# Optimal clitic placement in Tiwa

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Due to their dependence on prosodic factors, the linear positioning of clitics has presented a puzzle for theories that deal with the mapping of syntactic structure to phonological form. Distributed Morphology (DM; Halle & Marantz 1993 et seq.) has been highly successful in solving this puzzle through a number of different mechanisms, including Lowering and Local Dislocation (Embick and Noyer 2001), and Prosodic Inversion (Halpern 1995). Through these mechanisms, the morphological and prosodic requirements of clitics are met while locality restrictions serve to limit what post-syntactic movement operations can take place. DM has successfully accounted for, for example, clitic placement in Basque (Arregi & Nevins 2012), Maltese and Makassarese (Shwayder 2014), and Maori (Herd 2003).

The positioning of focus clitics in Tiwa, a Tibeto-Burman language of Northeast India, presents a further challenge to theories of linearization, in that it cannot be handled by the available mechanisms in DM. Focus clitics in Tiwa are right adjoined to their scope – in the case of sentence focus, to TP. In auxiliary verb constructions (and in complex predicates), the focus clitic may surface as an enclitic on the tense-inflected auxiliary (1a) (the transparent linearization) or optionally drift leftward to the main verb (1b) (focus drift).

(1)  a.  TRANSPARENT
     Lí thái-do=**sê**.
     go AUX-IPFV=**FOC**
     '[He] is still going.'

    b.  FOCUS DRIFT
     Lí=**sê**   thái-do.
     go=**FOC** AUX-IPFV
     '[He] is still going.'

Sentences (1a) and (1b) have an identical syntactic structure, shown in (2), where the solid arrow represents syntactic head-movement of Aux to T, and the dashed arrow represents PF movement of FOC from its position above T to the VP.

(2)  a.  TRANSPARENT



    b.  FOCUS DRIFT
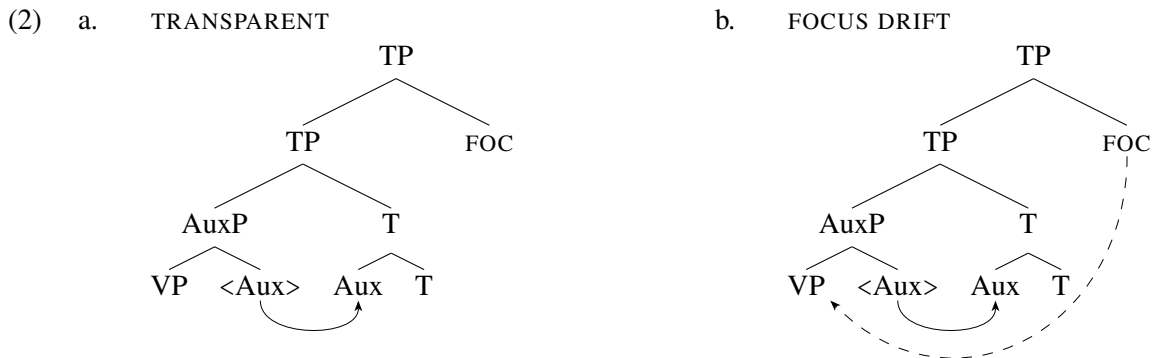


Evidence for this structure comes from semantics (focus can still scope over T when the clitic surfaces on the main verb (1b), and the two variants are always interchangeable), and from restrictions on drift where more than one focus clitic is present. Multiple clitics can be adjoined to the same constituent, including TP (3a). In focus drift, only the leftmost clitic can drift (3b). Drift of both clitics is ungrammatical (3c), as well as drift of the rightmost clitic (3d).

(3)  a.  Lí thái-do=**lô**=**sê**.
        go AUX-IPFV=**FOC1**=**FOC2**
        '[He] is still going.'

    b.  Lí=**lô**   thái-do=**sê**.
        go=**FOC1** AUX-IPFV=**FOC2**
        '[He] is still going.'

    c.  * Lí=**lô**=**sê**     thái-do.
          go=**FOC1**=**FOC2** AUX-IPFV

    d.  * Lí=**sê**   thái-do=**lô**.
          go=**FOC2** AUX-IPFV=**FOC1**

If the syntactic structure of (1a) and (1b) were different, multiple clitics should to be able to adjoin to the main verb, as with any other focused constituent. Likewise, if the focus clitics were independently adjoined to the main verb and TP, the ordering restriction in (3d) requires additional explanation.

Focus drift is post-syntactic movement. (1b) cannot be syntactically derived from (2). Assuming the Head Movement Constraint, there is no identifiable position above the first adjoined clitic for the auxiliary to move to. Moreover, drift occurs in structurally diverse TPs (complex predicates and auxiliary constructions). The only unifying factor in these TPs is the presence of a bare verb root.

In this paper I show that focus drift is one of two repairs to a suboptimal mapping between syntactic and prosodic structure. Verb roots in Tiwa are bound; they require morphology to their right (4a). This requirement can be satisfied through string vacuous Local Dislocation which yields a single prosodic word (phonological evidence from voicing) as in (1a) (V-Aux-T-FOC). However, prosodic mapping constraints require syntactic words to map to prosodic words (4b). Focus drift allows the requirements of the verb to be met, while optimally satisfying prosodic mapping.

Focus drift is PF movement, but is not Lowering, Local Dislocation, or Prosodic Inversion. In all three instances it violates locality restrictions: for Lowering, it does not target a complement (even if focus did project, it would skip its complement TP to target VP); for Local Dislocation, it violates linear adjacency since FOC forms a unit with V to the exclusion of Aux-T; for Prosodic Inversion, which would rely on the prosodic requirements of the clitic itself, FOC should adjoin to the first element to its left (T) and not to V. The optionality of focus drift is also problematic for both Lowering and Prosodic Inversion. Instead, the long distance nature and optionality of focus drift are best modeled through constraint interaction. These features and the analysis above can be easily modeled in Optimality Theory with the constraints in (4), and the ranking in (5).

(4)  a. *[m-]: The morphological and prosodic requirements of vocabulary items must be satisfied.

   b. Match[word, ω]: The left and right edges of a word in the input syntactic representation must correspond to the left and right edges of a phonological word in the output phonological representation.                                                                                               (Selkirk 2011)

   c. PF=SS: The output PF order of a vocabulary item must match the hierarchical input SS position of the morpheme it expones.

(5)  *[m-] ≫ PF=SS, Match[word, ω]

The restrictions in (3) fall out automatically from this account: Drift of more than one clitic or drift of a structurally higher clitic over another unnecessarily violates PF=SS.

The optionality of focus drift, its long-distance nature, its restrictions, and its broader prosodic motivation are all easily accounted for in a constraint driven analysis that allows placement of clitics to be driven by overall prosodic phrasing requirements, where DM operations of Lowering, Local Dislocation and Prosodic Inversion cannot apply. As such, focus drift in Tiwa lends support from clitic placement and linearization to the integration of a constraint-driven component into Distributed Morphology, following work in other areas of morphology, notably Tucker 2011 (for templatic morphology), and Foley 2016 and Trommer 2001 (for agreement).

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