

Preliminary Proposal to Add Standardised Variation Sequences for CJK Strokes

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This is a proposal to add 17 standardised variation sequences (SVS) for various unencoded stroke characters that were unified together in IRGN 1137 when developing the current CJK Strokes block.

Background

The current form of CJK Strokes block is based on the [L2/06-212 \(WG2 3063\)](#), where the IRG Rapporteur proposed the current encoding for U+31D0..31E3. When comparing the document with its predecessors, [L2/04-221](#) and [L2/04-367](#), there are some strokes that were unified together. The unification discussion seems to be based on [IRGN 1137](#), which is reflected in the [Appendix F: Documentation of CJK Strokes](#) of the Unicode Standard. Most of the variant strokes are taken from IRGN 1137 and Appendix F, with real world usage evidence in [GF 2001-2001 《GB 13000.1 字符集汉字折笔规范》](#) too.

List of variant strokes

Here is a list of variant strokes grouped by the base form with their glyph name and shape. Variant strokes that are encoded already are shown in 4th and 5th column which should not be added as SVS, and only included here for informative reference.

	VS1	VS2	Already encoded	
U+31D0 一 H 横	 XH 斜横		 T 提 (U+31C0)	
U+31C0 ㇏ T 提	 DT 點提			
U+31D1 S 豎	 XS 斜豎			
U+31D2 ノ P 撇	 BP 扁撇		 SP 豎撇 (U+31D3)	
U+31D4 丶 D 點	 ZD 左點			
U+31CF ㇏ N 捺	 DN 點捺	 BN 扁捺	 TN 提捺 (U+31DD)	

U+31DD ㄟ TN 提捺	ㄟ HN 橫捺	ㄏ BTN 扁提捺		
U+31D5 ㄗ HZ 橫折	ㄗ HXZ 橫斜折			
U+31D7 ㄚ SZ 豎折	ㄚ XSZ 斜豎折			
U+31DC ㄣ PZ 撇折	ㄣ PT 撇提			
U+31DB ㄥ PD 撇點	ㄥ SPD 豎撇點			
U+31C3 ㄣ BXG 扁斜鉤			ㄣ XG 斜鉤 (U+31C2)	ㄣ SWG 豎彎鉤 (U+31DF)
U+31C6 ㄣ HZG 橫折鉤	ㄣ HWG 橫彎鉤	ㄣ XHZG 橫斜折鉤		
U+31E5 ㄣ SZP 豎折撇	ㄣ XSZP 斜豎折撇			
U+31C9 ㄣ SZWG 豎折彎鉤	ㄣ XSZWG 斜豎折彎鉤			

A few of the proposed stroke variants are taken from Ming typeface design and might not be obvious in other font style or scripts: stroke DT (variant of stroke T) and stroke SPD (variant of PD). The stroke origin is marked red in the following example.

ㄣ vs ㄣ	ㄣ vs ㄣ
地默 vs ㄣ 治	巡災 vs 女 (綏 has both)

Standardized Variation Sequences

Below is a complete list of the 17 proposed standardized variation sequences as they would appear in the UCD's *StandardizedVariants.txt* file:

CJK stroke variants

31C0 FE00; CJK stroke DT form; # CJK STROKE T

31C6 FE00; CJK stroke HWG form; # CJK STROKE HZG

31C6 FE01; CJK stroke XHZG form; # CJK STROKE HZG

31C9 FE00; CJK stroke XSZWG form; # CJK STROKE SZWG

31CF FE00; CJK stroke DN form; # CJK STROKE N
31CF FE01; CJK stroke BN form; # CJK STROKE N
31D0 FE00; CJK stroke XH form; # CJK STROKE H
31D1 FE00; CJK stroke XS form; # CJK STROKE S
31D2 FE00; CJK stroke BP form; # CJK STROKE P
31D4 FE00; CJK stroke ZD form; # CJK STROKE D
31D5 FE00; CJK stroke HXZ form; # CJK STROKE HZ
31D7 FE00; CJK stroke XSZ form; # CJK STROKE SZ
31DB FE00; CJK stroke SPD form; # CJK STROKE PD
31DC FE00; CJK stroke PT form; # CJK STROKE PZ
31DD FE00; CJK stroke HN form; # CJK STROKE TN
31DD FE01; CJK stroke BTN form; # CJK STROKE TN
31E5 FE00; CJK stroke XSZP form; # CJK STROKE SZP

Rationale

CJK Strokes are sometimes used to describe the structure of ideographs in plain-text scenario and sometimes it is useful to separate variant strokes based on graphical differences. For example, in discussing stroke SZP in Simplified Chinese, stroke XSZP ㄣ (e.g. 专) and SZP ㄣ (e.g. 隹) are used in different characters and are not always interchangeable. These variants are also listed in the 5th column of Appendix F, which shows that the variants are in use in various modern characters.

There is also a list of strokes in ideographs compiled by the Ichitenfont team under the document [List of Inherited Strokes \(傳承字形筆畫表\)](#), which provides a list of strokes with variants, and their symbols based on English names. It should be noted that this document is only a digital document compilation and not authoritative, however the information in the document is detailed enough for reference. The headers are screenshotted and attached in references.

That is all.

References

折数	序号	名 称		笔 形	例 字
		全 称	简称 (或俗称)		
1 折	5.1	横折竖	横折	㇏ (㇏)	口 见 达 舆 己 罗 马 丑 贯 / 敢 為
	5.2	横折撇	横撇	㇏ (㇏)	又 祭 之 社 登 卵 / 令 了
	5.3	横钩		㇏	买 宝 皮 饭
	5.4	竖折横	竖折	㇏ (㇏、㇏)	山 世 岾 / 母 互 乐 / 发 牙 降
	5.5	竖弯横	竖弯	㇏	四 西 尢
	5.6	竖折提	竖提	㇏	长 瓜 鼠 以 瓦 叫 收
	5.7	撇折横	撇折	㇏ (㇏)	公 离 云 红 乡 亥 / 车 东
	5.8	撇折点	撇点	㇏	女 巡
	5.9	撇钩		㇏	メ
	5.10	弯竖钩	弯钩 (俗称)	㇏	犹 家
	5.11	捺钩	斜钩 (俗称)	㇏	代 戈
2 折	5.12	横折竖折横	横折折	㇏	凹 𠂔
	5.13	横折竖弯横	横折弯	㇏	朵
	5.14	横折竖折提	横折提	㇏	计 颍 鸬
	5.15	横折竖钩	横折钩	㇏ (㇏)	同 门 却 永 要 万 母 仓 / 也
	5.16	横折捺钩	横斜钩 (俗称)	㇏	飞 风 执
	5.17	竖折横折竖	竖折折	㇏	鼎 𠂔 亞 吳
	5.18	竖折横折撇	竖折撇	㇏ (㇏、㇏)	专 / 隼 / 矢
	5.19	竖弯横钩	竖弯钩	㇏	己 乚 电 心
3 折	5.20	横折竖折横折竖	横折折折	㇏	凸
	5.21	横折竖折横折撇	横折折撇	㇏	及 延
	5.22	横折竖弯横钩	横折弯钩	㇏ (乙)	几 丸 / 艺 亿
	5.23	横折撇折弯竖钩	横撇弯钩 (俗称)	㇏	阳 部
	5.24	竖折横折竖钩	竖折折钩	㇏ (㇏)	马 与 钙 / 号 弓
4 折	5.25	横折竖折横折竖钩	横折折折钩	㇏ (㇏)	乃 / 杨

10	乚	HZ	T:口、囗、田、品、呂、申、甲、圓 G:𠂔 Cook: 口
11	乚	HG	T:疋、了、予、矛、子、字、疏 Cook: 、寫、乚
12	乚	HXZ	今、敢
23	ㄥ	PH	互、彙、牙
24	ㄥ	PT	T:弘、么、公、翁 Cook: 厶
30	ㄣ	SZZ	T:亞、鼎、𠂔 Cook: 亞、龍
31	ㄣ	SZXXZ	T:吳 G:吳、吳 Cook: 𠂔、吳
38	ㄣ	DN	入、𠂔
39	ㄣ	PN	是、走
40	ㄣ	TPN	之

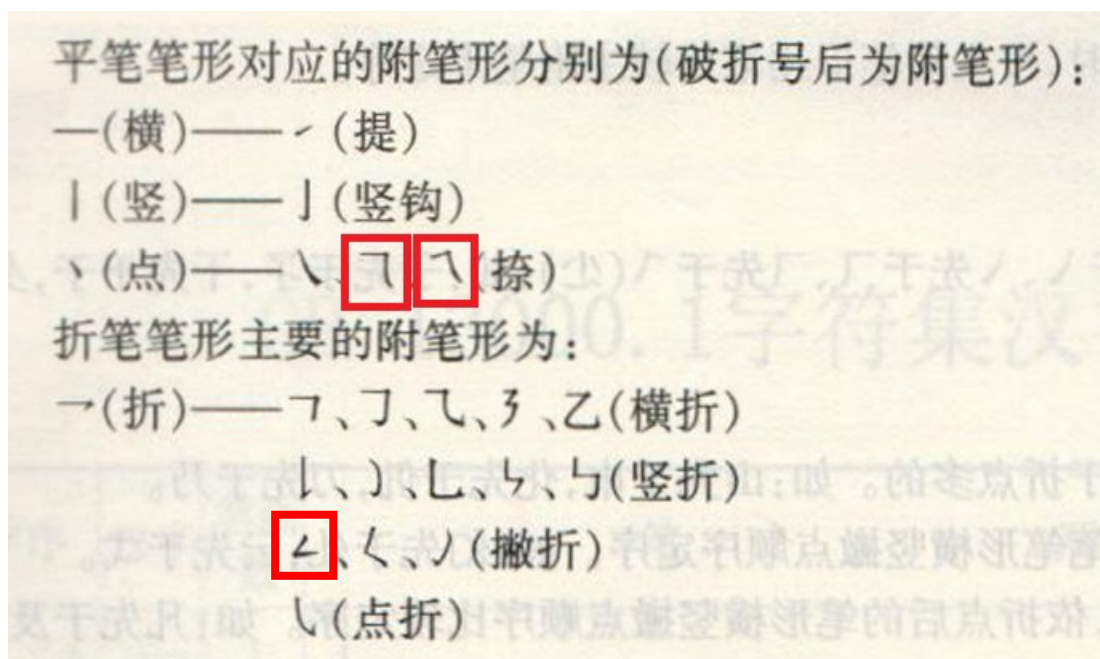
IRGN 1137 showing stroke HXZ, PT, XZSP (SZXXZ in diagram), DN, BN (PN in diagram) and BTN (TPN in diagram)

ㄥ	撇橫
ㄥ	撇挑

IRGN 1086 from TCA listing stroke PZ and PT as separate strokes

1	31D0	一	ㄠ	CJK BASIC STROKE H
3	31D1	丨	丨 /	CJK BASIC STROKE S
5	31D3	丿	㇏	CJK BASIC STROKE P
6	31D4	㇚	㇚	CJK BASIC STROKE WP
7	31D5	㇚	㇚	CJK BASIC STROKE SP
8	31D6	丶	㇚	CJK BASIC STROKE D
12	31D9	㇚	㇚ ㇚	CJK BASIC STROKE TN
13	31DA	㇚	㇚	CJK BASIC STROKE TPN
17	31DD	㇚	㇚ ㇚	CJK BASIC STROKE SZ
28	31C6	㇚	㇚ ㇚ ㇚	CJK BASIC STROKE HZG
31	31E4	㇚	㇚ ㇚	CJK BASIC STROKE SZP

L2/04-367 listing stroke variants in 4th column
(Stroke BP in this proposal is listed as WP)



GF 3001-1999 showing stroke HN and TN

一 31D0	H	héng	橫	一
一4E00, 二4E8C, 三4E09, 丁4E01, 𠂇4E1E, 丈4E08, 世4E16, 丕4E0D, 𠂇571E, 上4E0A, 十5341, 卅5345, 七4E03				
丨 31D1	S	shù	豎	/
丨4E28, 乚4E29, 上4E0A, 工5DE5, 中4E2D, 串4E32, 冫8BA7, 冫4E4D, 五4E94, 丑4E11				
丿 31D2	P	pié	撇	丿
丿4E3F, 人4EBA, 八516B, 乂4E42, 𠂇723B, 禾79BE, 毛6BDB, 乏4E4F, 𠂇4E56, 采91C6, 衣8863, 行884C				
丶 31D4	D	diǎn	點	丶
丶4E36, 丸4E38, 义4E49, 永6C38, 冫51AB, 冰51B0, 凡51E1, 丹4E39, 𠂇4E3B, 求6C42, 火706B, 刃5203				
㇏ 31CF	N	nà	捺	㇏ ㇏ ㇏
大5927, 人4EBA, 天5929, 入(入5165), 尺5C3A, 走8D70, 是662F, 达8FB9, 廷5EF7				
㇏ 31DD	TN	tí-nà	提捺	㇏ ㇏
㇏4E40, 𠂇5C10, 𠂇(八516B), 入(入5165), 文(文6587), 𠂇590A(𠂇), 廻(廻5EFB)				
㇏ 31C7	HP	héng-pié	橫撇	㇏
又53C8, 双53CC, 𠂇53D2, 今(今4ECA)				
㇏ 31D7	SZ	shù-zhé	豎折	㇏
㇏200CA, ㇏200CB, 山5C71, 牙7259, 互4E92, 乐4E50, 东4E1C, 断65AD, 继7EE, 彙5F59				
㇏ 31DC	PZ	pié-zhé	撇折	㇏
㇏53B6, 𠂇5E7A, 糸7CF8, 絲7D72, 弘5F18, 公516C, 翁7FC1				
㇏ 31C6	HZG	héng-zhé-gōu	橫折鉤	㇏ ㇏
㇏200CC, 习4E60, 羽7FBD, 包5305, 匀52FB, 葡8461, 用7528, 青9752, 甫752B, 勺52FA, 月6708, 乚4E5C, 乚4E5F				
㇏ 31C8	HZWG	héng-zhé-wān-gōu	橫折彎鉤	㇏
九4E5D, 几51E0, 飞98DE, 风98CE, 气6C14, 虱8671, 瘋760B				
㇏ 31DE	SZZ	shù-zhé-zhé	豎折折	㇏ ㇏
㇏200D1, 𠂇5350, 亞4E9E, 鼎9F0E, 吳5433, 𠂇4E13, 𠂇279AE, 𠂇244F7, 𠂇249A1				

Various variant strokes listed in 5th column of Appendix F (Unicode 15.0)

	VS1	VS2
U+31D0 一 H 橫	● 斜橫 Stroke SH 	
U+31C0 ㄣ T 提	● 點挑 Stroke DU 	
U+31D1 丨 S 豎	● 斜豎 Stroke SV 	
U+31D2 丿 P 撇	● 扁撇 Stroke FT 	
U+31D4 丶 D 點	● 左點 Stroke LD 	
U+31CF ㄣ N 捺	● 橫捺 Stroke HP 	● 扁捺 Stroke FP 
U+31DD ㄣ TN 提捺	● 橫捺 Stroke HP 	● 挑扁捺 Stroke UFP 
U+31D5 ㄣ HZ 橫折	● 橫斜 Stroke HSV 	
U+31D7 ㄣ SZ 豎折	● 撇橫 Stroke TH 	
U+31DC ㄣ PZ 撇折	● 撇挑 Stroke TU 	
U+31DB ㄣ PD 撇點	● 直撇點 Stroke WTD 	
U+31C6 ㄣ HZG 橫折鉤	● 橫撇鉤 Stroke HTJ 	● 挑撇鉤 Stroke UTJ 
U+31E5 ㄣ SZP 豎折撇	● 撇橫撇 Stroke THT 	
U+31C9 ㄣ SZWG 豎折彎鉤	● 撇橫撇鉤 Stroke THTJ 	

Compiled list from List of Inherited Strokes