Morphological Alternations at the Intonational Phrase Edge (in K’ichee’)

K’ichee’ (Mayan) has two classes of morphemes that have been called phrase final in the descriptive literature due to the fact that they only appear at the end of some domain [2,5]. This paper answers the two questions that immediately arise: (i) What is the domain over which this phenomenon applies and (ii) why do these morphemes have the particular distribution that they do, that is, why are they phrase final morphemes and not phrase medial morphemes? Based on original fieldwork, I argue that the phrase final morphemes in K’ichee’ have a prosodic distribution, appearing only at the end of an intonational phrase (iP). The reason is that K’ichee’ independently requires a prominence peak to abut the right iP boundary. After taking this into account, the distribution of phrase final morphemes can be understood as output optimization, whereby phrase final morphemes appear in order to optimize stress placement at the iP edge and do not appear elsewhere as a consequence of markedness.

The first type of phrase final alternation we consider concerns alternations between CV and CVC forms of certain clitics. An example of this phenomenon involves the irrealis clitic. Example (1-a) shows that when the clitic is at the end of the utterance, it appears in its CVC form, but phrase medially, it takes a CV form (1-b). The second type involves a set of suffixes that indicate verb class membership known as Status Suffixes [5]. Only when the verb is clause-final do status suffixes appear; compare (1-c) with the status suffix -ik and (1-d) without. Crucially, there is no difference in interpretation. When there are multiple clauses, there are multiple phrase final morphemes (2-a).

While phrase final morphemes track clause boundaries, we propose that their distribution is best understood as iP-final, where iP’s are mapped nonrecursively onto CPs. The three supporting arguments are: (i) phrase final morphemes always carry the peak of prominence in the iP, (ii) they have the same distribution as other prosodic phenomena in K’ichee’, like vowel lengthening [2], (iii) they do not have a uniform syntactic distribution. While they usually surface adjacent to CP boundaries, there are exceptions, for example, when a preposition taking a CP complement intervenes (2-a)-(2-b). If functional heads are prosodified with their arguments in K’ichee’ in general [2], then a prosodic analysis predicts syntax-prosody mismatches and we can account for apparent exceptions to a syntactic account in a principled way (2-c).

Intonational phrasing proves crucial for the distribution of phrase final morphology because K’ichee’ requires a stress peak to be aligned with the right edge of every iP. Example (3-a) shows that stress does not fall on final, light, non-root material phrase medially, but finally, these syllables bear stress (3-b). If both forms of the alternating clitics are stored in the lexicon and compete for insertion in the phonology [4,3] (which is a natural assumption given that there are no general consonant deletion or insertion phenomena to appeal to), their distribution is understood immediately. Phrase finally, the CVC form is selected because heavy syllables are better able to bear stress (5). Phrase medially, the CV form is chosen as a TETU effect of NOCODA since choosing a coda-less item from the lexicon yields no faithfulness violation (6). The status suffixes are analyzed in a different way, but once again, the crucial insight is that they only appear when they bear the peak prominence of the iP. Extending work by [1] on affix-controlled stress, we propose that the status suffixes are lexically specified for iP prominence, which we conceive of as grid marks in the input. High ranking faithfulness constraints to these lexically specified prominence marks force the deletion of the suffixes when they cannot be realized as prominent in the iP, that is, when they are not iP-final (8).

While this work allows us to understand K’ichee’-specific phenomena in detail, it also opens up a way to larger theoretical questions about the syntax-phonology-morphology interface. First, the analysis supports theories where morphology is done in the phonology since the distribution of phrase final morphemes is prosodic in nature, where prosodic structure is determined post-syntax. This leads to another conclusion, namely, the phonological content of morphemes is only inserted after syntax. While the late insertion of morphemes is not new, this work is innovative in establishing a new constraint on when insertion can occur, that is, no later than the construction of iP’s. This result supports parallel approaches to morpho-phonology like OT or serial approaches that allow high level prosodic structure to be built before vocabulary insertion.
(1) a. Na xutij \textit{ta}.j.
   NEG he.ate.it IRR
   He didn’t eat it.
   b. Na xutij \textit{ta} le wah.
   NEG he.ate.it IRR le wah
   He didn’t eat the tortilla.

   c. Iwir \textit{yesterday} xinkos-\textit{ik}.
   I.tired-SS
   I got tired yesterday.

   d. Xinkos \textit{iwir}.
   I.tired yesterday
   I got tired yesterday.

(2) a. Xinkos-\textit{ik} rumal xinchakun-\textit{ik}.
   I.tired-SS because I.worked-SS
   I am tired because I worked.
   b. (V - \textit{ik} rumal (V - \textit{ik})_{CP})_{CP}
   (V - \textit{ik})_{IP} (rumal V - \textit{ik})_{IP}

(3) a. Kintíj \textit{I.eat.it na} le \textit{ak’}.
   I.am going to eat.it ASP the chicken
   I am going to eat the chicken.

   b. Kintij \textit{I.eat.it ná}.
   I.am going to eat it.

(4) a. \textit{ALIGN}_{1} (A_{1}): A peak of prominence
    lies at the right edge of \textit{IP}.
   b. \textit{IDENTPROM} (IP): If morpheme \textit{M} has
    prominence \textit{P} in input, \textit{M} has prominence \textit{P}
    in the output.
   c. \textit{REALIZE MORPHEME} (RM): A mor-
    pheme in the input has an exponent in
    the output.
   d. \textit{CUMULATIVITY} (C): A prosodic do-
    main has exactly one peak prominence.

(5) \begin{tabular}{|c|c|c|}
  \hline
  xutij \{ta/taj\}_{IP} & A_{1} & STW \\
  \hline
  a. xutil \textit{ta} )_{IP} & * & \\
  b. xutil \textit{tá} )_{IP} & * & \\
  c. xutil \textit{tá} )_{IP} & * & \\
  \hline
\end{tabular}

(6) \begin{tabular}{|c|c|c|}
  \hline
  & \textit{i} & \textit{xinkos-ik)}_{IP} & \textit{A}_{1} & \textit{RM} \\
  \hline
  a. \textit{xinkos-ik)}_{IP} & * & \\
  b. xinkős)_{IP} & * & \\
  c. xinkós-ik)_{IP} & * & \\
  \hline
\end{tabular}

(7) \begin{tabular}{|c|c|c|}
  \hline
  & \textit{i} & \textit{xinkos-ik)}_{IP} & \textit{A}_{1} & \textit{RM} \\
  \hline
  a. \textit{xinkos-ik)}_{IP} & * & \\
  b. xinkós)_{IP} & * & \\
  c. xinkós-ik)_{IP} & * & \\
  \hline
\end{tabular}

(8) \begin{tabular}{|c|c|c|}
  \hline
  & \textit{i} & \textit{xinkkos-ik)}_{IP} & \textit{C} & \textit{IP} & \textit{A}_{1} & \textit{RM} \\
  \hline
  a. \textit{xinkos-ik)}_{IP} & * & \\
  b. xinkosik)_{IP} & * & \\
  c. xinkos-ik)_{IP} & * & \\
  d. xinkos-ik)_{IP} & * & \\
  \hline
\end{tabular}