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Book Review

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Book Review

The Handbook of East Asian Psycholinguistics. Volume 1 Chinese (2006).

Edited by Ping Li, Li Hai Tan, Elizabeth Bates and Ovid J. L. Tzeng. Cambridge: Cambridge University Press. p. 455. ISBN-10: 0521833337; ISBN-13: 978-0521833332. Hbk, \$168.00/£91.00

This volume is the first of a landmark series of handbooks on the psycholinguistics of East Asian languages under the general editorship of Ping Li. It is dedicated to the Chinese language, and presents an authoritative account of the state-of-the-art in the study of acquisition and processing of Chinese. The volume provides an unrivalled opportunity to evaluate the relationship between language universals and language specificities, and their implications for the general theories and models in psycholinguistics. The four editors are leading psycholinguists who have contributed a great deal both to empirical investigations of the psycholinguistics of Chinese and to theory building for the psychology of language.

The volume begins with a succinct introduction by the editors, outlining the unique features of the Chinese language, recurrent themes in the chapters of the volume, and the scope and structure of the handbook. The reader can gain a general picture of the typological uniqueness of the Chinese language, which is useful in understanding the subsequent chapters, each of which focuses on a specific aspect of the language. The main body of the volume consists of 32 chapters which are divided into three parts.

Part one focuses on language acquisition. Amongst the 13 chapters in this part, nine are on the acquisition of various language-specific features or domains such as verbs (Cheung and Clark, Chapter 1; Tardif, Chapter 11), basic syntactic categories including function words and content words (Shi, Chapter 8), reflexives (Chien and Lust, Chapter 2), classifiers (Erbaugh, Chapter 3), grammatical aspect markers and temporal adverbs (Huang, Chapter 4), implicit awareness of metalinguistic tasks (referred to as epilanguage) (Leong, Chapter 6), and awareness of orthography-phonology correspondences (Shu and Wu, Chapter 9). These nine chapters provide a much-needed synthesis of existing studies and highlight the effects of language specificity on the general acquisition process. They also compare the acquisition of categories and features that are common to other languages with cross-linguistic data.

While most of the reviews and discussions in this part are carried out in the context of monolingual first language acquisition, two chapters are dedicated to the acquisition of Chinese as a second language (Jia, Chapter 5) and in a bilingual condition (Yip, Chapter 13). These two chapters point to the importance of various extra-linguistic factors such as language environment and age of acquisition in the language learning process.

Also in part one are two chapters which set out to evaluate general theories and models of language acquisition, using data on the Chinese language. Chapter 10 by Stokes examines the role of biological and environmental factors in phonological learning. Chapter 12 by Yang applies formal models of parameter setting to account for the acquisition of Chinese grammar. These two chapters embody the essential objective of cross-linguistic research, i.e. to accumulate evidence for or against psycholinguistic theories and models in general.

The second part of the volume contains 11 chapters in total, and centres around issues of psycholinguistic processing. An overarching question addressed by the contributors here is whether language-specific properties result in differences in Chinese language production and perception. Two chapters may serve well as introductory readings for those who are less familiar with the Chinese language. Honorof and Feldman (Chapter 17) describe several language-specific linguistic features associated with Chinese characters which are relevant to language processing research, such as the differences between Chinese characters and English words, classification of Chinese characters, and phonological transparency and consistency. Jongman, Wang, Moore, and Sereno (Chapter 18) describe the acoustic and perceptual properties of Mandarin tones.

The rest of part two can be divided into two broad themes. The first one is on speech production and perception (Chen and Dell, Chapter 14, on encoding of phonological syllables and morphology;

Wang, Sereno, and Jongman, Chapter 22, on L2 acquisition and processing of Mandarin tones). The second is on the processing of written forms at different levels including characters, words, and discourse. A majority of the chapters in this part follow the second theme. To be specific, Chapter 15 by Chen, Weekes, Peng, and Lei reports their empirical studies on the effects of semantic radical consistency and combinability on Chinese character processing, in particular semantic categorization; Chapter 16 by Feng investigates how orthography-specific characteristics affect eye movements in Chinese reading; Chapter 19 by Liu, Wu, Sue, and Chen compares the role of phonological information in the visual recognition of written words in English and Chinese; Chapter 20 by Perfetti and Liu discusses the activation of phonological information in Chinese reading; Chapter 21 by Taft describes a model of Chinese character processing based on the author's research on the access of radicals and characters; Chapter 24 by Zhang, Wu, and Yip studies the effect of context on lexical ambiguity resolution in Chinese sentence processing; and finally Chapter 23 by Yang, Gordon, and Hendrick examines the comprehension of co-reference in Chinese discourse.

The role of phonology in Chinese language processing comes up repeatedly in several chapters and the arguments are sometimes contradictory to each other. Liu, Wu, Sue, and Chen (Chapter 19) find no phonological mediation in the visual recognition of written words in English and Chinese. This view is shared by Taft in Chapter 21, who argues that phonology is not crucial for the meaning of a character to be accessed. In contrast, Perfetti and Liu demonstrate how readers use phonology, even while direct mappings between characters and meanings are taking place. They argue that the activation of phonology during reading appears to be universal and the co-activation of pronunciation and meaning is evident even in Chinese. The controversies presented here call for more research in this area of Chinese psycholinguistics.

Part three of the volume, entitled *Language and the Brain*, focuses on the cognitive and neurological studies of Chinese. Au, in the first chapter of this part, revisits the relationship between language and cognition (linguistic relativity) by examining examples from the Chinese language such as counterfactual reasoning and causal assignment in interpersonal events. While counterfactual reasoning in Chinese shows that language-specific forms interact with cognition, the application of causal assignment in interpersonal events in Chinese supports the existence of universal cognitive mechanism.

Some chapters in part three extend the research findings presented in part one of this volume on acquisition by providing further evidence from cognitive neuroscience. For example, Chapter 26 by Chee reviews evidence provided by functional magnetic resonance imaging (fMRI) on a number of issues regarding bilingual and second speakers of Chinese. No difference is found in the brain area involved in the processing of the two languages of bilingual speakers. Nor does the onset of learning have significant impact on the processing of the second language of bilingual speakers. However, proficiency (which is measured by frequency of exposure to words) does affect brain activities. Chapter 29 by Li applies connectionist networks model to account for the issue of linguistic representations and acquisition of Chinese. This is the approach shared by Yang (Chapter 12).

Two chapters in part three describe the characteristics of language impairment or language loss in Chinese (i.e. Fletcher, Stokes, and Wong's Chapter 27 on specific language impairment, and Packard's Chapter 30 on aphasia). Although the two chapters focus on different populations and different types of impairment, both find the characteristics of language disorder or loss in Chinese speakers comparable to those in speakers of other languages. This enables the authors to argue for the existence of a universal mechanism and possible identification of shared language features which are more vulnerable and subject to impairment across languages.

Some chapters in this part of the volume provide further neurocognitive evidence to the issues discussed in part two. For example, Gandour, in Chapter 28, investigates the neuro networks involved in the processing of Chinese speech prosody (tones, intonation, and emotions) and identifies different brain areas that are activated by prosodic cues of different functions at different levels. This chapter extends earlier discussion on tonal perception and production (Chapter 22 by Wang, Sereno, and Jongman). In Chapter 31, Peng and Jiang provide an account of the research on cognitive and neurocognitive processes in the naming of Chinese phonograms over two decades. Their review shows not only that sub-character unit and character unit can be separated in processing and integrated in the naming of Chinese phonograms, but also that the phonological information of characters could be activated in particular brain areas both for the regular and irregular characters. This lends support to the argument in Perfetti and Liu's chapter in part two.

The very last Chapter 32 by Tan and Siok reviews recent neuroimaging studies of Chinese reading and visual character recognition. While previous studies (including Chapter 26 in this volume)

suggest that alphabetic reading mainly takes place in Broca's area, Tan and Siok's studies suggest that a different brain area (referred to as Brodmann's area) plays a central role in Chinese character recognition. Their finding has important implications for our understanding of the relationship between language and the brain. If different brain areas are involved for different types of orthographies, we could argue for a strong causal relationship, i.e. surface form of languages tunes the cortex.

Some of the chapters could easily be placed in a different part of the volume. For instance, Chapter 27 could be placed in part one, since it deals with language acquisition in exceptional developmental circumstances. More cross-referencing throughout the volume would certainly have been very useful. Taken as a whole, this volume is an important milestone in the study of Chinese psycholinguistics. It is an invaluable and indispensable resource for researchers and students working in the field of cross-linguistic studies of language development including first, second, and bilingual language development, language processing, and language and the brain, as well as others who are interested in the relationships between language, cognition, and culture more generally. The four editors, Ping Li, Li Hai Tan, the late Elizabeth Bates, and Ovid Tzeng, are to be congratulated for bringing together an international team of over 50 eminent contributors (many of whom have devoted their entire career to the study of Chinese psycholinguistics) in the field and for their achievement in integrating the various perspectives, paradigms, and approaches in the studies of Chinese psycholinguistics over half a century.

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