

# Proposal to Add Standardised Variation Sequences for CJK Strokes

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This is an updated proposal of [IRG N2681](#) with updates from feedback in [L2/24-067](#) 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

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

The core stroke shown in first column shall be deemed as the default form for the character when no VS are present. Variant names are created by using adjectives before the modified core CJK stroke.

Core	VS1	VS2	Already encoded	
U+31C0 ㇀ T 提	㇀ dotted T 點提			
U+31C6 ㇆ HZG 橫折鉤	㇆ H curved ZG 橫彎鉤	㇆ rising HZG 橫斜折鉤		
U+31C9 ㇉ SZWG 豎折彎鉤	㇉ slanted SZWG 斜豎折彎鉤			
U+31CF ㇏ N 捺	㇏ curved N 點捺	㇏ flat N 扁捺	U+31DD ㇏ TN 提捺	
U+31D0 ㇐ H 橫	㇐ rising H 斜橫		U+31C0 ㇀ T 提	

U+31D1   S 豎	/ slanted S 斜豎			
U+31D2 ノ P 撇	ノ flat P 扁撇		U+31D3 J SP 豎撇	
U+31D4 丶 D 點	丶 left D 左點			
U+31D5 冫 HZ 橫折	冫 H slanted Z 橫斜折			
U+31D7 厶 SZ 豎折	厶 slanted SZ 斜豎折			
U+31DB ㄣ PD 撇點	ㄣ slanted SD 斜豎點			
U+31DC 厶 PZ 撇折	厶 PT 撇提			
U+31DD ㄨ TN 提捺	ㄨ HN 橫捺	ㄨ upwards T flat N 扁提捺		
U+31E5 ㄣ SZP 豎折撇	ㄣ slanted SZP 斜豎折撇			
<i>Not to be encoded, only for extra information grouped here</i>				
U+31C3 ㄣ BXG 扁斜鉤			U+31C2 ㄣ XG 斜鉤	U+31DF 厶 SWG 豎彎鉤

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 dotted T (variant of stroke T) and stroke slanted SD (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)

This should be deemed acceptable for encoding as SVS as one Kai typeface-specific stroke has already been encoded as a separate Unicode, i.e. U+31C3 ㄣ stroke BXG.

## Standardized Variation Sequences

Below is the 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; dotted T form; # CJK STROKE T  
31C6 FE00; curved Z form; # CJK STROKE HZG  
31C6 FE01; rising H form; # CJK STROKE HZG  
31C9 FE00; slanted S form; # CJK STROKE SZWG  
31CF FE00; curved starting N form; # CJK STROKE N  
31CF FE01; flat N form; # CJK STROKE N  
31D0 FE00; rising H form; # CJK STROKE H  
31D1 FE00; slanted S form; # CJK STROKE S  
31D2 FE00; flat P form; # CJK STROKE P  
31D4 FE00; to bottom left form; # CJK STROKE D  
31D5 FE00; slanted Z form; # CJK STROKE HZ  
31D7 FE00; slanted S form; # CJK STROKE SZ  
31DB FE00; slanted SD form; # CJK STROKE PD  
31DC FE00; upwards T form; # CJK STROKE PZ  
31DD FE00; horizontal H curved N form; # CJK STROKE TN  
31DD FE01; upwards T flat N form; # CJK STROKE TN  
31E5 FE00; slanted S 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 ㇇ (e.g. 专) and SZP ㇈ (e.g. 隹) are used in different characters and are not always interchangeable.

These variants are also listed in the 5<sup>th</sup> column of Appendix F of the Unicode Core Specification, which shows that the variants are in use in various modern characters. The proposed variants to be registered are updated into Appendix F by adding VS1 and VS2 labels to registered variants.

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.

A font file with the proposed variant selectors as well as the Appendix F SVG files are attached in this proposal.

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	冫 (𠃉)	口 见 达 舆 己 罗 马 丑 贯 / 敢 為
	5.2	横折撇	横撇	フ (フ)	又 祭 之 社 登 卵 / 令 了
	5.3	横钩		フ	买 宝 皮 饭
	5.4	竖折横	竖折	乚 (乚、𠃊)	山 世 岫 / 母 互 乐 / 发 牙 降
	5.5	竖弯横	竖弯	乚	四 西 尢
	5.6	竖折提	竖提	レ	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		ノ	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 卍
	5.13	横折竖弯横	横折弯	㇇	朵
	5.14	横折竖折提	横折提	レ	计 颧 鸬
	5.15	横折竖钩	横折钩	㇇ (㇇)	同 门 却 永 耍 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 𠃊 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 匕 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	㇇	HZ	T:口、口、田、品、呂、申、甲、圓 G:𠂇 Cook:口
11	㇈	HG	T:疋、了、予、矛、子、字、疏 Cook:、寫、㇈
12	㇉	HXZ	今、敢
23	㇊	PH	互、彙、牙
24	㇋	PT	T:弘、么、公、翁 Cook:么
30	㇌	SZZ	T:亞、鼎、𠂇 Cook:亞、龍
31	㇍	SZXZ	T:吳 G:吳、吳 Cook:專、吳
38	㇎	DN	入、𠂇
39	㇏	PN	是、走
40	㇐	TPN	之

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

㇊	撇橫
㇋	撇挑

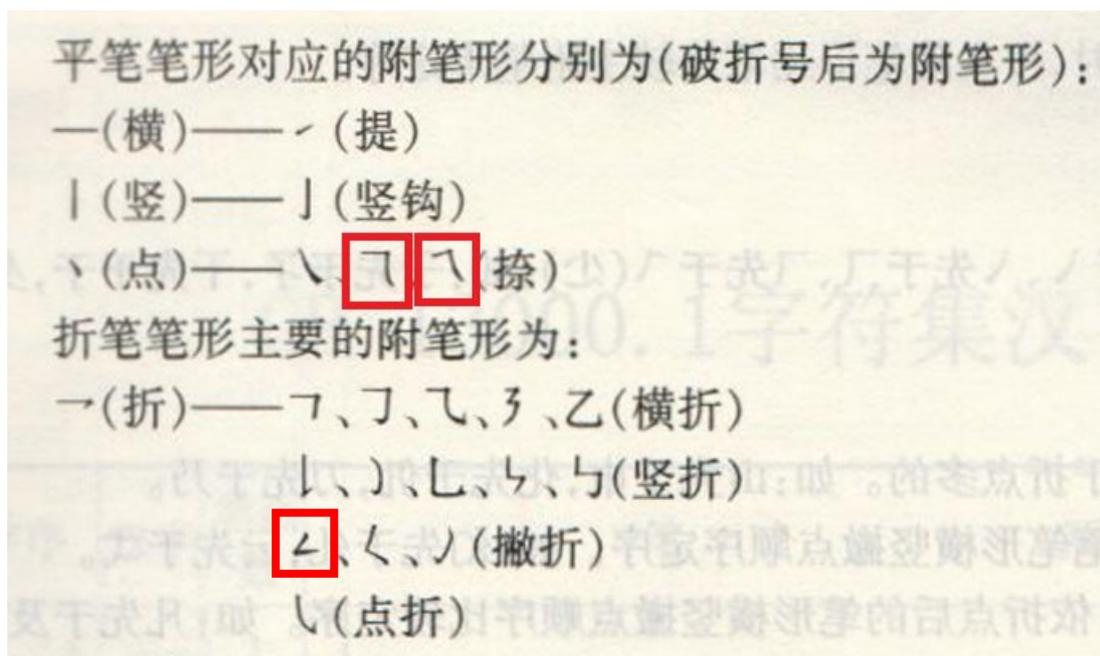
IRGN 1086 from TCA listing stroke PZ and PT as separate strokes

㇊	㇋	㇌	㇍
1-2665	1-2666	1-266C	1-266D

CNS 11643 encoding stroke PZ and PT as separate strokes as well as stroke SZ and XSZ

1	31D0	一	𠄎	CJK BASIC STROKE H
3	31D1	丨	丨 /	CJK BASIC STROKE S
5	31D3	丿	丿	CJK BASIC STROKE P
6	31D4	𠃉	𠃉	CJK BASIC STROKE WP
7	31D5	𠃊	𠃊	CJK BASIC STROKE SP
8	31D6	丶	丶	CJK BASIC STROKE D
12	31D9	㇇	㇇	CJK BASIC STROKE TN
13	31DA	㇈	㇈	CJK BASIC STROKE TPN
17	31DD	𠃋	𠃋	CJK BASIC STROKE SZ
28	31C6	𠃌	𠃌	CJK BASIC STROKE HZG
31	31E4	𠃍	𠃍	CJK BASIC STROKE SZP

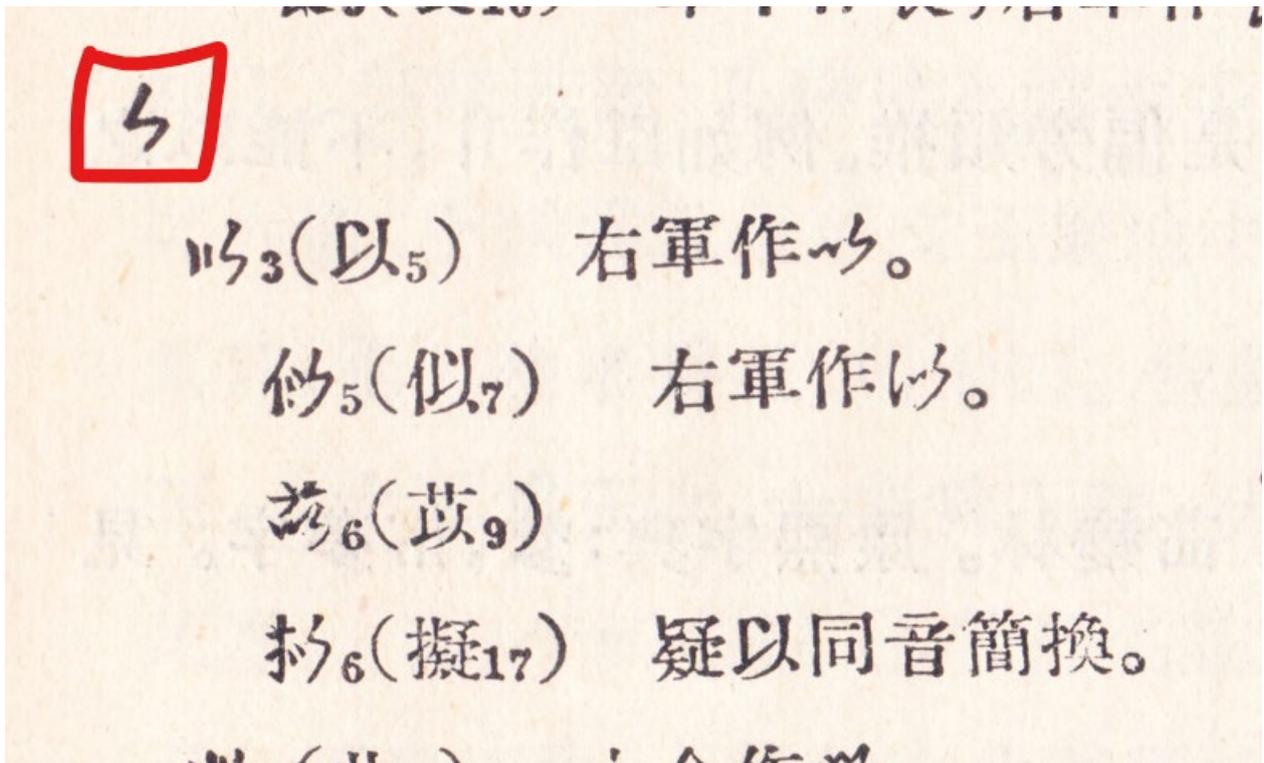
L2/04-367 listing stroke variants in 4<sup>th</sup> column  
(Stroke BP in this proposal is listed as WP)



GF 3001-1999 showing stroke HN and TN

基本笔画 Basic stroke	变形笔画 Transformed stroke	名称 Name	写法 (与基本笔画比较) Way of writing (in comparison with basic stroke)	例字 Example
、		Zuǒdiǎnr 左点儿	向左下方，顿笔 dot to lower left and pause	少
、		Chángdiǎnr 长点儿	比点儿稍长些 a little longer than a dot	六
丿		Píngpiě 平撇	从右向左，接近水平 nearly horizontally from right to left	千
丿		Shùpiě 竖撇	从上向下，接近垂直 nearly vertically up to down	开
、		Píngnà 平捺	从左向右，接近水平 nearly horizontally from left to right	之

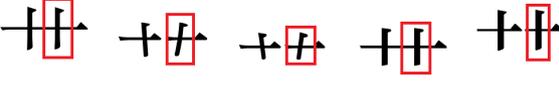
《汉字速成课本》，ISBN 9787561909119



CJK stroke slanted SZP in 《簡體字原》(1955)

一 31D0	H	héng	橫	一
一4E00, 二4E8C, 三4E09, 丁4E01, 丞4E1E, 丈4E08, 世4E16, 丕4E0D, 上571F, 上4E0A, 十5341, 卅5345, 七4E03				
丨 31D1	S	shù	豎	丨
丨4E28, 𠄎4E29, 上4E0A, 工5DE5, 中4E2D, 串4E32, 讠8BA7, 乍4E4D, 五4E94, 丑4E11				
丿 31D2	P	piě	撇	丿
丿4E3E, 人4EBA, 八516B, 乂4E42, 爻723B, 禾79BE, 毛6BDB, 乏4E4F, 彳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, 王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, 边4E89, 廷5EF7				
㇈ 31DD	TN	tí-nà	提捺	㇈
㇈4E40, 𠄎5C10, 八(八516B), 入(入5165), 文(文6587), 攵590A(攵), 廻(廻5EFB)				
フ 31C7	HP	héng-piě	橫撇	フ
又53C8, 双53CC, 彘53D2, 今(今4ECA)				
㇉ 31D7	SZ	shù-zhé	豎折	㇉
㇉200CA, ㇉200CB, 山5C71, 牙7259, 互4E92, 乐4E50, 东4E1C, 斷65AD, 继7EE, 彙5F59				
㇊ 31DC	PZ	piě-zhé	撇折	㇊
㇊53B6, 么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, 勻52FB, 葡8461, 用7528, 青9752, 甬752B, 勺52FA, 月6708, 乚4E5C, 也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	㇍
㇍1200D1, 𠄎5350, 亞4E9E, 鼎9F0E, 吳5433, 专4E13, 設279AE, 𠄎244F7, 𠄎249A1				

Various variant strokes listed in 5<sup>th</sup> column of Appendix F (Unicode 15.0)

Stroke group	References
U+31C0 ㇇ T 提	6B21 欠 76.2  G0-344E HB1-A6B8 T1-4839 J0-3C21 K0-732D KP0-ECAE V1-5B25
U+31C6 ㇆ HZG 橫折鉤	5E7B 幺 52.1  G0-3B43 HB1-A4DB T1-453C J0-3838 K0-7C33 KP0-F6C9 V1-537C
U+31C9 ㇉ SZWG 豎折彎鉤	4E0E 一 1.3  G0-536B HB2-C94F T2-212F J0-4D3F K2-2123 V1-4A2A 4E10 一 1.3  G0-5824 HB1-A4A2 T1-4461 J0-5022 K2-2125 KP1-3409 V1-4A2B
U+31CF ㇏ N 捺 U+31DD ㇍ TN 提捺	5165 入 11.0  G0-486B HB1-A44A T1-442B J0-467E K0-6C7D KP0-FCE6 V1-4C44 5C10 小 42.1  GE-3676 HB2-C95C T2-213C JMJ-010285 K2-2E2A
U+31D0 一 H 橫	4E47 丿 4.2  G0-5831 HB2-C947 T2-2128 J14-2129 K2-2132 KP1-3439
U+31D1 丨 S 豎	8279 艸 140.0  G0-5C33 H-994A T4-2153 J4-7576 K2-5672
U+31D4 丶 D 點	5203 刀 18.1  G0-4850 HB1-A462 T1-4443 J0-3F4F K0-6C53 KP0-FCC7 V1-4C71
U+31D5 冫 HZ 橫折	5019 人 9.8  G0-3A72 HB1-ADD4 T1-5437 J0-3875 K0-7D26 KP0-F4E2 V1-4B5E
U+31D7 ㇏ SZ 豎折	21552 欠 34.0  GKX-0244.18 T5-212F

*Examples of unified ideographs  
with significant regional stroke differences in Unicode code charts  
that can be expressed with UVS in this proposal*

Core stroke	VS1	VS2
U+31C0 ㇇ T 提	● 點挑 Stroke DU 	
U+31C6 𠃉 HZG 橫折鉤	● 橫撇鉤 Stroke HTJ 	● 挑撇鉤 Stroke UTJ 
U+31C9 ㇇ SZWG 豎折彎鉤	● 撇橫撇鉤 Stroke THTJ 	
U+31CF ㇇ N 捺	● 橫捺 Stroke HP 	● 扁捺 Stroke FP 
U+31D0 一 H 橫	● 斜橫 Stroke SH 	
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+31D5 𠃉 HZ 橫折	● 橫斜 Stroke HSV 	
U+31D7 𠃉 SZ 豎折	● 撇橫 Stroke TH 	
U+31DB 𠃉 PD 撇點	● 直撇點 Stroke WTD 	
U+31DC 𠃉 PZ 撇折	● 撇挑 Stroke TU 	
U+31DD ㇇ TN 提捺	● 橫捺 Stroke HP 	● 挑扁捺 Stroke UFP 
U+31E5 ㇇ SZP 豎折撇	● 撇橫撇 Stroke THT 	

Compiled list from List of Inherited Strokes

## Appendix F Updates

一 U+31D0	<b>H</b>	héng	橫	VS1: 一
一 U+4E00, 二 U+4E8C, 三 U+4E09, 丁 U+4E01, 丞 U+4E1E, 丈 U+4E08, 世 U+4E16, 丕 U+4E0D, 十 U+5341, 卅 U+5345, 目 U+76EE, 七 U+4E03, 毛 U+6BDB				
提 U+31C0	<b>T</b>	tí	提	VS1: 彳
扌 U+624C, 水 U+6C3A, 录 U+5F55, 暴 U+66B4, 地 U+5730, 虫 U+866B, 默 U+9EC8, 彳 U+51AB, 治 U+51B6, 洌 U+51BD, 彳 U+6C35, 淋 U+6DCB, 治 U+6CBB				
丨 U+31D1	<b>S</b>	shù	豎	VS1: 丨
丨 U+4E28, 凵 U+4E29, 上 U+4E0A, 工 U+5DE5, 中 U+4E2D, 串 U+4E32, 冫 U+8BA7, 冫 U+4E4D, 構 U+69CB, 五 U+4E94, 丑 U+4E11, 母 U+6BCB				
丿 U+31D2	<b>P</b>	piě	撇	VS1: 丿
丿 U+4E3F, 人 U+4EBA, 乂 U+4E42, 爻 U+723B, 須 U+9808, 俗 U+4FD7, 禾 U+79BE, 乏 U+4E4F, 乖 U+4E56, 采 U+91C6, 衣 U+8863, 行 U+884C, 翼 U+7FFC				
丶 U+31D4	<b>D</b>	diǎn	點	VS1: 丶
丶 U+4E36, 丸 U+4E38, 义 U+4E49, 永 U+6C38, 斗 U+6597, 冰 U+51B0, 凡 U+51E1, 丹 U+4E39, 主 U+4E3B, 求 U+6C42, 火 U+706B, 刃 U+5203, 灬 U+706C				
㇇ U+31CF	<b>N</b>	nà	捺	VS1: ㇇ VS2: ㇇ ㇇
人 U+4EBA, 天 U+5929, 人(入入) U+5165, 尺 U+5C3A, 丩 U+5B53, 餐 U+9910, 尖 U+5C16, 走 U+8D70, 是 U+662F, 廷 U+5EF7, 麤 U+9EA9				

 U+31DD	<b>TN</b>	tí nà	提捺	VS1:  VS2: 
 U+4E40,  U+5C10, 八 (八) U+516B, 入 (入) U+5165, 文 (文) U+6587,  (文) U+590A, 廻 (廻) U+5EFB, 之 U+4E4B, 返 U+8FD4, 逆 U+9006				
 U+31D5	<b>HZ</b>	héng zhé	橫折	VS1: 7
 U+200CD, 口 U+53E3, 冂 U+56D7, 田 U+7530, 吕 U+5415, 品 U+54C1, 申 U+7533,  U+7532, 圆 U+5706, 𠂇 U+5DEA, 今 (今) U+4ECA, 恆 U+6046				
 U+31D7	<b>SZ</b>	shù zhé	豎折	VS1: 丄
 U+200CA, 丄 U+200CB, 山 U+5C71, 出 U+51FA, 牙 U+7259, 互 U+4E92,  U+4E50, 东 U+4E1C, 𠂇 U+6BCC, 断 U+65AD, 繼 U+7E7C, 彙 U+5F59				
 U+31DC	<b>PZ</b>	piě zhé	撇折	VS1: 丷
 U+53B6, 彡 U+5E7A, 糸 U+7CF8, 絲 U+7D72, 弘 U+5F18, 公 U+516C, 翁 U+7FC1				
 U+31DB	<b>PD</b>	piě diǎn	撇點	VS1: ㇇
 U+21FE8, 彡 U+5DDB, 女 U+5973, 巡 U+5DE1, 災 U+707D, 畱 U+753E,  U+5DE4, 獵 U+7375, 綏 U+7D8F, 經 U+7D93				
 U+31C6	<b>HZG</b>	héng zhé gōu	橫折鉤	VS1: 丂 VS2: 𠂇
 U+200CC, 习 U+4E60, 羽 U+7FBD, 包 U+5305, 勻 U+52FB, 葡 U+8461, 那 U+90A3,  U+9751, 甫 U+752B, 勻 U+52FA, 月 U+6708, 乚 U+4E5C, 也 U+4E5F				

ㄣ U+31E5	<b>SZP</b>	shù zhé piě	豎折撇	VS1: ㄣ
𠄎 U+594A, 𠄏 U+5928, 𠄐 U+4E13, 𠄑 U+279AE, 𠄒 U+244F7, 𠄓 U+249A1				
ㄣ U+31C9	<b>SZWG</b>	shù zhé wān gōu	豎折彎鉤	VS1: ㄣ
𠄔 U+4E02, 𠄕 U+4E0E, 𠄖 U+4E8F, 𠄗 U+53F7, 𠄘 U+5F13, 𠄙 U+5F3A, 𠄚 U+59CA, 𠄛 U+51FD, 𠄜 U+4E10, 𠄝 U+9A6C, 𠄞 U+9E15				

### Revision Notes

The previous version of this proposal L2/26-073 on 2026-03-03 proposed to assign VS1 to the core strokes, and subsequently VS2 and VS3 for the first and second variants. As pointed out by Ms. CheonHyeong Sim, individual characters without VS shall be treated as the default form and may not need to be encoded with VS. Thus, this revision removed core strokes from VS1, and moved VS2/VS3 forward to VS1/VS2. The number of records to be inserted into *StandardizedVariants.txt* dropped from 31 to 17.

[End of document]