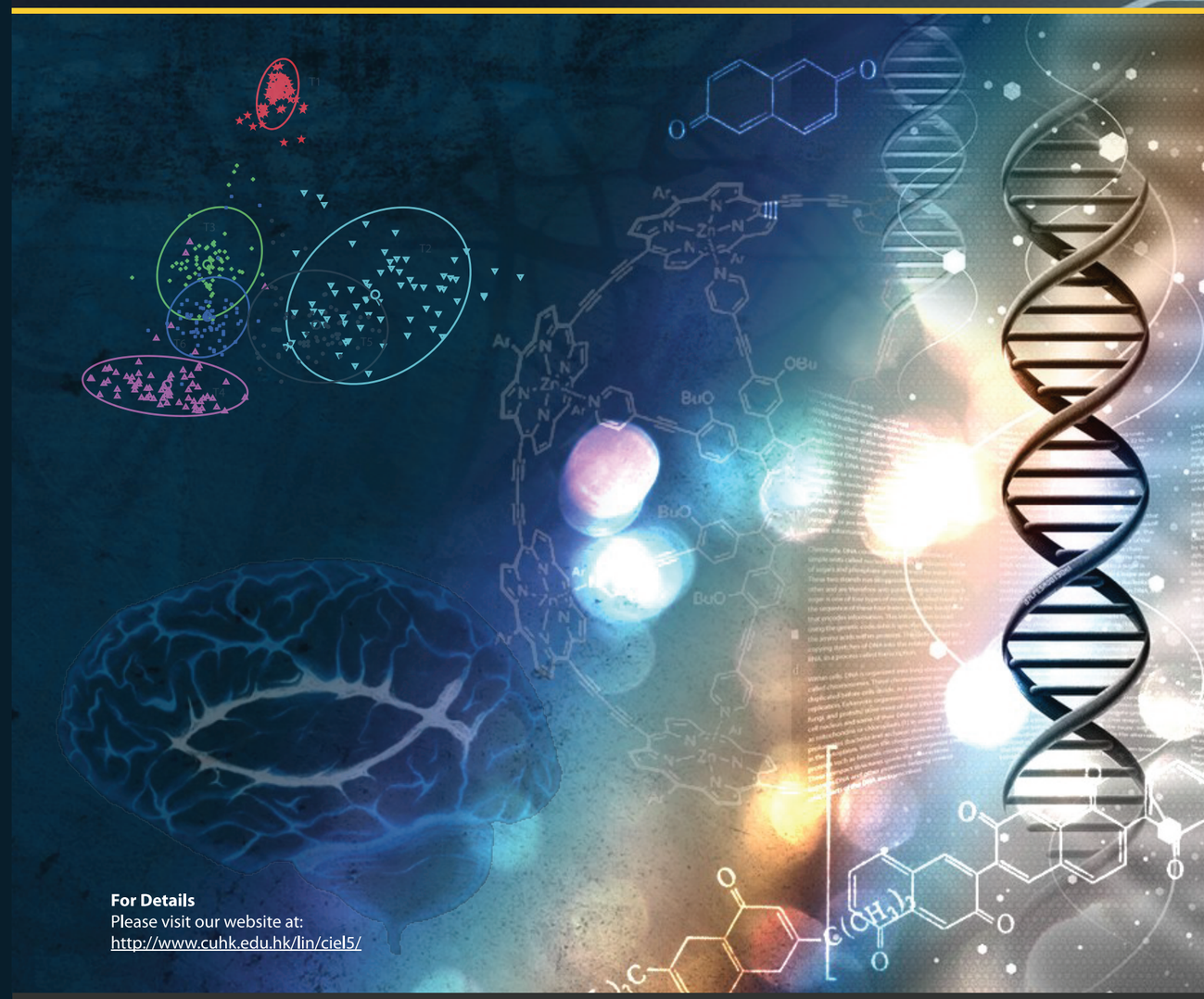
The 5th International Conference in Evolutionary Linguistics (CIEL-5)

17-19 August 2013
The Chinese University of Hong Kong

香港中文大學五十周年
50th Anniversary of CUHK

Department of Linguistics and Modern Languages 10th anniversary 2004 2014



For Details
Please visit our website at:
http://www.cuhk.edu.hk/lin/ciel5/

Co-organisers:

Language Engineering Laboratory

Language and Cognition Laboratory 語言與認知實驗室

Childhood Bilingualism Research Centre 兒童雙語研究中心

LLB Laboratory for Language, Learning, and the Brain 語言、學習及神經科學實驗室

Faculty of Arts, CUHK 香港中文大學文學院

Department of Chinese Language and Literature 中國語言及文學系

Research Centre for Chinese Linguistics 漢語語言學研究中心

BCS STATE KEY LABORATORY OF Brain and Cognitive Sciences
香港大學腦與認知國家重點實驗室

Department of Chinese and Bilingual Studies 中文及雙語學系

The Linguistic Society of Hong Kong 香港語言學學會

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Welcoming remarks

On behalf of the Department of Linguistics and Modern Languages, I extend our warmest welcome to you as we start the 5th Internal Conference in Evolutionary Linguistics (CIEL-5).

The Conference is an important event in celebration of the 50th Anniversary of The Chinese University of Hong Kong (CUHK) and the 10th Anniversary of our Department, drawing together researchers from the regional and international community to enhance international and interdisciplinary collaboration.

I take pleasure in announcing the launch of The Chinese University of Hong Kong (CUHK)-Peking University (PKU)-University System of Taiwan (UST) Joint Research Centre for Language and Human Complexity(香港中文大學-北京大學-台灣聯合大學系統語言與人類複雜系統聯合研究中心). Congratulations on the inauguration of a joint research centre which offers a new platform to develop interdisciplinary research across the straits in three different Chinese-speaking communities!! We look forward to a fruitful partnership with Peking University and University System of Taiwan.

We are very honored to have an outstanding cast of keynote speakers:

Michael ARBIB, University of Southern California
Ken PUGH, Haskins Laboratories, New Haven CT
SHEN Jiaxuan, The Chinese Academy of Social Sciences
TAN Lihai, The University of Hong Kong
Alain PEYRAUBE, Centre National de la Recherche Scientifique (CNRS)
William S-Y. WANG, The Chinese University of Hong Kong

The Conference features the following 5 areas:

1) Language as a complex adaptive system; 2) Language and population evolution;3) Diachronic and synchronic study of language; 4) Language and the brain; 5) Other language-related research.

There are 6 keynote presentations, 42 oral presentations and 17 poster presentations at this Conference.

We gratefully acknowledge the funding support from our Department, Department of Chinese Language and Literature, Childhood Bilingualism Research Centre, Faculty of Arts, State Key Laboratory of Brain and Cognitive Sciences at HKU, Department of Chinese and Bilingual Studies at Hong Kong Polytechnic University, and Linguistic Society of Hong Kong. Special thanks are due to members of the Organizing Committee:

GONG Tao, HUANG Chu-Ren, PENG Gang, SHI Dingxu, TAN Lihai, and William S-Y. WANG.

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

Virginia YIP

Chair of the Organizing Committee of CIEL-5
Chairperson and Professor
Department of Linguistics and Modern Languages
The Chinese University of Hong Kong

August 2013

歡迎詞

我代表香港中文大學語言學及現代語言系對各位前來參加第五屆演化語言學國際研討會的各位嘉賓表示最熱烈的歡迎！

此次會議適逢香港中文大學誕辰五十週年和語言學及現代語言系成立十週年之際，將為本地區和國際上的研究者們提供了相互交流的平台，對提高跨區域和跨學科的合作研究起著重要的促進作用。

在此，我很高興地宣佈「香港中文大學-北京大學-台灣聯合大學系統語言與人類複雜系統聯合研究中心」正式成立了！讓我們一起來慶祝這個跨區域研究中心的成立。我們期盼著與北京大學、台灣聯大的合作研究能夠結出纍纍碩果。

我們非常榮幸地邀請到了以下的主題報告嘉賓：

Michael ARBIB	南加州大學
Ken PUGH	哈斯金實驗室
沈家煊	中國社會科學院
譚力海	香港大學
Alain PEYRAUBE	法國國家科學研究院
王士元	香港中文大學

本次會議主要涉及以下五個領域的研究：

1）語言作為一個複雜適應性系統 2）語言與人類進化 3）語言的歷時與共時研究 4）語言與大腦 5）其他與語言相關的研究

此次會議共有6個主題報告、42個口頭報告、17個書面報告。

我們誠摯地感謝如下組織機構的贊助與支持：香港中文大學語言學及現代語言系、中國語言及文學系、兒童雙語研究中心、文學院、香港大學腦與認知科學國家重點實驗室、香港理工大學中文及雙語學系、香港語言學學會。

我們還要在此感謝第五屆演化語言學國際研討會組委會的相關成員：

龔濤、黃居仁、彭剛、石定栩、譚力海、王士元

最後再次感謝各位的光臨，並預祝這次會議圓滿成功!

葉彩燕

第五屆演化語言學國際研討會組委會主席
系主任、教授
語言學及現代語言系
香港中文大學

2013年8月

Joint Research Centre for Language and Human Complexity

語言與人類複雜系統聯合研究中心

MISSION STATEMENT

The Joint Research Centre for Language and Human Complexity [JRCLHC] is a collaboration among three academic institutions: The Chinese University of Hong Kong, Peking University, and the University System of Taiwan. Although the three partner institutions are situated in different regions, we share a common intellectual mission.

Our research is multi-disciplinary with an evolutionary perspective. The Centre will provide a research platform which adopts a multi-method/multi-variable approach to investigate language evolution and its impact on the developments of human mind at different levels of complexity with respect to the conceptual bases of the so-called five Os: info, cogno, techno, bio, and geno.

Language is an immensely complex system which is at the foundation of human behavior, both individually, and collectively - as members of societies. We will work closely with colleagues at Peking University in investigating the diverse languages and peoples of China toward understanding how these are related to each other structurally and historically. We are also interested in how culture, language, and literacy interact among the many ethnic groups.

Language is a mosaic constructed based upon many cognitive, memorial, and sensori-motor skills. All these skills are supported by the human brain, the most complex organ in the known universe. We will work closely with colleagues at the University System of Taiwan, using brain imaging technology, to investigate human cognition toward understanding how the brain enables all the intricacies of language and other cognitive behaviors.

All three partners of JRCLHC are interested in the course of language through the human life cycle – from its acquisition in infancy, to the learning of reading and writing, and foreign languages, to the loss of linguistic fluency caused by disorders and normal aging. Alongside of the pursuit of shared intellectual interests, we hope to develop methods to help in language education of native and foreign languages, in clinical diagnosis of linguistic impairments, such as aphasia, dyslexia, and dementia, and in therapy of speech-language pathology.

CIEL-5 Program at a Glance

Time	August 17	Time	August 18	August 19
08:30-08:45	Registration	08:45-09:00	Registration	
08:45-09:30	Opening Ceremony	09:00-09:50	Keynote 3	Keynote 5
09:30-10:20	Keynote 1			
10:20-11:10	Keynote 2	09:50-10:40	Keynote 4	Keynote 6
		10:40-11:00	Refreshment	
11:10-11:30	Refreshment	11:00-12:30	Oral 4 (E & M)	Oral 7 (E & M)
11:30-12:30	Oral 1 (E)			
				Closing Remarks
12:30-14:00	Lunch			
14:00-15:40	Oral 2 (E & M)		Oral 5 (E & M)	
15:40-16:10	Refreshment		Refreshment	
16:10-17:50	Oral 3 (E & M)		Oral 6 (E) & Poster	

Program Schedule

17 August 2013 (Saturday)

8:30 – 8:45	Registration
8:45 – 9:30	**Opening Ceremony; Master of Ceremony: Gloria ZHANG; Venue: Cho Yiu Conference Hall** Benjamin WAH, Provost, CUHK Fanny CHEUNG, Pro-Vice-Chancellor, CUHK LEUNG Yuen SANG, Dean, Faculty of Arts, CUHK William S-Y. WANG, CUHK LIU Wei, PKU Ovid TZENG, UST
Keynotes ; Chair: Ovid TZENG; Venue: Cho Yiu Conference Hall	
09:30 – 10:20	**Language: From Birth to Senescence** **William S-Y. WANG,** The Chinese University of Hong Kong
10:20 – 11:10	**The Mirror System Hypothesis: Current Controversies and the Challenges of Multi-Disciplinary Research** **Michael ARBIB,** University of Southern California
11:10 – 11:30	Tea Break
Oral Session 1 (English); Chair: GONG Tao; Venue: Cho Yiu Conference Hall	
11:30 – 12:00	**The Origins of Language in Human Evolution** **Tom SCHOENEMANN**
12:00 – 12:30	**Language Evolution, by Exaptation, with the Mind Leading** **Salikoko MUFWENE**
12:30 – 14:00	Lunch Break

Oral Session 2	English session; Chair: Tom SCHOENEMANN; Venue: Swire Hall 1	Mandarin session; Chair: 江荻; Venue: Swire Hall 2
14:00 – 14:25	The Evolution of Verb-Object Disyllabic Transitive Verbs in Chinese LI Yanzhi & WU Yicheng	上海方言中的定指指示詞 錢乃榮
14:25 – 14:50	Diachronic changes of motion expressions in Chinese and implications for the Linguistic Relativity Hypothesis SHI Wenlei & WU Yicheng	英語專業學生書面語句法複雜性發展跟蹤研究 劉春燕、何文芳
14:50 – 15:15	Simulating the Self-organization of Vowel Chain Shifts Katia CHIRKOVA & GONG Tao	名動分離出自哪個語言層面 夏全勝
15:15 – 15:40	How do children settle a tone system from multi-speaker speech input ZHANG Caicai & James MINETT	壯語分區的特徵選取和權重量化 張夢翰、韋遠誠
15:40 – 16:10	Tea Break	
Oral Session 3	English session; Chair: Alice CHAN; Venue: Swire Hall 1	Mandarin session; Chair: 郭必之; Venue: Swire Hall 2
16:10 – 16:35	Rhyming as an Indicator of Sound Change CHENG Ken	試論同源詞和藉詞 劉勳寧
16:35 – 17:00	Perceptual Distance as a Criterion for the Reconstruction of main vowels of Rhyme Categories in Old Chinese MA Maopeng	粵語聲調系統的共時差異與歷時蘊涵 馮淑儀
17:00 – 17:25	Applied Lexicon Hierarchies for Ethnic Groups Released by Psychological Experiments YIN Qiaoyun & JIANG Di	多學科視野下的中國民族的起源與形成 鄧曉華
17:25 – 17:50	The Phonological/Executive Working Memory Model in Language WEN Zhisheng	應用字同現網絡研究漢語散文的演化 史玉明

18 August 2013 (Sunday)

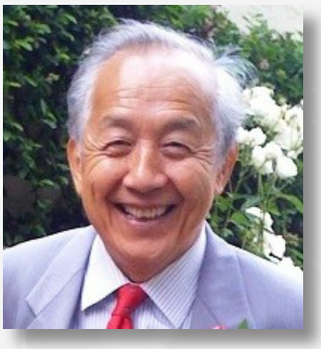
Keynotes ; Chair: Virginia YIP; Venue: Swire Hall 1		
09:00 – 09:50	**Neurobiological Investigations of Spoken (and Written) Language** Kenneth R. PUGH	
09:50 – 10:40	**Severe Reading Difficulty in Chinese Children: Prevalence and Neural Basis** TAN Lihai	
10:40 – 11:00	Tea Break	
Oral Session 4	English session; Chair: Salikoko MUFWENE; Venue: Swire Hall 1	Mandarin session; Chair:陳保亞; Venue: Swire Hall 2
11:00 – 11:30	**The Inexplicability Principle and Recognition of Genetic Relationship** WANG Feng	官話歷史上的幾個競爭性音變 沈鍾偉
11:30 – 12:00	**Recent Advances in Molecular Genetics and Implications for the Origin of Language** Gerald A. RAU & D. Victoria RAU	古藏語非音節性名詞詞綴消亡的原因 江荻、董穎紅
12:00 – 12:30	**A Study on the Evolution of Syllabic Structure in Tibetan** KONG Jiangping	從地理信息系統角度看漢語方言的歷史演變 潘悟雲
12:30 – 14:00	Lunch Break	

Oral Session 5	English session; Chair: WANG Feng; Venue: Swire Hall 1	Mandarin session; Chair: 孔江平; Venue: Swire Hall 2
14:00 – 14:25	Variation Between the Two Nasal Codas CHOO Yuen	虛詞的 h- 化音變 孫景濤
14:25 – 14:50	The Synchronic Categories and Diachronic Evolution of Voiced Syllabic-initial Stops of Proto-Yue Dialects HOU Xingquan & YANG Jiang	文白異讀與構詞 鍾蔚蘋　鄭至君　郭必之
14:50 – 15:15	Devoicing of Historical Voiced Obstruents in Xiangxiang Chinese ZENG Ting	香港粵語聲調性別特徵的聲學統計分析 劉藝、林媛媛
15:15 – 15:40	Ambiguity type and Competition Level Affect Semantic Priming in Chinese-an fMRI study Gloria YANG	西班牙母語漢語二語學習者普通話雙音節聲調感知實驗 李愛軍　王功平　殷志剛
15:40 – 16:10	Tea Break	
Oral Session 6	English session; Chair: Gloria YANG; Venue: Swire Hall 1	Poster session; Chair: 夏全勝; Venue: Swire Hall 2
16:10 – 16:35	Interbreeding between Neanderthals and Homo sapiens SZETO Pui Yiu	Posters in English and Posters in Chinese
16:35 – 17:00	Tonotypes: A case study of Chengyu Mandarin CUN Xi & ZHU Xiaonong	
17:00 – 17:25	Loans from Old Chinese? Revisit kuma and kwom 『bear』 in Japanese and Korean LIN Chihkai	
17:25 – 17:50	Repeatable or not WANG Qiang	

19 August 2013 (Monday)

Keynote Session 3 ; Chair: SHEN Zhongwei; Venue: Swire Hall 1		
09:00 – 09:50	**Syntactico-semantic change in Chinese: processes of analogy, reanalysis, external borrowing** Alain PEYRAUBE	
09:50 – 10:40	**Nouns and Verbs: Evolution of Grammatical Forms** SHEN Jiaxuan	
10:40 – 11:00	Tea Break	
Oral Session 7	English session; Chair: James MINETT; Venue: Swire Hall 1	Mandarin session; Chair:李愛軍; Venue: Swire Hall 2
11:00 – 11:30	**Cognates or Loan Words: 「the Similar Words」 in Korean and Old Chinese** EOM Ik-sang	漢語的R色彩聲母 麥耘
11:30 – 12:00	**Coexisting Human-denoting Interrogative Words in Early Southern Min Texts** LIEN Chinfa	音系演化的自組織性：自協與互協 陳保亞
12:00 – 12:30	**A non-uniform approach to inner and outer modifiers in Mandarin and Cantonese** Candice CHEUNG, LI Haoze	意音結合是任意的嗎？ 石鋒
12:30 – 12:45	**Closing Remarks**	
12:45 – 14:00	Lunch Break	

Biographical Sketches of Keynote Speakers



William S-Y. 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 Research Professor at the Chinese University of Hong Kong.

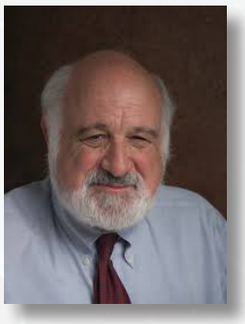
Language: from Birth to Senescence

William S-Y. WANG, The Chinese University of Hong Kong

Saturday, August 17th, 09:30-10:20 am, Cho Yiu Conference Hall

Language is a behavior that has evolved uniquely in our species. It is critically supported by several general-purpose, interacting biological systems. These include [1] sensory systems to observe the environment, i.e., hearing speech and reading texts; [2] motor systems to act upon the environment, i.e., speaking, signing, and writing; [3] memorial systems for accumulating experience and structuring these to form knowledge; and [4] based on this knowledge, computational systems for making deductions and inferences to produce new information for planning appropriate actions.

These supporting biological systems start to emerge before birth, develop through adulthood, and dissolve at senescence or through injury.Major biological changes, such as around puberty, impact language behavior in important ways.The best site for studying these biological systems is the brain. Thanks to ever more powerful techniques of imaging, which measure the electrical and magnetic properties of neural activities in space and time, we are beginning to understand how the brain processes language. It is important that the growth of biological knowledge of language be based on a truly diverse range of linguistic behaviors in the world, and not be limited to just several global languages. Eventually, we hope that this knowledge can help us to improve processes of language learning, as well as to more effectively intervene in a wide spectrum of behavioral dysfunctions which involve language.



Michael A. ARBIB is Fletcher Jones Professor of Computer Science, as well as a Professor of Biological Sciences, Biomedical Engineering, Electrical Engineering, Neuroscience and Psychology at the University of Southern California (USC), which he joined in 1986. He has also been named as one of a small group of University Professors at USC in recognition of his contributions across many disciplines.

Born in England, Arbib grew up in Australia with a B.Sc. (Hons.) in Pure Mathematics from Sydney University and received his Ph.D. in Mathematics from MIT in 1963. After five years at Stanford, he became Chairman of the Department of Computer and Information Science at the University of Massachusetts at Amherst in 1970 before joining USC.

The thrust of his work is expressed in the title of his first book, Brains, Machines and Mathematics (McGraw-Hill, 1964). He has based his career on the argument that we can learn much about machines from studying brains, and much about brains from studying machines. He has thus always worked for an interdisciplinary environment in which computer scientists and engineers can talk to neuroscientists and cognitive scientists. At the University of Massachusetts he helped found the Center for Systems Neuroscience, the Cognitive Science Program, and the Laboratory for Perceptual Robotics, for each of which he served as director. At USC, he was founder and first Director of the Center for Neural Engineering and the USC Brain Project, an interdisciplinary project in neuroinformatics.

He is a Board Member of the Academy of Neuroscience for Architecture, with a special interest in neuromorphic architecture in the sense of supplying buildings with an “interaction infrastructure” whose design is informed by research on computational models for cognitive and social neuroscience.

2012 saw the publication of Arbib’s 40th book, How the Brain Got Language: The Mirror System Hypothesis (Oxford University Press). Three edited volumes will follow from the MIT Press: From Neuron to Cognition and From Brain to Function and Language, Music and the Brain: A Mysterious Relationship.

The Mirror System Hypothesis: Current Controversies and the Challenges of Multi-Disciplinary Research

Michael A. ARBIB, University of Southern California

Saturday, August 17th, 10:20-11:10 am, Cho Yiu Conference Hall

In 1998, Rizzolatti&Arbib published the paper Language within our Grasp. Arbib’s new book How the Brain Got Language: The Mirror System Hypothesis (Oxford University Press, 2012) synthesized his research and that of others that exploited, modified, built upon and dramatically extended the key ideas of that basic paper. In 2013, scholars from a wide range of disciplines published a dozen commentaries on the book. In this talk, Arbib will discuss some of the controversies set forth in these commentaries, assessing their implication for the dynamic updating of theories of the evolution of the language-ready brain, and will address the challenges of maintaining linkages between diverse fields – Anthropology, Apraxia, Archeology, Computational Neuroscience, Linguistics, Neuroanatomy, Neuroimaging, Neurophysiology, Neuropsychology, Primatology, Sign Language Emergence, and Sign Language Neurolinguistics – in creating a coherent framework for assessing the findings of diverse subtheories.

Kenneth R. PUGH is the President and Director of Research at Haskins Laboratories, a Yale University and University of Connecticut affiliated inter-disciplinary institute, dedicated to the investigation of the biological bases of language. He also holds academic appointments as a Professor in the Department of Psychology at the University of Connecticut, and as an Associate Professor in the Department of Linguistics at Yale University, and as an Associate Professor, Department of Diagnostic Radiology at Yale University School of Medicine. Dr. Pugh also directs the Yale Reading Center. He is a member of the Scientific Advisory Board for the International Dyslexia Association, a corresponding member of the Rodin Remediation Academy in Stockholm, and served for four years as a Member of the Language and Communications Study Section at the National Institutes of Health (NIH). Dr. Pugh is currently serving as a member of the "Committee on the Learning Sciences: Foundations and Applications to Adolescent and Adult Literacy" at the National Research Council of the National Academies. His research program falls primarily in two broad domains: cognitive neuroscience and psycholinguistics. A fundamental interest continues to be research into the neurobiology of typical and atypical language and reading development in children.

Neurobiological investigations of spoken (and written) language

Kenneth R. PUGH, Haskins Laboratories, New Haven CT

Sunday, August 18th, 09:00-09:50 am, Swire Hall 1

We present an overview and update of ongoing research examining the brain bases of spoken and written language competence. We begin with a consideration of the evolution of the neural machinery for language, then discuss recent advances in our understanding of the neurocognitive systems supporting speech perception and production and the ways in which learning to read modifies spoken language systems. We next describe comparative studies from our team that examine the neural systems that support spoken and written language across four contrastive languages. Finally, we provide a brief update of ongoing work on the neurobiology of language disorders.

TAN Li-Hai is a Professor of Linguistics and Brain and Cognitive Sciences in the School of Humanities, The University of Hong Kong. He is Founder & Director of the State Key Lab, and is the Chief Scientist of a 973 project: Brain mechanisms underlying Chinese language processing and the neurogenetic basis for its disorders. He received his Ph.D. in psycholinguistics from the University of Hong Kong in 1995. Following post-doctoral research training in Learning Research and Development Center of the University of Pittsburgh, he started to work in this University in 1999. Prof. Tan has performed research in the field of psycho- and neuro-linguistics at the University of Hong Kong, the Research Imaging Center of the University of Texas Health Science Center, University of Pittsburgh, Intramural Research Programs of the National Institute of Mental Health of NIH, and Chinese Academy of Sciences. He founded the State Key Laboratory of Brain and Cognitive Sciences at the University of Hong Kong in 2005. He has served as an associate editor of the journal Human Brain Mapping, and is now an editorial board member of the following journals: Human Brain Mapping, Neuroscience, Journal of Neurolinguistics, Culture and Brain, Contemporary Linguistics, and Scientifica.

Prof. Tan's main research interest is to use neuroimaging (fMRI and ERPs) and cognitive techniques to investigate neuroanatomical and cognitive mechanisms underlying language processing, language learning, reading disorders, memory, and attention. The studies conducted by Prof. Tan and his collaborators have shown that the left middle frontal gyrus responsible for verbal working memory critically mediates Chinese character recognition, whereas the left posterior temporoparietal regions critical for English reading are less involved in Chinese reading. He also demonstrated that the neural systems for Chinese and English reading are shaped by learning experience of the two written languages and that activity levels of the left middle frontal cortex serve as a neurobiological marker of Chinese dyslexia. His current work is focused on the study of functions of left middle frontal gyrus in Chinese reading and how language interacts with perception at the neuroanatomical level.

Severe Reading Difficulty in Chinese Children: Prevalence and Neural Basis

TAN Lihai, The University of Hong Kong

Sunday, August 18th, 09:50-10:40 am, Swire Hall 1

Written Chinese differs from Western languages (e.g., English) in orthography and phonology, and thus, research with Chinese is important to advance our understanding of the universality and particularity of neural bases for language processing and reading disorders.Recent fMRIexperiments show that although there are common regions of the brain mediating the processing of all languages, the surface form of written languages significantly influence cerebral organization, indicating that language forms come to shape cognitive and learning strategies, which, in turn, tune the neural circuits involved in language processing. Specifically, the left middle frontal gyrus responsible for verbal working memory critically mediates Chinese reading and dyslexia, whereas the left posterior temporoparietal regions critical for English reading are less important for written Chinese. The language form, process, and location in the neural systems inter-depend. This interdependence has important implications for reading instruction, as well as for the pre-surgical identification of language regions in the brain in order to prevent the loss of language functions after neurosurgery.

Alain PEYRAUBE was born in November 1944 in Bordeaux where he received his schooling and his university degrees (BA in Linguistics, BA in Chinese, MA in Chinese Linguistics).

From 1973 to 1975 he was a foreign student at the Beijing Language Institute and Beijing University (Department of Chinese). He completed his PhD dissertation in 1976 (University of Paris 8) and his Doctorat d'Etat in 1984 (University of Paris 7). He is currently emeritus Director of Research at the Centre National de la Recherche Scientifique (CNRS, Paris, France) and Chair Professor of Chinese Linguistics at the Ecole des Hautes Etudes en Sciences Sociales (EHESS).

He has been Adjunct Professor at the Hong Kong University of Science and Technology from 2005 to 2011, and he is Honorary Professor at the Peking University since 2007, Founding Member of the Scientific Council of the European Research Council (ERC) since 2006, and member of the Academia Europaea (European Academy of Arts and Sciences) since 2006, and Honorary Member of the Chinese Academy of Social Sciences since 2009.

He is the author of more than a hundred books and articles on Chinese diachronic syntax and semantics, and on the typology of East Asian languages. His latest research has been carried out within a broadly functional and cognitive framework from a cross-linguistic perspective.

Syntactico-semantic change in Chinese: processes of analogy, reanalysis, external borrowing

Alain PEYRAUBE, Centre National de la Recherche Scientifique

Monday, August 19th, 09:00-09:50 am, Swire Hall 1

The paper will discuss the most debated topics of the past few years on syntactico-semantic change in a functional-cognitive perspective and propose a new model of grammatical change in Chinese by providing more solidly-based definitions of such notions as grammaticalization, lexicalization, degrammaticalization, exaptation, reanalysis, analogy for internal processes of change, but also for external ones, specifically, external borrowing through language contact.

It will be proposed that this new model has only two internal mechanisms: reanalysis and analogy, and then consequently argued that grammaticalization – which has been by far the focus of most of the studies on historical grammar in recent decades – is secondary. The processes of grammaticalization and exaptation will thus be viewed as sub-classes of reanalysis, while degrammaticalization/lexicalization will be more aptly viewed as a sub-class of analogy.

The main motivations (if not genuine explanations) for grammatical change will also be discussed, i.e. semantic-pragmatic change (including metaphorical extension, pragmatic inferencing or metonymization and (inter-)subjectification), structural requirements, typological tension, as well as others such as phonological change).

Concerning the third – and external - mechanism of change, examples will be provided to account for how Northwestern Sinitic languages such as Tangwang, Linxia, Wutun or Gan'gou have borrowed many morpho-syntactic structures from Altaic languages with which they have been in contact for several centuries.

SHEN Jiaxuan was born in Shanghai in March 1946. Prof. SHEN Jiaxuan graduated from the Department of Linguistics in the Graduate School of Chinese Academy of Social Sciences (CASS) in 1982. He has worked in the Institute of Linguistics of CASS ever since. Prof. Shen is now a CASS member, Research Professor of the Institute of Linguistics, President of the Chinese Linguistics Society, Member of the Executive Committee of Comite International Permanent des Linguistes (CIPL), Editor of the journal “ZhongguoYuwen” (“Chinese Language and Literature”) and “Contemporary Linguistics”.

Prof. Shen's research interest lies in the areas of Chinese grammar and language theory. His major works include "Bu Duicheng Yu Biaojilun" ("Asymmetries and the Markedness Theory"), "Renzhi Yu Hanyu YufaYanjiu" ("Research in Cognition and Chinese Grammar"), "Yufa Liu Jiang" ("Six Lectures on Grammar").

Nouns and Verbs :Evolution of Grammatical Forms

SHEN Jiaxuan, The Chinese Academy of Social Sciences

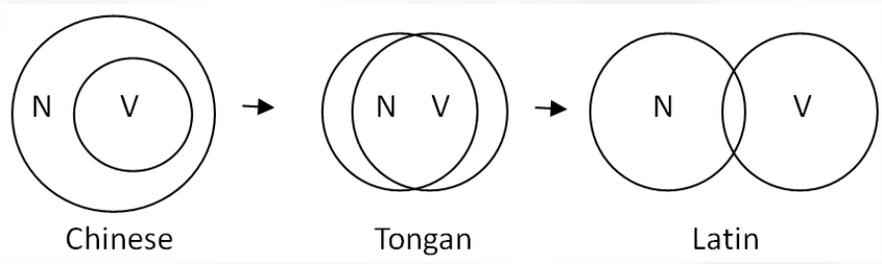
Sunday, August 19th, 09:50-10:40 am, Swire Hall 1

While NOUN and VERB are two separate syntactic classes in opposition to each other in Indo-European languages, in Chinese they are a pair of pragmatic classes REFERENCE and PREDICATION and not in opposition to each other. Chinese nouns constitute a super-noun category with verb as its sub-category. In other words, all verbs in Chinese are actually VERBAL NOUNS. Metaphorically, while the noun-verb relation in Indo-European languages is like a relation between *male* and *female*, in Chinese it is like a relation between *man* and *woman*.

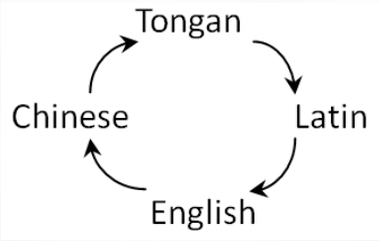
Various markedness theories generally admit there are two markedness patterns. One is the male/female pattern and the other the man/woman pattern. In the male/female pattern, the unmarked item does not have a feature [F] as the marked one does, and in the man/woman pattern the unmarked item is not specified whether it has a feature [F] as the marked one does. In Chinese the unmarked class noun is not specified whether it has the feature [predicate] as the verb class does. Since 2007 this super-noun pattern of noun-verb relation has been termed in a series of my papers the MW (man and woman) pattern in contrast to the noun-verb opposition pattern.

The philosophical background of the MW pattern is that in Chinese the concept 「to be」, expressed by 是 *shi*, has nothing to do with 「there be」 which is expressed by a separate word 有*yeou*. In Chinese philosophy, instead of *to be* or *not to be*, *to yeou* or *not to yeou*, that is the question. 「The problem of being」 does not even exit in Chinese philosophy, which is reflected in the fact that Chinese nouns are not subject to direct negation in grammar.

The evolution of grammatical forms can be deemed as a process of grammaticalization. Grammaticalization theory relies on regularities in the evolution of linguistic forms, especially on the unidirectionality principle and the implications it has for the reconstruction of earlier language states (Traugott& Heine 1991; Heine, Claudi& Hunnemeyer 1991; Hopper &Traugott 1993). According to Heine &Kuteva (2002), noun and verb are not on the same layer, and verbs evolve from within nouns. Based on Broschart (1997), an in-depth study on Tongan, a Polynesian language often deemed with no noun-verb distinction, we have proposed a gradual process of grammaticalization according to the criterion measuring the degree of N/V grammaticalizaion (Vogel 2000):



Just like a process of cell splitting, Chinese represents a non-grammaticalized state with 「verbs included in nouns」, Latin a highly grammaticalized state with 「verbs separated from nouns」 , and Tongan is in a transitional state somewhere between Chinese and Latin. Since English, in comparison with Latin or German, is now in a process of de-grammaticalization (Vogel 2000) , and Proto-Chinese is probably a language with some N/V morphology, the evolution of N/V patterns can reasonably be assumed as cyclic (Shen 2012a, 2012b).



The MW pattern proves to be instrumental in establishing a Chinese grammar with more comprehensive explanatory adequacy which foresees a fundamental change to the overall framework of the grammar which is otherwise deeply influenced by Indo-European perspectives (Shen 2009, 2010a, 2010b, 2011, 2012a, 2012b). It also deepens our understanding of the grammar of other familiar languages (Shen 2013). In addition, it may have implications for result interpretation and design of psycholinguistic and neurolinguistic experiments on children's acquisition of nouns and verbs, as well as their representation and processing in brain. Two cases are discussed in Shen&Yue (2013).

While Imai *et al*.（2008）finds that Chinese children are more 「noun-biased」 in comparison to their English and Japanese counterparts in learning nouns and verbs, Chan *et al*.（2011）based on Tardif *et al*.（2008）reaches the opposite conclusion that Chinese children are more 「verb-friendly」, although they use the same method of lexical matching. Both experiments are designed according to the noun/verb opposition pattern. Now if we adopt the MW pattern in Chinese and subject the results to reinterpretation, the apparent contradiction in the conclusions may be easily resolved, with the discrepancies being attributed to the fact that the latter experiment has a 「habituation stage」 which the former lacks.

Neuroimaging and neuropsychological studies on the neural representation of nouns and verbs have in general found that in English and other Indo-European languages, verbs are represented in the frontal region while nouns in the posterior regions of the brain. However, results from fMRI experiments by Li *et al*. (2004) and Yang *et al*. (2011) indicate that nouns and verbs in Chinese activate wide range of areas, including both the frontal and the posterior regions. The caudate nucleus is the only area where nouns are significantly more activated than verbs. The picture of neural representations of nouns and verbs in Chinese then, seems to contrast with the popular conviction that there exist distinct cortical regions for these two word classes. In their discussion of the contrasting data, they explained that the non-distinct brain responses to nouns and verbs might arise from the specific features of the Chinese grammar, in which verbs can be used as nouns and many nouns can be used as verbs. However, we believe that they have failed to find out what the noun-verb difference in caudate nucleus means exactly although they noticed that this area and prefrontal cortex share strikingly similar roles in some cognitive and linguistic tasks. Now the big picture of neural representation of Chinese nouns and verbs might be better interpreted if the MW pattern of Chinese word classes is accepted and a division is drawn between language representation and language processing in the brain.

Paul KAY is Professor emeritus of Linguistics at the University of California, Berkeley and Consulting Professor of Linguistics at Stanford University. He has done research on a wide range of topics in linguistic anthropology, linguistics and cognitive science, including lexical semantics, sociolinguistics, variation theory, semantics, syntax, and pragmatics. Particular areas of emphasis have included the cognitive implications of cross-language color naming and the encoding of contextual relations in grammatical constructions. His current research is primarily concerned with cognitive issues in color naming and with Sign-Based Construction Grammar.

Note: Very much to our regret, Paul Kay will not be able to join us at the Conference for personal reasons. He has kindly provided us with his Powerpoint presentation, which can be downloaded from the Conference website.

The Origins of Language in Human Evolution

P. Thomas SCHOENEMANN, *Indiana University, Bloomington, USA*

Given how important language is to the human condition, unraveling the story of language origins is central to understanding human evolution. Part of the story likely involves understanding the primate behavioral legacy that formed the foundation of our distant ancestors' journey. Attempts to date the origin of important aspects of language reston key assumptions about how language and material culture are connected, and onthe relationships between anatomy, brain, and behavior. It will be argued that, on the whole, the evidence points to a very ancient origin of significantly enhanced communication, though exactly when this would have been identifiable to modern linguists as 『language』 is unclear. Some critical components of language arguably date back to the emergence of the genus *Homo*, with some components(such as sequential processing) having an even deeper ancestry.

Language Evolution, by Exaptation, with the Mind Leading

Salikoko S. MUFWENE, *University of Chicago*

It has usually been claimed that language is what makes humans uniquely human. I submit that it is the mind as a general problem-solving capacity for adaptations to current ecological pressures that makes humans uniquely humans. Languages (indeed in the plural; see Freedman &Wang 1996, Mufwene 2013!) emerged concurrently with several other cultural artifacts and practices produced by the same human mind, as it evolved a greater cognitive capacity and generated larger and more adapted social organizations, along with altruism for the survival of the group rather than just of the physically stronger and cunning individuals. Language then fostered cooperation and the need to share knowledge and to benefit from each other's experience. Thus, language appears to have emerged as the communicative technology bridging the different minds toward common goals, accelerating the growth of both individual and communal knowledges and facilitating progress in adaptations to the changing physical ecologies, which include climates, fauna and flora, as well as social organization and the physical technologies innovated and spreading within particular populations. None of these claims precludes the role of some biological endowment, perhaps an unusual cumulation of biological traits that we share to variable extents with other animals, but that biological endowment need not be exclusively for language. It can be posited at the level of the mind responsible for the emergence of various cultural phenomena, including language.

The foregoing suggests that the phylogenetic emergence of languages had to be protracted and incremental, keeping up with the gradual complexification and sophistication of the mind, in accordance with how the human brain evolved, diverging from those of other animals, especially our closest kin the chimpanzees. They were produced by the cooption/ exaptation of hominine respiratory and mastication anatomy to bridge individual minds and facilitate cooperation through explicit sharing of knowledge, feelings, and intentions, a significant progress from the probabilistic mind-reading capacity we otherwise share with other animals. Exaptation applies not only to the anatomy but also to the self-scaffolding in the emergence of language itself, starting with the emergence of naming practices as an noteworthy improvement over pointing and the subsequent development of strategies of reference involving demonstrative and quantifiers, and the emergence of predication, which would have contributed to the emergence of the initial grammatical distinction between arguments and predicates. A challenge that evolutionary linguistics faces is to articulate the particular order in which different grammatical categories and the architecture of grammar emerged. Is the role of grammaticalization as central in this process as suggested by Heine &Kuteva (2007)? What role did the ability to travel in the mind (Corballis 2011)and reiteration (Lieberman 20o6) play in ways other than permitting embedding and the expansion of some basic units into larger and larger syntactic constructions? Are there particular interdependences that account for the emergence of some morphosyntactic strategies in (some) languages? Did phonetics grow independent of lexical expansion or in a way suggested by Wang (1969, 1979) about lexical diffusion and consistent with L1 acquisition? When did syntax begin and did it

coevolve with the lexicon (Gong*et al.* 2005)? I (will) address the question of the emergence of linguistic diversity elsewhere, though it is also germane to the subject matter of this paper.

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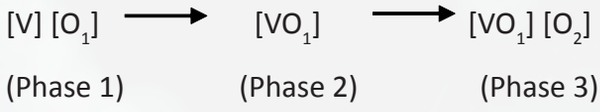
The Evolution of Verb-Object Disyllabic Transitive Verbs in Chinese

LI Yanzhi, WU Yicheng, *Zhejing University*

In Mandarin Chinese, there exists a type of disyllabic compound verbs in the form of [VO] such as 觀光 *guānguāng* 『take a tour of』 and *touzī*(投資)『invest』, which can take another noun phrase as their objects such as *guānguāng jilongpō*(觀光吉隆坡)『take a tour of Kuala Lumpur』and *touzī fangdichǎn*(投資房地產)『invest in housing』. An interesting question naturally arises: how did verb phrases as illustrated above evolve? This paper attempts to investigate the evolution of Chinese verb phrases in the form [Vo+O], with a focus on the syntactic as well as the semantic mechanism behind the diachronic process.

The above phenomenon has been first discussed in Xing (1997), which notes that such verbal construction once appeared in Han Dynasty and disappeared later. Interestingly, the number of [Vo+O] phrases is increasing nowadays. Based on a statistics showing that 298 of 3018 [VO] verbs in the Dictionary of Contemporary Chinese can take an object, Ling (1999) claims that this tendency may be motivated by the principle of economy (see Zipf1949; see Ren 2007, Li 2009 among others for similar discussions), e.g.*qu jilongpō guānguāng*(去吉隆坡觀光) 『go to Kuala Lumpur and take a tour』 is apparently less economical than *guānguāng jilongpō*(觀光吉隆坡)『take a tour of Kuala Lumpur』. More recently, Zhang (2010) discusses the motivation by which [VO] verbs turn into transitive ones, claiming that there is an invisible clitic-like preposition *yu*(於)『at/in/to』following such verbs which has been dropped. But this analysis does not seem to apply to all [VO] verbs.

In this paper, we first present a statistics concerning the distribution of [Vo+O] verb phrases, based on three dictionaries. It is revealed that in contemporary Chinese, nearly one third of disyllabic verbs in the form of [VO] are capable of taking an object. The transitivization of such verbs can be characterized by the diagram below:



In **Phrase 1**, V and O_1 are two discrete monosyllabic words both syntactically and semantically, e.g.

（1）觀國之光，利用賓於王。（《易經》）

Guānguozhīguāng, liyongbīnyuwang.

see country's sightbe good guests of the King

'In order to see the country's magnificent sights and virtues, it is better to be guests of the King.'

(*The Book of Changes*)

In **Phrase 2**, the originally free morpheme O_1 is incorporated into the verb as a bound one (Mithun 1984, 1986;Baker 1988). The transition from Phrase 1 to Phrase 2 is essentially a process of lexicalization(see Dong 2011), e.g.

（2）（大師）遊方施化，赴國觀光，然則楚問江萍……（清・陸心源《唐文拾遺》）

(Dashi) youfāngshīhua, fuguoguānguāng, ranzechǔwenjiāngping……

Master tour preach enlightenment go country see sights but Kingof Chu ask about *Jiangping* (referring to auspicious and rare things)… (Qing Dynasty, Lu Xinyuan, *Tangwenshiyi*)

'The Master is preaching during the tour, sightseeing in every country. And he was asked by the King of Chu about auspicious and rare things…'

In **Phrase 3**, the semantics of O_1as a bound morpheme is gradually bleached, whereas the transitivity of the Verb becomes salient again so that the transitivity of the whole [V+O_1] verb phrase becomes salient, which allows a new object O_2 to appear, e.g.

（3）倒是初次登堂，觀光你這葫蘆仙府，竟不曾帶得些賀禮來，心中怪抱歉的。（清《八仙得道（上）》

daoshichūcidēngtang, guānguāngnǐzhehuluxiānfǔ, ……（Qing Dynasty, *Bāxiāndedao*）

but the first time ascend your place see your mansion

'But this is the first time to ascend your honorable place, and see your mansion.'

Our study strongly suggests that transitive and intransitive verbs are interchangeable from time to time. We have not discussed the external factors which possibly motivate the shift from intransitivity to transitivity, we speculate that they are mainly pragmatic, such as frequency, brevity and prosody (i.e. the balance between the subject and object), as already discussed in the literature (Ling 1999, Ren 2007, Li 2009).

Key words: disyllabic verb, object, evolution, incorporation, transitivization

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Diachronic changes of motion expressions in Chinese and implications for the Linguistic Relativity Hypothesis

SHI Wenlei, WU Yicheng, *Zhejing University*

This paper investigates the diachronic changes of motion expressions in Chinese and their implications for the Linguistic Relativity Hypothesis (henceforth LHR). The LHR or Sapir-Whorf Hypothesis, i.e., the particular language one speaks influences the way one thinks about reality, has been examined extensively in numerous studies in the past several decades, and more and more linguistic evidence has been found to support the view that language has a profound effect on thought (e.g., Slobin 1996:91, see also Wolff & Holmes 2011 for an overview).

The Chinese language has undergone vast diachronic changes at every level of its system, which result in systematic differences between Ancient and Modern Chinese. If LRH is on the right track, a question that naturally arises is, are the systematic structural differences between Ancient and Modern Chinese paralleled by thought structure (by thought structure we mean the preferences over the organization of conceptual structures for discourse)? From the perspective of diachronic pattern shift of motion expressions (Talmy 2000; Slobin 2004), this paper attempts to provide some evidence that there do exist differences in thought structures between Modern and Ancient Chinese, which are shown to be constrained by relevant linguistic structures.

The paper is organized as follows. First, we select 180 motion 「episodes」 randomly from the sample corpus of Ancient Chinese (Mid-5th B.C. – Mid-3rd B.C.). Second, we select Modern Chinese translations of the 180 Ancient episodes as the parallel corpus. Given that the personal style of a translator might influence the result of the survey, we choose three different versions of modern translation for each ancient episode, and then take an average with regard to the percentage of motion expressions. Third, various different expressions of motion events are listed, in terms of parameters such as PATH, MANNER and GROUND. Other constructions are considered as well, such as V-*zhe*-V (e.g. 跑著進來*pǎozhe jinlai* 『run and enter』) and subordinate constructions. The result of our corpus study is shown in the table below, which summarizes the rise and fall of each parameter.

Changes	Parameters
Incremental rise	percentage of the types and tokens of manner verbs, the ratio of the types of manner verbs to those of path verbs, percentage of the manner + path verb constructions, percentage of events carrying grounds, percentage of alternative expression of manner
Incremental fall	percentage of the types and tokens of path verbs, percentage of the path verb constructions, percentage of events without grounds

Our statistical study reveals that (i) the linguistic encoding of MANNER in Modern Chinese is more expressive and has a striking tendency of diversification; (ii) the linguistic encoding of PATH in Modern Chinese has a tendency towards convergence. In the course of diversification and converging, ancient synthetic verbs change to analytic ones in Modern Chinese (e.g., 涉*she* 「cross river on foot」→徒步…過*tubu…guo* 「walking… cross」, 奔*bēn*→逃到*taodao*), and other constructions (other than Satellite-framed pattern) are gradually reanalyzed and integrated as Satellite-framed pattern (e.g., 歸*guī* 「be back」→帶回*daihui* 「brink back」);

and (iii) the percentage of events carrying GROUNDs rises prominently. All the facts point to the conclusion that the differences between Ancient Chinese and Modern Chinese in the way people select and arrange the semantic elements of motion (e.g., PATH, MANNER, and GROUND) in discourse/language-use are strikingly systematic.

Our findings strongly suggest that (i) Chinese has been undergoing a typological shift from a Verb-framed language towards a Satellite-framed language (Shi & Wu to appear); (ii) the diachronic changes as indicated in the above table correlate with the diachronic changes of language structure (e.g., from coordinate to subordinate mightiness, disyllabification, development of verb-complement construction, and grammaticalization of path verbs); (iii) thought structures, which are manifested by the way people select and arrange the semantic elements of motion (e.g., PATH, MANNER, and GROUND), are constrained by the differences of relevant language structures.
Key words: Motion expressions; Chinese language; Diachronic changes; linguistic relativity

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Simulating the Self-organization of Vowel Chain Shifts

Katia CHIRKOVA, GONG Tao, *CRLAO-CNRS; University of Hong Kong*

This paper concerns computer simulation of (1) *vowel chain shifts*: a series of related sound changes that lead to a rearrangement of the phonetic realizations of the phonemes involved, without the loss or gain of any phonemic contrast, and (2) their opposite, *merger*: loss of the original distinction between two phonemes. Despite the fact that both chain shifts and merges are commonly observed across languages, their underlying mechanisms and motivations are the subject to ongoing debate. Some competing explanations include (1) preservation of phonemic contrast and avoidance of merger (Martinet 1955, Labov 1994), and (2) self-organizing property of the vowel space (e.g. Blevins 2004, Ettlinger 2007).

The present study explores the respective impact of these factors in relation to real-world data: vocalic chain shift and merger as observed between the two dialects of the Xumi language (Tibeto-Burman), Lower Xumi and Upper Xumi (Chirkova and Chen 2013, Chirkova et al. 2013). Compared to their counterparts in the vowel system of Lower Xumi, the vowels of Upper Xumi evidence a chain shift that consists of the raising and centralization of most vowels. This chain shift is triggered by the addition to the system of a loan phoneme (/ɔ/) from its contact dialect of Tibetan.

For our simulations, we adapt de Boer's (2000, 2001) model, originally developed to study the formation of vowel systems in a population of artificial agents, under constraints of perception and production. In the original model, the agents are equipped with a realistic articulatory synthesizer, a realistic perception model, and abilities to imitate, learn and update the sounds they hear. Agents store vowels as prototypes and update them during iterated, pairwise imitation games. De Boer's model, originally designed to study the emergence of artificial vowel systems, was modified to suit the purposes of this study. First, a number of mechanisms (such as the occasional adding of random vowels to increase the size of vowel repertoires) have been disallowed. Second, a number of mechanisms have been added or modified. These include (a) the

shift-away mechanism and (b) merger. The shift-away mechanism is performed by the imitator in any failed imitation game, during which the imitator reversely updates the acoustic properties of the vowel it uses so that the articulatory distance between the changed vowel and the vowel the imitator heard increases maximally. This mechanism reflects the preservation of contrast operation. The aim of this modification is to determine whether this local operation can trigger a vowel shift. The shift-away mechanism is used in combination with the original shift-closer mechanism, performed by the imitator in any successful imitation game (during which the imitator updated the acoustic properties of the vowel it used so that the articulatory distance between the changed vowel and the one it heard became closer). Merger refers to the merge of two vowels whose articulatory or acoustic distance in the vowel space is so close that they would be confused with each other due to the noise added. This operation is implemented by discarding that vowel that has a lower rate of successful use. Our modification of this original mechanism in de Boer's model consists in allowing for the possibility to turn on or off the function merger in order to systematically study its impact on vowel arrangements in simulations.

Based on this modified model, we conduct simulations (1) to reproduce the vowel system of Lower Xumi; and (2) to examine the evolution of that system with the phoneme /ɔ/ added to the vowel inventory. The ensuing developments are studied under two conditions: (a) with the system allowing vowels to merge, and (b) with the merger function disallowed.

Our simulation results demonstrate that self-organization under constraints of perception and production alone does not account for the observed chain shift in Upper Xumi. In other words, optimization of the system of Lower Xumi under constraints of perception and production, after the vowel /ɔ/ is added to the system, leads to vowel merger (involving vowels /e/, /ɛ/, and /ɐ/). This is distinct from the empirically observed development in Upper Xumi, where the merger of the high vowels /i/ & /e/, and /u/ & /ʉ/ is observed instead.

Instead, the Upper Xumi vowel arrangements and the empirically attested raising and centralization of the vowels can be approximated, if the global property of self-organization is subordinate to the local operation of contrast maintenance. This happens under a large number of different parameter settings and therefore seems to be a very robust phenomenon. The paper concludes with a discussion of possible additional local constraints, such as phonological and lexical biases (e.g. Labov 1994: 328-331, Blevins & Wedel 2009), which need to be incorporated in the model to further bridge the gap between the empirically attested changes in Xumi and the simulation results.

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How do children settle a tone system from multi-speaker speech input? An agent-based model of the abstract and episodic normalization mechanism

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There are tremendous acoustic differences in the speech of different speakers in a community, which pose a challenge for speech perception and language acquisition. How do children build mental representations of phonetic systems from the speech input when it is entangled with such enormous speaker variability?

There are two main hypotheses regarding the normalization mechanism and the mental representation of phonetic categories. The first hypothesis assumes that speaker variability in speech signals is mitigated by transforming the acoustic signals into abstract, speaker-invariant representations of the phonetic categories (such as in terms of the distances between neighboring formants for vowel recognition) (e.g., Syrdal and Gopal, 1986). The second hypothesis suggests that episodic traces of sounds, which include phonetic details of that particular speaker, are stored in memory and mediate perception later on—the representations of phonetic categories, therefore, are not abstract, but encode speaker-dependent details (e.g., Goldinger, 1998; Zhang et al., 2012).

Beginning with the seminal study by Liljencrants and Lindblom (1972), numerous papers have made use of computational simulations to model the evolution of sounds systems, particularly vowels (e.g., de Boer, 2000; Ke et al., 2003). Most, however, have focused on how the complexity of sound systems evolves, and have left the impact of the normalization mechanism unexplored. In this study, we will implement an agent-based model (e.g., Gong and Minett, 2009)of both the abstract and episodic normalization mechanism in order to assess which mechanism can support more efficient transmission of sound systems (specifically tones) between generations.

The model simulates a population of computational agents (mimicking human children and adults) that interact over successive generations, each generation of child agents acquiring a tone system from the adult agents (vertical transmission) and other child agents (horizontal transmission). In each run of the simulation, child agents will be assigned either an **abstract** normalization mechanism, which allows them to reduce speaker variability in fundamental frequency (F0) by estimating the relative location of a F0 within a particular speaker's F0 range, or an **episodic** normalization mechanism, which allows them to retain in memory a finite set of recently heard episodic exemplars labeled with gender or speaker identity (e.g., the acoustic features of a tone produced by the child agent's mother). A hybrid model combining the abstract and episodic mechanisms may also be examined. After a finite set of interactions with other agents, based on which each child agent acquires a tone system, the population of agents is updated, for example by replacing a subset of the adult agents with child agents, and a new set of child agents introduced to maintain a constant population size. We assume that adult agents produce tones (modeled acoustically in terms of mean F0 height and slope) consistent with the perceptual representations acquired during childhood. We will compare the effects of the two normalization mechanisms on the acquisition and maintenance of tone systems over generations based on a number of measures, including tone system stability and inter-agent tone system consistency.

Solving speaker variability is a fundamental issue in language acquisition, which ensures the successful acquisition of lexicon and other aspects of a language. Findings of this study may shed light on how phonetic categories are formed and stored from multi-speaker speech input in language acquisition, and on the normalization mechanisms that might have been necessary for the complex phonetic systems that characterize human speech to have first emerged.

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Rhyming as an Indicator of Sound Change: The Case of Hong Kong Cantonese

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In this paper I argue for a re-conceptualization of rhyming. The concept of rhyming should not be deemed categorical, i.e. either rhymes or non-rhymes. Rather, between non-rhymes and rhymes there is a gradient, forming a continuum of rhymability. For demonstration, lyrics of more than 3,000 Cantonese popular songs from Hong Kong across 15 years are collected for investigation. Results are indicated by a scale called Rhymability Coefficient (RC), which is computed on the basis of inferential statistics.

The second part of the paper will focus on an often cited sound change in Hong Kong Cantonese – merger of codas by means of alveolarization, i.e. [-ŋ]>[-n] and [-k]>[-t] (Bauer 1979; Zee 1999). It is an on-going sound change which seems to start in the environment of low nuclei [a ɐ] (Cheung 1986:214-215), but have spread to cases of mid-low nuclei [ɛː œː ɔː], at least among the younger generation. According to Cheung (2003), the process of merger seems to begin to further spread to mid-high nucleus syllables [ɪŋ ʊŋ] as well. However, no longitudinal evidence was collected to reveal the spreading of such a sound change over time. This study suggests that by comparing RCs of rhyme pairs in different periods of time, one is able to document the trace of sound change happened to the rime.

It is found that the RCs between [ɐn] and [ɐŋ] are quite stable across 15 years, staying at a high level of rhymability. On the contrary, a gradual increase from medium to high rhymability is recorded for [ɔːn] and [ɔːŋ], showing that the merger of [-ŋ] and [-n] is taking place at rimes with mid-low nuclei. Also, the rapid rise from trivial to nearly medium rhymability for [ɵn] and [ʊŋ] may indicate that the said merger is spreading to rimes with mid-high vowels. By joining the three trends consecutively, we may come up with an S-shaped curve which is widely adopted by the lexical-diffusion model of sound change (Shen 1990).

An explanation to this phenomenon is that rhyming reflects people's perception of the phonological similarities between two rimes, and studies of merger in progress indicate that merger is led by changes in speech perception and followed by changes in speech production (Labov 1994: 355), therefore if there is a merging process between two rimes, we expect a rise in their RC since people should perceive them as the same. Only when such findings are obtained, we may assume that the rhyme words concerned are acquiring a changed pronunciation and abandoning the old one.

Perceptual Distance as a Criterion for the Reconstructionof main vowelsof Rhyme Categories in Old Chinese

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The reconstruction of the main vowels for the rhyme categories in Old Chinese is one the most controversial topics in Chinese historical phonological studies. It is widely believed that the reconstruction should account for both the rhyme materials, such asShijing, and its evolution to Middle Chinese.

The concept of Grade was introduced from Middle Chinese to explain the evolution and how to treat the distinction of Grades in Old Chinese led to different reconstructions of the main vowels of rhyme categories. The inclusion of different main vowelsin one rhyme category is the natural conclusion that the difference of Grades lay in vowels but not medials. According to the common sense of rhyme, if two syllables rhyme, the finals should sound harmonically or similarly. So did the different vowels stuffed in one rhyme category sound similarly? Can different vowels rhyme and to what extent do two vowels differentiate that they can't rhyme?

The materials of Thirteen Rhyme Groups were quoted frequently as the evidence that different vowels can rhymebut interpreted from the theory of phoneme as a false statement. In this article, I will arguethat phonemic theory can't be used as the solution to this dispute because of the non-uniqueness of its abstraction and phonetic questions should be solved phonetically. The Thirteen Rhyme Groups evidencesare valid and different vowels do rhyme and this difference should be in the range of similarity at the same time. Now the key question is to define the similarity.

Perceptual distance or space among vowels is an objective criterion for defining vowel similarity. Some scholars proposed a three-dimensional vowel space for vowel analysis, which is based on acoustic and perceptual nature of vowels, and each vowel can be specified by matrices of dimension value. Consequently, the distance between vowels can be measured by the distance formula as in Cartesian coordinate system. Resorting to this criterion, I analyzed the existing vowel reconstruction suggestions and combed out the unlikely reconstructions, and proposed possible vowels can be utilized for each rhyme category. With the help of perceptual distance of vowels, we hope to place the reconstructions on a more solid foundation.

Applied Lexicon Hierarchies for Ethnic Groups Released by Psychological Experiments

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Swadesh wordlist involves an important concept: How vocabulary is stored in human psychological lexicon? Is it in order? Is it of hierarchy? In consideration of the hierarchical and ordered characteristics of vocabulary shown in practical application to teaching and daily communication, this paper, based on psychological experiment, made an attempt approach at discussing the classification of different ethnic groups' basic vocabulary, in other words, with application hierarchy and order at exploring whether hierarchy and order exist in human psycho-lexicon. Swadesh wordlist contains 100 core words and 100 sub-core words classified respectively as rank-1 and rank-2 core words by Baoya Chen. According to the usage principle of ordinary, stability and frequency, words consistent with core word cognitive category are selected as rank-3 non-core words (see appendix). The experiment selected 78 subjects from four language groups, including a northern monolingual group(NMG), Han group(HG), a northern bilingual group(NBG) and a southern bilingual group(SBG) to investigate the discrepancies in different ranks of core vocabulary and non-core vocabulary between different ethnic groups by means of recording subjects' reaction time when naming some pictures which are identified from standard graphics lib unanimously determined in psychological circles by comprehensively referring to technical indexes of consistency of naming, concept and presentation with larger proportion and lower visual complexity. Consequently, the subjectivity in selecting non-core words and the influence degree of pictures on subjects will be decreased.

According to statistics by the software R-Linear Mixed Model, differences and similarities of the reaction time to psychological lexicon of different ethnic groups can be found. The common feature is that these core and non-core vocabularies in psychological lexicon of the southern and the northern groups are without hierarchy and order. The difference is that the HG have dramatically different reaction time in naming ($p<0.05$) rank-2 core vocabulary and rank-3 non-core vocabulary. The reaction speed for rank-2 core vocabulary is slower than that of rank-3 non-core vocabulary which is of high usage frequency usually. This demonstrates the order and rank of words in their usage (figure 1). Although figure-2 shows, for the NMG and the NBG, there is no hierarchy here in rank-1, rank-2 and rank-3 vocabulary, yet in the language experiment, core and non-core vocabulary are with the feature of hierarchy and order. For example, when the NBG and the NMG name the picture words in Chinese, their reaction time to rank-1, rank-2 and rank-3 vocabulary is hierarchically different (Figure 3) and the feature of order won't be affect by their mother language.

In conclusion, the psychological experimental method manifests the psychological words stored by different ethnic groups in mother tongue is non-hierarchical and in disorder. However, the features of non-hierarchy and disorder are relative since these words are sometimes featured with hierarchy and order in practical use of language acquisition and daily communication.

Swadesh wordlist originated from glottochronology plays an essential role in studying cognate words. However, as noted by Feng Wang & William S.Y. Wang, 「whether there is a universal boundary between high/low rank basic words in world languages and how to determine it」 makes the answer evidently important, with regard to furthering the study of the distinctions between cognate words and loanwords, and even in practically operating on historical comparison. This paper hopes that the findings will have the reference value in classifying the basic words.

The Phonological/Executive Working Memory Model in Language

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The study aims to tease out the elusive role played by the cognitive construct of working memory (WM) in first and second language. Towards this end, it draws on established literatures in neuroscience, brain-imaging studies, cognitive psychology, developmental psychology and second language acquisition (SLA) research to propose a theoretical framework for conceptualizing and assessing WM as it relates to various aspects/domains of first and second language learning (Wen, 2012 & 2013a). The central tenet of the so-called integrated WM-Language framework (Wen, 2013a) lies in its postulation that the phonological component of working memory (PSTM) plays an instrumental role key in acquisitional and developmental aspects of first and second language (e.g. vocabulary, formula and grammar); while other real-time language processing activities, such as listening, speaking, reading, writing, and interpreting are mainly sub-served by the executive component of working memory (EWM).

Couched within this dichotomy of the Phonological/Executive WM distinction (i.e. the P/E Model, Wen, 2013a 2013b & 2013c; which emulates the D/P model by Michael Ullman, 2001, 2005, 2012 & 2013) are also some general guidelines as well as more specific stipulations for implementing measurement procedures. In terms of measurement, for example, this P/E model proposes that a simple WM span task (i.e. the nonword repetition span task) be adopted to measure PSTM; while a complex memory span task should be used for measuring EWM (e.g. reading span task, operation span task). In addition, the P/E model also stipulates that in WM-L1 research, *age* should be the most decisive factor for choosing WM measures (e.g. simple span task for children vs. complex memory task for adults) should be most decisive, while in WM-SLA research the long-term memory measure of *L2 proficiency* level of targeted participants should enjoy priority (e.g. simple span task for beginners; while complex memory task are for testing intermediate and more advanced participants).

It is argued that, when the two most directly implicated WM components (i.e. PSTM and EWM) are thus pinned down and their associated functions/mechanisms further aligned with specific L1 and L2 learning

domains and processes, we can proceed to formulate novel, specific and testable hypotheses regarding their intricate relationships. Therefore, future research can set out to either prove or falsify those hypotheses outlined in this P/E model and to further tease apart all possible theoretical and pedagogical ramifications thereof. (384 words)

The Inexplicability Principle and Recognition of Genetic Relationship

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The Inexplicability Principlehas been proposed as one part of the Distillation method in Sino-Bai comparison. It means the inability to describe a recipient language in terms of the phonological system of the donor language. Since the related morphemes are caused either by borrowing or by inheritance, the inexplicable elements by borrowing are considered to be inherited from the ancestor language. In its application to Sino-Tai numerals, some puzzle appears. For instance, Tai *hɑC 『five』 is related to OC *ŋɑg x 『five』, but the initial *h- in Tai cannot be borrowed from *ŋ- in OC. Therefore, it seems that they must be inherited from Proto-Sino-Tai **hŋ- and developed into *h- and *-ŋ, independently. That means, Sino-Tai related numeral 『five』 are inherited. However, Chen (2007) provided enough evidence to confirm that Tai *hɑC 『five』 is borrowed from Chinese. To resolve this puzzle, we examine the phonological development related to 『five』 in Chinese and Tai, and it is suggested that the inexplicability principle is constrained by our knowledge of phonology of languages in comparison. In conclusion, the inexplicability principle is tenable, but it should be used with caution.

Recent Advances in Molecular Genetics and Implications for the Origin of Language

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Evolutionary linguistics comprises both the origin of language as a human ability and the development and change of languages throughout human history. Although much work has been done on the diversification of languages and the reconstruction of protolanguages, considerable ambiguity remains about the origin of the main language families and even more about the origin of language itself. For many years this topic was proscribed in linguistic research as purely speculative, given the lack of empirical data, but several fruitful lines of research have emerged in recent years, including comparative studies of animal communication and neurolinguisticstudies of brain development. In this paper we will discuss how recent developments in biology and molecular genetics suggest that the origin of language may have been more rapid than expected by Darwinian mechanisms.

Initially, researchers in both biology and linguistics explicitly or implicitly followed a neo-Darwinian model(Berwick & Chomsky, 2011), but recently linguists have challenged all three pillars of Darwinism: common descent, natural selection, and gradualism. Research in creoles, recognition of the importance of borrowing and areal features have all challenged the idea that language evolution is strictly linear, some have questioned the efficacy of natural selection as a creative force(Tattersall, 2004), and many linguists, although by no means all, assert that the faculty of language arose suddenly, as a saltation, the result of a single developmental mutation of relatively large effect (Berwick, 2011; Fitch, Hauser, & Chomsky, 2005; Orr, 2005). Biologists have been slower to accept these ideas, undoubtedly due to devotion to the perceived founder of evolutionary theory.

For many linguists, the origin of language and symbolic thought is considered to be the essential element of 『humanness.』 As with the origin of life, it is thought to be a highly improbable stochastic event, and therefore a singular event, possibly within the last 100,000 years(Berwick & Chomsky, 2011), although there is debate about whether recursive processing(Hauser, Chomsky, & Fitch, 2002)or lexicon(Ott, 2009) was the triggering mechanism. There is increasing evidence that two ape chromosomes may have fused to form one human chromosome (Chimpanzee Sequencing and Analysis Consortium, 2005), but little has been said about the difficulties this would cause for meiosis and reproduction, unless there were

at least two individuals with the same mutation, further exacerbating the problem of low probability.

Whether attributed to neoteny(Gould, 1977, Lanyon, 2006)or more general heterochrony(Shea, 1989), there is good evidence that human brains at birth are relatively less developed and more plastic than other primates, allowing the possibility that our brains can be shaped to a greater extent by social interaction. Extensive post-natal development of the prefrontal region(Sakai, et al., 2011) and myelination(Gibson, 1991) during the critical period of language learning suggests that language learning may be related to development of specific connections in the infant brain. Evidence of the ability of the fetus to distinguish phonemeseven before the cortical layers are completely formed (Mahmoudzadeha et al., 2013) may help explain why language ability appears to be inborn, although no genetic basis has been found for it.

Recent work in molecular genetics lends credence to the potential for rapid, directed change in organisms (Shapiro, 2011). In particular, the retrotransposon*Alu*, found only in primates and in higher numbers in humans than apes, is frequently associated with genes that have an effect on brain development(Baillie et al., 2012) that appear to have evolved rapidly since the split of the ape and human lineages (Britten, 2012).Recent advances in evo-devo (Muller, 2007) and epigenetics (Gibbs, 2003) also suggest possible saltational mechanisms for the origin of both language and humanness.

In this paper, a biologist and a linguist jointly examine the evidence for rapid and possibly directed change, based on recent advances in molecular genetics, and the importance of these findings to evolutionary linguistics.

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A Study on the Evolution of Syllabic Structure in Tibetan

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The evolution of language influenced by different elements among which the syllabic structure is very important is complex. This paper studied the basic phenomena and rules of syllabic structure in Tibetan evolution.

The Tibetan syllabic structures are very complicated. In the seventh century, there was no tone but a large number of consonant cluster initials and consonant endings in old Tibetan. The consonant cluster initials were mainly composed of pre-initial, top initial, bottom initial and the root initial and there were 220 Tibetan initials in which there were 5 pre-initials, 3 top-initials, 30 root initials and 3 bottom initials.

After the research on the structures of initials and finals of 5000 single syllable words, we have found that there are great differences which are all reflected in the Tibetan evolution in the composition of initials and the structural phoneme load because of the different characteristics of initials. The results showed 1) the pre-initial, top-initial and bottom initial were different with the root initial in the Tibetan evolution because the formers could be merged together or become as a feature of root initial. The root initial couldonly be changed by other featuresbut not vanish; 2) the structural phoneme load influenced by the different parts of initials was different in Tibetan evolution; 3) from the view point of syllabic structure, the vanishingof voiced consonant led the generation of Tibetan tones.

In a word, the study on the evolution of syllabic structure in Tibetan established a foundation which made it possible for establishing a mathematical model of Tibetan evolution.

Variation Between the Two Nasal Codas [-n] and [-ŋ]: The Interplay of Universals and Contact-induced Change in Singapore Mandarin

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Mandarin is one of the official languages of Singapore. It is a type of Mandarin based on the dialect of Beijing. However, due primarily to language contact with the other languages spoken in Singapore, such as English, Malay, Tamil and the modern Southern Chinese coastal dialects, namely the Min dialects, Cantonese, Hakka, etc., the Mandarin commonly spoken in Singapore differs considerably from that of Beijing in phonology, syntax and lexicon. Hence, Mandarin spoken in Singapore is regarded as the emergence of a new variety of Mandarin from language contact, and is named Singapore Mandarin.

Majority of the research on Singapore Mandarin regarded any form of Singapore Mandarin, which is different from Standard Mandarin, i.e. Putonghua (普通話), in Mainland China as being a deviant variety. Many of these studies argued that the variant features of Singapore Mandarin result from incomplete learning,

interference and error. For instance, Chen's (1993) study on salient segmental features of Singapore Mandarin. I exemplify them by examining one of them, variation between the two nasal codas [-n] and [-ŋ]. Chen (1993) argued that this variation results from the interference of Southern Chinese dialects. [1] Set aside the validity of the statistical evidence provided by Chen, dialect interference may explain the variation between [-n] and [-ŋ] in the speech of elder speakers. However, if we take 'generation' into consideration as a variable, dialect interference may not be the whole story, considering that younger speakers in the Singapore Chinese community do not acquire Chinese dialects; they speak either Singapore Mandarin or English at home. As such, based on the development of Mandarin in Singapore, I account that the variation between [-n] and [-ŋ] is possibly a trait of vernacular universals. [2] This does not deny the theory of language contact; on the contrary, such a discussion may weigh relative merits of the language contact and vernacular universals accounts. [3] Gold's (2009) case study of the Bungi dialect accredited the validity of the theory of vernacular universals in explaining the persistence of such traits in vernaculars worldwide, but emphasized that it should be considered together with the effects of language contact and shift when analyzing the specific dialect features.

Variation between [-n] and [-ŋ] in Singapore Mandarin was observed in four pairs of finals: [-an] vs [-aŋ], [-ən] vs [-əŋ], [in] vs [-iŋ] and [uan] vs [uaŋ]. (Chen 1993, Chua 2003) The following examples were given in Chua (2003).

(1) [-n] > [-ŋ]
繁[fan] > [faŋ]
門[mən] > [məŋ]
因[in] > [iŋ]
款[k』uan] > [k』uaŋ]

(2) [-ŋ] > [-n]
聲[ʂəŋ] > [ʂən]
經[tɕiŋ] > [tɕin]

Chen and Chua argued that such variation rarely appeared between the pair [-ian] and [-iaŋ]. Yet, from our observation, it does occur, as in 一樣[iaŋ] > 一樣[ian], in the speech of elder speakers in the Singapore Chinese community. However, the replacement of [-iaŋ] by [-ian] does not occur in the speech of younger speakers. Following this, we would like to point out that the examples provided by Chua (2003) may reflect the speech of elder speakers in the Singapore Chinese community nowadays. Yet, we find that variation between the two nasal codas in [-an] vs [-aŋ] and [uan] vs [uaŋ], as well, rarely occurs in the speech of younger speakers who have been acquiring Mandarin in a more perfect curriculum. [4] The disappearance of variation between the two nasal codas in [-an] vs [-aŋ], [uan] vs [uaŋ] and [-ian] vs [-iaŋ] over generations shows a reorganization of the nasal endings in the phonological system of Singapore Mandarin. Another sound change among younger speakers is the dying out of the fifth tone in Singapore Mandarin, and it shows a reversal in the direction of change. [5] These changes, on one hand, indicate that the linguistic system is undergoing some microevolutions; on the other hand, they virtually highlight those features, which persist in the system. And the unchanged deserve explanations.

Precisely, in Singapore Mandarin, variation between the nasal codas [-n] and [-ŋ] is not free; instead, it is a conditional variation. The replacement of [-n] by [-ŋ] occurs only in final [-in], e.g. 今[tɕin]天 > 今[tɕiŋ]天, 入侵[tɕ'in] > 入侵[tɕ'iŋ], while the replacement of [-ŋ] by [-n] occurs only in final [-əŋ], e.g. 朋[p'əŋ]友 > 朋[p'ən]友, 更[kəŋ] > 更[kən]. Such variation between the nasal codas in Singapore Mandarin is not unique crosslinguistically. It is also one of the salient features in the Mandarin spoken in Taiwan. Then, here comes a question: Why do the replacements of [-n] by [-ŋ] in the final [-in] and [-ŋ] by [-n] in the final [-əŋ] persist in a linguistic system while the variation between the nasal codas in the other finals die out?

We account that the dying out of the three pairs of finals: [-an] vs [-aŋ], [-uan] vs [-uaŋ] and [-ian] vs [-iaŋ], and the persistence of the finals: [-in] vs [-iŋ] and [-ən] vs [-əŋ] in the variation between the two nasal codas show vernacular universals and the condition that triggers is sonority of the vowel, since Mandarin does not have stress. In the speech of younger speakers, variation between the two nasal codas in [-an] vs [-aŋ], [-uan] vs [-uaŋ] and [-ian] vs [-iaŋ] rarely occurs as the nucleus, [-a-], in these pairs is high in sonority. In contrast,

the nucleus, [-i-] and [-ə-] in the pairs [-in] vs [-iŋ] and [-ən] vs [-əŋ] are lower in sonority. If we consider the final as a whole, [-an], [-aŋ], [-uan], [-uaŋ], [-ian] and [-iaŋ] are high-sonority finals while [-in], [-iŋ], [-ən] and [-əŋ] are low-sonority finals. In terms of 'stress', the finals [-an], [-aŋ], [-uan], [-uaŋ], [-ian] and [-iaŋ] are considered stressed while the finals [-in], [-iŋ], [-ən] and [-əŋ] are considered unstressed. As such, variation between [-n] and [-ŋ] in the pairs [-in] > [-iŋ] and [-əŋ] > [-ən] adhere to vernacular universals and persist in the linguistic system while the others are dying out.

The variation between the two nasal codas [-n] and [-ŋ] in Singapore Mandarin is just one of the case studies. A major conclusion is that although Singapore Mandarin is clearly a contact language, the theory of language contact may not be able to tell the whole story of this linguistic system. We are also not to put the theory of vernacular universals on a pedestal. The primary aim to bring out the concept of universality in the research of Singapore Mandarin is to indicate the 'entangled relation' between contact-induced change and universality, so as to account for the evolution of Singapore Mandarin with more comprehensive perspectives. [6]

[1] Chen's (1993) investigation indicated, 「The Teochew Group showed a decidedly greater difficulty in pronouncing the final [-in]. This was, however, expected, as Teochew is the only dialect among the five (i.e. Hokkien, Teochew, Cantonese, Hakka and Hainanese) that does not have the [-n] ending. Corresponding to the [-n] in other dialects, Teochew has [-m], [-ŋ] and ṽ (nasalized vowels). The average percentage of correct readings by the Teochew group was 65.1%, compared to 82.6%-87.2% by other groups.」 As in the pronunciation of the final [-əŋ], 「the Teochew Group, having no [-n] vs [-ŋ] contrast in their dialect, again showed their bewilderment. They scored 52.5% correct readings compared to 91.0%-86.9% by the other groups.」 (Chen 1993)

[2] The Chinese in Singapore have been speaking Southern Chinese dialects since their ancestor settled in Singapore in early nineteenth century. The main language groups of the Chinese in Singapore, according to the ways these Chinese dialects have been referred to in Singapore, were Hokkien, Teochew, Cantonese, Hakka and Hainanese. Left therefore to take care for themselves, the Chinese migrants formed numerous associations and societies. One of the important roles that most of these associations played was to run Chinese schools. These schools were specially set up for the children of these Chinese immigrants. The textbooks were written in classical Chinese, and Chinese dialects were used as the medium of instructions.

Following the theme of national unity and nationalism in China, reformists and revolutionaries were supporting the idea of promoting guo yu 國語 (national language) instead of all the other various Chinese dialects. (Puru Shotam 1989) In order to promote language unity against dialect diversity, campaigns to promote the study of Mandarin were begun. After 1917, when the National Language Movement was started in Mainland China, guo yu 國語, which is referred to as Standard Mandarin, was adopted as the medium of instruction in most Chinese schools in Singapore. However, Chinese dialects did not totally lost their status and grounds in the Singapore Chinese community.

In sum, Mandarin was brought to Singapore for historical and social reasons. All along the history, Mandarin was developed by the adults in the Singapore Chinese community out of the basis of Putonghua. It is almost a creole, but clearly a contact language.

[3] Vernacular universals arise in the context of sociolinguistic dialectology as generalizations about intralinguistic variation, and their universal status is emerging from analyses of putative crosslinguistic counterparts. The external factors that underlie them have distinctive social and functional aspects. Sociolinguists have amassed copious evidence in the past 35 years for a surprising conclusion: a small number of phonological and grammatical processes recur in vernaculars wherever they are spoken. This conclusion follows from the observation that, no matter where in the world the vernaculars are spoken- Newfoundland, Harlem, Ocracoke, Ballymacarrett, Tyneside, Buckie, the Fens, the Falklands, inner-city Sydney- these features inevitably occur. (c.f. Chambers 2004: 128) Chambers (2003, 2004) points out "these features occur not only in working class and rural vernaculars but also in child language, pidgins, creoles and interlanguage varieties. Therefore, they appear to be natural outgrowths, so to speak, of the language faculty, that is, the species-specific bioprogram that allows (indeed, requires) normal human beings to become homo loquens." Chambers (2003) characterized these recurring natural processes as "vernacular roots", and identified 7 traits as best candidates based on their recurrence; one of them is [-ŋ] or alveolar substitution in final unstressed [-iŋ], as in walkin', talkin' and runnin'.

[4] Mandarin taught in schools primarily follows the pronunciation of Standard Mandarin, which is based on the phonology of Beijing dialect.

[5] Besides the four full tones, namely 55, 35, 214 and 51, Singapore Mandarin has an additional tone. Chen (1993) named this additional tone the "Fifth Tone". It is by far the most distinct phonological features of Singapore Mandarin. Chen (1993) pointed out that the Fifth Tone occurs only in syllables which end with a stop coda, i.e. bearing one of the entering tone (rusheng入聲), in modern Southern Chinese dialects, which are native to Chinese Singaporeans, precisely the elders. According to Chen (1993), the properties of the Fifth Tone are: (1) It is a falling tone with a pitch value varying between 41 to 42; (2a) It sometimes ends with a glottal stop [-ʔ], which varies in degrees of prominence; (2b) Owing to the glottal stop coda, the whole syllable appears to be fairly tense (i.e. fortis), and the initial consonant seems to have a clear-cut onset. In other words, there seems to be diffusion over the whole syllable of the tenseness of the final glottal stop; (2c) Sometimes, the final glottal stop is no longer audible, that is, the syllable is not shorten but the tenseness diffused over the whole syllable still remains; (3) Sometimes, it is phonetically

identical to the Mandarin Tone four (51). Following are some typical examples of the Fifth Tone commonly appear in Singapore Mandarin: (1) 吃 [tʂi55] (Mandarin) > [tsiʔ] / [tsi42~41](Singapore Mandarin); (2) 喝[xə55] > [həʔ]/ [hə42~41]; (3) 吸 [ɕi55] > [ɕiʔ]/ [ɕi42~41]. How the Fifth Tone entered into the speech of Singapore Mandarin has been frequently discussed in the literature, and the argument that is widely accepted is that it came from the interference of Southern Chinese dialects. Precisely, the Fifth Tone morphemes are reflexes of the entering tone of Middle Chinese or the modern Southern Chinese dialects. (Chen 1993, Chua 2003)

We agree that Singapore Mandarin does present some features of Southern Chinese dialects; however, the argument that the actuation and implementation of this sound change in Singapore Mandarin comes from the interference of Southern Chinese dialects may not be the whole story. We will discuss this in another paper.

[6] Many linguistic changes involve both kinds of process- that is, various processes of contact-induced change and also universal tendencies of various kinds. (Thomason 2009: 349)

The Synchronic Categories and Diachronic Evolution of Voiced Syllabic-initial Stops of Proto-Yue Dialects

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According to the claims of previous studies, there are at least 10 current pronunciation categories of ancient voiced syllabic-initial stops of ancient Yue dialects, most of which were reported in recent years. A brief overview of these findings is summed up as follows.

(1) All are pronounced as voiced breathy stops, while their actual pronunciations are slightly different in phonetic value. In Lianshan Yue dialect, ancient voiced initial stops in Ping tone are pronounced as bɦ dɦ gɦ while in Ze tone as pɦ tɦ kɦ (Zhengzhang Shangfang, 1995). In Rongxian, Cenxi, Binyang, Yulin, Shinan and Sihe Yue dialects, all are pronounced as pɦ tɦ kɦ (Nobuhisa Tsuji, 1980).

(2) Ancient initial stops named Bing (並) and Ding (定) are pronounced as voiced stops or voiced implosives, while ancient initial stop named Qun (群) is pronounced as voiceless unaspirated stop (Hou Xingquan, 2006).

(3) Ancient initial stops named Bing and Ding with tone 6 (yangqu) and tone 8 (yangru) were pronounced as voiced implosives, others as voiceless aspirated stops (Shao Huijun, 2012).

(4) Ancient initial stops appeared in single syllabic words or in the first syllable of compound words or phrases are pronounced as voiceless stops, others as voiced stops (Zhuang Chusheng & Zhang Ling, 2010).

(5) All are pronounced as voiceless unaspirated stops, as are widely seen in Yue dialects of West Guangdong and South-east Guangxi.

(6) All are pronounced as voiceless aspirated stops, mainly seen in Wuchuan, Huizhou, Lianzhou and Qinzhou Yue dialects.

(7) Ancient voiced initial stops in tone 2 (yangping) and tone 4 (yangshang) are pronounced as aspirated voiceless stops, others as unaspirated voiceless stops, widely seen in Yue dialects of Guangdong and Guangxi.

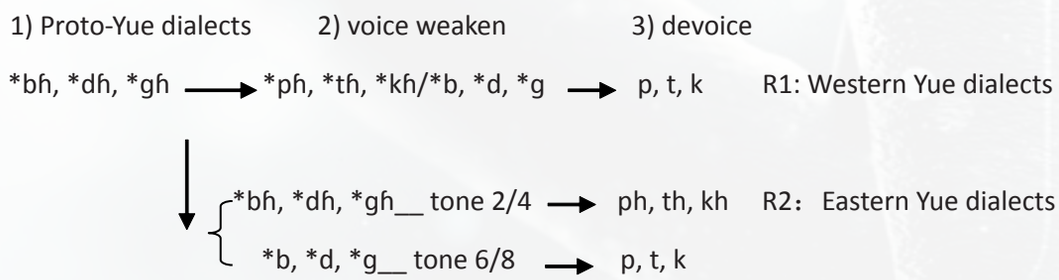
(8) Ancient voiced initial stops in tone 6 are pronounced as voiceless unaspirated stops, others as voiceless aspirated stops (Chen Xiaojin & Weng Zewen, 2006, 2010).

(9) Ancient voiced initial stops in tone 2 and tone 6 are pronounced as voiceless aspirated stops, others as voiceless unaspirated stops (Chen Xiaojin & Weng Zewen, 2006, 2010).

(10) Ancient voiced initial stops in tone 2 are pronounced as voiceless aspirated stops, others as voiceless unaspirated stops (Huang Zhaoyan, 2006).

Among these 10 categories, only Category 5 and 7 are widely seen in Guangdong and Guangxi Yue dialects, with the rest observed only in small regions. Those Yue dialects with the feature of Category 5 are Western Yue dialects, and those with the feature of Category 7 Eastern Yue dialects, as we call it.

Based on the above detailed analysis of the causes of these different categories, we argue that only Category 1, 4, 5, 7 have direct relations with the diachronic evolution of voiced syllabic-initial stops of Proto-Yue dialects. Other categories have come into being as a result of ongoing interaction among Yue dialects or influence from minority languages or other Chinese dialects. For example, Category 2 and 3 have been influenced by the ancient Cam-Tai (壯侗語) and Category 6, 8 and 9 by Hakka, while Category 10 is the result of an interaction of Western and Eastern Yue dialects. Thus we reconstructed the original pronunciation of voiced syllabic-initial stops of Proto-Yue dialects as *bɦ *dɦ *gɦ. Its main evolutionary route is as follows.



Devoicing of Historical Voiced Obstruents in Xiangxiang Chinese

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Over the past thirty years, there has been much discussion about the development of historical voiced obstruents across Chinese dialects. It is generally assumed among Chinese dialectologists and some phoneticians that the Old Xiang Dialects of Chinese are characterized as still preserving the voiced-voiceless distinction in obstruents from Middle Chinese, and that different from the pseudo voiced ones in the Wu Dialects of Chinese, which in effect do not show vocal cord vibration during oral closure, voicing for the voiced obstruents in the Old Xiang dialect group tends to be genuine. However, according to the impressionistic survey of Bao and Chen (2005), this assumption was not accurate for in most Old Xiang subdialects the voiced obstruents from Middle Chinese are actually undergoing the process of devoicing, the overall pattern of which is conditioned by historical tonal type, in the sense that historical voicing distinction is only retained in initial obstruents of syllables that carry a historically smooth tone (i.e., *Ping*, *Shang* and *Qu*), while is lost in syllables that carry the historical *Ru* tone, with the historical voiced category now pronounced as voiceless (unaspirated or aspirated).

The results of some other studies also supported the view that the voicing contrast in some Old Xiang Dialects is not completely retained (e.g. Chen 2008). However, most of these studies were impressionistic in nature, and fewer studies have focused on a systematic or comprehensive phonetic analysis of the nature and pattern of this process. In addition, unlike stops, it is surprisingly difficult to find relevant information about the voicing properties of fricatives and affricates, despite the fact that both are also obstruent types widely attested in these dialects.

Xiangxiang Chinese provides a good test case and starting point for exploring the patterns of obstruent devoicing in the Old Xiang Dialects for it is a representative of this dialect group, and contains all the three obstruent types, namely stops, fricatives and affricates, each contrasting in voicing, that may contribute to different patterns of voicing/devoicing.

The goal of the present study was to determine whether there was a historical process of obstruent devoicing in Xiangxiang Chinese, and, more importantly, to investigate systematically and comprehensively

into the pattern of this process, based on a large data set from Xiangxiang Chinese. Because this was the first large-scale study of obstruent voicing in this dialect, the speech materials were words spoken in isolation, which consisted of 376 meaningful monosyllabic words with each of the seven target voiced obstruents [b d g dz/z dʑ/ʐ du/u ɑ] and their voiceless counterparts occurring in initial position[7]. The subjects were ten native speakers of Xiangxiang Chinese, five males and five females, who were aged between 50 and 60 years. They read the test words in random order three times at a normal speech rate and were recorded using a Sony PCM-R700 digital audio recorder and a Shure SM-58 microphone. Stimuli were then digitized onto a PC at a sampling rate of 22,500 Hz. Acoustic analysis focused on two measures identified in past studies as major acoustic correlates of voicing in initial stops and fricatives, namely VOT for stops (e.g. Lisker & Abramson 1964) and voicing duration during the interval of frication noise for fricatives (e.g. Stevens et al. 1992). For affricates, usually it has been assumed in the phonetic literature that the parameters that distinguish voicing in stops were also applicable to affricates because both are articulatorily characterized by a complete oral closure followed by a release. However, because affricates also have a period of frication noise like fricatives, the relevant attributes for fricatives may well be effective in affricates too. Therefore, both 「VOT」 and 「voicing duration during frication」 were examined for affricates.

Overall, results strongly supported a process of devoicing in historical voiced obstruents in Xiangxiang Chinese: of all the test voiced tokens, only 59% of the voiced stops and 19% of the voiced affricates exhibit glottal vibrations during oral closure, and only 10% of the voiced fricatives showed continuous voicing throughout frication noise, while the rest 90% undergo devoicing to various degrees. Much variation in the occurrence of devoicing was found both within and across speakers. Within each speaker, presence/absence of voicing varied freely among the three repetitions of the same test word or productions of different words, and no speaker invariably pronounced all test voiced obstruents as voiced. Across speakers, four out of ten devoiced over 75% of the voiced stops, while the other six did so in less than half of the cases. Results also showed that the pattern of devoicing varied as a function of two factors, sex of the speaker and place of articulation. First, sex shows significant correlations with occurrence of devoicing at the 0.0000 level, with a larger proportion of devoiced stops in male speakers in comparison to female speakers. Specifically, 55% of the voiced stops were devoiced in male speakers, while only 24% were devoiced in female speaker. However, this effect of sex on voicing in Xiangxiang Chinese, where male speakers produced more devoiced forms than female speakers, contradicted the prediction, which was based on differences in vocal tract size between men and women (e.g. Ohala 1983, Stevens 1998) and had been observed in a couple of languages such as English (Smith 1978), Dutch (van Alphen and Smits 2004), and so on. Second, place of articulation affected the occurrence of devoicing to a significant degree and in the predicted direction, that is, the occurrence of devoicing increases as the place of articulation moves further back in the oral cavity: 32% for [b], 41% for [d] and 55% for [g]. Results for voiced fricatives, which distinguish two major places of articulation (velar [ɑ] vs. alveolar/post-alveolar [z ʐ u]), showed the predicted pattern as well, with [ɑ] having a higher percentage number of devoiced tokens than the three anterior consonants.

It was also found that, despite the absence of glottal vibration during oral closure for most voiced affricates, voicing frequently occurred during the release period. Similar results were found on voiced fricatives: although complete voicing was rare, incomplete voicing was frequently identified. As Table 1 indicated, 59% of the voiced stops showed negative VOT, 94% of the voiced fricatives and 93% of the voiced affricates showed vocal cord vibration (mostly incomplete voicing). Overall, voicing was still preserved on 70% of the voiced obstruents to varying degrees, indicating that the process of obstruent devoicing, which was already under its way, was not yet complete.

Obstruent type / Voicing patterns		Percentage number of occurrence (%)		
		Voiced Stops	Voiced fricatives	Voiced affricates
voiced	Fully voiced	59	10	19
	Partially voiced		84	74
Fully devoiced		41	6	7

Table 1. Percentage number of occurrence (%) of voiced obstruents for each voicing pattern

Following Bao and Chen (2005), a comparison was also made between the current results and the phonetic system of Middle Chinese, and results revealed that historical tonal type did play a role in the historical development of obstruent devoicing in Xiangxiang Chinese. Considered together with the above acoustic evidence, the data indicated that historically voiced obstruents in syllables corresponding to the historical tone category of *Ru* have all become voiceless unaspirated or voiceless aspirated, meaning the process of devoicing has already completed; in contrast, for those that occur in syllables corresponding to the other three tonal categories, i.e. *Ping*, *Shang*, and, *Qu*, historical devoicing was still in progress, which was more extensive for obstruents with a more posterior place of articulation, and for male than female speakers.

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[i] As the results in Zeng (2009) show, there exist both an intra- and an interspeaker variation between fricative and affricate in the manner of articulation for the voiced sibilants ([dz]/[z], [dʐ]/[ʐ] and [dɿ]/[ɿ]. Therefore, voiced fricatives and voiced affricates do not belong to different phonemes but allophones. According to the acoustic and perceptual studies in Dorman, Raphael and Isenberg (1980), the presence or absence of a release burst is an effective acoustic parameter that cues a fricative-affricate distinction. This parameter was adopted here, namely the voiced sibilant tokens that have a release burst visible both on the waveform and the spectrogram were identified as affricates, while those that do not were identified as fricatives.

Ambiguity type and Competition Level Affect Semantic Priming in Chinese-an fMRI study

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The study aims to study semantic priming of Mandarin polysemous and metaphoric words at high and low competition levels. Subjects were asked to decide whether words in a pair were related during the fMRI experiment. Each trial contained the first pair as a probe, the second pair as a target, and a focal point. We had three conditions: consistent, inconsistent, and control. Consistent and inconsistent trials contained the same class of ambiguous words in the second position of both word pairs. We observed activations in the medial and superior front gyri for polysemy and the anterior cingulate for metaphor in high semantic-competition context. Semantic priming of all polysemous words involved semantic judgment regions (i.e., the medial and middle frontal gyri), whereas all metaphoric words engaged an area associated with processing of social information (i.e., parahippocampal gyrus).Priming of Chinese words involved regions associated with inhibition, semantic integration and competition monitoring.

Interbreeding between Neanderthals and*Homo sapiens*: Its implications for language evolution

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Based on recent evidence for Neanderthal-human interbreeding, this paper investigates the language capacity of Neanderthals, and discusses the implications of such findings for language evolution

Neanderthals and *Homo sapiens* (hereafter humans) shared a common ancestry dated at around400,000-600,000 BP, and they went along separate paths thereafter, the former in Eurasia and the latter in Africa (Finlayson 2004). It was believed that the Neanderthals went extinct rather rapidly after a group of humans left Africa and invaded Eurasia at around 45,000 BP (Klein 2003). The mainstream belief in the last decade was that Neanderthals went extinct at around 30,000 BP, with no gene flow between humans and them (Lewin 2005). However, the Neanderthal Genome Project (Green et al. 2010) shows that Neanderthals share some genes with present-day non-African humans but not with the African ones, which provides strong evidence for the occurrence of gene flow from Neanderthals to the ancestors of present-day non-African humans.

Given that there was interbreeding between Neanderthals and humans, there must have been communication between the two *Homo* species. Whether Neanderthals could use language to communicate has long been the interest of scholars from various fields. This paper argues that Neanderthals were biologically language-ready, based on anatomical and genetic evidence.

The anatomy of the brain and vocal tract is considered in this paper. First, it is well agreed that our language capacity is related to our brain size and complexity. Given that a Neanderthal brain is as large and complex as a human brain (the Broca's area, which is closely related to language production, is present in the brain of both *Homo* species) (Lewin 2005), a Neanderthal brain is possibly able to cope with the high complexity of language. Second, the vocal tract anatomy of Neanderthals was also believed to be a key factor which determines whether Neanderthals could have language (it is arguably a misguided belief as language can actually be signed instead of spoken). A recent phonetic study (Boe et al. 2007) illustrates that structured speech is anatomically possible in Neanderthals, and it is the motor control of the articulators that determines whether Neanderthals could produce a wide range of speech sounds. This leads us to move on to the FOXP2 gene, which is relevant to orofacial muscle control and the activation of Broca's area. Genetic studies show that the human FOXP2 gene has undergone 2 amino-acid-changing mutations since the human-chimp split; and the Neanderthal FOXP2 gene had the same 2 amino-acid-changing mutations (Krause et al. 2007). In other words, Neanderthals and humans share the same FOXP2 variant. This discovery further supports that Neanderthals were biologically language-ready.

As language is deeply interwined with culture, it is believed that material culture (such as stone-tool industries) can tell us something about language evolution (Davidson 2003).Archaeologists believe that stone-tool complexity may reflect social complexity (Lewin 2005). Beyond a certain degree of social complexity, abstract and complicated notions about social norms and patterns would frequently be the topic of 「conversation」, which would not likely be possible without language. There is a good match between the archaeological and fossil evidence in Europe– Neanderthals were always associated with Middle Paleolithic, a less advanced stone-tool industry; while humans were always associated with Upper Paleolithic, a more advanced stone-tool industry (Shea 2011), which may imply that Neanderthals had a simpler social structure. Therefore, Neanderthals were probably biologically language-ready, but their culture and social structure were relatively simple, suggesting that language might not be an indispensable component of their society.

After investigating the language capacity of Neanderthals, this paper moves on to discuss how they may have interacted with humans. Fossil evidence shows that the two*Homo* species coexisted for around 15,000 years.After the years of coexistence, Neanderthals seem to have gone extinct. The more sophisticated social structure and material culture of humans probably helped them adapt to the environment better. A possible scenario is that most Neanderthal groups were outcompeted by human groups, and eventually died out; however, some of them were probably able to pick up the technology and culture associated with humans through complex interaction and imitation as they were probably biologically ready for language and other

complex behavior. Mastery of language was essential for Neanderthals to communicate effectively with humans and get accepted as a member of society.Such Neanderthals eventually merged into the human populations, making a traceable contribution to the human gene pool.

The above findings have three important implications for language evolution. First, language-readiness does not necessarily lead to actual language use. Language is a bio-cultural product – on the one hand, we are genetically disposed to possess a neural system and body structures that support language use; on the other hand, language is a cumulative product which is developed and transmitted in societies. Language use is unlikely in *Homo* species which lived in highly isolated groups with simple social structure even if they were biologically language-ready. Second, language-readiness is multimodal. Brain structure, vocal tract anatomy, auditory system, manual gestures, and motor control are all related to language-readiness, to name but a few. Nothing has evolved specifically for language and it is impossible to pinpoint a real language gene. Grammar frameworks which assume language autonomy may have lost touch with reality. Third, languages may have emerged for multiple times in different regions and evolved as several lineages independent of each other. Given that language use is probably related to cultural development, and the material cultures of different regions of the world developed in different rates in history (Shea 2011), it is unlikely for all present-day languages to share a single common ancestor. This may help to explain why there are a number of language isolates which cannot be grouped into any language family, and why it seems next to impossible to reconstruct a 「Proto-World」, despite the hard work of many historical linguists for decades.

Keywords: Neanderthal, human evolution, interbreeding, language capacity, language-ready

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Tonotypes: A case study of Chengyu Mandarin

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Previous studies on the cross-dialect comparison of tones are mostly base on the perceptual description which is described in a five-degree pitch contour model. This paper examines and classifies tonal types or tonotypes of Chengyu sub-dialect of Southwest Mandarin in the Multi-Register and Four-Level Tonal Model

(RLM) with four parameters: register, length, pitch height and contour, based on normalized acoustic data from 16 Chengyu varieties.

Analysis of the tonotypes illustrates that there are four tonal categories (one rising, one dipping, and two falling) in most of the locations, which is consistent with previous studies. In Yunyang雲陽 and Changshou長壽, however, *rusheng* or the enter tone has been preserved; so there are five tonal categories in these two varieties.

There are two falling tones,T1b (*yangping*)/32/versus T2 (*shangsheng*) /42/, in Chengyu Mandarin. In some cases, e.g. Shizhu石柱 of the northeast Chongqing, the two falling tones are very close to each other, showing a dynamic change in progress. Based on the acoustic data collected from the field, this paper explores two changing routes in tones at that area.

Loans from Old Chinese? Revisit *kuma* and*kwom*『bear』in Japanese and Korean

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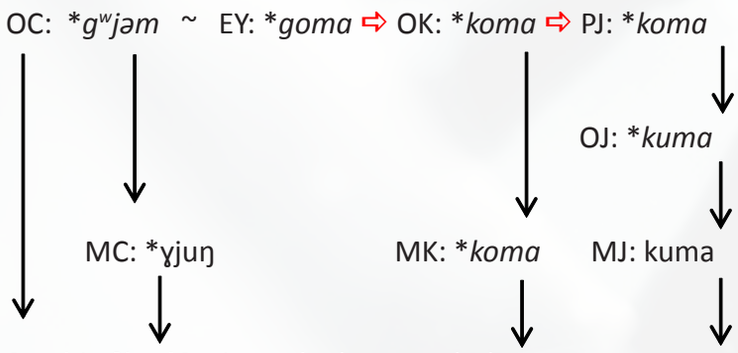
The words for 『bear』 in modern Japanese, *kuma*, and modern Korean, *kwom*, are not only strikingly similar to each other, but also to Old Chinese,**gʷjəm* (Li 1971) or **C.ɢʷəm*(Baxter and Sagart), leading to two hypotheses to account for the similarity, a) Japanese and Korean are genetically related (Whitman 1985), and b) Chinese and Koreanare genetically related (Oh 2005and Hou2009). In this study, I will argue that the lexical similarity of the three languages results from loans instead of genetic relationship. The arguments are mainlybased on phonological constraints and historical changes in each language.

The modern Japanese *kuma* 『bear』 can be furtherreconstructed as **kuma* in Old Japanese and then **koma* in Proto-Japanese, and the modern Korean *kwom* 『bear』 can be traced back to Middle Korean **kom*, withPaekche(Old Korean) beingfurther reconstructed as **koma* (To 2007: 315). The resemblance of **koma* in Proto-Japanese and Old Koreancould result from genetic relationship (Whitman 1985) or loans (Vovin 2010: 143) that Old Korean borrows Proto-Japanese. Besides the resemblance in Japanese and Korean, 『bear』 in Old Chinese, **gʷjəm* (Li 1971),also shares similarity with Japanese/Korean **koma*, giving rise to a hypothesis that Old Chinese and Old Korean are genetically related (Oh 2005, Hou 2009). Nevertheless, the assumption that Old Chineseis genetically related to Old Koreancauses two problems. First of all, following Whitman (1985),if Japanese and Korean are genetically related, we have to hypothesize a mega language family, Sino-Koreo-Japonica for example, to accommodate the three languages. No other sufficient evidence is obtained to support this mega language family, however. The second problem is that if Old Chinese and Old Korean are genetically related, the possible reconstruction for both the languages should be **gʷjəma*, which contradicts Old Chinese syllable structure that is monosyllabic.

In this study I will follow Yuchi (1999) and Voivn (2010) and suggest that the lexical similarity in the three languages be due to loans, but revision is made in this study. As Yuchi (1999) contends, Korean *param* 『wind』 is borrowed from Eastern Yi (Dōngyi東夷) in ancient China, which is different but related to Old Chinese. In this study, I propose that Old Korean **koma* might reflect Eastern Yi (Dōngyi東夷), **goma*, which is somehowrelated to Old Chinese**gʷjəm*(**C.ɢʷəm*). With respect to Japanese and Korean, although Vovin (2010: 143) contends that the lexical similarity of modern Japanese *kuma* 『bear 』and modern Korean *kwom* 『bear』 is due to loan that Old Korean borrows Proto-Japanese, I would suggest that the directionality of borrowing should be the opposite. That is, Japanese borrows Korean **koma*. The discrepancy of modern forms, *kuma* and *kwom*, and reconstruction, **koma*, results from the phonological changes in Japanese and Korean. Hence the borrowing process should be from Eastern Yi (Dōngyi東夷) to Korean and then to Japanese, as shown in (1).

(1)



EY: Eastern Yi
MC: Middle Chinese
MdC: Modern Chinese
MdJ: Modern Japanese
MdK: Modern Korean
MJ: Middle Japanese
MK: Middle Korean
OC: Old Chinese
OK: Old Korean
OJ: Old Japanese
PJ: Proto-Japanese
SM: Southern Min

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Repeatable or not: Review of Fitch's musical protolanguage hypothesis

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In this paper, we are going to focus on repeatability, a design feature that Fitch (2006; 2010: 480) claims to be unique to music but not shared with language, hence limiting the explanatory power of the musical protolanguage hypothesis.

1. Any repeatability in music?

In musicology, there have been such term as 「repeatability」 and profound studies about it for years. So it is not right for Fitch to say that 『… one crucial feature of music … is the design feature that I call 「repeatability.」』 He points out that repeatability is 「one crucial feature of music」 and a norm in music, and argues that,

『Within a piece, phrases are repeated (perhaps with some variations but often exactly) and an identical piece may be performed over and over with no loss of satisfaction and no sense of boredom or maxim violation. Indeed, musical pieces typically require repeated listening to attain full satisfaction, and we happily subject ourselves to hundred or even thousands of rehearings of favorite songs.』

Evidently, Fitch limits repeatability here to performance, listening or rehearing. But this is rather uncertain. Consider the pieces of *Learn from Lei Feng's Good Model* and *Perceiving the Rain*. There is no repetition of the pieces in its real sense. The lyrics are partly repetitive, but they need not to be so.

As for listening or rehearing, it's rather up to the listeners, being quite different among them. Hence, it can not be a reason to support that repetition is a norm in music. If a piece is not euphonic, people will not listen to it again and again, just like people will ignore unnecessary repeated expressions or tautology such as 『My sister is a female』.

In short, repeatability is optional in music as an expressive method, but not a crucial feature – can repeat but not must repeat.

2. Any repeatability in language?

Fitch argues that,

『In most cases of language, a significant proportion of utterances are novel. Pervasive novelty follows from combining the semantic use of language with the Gricean maxim of informativeness. If someone simply repeats the same phrase over and over, or their interlocutor repeats everything the first said, basic conversational conventions are violated.

Indeed, novelty is pervasive in communivation as language is generative. But repeatability is not in conflict with novelty or informativeness. Usually people will not simply repeat in the way Fitch describes, but repetition is an important rhetorical device. In addition to its literal sense, it adds rich information. Repeatability not only exists in language and but plays important roles in expression as well.

Fitch further argues that,

『This striking difference between music and language has one exception: formulaic utterances such as greetings, niceties, ritualistic phrases, and such. Such formulaic uses of language may represent a 「fossil」 of a holistic stage of protolanguage, pervasively preserved in music but mostly lost in language (Wray, 2000, 2002).』

We have to point out that such formulaic utterances as 「Hello」, 「Thank you」 are not representative of the complex language despite their high-frequency use. It's like a 「fossil」 just due to fixed and stable use. But it's not so 「mostly lost in language」 as argued above. And in fact, we can find more such exceptions. For example, I teach English reading and writing for three classes this term. Each time I repeat many utterances said in other classes patiently. I am happy and satisfied with such repetitive work. Of course, they are not lost in language.

Hence, there is repeatability in language indeed, although it is also optional as a rhetorical device in texts. The explanatory power of musical protolanguage hypothesis is not limited due to such an optional feature of both language and music.

3. Conclusion

In a nutshell, repeatability is an optional feature of both language and music, rather than a design or crucial feature of either. Hence, it can not be used to judge whether the musical protolanguage hypothesis is feasible or not. We shall turn to the positive or shared design features of them to verify the hypothesis.

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Cognates or Loan Words: "the Similar Words" in Korean and Old Chinese

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Except for a small number of foreign loan words, which were mostly originated from the western languages in recent centuries, the majority of Korean lexicon consists of indigenous Korean and Sino-Korean words. Sino-Korean words, which occupy more than half of the whole lexicon, were apparently originated from Chinese although there are some words coined by the Japanese or the Koreans. What is interesting is that some seemingly native Korean words are claimed to be closely related with Old Chinese because they are identical or similar. These words are called as "the similar words" in this paper. The followings are some indigenous Korean words that Zheng-Zhang (2003:133) points out to be similar to Old Chinese:

(1) a. kɯrɯs 器, param 风, kəri 街, kurəng 巷, kara 骑

b. mar 马, kar 葭, khar 枷, sar 梳齿, sarp 臿锸, mir 麦

c. kor 谷, phar 膊, par 箔, sar 腊肉, sir 丝, sur 酒

Eom (1988:217-240) presents more examples of the same sort. The native Korean words for the following characters are similar to Old Chinese:

(2) a. 尔 nə〈 *ɲiei

b. 汝 nə〈*ɲia

c. 而 nə〈*ɲiə

d. 日 nal 〈 nat 〈 *ɲiet

e. 人 njən (nom) 〈 *ɲien

f. 刃 (khal) nal 〈 *ɲien

Some characters with Old Chinese velar nasal initial are surprisingly similar with their equivalents in native Korean, as are cited from Eom (2008:240-260):

(3) a. 吾 *ŋa 〉 na

b. 我 *ŋa 〉 na

c. 眼 *ŋeən 〉 nun

d. 牙 *ŋea 〉 (n)i

e. 顔 *ŋean 〉 nat

Why are some indigenous Korean words similar to Old Chinese? There may be two possible reasons: cognates or language contact. Oh (2005) and Pan (2006) claim that both of them were originated from the same source. That means Chinese and Korean are genetically related so the similar words in these languages are cognates and called Han-Han tongyuanci 韓漢同源詞 in Chinese. They even propose that Tungusic languages share the same origin with the Sinitic languages. On the other hand, Hou (2006, 2009) regards them as loan words. To her, they are Han-Han duiyingci 韓漢對應詞 or jieci 借詞. This paper will examine these two possibilities carefully and will conclude that they are not cognates but loan words.

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Coexisting Human-denoting Interrogative Words in Early Southern Min Texts

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As attested in early Southern Min texts, there are three kinds of human-denoting interrogative words: 值人 (<底儂)， 誰/誰人(<誰儂)， and 乜人(<物儂) representing different chronological strata, viz., 5-6th century, 3-5th century, and 8-10th century. If we assume that 底儂 is the indigenous system, 誰/誰人 and 物儂 must have been the implanted systems.

From the following table featuring the occurrence of each human denoting interrogative words we can discern the relative strength of the three words

值人	誰	誰人	是誰	乜人
53	524	100	154	158

It is patently clear that 誰 is most robust, whereas 值人 is the least robust, and乜人stands in the middle. However, the fate of the three kinds of the interrogative words differs in modern descendants of Southern Min. All of the three types of interrogative words do not survive except 「乜人」 in Taiwanese Southern Min. There is a further twist. The first component of乜人 has been disyllabicized into 「甚乜人」

The relative robustness depends on what Southern Min dialect we are concerned with. The Hainan dialect, an outlier Southern Min dialect, for example, still preserves the modern suffix of 底儂 in the fused form of 『ʔdiang』. Other outlier dialects such as Yong-chun (永春), Quemoy (金門), Penghu (澎湖), Dongshan (東山) island, Haikang (海康), Leizhou (雷州), Chaozhou (潮州)dialects, still keep the fusional form 『tiaŋ5』.

In this paper, we will also go beyond the pale of 『core』 Southern Min dialects and examine how the interrogative words in question fare in other Min dialects. The related issues of the relative strength of the pseudo-variable 儂 in the formation of plural personal pronouns in Min dialects will also be tackled and brought to bear on the distribution of the three kinds of interrogative words.

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A non-uniform approach to inner and outer modifiers in Mandarin and Cantonese

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In Mandarin and Cantonese, modifying phrases such as modifying NPs, APs, PPs and relative clauses can precede the noun (henceforth, inner modifiers) or the demonstrative (henceforth, outer modifiers)(see Tang 1990, Aoun& Li 2003, Hsieh 2005, Cheung 2012 for Mandarin; see Sio 2006, 2011 for Cantonese):

(1) a.(**suliao de**) na ba (**suliao de**) yizi (Modifying NP)
plastic DE that Cl plastic DE chair
『that(plastic) chair』

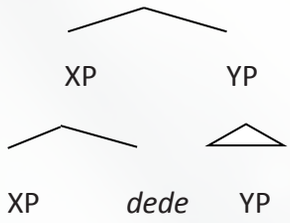
b. (**xin de**) na tai (**xin de**) diannao (Modifying AP)
new DE that Cl new DE computer
『that (new) computer』

c.(**zai zhuozi-shang de**)na ben (**zai zhuozi-shang de**)shu (Modifying PP)
at table-Loc DE that Clat table-Loc DE book
『that book (on the table)』

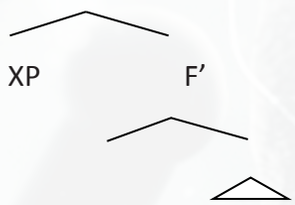
d. (**daiyanjing de**)na ge(**daiyanjing de**)xuesheng (Relative clause)
wear glass DE that Cl wear glass DE student
『that student who wears glasses』

Previous studies of inner and outer modifiers predominantly take a uniform approach. In particular, one line of research advocates an adjunction analysis, where the modifier plus *de* is treated as an adjunct to the modified phrase, as in (2a) (see Huang 1982, Tang 1990, Rubin 2002, 2003, Tang 2006 for Mandarin; see Sio 2006 for Cantonese). In contrast, the other line of research proposes a complementation analysis, where *de* is treated as a functional head taking the modified phrase as its complement, as in (2b) (Zhang 1999, 2009; see also Simpson 2003, den Dikken&Singhapreecha 2004, den Dikken 2006, a.o.). For convenience, we label the modifying phrase as XP, and the modified phrase as YP:

(2) a.



b.



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, we propose that outer modifiers are best analyzed under the adjunction analysis (2a), while inner modifiers should be accommodated under the complementation analysis (2b), suggesting that a non-uniform approach is needed for inner and outer modifiers in Mandarin and Cantonese. This proposal is supported by their different syntactic behaviors with respect to ellipsis, extraction and reconstruction. Specifically, an inner modifier can sanction ellipsis or extraction of the following noun, whereas an outer modifier cannot license ellipsis or extraction of the following [Dem(onstrative)-Cl(assifier)-N(oun)] sequence. Following our proposal that an inner modifier takes the modified phrase as its complement (2b), while an outer modifier is adjoined to the modified phrase (2a), the contrast with regard to ellipsis can be naturally explained following Lobeck's (1995) proposal that ellipsis must be licensed by a functional head in a head-complement relation (see also Saito &Murasugi 1990). Our proposal is further corroborated by the contrast between inner and outer modifiers with respect to extraction, which naturally follows from Huang's (1982) Condition on Extraction Domain (CED) that predicts that non-complements, but not complements, are 『opaque』 domains for extraction. Additional support for our proposal comes from reconstruction: inner modifiers must undergo reconstruction in compliance with Binding Principles B and C, whereas outer modifiers need not. This contrast naturally follows from Lebeaux's(1988) proposal that complements, but not adjuncts, must undergo reconstruction.

We conclude by exploring the interpretational properties of inner and outer modifiers in relation to the debate on the availability of restrictive and non-restrictive relative clauses in Mandarin and Cantonese (Zhang 2001, Del Gobbo 2003, 2004, 2005, 2010, Lin 2003, Shi 2010). In addition, weinvestigate the parametric difference between Mandarin and Cantonese in terms of nominal modification. In particular, we show that Cantonese allows [Modifier-Cl-N] sequences, which are absent in Mandarin (Au Yeung 2005, Sio 2006, a.o.). Close examination of the syntactic properties of [Modifier-Cl-N] sequences with respect to ellipsis and extraction reveals that they pattern with outer modifiers and should thus receive an adjunction analysis. We further discuss the implications of our study for the two analyses of the noun phrase structure of Mandarin and Cantonese, namely, the DP analysis advocated by Li (1998, 1999) and the ClP analysis proposed by Cheng &Sybesma (1999, 2005, 2012)

上海方言中的定指指示詞「箇個」

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提要　吳語中許多方言如上海話、蘇州話、崇明話，都有在說話時表示定指的指示詞。過去對蘇州話、上海話中的定指指示詞「箇個」都沒有說明它的定指作用，誤認為是中指、泛指等。本文參照西方傳教士上海方言著作中所記載的實際用法，並根據筆者說上海話中實際語感，首次提出和論證上海方言中除了直指遠近的指示詞外，還有表示定指的指示詞。本文分析定指指示詞「箇個」在上海方言中的歷時變化，在與官話比較中說明其定指用法，並指出定指指示詞的來源。

所謂「定指」，是指說話者和聽話者都知道該語詞指哪一個或哪幾個對象，即對話雙方彼此共指的、見到的、前面或以前提到的、說者指著的、接著形容詞形容的事物，所指不論遠近，皆為定指。 「箇個」在上海方言中經常起定指的作用。

下面我們用法國天主教傳教士1908年在徐家匯土山灣慈母堂印刷出版的《土話指南》的例句，來觀察上海方言中「箇個」與北京官話、法語的對應情形。《土話指南》的文字是忠實譯自於1900年的《官話指南》的,下面比較一下兩本書的原話,排列上句為《土話指南》中的上海話，下句為《官話指南》中的官話。

1. 我千萬求閣下。總勿要擔第個事體。話出去。箇(cette)件是機密事體。(P.5)
   我求你千萬別把這個事給洩漏了。這是一件機密的事情。
   例1中，上海話第二句不再用「第」而用「箇」，「箇件」是前面說到的事，所以用定指用法。
2. 箇(ce)個撻皮。又合之四個撻皮。到莊上去相打。……箇辰光。汛地官聽見者。(P.21)
   那個無賴子。又約了四個無賴子。到銀號裡打架去了。……這個工夫兒汛官聽見說了。
   例2中，與官話用得不同，又是因為「箇辰光」是定指的。
3. 聽見之箇個(ce)房錢。像煞嫌伊太多。阿曉得。箇（cette）座房子。是頂好個。園地末大。地勢末好。(P.14)
   您聽著這房錢彷彿是太多。您不知道那房子可是頂好。院子又個。地勢又好。
   例3中，官話分近遠指，而上海話都因「房錢」與「房子」在前文中提及，故都用定指,法語用法也相仿。

以上比較是本文論證的一部分。

定指指示詞「箇個」的「箇」的讀音與「個」同音，其語源也來自表示定指的「個」。「個」從量詞「一個人」的「個」逐漸變化為定指指示詞「箇」的過程簡述如下：個體量詞——在句首表示定指——在句中名詞前表示定指（如同英語的the）——「個」加在有實義的量詞前表示定指。

另一個來源是：「個」的定冠詞用法淡化了定指的意義，輕聲虛化，為要強調定指意義，於是再用定指的「個」放在的「個」音前，「個+（個+N）」重新分析為「（個+個）+N」，形成了寫成「個個」或「箇個」兩字的定指指示詞。

關鍵詞　上海方言　定指指示詞　定指用法　語源

英語專業學生書面語句法複雜性發展跟蹤研究

劉春燕、何文芳，江西師范大學

摘要：本研究通過跟蹤學習者的一年英語複雜性變化，旨在檢驗英語專業學生書面語是否得到提高及其發展軌跡。我們結合二語習得研究中常用的組平均值和近年來發展起來的動態系統理論的個人變異研究，試圖真實地再現二語習得中語言複雜性的變化。研究結果顯示：1）句法複雜性的兩個語言結構平均長度指標在一年內有顯著提高，而另兩個複雜性比率指標略有進步但沒有顯著提高。 2）從個人發展途徑來看，除個別指標外，大多數指標均顯示各水平組個人發展呈現不同的軌跡。研究表明，第二語言的句法經過一年的學習有所提高，但其發展與教學預期差距很大。這一研究結果對教學具有重要啟示：教師應該給予句法複雜性和多樣性以足夠的重視，鼓勵學生使用更複雜的和多變的結構。

關鍵詞：英語書面語；句法複雜性； 跟蹤研究

名動分離出自哪個語言層面：來自ERP的證據

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在人類語言中，幾乎所有語言都區分名詞和動詞這兩個詞類。名詞和動詞是語言中基本而重要的詞類，在語言結構和功能上都擔當著重要作用。名詞和動詞的分離是在語義層面、詞彙-語音層面、詞彙-語法層面還是語法層面引人關注。ERP（event related-potentials）技術由於具有較高的時間分辨率（精確到毫秒），可以考察名詞和動詞在不同階段的加工情況，被廣泛運用到語言研究中。本文通過對以往名詞、動詞ERP研究的比較和分析，試圖回答名詞和動詞的分離出現哪個層面上。

我們對以往研究進行了匯總，根據實驗設計將已有研究分為目標刺激前無啟動項和有啟動項的兩類，又根據實驗使用的語言進行了歸並。總體來看，名詞和動詞加工的差異，主要體現在早期成分、N400和晚期成分上，只是不同研究在腦區分佈上有所不同。

從無啟動項的研究來看，名詞和動詞主要在P2、N400和晚期成分上有所差異。P2成分主要在詞彙判斷任務中反映名詞和動詞的加工差異，體現的很可能是早期階段，名詞和動詞的語義信息對詞彙判斷產生的自上而下的加工（top-down effect）。N400是一個與語義加工有關的成分（Lau et al 2008; Kutas & Federmeier 2011），名詞和動詞的N400在與語義加工有關的實驗任務和部分詞彙判斷任務中存在差異，體現了兩個詞類語義加工的差別。晚期成分不能很好地反映名詞和動詞加工上的差別，似乎只有在形態變化豐富的語言（如：德語和意大利語）加工中，才可以在晚期成分上找到名動的差別。

從有啟動項的研究來看，名詞和動詞主要在早期成分、N400和晚期成分上存在差異。啟動項對目標刺激的加工產生了顯著的影響，體現在早期成分和N400上。由於實驗設計和啟動詞等具有一定的差異，不同研究結果不同。通過對比無啟動和有啟動條件下，名詞和動詞在ERP成分上的異同，能夠發現一定的趨勢：當名詞啟動詞為英語to，動詞啟動詞為英語the時，名詞和動詞的相對關係與無啟動條件較為一致；而當其他啟動詞出現時，名詞和動詞之間的相對關係會發生改變，說明啟動項對名詞和動詞的加工產生了影響。

綜合以上分析，我們可以發現，名詞和動詞在無啟動條件下的加工就存在差異，說明名詞和動詞的分離不是在句法層面上；漢語的形態變化並不豐富，漢語的名詞和動詞在重音等語音特徵上也不存在差異，說明名詞和動詞的分離也不是在詞彙-語法層面和詞彙-語音層面。因此，名詞和動詞的分離應在語義層面上，語境會對名詞和動詞的加工產生影響。

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壯語分類的特徵選取和權重量化

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無論在漢語方言還是民族語分類問題的研究中，分類特徵的選取和權重量化向來是學界的焦點和難點。選取哪一類特徵作為方言分類的主要標準，並無一個明確的定義，特徵的權重量化更是難上加難。語言學的傳統做法是憑借個人的經驗和語言學背景知識，通過語言中單一特徵在地理上的分佈，逐一獲得不同的分類結果，並確定以最有效分類結論的特徵作為語言分類的主要特徵。但這種研究方法存在一些問題：1、依托於研究者自身的經驗，特徵選取的主觀性較強；2、無法有效地量化多條特徵在分類問題研究中的權重。如何客觀的選擇主要語言特徵成為語言分類中的重要問題。本文以壯語為例，對59個壯語代表點的19條音系和語音特徵先構建Neighbor-Joining鄰接樹以判斷材料的準確性，如下圖1：

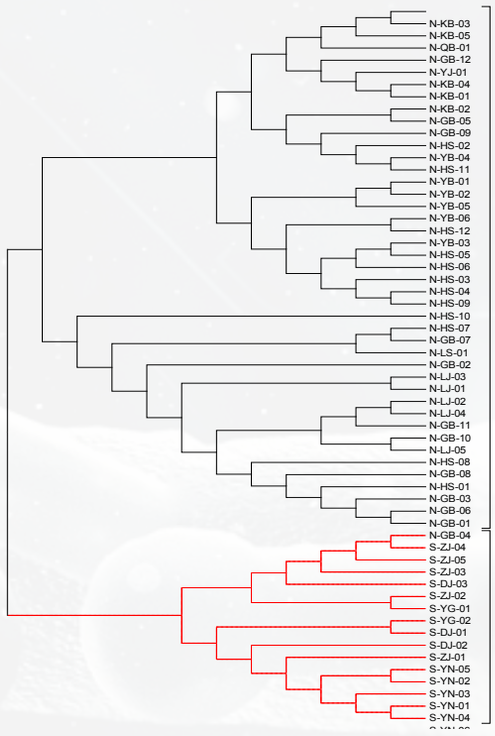

圖1 壯語59個代表點的鄰接樹（實線為北部方言；虛線為南部方言）

再採用主成分分析方法（Principal Component Analysis，PCA）來尋找19個特徵中影響壯語南北分區的重要特徵，並對所有特徵賦予權重。經過相應的計算後，可以獲得如表1：

表1 19個特徵的權重（按權重大小排序）

特徵名稱	權重
送氣塞音有無	9.76
r聲類：獨立音位是否存在	8.82
r聲類：奇偶調不同是否存在	8.43
r聲類：顫音/濁擦音	8.18
ʔj/ʔw有無	6.31
內爆塞音有無	5.82
顎化音：第2音素為-ɣ/-j	5.82
有無ŋw獨立音位	5.67
派調有無	5.52
第2調為曲折調	5.08
ei、ou音位有無	5.08
是否有曲折調	4.93
復輔音：第2音素為-r/-l	4.93
ɛ、ɔ有無	3.77
單元音ɯ有無	3.06
-ɯ韻尾	2.96
塞擦音有無	2.81
喉塞鼻音有無	1.77
中、低元音韻尾	1.28

如上表所示，壯語的南北差異主要體現在送氣塞音有無（權重[1]是9.76）、其次是r聲類的演變（權重是8.82、8.43和8.18）以及ʔj/ʔw有無（權重是6.31），而中、低元音韻尾對南北差異的貢獻最小（權重是1.28）。聲調的影響力排位居中，說明在壯語分區研究中具有次要的影響力，權重在5左右。這些結論與前人研究結果相一致[5,9]。

與傳統選取方法相比，主成分分析方法的優勢在於1、不需要任何先驗假設，結論具有統計學意義；2、不需要對特徵數據進行人工篩選，特徵對語言分區的解釋能力和可信度取決於特徵數據本身，排除主觀選取特徵的偶然性；3、能夠同時對多條特徵進行選取並加權，當特徵數量較大時，方法的優勢更明顯；4、主成分方法可以降低由於特徵關聯性導致的分析誤差，獲取相對獨立的成分表達；5、通過成分表達中的特徵比例，進而獲取特徵的權重，方法客觀且不受主觀影響；6、特徵可以擴展為詞彙以及語法等其他特徵，甚至是組合特徵。

該方法能夠為語言分區和演化中的特徵選取及權重量化問題，提供非常科學的方法。通過客觀地加權方式，可以更精確地重構語言系統發生樹，可以得到更明確的語言間的發生學關係，推動語言演化研究的進展。

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試論同源詞和藉詞

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提要 如何區分同源詞和藉詞，是困擾歷史語言學界的難題，也是做好語言歷史研究無法迴避的問題。本文試圖全面梳理已有的成果，總結現有的經驗，提出自己的處理意見。

粵語聲調系統的共時差異與歷時蘊涵

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粵語聲調系統向以複雜稱著，它一共有九個調類：平上去入各分陰陽，陰入按元音長短再分為二。不過，作者根據對香港話和廣州話在不同年齡層所進行的一系列實驗研究和聲學分析，發現能夠維持這個系統的人口遠比預期中少。當代粵語聲調系統的共時差異相當大、情況相當複雜，顯示該系統現正進行重組。語言系統的共時差異往往跟歷時音變平行。本文試圖透過對共時差異的觀察，對粵語聲調系統的重組模式和演變方向所反映的歷時蘊涵作出初步探討。

就我們觀察所得，香港話與廣州話在聲調重組上基本方向相同但步伐有別。兩地粵語的共時差異主要涉及：陽上與陰去相混；陽上與陰上相混；陽去與陽平相混；以及陽去與陰去相混等四個方面。

陽上合於陰去，在香港話中主要表現為字音的換讀或一字兩讀，但兩個調位的對立卻非常清晰。然而，陽上卻跟陰上在老中青三代的聽辨和發音上都呈合流現象。廣州話方面的情況則相反，陽上跟陰去在發音上仍然相混，而陽上與陰上只在青年人的發音中剛剛出現相混跡象。

至於陽去與陽平，在廣州話的老中兩代呈現近似合併（near-merger)，即聽辨合流而發音對立。但在青年人中兩調完全對立，顯示這個音變已經停止。再者，陽去和陰去在老中青三代的聽辨和發音都呈合流現象。香港話方面的情況則相反，陽去與陽平在老中青三代都仍然處於近似合併狀態。而陽去跟陰去在聽辨上對立，只在發音上出現相混跡象。

我們根據聲學實驗結果推測粵語聲調的重組由陽上和陽去啟動，並進一步提出陽上合於陰去與陽上合於陰上是兩個競爭音變，在香港話中，前者已被後者所取代；陽平合於陽去與陽去合於陰去是兩個競爭音變，在廣州話中，前者

已被後者所取代。我們沒法從調型調值角度很好地解釋這些演變方向；但是，從調類的古今演變角度看，陽上併陰去與陽去併陽平都見於東南方言，而陽上併陰上和陽去併陰去則是官話系統的重組模式。可見粵語的聲調系統一直因語言接觸而受著不同方言的不同合併模式的影響。這些不同的合併方向在相互競爭，此消彼長，因而形成現在共時平面上的複雜情況。按目前情況，廣港粵語的聲調系統正從東南方言格局走向官話格局，有趣的是香港的聲調重組趨勢向官話靠攏的程度比廣州還要深一些。本文將詳細論證香港廣州兩地的官話型合併都不是直接受普通話影響，而是透過客閩方言中的通語成分導致的。文內並會討論在音變過程中，語音感知和產出的不對稱與不同性質音變的關係，以及近似合併的發展方向等問題。

多學科視野下的中國民族的起源與形成

鄧曉華，廈門大學

本研究以語言學、遺傳學、考古學、人類學最新的研究成果研究中國民族的起源與形成此一國際重大學術前沿問題；探討相關理論與方法，從個案研究及年代測定，試圖做出一定的理論總結與探索，如起源與擴散；時間與空間(歷史的真實與想像的真實）；語言擴散中的「西方因素」；語言進化模式；分類與結構等。不認同人文研究中的非科學性：民族史缺少「互動」的觀念；民族分類的標準模糊；語言史的主流觀點「單線進化」。主張對中國民族分類---歷史實體論的解構，同時注意後現代主義思潮下的語言學分類的學術省思。重視語言與族群分類的不對稱性，語言分類及斷代的客觀性與族群分類的主觀性，語言傳統的延續性與斷裂性。

應用字同現網絡研究漢語散文的演化

史玉明，山東大學

語言是人類智慧的結晶,是一個經歷漫長演化形成的複雜自適應系統. 據估計,目前世界上正在使用的主要語言有 6800 多種,其中漢語是使用人口最多的語言. 中華民族歷史悠久,文化源遠流長. 在三千多年以前的殷商時期,我國產生了最初的文字 - 甲骨文,從此開始了有文字記載的歷史. 據安陽殷墟中出土的甲骨卜辭證實,甲骨文已有四千五百個左右. 這說明至遲在商朝後期,漢字已基本成熟. 到了春秋戰國時期,中國文化得到空前的發展, 出現了一大批具有獨創精神、對後世文化產生深遠影響的經典著作,如《詩經》、 《尚書》、《禮》、《易經》、《春秋》、《論語》、《老子》等, 至此中華文化體系形成.

近些年來,由於複雜網絡的廣泛性和多樣性吸引了越來越多的研究者們的興趣. 特別是自從Watts和Strogatz 以及Barabasi和Albert 的論文發表,引入了小世界模型和無標度網絡的概念,使得複雜網絡的研究有了飛躍性的發展. 複雜網絡應用到了很多現實的複雜系統的研究中,例如萬維網、互聯網、生物網、科學家合作網、以及交通網.複雜網絡方法的應用已經在複雜系統的多樣性分析方面取得了豐碩的成果.

2001年,Cancho和Sole 將複雜網絡的方法引入人類語言的研究中,根據單詞在句子中的共現關係建立了英語詞同現網絡. 他們的研究結果表明所建的網絡同時具有小世界效應和無標度特性.自此,人們開始對語言網絡進行了多方面的分析和研究,獲得了一些很好的結果.

漢語的演化經歷了漫長的發展變化. 本報告介紹我們應用複雜網絡的方法研究漢語在不同時期的發展特點. 基於春秋戰國、兩漢、三國、兩晉、南北朝、唐、宋、元、明、清、現代共11 個時期各 50 篇散文,我們建立了 550 個字同現網絡,每個時期的 50 篇散文合在一起建立一個大的字同現網絡,共建立了 561 個字同現網絡. 研究了它們的統計特徵, 包括聚類係數、平均最短路徑、度分佈、連通性等. 研究發現 99.6% 的網絡具有無標度特性,95% 的網絡具有小世界特性. 在單篇文章建立的字同現網絡中,從平均意義上看,關於平均最短路徑, 南北朝時期最大, 現代最小,春秋戰國時期次小; 關於聚類係數, 南北朝時期最小,春秋戰國時期最大,現代次大. 這說明春秋戰國時期的文學和現代文學比南北朝時期的文學發展成熟,語言表述簡練.另外,南北朝和元朝的文章所對應的網絡具有較大的平均最短路徑和較小的聚類係數.這可能與該時期時局動盪不安、新文化的融入和新文體的出現有關.從南北朝時期到宋朝和由元朝至現代的網絡具有越來越小的平均最短路徑和和越來越大的聚類係數,可能與社會相對越來越穩定而且文體越來越趨於成熟有關. 各時期 50篇散文合一後所對應的字同現網絡的統計數據說明,儘管現代文的常用字數相對較少但是在用詞方面卻很豐富,反映出文言文與白話文的不同.

因此,本文所建立的語言網絡較好地反映了不同時期的文化發展變化.統計結果表明漢語語言不是平穩地發展,它是受各個時期的軍事、政治和經濟的影響.

另外,從語言學的角度來看, 春秋戰國和兩漢時期的文學屬於古代漢語, 唐、宋、元、明、清時期的屬於近代漢語, 而對魏晉南北朝時期的文學是屬於古代漢語還是近代漢語一直存在較大的爭議. 我們的研究結果表明, 魏晉南北朝時期的統計數據與其它時期的統計數據之間的確存在明顯的不同, 且魏晉南北朝時期的文學屬於近代漢語似乎更合理.

該文的合作者：梁偉、謝智剛、王艷麗.

官話歷史上的幾個競爭性音變

沈鍾偉，美國麻州大學

王士元先生在他的1969年的論文「競爭性演變是殘留的原因」提出了競爭性音變是造成殘餘現象的原因，並據此進而提出了著名「詞彙擴散」理論， 即音變的過程是通過詞彙不斷擴散完成的。一個歷史音變可以用一個簡單的形式來表達，A > B / X，即未變語音(A) 在某個語音條件(X)下變為(>)已變語音(B)。如果沒有明確的變化條件，這個形式可以簡化為A > B。如果兩個音變相互產生干擾的話，就形成競爭性音變（Wang 1969）。

一個音變不是一個簡單的語音變化，而是帶有這個語音的所有的詞彙語音形式的變化。再進一步說，一個詞彙語音形式的變化的完成，還必須通過說這個語言的所有的使用者來完成。一個音變的完成的實際上是指某個語言的所有使用者在所有相關的詞彙上都出現了已變的語音形式。語音音變的三個層面：

語音層面：　語音變化
詞彙層面：　帶有這個語音的所有詞彙語音形式的變化
言者層面：　說這一語言的所有個人在每個相關詞彙上的語音變化

如果語音層面上 A > B / X上音變有規律，就不用在詞彙層面上追究。如果語音層面上有例外，就得追究詞彙層面上的原因。如果詞彙層面上還有無法解釋的現象，就得進一步追究語言使用者層面上的原因（沈2002）。

語音變化在歷史上留下各種不規則的殘餘，是歷史語音研究中值得重視。這些殘餘現象不但是歷史語言學家應當解釋的，更是認識音變過程和機制的難得材料。漢語語音歷史研究的注意力向來是集中在音系整理和音值確定兩個方面。因而在各種材料中存在的競爭性音變現象還沒有受到足夠重視。可以說，這是在歷史語音學研究中的一大忽略。本文對北方官話歷史上出現的音變殘餘現象從競爭性音變的角度作一些嘗試性的探討。本文采用了近代漢語中（1）中古疑母字變化，（2）中古梗、曾攝合口字的變化，（3）中古梗攝喉牙音開口二等字的變化，（4）中古蟹攝開口二等字，（5）中古重紐音節，來舉例具體說明競爭性音變的各種情形。

歷史音系學的研究和其他任何歷史研究一樣，一是發現歷史材料，二是解釋歷史材料。歷史音系學的研究在發掘新的材料之外，大量的工作就是對所掌握歷史語音現象進行解釋。解釋得越仔細、越全面、越合理，對語音歷史的認識就越正確。由於競爭性音變產生的殘餘現象，為研究歷史上音變的原因和音變之間的相對時間關係提供了可貴材料，從而對歷史音變獲得更加全面的認識。

古藏語非音節性名詞詞綴消亡的原因

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現代藏語派生名詞中有一類主要通過動詞詞根添加音節性詞綴構成，例如[[vtsho]$_{生存V}$ ba]$_N$「生活」，[[gsol]$_{報告V}$ ba]$_N$「祈禱」，[[tshong]$_{買V}$ pa]$_N$「商人」，[[vdris]$_{熟悉V}$ pa]$_N$「密友」（以上兩類實際又分為轉類派生和功能化派生，另敘）。這種構形乃至發展為構詞的方式早在吐蕃時期已經出現，例如「唐蕃會盟碑」sdang ba「敵意」詞根源自動詞「恨」。可是藏語文獻中還有大量另外一種殘存的非音節性構形詞綴，常見的有-n, -d, -s。這類黏著於動詞詞根的形式造成數百對名詞和動詞對立的詞語。例如，-n：bzho「擠（奶）」，bzhon「乳」；gda(v)「有，存在」，gdan「坐墊」；skyo「犯錯」，skyon「錯誤」；rdzu「假裝」，rdzun「謊言」；-s：rko「刻」，rkos「雕刻」；blug「灌」，blugs「鑄件」；sbug「刺破」，sbugs「洞」；spu「裝飾」，spus「漂亮」；srub「搖動」，srubs「裂縫」；rje「替代」，rjes「痕跡」；-d：dro「溫,熱」，drod「溫度」；gshe「辱罵」，gshed「對手」；mchi「說」，mchid「言語」；na「生病」，nad「疾病」；brgyu「穿越」，brgyud「世系」。從古代文獻仍然可以看到這些對立詞語的句法作用，例如敦煌文獻《吐蕃大事紀年》同一段話語中分別出現用作動詞和名詞的的對子（mchid「話語」與mchi「說」）。

可是，這些詞綴的構形功能在後世的文獻中逐漸失去作用，僅殘留語音形式。迄今，前賢對這個問題的探索主要局限於這類詞綴的來源方面，本文意在討論這類非音節黏著形式為何失去了構形功能。

文章一方面盡可能採集了所能見到的非音節性詞綴及其動名詞對子，另一方面從多部歷代文獻（《拔協》12世紀、《薩迦格言》13世紀、《紅史》13世紀、《西藏王統記》14世紀、《西藏王臣記》17世紀、《白史》20世紀）檢索例證，觀察該類詞綴消亡的原因。根據我們的研究，發現以下幾個方面對非音節性詞綴的消亡具有主要作用。1.藏語音韻結構類型的制約關係是該類詞綴標記的先天缺陷，例如標記-n僅能出現在部分音韻結構，覆蓋面有限，功能不完善。2.短短一千年中，藏語洶湧的語音演變對詞綴形式產生重大衝擊，破壞了表現動名轉類的標記，例如-d作為輔音韻尾後的詞綴隨著復輔音韻尾演變而消失。3.句法結構中音節性名詞化詞綴的發展逐漸豐滿，取代了-n類詞綴的功能。4.藏語作為單音節型語言，詞形的同形現象漸趨嚴重，由於詞庫的同形阻斷作用，部分動名轉化不可能實現。例如skyo「犯錯」的名詞化形式是skyon「錯誤」，而該形式與skyon「使騎」同形。5.藏語構形與構詞在歷史上存在一定矛盾，隨著一波一波的演變潮流，出現構形和構詞在位置上的交疊，破壞了系統的語法規則。此外，語義驅動力的喪失（去語義化）也是這類形式消亡的重要原因。因為詞根動詞會導致構成的名詞具備施事、受事、工具等等不同語義，或者有些保持了動詞的抽像動作意義，有些轉化為動作結果形成的狀態或事物，還有些表動作結果所指稱的事物，也有轉指的指人名詞。面對如此複雜的表達需求，遠遠超出單一的輔音詞綴所能承受的辨義作用，於是去語義化使之喪失動名轉化語法功能。這也可能是出現多種非音節性輔音詞綴的原因。

從地理信息系統角度看漢語方言的歷史演變

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漢語方言的現狀，是歷史演變的結果，用現在解釋過去，正是歷史科學的最基本方法。地理信息系統，把各方言的現代特徵可視化，可以提供更直觀的研究工具。把方言特徵的地理分佈，與歷史上的行政區域相比較，可以揭示漢語方言的形成歷史。本文通過幾個方言特徵的地理分佈，論證三國東吳是東南方言形成期，唐宋時期是漢語方言的成形期。

虛詞的 h- 化音變

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因應語義虛泛或曰義不凸顯，語音方面可能出現以弱化為特點的語音變化，其中便有除去口腔阻塞化 (debuccalization)。根據我們的研究，漢語史上及現代方言中多有這類現象。本文探討虛詞的h-化問題，擬重點探討涉及並列連詞與遠指代詞的 h- 化，包括兩個問題。第一、普通話最常用的連詞是「和」，讀xɣ^{35}，但在北京等地，同樣的意思可用xan^{51}一類的音節表示。而且，xan^{51}還成了台灣地區「和」字的標準讀音。xan^{51}的語源為何？學者們提出了一些解釋，但仍然留有很大的討論空間。第二、遠指代詞北方話用「那」，聲母是n-，但在河北、山東、東北等方言中，以 x- 為聲母的遠指代詞（包括體詞性和謂詞性）亦不乏其例。這個讀 x- 的遠指代詞由何而來？需要深入探討。

根據我們的研究，這些問題均與 h- 化有關。本文擬通過方言材料與歷史文獻的分析調查，以求復原連詞代詞發生 h- 化的過程，說明常用連詞代詞的產生和變化，揭示此類音變中音義互動的特點，同時希望能對一般音變與語法演進的深入研究起到推動作用。

關於第一個問題，筆者認為來自「伴」。首先，並列連詞與伴隨義動詞之間存在密切的邏輯聯繫。「伴」表示伴隨，存在轉變為並列連詞的可能。在實際語言中，有伴隨義動詞變成連詞的實例。第二，聲母是 p- 的單字確有發生 h- 的實例。比如近代漢語中的「填補」在山東長島話中是[tʰian^{55} xuᵒ]，銀川話中是[tʰian$^{53\cdot}$ xuəᵒ]。第三，近代以至現代，動詞「伴」所處的位置可換用一個連詞，如，宋代的「誰伴我，月中聽？」元代的「家童伴我池塘坐。」明代的「我伴你略進去押了花字，即出後門回家。」清代的「蒙若花姊姊伴我登了此山。」現代的「離開時，我伴他走了很久，直把他送到了一條大沙河邊上。」五個例子中動詞「伴」字，無論理解為動詞（伴隨）還是並列連詞，都不會對整句意思造成太大的改變。因此，由動詞而連詞的轉變（重新分析）可以是一個相當自然順暢的過程。這種句法位置上的一致為動詞虛化打開方便之門。第四，近代漢語中的動詞重疊式「伴伴」變成了「伴換」([pan^{51}xwan])。可見「伴」的聲母的確可以 h- 化為 x-。

關於第二個問題，據本人方言調查，冀中方言中的遠指代詞「那」可以 h- 化為xaj^{51}。證據很多，如，該方言有xaj^{51}無「那」（na^{51}）；xaj^{51}的變調表明它原來有個次濁聲母，而「那」的聲母屬於次濁。謂詞性遠指代詞（如，恁）也可以發生 h- 化。近代漢語以及現代方言有「行來行走、行想行思、行寫行讀」之類的說法。其中的「行」是謂詞性遠指代詞「囊」（「那麼」的合音）或「能」字發生 h- 化的結果。證據很多。比如，一、近現代漢語中有「能白能淨、能歡能喜、能紅能白、能長能大」之類的說法，無論從表達的意思看還是從所處句法位置看，「行」都與「能」相當。二、山東淄川話『那樣』合音為nɑŋ^{214}，河北順平話『那樣』的意思說xɑŋ^{51}mənᵒ。x- (xɑŋ^{51}) 由 n–（nɑŋ^{214}；淄川話 214 屬於去聲）而來相當明顯。

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文白異讀與構詞 ---- 四種閩南語方言的比較

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眾所周知，閩語的特點之一是文白異讀豐富且各成系統，尤其是閩南語最為顯著 (楊秀芳 1982等)。文白異讀某程度上是從構詞的層面體現出來的，因為不同讀音在具複合詞中的結合往往是固定的，不能隨意替換。例如「梯」字在廈門閩南

語有兩讀：在「梯田」中讀[tʰe¹]，在「樓梯」中則為[tʰui¹]。

廈門 (李如龍 1963等)、澄邁 (何大安 1981)、潮陽 (張盛裕 1981)、遂溪 (Yue- Hashimoto 1985) 等方言點的文白異讀與古音的對應，學者早已明文揭櫫。但一直到連金髮 (Lien 2001, 2005) 和Chappell (2001)，才有系統地注意到文白異讀與構詞之間的關係。可是，他們都只能以臺灣閩南語一個方言點作為參照對象。我們發現：其他閩南語利用文白異讀構詞的方式，與臺灣閩南語不盡相同。通過比較，可能會發掘到前人未加注意的現象。這正是本文撰作的動機。

本文擬選取閩南語四個代表點 (廈門、臺灣、汕頭、海南文昌) 進行比較，主要討論以下兩個問題：(一) 白讀音所代表的語素與文讀音所代表的語素在構詞能力、語義功能等方面的異同；(二) 訓讀現象與文白異讀現象在構詞上的異同。以下舉例簡要說明：

臺灣閩南語中，「老」有三個讀音：１[lau⁷]$_{白}$，２[lau²]$_{文白夾雜}$，３[lo²]$_{文}$。然而在汕頭閩南語中，「老」只有兩個讀音：１[lau⁶]$_{白}$，２[lau²]$_{文}$。它們在構詞能力和語義功能上的差異，可以用下表表達出來：

文白讀音 / 語義功能	臺灣 (Lien 2001)			汕頭	
	可為自由語素		黏著語素	可為自由語素	黏著語素
	[lau⁷]$_{白}$	[lau²]$_{文白夾雜}$	[lo²]$_{文}$	[lau⁶]$_{白}$	[lau²]$_{文}$
年老的	+			+	
委婉指老人去世	+			+	
熟練擅長		+			+
(蔬果) 變壞		+		+	
語法化為詞綴		+		+	
置於姓氏後表尊敬			+		+
用於讀書音			+		+

乍看起來，汕頭[lau⁶] 一個語素幾乎就包含了臺灣[lau⁷]、[lau²]兩個語素所有的構詞能力和語義功能。為什麼會出現這種情況？如果臺灣和汕頭反映了演化道路上的不同階段，那到底孰先孰後？什麼因素決定文白異讀所代表的語素在構詞層面上的分工？從宏觀的角度看，文白異讀與構詞之間的種種互動，對於接觸語言學和歷史語言學有什麼意義？這統統都是我們關注的重點。

此外，連文以臺灣閩南語的「人/儂」為例，認為訓讀字與本字在構詞上的關係和文白異讀所代表的語素類似。在具體構詞上，汕頭的表現與臺灣略有不同。如臺灣傾向說「保證人」、「犯儂」，而汕頭則傾向說「保證儂」、「犯人」。

本文希望以閩南語的比較作為窗口，探討音韻與構詞的界面 (interface)，藉此加深我們對漢語方言學和歷史語言學等相關領域的認識。

香港粵語聲調性別特徵的聲學統計分析

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作為漢語的主要方言之一，學者們對粵語的研究由來已久，迄今為止已有不少學者對粵語進行了深入的研究。在香港粵語聲調的研究方面，Ball(1907)、張日昇(1969)、Robert Bauer(1997)等學者都從不同的角度對香港粵語的聲調進行了分析和探討。語言或方言不是一成不變的，香港粵語也處於不斷的演變中，張洪年(2002)指出香港粵語正發生著一些變化。性別是語言研究中的重要變量，Labov(2001)通過大樣本研究了不同性別、年齡和社會階層的人在語言使用上的差異，以及語言變量之間的相互作用。徐大明等(1997)指出，與語言變異最明顯相關的社會因素是性別、年齡、社會階層、民族和種族。本文以香港粵語單字調為切入點，旨在通過對120個發音人的聲學統計分析，揭示男女性別在聲調上的不同表現。

本文的調查對像為土生土長的香港人，家庭語言為粵語，發音人男女各60人。香港粵語每個聲調各十個字，發音字表共有九十個字，打亂次序排列，發音人每個字讀兩遍，每位發音人共有180個樣本，120人共有21600個樣本。錄音語料用

南開大學Minispeech-Lab軟件測量分析，每個聲調分別取九個點測量聲調的基頻，然後轉換成歸一化的T值依男女類別進行分組統計分析。本文將發音人分為男女性別兩個類型分別進行單字調的分組統計，依次進行男女性別組Kolmogorov-Smirnov正態檢驗、Levene方差齊性檢驗、方差分析、回歸分析(Regression)和偏度係數(Skewness)的統計計算。

方差分析的統計數據表明，陰去和陽去調性別間無顯著差異，性別差異顯著的點都位於聲調的起點和終點處，具體分佈在陰平的終點、陰上的後段、陽平的起點、陽上的起點和後半段，上陰入的第三至九點，下陰入的終點和陽入的前段，聲調的中段是性別組差異不顯著的部分，性別差異顯著的點也是聲調變化最可能出現的部分。回歸分析的結果顯示，陰上調的第5至9點、陽平調的第1點和陽上調的第6至8點T值的變化與性別有著密切的關係，從統計的角度是相對顯著的。偏分佈skewness是用來描述數據對稱性的一個指標，其數據可以反映帶有傾向性的分佈特徵，讓我們進一步探索聲調變化的方向性和趨勢。香港粵語聲調的性別組偏分佈數據多數為負值，表明多數發音人集中在音高降低的一側，其聲調調值有逐步降低的趨勢，如陰平、陰上、上陰入、下陰入和陽入等。關於陰上、陽上和陰去、陽去這兩組聲調，較為普遍的看法是它們將趨於合併(張洪年，2001；Peng & Wang 2005)。性別組的偏分佈數據顯示，男性陰上調後三點和女性前兩點均呈現音高下降的傾向性分佈特徵，而女性陽上調的終點表現為音高上升的傾向性特徵，陰上音高的下降和陽上音高的上升是兩調趨近的內因，也是性別組共同作用的結果，因此可以把性別組看成陰上、陽上變化的推動者。陽去調女性第七、八點調值的逐步提高是陰去和陽去合併的內在動力，因此可以把女性看成陰去和陽去合併的領導者(leader)。

西班牙母語漢語二語學習者普通話雙音節聲調感知實驗

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長期的教學實踐和理論研究都表明，聲調習得是廣大漢語二語學習者的主要的困難之一，其聲調習得的效果直接影響到他們的漢語語調習得和整個漢語學習的最終成效。研究發現，二語學習者的感知能力不僅可以訓練（Logan等，1991；Wang 等，1999；Golestani 等，2008)；並且其感知能力的提高，發音水平也會得到提高(MoClella等， 2002；Wang等，2003)。

王士元（1976)先生通過對普通話(北京話)陰平和陽平進行感知實驗，得出這兩個聲調的感知屬於範疇感知。Leather (1987)，Stagray & Downs（1993），曹文(2008)，王韞佳、李美京（2010）、李幸河、石鋒（2010），薛鑫、石鋒（2010）等眾多實驗證明上述觀點，為本實驗提供了理論基礎。

本研究通過設計實驗軟件，以128個甲、乙級雙音節詞語為感知材料。對32位母語為西班牙語的漢語二語學習者進行了感知實驗。實驗結果顯示：

1.總體上看，雙音節前字的感知錯誤率顯著大於後字的感知錯誤率。

2.普通話四個聲調的感知錯誤率從高到低依次為：上聲 > 陽平 > 陰平 > 去聲。其中，上聲、陽平、陰平的錯誤率之間沒有顯著差異，但是上聲、陽平、陰平與去聲的錯誤率之間存在顯著差異。

3.普通話四個聲調的位置對其感知錯誤率有一定的影響。其中陰平、陽平是位置在後的錯誤率大於在前時的錯誤率，不過兩個位置之間沒有顯著差異；上聲、去聲位置在前的錯誤率大於在後時的錯誤率，並且兩個位置之間有顯著差異。

4.普通話16類組合的感知錯誤率也各不相同，相互之間有差異，但是大多數沒有達到顯著水平，只有少數幾組之間達到了顯著的水平。包括：陰平+去聲、去聲+去聲、陽平+去聲組合與上聲+陰平、上聲+陽平、上聲+上聲、上聲+去聲組合之間。

5.不同聲調組合的感知錯誤率大小與其感知所用時間存在很大的不一致性。如陽平+去聲組合的感知錯誤率低於陰平+陽平的感知錯誤率，但是前者用時顯著高於後者。因此，我們判定某一聲調或者聲調組合的感知難度時，不能單單考慮該聲調或者該聲調組合的感知錯誤率，還應綜合考慮該聲調或者該聲調組合的感知用時長短。

漢語的R色彩聲母

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1．捲舌音、「舌下腔音」和R色彩音

捲舌音的收緊部位不完全固定，主動器官可以是舌尖或舌底，被動部位可以是硬顎或後齦。它最重要的特點是帶捲舌音色，這比其收緊部位更重要。

廖榮蓉指出發捲舌音時的舌形的真正特點是有舌下腔。並非只有做捲舌動作才能形成舌下腔、發出捲舌音色。事實上存在不必捲舌、用舌葉也能發出的捲舌音色，只要有舌下腔，故捲舌音色更確切的名稱是「舌下腔音色」。但由於舌下腔與捲舌音色的關係目前尚未完全明瞭，本文使用「R色彩音」的名稱。

2. 漢語中的tʂ+i型音節及舌葉性R色彩聲母

京劇「上口字」中的tʂi音節是真正的舌尖/舌底-前硬顎音與i韻母相拼，在聲、韻之間有一個舌形迅速調整的過渡階段。這顯示捲舌聲母拼 i這種音節是完全可以出諸脣吻的。

廣東大埔客家話中被記載為tʂ組的聲母實際上是舌葉性的R色彩聲母，其特點是用舌葉在後齦部位收緊，舌肌較為緊張，尤其是舌底緊張，這可能會使舌下腔弓得比較大，又或許能使舌下腔的腔壁比較緊張、從而共振性更強，且能使舌面下凹，故造成適合於R色彩發生的口腔形狀。

青海湟源的中原官話的tʂ組聲母能拼i韻母。該組聲母在不同i相拼的情況下是捲舌音，但捲舌不深，而在與i韻母拼合時，是帶明顯R色彩的舌葉-齦脊音，也帶有舌肌、尤其是舌底的肌肉緊張。

3. 漢語歷史演化中的R色彩音

前人或構擬《切韻》莊組聲母、《中原音韻》知照組聲母為tʂ等。但由於這些聲母可以跟i相拼，所以引發爭議。

音位變體理論在古音構擬中可以獲得運用：《切韻》莊組和《中原音韻》知照組不拼i的是捲舌音，拼i的是舌葉性的R色彩聲母，這是比較合適的構擬。

tʂ+i這種聲、韻拼合確有矛盾，而這矛盾正是語音演化的一種動力。理論上，這種音節可能有三個解決矛盾的發展方向：一，R色彩在對抗中成為勝利者，i最終失落；二，i戰勝R色彩；三，聲、韻互相中和。從《中原音韻》出發看，這三種發展結果在現代北方方言都能見到。

演化語言學重視語言的自然變異和環境選擇，這在古音構擬中應作出體現。tʂ+i聲、韻拼合的矛盾會造成不同的發展方向，這就是一種自然變異，各方言的不同實際變化是選擇的結果。

音系演化的自組織性：自協與互協：漢語、傣語的語音變異跟蹤調查個案分析

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作者從80年代開始追蹤北京話音系變異發展，同時也追蹤西南官話和傣語接觸過程中的變異發展。結果顯示，北京話音系的變異主要朝協合度高的方向發展。在西南官話和傣語的接觸中，變異的發展使兩種語言的協和度增加。協合度定義為：音系中實際出現的單位和可能出現的單位的比。比如北京話聲母矩陣實際出現了22個聲母，可能出現的聲母應為31（22個聲母加上9個「□」）：

p	p'	m	f	□	o	o
t	t'	n	o	o	l	o

ts	ts'	o	s	□	o	o
tʂ	tʂ'	□	ʂ	ʐ	□	o
tɕ	tɕ'	□	ɕ	□	o	o
k	k'	□	x	□	□	o
o	o	o	o	o	o	∅

協合度為：

$I_{j\,(北京聲母系統)}$ ＝22/31＝0.71

音系的協合不僅體現在音位的聚會關係中，也體現在音位的組合關係中。音系朝協合度高的方向發展，反映了音系演化有一種依賴語言內部結構的自組織性，這是語言作為複雜適應系統的一種主要性質。語言演化不僅有社會條件，也有內在的結構條件。

本文還討論了確定協合度的計算方法，最後討論了協合度降低的一些原因，主要和不同層面的變化有關係。

音義結合是任意的嗎？重讀雅可布森評索緒爾之一

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索緒爾和雅可布森是20世紀語言學的兩座高峰。從1916年的《普通語言學教程》（以下簡稱《教程》）到1951年的《語音分析初探：區別性特徵及其相互關係》，代表了現代語言學歷史上的兩個里程碑。

本文在學習雅可布森對於索緒爾評論的基礎上，考察語言符號的任意性。指出索緒爾在論證任意性問題中的四個矛盾之處：1、論述任意性意義的倒退。《教程》對於語言符號的任意性，從開宗明義式的宣講「頭等重要」到「不是完全任意」，開始有所鬆動；講「論證性不是絕對的」，已經退到最後；再到「任意性的不合理原則」，可以看作是自我否定。2、對約定俗成的錯位認識。《教程》中對於任意性跟約定俗成之間的關係認識存在兩個問題，一是說明的前後不一致，表現出一種錯位；二是認為約定俗成就是選擇的自由。事實上，約定俗成並非選擇的自由，反而恰恰是選擇的不自由。約定俗成是擇優選取，是優勝劣汰的選擇過程。3、對語言起源問題的迴避。《教程》討論語言符號的性質而缺失語言起源問題，使得索緒爾關於任意性的認識和理解處於先天不足的狀態。近百年來的語言學、考古學、遺傳學的長足發展，特別是計算機問世和神經科學的新發現，使我們認識到語言起源的研究對於認識語言符號性質的重要性。4、對不同語言作用的差異。《教程》中將語言的多樣性作為語言符號任意性的理由，但逆向推理可得出了相反的結論：在單一語言中無從論證的詞項可以在不同語言間加以論證。探尋不同語言間的分合與接觸，考察對比世界語言的類型和共性，為我們探索發現語言理據，提供了重要的途徑和廣闊的空間。

通過對《教程》中任意性問題四個矛盾的分析，並結合語音相似性和漢語理據性的討論，作者主張任意性和理據性都是普遍存在的。任意性不可論證，無需論證。理據性則是需要語言學者下大力氣去探尋的語言研究的目標。當代語言學正經歷著理論和方法的全面更新。

關鍵詞：任意性　理據性　約定俗成　語言起源　語音像似性

A quantitative method for distinguishing monophthong and diphthong： A case study in Suzhou Chinese

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It is difficult to decide a vowel sound with a little quality change to be a monothong or a diphthong only by subjective impression. Many dialectologists have argued whether some vowel sounds in Suzhou Chinese are diphthongs or monophthongs for many years. For example, the vowel sounds transcribed as [iɪ, iʏ, ʏ] in Ye (1988) were transcribed as [ɪ, ʏ, oʏ] in Wang (1987). None of them provided any convincing evidences with an objective method.

This study addressed my development on an objective method to calculate the degree of vowel quality change (DQC), through which a phonetic boundary between monophthongs and diphthongs can be established. The formants values are transformed in the auditory-perceptual space (Miller 1989) and the Euclidean distance between the APS values of the starting and end points of a vowel sound is then defined as the degree of vowel quality change. For monophthong, the DQC between the two points should be quite small; and for diphthong, the value should be comparatively large. The DQC values of those typical monophthongs, which were accepted by all dialectologists, can be used as references. If its DQC value is higher than the reference, the vowel sound can be classified as diphthong and vice versa.

Based on the new formula for degree of vowel quality change, DQC values of all the vowel sounds in Suzhou Chinese were calculated in this study. The DQC of typical monophthongs in Suzhou Chinese are all smaller than 2000. The mean value for [ɪ] is 1002.3 and that for [ ] is 4725.5. Therefore [ɪ] should be classified into monophthong, and [oʏ] should be classified into diphthong.

There are speaker variations for [uo] and [o]. Some speakers usually confused these two sounds. The confusion is not the same as that in the new accent -- that [uo] merged into [o]. Actually some elder speakers did merge [uo] into [o], however, there are also some other elder speakers merged [o] into [uo]. The mean DQC of [ʏ] is close to the DQC of [uo]. And the standard deviation for DQC of [ʏ] is quite big. By checking the values for each sample, three types of [ʏ] which may represent three stages for [ʏ] merging into [io] are found. The first type is a monophthong, which should be the original state of [ʏ]; the second type has been diphthongized, but it is different from [io] which should be a middle stage from [ʏ] to [io]; the last type has no difference to [io]. Unfortunately, there is also a paradox. If [uo] is treated as diphthong, [ɿ] or even [u] and [ɻ] should be also treated diphthong, which will not accepted by the dialectologist. If [uo] is treated as monophthong, it will be very difficult to describe the contrast between [uo] and [o].

Therefore, I suppose that there is no universal objective boundary between monophthong and diphthong fitting all world languages. The boundary between the two types in one language is determined by its phonological system. A sound treated as a monophthong in language A may be treated as diphthong in language B.

The effect of varying proficiency levels of early bilingualism on cognitive functions: A study on the Singaporean ageing population

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The current study explores the effects of balancedversus unbalanced early bilingualism on cognitive constructs such as Working Memory (WM) and Executive Control (EC) with regards to aging. Bilinguals aged between 55-65 who were matched on age, intelligence, age of exposure to and frequency of use of both languages, as well as their L1 (Mandarin, Malay and Tamil) proficiency but only differing in L2 (English) proficiency completed a battery of WM-related tasks. Participants comprised of two groups. The balanced bilingual group consisted of participants who demonstrated relatively balanced and high proficiencies in both the languages they speak. The unbalanced bilingual group consisted of participants who had a high proficiency

in their L1, but only average-level proficiency in their L2. We chose this particular age group, as it is around this age that executive processes start to decline (Borella, Carretti, De Beni, 2008). As such, another reason for choosing this age group is to investigate to what extent EC declines in balanced bilinguals as opposed to unbalanced bilinguals. This will then enable us to reflect upon whether unbalanced bilingualism is as beneficial as balanced bilingualism in offsetting age-related cognitive decline.

Salvatierra and Rosselli (2010) studied late bilinguals and found that both balanced and unbalanced bilingualism mitigate age-related cognitive decline. Other studies are inconclusive about the effects of unbalanced bilingualism on cognitive functions. This study was undertaken to understand the effect of early bilingualism because early bilingualism coupled with varying language proficiencies might have a more pronounced effect in shaping cognitive abilities in contrast to late bilingualism.Also, the situation of early and unbalanced bilingualism is unique to Singapore, and past research has not adequately addressed the research gap of early bilingualism being spoken to varying proficiency levels. Past research conducted on late bilinguals who speak both languages to varying proficiency levels is therefore not directly relevant to the Singapore situation. Also, in a preliminary language survey that we conducted, it became clear that a large proportion of the bilinguals in Singapore were unbalanced early bilinguals. As such, it becomes even more imperative to study and understand the kinds of effects this kind of bilingualism has on cognitive abilities.

Past studiesshow that balanced bilinguals experience cognitive benefits in contrast to unbalanced bilinguals (Lee and Schallert, 1997; Ricciardelli, 1992), thus balanced bilinguals were expected to perform better than unbalanced bilinguals in tasks that required enhanced executive control, rule-learning, andmental flexibility such as in inhibition, shifting, updating and in tasks with added WM costs. However, our results showed that all bilinguals performed equivalently on almost alltasks except for updating, where balanced bilinguals showed a slight advantage, suggesting that early bilingualism and bilingual competence probably have a smaller effect on WM-related skills, contrary to previously hypothesized. We speculate that the results insteadsuggest that frequency of use of both languages probably has a greater effectbecause all bilinguals in this study frequently used both languages on a daily basis. Also, the results give rise to another possibility, that instead of higher levels of bilingual proficiency contributing to better cognitive ability (Cummins, 1979), cognitive benefits attenuate after a certain threshold level of proficiency is reached in the L2 (Diaz's (1985) threshold theory).

Auditory Perception of Rhyme in Mandarin Chinese: An ERP Study

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Abstract. The structure of rhyme in Mandarin Chinese has been argued about for a long time among linguists. To shed some light upon the issue, we recorded EEG signals in eighteen native speakers of Mandarin while listening to the sounds of lexical syllables arranged in an oddball paradigm. We examined the ERPs elicited by the carefully designed syllabic stimuli with a focus on the MMN component and reached the conclusion that rhyme of Mandarin consists of not only nucleus but also coda.

Keywords: ERP, Rhyme, Mandarin, Auditory Perception, Mismatch Negativity

1. Introduction

A lexical syllable of Mandarin can be decomposed into initial, medial, nucleus, coda, and tone (e.g. 乖 (guai1): g + u + a + i + T1), of which initial, medial (only /i/, /u/, and /y/ in Mandarin), and coda are optional, while nucleus and tone are obligatory in forming a lexical syllable. Some believe that rhyme of Mandarin only contains nucleus while others believe it consists of nucleus and coda, together called rhyme base. Still others hold that for a poem to rhyme, the rhyme words should share both the same rhyme base and the tone. In this article, we investigated the structure of rhyme in Mandarin by designing an oddball experiment and recoded Electrocephalography (EEG) signals in eighteen native speakers of Mandarin while listening to the sounds of lexical syllables in Chinese.

2. Materials and Methods

2.1. Recording & Participant

EEG was recorded from 32 Ag/AgCl electrodes (sampled at 500 Hz, bandpass filtering=.1-100 Hz, notch filtering=50 Hz) positioned in a BP (Brain Product GmbH, Gilching, DE) headcap on the scalp, according to the international 10/20 system. Eighteen native speakers of Mandarin (ten males, mean age=22.3 years, SD=3.9) participated in this experiment. All were natives of Mainland China and were fluent in the standard Beijing dialect.

2.2. Stimuli & Procedure

The stimuli in this study included the lexical syllables */a/, /i/, /u/, /ai/, /au/, /ia/, /ua/, /uai/* carrying the first tone (a high-level tone) and */y/* carrying the third tone (a dipping tone) in Mandarin, recorded by a native Beijing speaker. An oddball paradigm was employed pairing *ia1/a1/y3, ia1/i1/y3, ia1/ua1/y3, ai1/a1/y3, ai1/i1/y3, ai1/au1/y3, uai1/ai1/y3, uai1/u1/y3, uai1/ua1/y3* as standard/target/response stimuli, and the experiment was arranged in a block design, resulting in nine blocks. Each block contained 480 trials, of which 80 (or 16.7%) were target trials and another 80 were response trials (*y3*).

The participants were seated comfortably in front of a computer screen approximately 1 m away in an electrically and acoustically shielded booth. During the task, auditory stimuli were binaurally presented through air-conduction earphones simultaneously. The participants were instructed to look at a fixation cross in the center of the screen against a gray background while listening to the sounds they hear. The task consisted of nine blocks, each containing 480 trials. Each trial included a syllable of approximately 400 ms in length and an inter-stimulus interval (ISI) of 500 ms. The entire experiment lasted about 70 minutes.

2.3. Data Processing

All data processing was performed offline using MATLAB and EEGLAB [Delorme and Makeig, 2004]. The recorded EEG signal was first re-referenced to the mean mastoids and bandpass filtered between 1 and 30 Hz for preprocessing. The data were then divided into epochs of 1000 ms in length including a 200 ms interval before the stimulus onset and each channel was baseline corrected using the pre-stimulus 200 ms interval. Epochs with amplitude larger than $\pm 100\ \mu V$ $\pm 100\ \mu V$ were removed to exclude eye blinks, horizontal eye movements, noisy channels, and other focal artifacts.

3. Results

For lexical syllables *ia1*, *a1*, *i1*, and *ua1*, the contrast between *ia1*/*a1* elicited a significant negative wave with a time window during 128-166 ms typical of an MMN, *ia1/i1* a significant MMN during 156-340 ms, while the contrast between *ia1*/*ua1* elicited no significant MMN. For lexical syllables *ai1*, *a1*, *i1*, and *au1*, the contrast between *ai1*/*i1* elicited a significant MMN with a time window during 156-244 ms, *ai1/au1* a significant MMN during 104-230 ms, while the contrast between *ai1*/*a1* elicited no significant MMN. And for lexical syllables *uai1*, *ai1*, *u1*, and *ua1*, the contrast between *uai1*/*ai1* elicited a significant MMN during 140-174 ms and 214-312 ms, *uai1/u1* a significant MMN during 132-244 ms, and *uai1/ua1* a significant MMN during 140-256 ms. The results demonstrated that deviant with both the same syllable structure and the same rhyme base (*ia1/ua1*) was perceived almost the same as standard; deviant with the same rhyme base but a different syllable structure (*uai1/ai1*) was perceived closer to standard than deviant with the same syllable structure but a different rhyme base (*uai1/ua1*); deviant with neither the same rhyme base nor the same syllable structure (*ia1/i1, uai1/u1*) was perceived most different from standard.

4. Discussion

The suprasegmental features of Mandarin Chinese have attracted the attention of researchers to deeply investigate the Chinese tone and its relation with vowel production [Liu, et al.] as well as the sentence prosody [Paulmann, et al.]. Some have also studied the perception of tones in the dialects of Chinese, such as Cantonese [Law, et al.]. In our research, we examined in detail another suprasegmental feature of Mandarin – rhyme, and reached the conclusion that rhyme consists of not only nucleus but also coda (i.e. rhyme base).

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When English Meets Cantonese: A diachronic study on phonology and prosody of Hong Kong English

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Due to the socio-political change in Hong Kong, as well as the change in language policy, this diachronic study provides a detailed description of HKE phonology and prosody and their change over time. The data comprises public interviews and public speech of 4 mid-age Hong Kong celebrities, 2 university students and 2 interpreters. With the help of acoustic analysis by Praat, the phonological research of HKE vowels generally confirms Hung's reduced vowel system theory, but shows significant differences in duration of vowel contrasts and the change over time. The result also shows the vowel GOAT, with a significant difference, gets a more diphthongal movement over time. Prosodic rhythm is measured for the sample data using the metric devised by Low, Grab and Nolan (2000), which involves comparisons of the duration of vowels in adjacent syllables. Results of median PVI scores range from 0.406 to 0.602, which indicates native HKE speakers show slightly less stress-timed than native English speakers and a tendency to get more stress-timed.

Phonemes in Shanghai Sign Language Handshapes

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Phoneme is the smallest phonological abstract unit which distinguishes meaning in all spoken languages. It has long been testified that sign language, as its spoken equivalent, can be featured by a complete internal structure. Many theories have claimed that the phoneme-level elements in sign language such as handshape, movement, place of articulation, even non-manual behavior act like abstract units of distinctive value. Since 1960s, a number of linguists have embarked the research on sign language phonology. From William Stokoe's chereme model to Movement-Hold model, and to the latest Prosodic Model, the focus of sign language segmentation has shifted from sequentiality, which is characterized by spoken languages, to the co-existence of simultaneity and sequentiality. Most of the fundamental researches in this respect are conducted on the base of American Sign Language, Israeli sign language and British sign language etc. As for Shanghai sign language (SSL), the linguistic researches in this field are relatively scarce, leaving alone the phonological systems. So far, only Zhang and Yang (2011) touched upon the phonology of SSL.

This paper aims at classifying phonemes of SSL. So far we have collected more than 3000 words which are frequently used in daily life. Our subject is a native deaf signer, having learned SSL from his parents as a first language. The subject was presented with pictures and words written in Chinese, and he was asked to sign the meaning as naturally as possible. All data were recorded on videotape. Signs imitating characterized Chinese and finger spellings are not considered. Meanwhile, the handshapes collected by Yi Yumin (2008) are also emphasized, in which the author has summarized altogether 69 handshapes from a relatively valid elicitation of large corpus including 4784 words and 10 stories (all made by SSL of course). The 69 handshapes constitute the primitive and 「rough」 material summarized by scanning the video clips and counting the handshapes from those video clips. The summarization of the handshapes from Yi was thus aborative but not

under specific phonological frameworks. This paper attempts to ascertain which hanshapes, among those 69 ones, are of distinctive value under the framework of Brentari Diane's prosodic model, especially the manual tier under inherent features since this paper only focuses on hand configurations. In prosodic model, the articulator branch (of which manual and non-manual features are specified), together with the place of articulator branch, is under the dominance of inherent feature tier. Under the manual tier, H_1 stands for dominant hand while H_2 for non-dominant hand. It has widely been acknowledged that the handshapes in H_2 are confined to quite a few unmarked ones. Hence H_2 will not be the focus of discussion here. This paper views features under joint node and finger node of selected fingers as the main features for phonemic distinctions in SSL. Under the node of selected finger, $fingers_1$ branch specify the feature of the selected fingers, of which thumb specification is independent from those of the other selected fingers. Thumb is considered simpler than other selected fingers because frequently the behaviors of thumb can be handled using the joints node. $Fingers_0$ branches dominate altogether four features—[all], [one], [mid] and [ulnar]. Using dependency theory, all possible selected finger handshapes can be accounted for through the interactions of these four features. For joints tier, there are four features that may constitute lexical contrasts—[stacked], [flexed], [crossed] and [spread]. Then the joint node further branches into base joint and nonbase joint which can also carry lexical contrasts.

For example, according to joint specification, the hand configuration of handshape (46) and handshape (47) are similar. Given the selected fingers specifications are held constant—thumb and index finger, the base joints of the two hanshapes are specified. While (46) is completely flat closed, (47) can be viewed as nearly closed since there is another distinctive handshape (24) which is truly flat open. Handshape (47) appears only on occasions where contact is necessary (e.g. girl, needle and clothes).The narrow interval between thumb and index fingers is created on the purpose of pinching tiny objects or parts of the body. Otherwise, the difference between (46) and (47) does not hinder perceivers from identifying the meaning of words including these two handshapes. Therefore, (47) and (46) form a complementary distribution, i.e. handshape (47) is a variation of handshape (46) since (46) appears more frequently on a wider number of occasions (e.g. chicken, needle, and bullet).

Through a reclassification under this phonological framework, the 69 handshapes can be reduced to roughly 30 ones, which are of distinctive value in SSL. The result of this study indicates that the phonological analysis of handshapes allows an accurate and systematic understanding of the phonological system, in particular phonemes in SSL handshape, as well as in other sign languages in the world.

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Typology of Rarities in Numeral base

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This is a review article where I make a new organization of data in Hammarstrom, H(2010)』s paper on Rarities in Numeral Systems. This paper presents an extensive survey of rarities in numeral systems, foremostly the question of rare number base, in about 7,000 attested native spoken languages of the world, of which 3,880 are definitely distinct languages. However, it is a long paper with 55pp. which need to further concluded and explained.

If and only if the number n is a base, then the next higher base(or the end of the normed expressions) is a multiple of n; and a proper majority of expressions for numbers between n and the next higher base are formed by (a single) addition or subtraction of n or a multiple of n with expressions for numbers smaller than n.

1 No Base

(1) No Numerals

Some languages are reported to have no normed numerals, these include **Pre-contact Yuqui**(Tupi-Guarani/Tupi, Bolivia), **Canela-Kraho** (Je/Je-Jabuti, Brazil), **Krenak** (Aimore, Brazil) and **Wari'** (Chapacura-Wanham, Brazil).

Several other languages lack exact numerals, like**MaPiraha**(Mura-Piraha,Brazil),**Mura**(Mura-Piraha,Brazil) and **Xilixana** (Yanomama, Brazil) where no discrete quantities but fuzzy 『one』 and 『two』 exit.

(2) No Numerals above One

To lack numerals above one means the normed expressions for quantities above one are inexact, which can be called 1-few-many, such as **Nadeb** (Nadahup, Brazil), **Pre-contact Jarawara** (Arawan, Brazil), **Parintintin** (Tupi-Guarani/Tupi, Brazil), 「**All**」 **Campa and Machigenga groups** (Pre-Andine/Arawak, Peru), **Culina** (Arawan, Peru) and **Arabela** (Zaparoan, Peru),**Gedaged** (Oceanic/Austronesian, Papua New Guinea).

Some dubious cases are also included by the author, such as**Chiquitano** (Isolate, Bolivia) with the uncertain borrowing status of the word 『two』 and above, **Achuar** (Jivaroan, Ecuador) with the late crystallized 『two』 and higher numerals,**Fuyuge** (Goilalan, Papua New Guinea) and**Viid** (Border, Indonesia) both with uncertain fuzzy status of 『two』-word.

(3) Numeral Communication Carrier

For those languages with no numeral base, it may be possible to communicate a higher exact quantity successful, perhaps using bodyparts, context, one to one pairings, repetition or a specialized lexical item. E.g., In **Krenak** (Aimore, Brazil), the fingers are used to convey the numerical meaning (Ehrenreich1887:41-46) ; In **Sanuma** (Yanomama, Brazil) , 「...after it gets dark and it gets dark again」 might just be interpreted as two days or as three days (p.c. Daniel L. Everett 2005); In **Wari'** (Chapacura-Wanham, Brazil) the 『two』-word is glossed as 『facing each other』(Everett and Kern 1997:452-459).

2 Other bases

(1)Base-3 seems to be rarer than base-4 with only a few cases restricted in their dialect cluster:**Ambulas of Wingei** (Ndu, Papua New Guinea), **Waimiri of Atroari** (North Amazonian Carib/Cariban, Brazil) and**Som** (Finisterre-Huon/Trans New Guinea, Papua New Guinea). Most of them are restricted and only tested up to 9. Some dubious cases are also included, like**Bukiyip**(Arapeshan, Papua New Guinea) with the existense of base-4 and different base systems from related languages and **Bine** (Eastern Trans-Fly, Papua New Guinea) with a restricted system and body-tally language.

(2)Base-4 are attested on four continents, with **Chumash**(Chumashan, USA) and **Yuki** (Isolate, USA) in **North America**; **Lule** (Isolate, Argentina), **Charrua** (Charruan, Uruguay) , Guarani variety of **Paraguay**(Tupi-Guarani/Tupi, Paraguay) ,**Mocovi and Toba** (Guaicuruan, Argentina) and**Payagua** (Isolate, Paraguay)in **South America**; **Kakoli** (Hagen/Trans NewGuinea, Papua New Guinea), **Kewa** (Engan/Trans New Guinea, Papua New Guinea),**Mbowamb** (Hagen/Trans New Guinea, Papua New Guinea) and **Tobat**i (Sarmi-Jayapura Bay/Austronesian) in **Indonesia/Papua New Guinea** and **Nyali** (Bantu, DRC), **Ngiti** (Lendu/Central Sudanic, DRC) and**Lendu**(Lendu/Central Sudanic,DRC) in **Africa**. However, the base-4 system is used restrictively both because of its limited application scope like 4-32 in **Chumash**, 4-10 in**Lule, Charrua**and**Guarani**, 4-8/10 in**Mocovi and Toba**, 4-20 in**Payagua** and **Kewa**,4-32 in **Ngiti** and **Lendu**and of other competing paralleled systems like 5-10-20 system with hands and feet in**Lule** and**Charrua**, an accompanying body-tally system for numerals above 20 in **Kewa**and base-10 and 20 system in Bantu and Central

Sudanic languages.

(3)Base-6 is restricted on **Kolopom**island as well as in the **Kanum** and **Nambu** languages in southern New Guinea. In addition, some cases like**Balanta** (Northern Atlantic/Atlantic-Congo, Senegal/Guinea Bissau) and **Tiwi** (Isolate, Australia) are excluded beacuse of the limited application scope of Base-6, such as 7-12 and 7-10 respectively.

(4)Base-8 is only discovered in **Northern Pame** (Otopamean/Otomanguean, Mexico) (attested up to 32). And Base-15 is only attested in **Huli** (East New Guinea Highlands/TransNew Guinea, Papua New Guinea).

(5)Base-12 occurs only in languages in the area of Jos plateau of Nigeria which belongs to different (sub-)families, namely **Plateau**(Atlantic-Congo), **East Kainji**(Atlantic-Congo), **West Chadic** (Afro-Asiatic), **Adamawa**(Atlantic-Congo) and**Jarawan Bantu**(Atlantic-Congo). Forms≤12(a), forms 12+x(b), multiples of12(c), and a word for 144(d) are four parameters for judging throughness of the base-12 system. By attesting 48 languges in **Plateau**, 14 languages in **E. Kainji**, 5 languges in **W.Chadic**, 1 language in **Adamawa** and 4 languages in **Jarawan Bantu**, we find that among them 8 languages possess (a,b,c,d), 13 languages (a,b,c), 26 languages (a), and the remaining languages are speculated as base-12 with uncertainty . Base-12 system is still preserved in the modern European languages like 『dozen』 in English.

(6)Rare second bases are found in many languages, e.g., base-40 after 10 or 20 in **Pech**(Paya/Chibchan, Honduras) and **Southwestern Pomo** (Pomoan, USA); base-60 after 10 or 20 in **Ekagi** (Paniai Lakes/Trans New Guinea,Indonesia), **Ntomba** (Bantu/Atlantic-Congo, DRC) and **Sumerian** (Isolate, Iraq); base-60/80 after 20 in a relatively small area of west africa area; base-25 after 5 in**Gumatj** (Anindilyakwa, Australia) and **Biwat**(Yuat River, Papua New Guinea).

3 Etymology

(1)Hand Symbolism. Being the most common counting tool, hand is borrowed etymologically as the root of base in some languages. 「Hand」 is seen as having six features in Ndu family, four features in **Yuki**(considering spaces between the fingers) and in **Indonesia/Papua New Guinea**(the thumb is seperated from other four fingers).

(2)Foot(leg)/Tree/Man Symbolism. These words used as numeral base can be found in the variety of Wingei.

4 Language Contact

(1)Colonial Language Contact.**Chiquitano** dialects borrow the word 『two』 and above from Spanish and Portuguese and a similar Portuguese loans above 3 are prevailed in **Waimiri of Atroari**. TokPisin or English influences the numeral system of**Ambulas of Wingei** in the high numbers expression and **Huli** in the base-15 system.

(2)Areal Connection.Anareal connection between **Skou** and the **Sarmi-Jayapura Bay** Oceanic languages,**Engan** and **Hagen** Languages is attested in the similar base-4 systems which also occur within a relatively small area of South America. The base-12 systems appear only in languages in the area of Jos plateau of Nigeria and a root resembling #sok for 12 is widespread in Plateau, wherefore it is very likely that areal connection works here. There are also some different morphemes for 12 like #kuri in **E.Kainji** and **Beromic** subgroup of Plateau, #piri in **Gure** and **Kahugu**, #zowa in**Ake** and **Koro** and other roots in remaining **West Chadic** cases. It suggests that base-12 may be borrowed without key morphemes. Due to the same reason, a secondary 60/80 base happens in a small area of West Africa.

5 Conclusion

Despite the detailed cross-linguistic survey of rarities in the numeral system, many divergences still exit which need to be further investigated. These include the differences among the varieties of the same dialect and disagreement on the numeral base of the same language by different researchers.

Does Communicative Requirement Motivate Language Evolution?

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One proposal about language evolution is that communication demands or language functionality of human population motivates language evolution. Based on Darwin's 「fitness for survival」, they argue that language is a fitness for human evolution and thus is remained gradually in human being. We argue, on the contrast, only when human being obtain language faculty during evolution can they communicate by means of language.

Technologically, human being can employ signs or face expressions alternatively in communication; Biologically,

every species need communications during their struggle survivals, which is contrast to the species specific property of human language. Natural selection is *The Blind Watchmaker*, who does not plan consequences, without purpose in view ahead, which indicates evolution cannot produce some novel mechanism for a specific requirement.

We agree with Chomsky's proposal that the biology design of language is the result of mutation in evolution. Mutation may be a random 「error」 of genetic sequence in copying to an offspring, such as FOXP2, though the evidences are not adequate at present. On the other hand, if language is other animals, we should find some biology homologue or even analogy feature in our latest ancestry.

We further argue that language is the result of accumulation of deigns, which indicates language development, including the functionality of language, never stops even since human being obtain language faculty. Such language development or change, such as simplification of pronunciation or progressive expansion of simple forms into complex ones, may lead to structure grammaticalization, from which human being may choose in different communication settings for different purposes. At the same time, language change may integrate culture and history development of society, which leads language to a synthesis.

Our proposal confirms the biology attribute of language, and on the other hand, suggests the distinction between language evolution and language change, evolution and history. Furthermore, our proposal directs the relevant researches to the level of gene structure, but not the level of language structure or linguistic behaviour.

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Can Foreign Tone Elicit Speech Dissociation in Mandarin Speakers with Amusia?

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Congenital amusia, a pitch processing disorder first and most prominently observed through melodic tunes, is adomain-general deficit which also interferes with speech ability. Evidence has been gathered from both tone and non-tone language communities. According to literature, subjects' performance is often characterized by a phenomenon of speech dissociation, showing the co-occurrence of intact production and impaired perception. As native languages are the preferred testing materials, it is intriguing to know if such a dissociated pattern still holds when tested in a non-native tonal context.

In this study, native Mandarin speakers with very little understanding of Cantonese were invited, screened through the online MBEA (http://www.brams.umontreal.ca/amusia-general/) test, and grouped for subsequent experiments. To reduce ceiling effects, Cantonese level tones were used as the preferred stimuli and both the original and their counterparts deviating on a semitone scale were tested. Stimuli were presented in monosyllabic and disyllabic manners. Besides, resynthesized non-speech stimuli were used in this experimentas well.

To accomplish the procedures, participants were firstly given forced-choice discrimination tasks. Then, they were required to repeat presented syllables. Participants' competence to maintain tonal distances in their production were examined against standard level tones. As predicted, normal-hearing subjects showed superior performance, supporting the domain-general view and confirming that the pitch deficit caused by amusia could interfere with individuals' lexical tone perception.

Meanwhile, some intriguing phenomena also appeared. To begin with, there was the counter-intuitive experience reported by the majority of participants, mistaking speech stimulias less challenging while proving to be better auditory judges in the non-speech context. Secondly, amusics' performance was featured by a lack of significant variations. Thirdly, a preference towards non-speech analogues was repeatedly exhibited. And finally, the dissociated pattern was not found because participants unanimously and significantly deviated from expected productions.

Interpretations for these patterns correspondingly comprised of four folds. Firstly, though incomprehensible, participants were able to identify and distinguish foreign tones from non-speech analogues, thus responding differently. This conformed to previous observations that speakers' voices alone could provide sufficient cues to be recognized as a speech context. But, since both groups encountered great confusion, it seemed that, for tone language speakers, the primary contribution of foreign speech cues was the identification of contextual nature instead of perceptual facilitation. Even when change of context or adding a high-rising reference tone served to enhance participants' accuracy, amusic subjects only made moderate improvements. This lack of variations was very likely another consequence of amusia in that its domain-general influence not only subjected individuals to misjudgements, but weakened the linguistic nature of the perceived context, reducing listeners' sensitivity and ability to exploit the tonal nature of the context.

Yet, despite the compromised sensitivity, amusics still patterned alike with controls in the non-speech module and both displayed superior performance relative to speech. As it turned out, being proficient in a tone language failed to generate significant advantages when the context was non-native and tonal in nature. Given previous experiments in which non-tone participants differentiated foreign tones but displayed a preference toward speech, it is likely that the most crucial factors should come down to participants' language background and the interference of their native language; for once the perceptual context is identified, the more linguistic in nature, the stronger the interference is likely to be. Since the same tendency was even manifested among amusic individuals, such a preference could also test for the more fundamental and prominent impact of language backgrounds relative to participants' musical abilities.

As for the production module, as listeners were typically measured against a most acquainted language, it was predicted that a perceptually foreign context could disrupt the popular patternof intact production. Indeed, except for high level tone, the intergroup difference dropped below significance level and participants exhibited universal and salient deviations in producing non-native tonal categories. These observations appeared to have suggested a close correlation between eliciting speech dissociation in amusic individuals and the presence of native tonal stimuli.

Furthermore, the influence of native language experience seemed especially strong when it comes to the production of lexical tones. This is very likely the result of the speech related motor-systems being activated as well, making the context more linguistic in nature and subjects more prone to be affected. Thus, again, how Mandarin amusic and control subjects performed in this study could be explained by the probability that native language experience is more decisive and robust than that of congenital amusia, facilitating performance in native contexts but subjecting speakers to significant warping experiences when exposed to foreign tonal materials.

Application of Vico's Language Evolution Trichotomy on Chinese Characters

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Based on his trichotomy on world history into Times of God, Times of Hero and Times of Man, the Italian philosopher Giambattista Vico classifies language evolution into three periods accordingly(維柯, 1989). With the philosopher's allocations of Pictographs to divination, Semasiographies to emblem, and Alphabetic Writing to folk life, this research demonstrates how and why Vico's trichotomy on language evolution could also be applied to the historical development of Chinese characters. For this written language, Pictograph and Semasiography are two main formations of character within the Ancient Primary Time, a period when characters are engraved on bones and bronze objects for the purposes of augury and eulogization on ancestor's heroic activities. It is not until the written language of Chinese adopts the formation of Phonogram, a special form of Phonography that Chinese characters boom to meet people's increasing demand of record(高明, 1996). The evolution of Chinese characters accords with Vico's trichotomy because of the guiding function of the so-called mental vocabulary, which comes from the fact that people judge and create on the basis of themselves at the very beginning when they could percept only through their own minds and from their own bodies(維柯, ibid). The perception from human body is defined as Embodiment(Lakoff & Mark, 1980), which plays an important role also in the origin of spoken language(LI, 2013).

Keywords: Vico; Language Evolution Trichotomy; Chinese Character; Embodiment

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A Diachronic Study of Stance Adverbs in TIME

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This paper presents a corpus-based diachronic study on stance adverbs used in TIME magazine in the 20th century (from 1920s to 2000s). One major strength of corpus linguistics is that quantifiable corpus data is a valuable supplement to introspective approach to language study. It offers evidence for more objective statements to what may be considered important or marginal with regard to language use. Hopefully, the results of this study will allow us to see how expression preferences for stance adverbs change over time in American English.

By stance we mean the overt expression of an author's or speaker's attitudes, feelings, judgments, or commitment concerning the message. English has a rich supply of grammatical devices that can be used to express 'stance'. Longman Grammar of Spoken and Written English (LGSWE) (1999) has a detailed description of such devices as adverbs, adjectives, verbs, and adverbials. Among which, adverbs are one of the primary lexical markers of stance in English. In this paper, I follow the semantic classifications of stance in LGSWE (1999) and investigate stance adverbs in the following categories: (1) Epistemic stance (comments and judgments on the status of information); (2) attitude stance (personal attitude and feelings); and (3) style of speaking (speaker's comments on the communication itself)

All occurrences of stance adverb are identified in TIME Magazine Corpus— which is a 100-million-word corpus freely available through an online interface (http://corpus.byu.edu/). It is expected that the results of the study may provide certain evidence to suggest (1) if socio-political or socio-historical factors may play a role in the types of stance adverbs being employed; (2) whether certain stance adverbs have undergone a decline in use while others have shown signs of being on an increase.

Phonological evolution of Dpav ris Tibetan

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Dpav ris Tibetan is an Amdo Tibetan Dialect, spoken in the Northeastern part of Qinghai-Tibet Plateau. In this paper, we mainly compare the sound system with Old Tibetan, which is reflected from the orthography, to comprehend the development of this phonology. Like many Sino-Tibetan languages, the syllable is a very important unit when discussing the phonological system. The old Tibetan had an extremely complicated syllable structure, permitting as many as six consonant slots: (C)(C)C(C)V(C)(C). The resultant Dpav ris Tibetan syllable canon is left with (C)(C)V(C), from which simplification has been occurring so far. The simplification is spread from the margin to the center of the morpheme (including monosyllabic morpheme and dissyllabic morpheme).

Regarding the initials, it spread from secondary consonants, attached from both side, to the root initial, which means the further form the root initial, the likely to be dropped or weakened, as in a four- consonant cluster, the pre-preinitials are dropped in Dpav ris Tibetan without any compensation. The pre initial and the post initials of a root initial is weakened and spread its feature in the root. All of the voiced simple initial (one consonant) are devoiced since they not protected from outside, but it』s still voiced in a dissyllabic morpheme being protected by the first syllable.

The same rule could also be applied to the rhymes, in which the simplification is spread from the right side of the morpheme. In a monosyllabic morpheme, the post coda *d and *s are dropped without any traces. The coda *l and *s as well as the second vowels of diphthongs are dropped but protected or raised the vowel preceded. The rest codas are all devoiced and has assimilated certain preceded vowel to became mergered. The vowel *i and *u, which are contrast when protected by any coda, are mergered in an open syllable. In a dissyllabic morpheme, the word-internal consonant coda *l is preserved as /r/ and both coda and post coda *s are preserved but pushed backward to become (or part of) the initials of the following syllable.

The most noteworthy sound change in Dpav ri Tibetan is the spirantization of palatal affricatives： *ch>ɕ^{h} ， *lc>hɕ which is still affricative in all the major Tibetan dialects. Another feature is the aspiration of suffix morpheme *p when preceded by coda *d of the preceding morpheme. To sum up, Dpav ri Tibetan is intelligible among the Amdo Tibetan dialect and it can be grouped in of Amdo Nomadic Dialect.

從領格—與格融合看漢語特殊「N_1 V N_2 的 N_3」句式的形成

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漢語中存在一種特殊「N_1 V N_2 的 N_3」句式，這種句式中的名詞性成分N_2和N_3之間具有表面領屬關係，然而卻並不具有領屬含義（如例（1）中的「我」不擁有「皮鞋」）。

（1）他無時無刻不擦我的皮鞋。

Tang（2011）把上例句式表示為下面的形式：

（2）主語 V [NP de O NP]

本文觀察大洋洲語言、南美印第安語言、斯拉夫語言中普遍存在的「領格—與格融合」（possessive-dative syncretism，如例（3）；參見Margetts（2004）以大洋洲語言為例對世界語言「領格—與格融合」演變路徑的詳細分析），認為漢語特殊「N_1 V N_2 的 N_3」句式是一種「領格—與格融合」現象。

（3）因巴布拉蓋丘亞語（Imbabura Quechua，南美洲印第安語系的一支）

wasi-ta rura- rka- ni nuka churi- paj

房子：賓語 蓋- 過去時- 第一人稱單數 第一人稱 兒子- 與格:領格

「我給兒子蓋了房子（字面義：我蓋兒子的房子）。」

漢語中大量存在「N_1 V N_2 的 N_3」形式的小句（如例（4）和（5）），這種小句的賓語採用領屬結構（例（4）和（5）中的「我的房子」）。動作VN_3（例（4）中的「買房子」和例（5）中的「蓋房子」）的發生，會使N_2受到損害（例(4)中「失去房子」）或得到益處（例（5）中「房子被蓋好」），因此N_2在語義上是事件VN_3的與格參與者。

（4）他買我的房子。

（5）他蓋我的房子。

在「N_1 V N_2 的 N_3」小句中，動詞V和賓語N_3之間具有非常緊密的動賓關係，而V和N_2（N_3的領格成分）之間則不具有直接關係。在賓語N_3因動詞V而發生變化的過程中，N_2有可能無法跟進變化，這時的N_2和N_3之間可能出現如例（6）所示的泛化領屬關係。

（6）你竟敢拆老闆的台。

N_2和N_3領屬關係的泛化迫使N_2在小句中重新進行句法定位，動詞V的與格成分則是其唯一選擇，這直接導致例（1）所示特殊「N_1 V N_2 的 N_3」句式的形成。

特殊「N_1 V N_2 的 N_3」句式中的N_1和N_2有時同形，這時的N_3可以省略（例（7）和（8）），形成特殊「N_1 V N_1 的」句式：

（7）他擦他的皮鞋。→他擦他的。

（8）你擦你的皮鞋。→你擦你的。→擦你的。

特殊「N_1 V N_1 的」句式在第二人稱語境中演變為具有祈使義的「（N_1）VP的」句式（例（9））：

（9）（你）等等我的。/（你）等我玩完這陣的。

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跨方言實驗研究：入聲音節的舒化與漢語音節等長的節奏特性

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在現今一些漢語方言中，有一類音節源自中古的入聲調而仍以喉塞音[-p, -t, -k, -ʔ]為韻尾，聽起來比較短促，在本文中稱為入聲音節。入聲音節在很多方言中都出現了喉塞尾弱化乃至脫落的變化，相應地其時長也出現延長的現象，我們稱之為入聲音節的舒化。一直以來，學者研究漢語中入聲音節的舒化，主要是對單音節進行研究。本文認為語音的演化是在語流中進行的，研究入聲音節的舒化，除了把單音節抽取出來觀察，還應該結合入聲音節在語流中的時長特性進行研究。

世上各種語言在語流中總會存在某種節奏上的等時性(isochrony)，也就是在連續語流中有某種等長時長單位存在。有些語言以重音為等時單位(stress-timed)，如英語、阿拉伯語等。有些語言以音節為等時單位(syllable-timed)，如法語、意大利語等。漢語被普遍認為是一種音節等長的語言。本文通過跨方言的語音實驗，證明了漢語音節在節奏上呈現的音節等長的韻律特性，是造成入聲音節舒化的重要動因。

本文的跨方言語音實驗是在幾種仍存在喉塞尾入聲音節的代表性方言中進行，包括粵語（廣州和香港），客家話（惠州和香港），閩南語（泉州、漳州和廈門），吳語（上海、杭州、紹興、無錫和義烏）以及江淮官話（盧江）。在設計跨方言的實驗問卷時，我們主要利用某些數詞在各方言中都是入聲音節（例如「七」、「八」、「十」），而另一些數詞在各方言中都是舒聲音節（即非入聲音節，例如「四」），這樣方便我們在各方言中進行入聲音節和舒聲音節的時長比較。除了單音節，我們的問卷還設計了一系列以下格式的句子：

「他（方言詞）+有+數詞（入聲/舒聲音節）+量詞（不同聲母，單音節）+名詞（雙音節）。」

在語音實驗中我們測量的是以下幾個音段的時長：數詞聲母、數詞韻母、數詞和量詞之間的語音空白（簡稱為「音空」）、量詞聲母。

從我們的實驗數據來看，入聲音節和舒聲音節比較的結果是：第一，入聲的「數詞韻母」通常比舒聲短。第二，「音空」和「量詞聲母」時長有互補關係，若「音空」較短，則「量詞聲母」較長，反之亦然。第三，無論是入聲音節還是舒聲音節，「數詞韻母+音空+量詞聲母」都幾乎等長。第三點說明在語流中，漢語音節等長的節奏特性並未因入聲音節韻母本身較短而受影響，入聲音節和舒聲音節的等時長結構實際上是通過「入聲/舒聲韻母+音空+其後音節聲母」實現的。入聲音節本身韻母較短，則要靠延長「音空+其後音節聲母」來實現與舒聲音節的等長結構。然而，韻母是響音，是聲調的主要承擔者，與之相比「音空+其後音節聲母是個虛化的統攝範疇，穩定性較差，入聲音節在語流中的舒化可以視為將響音延長而將虛化統攝範疇縮短的過程，是向更穩定的結構變化的過程，因而具有其內在動力。

跨方言比較的結果是：第一，對於單音節而言，絕大多數方言的入聲音節都明顯比舒聲音節短，入聲音節和舒聲音節的時長差異在100毫秒左右，甚至比100毫秒長。只有在江淮官話中，入聲音節和舒聲音節的時長差異較小，僅為30至50毫秒。第二，對於句子中入、舒時長差異而言，各方言則呈現不同程度的差異，入、舒差異從大到小依次是：在粵語中為40至100毫秒，在客家話中為50至80毫秒，在閩南語中為40至60毫秒，在吳語中為10至20毫秒，在江淮官話中為10毫秒左右。這恰恰與入聲的舒化程度從弱到強的順序相符：在粵語和客家話中入聲都保留得較好，而吳語和江淮官話中的入聲喉塞尾弱化最明顯，入聲音節的舒化程度最高。

漢語入聲音節舒化是歷時語言變化的問題，但我們可以從共時的跨方言語音實驗研究中窺見其變化的原理和機制。從時長的角度來看，入、舒的差異減小就意味著入聲音節的舒化。不同方言的入、舒比較在單音節和句子時的不同表現說明，入聲音節的舒化首先在語流中發生（與漢語音節等長的節奏特性密切相關），然後擴展到單音節中。

穗、港、澳三地粵語單元音的聲學比較分析

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本文對廣州、香港、澳門三地共36位（三地各12人，每個地區6男6女）當地土生土長的在校大學生發音人所發的粵語的單元音聲學數據進行比較，單元音共振峰數據提取使用Praat語音軟件（Boersma, Paul & Weenink, David，2011）。單元音三維圖畫法採用王萍、貝先明、石鋒（2010）提出的三維空間畫法，即分別用第一共振峰（F1）、第二共振峰（F2）、第三共振峰減第二共振峰（F3-F2）作為單元音三維空間的三個維度，即x軸、y軸、z軸。發現三地粵語單元音的差異情況如下：

1）從一致性與差異性來看，穗、港、澳三地粵語單元音的聲學表現的一致性大於差異性。相同單元音在三地的差異仍是同一單元音音位具體音值的差異，不是不同音位的差異。

2）從差異的地域來源來看，澳門粵語與廣州、香港粵語差異較大一些，香港粵話與廣州粵語的差異小一些。而廣州粵語則相對穩定，多與香港、澳門兩地或其中一地保持著較多的相同點。單元音/i、ɛ、œ、ɔ、a/在三地粵語中的聲學空間都比較大，尤其是女性發音人表現更為明顯。我們認為，這些單元音可能是三地粵語單元音今後演變的主要對象。/i/和/a/的聲學空間之所以大，與這兩個元音的語音演變有關。如：粵語早期念i的支脂之微韻字還處在：/i/>/ ɪi/>/ei/變化過程中，語音的集中性和穩定性不那麼強，表現在聲學上便具有較大的聲學空間。元音/a/則可能是/a/、/ɐ/音值上的縮小，甚至有音值上合二為一的趨勢造成元音/a/的較大聲學空間的重要原因，標記性較強的、發音不那麼「順口」的單元音如/ɛ、œ/在三地發音人之間的聲學表現具有差異性，三地的/ɔ/也有一定的差異性。

3）從差異的性別來看，三地女性發音人之間的差異大於男性發音人。

4）從差異的單元音類型來看，三地標記性較大的非頂點單元音/ɛ、ɔ、œ/的差異較大。這表明同一方言區的不同方言點之間的語音差異，在標記性強的語音項上有更明顯的表現。

5）從現在的語音演變速度來看，澳門粵語的單元音演變相對較快，香港粵語次之，廣州粵語演變相對較慢。

6）總體來說，各方言舒聲調中的單元音/i、u、y、a、ɛ、ɔ、œ/相對時長從大到小排列為：澳門話>香港話>廣州話。各地男性女性都表現出一樣的規律。頂點單元音/i、u、a/的時長較短，非頂點單元音/y、ɛ、ɔ、œ/的時長較長。

關鍵詞：廣州粵語 香港粵語 澳門粵語 單元音 比較分析

接觸誘發音變的詞彙擴散規律：以廣州話全濁上語素為例

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「詞彙擴散」的音變模式最早是針對自然音變提出的（Wang 1969），隨著研究的進展，這種模式被證明不但可以解釋兒語習得，也適用於由概念引發的類推音變，還可以解釋不同語言系統由於接觸誘發的音變（contact induced sound change）（Wang & Lien 1993）。橫向接觸頻繁的漢語方言正是研究接觸誘發音變的絕好試驗田，因而本文打算用廣州話的例子來探討接觸誘發音變的詞彙擴散規律。

首先回顧一下音變類型與詞彙擴散規律的相關研究成果。Bybee（Hooper 1976，Bybee 2002）跟Phillip（1984，2006）發現了音變的「詞頻效應」（frequency effect）：「語音啟動的演變先影響高頻詞，概念啟動的演變則先影響低頻詞。或者說，低頻詞最能抵抗語音啟動的演變，高頻詞則最能抵抗概念啟動的演變。」（Hooper 1976）既然不同啟動類型的音變在詞彙擴散時詞頻不同的詞會有截然相反的表現，那麼我們不禁要問：接觸誘發音變的詞彙擴散遵循怎樣的規律呢？Phillip（2006: 128-157）把概念啟動的「詞頻效應」延伸到借用（borrowing），認為借用也是從低頻詞開始的。

我們用廣州話全濁上語素的例子來測試Phillip的假設。需要指出的是，我們的研究是從詞彙而非字音入手的，通過對《漢語方言詞彙（第二版）》1200多個詞彙的窮盡考察，我們一共找出了36個對應中古全濁上聲的語素，其中19個語素讀屬於白讀層的陽上調、15個讀屬於文讀層的陽去調，另外2個語素在不同詞彙環境有不同的讀法。根據Philip的預測，低頻詞應該更多出現在相對創新的文讀層，而相對古老的白讀層的詞頻分佈應該更高。然而，我們利用《香港二十世紀中期粵語語料庫》檢索得到詞頻數據，結果卻是兩個層次讀音的詞頻分佈差異不顯著。

廣州話的例子不符合「詞頻效應」預測的詞彙擴散規律，促使我們重新檢討Phillip的假設。這一假設其實是基於詞頻跟借用的一致性假設，即低頻詞更容易借，高頻詞不容易借。而詞頻跟借用雖然有密切的聯繫，卻未必可以一一對應。因此，有必要從藉詞類型學的角度來重審這個問題。2009年在網上出版的世界藉詞數據庫（World Loanword Database=WOLD）（Haspelmath & Tadmor 2009b）包括了41種語言1460個詞彙及其跟借用有關的各種屬性。我們就用它來檢測廣州話全濁上語素的例子，其中16個語素能在數據庫裡找到對應詞項，11個讀白讀層，5個讀文讀層。我們發現讀音層次與抗借用率的關係顯著相關：抗借用率較低的易藉詞大多在文讀層；白讀層的詞則抗借用率較高，其中三個還屬於最難借用的一百詞（Leipzig-Jakarta list，參看Tadmor, Haspelmath & Taylor 2010）。

本文最後還討論了這一詞彙擴散規律的理論意義。我們已經知道，自然音變符合高頻詞先變、低頻詞後變的原則，而接觸誘發音變則遵循易藉詞先變，難藉詞後變的規律。因此，兩種音變中詞彙留下的「腳印」是很不一樣的。如何區分自然音變跟接觸誘發音變造成的層次是困擾漢語方言學界的一個老大難問題，不同音變的不同詞彙擴散規律恰恰能為這個問題提供一個客觀的詞彙判別標準。

【關鍵詞】詞彙擴散 接觸誘發音變 文白異讀 藉詞類型學

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從白語$mɔ^{33}$、$tsɿ^{33}$的詞綴化看白語詞序的演變

楊曉霞，廈門大學

白語的$mɔ^{33}$一詞，其基本意義是「母親」，$tsɿ^{33}$的基本意義是「男子」。作為名詞後綴的$mɔ^{33}$有「大」的詞彙意義，表示該事物是同類群體中最大之物；作為名詞後綴的$tsɿ^{33}$有「小」的詞彙意義，表示該物為同類群體中最小之物。白語裡的表「大」名詞後綴$mɔ^{33}$及表「小」的名詞後綴$tsɿ^{33}$與漢語修飾名詞的「大」「小」意義不完全對等，在白語中相互競爭。本文對$mɔ^{33}$與$tsɿ^{33}$的詞綴化所反映的白語詞序演變過程進行分析。

關鍵詞：詞序 演變 詞綴化

臨沂東風移民方言島音變擴散規律初探

朱軍玲，上海外國語大學

山東臨沂市蘭山區東風村是上世紀60年代因原居住地修建水庫而從山東蒙陰縣集體搬遷部分居民形成的一個移民村。本文從王士元的詞彙擴散理論角度，圍繞移民方言與當地方言之間聲、韻、調等方面所存在的九個明顯差異，全面描述了東風方言島的音變擴散現象，並從頻率與變率的關係，競爭演變與競爭殘餘等角度對東風移民方言島音變擴散規律作了初步分析和探討，認為東風移民村四十年來的語音演變是在當地方言和普通話的雙重影響下的競爭性演變的結果；東風移民村音變詞彙擴散狀況不僅與詞彙使用頻率有關，而且與詞類有關，頻率效應在詞類層面上顯著。

關鍵詞：東風移民村　移民方言　方言接觸　詞彙擴散 競爭性演變　頻率與變率

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