‘Ternary constituents’ are a consequence of ‘mora sluicing’
Ben Hermans & Francesc Torres-Tamarit
Meertens Institute, Amsterdam

Proposal
While ternary rhythm exists, ternary feet do not, not even indirectly by means of recursion. We propose
that ternary rhythm arises from mora sluicing, the phenomenon whereby moras can be excluded from
the stress plane to satisfy an instance of \( \text{NO-CLASH} \).

Introduction
Kager (2013) and Kager & Martínez-Paricio (2013) convincingly show that lapse-based approaches to
ternary rhythm have many disadvantages. For this reason they propose an approach in terms of recursive
feet (1).

(1) a. \( (\sigma\sigma\sigma) \)  b. \( (\sigma(\sigma\sigma)) \)
c. \( (\sigma\sigma\sigma) \)  d. \( (\sigma(\sigma\sigma)) \)

Although we agree with the arguments against lapse, we object to the approach in terms of recursive
feet for two reasons: firstly, four new feet just to account for ternary rhythm does not feel like a mild
innovation; secondly, it needs to be stipulated that recursion at the foot level does not iterate, as opposed
to higher levels of the prosodic hierarchy.

Yet another approach to ternarity
In grid-based theories of stress the notion of ‘mora sluicing’ (Prince 1983, Prince & Smolensky 1993,
Hyde 2001) is well accepted. It refers to the phenomenon that not every mora necessarily projects to a
prominent position on line1 of the stress plane. Consider, for instance, the representations in (2).

(2) a. moraic trochee  b. uneven trochee

\[
\begin{array}{c}
\text{line1 / ‘syllable level’} \\
\text{line2 / ‘foot level’}
\end{array}
\]

These representations are based on Hammond’s (1984) Lollipop model, in which prominent positions
on the stress plane have constituent status, and where every constituent is headed. In (2a) every mora
projects to a prominent position on line1. Since a foot cannot contain more than two positions, we get a
moraic trochee, implying that the second syllable cannot be parsed by it. In (2b), on the other hand, the
second mora \( \mu_2 \) does not project to a prominent position on the stress plane (mora sluicing). Now the
foot does incorporate the second syllable, without violating the binarity requirement. Mora sluicing, then,
derives the difference between a moraic trochee and an uneven trochee. This difference is characterized
in terms of the rankings between the constraints in (3) and (4).

(3) \( \mu \rightarrow * \) (line1)

A mora occupies the head of a line1 constituent.

(4) \( \text{NO-CLASH} \) (line1)

Line1 constituents do not clash (their head moras are not adjacent).

In a moraic trochee the two foot-internal prominent positions clash, but the projection requirement is
satisfied \( (\mu \rightarrow * \) (line1) \( \gg \) \( \text{NO-CLASH} \) (line1)) . In an uneven trochee, on the other hand, avoiding the
clash takes priority \( (\text{NO-CLASH} \) (line1) \( \gg \) \( \mu \rightarrow * \) (line1)).

If we replace the coda consonant in \( \mu_2 \) by a syllable (schematically indicated as CV), then we see that the
foot in (1a) is derived by disallowing CV to project to the stress plane. A ternary foot (5b), then, is the
same as an uneven trochee (2b).
(5) a. moraic trochee b. ternary (trochaic) foot

\[ \begin{array}{c}
\text{line2 / ‘foot level’} \\
\mu_1 \mu_2 \mu_3 \\
C/\text{V} \ C/\text{V} \ C/\text{V}
\end{array} \quad \begin{array}{c}
\text{line1 / ‘syllable level’} \\
\mu_1 \mu_2 \mu_3 \\
C/\text{V} \ C/\text{V} \ C/\text{V}
\end{array} \]

NO-CLASH blocks the projection of the CV-mora in (5b). We propose that NO-CLASH in (5b) dominates a constraint that requires a branching mora to project on line1.

(6) \( \mu \land \rightarrow * \) (line1)

A branching mora occupies the head of a line1 constituent.

This constraint is an instance of a large family of constraints argued for in Dresher & van der Hulst (1998); as we will demonstrate, branching line1 constituents must occupy the head of a line2 constituent and branching line2 constituents (feet) must occupy the head of a line3 constituent (main stress). In a language where a ternary foot is not allowed, the ranking \( \mu \land \rightarrow * \) (line1) \( \gg \) NO-CLASH obtains. If a language has ternary feet, then its grammar has the opposite ranking.

Line1 constituents remotely correspond to syllables; they are always left dominant. From this it follows that we only allow two types of ternary foot: the dactyl (5b) and the amphibrach (7a). The anapest and the reversed amphibrach are not allowed (7b,c), thus restricting the inventory of ‘ternary constituents’.

(7) a. amphibrach b. anapest c. reversed amphibrach

\[ \begin{array}{c}
\mu_1 \mu_2 \mu_3 \\
C/\text{V} \ C/\text{V} \ C/\text{V}
\end{array} \quad \begin{array}{c}
\mu_1 \mu_2 \mu_3 \\
C/\text{V} \ C/\text{V} \ C/\text{V}
\end{array} \quad \begin{array}{c}
\mu_1 \mu_2 \mu_3 \\
C/\text{V} \ C/\text{V} \ C/\text{V}
\end{array} \]

We have an apparatus, then, that can account for ternarity, and its ingredients (mora sluicing, stress clash, the prominence requirement of a branching mora) are independently required and well motivated. In particular we will claim the rankings in (8) and (9) for all the well-known cases of ternarity.

(8) a. Chugach Alutiiq  
    amphibrach (= IAMB), HEADF-L \( \gg \) ALLF-R  
    \begin{align*}
    6 \sigma \ ((01)0)((02)0) \\
    7 \sigma \ ((01)0)((02)0)(02) \\
    8 \sigma \ ((01)0)((02)0)(02) \\
    9 \sigma \ ((01)0)((02)0)((02)0)
    \end{align*}

b. Estonian  
    dactyl (= TROCHEE), HEADF-L \( \gg \) ALLF-R  
    \begin{align*}
    6 \sigma \ ((10)0)((20)0) \\
    7 \sigma \ ((10)0)((20)0)(20) \\
    8 \sigma \ ((10)0)((20)0)(20) \\
    9 \sigma \ ((10)0)((10)0)((20)0)
    \end{align*}

(9) a. Tripura Bangla  
TROCHEE, ALLF-L, NO-CLASH (line2)  
    HEAD-OF-F\( \rightarrow \land \gg \) PARSE-\( \mu \)  
    \begin{align*}
    6 \sigma \ ((10)0)((20)0) \\
    7 \sigma \ ((10)0)((20)0)(0) \\
    8 \sigma \ ((10)0)((20)0)(20) \\
    9 \sigma \ ((10)0)((20)0)((20)0)
    \end{align*}

b. Cayuvava  
    TROCHEE, ALLF-R  
    FOOT\( \rightarrow \land \gg \) PARSE-\( \mu \)  
    \begin{align*}
    6 \sigma \ ((20)0)((10)0) \\
    7 \sigma \ 0((20)0)((10)0) \\
    8 \sigma \ 0((20)0)((10)0) \\
    9 \sigma \ ((20)0)((20)0)((10)0)
    \end{align*}

In Tripura Bangla, HEAD-OF-F\( \rightarrow \land \) (head of feet must branch) accounts for underparsing in 7 \( \sigma \)-words, as opposed to Estonian; and NO-CLASH (line2) disallows a non-maximal (binary) foot in word-internal position. In Cayuvava, the constraint requiring feet (line2 constituents) to branch (FOOT\( \rightarrow \land \)) enforces an initial lapse in 3\( n+2 \) \( \sigma \)-words.

In sum, ternary rhythm is not due to recursive feet, but emerges from mora sluicing interacting with independently needed constraints on branchingness in a model that conceives metrical prominences as headed constituents.