On the status of the curly-tail
alveolo-palatal (舌面前) symbols
[ȶ, ȡ, ȵ, ȴ, ɕ, ʑ]

Richard S. Cook, Jr.
STEDT Project, Linguistics Department
University of California, Berkeley, USA
<rscook@socrates.berkeley.edu>

This article seeks to document linguistic usage of the "curly-tail" phonetic symbols used to transcribe sounds of the alveolo-palatal series, namely the six symbols [ȶ, ȡ, ȵ, ȴ, ɕ, ʑ]. Of these six symbols, the last two may be the only ones familiar to readers, as these are included among the list of "Other Symbols" in the IPA's chart of phonetic symbols (1993, revised 1996). These two symbols [ɕ, ʑ] are discussed in the *Phonetic Symbol Guide* (PSG, Pullum & Ladusaw 1996: 33, 204), though the other four [ȶ, ȡ, ȵ, ȴ] are not. Omission of these symbols from PSG, in contrast to Sinitic, Sinologic and Sino-Tibetanist usage, is what provided the original stimulus for the writing of this article. Seeking to address issues relating to the encoding of the STEDT[1] Project's source and data transcriptions, it is hoped that this article will succeed in raising the profile of these "curly-tailed" signs, such that it may be deemed appropriate to include them in computerized encoding standards. At present although [ɕ, ʑ] are both to be found in the Unicode Standard 3.0, at U+0255 and U+0290, respectively, the four signs [ȶ, ȡ, ȵ, ȴ] are not.[2]

Insofar as the precise status of these symbols within the IPA Standard may be in question, a few words may be said with regard to the place and manner of articulation of this series. As PSG reports under its entry for [ɕ] (p. 33):

> IPA USAGE
> Voiceless "alveolo-palatal" median laminal fricative. Articulated further forward than [ç] (true palatal) but not as far forward as [ʃ] (palato-alveolar), and articulated laminally (with the flat blade of the tongue) rather than apically (with the tip of the tongue, as in retroflex [ʂ]).

As PSG notes, this sign [ɕ] is used to represent the Hanyu Pinyin /x-/ initial of Mainland Standard Chinese (MSC, as in the word 现 xiàn 'now'). To this, it may be added that, according to WU Zongji (1992:77) key differences between the [ʃ] as in English and MSC [ɕ] are that, whereas the English sound involves a certain degree of lip-rounding and troughing (grooving) of the tongue, the Chinese sound does not: medial tongue closure is rather tight with [ɕ], and the primary point of frication is rather back in comparison with [ʃ]. Note also that this [ɕ] initial is always found with a following high front vowel, and so is in complementary distribution with MSC's [ʂ] retroflex.

What is being distinguished here for [ɕ, ʑ] is a place of articulation, such that the following four places are distinguished in the continuum from alveolum to palate:

ALVEOLAR, PALATO-ALVEOLAR, ALVEOLO-PALATAL, PALATAL.

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[1] *Sino-Tibetan Etymological Dictionary and Thesaurus*, James A. Matisoff et al. Please see <http://stedt.berkeley.edu/work/CookLowe.pdf> for a recent project description.

[2] Cf. <http://charts.unicode.org/PDF/U0250.pdf> for the "IPA Extensions" [U+0250 - U+02AF].

Although IPA [ɕ, ʑ] are apparently marginalized in the "Other Symbols" part of the IPA chart, the "curly-tail" manner of writing in these consonants does in fact lend itself to the same logical extension as that seen in the writings of symbols for other places of articulation, e.g. as seen in the IPA symbols for the retroflex series [ʈ, ɖ, ɳ, ʂ, ʐ, ɽ, ɭ]. PSG calls this "right tail" a "diacritic for retroflexion" (p. 177), which begs the question: is the "right tail" a diacritic when it is part of the character? (In fact, cp. PSG's own *Comments* on the "right hook" diacritic, p. 264.) And if apico-postalveolar retroflexion is indicated with a diacritic, then by the same reasoning the "curly-tail" mark itself could be viewed as a diacritic. As such, it would be improper to exclude other symbols of the curly-tail series as "non-IPA", based on the supposition that they are full characters not in the IPA standard (cp. also PSG p.40 regarding [ʥ]: "Not actually on the IPA chart, but permitted implicitly under IPA conventions [...]"). Rather, the full series for this place of articulation has simply been sketched, aluded to in the "Other Symbols" portion of the IPA's chart. Just as the alveolar [t, d, n, l] symbols may receive the "diacritic for retroflexion" to become apico-postalveolar retroflex [ʈ, ɖ, ɳ, ɭ], so too [t, d, n, l] are generated by the same principle, after the pattern of [ɕ, ʑ] to indicate laminal alveolo-palatals.

This appears, at any rate, to have been the reasoning employed by linguists in their creation and usage of these [t, d, n, l] curly-tailed symbols. It is not the purpose of the present article to attempt to demonstrate the distinctiveness of an "alveolo-palatal" place of articulation. It is sufficient for the present purposes to note that these symbols are indeed employed by Sinitic, Sinologic and Sino-Tibetanist linguists, in apparent conformity with IPA principles. As such, it is suggested that this curly-tailed class of symbols should not be treated as an aberrant, non-IPA class of symbols. Rather, they should be recognized as having the same status as all other place series symbols.

Although several of the following are apparently unattested, they are all legitimate members of this place series[3], and appear in the appended table "CONSONANTS (PULMONIC AND GLOTTALIC)":[4]

$$[\text{t} , \text{d} , \text{n} , \text{r} , ɕ , ʃ , ʑ , ʒ , \text{ɹ} , \text{l} , \text{ɬ} , ʥ]$$

The remainder of the current article is devoted to presentation of bibliographic information and statistics for the known sources providing attested usage of the curly-tail [t, d, n, l] symbols. The STEDT Project's *Main Lexicon* database contains the following curly-tail symbols, all (with exception of [l]) contained also in the printed sources from which the STEDT data derives (STEDT *Source Bibliography* abbreviations are explained below):

• [t]   curly-tail-t in 99 records (3 sources, the principal of which is ZMYYC with 87; SHK-Sulung has 10; TBL has 2);
• [d]   curly-tail-d in 01 record (AW-TBT) [cf. also LI&ZHOU 1996 below];
• [n]   curly-tail-n in 5686 records (1858 from ZMYYC, the rest from numerous others, including CSL-Yizd, DH-FRL, SLZO-MLD, TBL);
• [l]   curly-tail-l in 8 records, all in transcription of original (JP-Idu) [ʎ] (a character not originally in the STEDT transcription font). A distinction between [l] and [ʎ] is not intended in the transcription. A STEDT typographer in the early 1990's (reportedly Michael Brodhead) anticipated (incorrectly, as it turned out) that [l] would be more likely to occur in the sources than [ʎ], and due to limits on the number of characters in the font, encoded [l]. Please note carefully that this STEDT usage appears to be thus far the only attested usage of curly-tail-l.

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[3] PSG (174, 209) notes that IPA approval of [ʃ,ʒ] (U+0286,U+0293) "palatalized post-alveolars" was withdrawn in 1989. These seem to be functionally equivalent to [ɕ,ʑ], pointing to the same place of articulation.

[4] http://stedt.berkeley.edu/pdf/curly-tail-table3.pdf

Revision of 2000/12/13/8:39

BIBLIOGRAPHIC REFERENCES (SELECTED)

In addition to the above statistics for data in the STEDT *Main Lexicon*, the following references seek to document attested usages of and comments on curly-tail alveolo-palatal place series symbols. Comments on usage of specific symbols are appended to some entries below.

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1928 《現代吳語的研究》 <<Xiandai Wuyu de yanjiu>>. [Research on Modern Wu Dialects.] Pei-p'ing: Ch'ing-hua hsueh hsiao yen chiu yuan. 2nd edition. Series: Ch'ing-hua hsueh hsiao yen chiu yuan ts'ung shu ; ti 4 chung. [UCB East Asian 5155.4012]
1934 "The non-uniqueness of phonemic solutions of phonetic systems." Nanking: Extract from v. 4 of the Bulletin of the National research Institute of History and Philology, Academia Sinica. (363-398 p. 28 cm.) [UCB Main Stack P221; .C5]
• **International Phonetic Association (IPA)**
2000 Current Charts Available at <http://www.arts.gla.ac.uk/IPA/ipa.html>. See specifically, <http://www2.arts.gla.ac.uk/IPA/symbols.html> for the Chart of OTHER SYMBOLS.
• **LI Zhenhua** 李珍華
1993 《漢字古今音表》，〔美〕李珍華，周長楫編撰。北京：中華書局。 <<Han Zi Gu Jin Yin Biao>> (*Historical Chinese Phonologic Tables*). LI Zhenhua and ZHOU Changji. Beijing: Zhonghua Shu Ju, 1993. (Harvard Yenching Library Number: 5120 4414). ISBN 7-101-01198-5/H.103. [8,865 char. readings in 3 historical periods and 7 modern dialects.] This work employs [ȶ, ȡ, ȵ, ȼ, ʑ] in reconstructions of Old Chinese (上古); [ȶ, ȡ, ȼ, ʑ] in transcriptions of Middle Chinese (中古); [ȵ, ȼ, ʑ] for the modern Wu dialect (吳語); [ȵ, ȼ] for the modern Gan dialect (贛語); [ȵ] for the modern Kejia (客家話) dialect. Many of LI and ZHOU's historical forms were also cited in RSC-ECC (Cook 1995).
• **LIANG Min** 梁民 (sp?) [Co-authored with ZHANG Junru.]
1996 《侗台語族概論》 <<Dong-Tai yuzu gailun>> [Intro to Kam-Tai languages]. Beijing: Zhongguo shehui kexue chubanshe. Cf. pp. 972-973. [UCB EAL TEMP98 3754]
• **MA Xueliang** 马学良

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• **QIAN Nairong** 錢乃榮
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• **Unknown Committee** 中國大百科全書編輯委員

1988 《中国大百科全书》 <<Zhongguo dabaike quanshu>>. [Great Chinese Encyclopedia]. Beijing: Zhongguo dabaike quanshu chubanshe. Cf. Yuyan-Wenzi vol., p.118 (IPA).
• **WU Zongji** 吴宗济

1992 《现代汉语语音概要》, 吴宗济 主编。北京: 华语教学出版社。 <<Xiandai Hanyu - Yuyin Gaiyao>> [Elements of Modern Chinese Phonetics], 吴宗济 WU Zongji, Ed. Beijing: Sinolingua, 1992. ISBN 7-80052-137-0. A general handbook of Modern Standard (Beijing) Chinese phonetics, this work contains an IPA-style "Phonetic Symbol Table" on page 196 (see attached copy) which includes the [ȶ, ȡ, ȵ, ȼ, ʑ] curly-tail symbols.
• **YU Nae-wing** 余迺永 (YU Naiyong)
1993 《新校互註・宋本廣韻》香港：香港中文大學。 <<Xin Jiao Hu Zhu - Song Ben Guang Yun>> [A New Revision of the Sung Edition of the Kuang-yun Rhyming Dictionary]. Hong Kong: Chinese University of Hong Kong. 2nd Ed. (3rd Ed., 2000). 1vol., ~900pp., hardcover, Chinese, indices and English appendices. ISBN: 962-201-413-5. Cf. the table, p. 82.

STEDT *Source Bibliography* ABBREVIATIONS

The Sino-Tibetan Etymological Dictionary and Thesuarus (STEDT) Project *Source Bibliography* abbreviations cited above are as follows (numbers at the end of each entry indicate the total number of records in the STEDT databases from each source):

- AW-TBT = WEIDERT,1987.
- CSL-YIzd = CHEN, 1979.
- DHFRL = DAI, 1991.
- JP-Idu = PULU, 1978.
- LTBA = MATISOFF 1974-.
- RSC-ECC = COOK.
- SHK-Sulung = SUN, 1993.
- SLZO-MLD = SUN 1980.
- TBL = DAI, 1992.
- ZMYYC = SUN 1991.

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Revision of 2000/12/13/8:39