first puzzle.

Non-Canonical Objects: Li (2010) showed that in Mandarin Chinese, bare NPs other than the direct object can appear as though it were a direct object of the verb, without the aid of a preposition. Strikingly, the set of elements that can appear as non-canonical objects is similar to the set of elements that can undergo NI: instruments, paths, locations and temporals. Comitatives, sources, goals and benefactives cannot appear as non-canonical objects in Mandarin Chinese. Thus, the second puzzle is why the set of objects available to NI is almost identical to the set of objects that can appear as non-canonical objects.

Proposal: It will be argued that in Northern Iroquoian and Mandarin Chinese goals, sources, comitatives, and benefactives rely on Ps for both thematic and Case licensing, while instruments, paths, locations, and temporals rely on Ps for Case. The thematic relations associated with the latter set are supplied pragmatically (cf. Borer 2005). This elasticity is afforded by the fact that canonical objects either do not have to appear in the incorporated position in NI languages or do not occur in the object position in Chinese, even though both are argument positions. We relate the two patterns to the lack of (inherent) case markings. No case is assigned in the NI cases and no inherent case is assigned to objects in Chinese. This proposal will be extended to accommodate the fact in English that its N-V compounding (the verb taking the *–ing* or *–er* form) behaves like noun incorporation in Northern Iroquoian languages (no case assignment) and that its lack of non-canonical objects in verb phrases is closely related to the lexical specifications of verbs in this language (Case). The implication of this analysis is that at least in the issues regarding argument structures, languages cannot be categorically classified as analytic or satellite-framed. Rather, it is the properties of the specific constructions that dictate the possibilities and distribution of arguments.

Why they didn't learn in school: The L2 French of young adults in Montreal

Gillian Sankoff, *University of Pennsylvania*
Wednesday, May 16th, 9:45-10:30am, LSK LT1

In 1993, Pierrette Thibault and I undertook a research project that sought to understand the role of immersion schooling in creating a generation of Anglophones who could function in French in the increasingly Francophone milieu that is modern Montreal. To this end, we recruited a sample of young adults from the first cohort of Anglophones who had had the opportunity of participating in French immersion from the time they entered school, i.e., speakers born between 1960 and 1973. We compared speakers with three degrees of educational exposure to French: those with only the basic French taught as a subject; those who had been in French immersion programs in otherwise English-speaking schools; and those who had attended all-French schools. Those with only "school French" (a) complained that their education had not adequately prepared them for life outside the classroom; and (b) nevertheless exhibited many features of colloquial Québécois French that were not taught in school, and had to have been acquired outside the classroom. Graduates of immersion programs clearly had a better foundation to anchor community-based learning. Typically shared by L2 speakers from all educational backgrounds were phonological features like the deletion of [l] in determiners and pronouns and the affrication of [t,d] before high front vowels; morphosyntactic features like subject doubling and adverb placement; and pragmatic features like the use of discourse markers. This paper will present an overview of both the educational and speech community-based influences that differentially affect L2 speakers in their development as bilinguals. These processes can be characterized as inevitable, since as members of a bilingual speech community, all speakers acquire local norms to some degree. However, their ability to do so is constrained by social as well as psychological factors.

ABSTRACTS OF INVITED SPEECHES

Why sound change is quantal

Bryan Gick, *University of British Columbia*
Wednesday, May 16th, 11:40-12:00nn, LSK LT2

This paper addresses the observation that sound change tends to "jump" qualitatively from one sound to another (e.g., from /p/ to /f/), skipping over many possible phonetic gradations in between. Qualitative shifts in language have been fruitfully modeled as phase transitions in population-based models of sound change (Wang et al. 2006, etc.). A model of widespread quantal (qualitative, nonlinear) phonetic effects is proposed to underlie this observation. In the past, quantal effects have mainly been thought to be confined to articulatory-acoustic relations: The classic example of a quantal effect (from Stevens 1972, 1989, etc.) shows how the tongue can move around within some regions of the vocal tract with little acoustic change, while in other regions, very small movements can have large effects on the acoustic output. This effect can be thought of as demonstrating that some regions of the articulatory-acoustic space are nonlinear, with speech sounds tending to cluster in those regions that allow more variation. Linguists have long observed that many independent factors contribute to sound change, including "articulatory ease", "perceptual salience" or "social constraints". Each of these factors contributes nonlinearities to the sound change process. The present paper will use the ArtiSynth simulation platform (www.artisynth.org) to show examples of powerful biomechanically based nonlinearities, and will propose a model in which nonlinearities across multiple dimensions interact, creating stable regions that act as attractors in learner-based models of sound change.

Neural bases of second language learning: multiple pathways to success

Patrick Wong, *Northwestern University*
Tuesday, May 15th, 11:30-12:00nn, LSK LT1

Even after years of learning, many adults still have difficulty mastering a foreign language. While the learning of certain aspects of foreign languages, such as vocabulary, can be acquired with nearly native-like proficiency, foreign phoneme and grammar learning can be especially challenging. Most interestingly, adults differ to a large extent in how successfully they learn. In this presentation, I will discuss the potential neural foundations of such individual differences in language learning, including the associated cognitive, perceptual, neurophysiological, neuroanatomical, and neurogenetic factors, paying particular attention to the auditory cortex and the dopaminergic system. I will then describe a series of experiments that demonstrate that re-designing a learner's training protocol based on these markers can sometimes optimize learning. Specifically, I will discuss how repetition, trial-by-trial corrective feedback, talker variability, stimulus complexity, and sorting of stimuli can promote differing levels of success in phoneme and grammar learning, depending on the individual learner.

While research on the neuroscience of learning has been dominated by investigations on the mechanisms of neuroplasticity, this body of work has yet to explain the origins of individual differences in learning and how optimal learning can be promoted at the level of the individual. By examining a defining characteristic of humans and one that shows large individual differences, we aim to better inform mechanisms of learning and to translate such knowledge into pedagogical and clinical practices for improving language and communication in each learner.

Individual differences in context-dependent speech perception and production

Alan Yu, *University of Chicago*
Wednesday, May 16th, 11:00-11:30am, LSK LT1

That the perception and production of speech is highly context-dependent is common knowledge to linguists and speech scientists alike. What is less clear is to what extent context-dependent variation in speech perception and production is uniformly maintained and observed across individuals. In this talk, I offer experimental evidence showing that individuals vary significantly and systematically in their responses to the effects of the lexicon and coarticulation in speech perception and production. In particular, concentrations of "autistic traits" and levels of working memory resources are shown to be significant individual-level factors that mediate context-dependent speech perception and production. Ramifications for sound change will be discussed if time permits.

ABSTRACTS OF ORAL PRESENTATIONS

The bilingual advantage in phonetic learning

Mark Antoniou, Eric Liang, Marc Ettlinger and Patrick Wong, *Northwestern University*
Tuesday, May 15th, 3:30-3:50pm, LSK LT2

Learning to successfully discern the sounds of a nonnative language is an extremely difficult task. However, two factors have been found to be advantageous for nonnative language learning. Firstly, it has been claimed that bilingual individuals learn subsequent languages more easily, possibly because of increased metalinguistic awareness or an advantage in cognitive processing and inhibitory control (Bialystok, Majumder, & Martin, 2003; Bruck & Genesee, 1995; Galambos, 1990; Michael & Gollan, 2005). Secondly, it may be easier to learn a language whose phonetic and phonological features are close to those of the learner's native language, possibly because nonnative sounds are perceived in relation to the categories established by the native language (Best, 1995; Flege, 1995), resulting in those features being weighted in an optimal way (Chandrasekaran, Sampath, & Wong, 2010; Holt & Lotto, 2006; Iverson, Hazan, & Bannister, 2005). What remains unclear is whether these two factors may interact in language learning.

In order to better understand these two potentially advantageous factors, we tested the language learning abilities of monolinguals and bilinguals of differing language backgrounds on multiple artificial languages across two experiments. In both experiments, adult learners learned a vocabulary that required them to use foreign phonetic contrasts to signal word meaning. In Experiment 1, we tested English monolinguals' and Mandarin-English bilinguals' ability to learn English-like (bilabial fricatives) and Mandarin-like (retroflex consonants) phonetic contrasts. Both groups performed better on the Mandarin-like, than on the English-like, language, and the Mandarin bilinguals out-performed the English monolinguals overall. In Experiment 2, we tested Mandarin-English and Korean-English bilinguals on Mandarin-like and Korean-like (lenition) phonetic contrasts. Again both groups of bilinguals performed better on the Mandarin-like language, however, the two bilingual groups did not differ in their performance on either language. Across both experiments, all groups of language learners, regardless of native language background or bilingualism, found the Mandarin-like retroflex consonants to be the easiest to learn.

Findings from these two experiments suggest that bilinguals, relative to monolinguals, show a general advantage in learning foreign phonetic contrasts, regardless of how similar these contrasts are to the learners' native language. More interestingly, better learning of Mandarin retroflex consonants by all learner groups suggests that some phonetic contrasts might be easier to learn, possibly because they are more perceptually salient due to their physical/acoustic characteristics (Chang, Plauche, & Ohala, 2003), articulatory differences (Browman & Goldstein, 1992), or markedness effects (Hayes & Steriade, 2004).

Prepositions in Cantonese-English code-switching

Brian Hok-shing Chan, *University of Macau*

Tuesday, May 15th, 3:30-3:50pm, LSK Room 514

Whereas both Cantonese and English are widely considered to have prepositions, the prepositions in the two languages show very different semantic and syntactic properties. Crucially, the so-called prepositions in Cantonese are in fact more "verbal", and the meanings of many English prepositions are expressed in a group of words called "localizers" in Cantonese which are not exactly prepositions (see Francis and Matthews 2006, Matthews and Yip 2011). Despite these differences, English prepositions have been attested in various datasets of Cantonese-English code-switching. This paper examines the contexts in which English prepositions appear in Cantonese-English code-switching produced by Hong Kong speakers. It is suggested that English prepositions first appear in predicative positions where Cantonese prepositions or co-verbs typically appear. More recently, English prepositions also appear in noun phrases (or DPs), mostly in postmodifying phrases with English nouns. This paper argues that the English prepositions in code-switched noun phrases are associated with English grammar. In any event, these data call for reconsideration of the notion of "(categorial) equivalence" as a pre-requisite of code-switching as assumed in the literature (e.g. Muysken 2000), and they also outline a path of possible contact-induced word order change in future (i.e. Cantonese noun phrases becoming more "postmodifying").

Neural basis of learning to read a second language: Evidence from artificial language training studies

Chuansheng Chen, Leilei Mei, Gui Xue and Qi Dong, *University of California, Irvine*

Tuesday, May 15th, 12:20-12:40pm, LSK LT1

Learning to read one or more foreign languages is of great importance for social and economic success in this era of globalization. Although research on bilinguals has provided much insight into the cognitive and neural representations of native (L1) and second (L2) languages in bilingual brain (Abutalebi and Green, 2007; Chee, 2006; Kroll and Tokowicz, 2005), questions remain regarding the neural correlates of learning to read a second language, the interaction between L1 and L2, and the neural basis of individual differences in L2 learning. In this presentation, we will introduce our recent work on these three questions.

First, we explored the neural correlates of orthographic and phonological learning. Reading involves three key interactive components: orthographic processing, phonological access, and semantic access. To dissociate the neural bases of those components, we performed several artificial language training studies, in which we trained subjects to learn one or two components. For instance, using a sequential artificial language training paradigm (i.e., training subjects to learn the visual forms, phonologies, and semantics sequentially), we found differential effects of visual form training, phonological training, and semantic training on visual word processing (Xue et al., 2006b). We also examined the neural changes associated with addressed- and assembled-phonology (two types of orthography-to-sound mapping) training and identified two neural pathways of phonological access (Mei et al., submitted). Specifically, addressed- and assembled-phonology training resulted in increases in neural activities in ventral (i.e., orbital frontal cortex and middle temporal gyrus) and dorsal (i.e., precentral gyrus and supramarginal gyrus) reading pathways, respectively.

Second, we examined the neural interactions between L1 and L2. On the one hand, cognitive and neural mechanisms of reading in L2 are modulated by L1. Compared with native Chinese speakers, native English speakers showed an advantage in assembled phonological learning perhaps and showed more activations in the left supramarginal gyrus (a key region for assembled phonology) than native Chinese speakers (Mei et al., In preparation). On the other hand, word reading in L1 is also affected by L2 learning. Specifically, neural activities regions (e.g., IFG, ITG) in typical reading network decreased even after a short period (eight days) of L2 learning. Furthermore, the effect of L2 on L1 occurred after semantic learning, but not after phonological learning, suggesting L1 and L2 share a common semantic system (Mei et al., under revision) .

Finally, we have also examined individual differences in neural bases of L2 learning. We found that L2 learners who rely more on the regions in the native language network would learn L2 better. For example, for visual word learning, greater neural activity in the left fusiform cortex (a key region for visual word form processing) during initial learning is associated with better learning performance (Chen et al., 2007; Xue et al., 2006a) and better long-term maintenance (Dong et al., 2008). Similarly, for auditory word learning, the neural activities in regions in linguistic network (e.g., the left posterior STS) and non-linguistic network (e.g., the right IFG) are positively and negatively predictive of learning outcome, respectively (Mei et al., 2008).

Taken together, using artificial language training paradigm, we have addressed several important questions in the area of second language learning. These results complemented previous research on natural language and have important implications for our understanding of the neural bases of bi(multi)lingualism.

Outer and inner modifiers: The non-uniformity of Mandarin *de* and Cantonese *ge*

Candice Cheung and Li Haoze, *Chinese University of Hong Kong*
Tuesday, May 15th, 6:00-6:20pm, LSK LT2

In Mandarin and Cantonese, it has been noted that modifying phrases, such as modifying NPs, genitive DPs, modifying PPs and modifying APs can be followed by *de/ge* which can precede a noun (henceforth referred to as "inner modifiers") or a demonstrative (henceforth referred to as "outer modifiers") in nominal expressions, as in (1)-(2) (Aoun & Li 2003, Hsieh 2005, Zhang 2006, Sio 2006, 2011). While the categorial status of "modifier" *de* remains controversial in the Mandarin literature, most previous studies offer a uniform account of *de* and treat it as the head of a functional projection (see, for instance, Simpson 2002, Rubin 2002, Larson 2009, a.o.). However, a recent study by Tsai (2011) has convincingly argued that the different construals of *de* are best accommodated under a non-uniform approach based on evidence from ellipsis and extraction. Built on Tsai's insight, we show that a non-uniform approach is needed to account for the different syntactic behaviors of inner and outer modifiers in Mandarin and Cantonese.

Adopting the two diagnostics advanced by Tsai, i.e. ellipsis and extraction, the latter of which includes topicalization, object fronting, and verb-copying, we find that whereas ellipsis or extraction of the NP following the inner modifier is plausible, ellipsis or extraction of the DP following the outer modifier always results in ill-formedness in both Mandarin and Cantonese, as shown in Table 1.

In light of Tsai's reformulation of the notion of formal licensing in terms of sisterhood, which gives a functional head, but not an adjunct, the ability to license an empty category, we propose that *de/ge* following the inner modifying phrase should be analyzed as a functional head, which we tentatively label as Modifier (Mod) in the sense of Rizzi (2004) whose Specifier position hosts the modifying phrase, such as a modifying NP, a genitive DP, a modifying PP or a modifying AP, which is represented as an XP in (3a). Following Tsai's proposal that the functional head must agree with the Specifier in order to license an empty category along the lines of Saito & Murasugi (1990), this explains why *de/ge*, being a functional head, can license ellipsis or extraction of the following NP. In contrast, we propose that *de/ge* following the outer modifying phrase is best analyzed as a clitic-like element adjoined to an XP which stands a modifying NP, a genitive DP, a modifying PP or a modifying AP. The XP is then adjoined to a DP whose head position is occupied by a demonstrative (Li 1999), as in (3b). Given the status of *de/ge* as a clitic-like element adjoining to the XP, we can naturally account for the incapability of *de/ge* to license ellipsis or extraction of the following DP.

Our non-uniform approach to Mandarin *de* and Cantonese *ge* not only accounts for the different syntactic behaviors of inner and outer modifiers but also sheds a new light on the long-standing debate on syntactic status of *de*. More importantly, our study has shown the significance of comparative analysis of comparable elements in genetically contiguous languages. Our proposal, if correct, paves the way for comparative analysis of elements comparable to Mandarin *de* and Cantonese *ge* in typologically related and distinct languages.

(1) Mandarin

a. (suliao de) na ba (suliao de) yizi (Modifying NP)
plastic DE that Cl plastic DEchair
Lit. '(plastic) that (plastic) chair'

b. (Libai de) na jian (Libai de) yifu (Genitive DP)
Libai DE that Cl Libai DE clothes
Lit. '(Libai's) that piece of (Labai's) clothes'

c. (xin de) na tai (xin de) diannao (Modifying AP)
new DE that Cl new DE computer
Lit. '(new) that (new) computer'

d. (zai zhuozi-shang de) na ben (zai zhuozi-shang de) shu (Modifying PP)
at table-Loc DE that Cl at table-Loc DE book
Lit. '(on the table) that book (on the table)'

(2) Cantonese

a. (gamsuk ge) go zoeng (gamsuk ge) toi (Modifying NP)
metal GE that Cl metal GE table
Lit. '(metal) that (metal) table'

b. (Mingzai ge) go gin (Mingzai ge) saam (Genitive DP)
Mingzai GE that Cl Mingzia GE clothes
Lit. '(Ming's) that piece of (Ming's) clothes'

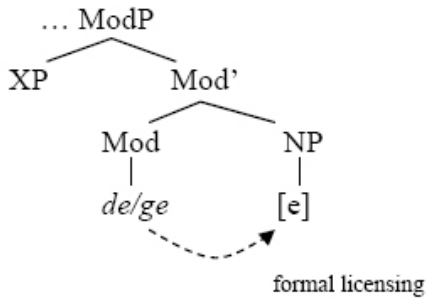
c. (san ge) go bou (san ge) dinnou (Modifying AP)
new GE that Cl new GE computer
Lit. '(new) that (new) computer'

d. (hai toi-soengbin ge) go bun (hai toi-soengbin ge) syu (Modifying PP)
at table-Loc GE that Cl at table-Loc GE book
Lit. '(on the table) that book (on the table)'

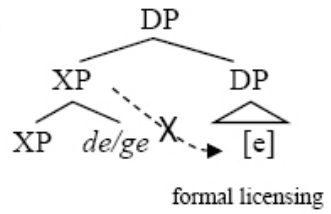
Table 1 Test results of Mandarin & Cantonese data with outer and inner modifiers

	Modifying NP		Genitive DP		Modifying AP		Modifying PP	
	Inner	Outer	Inner	Outer	Inner	Outer	Inner	Outer
Ellipsis	Ok	*	Ok	*	Ok	*	Ok	*
Topicalization	Ok	*	Ok	*	Ok	*	Ok	*
Object fronting	Ok	*	Ok	*	Ok	*	Ok	*
Verb copying	Ok	*	Ok	*	Ok	*	Ok	*

(3) a.



b.



Profiling the frog story narratives of Cantonese heritage speakers in the U.S.

Sik Lee Dennig and Genevieve Leung, *Stanford University and University of Pennsylvania*
Tuesday, May 15th, 11:30-11:50am, LSK Room 514

The majority of current studies on Chinese language acquisition focus solely on Chinese in the form of Mandarin. Of research studying the acquisition of other Chinese languages, Cantonese enjoys a small but solid standing, though nearly all the data come from Hong Kong. However, as scholars in Chinese American studies note, Cantonese and its varieties have been the "Chinese" language spoken by the Chinese diaspora for over 150 years (cf. Chang, 2003). While these Cantonese speakers have always been a formidable contingency in the U.S., their presence in linguistic literature is noticeably absent. This paper addresses the lack of attention to Chinese American heritage speakers of Cantonese through looking at their Cantonese narratives.

Forty Cantonese heritage speakers of different ages participated in the study, all of whom had these characteristics: 1) they were born in the U.S. or came at a very young age, 2) Cantonese was their dominant language before starting preschool or kindergarten, and 3) they attended urban schools from lower elementary grades. Fifteen of the subjects were adults aged 19-29, and the remaining twenty-five subjects were children around age 5 at the start of the study. Twenty of the children were in transitional bilingual programs at kindergarten. To track their linguistic development, the children were tested once a year from kindergarten to second grade. Furthermore, ten adult native speakers acted as controls for this study. In total, 100 narratives were elicited from the participants.

The participants were asked to tell a story based on the wordless picture book, "Frog, Where are you?" (Mayer 1969), as detailed in Berman and Slobin (1994). Each narrative was first assigned a narrative scoring scheme score (Miller & Iglesias, 2006) and then analyzed with respect to: (i) referencing, (ii) setting, (iii) discourse connectors, (iv) transition between episodes, and (v) the three vulnerable domains predicted by Matthews and Yip (2010) (e.g., placement of the locative PP).

Findings show that the children's narratives followed the trend generally observed across diverse languages in the development of referencing: referent maintenance was first mastered, followed by referent introduction, and then re-introduction. Since referent re-introduction involves keeping track of a referent's information status, new vs. known, and the referent's activation state, young children's immature information processing capacity is invoked to explain the late mastery of this function (Wong and Johnson, 2004); the adult heritage speakers' data shed light on the cognitive deficit account. The children's data also suggest a correlation between school type and discourse connectors. The extra exposure to Cantonese in transitional bilingual programs seems to support the children's development of discourse devices, but not all children could maintain these devices after exiting the bilingual programs. The subjects' data produced mixed results with respect to the three vulnerable domains, which all involve word order. Why did some speakers restructure their word order after English became dominant and others did not? Is there a general principle that unites the different types of word order errors? These and other questions will be discussed in the presentation.

Phonological modification through bilingual speakers: the case of word-tone system in coastal Chinese topolects

Picus Ding, *University of Hong Kong*
Wednesday, May 16th, 11:30-11:50am, LSK LT1

According to the domain-based classification of tone systems (Ding 2009), the syllable-tone system takes the syllable as the basic tonal domain, while the word-tone system operates on the word domain. Such kinds of tone systems are found not only in West Africa, but also in China. A number of Wu and Min topolects can be regarded as having a word-tone, rather than, syllable-tone system, witnessing the frequent tone change when a word extends from monosyllable in these languages.

The present study aims to explain the emergence of word-tone system on the east coast of China, looking at Shanghainese and Amoy in particular. Research on tonogenesis shows that both syllable-tone and word-tone may arise from certain phonation conditions (Mazaudon 1997; Thurgood 2002). Nonetheless, no instance has been reported on historical change of the system converting from syllable-tone to word-tone, or vice versa. This suggests that the two types of tone system do not represent phases of evolution and they do not interchange.

It is hypothesized that the autochthonous languages of south China, their speakers known vaguely as *Bái Yuè* of the ancient time, must play a crucial role in developing the word-tone systems in Wu and Min, as the syllable-tone in Old Chinese cannot undergo language-internal change and give rise to the word-tone in the coastal Sinitic languages in the east. Transitional bilingualism and ultimate language shift by some of the aboriginal non-Sinitic speakers must have taken place in coastal China. Consequently, the new type of tone system arises after the original tonal system of Old Chinese is modified under the substrate influence.

Transitional bilingualism and language shift across two generations is part of the linguistic landscape in modern Hong Kong. Linguistic observation on contemporary Hong Kong may shed some light on the effect of historical language contact through bilingual speakers in coastal China.

The dynamic nature of parallel processing of the target language during source language comprehension in interpreting

Yanping Dong and Jiexuan Lin, *Guangdong University of Foreign Studies*
Tuesday, May 15th, 4:10-4:30pm, LSK Room 514

A few studies in the literature have conducted self-paced reading experiments with professional interpreters to find if there was parallel processing of the target language during source language comprehension in interpreting. Although parallel processing was found for some places in the sentence, no parallel processing was found for other places, and up till now no satisfactory explanations have been offered. To explain the contradictory results, the present paper proposes that the possibility of parallel processing may be influenced by two factors (coded as CS model): 1) the mental correspondence strength of a processing unit from the source language to the target language; 2) the interpreter's capacity surplus in source language comprehension to coordinate the target language. Two experiments were conducted with student interpreters to test this model. In the pretest parallel processing was absent in L1 reading but present for the 1st word in L2 reading. In the posttest when the participants had nearly had two terms of interpreting training, the only difference from the pretest is that in L2 reading, parallel processing was present for the first two positions. The result constitutes a developmental picture when compared with findings from professional interpreters in the literature, which verifies the CS model as a possible explanation for the dynamic nature of parallel processing of the target language in interpreting. Implications for language control are discussed.

Syntactic transfer of right dislocation in Cantonese-English bilingual children

Ge Haoyan[1], Lawrence Cheung[1], Stephen Matthews[2] and Virginia Yip[1],
Chinese University of Hong Kong[1] and University of Hong Kong[2]
Tuesday, May 15th, 12:10-12:30pm, LSK Room 514

Right Dislocations (RD) in Cantonese and English are different despite superficial similarity. English RD consists of a complete sentence, immediately followed by an additional NP (John in (1)) that is coindexed with an argument of the sentence:

(1) He_i is happy, $John_i$.

Cantonese RD, in contrast, comes in two flavors. The first resembles English RD, except that the dislocated element could be an NP, adverb, etc, as in (2). The second is shown in (3) where part of the sentence occurs after the sentence-final particle (SFP) (Cheung 2009).

(2) Keoi jinggoi zau-zo laa, jinggoi
he should leave-PFV SFP should
'He should have left.'

(3) Zau-zo laa, keoi jinggoi
leave-PFV SFP he should
'He should have left.'

At least on the surface level, then, English RD is a subset of Cantonese RD. This comparison sets the stage for the study of bilingual development where structural overlap is considered a condition for cross-linguistic influence to occur.

Inspired by studies on the bilingual acquisition of RD which have shown cross-linguistic influence in French-English and French-Dutch bilingual children (Notley, van der Linden & Hulk 2007), we investigate syntactic transfer of RD in Cantonese-English bilingual children and compare the acquisition of English RD by 3 English monolingual and 5 bilingual children, using longitudinal data from CHILDES (MacWhinney 2000; Yip & Matthews 2007). The results show qualitative and quantitative differences between bilingual and monolingual children in the development of English RD. Bilingual children produce more RD than monolingual children. The five bilingual children, especially the Cantonese-dominant children, consistently produce non-target RD in English like (4) and (5), which are structurally more like Cantonese RD. Such patterns are not found in monolingual English children.

(4) So green, this one. (Alicia 3;04;12) (5) Come back, you can. (Alicia 2;06;28)

Moreover, Cantonese-dominant children have a longer period of non-target RD production as well as a late emerge time of target RD than non-Cantonese-dominant bilingual children. Our preliminary findings indicate that there is cross-linguistic influence in this domain: the non-target RD utterances in bilingual children exhibit transfer effects from Cantonese. Language dominance patterns influence the direction of transfer in this construction, as Cantonese-dominant children produce this non-target structure more frequently. In addition, structural overlap and input ambiguity are factors accounting for the difference between bilinguals and monolinguals.

Ultimate attainment in the interlanguage of a Turkish-English and a Spanish-English endstate speaker: The case of English articles

Vasfiye Geēkin[1, 2 & 3] and Katherine Demuth[1],
Macquarie University[1], Bogazici University[2] and Potsdam University[3]
Tuesday, May 15th, 3:30-3:50pm, LSK Room 515

Ultimate attainment in second language acquisition (L2) has shown much variability. Even though some L2 learners show native like performance, others fossilize in their end state grammar (White, 2003; Lardiere, 2004). A recent study approaches the issue from a prosody-based perspective. Snape and Kupisch (2010) report that article use in the naturalistic speech of SD, a Turkish end state speaker of L2 English, may appear target-like, but acoustic analysis shows that both definite and indefinite articles in the interlanguage of SD are stressed. One possible explanation for such errors is the transfer effect of L1 prosody onto L2. This account is also known as *the Prosodic Transfer Hypothesis* (Goad and White, 2004). To test this hypothesis, we recruited two end state L2 speakers of English, one coming from an articled L1 (Spanish), and the other from a non-articled L1 (Turkish). Since Turkish does not have articles, but Spanish does, we predicted that more omission and/or non-target prosody would be found on the articles used by the Turkish English speaker. Spontaneous speech recordings of the two participants were analysed after the utterances were coded in terms of grammaticality, omission and substitution errors in article+noun and article+adjective+noun constructions. The duration of the articles in these two different DPs were analysed using Praat (Boersma and Weenink, 2006) to see whether they were in fact stressed like numerals or demonstratives. Preliminary results suggest that there is an effect of L1 in the prosodification of utterances in L2. Even though omission errors are quite few in number, the utterances where articles were supplied were more stressed in the interlanguage of the Turkish- English speaker when compared to that of the Spanish- English speaker. Thus, our findings suggest that the Turkish English endstate speaker is using strategies such as overstressing and omission of articles consistent with the fact that articles do not exist in their L1. Further research is needed to understand how and when learners fossilize in L2.

The exclamation in *The Analects of Confucius (Lun Yu)*: What does it tell us about Chinese word order change?

He Yuanjian, *Chinese University of Hong Kong*
Tuesday, May 15th, 12:10-12:30pm, LSK LT2

This paper examines the exclamative construction in *The Analects of Confucius* (*Lun Yu*), a classical text of the middle archaic Chinese period (770-221BC), with the purposes of seeking how it compares with its present day counterpart in Mandarin Chinese and in English and what it may reveal about Chinese word order change within the language as well as across languages. Three varied features arise between Chinese and English. First, over the history of the Chinese language from the archaic period to present, propositional particles have always been a stable feature for Chinese exclamative formations, a feature that is not found in English. Second, a wh-item has been acquired in the evolution of Chinese exclamatives, a feature that moves Chinese closer to English. Third, constituent fronting has been lost in that evolution for Chinese, a feature that moves Chinese away from English. Thus, descriptively and word-order-wise, archaic Chinese is more like English and present day Chinese less so. Lexically, however, the reverse seems to be true. Theoretically, the fact that constituent fronting operates itself in both archaic Chinese and English exclamatives irrespective of the presence or absence of a wh-item suggests that the mechanism that drives such fronting should be similarly construed in both languages.

L3 acquisition of the voicing contrasts in Spanish by Cantonese learners

Isabel Briz Hernandez, Qin Zhen and Peggy Mok, *Chinese University of Hong Kong*
Tuesday, May 15th , 3:30-3:50pm, LSK LT1

There is a two-way contrast for stops in Spanish and in Cantonese: voicing in Spanish and aspiration in Cantonese. The Spanish stops are either fully voiced [b, d, g] or voiceless unaspirated [p, t, k] in initial positions, and the fully voiced stops are realized as approximants in intervocalic positions. The Cantonese stops are either voiceless unaspirated [p, t, k] or voiceless aspirated [p^h, t^h, k^h], and they have the same realization in initial or intervocalic positions. These differences between Spanish and Cantonese stops may pose difficulties for Cantonese learners of Spanish. Production data in Spanish from five beginning and five advanced Cantonese learners were collected. Real words with stops in both initial and intervocalic positions with different vowel contexts were included. Voice Onset Time was measured for analysis. Results show that while all the Cantonese learners maintained a two-way contrast in initial positions in Spanish, the beginning learners' realization was more similar to the Cantonese aspiration contrast. The patterns of the advanced learners were closer to but still not the same as the Spanish voicing contrast. Both groups of learners found the approximant realization in intervocalic position difficult. Most produced stops instead of approximants in intervocalic position, with a higher proportion of advanced learners producing fully voiced stops than beginning learners. In addition to their L1 phonology, the influence of English orthography can explain some of the error patterns in their production. Our findings suggest that L3 acquisition is jointly influenced by both L1 and L2.

Tonal effect on Mandarin intonation perception: a comparative study of listeners with different language backgrounds

Jiang Ping and Chen Aishu, *Chinese University of Hong Kong*
Wednesday, May 16th, 11:20-11:40am, LSK Room 515

This paper investigates the effect of sentence-final tones on Mandarin intonation perception of listeners with different language backgrounds. A corpus of 256 utterances was built for an experiment of intonation identification. There are 34 participants in the experiment: 10 native Mandarin listeners served as the control group, 14 native Thai listeners and 10 native English listeners served as the L2 groups with and without a tonal language background respectively.

The results show that sentence-final lexical tones have different effects for listeners with different L1 backgrounds. First, for native Mandarin and Thai listeners, sentence-final tones play no significant role in identifying statement intonation. In contrast, native English listeners often wrongly identify statements ending with a [55] and [35] tones as having question intonation. Second, sentence-final lexical tones have significant effects on listeners' identification of interrogative intonation, regardless of their L1 backgrounds. In particular, native Mandarin and Thai listeners can easily identify the interrogative intonation when the utterance ends with a [55] or [51] tone, whereas it is harder for them to identify the interrogative intonation when the utterance ends with a [35] or [21] tone. On the other hand, native English listeners perform better in identifying interrogative intonation when the sentence-final syllable is a [55] or [35] tone, and worse when the sentence-final syllable is a [21] or [51] tone.

The significant perceptual differences between language groups are attributed to the influence of different prosodic features of listeners' mother tongue, especially the contrast between tonal and non-tonal languages. Since pitch is solely used for distinguishing sentence types in English (falling and rising pitch signal statement and question respectively), native English listeners pay more attention to the end point of a sentence-final lexical tone in their identification tasks. They identify a sentence-final [21] or [51] tone as a statement and a sentence-final [55] and [35] tone as a question. In contrast, native Mandarin and Thai listeners pay more attention to the beginning point of a sentence-final lexical tone, and identify a sentence final [55] or [51] tone as a question as Mandarin and Thai use pitch contour to differentiate both lexical meanings and sentence types.

Comparative L2 English C[r] cluster production by Cantonese and Mandarin speakers

Yizhou Lan and Sunyoung Oh, *City University of Hong Kong*
Tuesday, May 15th, 6:40-7:00pm, LSK Room 514

English initial C[r] clusters are often mispronounced by Cantonese and Mandarin speakers. Cantonese speakers tend to delete the [r] (e.g., [pɪnt] for *print*) or substitute it to [w] (e.g., [kʷaɪ] for *cry*). Mandarin speakers, on the other hand, tend to insert sounds as they pronounce *print* as [puˈrɪnt].

Studies on L2 Cantonese and Mandarin have been mostly descriptive and pedagogical studies addressing their English pronunciation, and the latter found deletion and epenthesis in Mandarin English. However, they made no further distinction on the distribution regarding articulation.

Best's Perceptual Assimilation Model (PAM) (Best (1995), Best et al. (2001)) suggested that greater similarity of a L2 sound to a L1 sound would increase mapping of that sound onto L2. Brown (2000) and Wang (2008) further developed Best's model in the perspective of articulation and prosody. In Brown's words, 'proximity of constriction location' defines similarity, which enables one sound in different articulatory environments to have different mappings. Wang, on the other hand, focuses on prosody and states that perceptual difference of prosody of Mandarin and English, such as tones, also causes more variations in the mapping. This study is designed to investigate the distribution of errors of Cantonese and Mandarin productions of English clusters by constriction location and prosody.

Ten Cantonese and ten Mandarin speakers were recruited as participants. Stimuli differ in place of articulation of the initial consonant, the vowel quality, and the syllable structure (e.g., trip, free, greet). Words were put into short paragraphs for participants to read; and recorded and digitized. Praat was used for the spectrogram analyses. Firstly, the formant transition between the initial consonant and the vowel were examined: F2 and F3 were measured to identify the [w] substitution; and change of formants was used to identify deletion/epenthesis. Secondly, pitch, intensity and duration patterns of each token were studied against the sound data in Ladefoged (1993) for any significant difference amongst the three prosodic factors.

Preliminary results show that most Mandarin speakers adopt epenthesis; and Cantonese speakers adopt deletion/substitution for labial and velar clusters but seldom err on alveolar clusters. Such distribution could be explained by Brown (2000)'s articulatory proximity under the theoretic background of articulatory phonology. Since [r] has a [lip] gesture. Its gesture may be reduced to [lip] alone, forming a [w] in labial clusters. Velar consonants, which share a common gesture [dorsal] with [w], may also trigger substitution. Results also show Mandarin speakers' English involves more contour tones in overall pitch pattern whereas Cantonese speakers mainly adopt level tones. Given that contour tones require more tone-bearing units (mostly vowels) than level tones, and that a greater demand of vowels may trigger epenthesis, the deletion/epenthesis difference between Cantonese and Mandarin can be explained.

Being faithful: tone-melody relationship in Cantonese

Elaine Lau, *University of Hawaii at Manoa*

Wednesday, May 16th, 11:00-11:20am, LSK LT2

Cantonese lyrics are found to adhere to the pitch contours and relative pitch heights of the tones, in order to preserve in the lyrics the tonal values of the words. This study performed a series of meta-analyses over a selection of Cantonese children's songs and examined (i) the distribution of lexical tones in correlation with musical melody; (ii) the relationship between tonal pitch and melody; and (iii) how contour tones (e.g. rising and falling tones) are dealt with in mapping lyrics with music.

This study showed that the writing of lyrics in tonal languages is not as free as in non-tonal languages, such as English, and abides faithfully to the lexical tones, in order to preserve the tonal distinctions between words. This provides insights into the role of music in the acquisition of an important aspect of the Cantonese language, tones.

Phonological development of Mandarin-English bilingual children in New Zealand: patterns and interactions between languages

Lee Taiying and Elaine Ballard, *University of Auckland*
Tuesday, May 15th, 4:10-4:30pm, LSK LT2

Current research into the phonological development of successive bilingual children indicates that they differ from monolinguals in both the rate and the 'route' of development (Hua & Dodd, 2006). However little is known about the specific developmental trajectory for children acquiring more than one language (Dodd et al. 2003; Genesee et al. 2004), or about the effect of the interactions of their languages on speech development (Fabiano-Smith & Goldstein 2010; Goldstein et al. 2005).

In this presentation we report on research examining the phonological development of 200 typically developing Mandarin-English bilinguals aged 5-8 years. Parent reports show that Mandarin is the dominant language for these children although many are also exposed to other Chinese dialects within the home. English is first learnt in kindergarten around 3 years of age.

These children were assessed with the Diagnostic Evaluation of Articulation and Phonology (DEAP Dodd et al. 2002) and a modified version of the Mandarin Segmental Phonology (Hua 2002). Following previous research (Dodd et al. 2003), assessment data was analysed in regard to developmental phonology and error patterns in both languages.

Results indicate that there is a clear developmental trajectory for these bilinguals which differs to that of monolinguals for either language. For the 5 and 6 year olds, English and Mandarin phonetic inventories are generally smaller than those reported for either monolingual English (Dodd et al. 2003) or Mandarin (Hua 2002) peers although by the time they are in their eighth year any differences between bilinguals and their monolingual peers have been levelled. The differences found in the inventories of the younger school aged children suggest that growing up in a country where the mainstream language differs from the dominant language of bilinguals has an impact on phonological development in that language. This finding differs to those found for studies on language pairs such as Spanish /English (Goldstein et al. 2005) and Cantonese/ English (Holm & Dodd 1999; 2006).

In terms of the type of errors produced, bilinguals differ to their monolingual peers both quantitatively and qualitatively. Some error patterns produced by typically developing monolinguals (e.g. gliding in English, and fronting in Mandarin), are found in greater frequency. Others (e.g. simplification of consonants in Mandarin and devoicing of plosives in English) are not found in monolingual development and are distinct to these bilinguals. Given findings in the literature this may be attributed to the interaction between the phonemic inventories being acquired (Hua & Dodd 2006; Fabiano-Smith & Goldstein 2010; Goldstein & Bunta 2011).

We conclude with a discussion of how the relationship between standard language and regional variation may also play a role in these children's acquisition of Mandarin. Mandarin speakers in New Zealand come from a wide range of Mandarin speaking countries which include China, Taiwan, Malaysia, Hong Kong and Singapore. As such participants in this study varied considerably in their spoken Mandarin due to interaction between the Mandarin and other dialects they are exposed to within the home and the attitudes that individual families hold towards standard Mandarin.

Learners' sensitivity to phonetic dimensions of Mandarin tones

Li Bin and Lan Shuai, *City University of Hong Kong*
Wednesday, May 16th, 11:40-12:00nn, LSK Room 515

Native speakers of a tone language (L1) are considered to have an advantage in learning tones of a second language (L2). However, they may also be faced with difficulty due to a lack of attention to specific phonetic dimensions that distinguish non-native tone contrasts. For example, it has been reported that Cantonese speakers, who were intermediate Mandarin learners, could not clearly tell Mandarin high level tone (T1) from high falling tone (T4). The probable explanation is that these pitch contours form allotones of the high level tone in Cantonese, and therefore the level and falling pitch slopes are not used contrastively by Cantonese speakers. Similarly to Cantonese learners of Mandarin, Vietnamese speakers also encounter difficulty in perceiving Mandarin level and falling tones, although there are similar tonal contours in their L1. It is proposed in previous literature that Vietnamese learners may lack sensitivity to pitch slopes that differentiate Mandarin T1 and T4.

As previous studies focused on learners of similar language proficiency, it is not known if the lack of sensitivity observed in Vietnamese learners is due to lack of experience in L2. The current study aims to examine the relationship between sensitivity to pitch slope and language experience. It is predicted that Vietnamese learners would become more sensitive to pitch contours as they become more experienced in the target language. Four groups of Vietnamese students in Hanoi were recruited as participants. They had been learning Mandarin for 1 to 4 years respectively at the time of testing. Each group contained 15 students from North Vietnam. They were asked to finish an ABX identification task with A and B being Mandarin T1 or T4 prototypes and X being the target pitch to be identified. They were asked to not only identify whether X is similar to A or B, but how similar X is to the prototype of their choice. There were 36 (6 × 6) stimuli generated as targets by changing the pitch height (6 levels) or slope (6 levels) of the low-pass filtered prototypical Mandarin T1. In each trial, X was randomly chosen from these 36 stimuli, and the presentation of the low-pass filtered T1 and T4 as A or B was counterbalanced. Each trial was presented twice to participants, totaling 72 trials.

The results were analyzed by a 3-way mix-design ANOVA with years of Mandarin learning as the between-subject factor (4 levels), and pitch height (6 levels) and pitch slope (6 levels) as two within-subject factors. The analysis revealed that years of Mandarin learning interacted significantly with pitch slope but not with pitch height. A comparison between L2 learners and native Mandarin listeners reveals the sharpest sensitivity (the best performance in pitch discrimination) to pitch slope in Mandarin L1 listeners. A comparison across learner groups confirms that the sensitivity to pitch slope increased as the time in Mandarin learning increased.

Our study is among the first attempts to reveal changes of sensitivity to specific phonetic dimensions during L2 tone learning in tone language speakers. In addition to the improving ability in differentiating pitch slopes, it is discovered that sensitivity to specific phonetic dimensions could also be applied to tone discriminability.

Why Chinese-English code-switching is so difficult to avoid: medium-of-instruction-induced code-switching in Hong Kong and Taiwan

David C. S. Li, *Hong Kong Institute of Education*

Tuesday, May 15th, 3:50-4:10pm, LSK Room 514

Code-switching and medium of learning and teaching are traditionally seen as distinct research areas. Research has shown that code-switching is commonly used to index the bilingual's social and/or ethnolinguistic identity, or various conversational meanings in ongoing discourse (e.g., selecting addressee(s), changing the topic, signaling dispreference). In either case, referential meaning is generally regarded as more or less constant. To my knowledge there has been little empirical evidence of code-switching being attributed to the medium of learning and teaching.

Empirical evidence was obtained from an experimental study involving 108 educated Chinese-English bilinguals in Hong Kong and Taiwan. The study, entitled 'One day with only Cantonese/Mandarin', required student participants to use only their dominant community language for one day, and to avoid using any other language(s) (cf. 'breaching experiments' / 'revelation through disruption', Harold Garfinkel 1967). Data arising from their rich and highly contextualized experiences were collected using two methods: reflective diary and focus group. The primary objective of the project was to find out under what circumstances bilingual students would perceive a need to code-switch.

A lot of instructive findings were obtained. This paper focuses on EMI-induced code-switching from Chinese to English by examining the code-switchers' own accounts of the reasons why they found it so difficult to avoid instantiating field-specific terminologies when the conversation touched upon concepts that were learned and taught through English. Similarly difficult to avoid were expressions belonging to what may be termed 'institutional discourse', such as course and programme titles, administrative practices, academic departments and support services, etc. The tendency of cognitive dependence on English was clearly much stronger among participants in Hong Kong than in Taiwan. The findings point toward a psycholinguistic 'medium-of-learning effect' on the development of bilinguality. The paper will end by briefly commenting on methodological concerns about the validity of self-reported data.

On modification of *whole* and its theoretical consequences

Liao, Wei-wen Roger, *Hong Kong Polytechnic University*

Tuesday, May 15th, 6:40-7:00pm, LSK LT2

Observations: In English, *whole* seems to modify the head nouns directly, whether the modified nouns are count, mass, or collective, as in (1):

(1) a. The whole car is green. b. The whole water is polluted. c. The whole family is tall.

However, Chinese *zheng* displays an interesting paradigm against the direct modification. First, as shown in (2), with concrete and typical count nouns (e.g. *car*), *zheng* modifies classifiers, but not nouns. Additionally, (2) also shows that the numeral is restricted to *yi* 'one' (namely, plural nouns are not compatible with *zheng*):

(2) a. na yi/*liang/*san **zheng** tai che dou shi lüse de.
that one/two/three whole CL car all Aux green DE

'The whole car is green.'

Zheng can also appear with a non-concrete and typical mass noun in Chinese when it is supplied with a default classifier *ge* (or with a measure classifier). The combination of *ge* and a mass noun is, however, very odd without the presence of *zheng*:

(3) yi ***(zheng)** ge/(bei) shui dou bei wuran le
one whole CL/cup water all Passive pollute Perf

'The whole (cup of) water has been polluted.

The puzzles are, then, what restricts the numeral to *one* when the modifier *zheng* appears, and what enables the default classifier to exist with mass nouns, as in (3).

Analysis: Kayne (2005, 2007) argues that a silent (or unpronounced) noun is always hidden in the quantifier and the numeral constructions in English, as shown in (4):

(4) a. [a little [AMOUNT]] money b. [a few [NUMBER]] cars

c. [three [NUMBER]] cars (all CAPITAL letters are unpronounced at PF)

Notice that the numerals are actually specifiers of the silent projections. Therefore, *a* (a reduced *one* in English) can be locally selected by AMOUNT, and other numerals can not (hence, **two little money*). Although it is tempting to conclude that classifiers may uniformly correspond to the count NUMBER in English, we argue, based on the modification of *zheng*, that a classifier may be interpreted as AMOUNT or NUMBER, and whether it is interpreted at LF as AMOUNT or NUMBER is in fact determined by numerals (with *yi* 'one' being a neutral element):

(5) a. [**yi**/liang/san tai] che (CL=NUMBER)

one/two/three CL car

'one/two/three cars'

b. [**yi**/*liang/*san [zheng tai]] che (CL=AMOUNT)

one/two/three whole CL car

'a whole car'

It is argued that *zheng* is a modifier of the classifier corresponding to AMOUNT in Chinese. The fact that numeral is selected by the silent projection explains why only a restricted numeral (namely *yi* 'one') can occur with *zheng*. The default classifier simply reflects a structural position for the modifier *zheng* in (3). The analysis also provides a straightforward account for the quirky use of *a* in the following example:

(6) a. John ate **a** whole **five apples**.

b. John ate [a whole AMOUNT] five apples.

The answer is that the surface patterns are deceptive in English with AMOUNT being unpronounced, and *whole* does not directly modify the matrix nouns, but it modifies a silent classifier projection. A universal view of the nominal syntax therefore finds its empirical support. Theoretical consequences on the syntax-semantics of part-structure and mass-count distinctions (Chierchia 2010, Moltmann 1998) will also be addressed with respect to the proposed analysis.

Chinese-English bilingual speakers' processing of temporal concepts

Nian Liu, *University of Hawaii at Manoa*
Tuesday, May 15th, 4:10-4:30pm, LSK Room 515

The world's languages code time-related concepts, such as the days of the week (DOW) and months of the year (MOY), differently. For example, English names of the DOW are derived from planetary or mythical terms and thus are arbitrary symbols. However, Chinese uses a numerical system for naming months and days (Monday is "weekday one", January is "month one", etc.). Previous studies (Kelly et al., 1999; Liu, 2010) have shown that the use of numerals in the calendrical systems facilitates children's acquisition of and adults reasoning with temporal concepts. It is interesting to see how these two systems with different conceptualization properties work within a single mind, that is, with the Chinese-English bilinguals.

This paper explores how Chinese-English bilinguals understand temporal concepts and perform time-related calculations. Three groups of speakers-English monolingual, Chinese monolingual and Chinese-English bilingual participated in the experiment. Chinese is used for the Chinese monolingual group and English for the other two groups. Participants initiate each trial by pressing the SPACE bar and then a recorded voice reads one question to them. They are instructed to speak the answer as quickly and accurately as possible into a microphone, which serves as a voice key, connected to an E-Prime SR-BOX. A digital recorder is used to record the answers for later coding and scoring. The reaction time and error rates are used as dependent measures in data analysis.

The stimuli consist of two trial blocks: DOW and MOY. Each block has two factors with two levels—Boundary Type (Within/Across boundary) and Direction (Forward/Backward), which will produce four question types, as below.

(1a) If today is Wednesday, what is the day one day from now? (Within/Forward)
(1b) If today is Thursday, what was the day two days ago? (Within/Backward)
(2a) If today is Saturday, what is the day three days from now? (Across/Forward)
(2b) If today is Tuesday, what was the day five days ago? (Across/Backward)

Preliminary results show that the Chinese speakers are generally faster in responding to questions with fewer errors compared to English monolingual speakers. However, this effect is weaker in cross boundary calculations and, for DOW blocks, with questions involving Sunday, which is the only non-numeral term. The result suggests that Chinese speakers use different calculation strategies compared to English monolinguals. That is, the transparent numerical structure of Chinese time words facilitates time calculation, by allowing Chinese speakers to employ arithmetic strategies made possible by the use of numerical names. By contrast, English speakers do not have the arithmetic laid out for them in tasks like this, so they might rely on alternate strategies such as list reciting. Moreover, Chinese-English bilinguals show the same pattern of performance as the Chinese monolinguals in temporal calculations, which suggests that bilingual speakers adopt is the arithmetic calculation strategy, despite the fact that the language used in the questions is English.

Investigating the transitive and intransitive constructions in English, Chinese and Japanese: A functional perspective

Zoe Luk, *University of Pittsburgh*
Tuesday, May 15th, 6:20-6:40pm, LSK Room 515

The present study compares quantitatively the use of transitive and intransitive constructions in English, Chinese, and Japanese, and attempts to show that they differ in the use of these constructions. Any event can be described in any form along the "causative-inchoative-stative" continuum (Croft, 1990) depending on how the speaker wants to portray it. Previous research (e.g., Alfonso, 1966; Hinds, 1986; Jacobsen, 1992; Pardeshi, 2008) has suggested that languages differ in terms of how much prominence is given to the agent along this continuum. For example, Ikegami (1981, 1991) argues that English prefers to give prominence to a human agent, whereas Japanese prefers to suppress the human agent and express events as if they happen spontaneously. He therefore calls English a "DO-language" and Japanese a "BECOME-language". Based on this observation, it was hypothesized that languages would use the transitive and intransitive constructions differently. To verify this hypothesis quantitatively, the present study examined 508 tokens of verb phrases in a Japanese novel and its English and Chinese translations. The tokens were classified for syntactic transitivity (i.e. transitive, intransitive, passive, and adjectival), and for semantic transitivity (i.e., Kinesis, Aspect, Punctuality, Volitionality, and Agency; Hopper and Thompson, 1980). The results show that Japanese uses more intransitive constructions than either Chinese or English, and that English and Chinese use more transitive constructions than Japanese. In addition, it is found that these differences are only observed in low semantic transitivity events, whereas the three languages exhibit similar trends for high semantic transitivity events. For example, for the event of being left alone which has low semantic transitivity, Japanese uses an intransitive verb (i.e., *nokoru*), whereas English and Chinese use a transitive verb (i.e., *leaving me alone* in English and *sheng4xia4* 'leave behind' in Chinese). On the other hand, for the event of opening a door which has high semantic transitivity, all three languages use a transitive verb. It is also shown that Japanese is able to use intransitive verbs to describe situations which can only be described in other constructions (i.e., passive) in English and Chinese. These findings support the claims by previous research that Japanese prefers the intransitive construction, and English prefers the transitive construction. The results thus suggest that there are subtle meaning differences of the transitive and intransitive constructions among the three languages in a Construction Grammar framework. The present study is important in giving us a clearer picture of how these three languages differ in the use of the transitive and intransitive constructions, which would contribute to both second language learning and teaching. Since the transitive and intransitive construction are often viewed as universal invariants across languages in most current linguistic theories such as the generativist approaches (e.g., Chomsky, 1957; Lasnik, 2002) and Cognitive Grammar (Langacker, 1986; 2008), the present study would serve as the basis for psycholinguistic research that attempts to shed light on this issue.

The impact of music on early language instruction and acquisition and collaborating with parents to foster bilingualism in young learners

Angelica Manca, *Kindermusik International USA: Early Childhood Music and Movement Education*

Wednesday, May 16th, 11:20-11:40am, LSK LT2

With the rise of English as the dominant language of communication and information technologies, it is crucial for our children to learn the English language for them to become young world citizens. In order for children to learn a new language from a young age, the language must be taught in an engaging, fun and interactive environment in a developmentally appropriate way. We will be empowering our listeners by giving them the latest updates on research that demonstrates that children learning a foreign language from a very young age will be more likely to speak the language fluently and currently.

The purpose of our workshop is to show the vital role music plays in early language acquisition, music being an international platform of communication and bridging language gaps. We will be giving educators and school directors attending the workshop, classroom best practices and activities that engage children in the learning process. Moreover, we will be outlining key strategies and methodologies to keep parents engaged in the process, as parental involvement is one of the key factors contributing to academic success.

The Spanish ministry of education bilingual program in eastern Europe and China: Las secciones bilingües de español

Eduardo Méndez Marassa, *Chinese University of Hong Kong*

Tuesday, May 15th, 6:40-7:40pm, LSK LT1

The purpose of this paper is to introduce the Spanish Ministry of Education Bilingual program in Eastern Europe and China, its history, rationale and purposes. We would like to look at the organization of Spanish Bilingual programs for high schools and primary schools in these countries focusing on the differences and types of educational models developed for each country. We will list and comment on the resources and activities sponsored by the Spanish Ministry of Education which aimed at fostering this kind of program. We would also like to discuss how CLIL (*Content Language Integrated Learning)* approaches are developed and introduced to successfully achieve both the language and syllabus objectives in the courses taught. A brief conclusion stating the main difficulties and prospects for the future will follow.

The Bilingual Program, known in Spanish as *Secciones Bilingües*, started in 1988 with the creation of the Spanish-Hungarian bilingual stream in a public high school in the city of Budapest. After this successful pilot experience, the program was rearranged and expanded with the purpose of promoting, both in quality and quantity, the teaching of and in Spanish in selected public high schools in Bulgaria, Slovakia, Hungary, Poland, The Czech Republic, Rumania and Russia where the program also encompassed primary education.

The popularity of this program has been on the rise since its inception due to factors such as the high academic profile of the students enrolled, the offering of scholarships from the Spanish Ministry of Education, the possibility to pursue tertiary studies at a Spanish University without having to go through the many administrative procedures usually required or the wide range of extracurricular activities sponsored by the Spanish government –yearly trips to Spain in the summer for the best students of each school, theatre festivals in Spanish in which students are subsidized to travel in different cities of the participating countries.

More recent additions to this Bilingual program are the Spanish sections in China (Beijing Foreign Language School and Jinan Foreign Language Schools) and Turkey (Istanbul). These programs are regulated under different conditions specific to their countries of implementation.

Sociophonetic variation and the 'ladder of abstraction' in speech sound development

Benjamin Munson[1], Jan Edwards[2] and Mary Beckman[3], *University of Minnesota[1], University of Wiscosin[2] and Ohio State University[3]*
Wednesday, May 16th, 12:10-12:30pm, LSK LT1

The acoustic characteristics of speech vary substantially both within and across talkers. At least some of this variability occurs because the phonetic characteristics of sounds are manipulated in a way that conveys attributes about speakers. These attributes can be highly individual (i.e., distinctive pronunciations that allow familiar people to identify a talker) or can relate to group-level characteristics, be they macrosociological categories like race, age, and gender, or local structures like social cliques in schools. This property of human language may have a strong evolutionary basis. Fitch (2004) reviews research on cases of non-human animal communication where subgroups of species produce distinctive vocalizations to mark themselves as kin. For example, in large breeding colonies, seal pups produce vocalizations that are sufficiently distinct that when their mothers return from hunting for food they can recognize and locate their kin even in very large groups. Socially indexed phonetic variation serves an analogous purpose, as anyone who has discerned a familiar regional accent among a large crowd of people can attest. This talk reviews findings from our research and from others that shows that socially indexed variation is learned early in life, and interacts strongly with other aspects of language learning. This includes research on the development of gendered speech variants in English, Japanese, and Mandarin. We argue that socially meaningful variation is acquired only after the linguistic structures that carry this variation have been learned successfully.

The effects of bilingualism on novel word learning

Vishnu K.K Nair, Jeff Mathew, Sapna Bhat and Katherine Demuth, *Macquarie University*

Tuesday, May 15th, 6:00-6:20pm, LSK Room 514

Recent research with adults has shown that early exposure to two languages may facilitate the acquisition of novel words (Kaushanskaya & Marian, 2009). Participants in the previous study who showed a bilingual advantage for novel word learning were exposed to languages from early childhood and had native like fluency in both languages (e.g. Kaushanskaya & Marian, 2009). The existence of this bilingual advantage has not been examined in bilinguals with *less* proficiency.

We report here the findings of a novel word learning task comparing monolinguals with a group of low and high proficient Tamil - English bilinguals who differed in their language learning histories and exposure to a second language. Sixty Tamil monolinguals and Tamil - English bilinguals in the age range of 18 - 25 were selected as participants. Linguistic proficiency was examined by using a language proficiency rating scale. Since word learning has found to be correlated with phonological working memory (Gupta, 2003), a set of non-word repletion tasks was also administered to all participants. This was followed by a novel word learning task. The novel words were real words in Hindi, a language which participants were unfamiliar with. Ten novel words were presented via head phones as the visual referents were shown simultaneously on a computer monitor. Participants were asked to repeat each novel word aloud three times. Participants were then tested immediately for their retention of these novel words by using an identification and a naming task.

The results showed a significant difference in identification and naming of the novel words, with high proficient bilinguals outperforming the less proficient bilinguals. However, the less proficient bilinguals also outperformed monolinguals in both the identification and naming tasks, suggesting a bilingual advantage even with limited proficiency. Interestingly, performance on the non-word repetition task did not differ for monolinguals or bilinguals, failing to establish a direct link between phonological working memory and word learning ability. This suggests that bilinguals with different language histories respond differently to novel word learning; even limited exposure to a second language can contribute some amount of word learning advantage. The implications are discussed in relation to word learning and age of second language acquisition more generally, with implications for assessment and rehabilitation of bilinguals with language impairments.

Sentence repetitions of bilingual children: a multi-factorial study examining individual differences in the first language

Sonali Nag, Jelena Mirkovic and Margaret J. Snowling, *University of York*
Tuesday, May 15th, 6:00-6:20pm, LSK Room 515

The developmental trajectories of linguistic and cognitive skills in childhood bilingualism have been an area of vigorous research though the focus has been typically on second language acquisition. Much less is known about linguistic profiles in the first language. We set out to address this issue in a cross sectional study of 135 sequential bilinguals. The language mix is Kannada (L1), a richly inflected language of southern India with a preference for a SOV word order, and English (L2), a popular language of education, with few inflections and a SVO word order. The participants were in the last year of pre-school or Grade 1, aged between 4;6 and 7;6, and were in the early stages of literacy instruction in both languages. We used a multi-factorial design, where we collected detailed information on L1 and L2 experience (e.g. age of onset of L2, which language receives parental support for literacy instruction), exposure (amount of story time at home in each language, book titles available at home, languages of newspapers coming home) and performance (language production in a sentence repetition task and tests of vocabulary, reception of grammar and verbal memory). The average age of L2 exposure was 15 months, which provides a unique opportunity to investigate the early stages of development of sequential bilingualism, with the concurrent introduction of literacy in the two languages. Given the typologically distinct characteristics of Kannada and English, morpho-syntactic processing was of interest, particularly children's processing of word order, and the inflections in nouns and verbs. Preliminary analyses focus on L1, and show that vocabulary knowledge in the first language and verbal memory are both unique predictors of accuracy with L1 word order in sentence repetition. In addition, there are significant associations between errors at the morpho-phonological boundaries of inflected words in L1 and children's performance on a nonword repetition task, and between errors on inflections and vocabulary knowledge. The initial data suggest that vocabulary knowledge contributes to understanding event semantics at the sentence level (inflectional markings indicating 'who is doing what to whom'), and phonological knowledge contributes to morpho-phonological processing of inflectionally complex words. We will further discuss the relationship between performance measures and measures of experience and exposure, with a particular focus on the influence on the developing proficiency in the two typologically different languages.

Ambiguity resolution and evolution of word order

Mieko Ogura, *Tsurumi University*
Tuesday, May 15th, 11:30-11:50am, LSK LT1

We examine the lexical and syntactic ambiguities from an evolutionary perspective of sequential and combinatorial relationships in the prefrontal brain and the evolution of word order as resolution of these ambiguities.

First we investigate the neural bases of the ambiguity resolution in polysemous words using near-infrared spectroscopy (NIRS). We find that there is temporal ambiguity after the verb in SVO sentences, which causes the activation of the inferior frontal gyrus, while there is no activation in SOV sentences. Language evolves avoiding or minimizing ambiguity. We therefore speculate that the earliest human language had SOV word order, where there is no temporal ambiguity of the verb.

We then demonstrate that the postnominal relative clause evolved from the paratactic clause with a non-relativized shared NP. The juxtaposed paratactic clauses develop into higher-order hypotactic clauses and further subordinate clauses or, in its extreme form, embedding, by hierarchical arrangement. Recursion, or embedding recursion, is the product of a diachronic process of hierarchical arrangement of paratactic clauses. It is not the only uniquely human component of the faculty of language as Hauser, Chomsky & Fitch (2002) conceived.

Embedding took place by pulling the head noun to a position before the relative clause to avoid perceptual ambiguity arising from center-embedding which demands too much of our short-term memory. This also produced the word order change from OV to VO. Language evolves procedures to avoid lexical and syntactic ambiguities. It is not specifically lexical or syntactic, but a general cognitive tendency to attempt to resolve ambiguity, or to avoid the burden on working memory in the left inferior frontal gyrus (Ogura & Wang 2012).

Goldin-Meadowet al. (2008) suggest, based on the experiments of representing events in a nonverbal format, that the natural ordering may shape language in its emerging stage of SOV order. On the other hand, we find that the evolution of embedded structure of language induced the word order change from OV to VO. This implies that language may shape brain, bearing on the Sapir-Whorf hypothesis. We further suggest the intertwining of nature and nurture in the acquisition of language.

The influence of language experience on tone categorization in the context of multiple talkers

Peng Gang, Zhang Caicai and William S.-Y. Wang, *Chinese University of Hong Kong and Shenzhen Institutes of Advanced Technology*

Wednesday, May 16th, 11:00-11:20am, LSK Room 515

Mandarin has four lexical tones, which are distinctive in terms of their F0 (fundamental frequency) contours. Consequently, the differences in F0 contours alone seem sufficient to elicit reliable tone identification for native Mandarin listeners. Cantonese has six lexical tones (ignoring duration difference), out of which three are level tones. Different configuration of Mandarin and Cantonese tone systems leads us to expect different effects of inter-talker variation on tone categorization in these two tone languages. Since Cantonese level tones depend heavily on F0 height distinctions, inter-talker variations result in considerable F0 overlapping, and consequently, ambiguities among them in isolated tone perception. Therefore, sentential context information is crucial for resolving the ambiguity of Cantonese level tones.

The first experiment investigates the impact of inter-talker variations on the process of mapping acoustic variations onto tone categories in Mandarin and Cantonese. In this experiment, pitch stimuli manipulated from four voice ranges were presented in isolation via a blocked-talker design. Listeners were instructed to identify the stimuli that they heard as lexical tones in their native language.

Experimental results show that Mandarin listeners exhibited relatively stable normalization in tone categorization, whereas tone categorization by Cantonese listeners was unstable and susceptible to the influence of inter-talker variations. In the case of Cantonese tone categorization, inter-talker variations showed a larger effect on the perception of F0 height dimension than that of F0 slope dimension.

The results of the above experiment suggest the importance of sentential context information for reliable tone categorization for Cantonese listeners. The second experiment examines the effect of different types of contexts on the perceptual normalization of inter- and intra-talker variation in Cantonese level tones. In this experiment, speech materials were recorded from four talkers (2F, 2M). Two talkers within each gender have different but overlapping pitch ranges so that tone misidentification is expected without normalization. The F0 of the target was kept constant, while the F0 of its context was either raised by two semitones, kept unshifted or lowered by three semitones.

Experimental results show that shifting F0 in speech context changes the perception of target word from mid level tone to either high level tone (with F0 in context being lowered) or low level tone (with F0 in context being raised), but nonspeech context with identical F0 cues only mildly shifts the identification pattern, suggesting that the carrier (speech or nonspeech) of F0 cues affects the integration of F0 cues from the context and the target.

In summary, different configuration of tone inventories weighs tonal cues differently in dealing with inter-talker variation. Without sentential context, inter-talker variations result in serious confusion of Cantonese tones, especially in the case of three level tones. But talker normalization was stable in Mandarin even without context. Furthermore, identical F0 cues embedded in nonspeech context essentially provide no influence on tone identification, which implies that the relative contribution of speech-specific and general perceptual process is different in tone normalization.

The bilingual acquisition of English and Mandarin: Chinese children in Australia

Ruying Qi, *University of Western Sydney*

Tuesday, May 15th, 12:10-12:30pm, LSK Room 514

Australia has a long history of Chinese migration and settlement, and an ever growing strategic, trade, education and tourism relationship with China (Orton, 2008). Immigrants from mainland China, Taiwan, Hong Kong, and Asia have made Chinese the largest language other than English spoken at home (ABS, 2007). The Australian 2006 census identified 669,000 Australians of Chinese background, representing 3.4% of the total population (ABS, 2009). Despite its recognized prevalence in our globalized world very little is known about bilingual development involving Mandarin and English, largely because most language acquisition research has been Euro-centric. The question of how a child becomes bilingual in two languages that differ so dramatically in their morphology, syntax, phonology, and orthography as Mandarin Chinese and English raises matters of great theoretical interest and practical importance (Yip and Matthews, 2007, 2010; Li, 2010).

This study is the first detailed, systematic investigation of the language development of a child exposed to Mandarin and English from birth in an immigrant family in Australia. It provides the first longitudinal study of bilingual acquisition in a context-bound one-language-one-environment situation. This paper discusses the development from nominal to pronominal reference to "self" person identification in the bilingual child in both languages from 1;07 to 4;0. Person identification is a precondition to socioemotional attachment and meaningful human social life, an important milestone in a child's cognitive, interpersonal, and language development. The following research questions are addressed:

1. What is the relationship between the NP system as a whole and the emergence of his personal pronouns in the bilingual child's early lexical development?

2. How does a bilingual child move from exclusive use of nominal forms for self-reference to achieve a breakthrough into pronouns?

3. Does the bilingual first language acquirer take the same route and strategy in each of his languages in mapping the forms of personal pronouns to their functions within each language system?

4. What is the role of the weak language in the acquisition of personal pronoun? Is there any effect of interactional/interference development in this area? The bilingual data are compared to monolingual data, showing that bilingual children adopt complementary strategies to reach the target usages of personal pronouns despite the apparent unbalanced input and output in the two languages. Further, this study explores the role of the weaker language in bilingual language development as well as the nature and extent of the early separation and interaction of two linguistic systems.

The perception of Chinese tone by foreign students

Shi Feng and Wang Ping, *Nankai University*
Wednesday, May 16th, 11:40-12:00nn, LSK Room 514

The present study investigated the perceptual feature of the tones in Mandarin Chinese produced by foreign learners. American, Japanese and Thai students were chosen to be subjects in identification and discrimination tasks. The results depend on the different native languages of the subjects. English is a stress language; Japanese is a word-accent language while Thai is a tone language like Chinese. Compared with Chinese students, the data showed an interesting picture: the Thai students are close to Chinese students, the American students are far apart from Chinese students, and the Japanese students are in the middle. This leads us to understand language transfer from typologically different native languages in second language acquisition.

Japanese and Korean causatives and passives are compared and unified

Ji Young Shim and Takashi Nakajima, *CUNY Graduate Center and Toyama Prefectural University*
Tuesday, May 15th, 11:50-12:10am, LSK LT2

Causatives and passives are marked by different morphemes in Japanese, *-(s)ase* and *-(r)are*, while the same morpheme *-i* (and its allomorphs *-hi*, *-li*, *-ki*) is used in Korean, giving rise to ambiguity between the two readings. Nonetheless, there is a striking similarity found in both languages. This paper provides a unified account for both causatives and passives in Japanese and Korean. We will argue that *(i)* the causatives and passives share the same underlying structure; *(ii)* passive readings are derived from experiential readings, and (iii) Japanese *-(s)ase* and *-(r)are* and Korean *-i/hi/li/ki* are not mono-morphemic but should be decomposed into smaller atoms.

What makes the passive, (1b) and (2b), differ from the causative, (1a) and (2a), in Japanese and Korean is that the possessor of the accusative-marked object should be coreferential with the nominative-marked subject in the passive, while such coreference is possible but not required in the causative.

Belvin (1996) and Belvin & Den Dikken (1997) argue that there is an interpretive link requirement in English experiencer-*have* constructions: (3) is ambiguous between causative and experiencer interpretations, but the embedded clause in an experiencer-*have* sentence must contain a link to *have*'s surface subject. We analyze the so-called passives of Japanese and Korean as having the same underlying structure as causative constructions, with the presence of an interpretive link facilitating the passive reading: on the passive (or experiential) reading, the object, whether overt, as in (1b) and (2b), or not, as in (4), must be interpretively linked to the subject.

-(s)ase, *-(r)are*, and *-i/hi/li/ki* are to be decomposed into subparts into *-a*, *-s/r* and *-e* and *Ø/h/l/k* and *–i*, including a copula(-like) element, *e* 'get' in *-(s)ase* and *-(r)are* and *i* 'be' in *-i/hi/li/ki.* We propose (5) as the underlying structure for Japanese and Korean morphological causative and passive constructions, in which each *v* head serves to relate a predicate to its subject. *v*1, which is null in Korean, is phonetically realized as *-a* in Japanese, a theme vowel, to preserve the phonotactic rules of the language (*CC). We treat *-s* and *-r* in Japanese and *-Ø/h/l/k* in Korean as a lexical root introducing an additional argument into the structure, namely the causer or the experiencer, this predication being mediated by *v*3, which is lexicalized as *-e* in Japanese and *-i* in Korean.

The proposed unified decompositional approach to Japanese and Korean complex predicates directly accounts for the isomorphism between the 'word-hood' of the complex predicates and syntactic structures they create, and gives a precise morphosyntactic and morphosemantic mechanism for the argument licensing. It also paves a way to comparative analyses of related morphemes within a language. Most importantly, it enables us to make significant cross-linguistic generalizations among languages that are typologically similar, as we have shown in this paper.

(1) a. Taro-ga Hanako-ni musuko-o sikar-ase-ta Japanese
Tago-NOM Hanako-DAT son-ACC scold-CAUS-PAST
'Tago$_i$ had Hanako scold his$_{i/j}$ son'

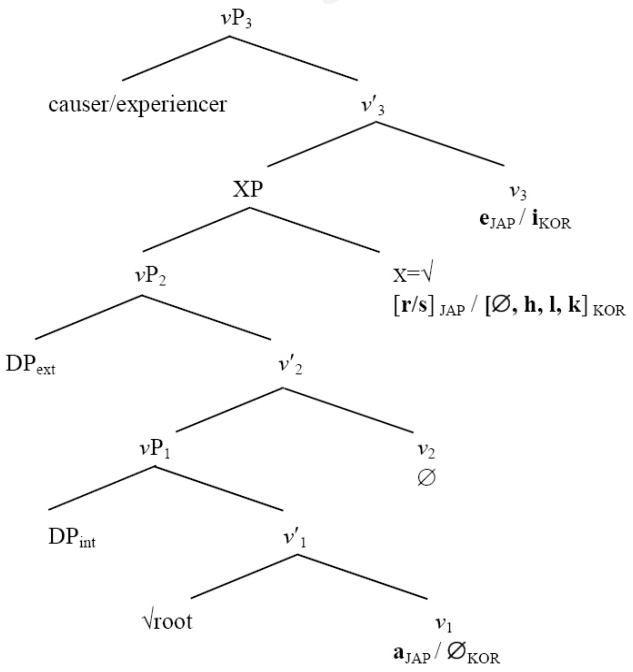
b. Taro-ga Hanako-ni musuko-o sikar-are-ta
Tago-NOM Hanako-DAT son-ACC scold-PASS-PAST
'Tago$_i$ had Hanako scold his$_{i/*j}$ son' or 'Taro$_i$ had his$_{i/*j}$ son scolded by Hanako'

(2) a. Kibo-ka Donna-eykey pal-ul palp-hi-ess-ta Korean
Kibo-NOM Donna-DAT foot-ACC step-CAUS-PAST-DECL
'Kibo$_i$ had Donna step on his$_{i/j}$ foot'
b. Kibo-ka Donna-eykey pal-ul palp-hi-ess-ta
Kibo-NOM Donna-DAT foot-ACC step-PASS-PAST-DECL
'Kibo$_i$ had Donna step on his$_{i/*j}$ foot' or
'Kibo$_i$ had his$_{i/*j}$ foot stepped on by Donna'

(3) John had Mary step on his foot
(i) 'John had/made Mary step on his foot' *causative*
(ii) 'John had/got his foot stepped on by Mary' *experiencer*

(4) a. Taro-ga Hanako-ni *pro* ker-are-ta
Tago-NOM Hanako-DAT kick-PASS-PAST
'Taro$_i$ had Hanako kick him$_{i/*j}$' or 'Taro$_i$ had him$_{i/*j}$ kicked by Hanako'
b. Kibo-ka Donna-eykey *pro* cha-i-ess-ta
Kibo-NOM Donna-DAT kick-PASS-PAST-DECL
'Kibo$_i$ had Donna kick him$_{i/*j}$' or 'Kibo$_i$ had him$_{i/*j}$ kicked by Donna'

(5)



Reconfiguration of the perceptual space during second language speech learning

Lan Shuai and Tao Gong, *City University of Hong Kong and University of Hong Kong*

Tuesday, May 15th, 3:50-4:10pm, LSK LT2

In second language (L2) speech acquisition, it has been observed that identification and discrimination of L2 phonemes, as well as the categorical perception of certain phoneme pairs, are significantly different between L2 learners and native speakers. These differences could be due to the influence of the native language (L1) of the L2 learners. Many previous models addressing these questions were based on a single phoneme or a pair of phonemes. For instance, the Perceptual Assimilation Model (PAM) focused only on a pair of phonemes, and ignored the acoustic dimensions. The Speech Learning Model (SLM) and the Native Language Magnet model (NLM) focus more on the acoustic dimensions, but restricted to one or two phonemes. Nonetheless, the NLM revolutionarily introduced the multiple acoustic dimensions between the two phonemes studied, and revealed the distortion of the perceptual space, compared with the equally distributed acoustic space. The multiple acoustic dimensions perspective was later extended in the Attention-to-Dimension (A2D) model, which considered the whole acoustic dimension beyond the two phonemes.

From this perspective, the phonemes are interrelated within as well as between L1 and L2. Therefore, the perceptual space shaped by the long-term language experience should be studied in a more systematic way. It is important to investigate not only the detailed acoustic features of the phonemes in each language, but also the acoustic dimensions that distinguish those phonemes, as well as the acoustic differences between the phonemes in L1 and L2, especially those sharing identical IPA symbols in the two languages.

During L2 speech learning, the perceptual space of L1 speakers undergoes the following changes or reconfigurations:

(1) The sensitivity or attention to the acoustic dimensions used to distinguish certain phonemes is enhanced;
(2) The sensitivity to acoustic changes around the phoneme prototype is decreased;
(3) Along with (2), the sensitivity around the phoneme boundaries, especially those having rapid formant transitions, is increased;
(4) The multiple acoustic dimensions gain different weights for perceiving certain phonemes, which may cause discrepancies in hearing the L2 phonemes, especially those having different acoustic parameters but sharing the same IPA symbols as the L1 phonemes;

Noting these, we design some new experiments that incorporate more phonemes in L1 and L2 to reveal not only how language experience helps shape the perceptual weighting of the acoustic dimensions, the magnet effect and the boundary effect around and between phonemes, but also how certain acoustic cue differences between the correspondent phonemes in L1 and L2 affect the outcome of perception. The preliminary results reveal a global effect of the acoustic dimension weighting, and some specific perceptual changes around the L1 phonemes, both of which affect the perception of the L2 phonemes. This study proposes a novel theoretical framework and a new research approach to investigate L2 speech learning.

Gesture precedes speech in the acquisition of the discourse principle in unbalanced bilinguals

So Wing-Chee and Tan Seok-Hui, *National University of Singapore*

Tuesday, May 15th, 11:50-12:10pm, LSK Room 514

Previous research has shown that young English and Mandarin-Chinese monolingual children have mastered the discourse-pragmatic principles that underlie their respective languages (So, Demir, & Goldin-Meadow, 2010). Specifically, they produced nouns to indicate new referents and pronouns or null arguments to indicate given referents. Interestingly, their gestures also followed the *same* pattern as speech – they gestured more often when indicating new referents than when indicating given referents. The present study investigated whether English-Mandarin bilingual children have acquired discourse skills in both languages that vary in language proficiency. Bilinguals usually do not acquire both languages at the same pace (e.g., Bialystok, 1988; Cromdal, 1999). This is mainly because most bilingual children are not always exposed to the "one-parent-one-language" environment. Rather, their parents use different languages with them, with the time spent on each language being uneven. Hence, this results in bilingual children being more dominant in one language than the other. We hypothesized that unbalanced bilingual children might have acquired discourse-pragmatic skills in their more dominant language but not in their less dominant language. However, research has shown that emerging thought or knowledge is usually conveyed in gestures followed by speech (e.g., Alibali, 1999; Church & Goldin-Meadow, 1986). Thus, bilingual children who have not yet mastered discourse skills in their less dominant language might still be able to distinguish new referents from given referents in their gestures. In order to test these hypotheses, we videotaped spontaneous interactions between nine bilingual children and their caregivers. We specifically looked at how bilingual children used speech and gestures to convey given and new third-person referents in both languages. Our findings showed that English-Mandarin bilingual children did not show the *same* level of sensitivity to the information status of referents in both languages. They followed the discourse principle when they were speaking in their dominant language, English, but *not* in their less dominant language, Mandarin. Specifically, they produced nouns more often to indicate given third-person referents than to indicate new third-person referents in Mandarin. Although it is counterintuitive that bilingual children seemed to over-specify given referents (*but* under-specified new referents) in Mandarin, one possibility is that overspecification is one characteristic of language learners who have yet to master discourse skills. Although bilingual children violated the discourse principle when speaking in Mandarin, they gestured according to the discourse principle of information status. That is, they produced gestures more often when indicating new third-person referents than when indicating given third-person referents. They also gestured similarly when speaking in English. This finding was striking as it implied that gesture precedes speech in acquisition of discourse skills. Specifically, the gestures produced by the English-Mandarin bilinguals in the present study might reflect that they understood the discourse rule of information status of Mandarin but they were not ready to show such understanding in speech.

An event related brain potentials study of semantic processing in Kannada-English typical bilingual individuals

R. Sunil Kumar, K. C. Shyamala and N. Vijay Kumar, *All India Institute of Speech and Hearing*

Wednesday, May 16th, 11:00-11:20am, LSK Room 514

Considerable neurophysiological research has been conducted to explore the neural underpinning of semantic and syntactic processing in bilinguals by using various neuroimaging and electrophysiological techniques. However, the debate over the cortical organization of the two languages in bilinguals is still going on. The present study was carried out with aim of investigating how multiple languages are processed in the human brain. Event related brain potentials, specifically, N1 and N400 potentials were recorded from right-handed typical bilinguals during a task involving silent reading. The participants in the experiment were five Kannada – English bilinguals of Karnataka state in southern part of India. The bilinguals, highly proficient in both languages, had exposure in both languages since the age of 5 years. The stimuli were words that would correctly complete a short, meaningful, previously shown sentence, or else were semantically incorrect. The task consisted in deciding whether the sentences were well formed or not, giving the response by pressing a button. The participants read 100 Kannada (50 correct & 50 incorrect) and 100 English (50 correct & 50 incorrect) sentences to compare the processing of the two languages within the group. The findings revealed subtle differences in the latency and amplitude measures of various ERP components such as N1, and N400 potentials. The present paper highlights the several processes that are involved in the differences in processing of these two languages and their implications to the understanding of language processing in clinical populations such as in bilingual aphasia.

Confrontation and generative naming performance in bilingual persons with aphasia and dementia: A preliminary study

Sri Pallavi Mekala, K. Shylaja, K. C. Shyamala and R. Sunil Kumar, *All India Institute of Speech and Hearing*

Wednesday, May 16th, 11:20-11:40am, LSK Room 514

Impairment of naming has frequently been reported as a hallmark of language disorders in aphasia and dementia. After brain damage, language can become severely compromised; this word-finding difficulty, anomia, is the most common language disorder arising from brain damage. Such patients have difficulty in finding exact words to refer to an object, event, or an abstract term. The anomia of dementia patients is considered as near normal performance on confrontation naming tasks but below normal performance on generative naming. Confrontation naming deficits may or may not be evident early in the course of Dementia, but are invariably present by the later stages. The aim of the study was a) to compare the confrontation and generative naming abilities in bilingual persons with aphasia and dementia, b) To compare the performance on confrontation and generative naming tasks in bilingual persons with aphasia and dementia across the languages (L1&L2). The participants were 5 bilingual persons with aphasia with age range of 50 to 65 yrs and 5 bilingual persons with dementia with a age range of 50 to 75 yrs. The individuals with aphasia were administered the Western Aphasia Battery (WAB, Kertesz & Poole, 1974) and the individuals with dementia were administered MMSE, FAST and BCRS. The language Proficiency Scale was also administered to assess the proficiency in both languages and Socioeconomic Status Scale on both the groups. The stimuli for Confrontation naming and generative naming were taken from the Dementia Assessment Battery –Kannada (Sunil Kumar, Shyamala, 2009) which consist of 30 pictures of common objects (Confrontation naming)and one lexical category which included animals (Generative naming task).The Procedure includes that **,** Initially the task was for Confrontation naming and generative naming was done in L1 i.e. pictures were presented and the subjects were instructed to name them in L1 and then after one day, the stimuli were presented again and participants were asked to name all the objects only in L2 . Responses for confrontation and generative naming tasks were analysed, and these results were statistically analyzed for significant differences between L1 and L2. Results indicated that there is no significant difference between the two groups on both the tasks. Confrontation and generative naming tasks may be a part of test Battery , but not single or sole measures in the assessment of Persons With Aphasia & Persons With Dementia.

The temporal dynamics of second language acquisition: the role of AoA, L2-proficiency, L1-transfer and training environment as reflected by ERPS

Karsten Steinhauer, *McGill University*

Tuesday, May 15th, 12:00-12:20pm, LSK LT1

Language acquisition in childhood is less effortful than in adulthood. These differences are often explained in terms of a 'critical' or 'sensitive' period early in life, after which maturational changes in brain plasticity prevent second language (L2) learners from relying on the same neuro-cognitive mechanisms as native speakers do. While the Critical Period Hypothesis (CPH) initially received support from various behavioral and brain imaging studies, these studies typically either confounded age of L2 acquisition (AoA) and L2 proficiency or have other methodological problems (e.g., some of them failed to create the intended linguistic violations). Recent work avoiding these problems has cast new doubt on the CPH, especially in the domain of morpho-syntax.

Event-related brain potentials (ERPs) provide an excellent tool to investigate the temporal dynamics of language processing, including the fascinating neural changes that take place when language learners become more proficient in their L2. In my talk, I will present data from a variety of large-scale ERP studies investigating second language acquisition in both artificial languages and natural languages, at different levels of L2 proficiency. I will demonstrate that there is little evidence for a strict critical period in the domain of late acquired L2 morpho-syntax and that L2 proficiency rather than age of language acquisition predicts the brain's activation patterns, including "native-like" activity at very high levels of proficiency (e.g., LANs + P600s for syntactic word category violations). Moreover, I will argue that a strict distinction between linguistic structures that late L2 learners can versus cannot learn to process in a native-like manner may not be warranted. Instead, morpho-syntactic real-time processing in general seems to undergo dramatic, but systematic, changes with increasing proficiency. The general dynamics of these changes, however, is modulated by factors such as one's first language background (e.g., 'transfer effects') and the type of language exposure (e.g., immersion versus classroom instruction). In my conclusion, I will outline how future ERP research can further advance our understanding of language learning.

Interactional feedback in foreign language immersion classrooms: a case study at two bilingual schools in Senegal

Leticia Vicente-Rasoamalala, *Chinese University of Hong Kong*

Tuesday, May 15th, 6:00-6:20pm, LSK LT1

A series of theoretical and practical educational studies have suggested that learners need corrective feedback to progress in their learning. Therefore, a considerable amount of language classroom research has been concerned with the study of teacher activities, especially those focusing on their instructional methods. This paper seeks to contribute to SLA research by providing further empirical data obtained from a slightly unusual environment: Senegalese international bilingual immersion schools.

The general objective of the present study is to develop a better understanding of the recurrent instructional strategies for handling foreign language learner oral production through classroom interaction. To this end, the formal features and phenomena involved in Teacher Reaction Episodes (TREs) are addressed. 'Teacher reactions' refer to any instructional strategies that handle learner oral productions. In traditional SLA research, this teacher practice has been conceptualized under the rubric of 'interactional feedback'. In particular, 'implicit teacher feedback forms' have begun to attract linguists (Long et al., 1998; Lyster, 1998; Mackey & Philp, 1998) since the publication of Long's Interaction Hypothesis (Long, 1996). Several learning approaches suggest that the teacher provision of these negative feedback (mainly in the form of clarification requests and recasts) might induce learners to detect the disparity between their IL and the TL. Hence, a growing number of studies attempt to portray the observable features of teacher reactions involving negative feedback. However, the potential benefits of interactional feedback in SLA and the factors surrounding this process are still controversial from different research approaches (Lantolf, 2006; Long, 2007; Mackey, 2006).

This study has been theoretically and methodologically framed into one hybrid approach covering diverse complementary perspectives including SLA social interactionist views, socioculturalism, Conversation Analysis and ethnomethodology. Nevertheless, there is a lack of unified methodology in the area of SLA classroom interaction that we attempted to reconcile. Video data collected from three main differentiated learning settings illustrate the varied effects of different teacher feedback forms (Chaudron, 1988; Lyster & Ranta, 1997) on FL learner generated modified output or uptake. Specifically, 3 language teachers were observed with their students in their FL immersion classrooms which involve different levels and languages: i. Advanced English immersion in primary school, ii. Intermediate English immersion in primary school, and iii. Spanish L3 immersion in secondary school. Through corpus-based evidence, an attempt is made to discover conditions and means for felicitous TREs in acquisitional terms. The use of video in the data collection and analysis brings out the role of non-verbal feedback, which has been absent from earlier studies. We have been concerned with episodes involving 'negotiation of form' (Mackey & Philp, 1998). Therefore, TREs are assessed as opportunities to engage in 'meaningful interactions' that could generate potential learner uptake. In this case study, learners receiving metalinguistic feedback appear to show more uptake than those receiving recasts.

Second language acquisition in content and language integrated learning (CLIL) settings – processes and strategies

Ulrich Wannagat, *Chinese University of Hong Kong*

Tuesday, May 15th, 6:20-6:40pm, LSK LT1

Content and Language Integrated Learning (CLIL) has been promoted by the European Union as an effective tool to achieve multilingualism (European Commission 2003). The term CLIL refers to educational practices and settings where a language that is not the learners' L1 is used for teaching subject matter (Dalton-Puffer 2007). Other terms commonly used are CBI (Content-based instruction), Bilingual Teaching or English Across the Curriculum. With strong support of the EU the trend in Germany and other European countries to use languages other than the mother tongue as a medium of instruction is increasing. CLIL in Germany usually starts in grade 7 (form 1) and shows characteristics of a late immersion programme. The German CLIL concept stands for a gradual and cautious switch to L2 for only a few content subjects in the curriculum, not exceeding more than two subjects at the same time. Since the 1990's English has replaced French as the most popular language for CLIL instruction.

The present study is based on data collected in a bilingual history class (grade 10 / form 4) with English as the target language in a Grammar School in the German state of North-Rhine Westphalia. The data consist of full transcripts of classroom discourse of ten consecutive lessons, student questionnaires, student focus group interviews and teacher interview. Based on constructivist and participatory learning theories (e.g. Wolff 2002, Wenger 1998) the data are analyzed in view of the following research question: How does subject matter learning in an L2 influence SLA processes and contribute to the development of effective language learning strategies?

The analysis indicates that learning subject matter through an L2 creates authentic problem-solving situations. Learners notice difficulties when using the L2 to express complex issues and ideas, they test hypotheses and occasionally shift the focus from content to form. Against the backdrop of their deficient language knowledge their L2 output leads to a more conscious use of language and a higher demand for precision of expression. In addition, frequent negotiation of meaning episodes contribute essentially to the construction of knowledge and the development of scientific concepts (Wannagat 2007, 2010).

Licensing extra argumentality

Barry C.-Y. Yang, *National United University*

Tuesday, May 15th, 6:20-6:40pm, LSK LT2

Canonical arguments, if to be licensed, are typically selected by the main predicate of a clause and receive their semantic interpretations (or theta roles) from it. The number of arguments a predicate can take, in turn, is determined by the valency (or the argument structure) of the predicate itself. On the other hand, non-canonical/-core arguments are generally oblique in the sense that they are not selected by the main predicate while their presence adds up the valency of it. A case in point is the presence of a non-core object to the unergative predicate in Mandarin Chinese as in (1)which has been analyzed as involving light verb construction (see, for example, Lin 2001, among others).

(1)a. ku Zhouyu
cry Zhouyu
'to cry for Zhouyu'

b. fei Xianggang
fly Hongkong
'to fly to Hongkong'

c. shui diban
sleep floor
'to sleep on floor'

A recent hot issue on the valency increase is the applicative construction (Pylkkänen 2002)which introduces non-core arguments and has drawn considerable attention in dealing with cases like (2) in Chinese (see, for example, Tsai 2007). Note that in (2a) the applicative head is covert (similar to the cases in (1)) whereas in (2b) it must be overt (cf. (2c)).

(2)a. ta he-le Lisi san-ping jiu.
he drink-Perf. Lisi three-bottle wine
'He drank three bottles of wine from Lisi.'

b. ta juran gei wo pao-le.
he unexpectedly GEI me run-Perf.
'He unexpectedly ran away on me.'

c. *ta juran pao-le wo.
he unexpectedly run-Perf me

In this study, a comparative dialectal perspective is taken to show that the licensing of extra arguments cannot be subsumed into one single uniform approach, which further sheds light on some dispute raised in previous researches.

We start from a comparison between the *ka*-construction in Taiwan Southern Min (TSM)and the *lau*-construction in Sixian Hakka (SH), both of which are Chinese dialects and are claimed to pattern together w.r.t their semantic polysemy. That is, the *ka/lau* head can be regarded as a marker of patient/theme(3a, 4a), goal(3b, 4b), source(3c, 4c), and beneficiary/adversity(3d, 4d)(Tsao 2003, Lai 2003).

[TSM]

(3)a. Abing *(ka Abi) phah.
Abing KA Abi beat
'Abing beat Abi.'

b. Abing *(ka Abi) tsit-e soutsai.
Abing KA Abi one-CL place
'Abing asked Abi about one place.'

c. kengchhat *(ka Abi) hoat lak-pah kho.
policeman KA Abi fine 6-hundred dollar
'The police fined Abi 6 hundred dollars.'

[SH, adapted from Lai (2003)]

(4)a. Gi *(lau qien) yung qiangqiang.
he LAU money spend emptily
'He spent all the money.'

b. Ngai oi taisang (lau petngin) gong hakfa.
I want loud LAU others speak Hakka
'I'll speak Hakka to others proudly.'

c. Amin (lau Ayin) mai yit kiu tien.
Amin LAU Ayin buyone CL land
'Amin bought a piece of land from Ayin.'

d. Abu (ka Abi) soe tsit-nia sann.
mother KA Abi wash one-Cl clothes
'Mother washed one piece of clothes'

d. Ayin cinvoi (lau ngin) zomoingin.
Ayin good-at LAU people match-make
'Ayin is good at match making (for people).'

In the literature the syntactic analysis on the *ka*-construction has received some dispute, mostly centering upon the property of *ka* itself (e.g., as a preposition or a light verb), the *ka*-NP (e.g., base-generated or moved), and its syntactic structure (e.g., the light verb construction or null operator construction) (see, for example, Hung 1995,Cheng &Tsao 1995, Tsao 2003, Tsao 2005, Lin 2001, Li 2006,Yang 2006, Lee 2008, 2009). This study shows that the *ka*-construction cannot be fully categorized without considering the optionality/ extra-argumentality of the *ka*-NP. An interesting observation derives from the contrast in the goal/source construction between TSM (3b,c) and SH (4b,c) where the '*ka* NP' is obligatory whereas the '*lau*NP' is not. A direct counterpart of (3b,c)in Hakka shows that the indirect object must be in the postverbal position without *lau* marking as in (5). This is interesting since the indirect object in effect can be preposed and marked by *lau* as in (4b,c) whereas it is not so in (5).

(5)a. Amin mun Ayin id-zad so-cai.
Amin ask Ayin one-Cl place
'Abing asked Abi about one place.'

b. gincad fad Amin liug-bag keu.
policeman fine Amin six-hundred dollar
'The police fined Abi six hundred dollars.'

Further distinctions involving syntactic derivation, predicate valency, semantic interpretation, and dialectal investigation show that the *ka*-head in TSM should at least be categorized into three types, i.e., preposition, light verb, and applicative, in order to catch its multiple facets in syntax. This amounts to saying that previous analyses are attested in their own right, only that their targets are variant.

All in all, with dialectal difference as an aid to tease apart the sources of optional *ka*-NP in TSM, we are able to look into ways of licensing extra argumentality. Hopefully, this study can bring up a step closer to the understanding of the *ka*-construction in particular and to the bridging of linguistic variation across dialects in general.

An experimental investigation of contact-induced sound change in Shanghainese

Yao Yao and Charles Chang, *Hong Kong Polytechnic University and University of Maryland*

Wednesday, May 16th, 11:50-12:10pm, LSK LT1

In this study, we examine the psycholinguistic influence of bilingualism and cross-language interaction in the propagation of an unusual type of sound change, *reversal of merger*. Our data come from an ongoing vowel split in Shanghainese (SH) involving two mid vowels, [e] and [ɛ], and three groups of lexical items, which we refer to by their rhymes in modern Mandarin (MN): [ej], [aj], and [æn]. In the mid-19th century, [e] and [ɛ] were separate phonemes in SH, but by the late 1980s they were completely merged to [ɛ] across all three rhyme groups in middle-aged (and younger) SH speakers in urban districts. Recently, the reverse trend has been attested, whereby the vowel in MN-[ej] words is raised to [e] and even diphthongized to [ej], presumably because of influence from Mandarin.

The current study investigated three aspects of this apparent merger reversal in SH: (1) lexical frequency; (2) talker age; and (3) language mode. We hypothesized that raised and diphthongal pronunciations of MN-[ej] words would be more evident in lower-frequency words, in the younger generation, and in bilingual mode, when both SH and MN are activated. Materials included high- and low-frequency word triplets from the three rhyme groups controlled for phonetic context. Talkers were nine parent-child pairs of native SH speakers residing in Shanghai. All participated in two production experiments, which used different tasks (SH reading and MN-to-SH translation) to alternately minimize and maximize the potential for MN interference in production of SH.

Results showed that MN-[ej] words were produced in the translation experiment with lower F1 and higher F2 than the other rhyme groups, and the differences between rhyme groups were more pronounced in the younger generation than in the older generation. MN-[ej] words were also diphthongized toward [i] more than twice as often as words in the other two rhyme groups, and younger speakers were 1.4 times more likely to diphthongize MN-[ej] words than their parents. Moreover, younger speakers produced MN-[ej] words as more [e]-like and diphthongized in the translation task than in the reading task, whereas none of their parents showed this pattern in more than one third of their MN-[ej] word productions.

In short, we found that, compared to the other two rhyme groups, the vowel in MN-[ej] words is indeed moving up and forward, suggesting a reversal of previous merger. No frequency effect was found; however, the reversal was more evident in younger speakers, especially when they were auditorily primed with MN words, and diphthongization further suggested influence from MN. Thus, our findings provide evidence for contact-induced sound change on an individual level, and shed light on the psycholinguistic organization of dual phonological systems in the bilingual speaker.

Learner corpora and cross-linguistics influence in third language acquisition

Virginia Yip and Stephen Matthews, *Chinese University of Hong Kong and University of Hong Kong*
Tuesday, May 15th , 4:20-4:40pm, LSK LT1

The Learner Corpora of Modern Languages at CUHK currently under construction have the potential to make significant contributions to the emerging field of third language acquisition (TLA). The acquisition of a third language raises new questions which distinguish this developing field from Second Language Acquisition (Leung 2007). In particular, cross-linguistic influence becomes more complex (Cenoz et al 2001). We discuss some fundamental issues for TLA research in Hong Kong where the majority of learners are native speakers of Cantonese and L2 learners of English. These learners begin to acquire the target L3 (French, German, Spanish and Korean etc.) when they embark on university education.

Theoretically, the question of the initial state of L3 knowledge arises (Leung 2005): does the first language or the second language grammar provide the starting point for grammatical development of a third language? And is the point of departure determined by psychotypology, the learner's perception of similarity between languages (Kellerman 1979)? In principle, direct transfer from L1, indirect transfer from L1 to L3 via L2, and direct transfer from L2 to L3 are possible. We show that all three possibilities are attested in the L3 acquisition of French and German in Hong Kong. In addition, reverse transfer, such as influence from L3 to L2, may occur (Jarvis & Pavlenko 2008). We demonstrate how reverse transfer can be positive, negative or neutral (Cheung et al. 2011, Hui 2010). Reverse transfer to English as L2 has practical as well as theoretical implications in the Hong Kong context.

The L3 acquisition of *zibun* by Chinese learners of Japanese

Noriko Yoshimura[1], Mineharu Nakayama[2], Atsushi Fujimori[1] and Koichi Sawasaki[1],
University of Shizuoka[1] and Ohio State University[2]

Tuesday, May 15th, 3:50-4:10pm, LSK Room 515

Researchers working on the acquisition of reflexives within the Principles and Parameters framework have claimed that L2 learners often encounter difficulty in interpreting the anaphoric relationship between a reflexive pronoun and its antecedent due to their failure in appropriate parameter resetting, hence L1 transfer (Finer & Broselow 1986, Hirakawa 1990, Thomas 1991, 1995). If this is correct, the following questions can be explored: A) Do L3 learners indeed reset their parameter? B) If they do, which parametric value do they reset, that of their L1 parameter or L2 interlanguage parameter?

To answer these questions, we conducted an experiment with the truth value judgment task on the interpretations of the Japanese reflexive zibun. One control (n=26) and three experimental groups (L3 Japanese (n=30), L2 Japanese-C (n=18), and L2 Japanese-E (n=13)) participated in the study. The L3 Japanese were Chinese speaking students with L2 English studying Japanese at two large North American universities. The L2 Japanese-C and the L2 Japanese-E were Chinese speaking students studying at a Japanese university in Japan and English speaking students studying at an American university, respectively. All participants read a short narrative written in their L1 and judged if the corresponding sentence, written in Japanese, matched the situation they just read. Test stimuli consisted of six narrative-sentence pairs for each of short-distance (SD) and long-distance (LD) conditions and six fillers.

Because the Chinese ziji permits both SD and LD readings (Huang 1983) like zibun while the English himself permits an SD reading alone, we predict that if the parameter resetting approach is correct, (i) the L2 Japanese-C would behave similarly to the control group, and (ii) the L3 Japanese would show the delayed acquisition of LD interpretation relatively to the L2 Japanese-C, but presumably similar to the L2 Japanese-E when their resetting occurs from the parametric value of their L2 English. However, if the resetting happens from that of their L1, then they would behave similarly to the L2 Japanese-C.

Our findings are: The two Chinese groups accepted the SD True sentences significantly differently from the control group (L2 Japanese-C: 72.22% vs. 93.60%, p=.017; L3 Japanese: 71.67% vs. 93.60%, p=.003), but only the L2 Japanese-C was distinct from the control group on the LD True sentences (66.67% vs. 97.40%, p=.002). More importantly, the L3 Japanese was not significantly different from the control group (80% vs. 97.40%), but was significantly different from the L2 Japanese-E (80% vs. 56.41%, p=.022). In other words: (i) The L2 Japanese-C behaved differently from the control group. (ii) The L3 Japanese didn't show delayed acquisition of zibun and behaved differently from the L2 Japanese-E. Thus, we conclude that the parameter resetting approach cannot be a plausible account for the L3 acquisition of reflexives, and because the L3 Japanese did better than the L2 Japanese-C on the LD True sentences, it is suggested that prior experience in learning two typologically distinct languages can contribute to an increase in grammatical sensitivity in their L3 on the interpretation of zibun binding (Flynn et al 2004).

Effects of orthography on Cantonese learners' pronunciation of Sino-Korean words

Ellen Yun, Yanhui Zhang, Donghui Zuo and Peggy Mok, *Chinese University of Hong Kong*
Tuesday, May 15th , 3:50-4:10pm, LSK LT1

Many Korean words are of Chinese origin. While the pronunciation of some of these Sino-Korean words still resembles their Cantonese counterparts today, many have different pronunciation because of sound change. Thus, Cantonese learners of Korean are often unaware of such a historical link. Knowing the Cantonese counterparts also does not necessarily provide the learners with pronunciation cues for these Sino-Korean words. In addition, the contemporary Korean script (Hangul) is an alphabetical script with a good grapheme-to-phoneme correspondence. Learners can access the pronunciation directly from the script. Therefore, it is questionable whether knowing the Cantonese counterparts can benefit learners in Sino-Korean word production. 16 beginning and 6 advanced Cantonese learners of Korean were recorded reading 36 Sino-Korean words in two conditions: words written in Hangul only, and words written in both Hangul and Chinese characters. Speech rate of their production in both conditions was measured. In addition, the pronunciation of five beginning learners in the two conditions was rated blindly by two native Korean teachers in detail. Results show that facilitatory effects of Chinese characters were observed for both advanced and beginning learners. Fluency as reflected in speech rate was significantly better for most speakers when Chinese characters were present. The rating of the five beginning learners by the Korean teachers was also better in the condition with Chinese characters. Our findings concur with the predictions of the Revised Hierarchical Model for the bilingual mental lexicon.

Learner corpora of modern languages at CUHK

Yanhui Zhang and Peggy Mok, *Chinese University of Hong Kong*
Tuesday, May 15th , 4:10-4:20pm, LSK LT1

The rapid development of corpus linguistics has provided new impetus for research on third language acquisition. As a new research paradigm, corpus-based research investigates learner language production, and furnishes empirical evidence to support or evaluate theoretical accounts of interlanguage development. A carefully constructed learner corpus allows researchers to systematically examine interlanguage development from both macro and micro perspectives, investigating the overall learning pattern by looking at the entire or subsets of the corpus, and tracing particular learners' learning trajectories by looking at a few individuals' data. This presentation demonstrates the rubrics and functions of learner corpora of modern languages as third languages currently under construction at CUHK.

The learner corpora at CUHK are unique in the sense that the learners' mother tongue is Cantonese, English is their second language, and the target modern language is their third language. The high and stable enrollment of students in modern language courses ensures the robust growth of the learner corpora. Once selected learners' productions are collected and transcribed, they would be made available on a designated website to share with researchers worldwide. In this presentation, we will present preliminary work involving the interface and dataset structure of two learner corpora with Spanish and Korean as target languages.

Literacy development among school-age bilingual Chinese heritage children

Yanhui Zhang, Chin-Lung Yang and Keiko Koda

Chinese University of Hong Kong, City University of Hong Kong and Carnegie Mellon University

Tuesday, May 15th, 6:40-7:00pm, LSK Room 515

This research investigates the development of literacy skills among school-age Chinese as heritage language (CHL) children in the United States, a case of language minority children learning to read in their mother tongue, a non-societal language, concurrently with literacy in the societal language.

According to the universal grammar of reading (Perfetti, 2003; Perfetti & Liu, 2005), one of the universal properties of reading is that writing system depends on language in encoding meaning and thus, reading is constrained by the properties of language. Given that input frequency is largely responsible for the shaping of language processing skills (Ellis, 2002), it is reasonable to posit that reading acquisition is supported by oral language proficiency and print input. In terms of bilingual literacy development among Chinese heritage children, however, literacy learning of Chinese as a non-societal language typically occurs with sufficient oral language competence and heavily restricted print input in Chinese. This study examines critical factors shaping this particular instance of literacy development, including morphological awareness, phonological awareness, and English as the societal language, by comparing character knowledge, word knowledge and reading comprehension among CHL learners in Grade 3 to Grade 5.

In the study, 65 school-age children (Grade 3 N = 27, Grade 4 N = 20, Grade 5 N = 18) received four paper-and-pencil tests in two semesters (one metalinguistic awareness test and one reading test in Fall, and one vocabulary test and one reading test in Spring). In addition, surveys were administered to instructors, parents, and the students. Our data demonstrates a unique picture of Chinese heritage learners: morphological awareness does not increase significantly among different grades, and the reliance of phonological cues during reading diminishes in higher grades, whereas reading skills do develop significantly with increase in grade level. The results suggest that because of transfer of literacy experience from the dominant language, Chinese heritage learners develop grade-level language-specific morphological awareness despite their limited print exposure to the target language. The implications of these findings will be discussed in the presentation.

ABSTRACTS OF POSTER PRESENTATIONS

Some features of web-based courses for childhood Chinese Teachers

Byun Jiwon, *Korean National Open University*
Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

This research aims at showing two things: First, the reason why the CCT (Childhood Chinese Teachers) courses are now strongly needed in Korea; and, Second, the most efficient educational methodology among different ways to approach to learning. In Korea, Korean is the only official language; however, English has become a most prevalent prestige variety. Since China became Korea's number one trade partner, the Chinese language is expected to get a higher status soon in Korea, but it may take some time.

We would like the Teachers to be familiar with 3 main stages in teaching Chinese to Korean children by using the following multi-educational method: First, Introduction to Chinese Language; Second, Chinese Education Theory; and Third, Practicum, which is composed of practical skills which can be immediately used in the classroom environment. Teachers should have confidence in what they teach, but few Korean teachers have it, for various reasons including lack of overseas living experience or the fact that some of their students come from Chinese-speaking backgrounds.

Teaching and learning the Chinese language became popular after 1992 when Korea and China entered into an official diplomatic relationship. For this historical background, in Korea there have been two different branches of teaching Chinese: the Chinese language and Chinese Characters. Even today Koreans use many Korean words etymologically developed from the written Chinese. Many Korean children think that there are two Chinese languages – old and new – and parents are confused as to which one their children should learn. The cost of teaching and learning the two Chinese languages is assumed by these parents.

In an attempt to provide an integrated education in the Chinese language, Korea Open University decided to launch a web-based program called CCT from the end of 2012, which is designed to produce qualified teachers. This program is composed of a total of 90 lectures, 84 of which are internet-based, and the remaining 6 are offline-based. Internet-based lectures are composed of introduction, education theory, and practicum and these three are all interconnected.

These three parts have the following distinctive features. The introduction deals with China's culture and language. China is a culturally diverse country and its language is well-known for its discrepancy between the written language and its spoken counterpart, compared to other languages. The Chinese language is used by the largest number of speakers around the world, and it has had a big influence on languages such as Korean. Education Theory will deal with various ways of teaching foreign languages, and it will allow the teachers to find the best way to the Chinese language to children in Korea. Practicum will deal with reflection on what was learned at the level of Introduction and Education Theory, and then development of curriculum, depending on the grade of children ranging K through 6, and also their knowledge of the Chinese language and characters.

Towards a model of second language word production and recognition in Mandarin

Patrick Chu Chun Kau, *University of New South Wales*
Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

There are pronunciation correspondences between Cantonese and Mandarin at all sublexical levels (i.e., onset, rime and tone). Table 1 shows the major correspondences between Cantonese and Mandarin words for tones. Our studies have shown that the production and recognition of Mandarin words by Cantonese speakers are influenced by these pronunciation correspondences. For example, a Cantonese tone 2 word typically corresponds to tone 3 in Mandarin and therefore, when it does not (e.g., 帽 'hat', pronounced *mou2* in Cantonese *mao4* in Mandarin and hence "irregular"), a Cantonese speaker might mistakenly pronounce it with tone 3 when speaking Mandarin (i.e., *mao3*). Moreover, it is easier for a Cantonese/Mandarin bilingual to recognize the irregular-tone word 魔 'devil' when it is mispronounced as *mo1* than when it is correctly pronounced as *mo2* in Mandarin. A three-route second language Mandarin word production and recognition model has been proposed using these pronunciation correspondences based on a series of experiments testing Mandarin word production (Chu & Taft, 2010), disyllabic word transcription (Chu & Taft, 2010, 2011a), *pinyin* transcription (Chu & Taft, 2011b), and character-sound matching (Chu & Taft, 2011c).

Table 1. Major tone correspondences between Cantonese and Mandarin words (Tsang-Cheung, 1988)

Cantonese tone	Mandarin tone	Correspondence percentage	Example	Cantonese pronunciation	Mandarin pronunciation
1 (high level)	1 (level)	93%	郊 'suburb'	*gaau**1***	*jiao**1***
2 (high rising)	3 (dipping)	89%	找 'find'	*zaau**2***	*zhao**3***
3 (mid level)	4 (falling)	92%	怪 'strange'	*gwaai**3***	*gwai**4***
4 (low falling)	2 (rising)	93%	牛 'cow'	*ngau**4***	*niu**2***
5 (low rising)	3 (dipping)	75%	偉 'great'	*waai**5***	*wei**3***
6 (mid-low level)	4 (falling)	94%	又 'again'	*jau**6***	*you**4***

In the model, a concept route links the concept and the L2 Mandarin phonological representation directly, while a lexical route links the concept and the L2 Mandarin phonological representation through the L1 Cantonese phonological representation. A sublexical route activates the concept and the L2 Mandarin phonological representation through the mediation of L1 Cantonese phonological and sublexical representations using Cantonese-Mandarin pronunciation correspondences. The activation strength is assumed to be proportional to the Cantonese-Mandarin sublexical pronunciation correspondence. Beginning learners of Cantonese mainly use the sublexical route in both L2 Mandarin word production and recognition. Advanced learners gradually develop an inhibitory mechanism to suppress the activation of the L1 Cantonese phonological representation and hence mainly use the concept route in activating the L2 Mandarin phonological representations when speaking in Mandarin. Unlike production, the sublexical route does not get inhibited for advanced learners in L2 Mandarin word recognition and is still in active use to generate possible word candidates. Evidence for this comes from the fact that Cantonese speakers' ability to understand mispronounced Mandarin words (e.g., *mo1gui3* for the word 魔鬼 'ghost') does not deteriorate with increasing L2 Mandarin phonological proficiency, indicating the continued involvement of sublexical information.

A comparative study of linguistic encoding of space in Mandarin and English with reference to child Mandarin

Deng Xiangjun, *Chinese University of Hong Kong*
Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

The paper looks at how space is encoded in Mandarin and English from a comparative perspective. Proposed semantic universals in this field include Figure, Ground, Location, Goal and Source (Talmy 1975, 1985, 2000, Cinque 2010, den Dikken 2010). There are typological differences in how these universals are realized in syntactic structures.

Unlike English where spatial relations between Figure and Ground are expressed by prepositions, Mandarin uses the form 'preposition + (NP) + localizer'. The categorical status of the element following NP in this structure is still in debate, ranging from particle, postposition, clitic to a subclass of nominals (Li and Thompson 1981, F. Liu 1998, Liu 2008, Sun 2008, Huang, Li and Y. Li 2009). While both English and Mandarin make the semantic distinction between Location, Goal and Source instantiated by the prepositions *at*, *to*, and *from* or *zai* 'at', *dao* 'to' and *cong* 'from', English uses only the V-PP order and Mandarin uses both the PP-V and V-PP orders. The position of PPs with *zai* 'at' relative to V can be used to express the distinction – the preverbal *zai*-PP expresses Location and the postverbal one Goal (Tai 1973, 1975, 1985, Mulder and Sybesma 1992). Most verbs allow a preverbal *zai*-PP, but only verbs of displacement, placement, appearing and posture allow a postverbal one (Li and Thompson 1981).

We examined 124 spontaneous utterances containing spatial *zai* uttered by 10 Beijing children aged between1;9 and 2;2 in a 50-sessions corpus from CHILDES. Around two years of age, four of them produced the structure 'preposition *zai* + (NP) + localizer' as shown in (1). Out of the seven children who produced either localizers or prepositional *zai*, six used localizers earlier than prepositional *zai*. The data argue against the view that localizers are postpositions. If so, localizers should appear around the same time as prepositions in early child data. Our data, instead, show that localizers systematically appear earlier than the preposition *zai*. In the 124 utterances, we identified 10 preverbal *zai*-PPs and five postverbal ones from five children. The two word orders were used to express different meanings as shown in (2), conforming to adult grammar. These children's postverbal PPs follow verbs of placement such as *fang* 'put', verbs of posture *ting* 'stop' and *zuo* 'sit', and the verb of displacement *diao* 'drop'. When Mandarin-speaking children begin to use *zai*-PP, they have already tuned in to the language-specific pattern of encoding Location and Goal by word order.

(1) Nei laotouzi zuo zai li-mian. (2;2)
that old man sit at in-side
'That old man sat inside.'

(2) a. Zai di-xia wanr. (2;2)
at ground-down play
'(I) play on the ground' (Location)

b. diao zai xia-mian le . (2;0)
fall at bottom-side LE
'(It) fell to the ground.' (Goal)

Verbal and nominal lexicalization differences in English and Chinese

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Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

This paper investigates lexicalization differences in English and Chinese. One of the differences in verbal lexicalization is that many Chinese action verbs need a complement to indicate result but that is not the case in English (Yin, 2010).

(1) *Wo sha le zhu* (*keshi mei sha-si*)

I kill ASP pig (but not kill-die)

* 'I killed the pig but it didn't die'

The English verb *kill* used to gloss *sha* in (1) does not really correspond in meaning. A sentence gloss like *'I killed the pig but the pig didn't die*' is really contradictory in English but incorrectly represents the non-paradoxical Chinese original. The original meaning is that *'I performed the action with the intent to kill, but the pig didn't die*'. English verbs such as *kill*, *open*, *kick* are generally construed to refer to a simplex action of the fulfillment type and they specify the attainment of a certain final state.

In Chinese, the concept covered by a typical English verb such as *kill* is divided into two parts: the final outcome and an action performed with the intent to lead to that outcome. The unitary concept of an English verb often has a counterpart in Chinese two-part conceptualization expressed by a verb and a complement, forming a compound (Talmy, 2000).

Another lexicalization difference is that English uses different lexical items to indicate action and result while Chinese uses different strategy to indicate result. A verb like *kan* 'direct one's gaze' only encodes the meaning of looking, without indicating whether the looking has led to perception. When Chinese speakers want to convey the meaning that the action has taken place and also results have been achieved, they need to add verbal complements. In expressing the meaning equivalent to English 'see', Chinese uses two verbal morphemes: one is *kan* 'look' and the other is *jian* 'perceive'. In English a different strategy for conveying the result is used, reflecting different lexicalizations. It does not add resultative complements to action-only verbs but uses entirely new verbs, to indicate the action-phase or the result-phase as in *look* vs. *see*.

In nominal lexicalizations, Chinese often uses two-word compounds to convey the same meaning expressed by one word in English. For example, in Chinese the compound *zhen-tou* 'rest head' is used to express the meaning 'pillow' in English (Li & Thompson, 1981).

Another difference in nominal lexicalizations is that Chinese often uses a center word to build a group of related words while English tends to use different lexical items. In Chinese, ren means 'person' while nan-ren 'male-person', nv-ren 'female-person' and da-ren 'big-person' mean man, woman and adult respectively in English. Here, the group of words share something in common and they are all ren 'person(s)'. In this kind of lexicalization in Chinese, the second morpheme is shared by a group of related words and is the head of such compounds.

A comparative study of word association in bilinguals

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Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

Word association norms are well known to be an important factor in psycholinguistic research, especially in the area of lexical retrieval. Furthermore, such research may shed light on the driving forces of lexical–semantic development. The aim of the study was to find out the differences in degree of dispersion of word associations across different types of associations between L1 and L2 children and adults and to check whether these differences in association between L1 & L2 persists in both groups. A group of 20 adults in the age range of 20 to 30 years and 20 children between 5 to 10 years were taken for the study. For both groups, inclusionary criteria were that all the subjects should have Kannada (L1, Dravidian language spoken largely in Karnataka) as mother tongue and English (L2) as medium of instruction in school. Proficiency in the target languages was checked using the questionnaire. Socio economic status of middle or higher category was matched. A set of 120 stimulus words (60 words each in English and Kannada) was used. Words were 50 nouns, 10 verbs and of varying length and were checked for familiarity beforehand. All children were tested individually at school. Children were instructed to speak out the first word that came to their mind after listening to a word presented via Acer laptop and Philip's headphones.

Adults were tested individually by giving a printed version of the stimulus and they were instructed to write down the first word which comes to their mind. Participants were instructed to give one response only. To ensure that all child participants understood the instruction a number of examples were discussed with them before starting the test. In order to control the adaptation and familiarity effect, the word association tasks (L1&L2) were conducted on two different days. The coding scheme used to categorize the responses is adapted from the classification systems used Fitzpatrick (2006). All word associations were classified mainly on 4 categories (Direct meaning related, Indirect Meaning related, Form based & Others) and 17 subcategories. Results were analyzed descriptively and the general patterns of responses were same for L1 and L2 adults: most associations are meaning related in adults whereas form based & other responses were found prominent in children. This may be because of their possible unfamiliarity with some of the stimulus words. The effect of language background or modality specificity was relatively small when we look at response patterns within the two Meaning-related main categories. Age and language usage were found to be the dominant factors, which may imply that conceptual development is more important, both in L1 and L2: adult L2 learners most likely resort to their semantic or conceptual knowledge developed in the L1. Replication with larger groups of bilinguals in both children as well as adults could enhance our findings.

An acoustic analysis of high falling tone in Guangzhou Cantonese: a comparative study

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Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

This study aims to investigate the distribution of the high falling tone [53] in Guangzhou Cantonese. The tone contour system of Hong Kong and Guangzhou Cantonese is, in a general sense, deemed to be identical, however, these two systems at least differ in one way, namely, how Hong Kong and Guangzhou Cantonese speakers use [53] tone. Although some previous studies have indicated that [53] still exists in Hong Kong Cantonese (H-n Cheung 1972), recent literature suggests that either only [55] tone is used by Hong Kong Cantonese speakers or they use [53] and [55] tone randomly with preference for the [55] tone (Matthews & Yip 1994, 2011; Bauer 1997). The relationship between [55] and [53] tones in Guangzhou Cantonese is ascribed to several factors: tonal environment (Chao 1947:24), word-class membership (Zong 1964) and individual variations (Bauer 1997).

A production experiment was built to test the usage of [53] tone contour. Reading materials were divided into three categories: Homophony, Heteronymous and Polysemy. All the disyllabic words were selected based on the work of Lin (1994) and Bauer (1997), and the frequency of each entry is evaluated using the LIVAC Synchronous Corpus (2010). There are 20 participants: 15 native Guangzhou Cantonese speakers (7 males, 8 females) and 5 native Hong Kong Cantonese speakers (2 males, 3 females) as control group. The F0 values of each target syllables were measured automatically by Praat (2006), while the beginning, middle and the end periodicity of the target syllables were marked manually.

Experimental results show that the [53] tone in Guangzhou Cantonese is distinct from the [55] tone and follows certain lexical distributions. First, Guangzhou Cantonese speakers show differences in the usage of [55] and [53] tone with regard to the tonal environment and word class membership, while Hong Kong Cantonese speakers only use the [55] tone. Second, male speakers consistently contrast [55] and [53] tones while female speakers prefer the [55] tone. Third, social factors exist in the decision of tone contour usage, for example, two Guangzhou speakers who moved to Hong Kong tend to use [55] tone rather than [53] tone.

Antonyms and Translation: A comparative study in multilinguals

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As Green (1986) explains, "Language users are said to control, or regulate activation levels of various components of the system" by allocating excitatory or inhibitory resources to raise and lower activation levels. In translation and antonym tasks, both given and target languages are activated, where one language is excited and other inhibited. Henceforth, coordination between excitatory and inhibitory circuits plays an important role for antonym and synonym tasks. With this reference, the present study aims to look at the performance of normal multilinguals on translation and antonym tasks, which require appropriate coordination between all aspects of speech production. The participants of the study included 40 subjects in the range of 20-40 years, with their first language (L1) being Kannada, second language (L2) being English and third language (L3) being Hindi. In the translation task, subjects were asked to translate the word in the given language into the target language. In similar fashion in the antonym task, subjects were asked to name the respective antonym for the given word in the target language. The pattern of the task is to convert the given word into the target language as in L1 to L2 & L3, L2 to L1 & L3, and L3 to L1 & L2.The results were treated with parametric statistics, Paired-t test, to find out the differences in performance. The results showed a significant difference between antonym and translation tasks, which may be due to less cognitive load and easier coordination between control, activation and resource in the latter. In the case of antonyms, translation execution was also observed, i.e. the respective correct antonym was elicited in the given language and then translating it into the target language was seen. The errors in the performance explains control variation leading to within languages and across languages blends, activation variation showing a longer pause before the less using language, which required a longer latency, and wrong language selection accounts for the resource variance, where the required language is not sufficiently activated. The study revealed that response errors indicate variation in coordination between different aspects of speech production, which could be at the neural level or subjective level, i.e., language proficiency. However, both factors play an important role in antonym and translation tasks. A future research direction would be to explore the same tasks with brain damaged individuals as in aphasia and compare them with neurotypical individuals.

The acquisition of sentence final particle clusters in bilingual children

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Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

Sentence final particles (SFP) in Cantonese serve many communicative functions such as indicating speech-act types, evidentiality and affective and emotional colouring. At the end of a Cantonese utterance, many of the SFPs can occur together to form a cluster. The combinations found are restricted although a large number of permutations are logically possible (Matthews & Yip, 2011). Whether children can discriminate between the grammatical and ungrammatical SFP clusters, as well as acquire this complex grammatical category, should be of interest to researchers.

Elicited imitation (EI) is used to study children's acquisition of SFP clusters in our study in an attempt to reveal their underlying grammatical competence. EI is particularly useful for investigating SFP structures because it is sensitive to constituent structures, directionality and linear ordering (Mou, 2008). It is reasonable to assume that 4-year-old children tested in our experiment have knowledge of SFP clusters to a certain extent, given that they show a high imitation accuracy rate with correct SFP clusters. They are also asked to imitate utterances with ungrammatical SFP clusters. It is predicted that children would not be able to repeat ungrammatical SFP clusters because they deviate from their grammatical competence.

For the Cantonese-Mandarin bilinguals ($N = 14$), there was a significant difference between the exact imitation of correct SFP clusters ($M = 4.10$, $s = 1.45$) and that of incorrect SFP clusters ($M = 2.45$, $s = 1.70$), irrespective of age group ($t(19) = 3.240$, $p = .05$). This result points to the fact that they are in fact sensitive to the order of SFPs in clusters, and echoes the findings of Mou (2008) whose subjects also showed a much higher imitation accuracy rate for correct SFP clusters. A corroborating result is that our subjects again show a significant difference between the deletion of SFPs in correct clusters ($M = 0.90$, $s = 1.45$) and in incorrect clusters ($M = 3.30$, $s = 2.03$) – that is, they deleted SFPs when encountering incorrect SFP clusters significantly more frequently than when encountering correct SFP clusters ($t(19) = -4.445$, $p < .05$). This is evidence for children's sensitivity to the order of SFPs in a cluster.

The cartography of motion events in Cantonese, Mandarin and Englsih

Lam Chi-Fung, *Ca' Foscari University of Venice*
Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

This study proposes a base-generated ordering of the components of (non-causative) motion events in Cantonese, Mandarin and English, from which the surface patterns can be derived by head movement (incorporation) and phrasal movement. The components include Motion Verb (V), Manner (μ), Route Direction (ρ) Path Deixis (δ), Directional Particle (π), Path/Place Preposition (P), and Locative NP (L). The relevant data are as follows:

(1) a. He's just entered the room.
V+ ρ L

b. He's gone/come down into the room.
V+ δ π P L

c. He's just jumped up on the stage.
V+μ π_ P L

d. He's just fallen down to the ground.
V+ρ π P L

e. Keoi aam-aam jap lai / heoi fo-sat. [Cantonese]
He just enter come / go class-room
V+ρ δ L
'He's just entered the classroom.'

f. Keoi aam-aam haang jap lai / heoi fo-sat. [Cantonese]
He just walk enter come / go class-room
V+μ ρ δ L
'He's just walked in the classroom.'

g. Keoi aam-aam fan dai -zo lok heoi dei-haa dou. [Cantonese]
He just lie down PFV descend go floor-bottom Loc
V+μ π ρ δ L
'He's just lain down on the floor.'

h. Keoi aam-aam hai mun-hau ceot lai. [Cantonese]
He just at door-mouth exit come
P L V+ρ δ
'He's just come out of the gate.'

i. Keoi aam-aam hoeng dung-min haang-zo gwo heoi. [Cantonese]
He just towards east-face walk-PFV past go
P L V+μ ρ δ
'He's just walked towards the east.'

j. Ta gang-gang jin jiao-shi lai/qu. [Mandarin]
He just enter teach-room come/go
V+ρ L δ
'He's just entered the classroom.'

k. Ta gang-gang zou jin jiao-shi lai/qu. [Mandarin]
He just walk enter teach-room come/go
V+μ ρ L δ
'He's just walked into the classroom.'

l. Ta gang-gang cong men-kou chu lai. [Mandarin]
He just from door-mouth exit come
P L V+ρ δ
'He's just come out the gate.'

m. Ta gang-gang wang dong-mian zou-le guo qu. [Mandarin]
He just towards east-face walk-PFV past go
P L V+μ ρ δ
'He's just walked towards the east.'

I adopt the following theoretical assumptions:

(2) a. Route, Goal, Source, and Place prepositions are all embedded in PathP (Svenonius 2008, 2010), and embed Loc NP (Cinque 2010a),
b. V+μ, V+ρ, and V+δ, being morphemes, are incorporations due to head movements,
c. V is generated at the bottom (Cinque 2006, 2010b) and,
d. Phrasal movement obeys the mechanism demonstrated in Cinque (2005; i.e. the solely permissible movements are movement of V without pied-piping, with pied-piping of the *whose picture* type, and with pied-piping of the picture of who type).

I arrive at the hierarchy: P > L > π > δ > ρ > μ > V, from which all the surface orders in (1) can be derived by head and phrasal movement subject to the constraints in (2).

(3) Derivations

a.	V+ρ > L	$[[V_i+\rho\ [t_i]]_j\ L\ t_j]$	English
b.	V+δ > π > P > L	$[[[V_i+\delta\ [t_i]]_j\ \pi\ t_j]_k\ [P\ [L\ t_k]]]$	
c.	V+μ > π > P > L	$[[[V_i+\mu\ [t_i]]_j\ \pi\ t_j]_k\ [P\ [L\ t_k]]]$	
d.	V+ρ > π > P > L	$[[[V_i+\rho\ [t_i]]_j\ \pi\ t_j]_k\ [P\ [L\ t_k]]]$	
e.	V+ρ > δ > L	$[[[V_i+\rho\ [t_i]]_j\ \delta\ t_j]_k\ [L\ t_k]]$	Cantonese
f.	V+μ > ρ > δ > L	$[[[[V_i+\mu\ [t_i]]_j\ \rho\ t_j]_k\ \delta\ t_k]_l\ [L\ t_l]]$	
g.	V+μ > π > ρ > δ > L	$[[[V_i+\mu\ [t_i]]_l\ \pi\ [[[t_l]_j\ \rho\ t_j]_k\ \delta\ t_k]]_m\ L\ t_m]$	
h.	P > L > V+ρ > δ	$[P\ [\ L\ [[V_i+\rho\ [t_i]]_j\ \delta\ t_j]]]$	
i.	P > L > V+μ > ρ > δ	$[P\ [L\ [[[V_i+\mu\ [t_i]]_j\ \rho\ t_j]_k\ \delta\ t_k]]]$	
j.	V+ρ > L > δ	$[[V_i+\rho\ [t_i]]_j\ [L\ [\delta\ t_j]]]$	Mandarin
k.	V+μ > ρ > L > δ	$[[[V_i+\mu\ [\rho\ [t_i]]]_j\ L\ t_j]_k\ \delta\ t_k]$	
l.	P > L > V+ρ > δ	(=h)	
m.	P > L > V+μ > ρ > δ	(=i)	

Negation and V-dou2 in Cantonese child language

Jess Law, *Chinese University of Hong Kong*
Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

In Cantonese, when a verb is followed by the resultative particle *dou2* (Matthews & Yip 2011) as in (1), negation takes the form V-NEG-*dou2*, as in (2); switching the order of the verb and the negative marker, as in the form NEG-V-*dou2* in (3), is not allowed. However, longitudinal child language data from the Hong Kong Cantonese Child Language Corpus (CanCorp, Lee et al. 1996) and the Bilingual YipMatthews Corpus (Yip & Matthews 2000) reveal that both monolingual and bilingual Cantonese acquiring children often opt for NEG-V-*dou2*, which is unavailable in the adult. Specifically, the average frequency of NEG-V-*dou2* in child language is approximately 40% (SD=34). It is also found that production of NEG-V-*dou2* is inversely related to the children's MLU (r=.-66, N=14, p=.01>.05, two tails). Over 83% of NEG-V-*dou2* tokens are produced by children with average MLU lower than 2.65. In contrast, only a few instances are produced by children with MLU over 3.5. The prevalence of NEG-V-*dou2* during early acquisition stage raises interesting questions as to why both monolingual and bilingual children consistently develop a negation form not found in their language environment.

The frequent occurrence of the form NEG-V-*dou2* in Cantonese acquiring children is noted in previous studies (Cheung 1997, Cheung & Clark 2006, Keung 2007). It is regarded as an error resulting from partial imitation of the A-not-A form and overgeneralization from other preverbal negative markers (Keung 2007). However, these studies miss the syntactic basis of the productivity of NEG-V-*dou2* in child language. From the perspective of the principles and parameters framework, the present study argues that children's early grammar is also rule-governed. NEG-V-*dou2* is so prevalent in child language because it does not violate the grammatical principles regarding negation and resultative constructions in early grammar. Specifically, we suggest that V-*dou2* in child grammar is a morphological compound having the syntactic status of a V^0, while the same form is a syntactically complex phrasal element in adult grammar.

Following Cheng & Sybesma (2004) I assume that *dou2* is generated as the head of RP and moves to Asp0. There is a ModP dominating RP, which is projected by the potential denoting modal verb *dak1*. The sequence V-*dak1*-*dou2* can be abbreviated as V-*dou2* since *dak1* can be phonologically null. Following Huang's (1988) proposal for Mandarin *bu* 'not', I assume that the negative marker *m4* must also locally adjoin to the V^0 element it negates. Since negation of the main verb leads to semantic anomaly, the proper way to negate V-(*dak1*)-*dou2* is for *m4* to adjoin to the phonologically null *dak1*, resulting in the form V-NEG-*dou2*. In contrast, V-*dou2* in early child grammar is just a verbal compound occupying a V^0 node and the resultative predicate is non-existent. The only way to negate such a V^0 element is to adjoin the negative marker *m4* to the V^0, resulting in the form NEG-V-*dou2*.

The phenomenon under investigation also exemplifies the poverty of stimulus argument since the form NEG-V-*dou2* is unacceptable in Cantonese and hence unavailable in the speech input for children. Nevertheless, the early grammatical knowledge of the formal requirement of the negative marker *m4* and the impoverished structure of V-*dou2* lead to productive use of the form NEG-V-*dou2* in Cantonese child language.

(1)	sik6-dou2 eat-Res 'able to eat'	(2)	sik6-m4-dou2 eat-NEG-Res 'not able to eat'	(3)	*m4-sik6-dou2 NEG-eat-Res 'not able to eat

Activation of words modulates semantic preview effect in Chinese sentence reading

Li Nan, Wang Suiping and Sun Dongxia, *South China Normal University*
Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

Although several studies have failed to find a semantic preview effect in reading English (e.g, Altarriba, Kambe, Pollatsek, & Rayner, 2001; Hyönä, J. & Häikiö, T. (2005); Rayner, Balota, & Pollatsek, 1986), this effect was reported by recent studies in Chinese (see Yan, Richter, Shu, & Kliegl, 2009; Yang, Wang, Tong & Rayner, 2010). The difference between the results of these studies may be caused by the distinct characteristics of the language. The present study aimed to explore whether or not the semantic preview benefit is affected by the activation of the target word in reading Chinese sentences.

Forty-two participants' eye movements were monitored as they read sentences which contained a single-character target word for comprehension. The first part of the sentence (from the beginning of the sentence to the third character to the left of the target word) was varied to make the target word high or low predictable by the context. The eye movement contingent boundary technique (Rayner, 1975) was used to present different preview words that changed to the target word when the reader moved his or her eyes across an invisible boundary that was set just to the left of the target word location. The semantic relation between the target words and their preview words was manipulated such that there were three types of previews, (1) identical, (2) semantically related, and (3) semantically unrelated.

The eye movement data revealed an interaction between the predictability of words and the semantic preview effect. Specifically, first pass reading times on the target words were shorter in the semantically related preview condition than in the semantically unrelated preview condition when the target words were low predictable in the sentences. However, such a semantic preview effect did not appear when the target words were high predictable. A possible reason for these results is as follows. The target words were less activated when they were low predictable words than when they were high predictable words in sentence. Therefore, a semantically related preview word can help to activate the low-predictable target words. However, when the target words were more activated (as high-predictable target word), readers may be able to tell the related preview word was not the right word and thus fail to show a semantic preview benefit. In short, these results suggest that the semantic preview effect is affected by the activation of the target word in Chinese sentence reading.

Cognitive processing in multilinguals explained by individual variability in languages switching ability

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Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

Research on the cognitive advantages of bilingualism has triggered much discussion over the last decade. Some researchers have repeatedly given proof of better performance for multilingual participants across the lifespan (Bialystok et al., 2004). This enhanced performance is assumed to be caused by the fact that multilinguals constantly need to monitor their language production. Because regions in the brain in charge of language switching are also active during general task switching, the repeated use of language switching would lead to more efficient task switching, even when no linguistic information is involved. Other researchers have not been able to replicate the advantage found in multilingual populations. Reasons for these contradictory results include differences in the tasks employed, in sample selection (for instance, confounding variables such as participants' ethnicity or socio-economic status), or in sociolinguistic background (Morton & Harper, 2007; Costa et al., 2009).

However, little attention has been given to individual variability within a group of multilinguals in order to explain differences in performance on cognitive control tasks. One recent study (Prior & Gollan, 2011) reported effects of language switching on task switching, comparing two groups of Mandarin-English and Spanish-English bilinguals. The former group did not show any bilingual advantage compared to the monolingual control group. The S-E bilingual group, on the other hand, exhibited smaller switching costs after controlling for confounding variables. This result was related to differences in language switching frequency between both groups, but still overlooks the individual variability in language switching ability within these groups. If the hypothesis is true that better language switching leads to improved cognitive control, individual scores on language switching ability need to be accounted for in an all-encompassing research on the cognitive advantages to bilingualism. No study to date has compared scores on language switching tasks with measures of cognitive control. The research being presented in this paper attempts to fill this gap.

This paper presents one part of an ongoing research program carried out in the Dutch-French bilingual city of Brussels, Belgium. We have used functional magnetic resonance imaging (fMRI) to study the effects of variability in language switching on cognitive control. Inside the scanner the adult participants performed a Simon task, which is a well-known and reported conflict task. In addition, we gave them a language switching lexical decision. We have compared scores on both tasks for all individuals to trace the interaction between individual variability in language switching ability and cognitive processing in multilinguals.

The processing and representation of the bilingual Chinese-English mental lexicon

Agnieszka Tytus, *King's College London*
Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

The organization of the bilingual mental lexicon, which can be likened to a database or a dictionary of all words stored in the mind of a language user (Dijkstra, 2005), has proved to be one of the most controversial topics in the field of bilingualism (Pavlenko, 2009). Numerous models of lexical memory have been proposed, notably the Revised Hierarchical Model (Kroll and Stewart, 1994) that is investigated in this project. The model proposes separate lexical representations for each language, but one common conceptual representation for both languages.

This project tries to verify the RHM with reference to Chinese-English bilinguals. Three aims are pursued in this project. First, this investigation aims to clarify the way in which meanings of translation equivalents are represented and processed at the conceptual level in bilingual memory. Secondly, this study aims to widen the scope of findings by focusing on auditory and visual modalities of word recognition as a window for investigating the bilingual memory organization. Finally, this project intends to provide a greater understanding of the representation of Chinese-English lexical memory by looking at the degree of semantic overlap between the two languages.

In order to address the aims of this project, four research tools have been used to recruit participants and collect research data, i.e. a bilingual questionnaire, a monolingual questionnaire, a masked implicit priming task (visual and auditory), and a semantic judgment task.

The poster will feature a brief overview of the literature on the bilingual mental lexicon, the research methods used to investigate the notion, and data collected in Hong Kong, Beijing and London.

Monolingual and bilingual children's perception of *throw* verbs in Mandarin Chinese

Haoshu Wang and Helena Gao, *Nanyang Technological University*
Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

The acquisition of near-synonyms has been found difficult for children at different ages. To explore the nature of their difficulty, we conduct an empirical study on monolingual and bilingual children's action perception and lexical meaning understanding of Mandarin synonymous Throw Verbs.

Four groups (8-, 10-, 14- and 18-year-old) of participants (N=30 for each group) were recruited from North China (Mandarin monolinguals) and Singapore (simultaneous English-Chinese bilinguals), respectively. Video recordings of throwing actions were prepared as stimuli. These actions are linguistically labeled as rēng *(*扔*),* diū *(*丢*),* pāo *(*抛), tóu (投) and shuāi (摔) and shuǎi *(*甩).

All participants completed two tasks. In Task 1, they were asked to verbally describe in Mandarin Chinese each action they saw in the video. In Task 2, they were shown the six verbs and then asked to choose one verb to map an action being displayed. By doing so, we could first find out whether the verbs they used in their description matched the actions performed in the video recordings. The results showed that monolinguals of all age groups successfully distinguished all six verbs in Task 2 (the matched responses are significantly higher than chance level), even though they generally over-extended *rēng* in Task 1. As a contrast, bilinguals of all the age groups over-extended use of *di*ū to match the actions they saw in both tasks and no bilingual groups succeeded in distinguishing all the near-synonyms.

Our next task was to find out how the participants' verb selection interacts with their perception of the actions. Given that the description of all action features was found in the oral production by participants of each group, we assumed they were cognitively capable to notice the action differences. We then employed Logistic Regression to examine whether their production of certain verbs was affected by specific action features. The results showed that the monolingual adults' verb production was predictable by certain action features (e.g., *diū* by "sidewise hand movement" and shuǎi by "strong force"), while the monolingual children tended to rely on more features than the adults did. And the older the children, the more adult-like strategy they tended to use in their discrimination process. However, significant predictor was found for any of the bilinguals' verb production, which indicates that the differences of action features were not involved in the process of synonym discrimination.

To conclude, monolingual children employed action features to distinguish near-synonymous Throw Verbs and gradually acquired adult-like differentiation strategy. The bilinguals, on the other hand, failed the discrimination tasks due to the fact that they did not seem able to make the connections between what they visually perceived and what they have acquired as lexical entries to tell the differences between these verbs. No developmental curve was observed for their understanding of these near-synonyms.

A comparative study of directional motion events in Mandarin, Cantonese and English

Hinny Wong Hin Yee, *Chinese University of Hong Kong*
Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

There are two major aims of this study: i)to discuss the syntactic variation in complex directional verb complement constructions (CDVCs) in Cantonese and Mandarin, and ii)to investigate the acquisition of CDVCs in Cantonese-Mandarin bilingual children. While Cantonese and Mandarin CDVCs both consist of a main verb (V) and a compound directional complement formed by two directional verbs (Vd), they contrast in surface word order:

(1) Mandarin CDVC 'take out a book'

a) 拿出來一本書 [V-Vd-Vd-O]
na chu lai yi-ben shu
take out come one-CL book

b) 拿一本書出來 [V-O-Vd-Vd]
na yi-ben shu chu lai
take one-CL book out come

c) 拿出一本書來 [V-Vd-O-Vd]
na chu yi-ben shu lai
take out one-CL book come

(2) Cantonese CDVC 'take out a book'

a) 攞本書出嚟 [V-O-Vd-Vd]
lo2 bun2 syu1 ceot1-lai4
take CL book out com

There are three possible word orders in Mandarin CDVC, as shown in (1a-c), with differences in grammatical aspect, focus and the definiteness of the direct object (Liu, 1998; Lu, 2002). On the contrary, Cantonese allows only [V-O-Vd-Vd] as in (2). We propose a grammaticalization account whereby the distinct properties of the directional verb 'come' and 'go' in the two languages can account for the contrasts of word orders in their CDVCs. Mandarin 'come' and 'go' undergo a higher degree of grammaticalization than those in Cantonese, encoding aspect in addition to directional meaning: 'come' and 'go' form a compound complement with a directional verb as in (1a) and (1b); whereas in (1c) they denote the aspect of the motion, similar to [VP + 'come'/ 'go'] structure in Mandarin.

The syntactic variations in Mandarin CDVCs pose a greater challenge to bilingual children acquiring both Cantonese and Mandarin. Another aim of this study is to look at the acquisition of Mandarin CDVCs by Cantonese-Mandarin bilingual children and the properties of cross-linguistic influence in this domain. An elicited production task of directional motion events (to elicit CDVCs) is conducted among Cantonese-Mandarin bilinguals aged from 3 to 6. Results show that Cantonese-Mandarin bilinguals produced [V-Vd-Vd-O] (corresponding to the structure of Cantonese CDVCs) most frequently, and they were less sensitive to the aspect properties of each type. The results confirm Müller and Hulk (2001)'s structural overlap condition in explaining cross-linguistic influence in bilingual acquisition: cross-linguistic influence is likely to occur when there is a partial overlap ((1b) in Mandarin and (2) in Cantonese) in surface structure.

Input conditions for balanced English-Chinese bilingual children in a Chinese speech community

Wu Wanhua, *Xi'an University of Arts and Science*
Tuesday, May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

One issue that concerns researchers studying bilingualism, as well as parents of bilingual children, is the relationship between language input and proficiency (Fromkin, Rodman &Hyams 2007). What are the input conditions for a child to become proficient in both languages? De Houwer's research (2007), based on questionnaire data collected from 1899 bilingual families, suggests that the "one parent-one language" strategy does not provide a necessary nor sufficient input condition, and children under home input patterns where both parents use the minority language and where at most one parent speaks the majority language have a higher chance of successfully speaking two languages. This research, a case study of two balanced English-Chinese bilingual children living in a Chinese speaking community, reveals the multiple factors of input conditions for balanced bilingual children.

The subjects (Meiling and Leyong) are two bilingual English-Chinese children whose parents are native speakers of English and L2 speakers of Chinese. Meiling (sister, age 4;04) and Leyong (brother, age 5:09), who are siblings attending the same kindergarten in Xi'an mainland China, are cases of balanced English-Chinese bilingual children among the majority of English dominant bilingual children in the kindergarten. The evidence of their proficiency in both English and Chinese is based on the observation related to the common phenomenon of bilingual children such as language preference, language transfer and code-mixing (Yip and Matthews 2006). Unlike other English dominant bilingual children who often speak English to Chinese teachers, Meiling and Leyong mostly speak Chinese to Chinese teachers. They naturally speak Chinese to Chinese teachers and children, and speak English to native English speakers (parents and children). During their school time (3;06 to 4;04 for Meiling; 4;11 to 5;09 for Leyong), there is hardly any evidence found concerning language transfer from English to Chinese, even for the tone of Chinese where most other bilingual children in the kindergarten show distinct transfer from English. Also, code-mixing is rare in their languages. What's more, Leyong often takes up the job of interpreting for new English speaking children. Their parents report that English is the stronger language for both of them; however, their Chinese proficiency shows almost no difference with L1 Chinese children of roughly the same age. Through my observation (twice a week as a volunteer in the kindergarten) of their languages, questionnaires to their parents, and interviews with both the children and the parents, several factors have been found for the input conditions leading to balanced bilingual children.

According to questionnaires and interviews with the parents of our subjects, several factors of their input conditions are found. First, both children have early exposure to local Chinese relationships and communication (being cared for by a Chinese helper in home 1-2 mornings a week from 6 months of age and starting in preschool early). Meiling was born in Beijing but the family moved to America when she was 2;01, and came back to Beijing at 2;06;Leyong was born in America and came to Beijing when he was 5 months old, moving to America when he was 3;06 and returning to Beijing at 3;11. There was hardly any Chinese input during the 5 months stay in America. A second factor in their bilingual proficiency may be attributed to a rather balanced input of two languages. Meiling (from 2;06 to 3;06) and Leyong (3;11 to 4;11) were the only foreign children in an all Chinese preschool where they went to school 5 mornings a week. After the family moved to Xi'an, the children still went to kindergarten 5 mornings a week. Their Chinese exposure is mostly in the kindergarten, of which the quantity can be calculated as approximately 18 hours per week. The third factor is the parents' strategy for the separation of dual input-"Chinese only relationships and English only relationships". The parents seldom speak Chinese to their children, nor do they code-mix while speaking, so there would be no code-mixing input for children. This strategy ensures the quality of native input from both languages since the parents don't want their children to pick up their accent. Both parents speak Chinese fluently and even idiomatically though with distinct American English accent transferred. They mostly speak Chinese to local people and strongly encourage their children to do so.

To sum up, the data collected suggests that early exposure to both languages, a rather balanced quantity of input in the two languages, parents' strategy for the separation of dual input, and parents' attitudes toward using both languages all contribute to bilingual children's proficiency in both languages, even for typologically different pairs such as English and Chinese.

Long term sign language experience modulates first language auditory sentence comprehension-evidence from bimodal bilinguals

Xin Yan[1 & 2], Guosheng Ding[2] and Brendan Weekes[1]
Chinese University of Hong Kong[1]; Beijing Normal University[2]
Tuesday , May 15th, 4:30 – 5:15pm, LSK 1/F Foyer

Research shows that acquisition of a second language modulates cognitive processes in bilingual speakers. This has been observed in movement cognition (Bavelier, 2001), mental imagery (Talbot, 1993; Emmorey, 1993) and face recognition (Parasdis, 1996; MacCullough, 1997). Studies also show that brain structure is modulated in bilingual speakers (Allen & Emmorey, 2008). The aim of the present study was to investigate if acquisition of a second language has an impact on first language comprehension. We investigated this question with a group of bimodal bilinguals, who are fluent hearing users of sign language matched to a group of monolingual speakers who do not use sign language. Our hypothesis was that long term use of sign language modulates auditory sentence processing in spoken language, manifest as brain activation in regions recruited for sign language processing during spoken language processing tasks.

Participants: 14 adult Mandarin-Chinese Sign Language (CSL) bilinguals and 15 Mandarin speaking monolinguals were recruited (mean Age 50 and 44). For the bimodal bilinguals, the mean duration of CSL was 29 years. Spoken sentences made up of 4-8 words recorded by a male native Mandarin speaker were used as stimuli. Stimuli were played backwards into spectrally retrospective unintelligible spoken stimuli and used as baseline stimuli. The fMRI scan was initiated with an auditory adaption run, in order to help participants adapt to scanner noise set appropriate loudness for each participant followed by an experimental run. A block design with alternating task block and baseline block presentation was used. Participants were requested to listen to the sentences passively and try to understand their meanings.

Results: fMRI data analyses used Matlab7.1 and SPM5 (http://icatb.sourceforge.net). Whole brain analysis found that for bilinguals, bilateral superior temporal gyrus (STG), middle temporal gyrus (MTG), bilateral precentral gyrus (PCG), left middle frontal gyrus (MFG), right inferior frontal gyrus (IFG), right caudate, bilateral cingulate gyrus (CG) and bilateral cerebellum were activated during task sentence presentation relative to baseline. For monolinguals, bilateral STG, bilateral MTG, bilateral PCG, left MFG, right caudate, bilateral CG, bilateral Cerebellum were activated (uncorrected, P=0.001, voxel>30). These brain regions show ventral and dorsal auditory route for auditory language processing (Hickok & Poeppel, 2007).

Group contrasts between bimodal bilinguals and monolinguals revealed enhanced activation in the left PCG for bilinguals, as well as enhanced activation in right STG, left temporal lobe (TP) and left hippocampus / amygdale (uncorrected, P=0.005, voxel>30). Left PCG is a brain region that is active during sign language processing as demonstrated by the sign sentence processing task condition and in sign production (picture naming) for bimodal bilinguals (Zou, 2011; Emmorey, 2007).

Conclusion: Results show that native language processing in L1 activates L2 related regions in bimodal bilinguals.

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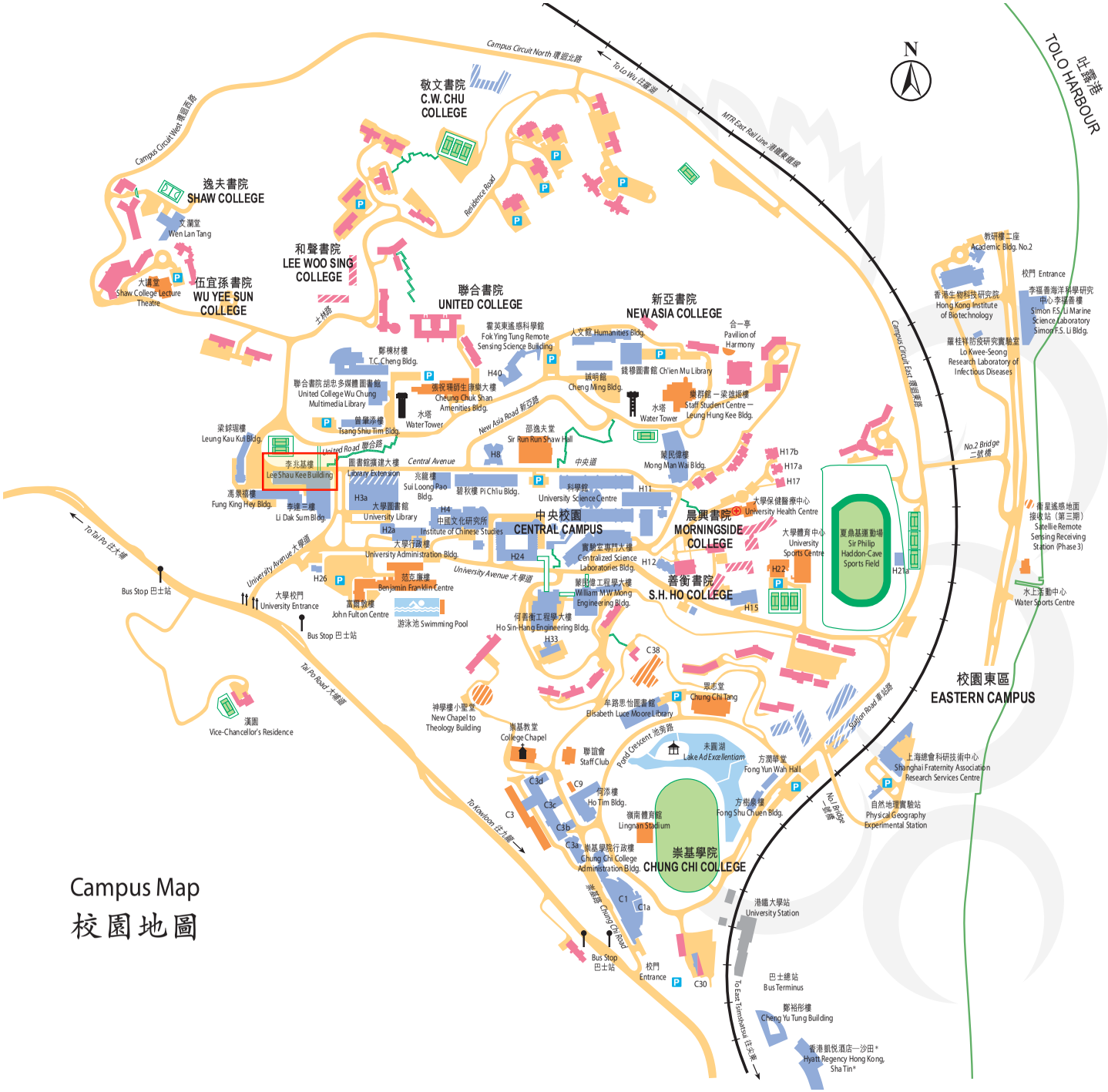

Campus Map
校園地圖

香港中文大學 The Chinese University of Hong Kong

Academic Bldg. No. 1	H33	教研樓一座
Art Museum	H4	文物館
Chan Kwan Tung Inter-university Hall	H17a	昆棟樓
Chiangs Bldg.	H17b	曙光樓
Cho Yiu Conference Hall	H2a	祖堯堂
Choh-Ming Li Basic Medical Sciences Bldg.	H11	李卓敏基本醫學大樓
Estates & Maintenance Bldg.	H15	營修樓
Kwok Sports Bldg.	H22	汾陽體育館
Lady Ho Tung Hall	H12	何東夫人堂
Lady Shaw Bldg.	H24	邵逸夫夫人樓
Satellite Remote Sensing Receiving Station	H40	衛星遙感地面接收站
Security & Transport Bldg.	H26	保安交通中心
Sports Field Annex I	H21a	運動場一號室
Tin Ka Ping Bldg.	H3a	田家炳樓
Y.C. Liang Hall	H8	潤昌堂
Yali Guest House	H17	雅禮賓館
Chen Kou Bun Bldg.	C3c	陳國本樓
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Hui Yeung Shing Bldg.	C3a	許讓成樓
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Lee Hysan Concert Hall	C1a	利希慎音樂廳
Li Wai Chun Bldg.	C3	李慧珍樓
New Student Amenity Centre	C38	學生活動中心
Orchid Lodge	C9	蘭苑
Sino Bldg.	C3d	信和樓
Wong Foo Yuan Bldg.	C3b	王福元樓

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LEGEND 圖例

- Administration/Teaching/Research Bldg. 行政 / 教研樓宇
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