Oxford
LINGUISTICS

The Phonology of Standard Chinese

Second Edition

San Duanmu

THE PHONOLOGY OF THE WORLD'S LANGUAGES

The Phonology of STANDARD CHINESE

Second Edition

San Duanmu
(端木三)

OXFORD
UNIVERSITY PRESS

OXFORD
UNIVERSITY PRESS
Great Clarendon Street, Oxford OX2 6DP
Oxford University Press is a department of the University of Oxford.
It furthers the University's objective of excellence in research, scholarship,
and education by publishing worldwide in
Oxford New York
Auckland Cape Town Dar es Salaam Hong Kong Karachi
Kuala Lumpur Madrid Melbourne Mexico City Nairobi
New Delhi Shanghai Taipei Toronto
With offices in
Argentina Austria Brazil Chile Czech Republic France Greece
Guatemala Hungary Italy Japan Poland Portugal Singapore
South Korea Switzerland Thailand Turkey Ukraine Vietnam
Oxford is a registered trade mark of Oxford University Press
in the UK and in certain other countries
Published in the United States
by Oxford University Press Inc., New York

First edition published 2000
Second edition published 2007

British Library Cataloguing in Publication Data
Data available
Library of Congress Cataloging in Publication Data
Data available
Typeset by SPI Publisher Services, Pondicherry, India
Printed in Great Britain
on acidfree paper by
Biddles Ltd., King's Lynn, Norfolk
ISBN 978-0-19-921578-2
978-0-19-921579-9
1 3 5 7 9 10 8 6 4 2

NOTES ON TRANSCRIPTION

Chinese examples are transcribed either in Pinyin or in phonetic symbols (see Appendix for the correspondence between Pinyin and phonetic symbols). Unless otherwise noted, phonetic symbols will follow the International Phonetic Alphabet. Also, phonetic symbols will mostly be given in square brackets, unless they appear in a table, a list, a feature diagram, or a syllable diagram. Examples in Pinyin are italicized when cited in text, but not when cited in isolation in a numbered example. English examples cited in text are also italicized, unless they are in phonetic symbols, in which case they are given in square brackets.

The four full tones in Standard Chinese are indicated with the digits 1 to 4 (in either Pinyin or phonetic transcriptions). For example:

(1) [ma1] 'mother' has the first tone (a high level)
[ma4] 'to scold' has the fourth tone (a fall)

A level tone representation (in terms of H and L) is used when it is relevant. When they are not relevant, tones are omitted.

Unless noted otherwise, phonetic transcriptions are given in square brackets at any level of detail. For example, three ways to transcribe the word for 'melon' are shown in (2).

(2) [kua] indicating the phonemes
[k^{w}a] indicating the sounds but not their (predictable) lengths
[k^{w}aa] indicating the sounds and their (predictable) lengths

Which degree of detail is transcribed will be noted when relevant.

A hyphen is sometimes used to indicate syllable boundaries, especially for a polysyllabic word or compound. For example, *Chi-ca-go* L-H-L shows that the word has three syllables and that their tones are, respectively, L, H, and L.

The translation of an example is given in single quotation marks. When relevant, both a word-for-word translation and a regular translation are given for a Chinese example. The translations are given either on the same line, as in (3), where the regular translation is in parentheses, or on separate lines, as in (4), where only the regular translation is in quotation marks.

(3) gao-xing 'high-mood (glad)'

(4) gao-xing
high-mood
'glad'

An asterisk means a bad form (in Standard Chinese) and a question mark means a marginal form. For example, *[p^wa] does not occur and *?yi ge bei* 'one cup' is marginal.

A slash is used between alternative words. For example, *very/more/most difficult* is an abbreviation for *very difficult*, *more difficult*, and *most difficult*. Similarly, *mai/*gou-mai zhi* means *mai zhi* (a good expression) and **gou-mai zhi* (a bad expression).

Sometimes square brackets are used to indicate syntactic boundaries, such as [*xiao* [*huo che*]] '[small [fire car]] (small train)'. When confusion may arise, a note will be given as to whether the brackets indicate phonetic symbols or syntactic boundaries.

FEATURES, ABBREVIATIONS, AND SYMBOLS

Features (each feature may be preceded with a + or − sign)

[ant] [anterior]
[asp] [aspirated]
[bk] [back]
[stop]
[fric] [fricative]
[hi] [high]
[lat] [lateral]
[lo] [low]
[nas] [nasal]
[rd] [round]
[voi] [voice]

Articulators

Cor Coronal
Dor Dorsal
Lab Labial
SP Soft palate
TR Tongue root
VC Vocal cords

Alternative feature terms

[–anterior] = [+retroflex]
[+anterior] = [–retroflex]

Other frequent abbreviations or symbols in this book

A adjective
C (*a*) consonant; (*b*) coda
G glide
H (*a*) high tone; (*b*) heavy syllable
L (*a*) low tone; (*b*) light syllable
M modifier
m mora
N (*a*) noun; (*b*) nucleus

O	(*a*) object; (*b*) onset
S	(*a*) syllable; (*b*) subject; (*c*) strong (metrical position)
SC	Standard Chinese
V	(*a*) vowel; (*b*) verb
W	weak (metrical position)
*	a bad form
Ø	an empty element (e.g. an empty onset, or an empty beat)
→	change to (e.g. A → B means A changes to B)

PREFACE TO THE SECOND EDITION

In one sense, this is not just a new edition but a new book because most chapters have been substantially revised or completely re-written. For example, in Chapter 2 I have adopted a simpler theory of feature structure, using just two stricture features, [fricative] and [stop]. In Chapter 3 I have dropped a dissimilation constraint and treated more syllable types as accidentally missing. In Chapter 4 I argue that the syllable onset is optional, rather than obligatory. In Chapter 6, I have proposed the Information-Stress Principle, from which all major properties of phrasal stress are derived. In addition, I have adopted the position that limits the number of stress levels by not assuming higher levels beyond the syllabic foot (Gussenhoven 1991). Moreover, I have revised the metrical analysis of many Chinese expressions; the new analysis assumes final stress in some disyllabic units and is more consistent with previous stress judgements such as Hoa (1983). The changes in Chapter 6 in turn affect other chapters. For example, in Chapter 8, the lack of the [V–O N] word order in compounds is not analysed in terms of initial stress, but in terms of a constraint against a compound-internal phrase. Besides revising existing chapters, I have also added a chapter on rhythm in poetry. In addition, I have changed many section titles so that they are more informative of their contents.

In another sense this book has changed little, because the theoretical goals and the basic proposals remain the same. In particular, the phonology of Chinese is analysed in terms of general phonological principles, and changes made to the analysis of Chinese usually reflect changes made to general phonological principles. For example, revisions to feature analysis in Chapter 2, syllable analysis in Chapter 4, and stress analysis in Chapter 6 are motivated by changes that are needed, in my view, for feature theory, syllable theory, and stress theory in general.

In the preparation of the second edition I have benefited from discussions and correspondences with many colleagues, students, and some reviewers. In particular, I would like to thank François Dell for discussions on stress, Bingfu Lu, Waltraud Paul, Hongjun Wang, Zheng Xu, and Ren Zhou for discussions on compounds, Nigel Fabb, Chris Golston, Morris Halle, and Yuchau Hsiao for discussions on poetic rhythm, Jun Da and James Myers for discussions on frequency, Hui-Ju Hsu and Chin-Cheng

Lo for discussions on Taiwanese Mandarin, Nathan Stiennon and Li Yang for some joint work on stress and poetry, and Ik-sang Eom, Chen Qu, and Hsin-I Hsieh for proofreading and comments. I would also like to thank the Linguistic Editor at Oxford, John Davey, for his gracious patience.

I am grateful to the Chiang Ching-kuo Foundation for International Scholarly Exchange and to the Center for Chinese Studies, University of Michigan, who provided grants to support the work on Chinese poetry.

A consuming project like this inevitably takes a toll on one's family, and I thank Yan, Youyou, and Alan for their understanding and support.

Ann Arbor S.D.
2007

PREFACE

Once at a party I met a geologist. After introducing himself, he said, 'What do you study?'

I said, 'Linguistics.'

He said, 'Which language?'

I have heard this question many times. We know that languages are different. For example, a cat is called [kæt] in English but [mau] in Chinese. Such differences are arbitrary in the sense that any language could have chosen any sound to refer to an object. Since linguists study languages, they must be studying some language or other.

But for a modern linguist there is another side to the story. It is true that different languages can use different sounds to refer to an object, yet most variation also ends there. Beyond the lexicon, languages are strikingly similar. Thus, for a modern linguist, similarities among languages are far more interesting than their differences.

An analogy may illustrate the point. The landscapes of different countries may look quite different, but for a geologist all landscapes can be studied with the same physical principles. Likewise, languages of different countries may appear quite different, but for a modern linguist all languages can be studied with the same linguistic principles. So to ask a linguist 'Which language do you study?' is like asking a geologist 'Which country do you study?' Although geological facts can differ from one country to another and a geologist may focus on the facts of a particular country, yet the goal is to find principles that apply to the science in general. Similarly, a linguist may focus on the facts of a given language, but the goal is also to find principles that hold for all languages. Because of this, the subject matter of a geologist is not delimited by the borders of a given country. For example, a volcanologist is interested in volcanoes anywhere. Similarly, the subject matter of a linguist is not delimited by the speakers of a given language. For example, a tone specialist is interested in tone in any language.

But what is the evidence that patterns of language are more like principles of geology and less like social customs, such as colours of a costume, rituals of a wedding, rules for sports, or ways to celebrate a holiday? This is an age-old question, but considerable evidence has been gathered in the

past few decades, especially since the rise of generative linguistics. Many patterns have been discovered that hold for all human languages. For example, all languages use a small set of consonants and vowels to make all words. All consonants and vowels can be decomposed into a small number of features according to articulatory mechanisms. All languages obey similar rhythmic requirements, such as a preference for a stressed syllable to be followed by an unstressed one. All contour tones (e.g. rise, fall, rise–fall, and fall–rise) are made of level tones (high and low). And so on. Such evidence suggests that much of our linguistic ability is not learned but innate, as argued by Chomsky (1986). In other words, the ability to talk is like the ability to walk. Both are determined biologically.

In many respects, Chinese is dramatically different from Indo-European languages. In this book I present many fascinating facts about the sound system of Standard Chinese. I also demonstrate that under a careful analysis, Chinese observes the same linguistic principles as other languages do.

Ann Arbor S.D.
2000

ACKNOWLEDGEMENTS

This book is a distillation of my research on Chinese phonology in the past fifteen years, during which I benefited from numerous teachers, colleagues, and students—too many to list here. Nevertheless, I would like to thank Morris Halle, my mentor at MIT, and my colleagues at the University of Michigan for sharing a great research and teaching environment.

Some ideas offered here have appeared in my previous presentations and publications. In particular, I would like to thank the following for permission to reproduce published material: John Benjamins Publishing Company (Duanmu 1999*b*); Kluwer Academic Publishers (Duanmu 1999*a*); and Mouton de Gruyter (Duanmu 1998; 1999*c*).

The present ideas may differ from my earlier works though. For example, although I have previously discussed the topics of Chapter 9 (Duanmu 1990) and Chapter 11 (Duanmu 1989), the present analyses are quite different.

The Office of the Associate Provost for Academic and Multicultural Affairs and the Center for Chinese Studies, University of Michigan, provided partial support in the summer of 1998, which facilitated the completion of this book.

PREFACE TO THE PAPERBACK EDITION

Two changes have been made in this edition: (1) typographical corrections and minor stylistic revisions, and (2) a new chapter on theoretical implications (Chapter 13).

I benefited from discussions with John Davey, Ik-sang Eom, Yen-hwei Lin, Jeff Steele, and Jie Zhang. I thank them for their comments.

Ann Arbor S.D.
2002

CONTENTS