0. English Numerals

The English words for 14, 16, and 17 can be broken up into two morphemes. For example, *fourteen* is *four-teen*. Note that *-teen* is related to *ten*, which makes sense because $4 + 10 = 14$.

The English words for 40, 60, and 70 also consist of two morphemes. For example, *forty* is *four-ty*. The morpheme *-ty* is also related to *ten*, which makes sense because $4 \times 10 = 40$.

(a) Consider the number words above. Is the Tibetan word for 14 built up by combining a form of *four* with a form of *ten*, as in English? Is there any difference in how the word is formed, compared to the English *fourteen*? Are 11, 15 and 19 formed in the same way?

(b) Is 40 in Tibetan made out of a form of *four* plus a form of *ten*? What about 50 and 90?

(c) The Tibetan word for 14 contains a sound that doesn't appear to come from either 4 or 10. Which sound is this? This sound didn't come out of nowhere! We should assume that it's either part of the underlying mental representation of 4, or else part of the underlying mental representation of 10. Now, deduce which of these options is right by considering the words for 11, 14, 15 and 19 together. State your reasoning.

(d) Similarly, the word for 40 contains a sound that doesn't appear to come from either 4 or 10. Which sound is this? Would you guess this sound is part of the underlying representation of 4, or that it's part of the underlying representation of 10? Again, state your reasoning.

(e) Using the same logic, give the underlying forms of the Tibetan morphemes for 1, 4, 5, 9, and 10.

(f) For some of the words above, the surface (pronounced) form differs from the underlying form. State a single phonological rule that captures all of these differences in one fell swoop—a rule that takes us from underlying forms to surface forms in a regular, predictable way. If you're not able to reduce all the changes to a single rule, you may have to revisit parts (c), (d) and (e).

(g) The Tibetan word for 17 is [ʤub.dʊn]. Can you predict the word for 7? What about 70?

(h) The Tibetan word for 3 is [sum]. Can you predict the word for 30? What about 13?