Eric Muller wrote

> 1. The consonant shifters are displayed with a kbieh kraom sign (identical to the u sign) below the consonant whenever there is a vowel sign, or a part of it, above the consonant. I am wondering what happens in a couple of cases:
>
> - the vowel is ya or ie, i.e. it has a piece both above and below. Is it true that those vowel signs write the same vowel sound regardless of the register of the consonant they are applied to, and therefore there is never the need of writing a consonant shifter with those vowel signs?

A search in the complete dictionary does not show the combinations

17CA 17C0
17C9 17C0
17CA 17BF
17C9 17BF

> - the vowel is u+nikahit. Same as in the previous case?

Same for

17C9 17BB 17C6

But for

17CA 17BB 17C6

i have five hits

ជាប់ហុំ
មងហុំ
សុំទ្វារ
ស្រអុំ
ហុំ

As expected, in our fonts, the triisap is placed above, but below the Nikahit. This is confirmed by the dictionary

> - there is something else than a vowel above the consonant, e.g. a bantak. Is the consonant shifter also displayed with a kbieh kraom sign?

There are cases with SAMYOK SANNYA, at least, and with KAKABAT. The only word in Khmer that has three signs above has triisap (above), Vowel II and Kakabat

ជណ្ដើរអាស់សង់ស៊ីរ
ប៊ីរ

The dictionary confirms that the triisap is placed above, and below the sign.

The three above lines word is

ដ្ឋី

Our fonts display the triisap below, but the dictionary places it above, below the vowel.

> - there is a vowel sign above and a subjoined consonant that goes below (e.g. kho, cho, ttho, ba, yo, ssa)

There is, many. This is a problem, as in Unicode 3.0, the shifter was placed after the second consonant, but in Unicode 4 it was "shifted" (in an incompatible way) to be placed after the first base consonant , which makes things quite complicated. We tend to support both in our fonts. An added problem is knowing to which one of the consonants it affects

រង្ប៊ី

this shows a base consonant of the second series, and a subjoint consonant of the first series, with triisap (in Unicode 3 position).

The same word with the triisap in Unicode 4 position:

រង្ប៊ី

does not work for our fonts, and it is strange for Khmer, because the triisap was typed after a consonant that should never have it, instead of after the consonant that is affected by it.

> 2. Unicode provides a way to force the display to be above. Is there a case of a semantic difference between a display below and a display above?

No, the traditional spelling (Chuon Nath dictionary) dictates placing it above when using the letter A អ or

when using subjoined HA. This has been ignored for some time now, but the government is now going to force Chuon Nath spelling again (after 30 years of teaching something different), and this should be part of it, even if does not affect the encoding. In either spelling, the meaning is the same.

Only for letter BA there is an issue, as Musikatoan is used to change the sound from B to P, while triisap has its normal shifter meaning.

Do you have a copy of the Chuon Nath dictionary?

We would be happy to provide test cases for the fonts and rendering engine, as we have done similar work already. We would also be happy to facilitate the tools for searching for specific combinations.