Encoding of the Kpelle Script in the UCS
Preliminary Proposal Submitted to the
Script Encoding Initiative
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Origins of the Kpelle script
A syllabic script for the Kpelle language was devised in the 1930's by Gbili, a chief of Sanoyea, in Bong County, Liberia, during the 1930's. Accounts usually mention that Gbili was inspired by revelation in a dream. In one retelling, Gbili dictated the script in nearly complete form to Lee-Polu-Mala-Yale, from the village of Zongkai. The script was actively used for a few decades after its invention, by other chiefs, including Bono-Boi of Yanekwele, their scribes, and by one of the wives of Gbili, Neni-Tee. Uses included sending messages, keeping tax and store records, recording legal debts, and compiling a recipe book. (Stone 1990:136-137; Dalby 1967:30, f.n. 2). It has not been determined how many of these texts may have survived the Liberian civil wars, but probably very little if any original material remains.

The first scholarly reference to the Kpelle script comes from Johannes Friedrich (1937), who offered little in the way of accompanying detail. A first attempt at analysis came through with Lassort (1951), who included data from two sources, collected separately in the field. David Dalby published an analysis in 1967 based on the Lassort data, and Ruth Stone (1990) has produced a more recent article, using her own field research, the collection of which dates from 1970. The use of the script has been light, but continued at least through the 1980's among the Kpelle.

Principles for encoding
One of the unique features of the Kpelle syllabary is that it encodes for pairs of syllables, what Dalby terms 'mutational pairs', that are related by the phonological similarity of their initial consonants; thus reducing the total number of characters encoded by about half of what it would be otherwise. Even so, for each mutational pair there are typically two glyphs available for use interchangeably. Thus, for the pair of related syllables 'ka' and 'ga', either ᵀᵀ or ƃ may be used. Lassort's data is presented as two full sets of glyphs across the range of characters, and his data is largely repeated in the Dalby source in a compiled tabular form that attempts to unify the two Lassort sources. Comparing the data presented in Lassort and Stone, there are small sets of characters found in one but not the other. The most notable of these are the Kpelle digits, which Stone notes, "...were added later also. The late Peter Giddings, a young boy at the time of the script's invention, recalled how he returned to Sanoyea during a school vacation, to be shown the script. Peter said that he pointed out the absence of characters for numbers to Gbili. He then helped him devise a system, which supplemented the original characters of the script." (Stone 1990:139). Most series of syllables can be traced cleanly through from Lassort to Stone, with some major exceptions in the cases of <n->; <y-/ǹy->; and <w-/ɣ-/ṇ̀-/ŋw->, which will be discussed later.

Ordering
Lassort's method of collation loosely follows a Latin-based sort, using the initial consonant of transliterated syllables as the primary key to the collation, with the ending vowels of the syllable

serving to provide the secondary collation weight. Dalby and Stone both opt for a tabular presentation of the data, ordered nearly identically to each other, following Welmers (1973), with the initial consonants beginning each row in their associated pairs {p/b, ɓ/m̀, kp/gb, f/v, t/d, l/ǹ, h(s)/j(z), y/ǹy, k/g, kw/gw, ɣ(/ŋ), ɣ *or* w, w(/ŋw)}, followed by nasal syllables and, in Stone's case, syllable lengthening characters which were not previously published in the other sources.

Dialects of Kpelle: variation in tonal system and vowel length
Konoshenko (2008) identifies three dialects of Kpelle: Gbali, the northernmost Guinean dialect, Standard Guinean Kpelle, and Standard Liberian Kpelle. The *Ethnologue*, as of the 2005 edition predating Konoshenko's work, does not recognize Gbali as a separate dialect, but does include Kono of Liberia as an additional dialect of the Kpelle group. Konoshenko analyzes Gbali as having one tonal class and one pitch level opposition, while Standard Guinean Kpelle and Standard Liberian Kpelle each have two tonal classes and at least two pitch level oppositions. Winkler (1997) describes Kpelle according to Welmers' 1973 analysis, as having "three distinct levels of tone: high, mid, and low, and a falling glide on single syllable words", to which Winkler adds that the falling glide may also occur in polysyllabic words. (Winkler, p. xiii.) She further notes, following Welmers, that tone in Kpelle has both lexical and grammatic functions.

The implications for the script are twofold. First, as Dalby notes in comparing the script to Welmers' phonological analysis, "the many lacunae indicate that the syllabary is incomplete, and there also appears to be no provision for the distinctions of vowel-length in Kpelle" (Dalby, p. 30.) Second, Stone mentions the introduction of an occasional use of diacritics to indicate low tone, or voiced consonants to be pronounced with the "woo wie" or heavy voice, or vowel length. She notes their use by Lee-Polu, but does not further elaborate as to their appearance or conditions for their use. (Stone, p. 139.)

Potentially confusable glyphs
There are some cases where a glyph as presented by Lassort is visually very similar to a glyph for another character, and in these cases we recommend using a variants of each that will easily contrast with each other. These cases include: ⫪° from the hɔ/dyɔ and hvɔ/vɔ characters presented by

Lassort; ( ) from the yɛ/ǹyɛ and ɣɛ(/ŋ̀ɛ) characters as presented by Stone; and ( ) for pe/be and pi/bi as presented by Lassort (possibly reflecting an early unification). Other opportunities for unification and disunification exist, and will need to be investigated further. A font for Kpelle has been created by Jason Glavy.

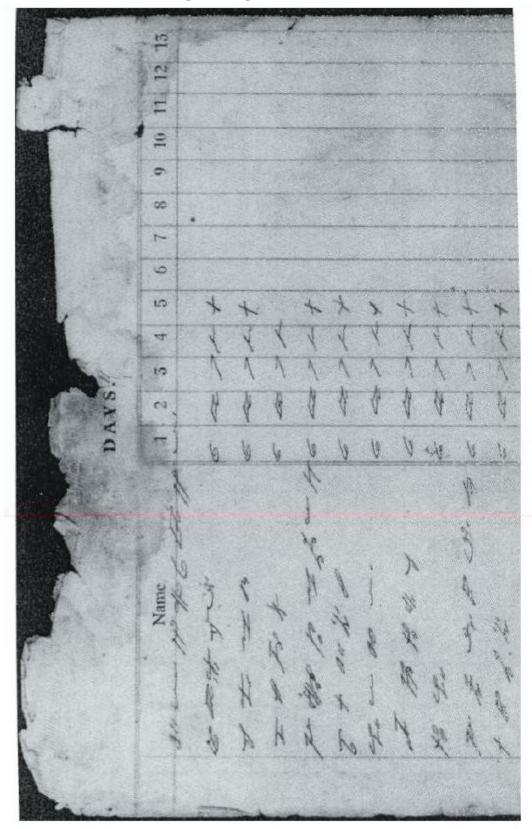Fig. 1. Detail of Tax Records in Kpelle script from Stone (1990).

Fig. 1. Detail of Tax Records in Kpelle script from Stone (1990).

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	XXX0	XXX1	XXX2	XXX3	XXX4	XXX5	XXX6	XXX7
0								
1								
2								
3								
4								
5								
6								
7								
8								
9								
A								
B								
C								
D								
E								
F								

XXX00	KPELLE SYLLABLE PI-BHI
XXX01	KPELLE SYLLABLE BI-MI
XXX02	KPELLE SYLLABLE KPI-GBI
XXX03	KPELLE SYLLABLE FI-VI
XXX04	KPELLE SYLLABLE TI-DI
XXX05	KPELLE SYLLABLE LI-NI
XXX06	KPELLE SYLLABLE HI-JI
XXX07	KPELLE SYLLABLE YI-NYI
XXX08	KPELLE SYLLABLE KI-GI
XXX09	KPELLE SYLLABLE KWI-GWI
XXX0A	KPELLE SYLLABLE GHI-NGI
XXX0B	KPELLE SYLLABLE NGWI
XXX0C	KPELLE SYLLABLE PA-BHA
XXX0D	KPELLE SYLLABLE BA-MA
XXX0E	KPELLE SYLLABLE KPA-GBA
XXX0F	KPELLE SYLLABLE FA-VA
XXX10	KPELLE SYLLABLE TA-DA
XXX11	KPELLE SYLLABLE LA-NA
XXX12	KPELLE SYLLABLE HA-JA
XXX13	KPELLE SYLLABLE YA-NYA
XXX14	KPELLE SYLLABLE KA-GA
XXX15	KPELLE SYLLABLE KWA-GWA
XXX16	KPELLE SYLLABLE GHA-NGA
XXX17	KPELLE SYLLABLE NGWA
XXX18	KPELLE SYLLABLE PU-BHU
XXX19	KPELLE SYLLABLE KPU-GBU
XXX1A	KPELLE SYLLABLE FU-VU
XXX1B	KPELLE SYLLABLE TU-DU
XXX1C	KPELLE SYLLABLE LU-NU
XXX1D	KPELLE SYLLABLE HU-JU
XXX1E	KPELLE SYLLABLE YU-NYU
XXX1F	KPELLE SYLLABLE KU-GU
XXX20	KPELLE SYLLABLE WU
XXX21	KPELLE SYLLABLE WUNG
XXX22	KPELLE SYLLABLE PEE-BHEE
XXX23	KPELLE SYLLABLE BEE-MEE
XXX24	KPELLE SYLLABLE KPEE-GBEE
XXX25	KPELLE SYLLABLE FEE-VEE
XXX26	KPELLE SYLLABLE TEE-DEE
XXX27	KPELLE SYLLABLE LEE-NEE
XXX28	KPELLE SYLLABLE HEE-JEE
XXX29	KPELLE SYLLABLE YEE-NYEE
XXX2A	KPELLE SYLLABLE KEE-GEE
XXX2B	KPELLE SYLLABLE KWEE-GWEE
XXX2C	KPELLE SYLLABLE GHEE-NGEE
XXX2D	KPELLE SYLLABLE WEE

XXX2E	KPELLE SYLLABLE NGWEE
XXX2F	KPELLE SYLLABLE PE-BHE
XXX30	KPELLE SYLLABLE BE-ME
XXX31	KPELLE SYLLABLE KPE-GBE
XXX32	KPELLE SYLLABLE FE-VE
XXX33	KPELLE SYLLABLE TE-DE
XXX34	KPELLE SYLLABLE LE-NE
XXX35	KPELLE SYLLABLE HE-JE
XXX36	KPELLE SYLLABLE YE-NYE
XXX37	KPELLE SYLLABLE KE-GE
XXX38	KPELLE SYLLABLE KWE-GWE
XXX39	KPELLE SYLLABLE GHE-NGE
XXX3A	KPELLE SYLLABLE NGWE
XXX3B	KPELLE SYLLABLE E
XXX3C	KPELLE SYLLABLE PO-BHO
XXX3D	KPELLE SYLLABLE BO-MO
XXX3E	KPELLE SYLLABLE KPO-GBO
XXX3F	KPELLE SYLLABLE FO-VO
XXX40	KPELLE SYLLABLE TO-DO
XXX41	KPELLE SYLLABLE LO-NO
XXX42	KPELLE SYLLABLE HO-JO
XXX43	KPELLE SYLLABLE KO-GO
XXX44	KPELLE SYLLABLE WO
XXX45	KPELLE SYLLABLE WONG
XXX46	KPELLE SYLLABLE POO-BHOO
XXX47	KPELLE SYLLABLE BOO-MOO
XXX48	KPELLE SYLLABLE KPOO-GBOO
XXX49	KPELLE SYLLABLE FOO-VOO
XXX4A	KPELLE SYLLABLE TOO-DOO
XXX4B	KPELLE SYLLABLE LOO-NOO
XXX4C	KPELLE SYLLABLE HOO-JOO
XXX4D	KPELLE SYLLABLE NOO-NYOO
XXX4E	KPELLE SYLLABLE KOO-GOO
XXX4F	KPELLE SYLLABLE WOO
XXX50	KPELLE SYLLABLE Y-NY
XXX51	KPELLE SYLLABLE MIN
XXX52	KPELLE SYLLABLE NIN
XXX53	KPELLE SYLLABLE MAN
XXX54	KPELLE SYLLABLE NAN
XXX55	KPELLE SYLLABLE NYAN
XXX56	KPELLE SYLLABLE NGAN
XXX57	KPELLE SYLLABLE MUN
XXX58	KPELLE SYLLABLE NUN
XXX59	KPELLE SYLLABLE NGUN
XXX5A	KPELLE SYLLABLE NEEN
XXX5B	KPELLE SYLLABLE NGEEN

XXX5C	KPELLE SYLLABLE NYEEN
XXX5D	KPELLE SYLLABLE MEN
XXX5E	KPELLE SYLLABLE NEN
XXX5F	KPELLE SYLLABLE NGEN
XXX60	KPELLE SYLLABLE NYEN
XXX61	KPELLE SYLLABLE MON
XXX62	KPELLE SYLLABLE NON
XXX63	KPELLE SYLLABLE NYON
XXX64	KPELLE SYLLABLE NGON
XXX65	KPELLE SYLLABLE MII
XXX66	KPELLE SYLLABLE NGII
XXX67	KPELLE DIGIT ONE
XXX68	KPELLE DIGIT TWO
XXX69	KPELLE DIGIT THREE
XXX6A	KPELLE DIGIT FOUR
XXX6B	KPELLE DIGIT FIVE
XXX6C	KPELLE DIGIT SIX
XXX6D	KPELLE DIGIT SEVEN
XXX6E	KPELLE DIGIT EIGHT
XXX6F	KPELLE DIGIT NINE
XXX70	KPELLE DIGIT TEN