COLLECTED PAPERS ON FOREIGN LANGUAGE RESEARCH

外语科研文论

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加大外语科技成果转化，促进外语学科发展

——《外语科研文论》序

马道山

自从 2006 年取得外国语言学及应用语言学学科点以来，我院积极做好外语科技成果转化工作，凭借"十二五"期间良好的科研势头，学院具有较强的科研实力。"十二五"期间，我院承担完成国家哲学社会科学、教育部项目、天津市哲学社会科学、天津市高等教育学会和校级各类科研项目 30 多项，取得突破性成果，为科技成果转化和学科建设打下了良好的基础。

2011 年我院获批省部级立项 2 项，天津市哲学社会科学项目 2 项，在研省部级项目共 8 项，发表论文 96 篇。

2012 年我院获批国家哲学社会科学规划课题 1 项，教育部人文社科规划一般项目 1 项，教育部青年项目 1 项，天津市哲学社会科学基金项目 1 项，天津市高等教育学会"十二五"教育科学规划课题 11 项。出版著作 5 部（其中教材 2 部），发表科研论文 76 篇，其中重要期刊论文 10 篇。

2013 年我院获批国家社科后期资助项目 1 项、教育部人文社科规划项目 3 项、天津市艺术规划项目 2 项、天津市人文社科项目 5 项。发表科研论文 24 篇，出版著作 13 部，其中论著及译著 8 部，教材 5 部。

2014 年我院获批天津市哲学社科项目 5 项，国家发改委项目 1 项。出版著作 6 部，发表科研论文 45 篇，其中核心期刊论文 26 篇。

2015 年我院获批国家哲学社会科学后期资助项目 1 项，天津市哲学社会科学基金资助项目 3 项。出版学术论文集 1 部，专著 4 部，发表重要期刊论文 15 篇，核心期刊论文 6 篇。

2016 年"十三五"的开局之年，我院获批国家哲学社会科学基金资助项目 1 项，天津市艺术规划项目 1 项。本年度学院到账科研经费 46.09 万元。出版论文集 1 部，专著 2 部，译著 2 部，发表重要期刊论文 6 篇，核心期刊 9 篇。

"十三五"期间，要加大外语科技成果转化，着手建立外语科技信息共享平台，促进外语科技成果转化。准备建立"一带一路"语言研究信息共享平台，面向社会提供服务。尝试建立京津冀"一带一路"语言研究协同创新中心，努力探索创建天津市"一带一路"语言研究人文社科基地，建设"一带一路"语言战略研究中心。2016—2017 年可以首先建立校内外语科技信息共享平台，建立校级"一带一路"语言研究信息共享平台，建立校内"一带一路"语言研究人文社科基地，建设校内"一带一路"语言文化与翻译研究中心。2017 年之后争取建立天津市外语科技信息共享平台，争取建立市级"一带一路"语言研究信息共享平台，争取建立市级"一带一路"语言研究人文社科基地，争取建设市级"一带一路"语言战略研究中心。然后 2018 年争取建立教育部外语科技信息共享平台，争取建立教育部"一带一路"语言研究信息共享平台，争取建立教育部"一带一路"语言研究人文社科基地，争取建立教育部"一带一路"语言战略研究中心。2020 年申请国家级外语科技信息共享平台，争取建立国家级"一带一路"语言研究信息共享平台，争取建立国家级"一带一路"语言研究人文社科基地，争取建立国家级"一带一路"语言文化与翻译研究中心。

"十三五"期间，尽快建立一支院级科研创新团队，2017 年申请建立一支天津市教委科研创新团队，2018 年申请建立一支天津市科研创新团队。鼓励外语科研成果、外语调研成果、外语咨询成果、外语社科优秀成果积极申报天津市社科成果奖和教育部社科成果奖，争取获得 1—3 项天津市社科成果奖和教育部社科成果奖，争取获得 1 项国家级社科成果奖。积极面向社会开展外语科技成果展、外语文化成果展、外语艺术成果展等，积极出版包括外语科研文论和外语科研专著以及外语教材等在内的外语出版物，积极组织开展外语社会培训与咨询等活动。

"十三五"期间，尽快建立院级或校级外语科研平台，促进外语科研人才积极服务于天津市经济社会发展，积极服务于京津冀经济社会发展，积极服务于国家"一带一路"发展战略。

我院积极致力于科研成果培育，积极促进全院教师投入到把教学心得和教学成果转化为科研成果然后再把科研成果转化为社会经济效益的热潮之中。为了提高我

院整体科研水平，从 2015 年底，学院开始鼓励全院教师积极撰写论文并踊跃投稿，到 2017 年 3 月《外语科研文论》基本完成。

感谢科技处领导吴中元教授、王威教授和马明副处长的深情关怀和厚爱，感谢学院领导和全院教师的热情参与和鼎力相助。感谢世界图书出版广东有限公司学术出版中心（武汉）责任编辑宋焱女士一如既往的支持和帮助，本论文集由于时间仓促，没来得及仔细校对，所以难免有疏漏之处，宋焱同志精心修改，从标点符号到句子、从参考文献到正文引用、从遣词造句到段落调整等等方面对论文集进行了全面地梳理和审定，这种敬业精神保证了该论文集的质量。

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Level/Oblique Opposition and Raoyang Tonology

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Abstract: Phonetic experiments and phonological analysis reveal that Raoyang tone system characterizes level/oblique (LO) opposition, which is hardly captured by the contour node in tonal geometry. A hierarchical structure featuring an LO feature and a pitch feature is then proposed in the framework of the Contrastive Hierarchy. Related OT constraints are then constructed and ranked for a formal grammar. The paper concludes by a brief discussion on the theoretical implications of this approach.

Key words: Raoyang; tone sandhi; level/oblique opposition; contrastive hierarchy; Optimality Theory

INTRODUCTION

Tonal structure is the base for tonal analysis. This paper aims both for a proper tonal structure of Raoyang and for a formal analysis on its tonal sandhi. We reflect on the limitation for the tonal geometry proposed in Bao (1990) to represent level/oblique (LO) opposition displayed in Raoyang, and turns to the theory of the Contrastive Hierarchy (Dresher 2003a, 2003b). The second section briefs the phonetic experiments on Raoyang tones and the third gives a rudimentary phonological analysis in support of the claimed LO opposition. The fourth argues for the inappropriateness to use the node of contour in representing LO opposition. The fifth constructs a contrastive hierarchy involving only an LO feature and a pitch feature, leaving all others as redundant. The sixth is an OT-theoretic

account, employing OT constraints built around the two features to unravel the mechanism of Raoyang tonal sandhi. The last section concludes the study and reflects on the theoretical implications of the adopted approach.

1 PHONETICS OF RAOYANG TONES

Raoyang County lies in the central part of Hebei Province, and in terms of language, Raoyang dialect belongs to Shiji cluster of Jilu Mandarin (Liu 2006). According to the Map B2 "Second in Mandarin" in the Language Atlas of China (He et al. 1987), Jilu Mandarin comprises three clusters, namely Shiji, Baotang and Canghui, and Raoyang is right in their intersecting area. According to the survey (Liu 2004) of the tone system in Hengshui prefecture, the four northern counties of Raoyang, Shenzhou, Wuqiang, and Anping share a basically identical tone system, which is distinctive from other counties in the Perfect. Therefore, the tone patterns described in this paper can be regarded as common across the above four counties.

To conduct a survey on the Raoyang tone system, the paper chose 71 Chinese characters, each of which carries a single syllable and therefore 71 syllables, from the Fangyan Diaocha Zibiao (1981), and tailored 126 disyllabic sequences, all without neutral tones. These materials were read by two native speakers (a male and a female from Guanting Township), and the recordings are processed with PRAAT for F0 patterns. The data are, in turn, normalized with the T-value Formula (Shi 1990). Normalization yields four distinctive citation tones as indicated in the Five-point scale in Table 1. Results of disyllabic sequences are shown in Table 2 where row heads compose the first tone of a sequence and column heads the second.

Compared with Standard Chinese, Raoyang citation tones show the following characteristics: T1 is lower in pitch; T2 curves; T3 ends with a lower pitch; T4 starts with a lower pitch. In terms of F0 shape, it has one level tone (T1), two curving tones (one convex T2 and one concave T3) and one falling tone (T4).

Table 1   Raoyang citation tones

	T1	T2	T3	T4
Five-point scale values	33	452	324	41
Examples	高开伤出黑桌缺	穷神娘云急白俗	纸草手老有	醉唱送病饭用月

Table 2   Normalization results of disyllabic sequences

	T1(33)	T2(452)	T3(324)	T4(41)
T1(33)	44.22	33.452	33.323	45.51
T2(452)	44.32	54.452	54.313	45.52
T3(324)	35.33	32.453	42.323	34.52
T4(41)	42.44	42.453	43.324	43.42

Same as in many other northern dialects, tone sandhi in Raoyang occurs basically with the first tones of the disyllabic sequences. From the acoustic experiment, we notice the following interim facts about the first tones: ① T1 varies in different contexts; ② T2 simplifies itself by dropping the end of the complex tone; ③ T3 also simplifies itself, but, different from T2, the remaining part rises or falls in different contexts; ④ T4 keeps being a fall.

Simple auditory discrimination has the following corresponding findings, which to a certain extent confirms the acoustic results: ① T1 neutralizes with T2 before T1 and T4. For example, qing(T1)tian(T1) "blue sky" (the bracketed category is citation tone) and qing(T2) tian (T1) "cloudless sky", tian(T1)di(T4) "heaven and earth" and tian(T2)di(T4) "farm", are respectively indistinguishable. ② T3 neutralizes with T4 before T2 and T3. For example, in mai(T3)fang(T2) "buy a house" and mai(T4)fang(T2) "sell a house", mai(T3)mi(T3) "buy rice" and mai(T4)mi(T3) "sell rice", mai(T3)"buy" and mai(T4) "sell" are indistinguishable.

2 PHONOLOGICAL ANALYSIS AND LO OPPOSITION

We are now ready for some analysis based on the tonal geometry proposed in Bao (1990) as shown in Figure 1.
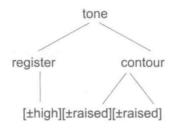

Figure 1 Traditional tonal geometry

To establish the underlying structure of tonemes, we need to consider ① the contrastiveness of tonemes in the tonal inventory and ② the sandhi behaviors of tonal categories. Additionally, the first position in a two-tone sequence is recognized as the sandhi position; change is restricted to the first tone in Raoyang, as in many other northern dialects. The second tone, and the citation tone, takes the non-sandhi position.

We now take a survey of the four tones in terms of their register. T2, T4 and their allotones are all [+high] register. T1 (33) is ambiguous and can well be analyzed to have either [+high] register with [-raised] pitch, or [-high] register with [+raised] pitch; the allotone of T1 is definitely [+high]; T1 and its allotone are also safely [+high]. Table 2 shows that T3 basically surfaces as [+high] at sandhi position. Generally, the specification for [high] feature in every tonal category is predictable from its position. We so posit that the feature for register is redundant; its specification is left open in underlying representation but specified as [+high] by a default rule at a later stage.

Bao (1990: 62) suggests that concaves and convexes can be reduced to simple contours followed or preceded by phonetic on- or off-glides. This claim seems supported by one observation in Raoyang that while T2 is falling in pitch to non-native ears, it is not to native intuition; the final fall manifested in the T2 curve does not seem to form part of a native speaker's phonological knowledge. Also, positing on simple contours underlyingly is

adequate to yield a four-tone contrast system, while complex contour approach may result in 2*2*2=8 tones, half of which are non-existent. Additionally, T2 (452) unexceptionally loses its ending drop at sandhi position, which can also imply that the end is not phonologically important but a phonetic phenomenon.

T1 (33) can neutralize with T2 (45) before T1 and T4. To account for this fact, the simple way is to treat T2 as an underlyingly high level tone, and T1 as a low level one. It is usual to regard the phonetic values of 4 and 5 as high and 3, 2 and 1 as low, thus, in view of the tonal values in Table 2, yielding the same result that T2 is a high level and T1 is a low level. Without specification for register, the two levels are contrastive in terms of feature for pitch. That is, T1 is [-raised, -raised] and T2 is [+raised, +raised].

T4 keeps being a fall and shows a certain degree of stability, although it does not fall fully to bottom at sandhi position. In accordance with the treatment of falling tones in Shen (1990) and Shi (1986), we regard the incomplete fall as an effect of co-articulation, thus phonologically insignificant. This high falling tone fits into the model with two adjacent [+raised, -raised] pitch features. Lastly, to render the four tones contrastive in the system, T3 can only be specified as [-raised, +raised], that is, a rise in nature. The starting part of T3 is coarticulation in nature; it reflects a transition of the vocal organ from neutral state to low-frequency vibration. In terms of tone value, the rising half of T3 has a greater change than the falling half, supporting it being treated as a rise, rather than otherwise.

The above discussion shows that underlyingly there are two level tones (T1, T2) and two contour tones (T3, T4) in Raoyang; a level tone is neutralized into another level tone and a contour tone is neutralized into another contour tone. For reasons to be discussed in the next section, we here use the traditional term in the poetic meters in Middle Chinese, oblique tones, for contour tones, simply to avoid confusions with the traditional connotation of the latter. There is no neutralization between level tones and oblique tones, as shown below in Table 3, which may be called level/oblique (LO) opposition.

Table 3 LO opposition in Raoyang

Level tones	Oblique tones
low →high	rise→fall

We now consider the Obligatory Contour Principle (OCP) in level tone representation. Violation of OCP is not evidenced in this dialect and the constraint of OCP can effectively contribute to the LO opposition. Without the effect of OCP, the low level needs two successive application of the same rule to change into a high level; a single application can only produce conversion between levelness and obliqueness, which result can be avoided by supposing OCP holds in Raoyang.

Thus the four underlying representations are listed in Table 4. The four sandhi patterns in phonological sense are shown by shaded cells in Table 5, where row heads compose the first tone of a sequence and column heads the second. For clarity, we temporarily transcribe [+raised] and [-raised] as h and l respectively. Sandhi rules are formulated below.

Table 4 Underlying representations

	T1	T2	T3	T4
underlying	l	h	lh	hl

Table 5 Tone sandhi sequences

	T1(l)	T2(h)	T3(lh)	T4(hl)
T1(l)	h.l	l.h	l.lh	h.hl
T2(h)	h.l	h.h	h.lh	h.hl
T3(lh)	lh.l	hl.h	hl.lh	lh.hl
T4(hl)	hl.l	hl.h	hl.lh	hl.hl

Rule 1: T1àT2/_{T1,T4}
Rule 2: T3àT4/_{T2,T3}