Morphological operations forming a conspiracy: Clitic patterns in Degema serial verb constructions

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1 Introduction

This paper concerns itself with the role of morphological operations in determining the presence and distribution of specific pieces of meaning in grammar. One profitable area of investigation has been on the grammatically heterogeneous class called ‘clitics’, which stand as ‘intermediate’ categories between full words and restricted affixes (Zwicky 1985, Klavans 1985, Marantz 1988, Halpern 1995, Legendre 1998, Bošković 2001, Anderson 2005, Spencer & Luís 2012, a.o.). In what follows, I examine the distribution of clitics in serial verb constructions (SVCs) in Degema [deg], an Edoid language of Nigeria.

Degema has a series of subject agreement proclitics which attach to the left edge of the verb, and two aspectual enclitics which attach to the right edge of the verb. When these clitics appear in serial verb constructions, two patterns emerge. When two verbs appear separated by a noun, noun phrase, or bisyllabic object pronoun, each verb is marked with a set of clitics: cl=V=cl O cl=V=cl (O). I refer to this as the DOUBLE-MARKING SVC PATTERN. In contrast, when two verbs appear adjacent at the surface, or are only separated by a monosyllabic (=prosodically light) object pronoun, the proclitic attaches to the first verb and the enclitic attaches to the last verb: cl=V (O,=) V=cl. I refer to this pattern as the SINGLE-MARKING SVC PATTERN.

I claim that both of these patterns should be derived with the same syntax, that is, the syntactic structure of these two patterns is identical when they are
transferred to the Phonological Form (PF) interface for interpretation. Attempts to derive these surface patterns through syntactic operations alone fail, and do not make correct predictions. Instead, I account for the SVC clitic patterns above through morphological operations within DISTRIBUTED MORPHOLOGY (DM) (Halle & Marantz 1993, 1994, Harley & Noyer 1999, Embick & Noyer 2001, 2007, a.o.), which allows (restricted) morphological manipulation through addition, subtraction, merger, splitting, and reconfiguration of representations transferred from syntax. My analysis employs two such morphological operations: LOCAL DISLOCATION and DISSOCIATED NODE INSERTION.

Using these operations, I claim that the single-marking pattern is due to adjacent verbs undergoing local dislocation to form a single morphological word (MWd) (with or without additional local dislocation involving a prosodically deficient monosyllabic pronoun). In contrast, the double-marking pattern is due to insertion of dissociated nodes subject to feature copying, which takes place when local dislocation of two verbs does not apply (and in this way, is a ‘repair’ strategy).

Both of these operations have as their result that the verb is in an MWd which is marked by subject agreement and aspect morphology. I therefore view this as forming a type of CONSPIRACY in which multiple surface patterns can be attributed to a single constraint, which in this case is a MORPHOLOGICAL WELL-FORMEDNESS CONSTRAINT on verbs requiring specific pieces of meaning be
morphologically present. Although arbitrary, such morphological well-formedness constraints are common cross-linguistically, and it is not viable to dispense with them. I couch this analysis within Optimality Theory (OT; Prince & Smolensky 1993, Kager 1999), a core advantage of which is the ability to formally capture conspiracies in grammar. Although this combination of Distributed Morphology and Optimality Theory is unorthodox in linguistic practice, we argue that components of both are necessary to capture the Degema facts.

This paper is organized as follows. Section 2 presents background on the Degema language, and the core data on clitics and serial verb constructions necessary for understanding my analysis. Section 3 presents the syntax of Degema SVCs, and arguments against viewing the single-marking SVC pattern as the result of syntactic verb movement of V2. Section 4 presents the derivation of these patterns employing post-syntactic morphological operations in competition, couched in an OT analysis. Section 5 presents arguments against viewing the single-marking pattern as the result of Deletion-Under-Identity of intermediate clitics. Section 6 provides a conclusion.
2 Degema Language, Clitics, and Serial Verb Constructions

2.1 Degema Background

Degema [deg] is classified as a Delta Edoid, Benue-Congo language spoken in the Delta region of Southern Nigeria, spoken by approximately 22,000 people (Kari 2004: 5). Data in this paper come from publications from Ethelbert E. Kari (Kari 2002a, 2002b, 2002c, 2002d, 2003a, 2003b, 2004, 2005, 2006, 2008), and additional personal communication. Degema has two main dialects: Usokun and Atala (also called ‘Degema Town’). The current paper is based around the Usokun variety; information on the Atala dialect is found in Offah (2000).

Degema maintains a strict SVO word order which may vary for information-structure reasons, e.g. focalized and topicalized constituents occur in the left periphery. It is a head-initial language, in which auxiliaries precede the verb, and adjuncts (including adverbials, CPs, PPs, and ideophones) follow the object. Nouns appear with an obligatory noun class prefix which signals grammatical number and one of 13 genders. Tense, aspect, mood, and negation are expressed through auxiliaries, tone patterns, and/or clitics typically located on the verb.

2.2 Verbal Clitics

Clitics play a major role in my analysis and are introduced here. Degema possesses a class of proclitics and enclitics which canonically adjoin to the verb. Proclitics principally expone subject agreement, though can additionally index
polarity and tense/aspect, while enclitics are semantically heterogeneous. Kari (2002a; 2002b; 2002c; 2002d; 2003; 2005) presents arguments that these markers are clitics and not straightforwardly affixes or independent words, a position I adopt here, but do not elaborate on. Under this paper’s non-lexicalist framework, their status as an ‘affix’ or ‘clitic’ is less important than the principles and operations which result in their surface patterns (see Embick & Noyer 2001: 560).

Verbs in finite contexts occur with a subject agreement proclitic which appears directly before it (**note proclitics do not appear in positive imperatives; see also endnote 7 for their distribution with auxiliaries**). These proclitics fully agree with an overt or covert NP in number, person, and humanness (they do not agree with nouns in noun class). These subject agreement proclitics form two sets, what Kari (2004:333) calls an $mV=$ set [Set 1] and a $V=$ set [Set 2]. Generally, the $mV=$ set all begin with a /m/, and are used in positive polarity, non-past tense constructions. The $V=$ set are vowel initial except first person singular, and appear elsewhere⁵. Third person plural is split further into two sets of markers: one which appears with third person plural human referents [+H], and those which appear with third person non-human referents [-H]. The non-human variant also appears with mass nouns [+M], which have no singular/plural morphological distinction. A table is provided below adapted from Kari (2004: 334-335).
Agreement proclitics appear left-adjointed to the verb.

(1) \( \text{me}=\text{siré} \)  
\( 1SG=\text{run} \)  
‘I am running’

If an overt noun is present before the verb, it appears before the proclitic, even if it is internally complex.

(2) \( \text{Verb-adjacent position of proclitic} \)  
\( [\text{báw dé-m } \text{ósama báw nụ } \text{ínwíny báaw}] \)  
\( [\text{they buy-GER shirt they and body their}] \)  
\( i=\text{díyómósé}=n \ ọyi \)  
\( 3\text{PL}=\text{sweet.CAUS=FAC her/him} \)  
‘[Their buying the shirt themselves] pleased her/him’ (Kari 2004: 148)

Degema has a fairly rigid word order and clitics do not show second position effects (Kari 2015). The only elements which may intervene between the lexical verb and the proclitic are functional auxiliary verbs, a closed class with 12
members. Proclitic patterns with auxiliary verbs are more complicated and fall outside of the scope here (see this endnote for patterns: 7).

In addition to verbal proclitics, Degema also has a series of verbal enclitics which canonically attach to right edge of the verb. These enclitics form a heterogeneous semantic class, shown in the table below.

<table>
<thead>
<tr>
<th>Degema enclitic</th>
<th>Translation</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factative tense/aspect</td>
<td>=Vn</td>
<td></td>
</tr>
<tr>
<td>Perfect aspect</td>
<td>=te/=te̩</td>
<td>PRF</td>
</tr>
<tr>
<td>“has V-en”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative imperative</td>
<td>=tu/=tu̩</td>
<td>NEG.IMP</td>
</tr>
<tr>
<td>“don’t V”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discontinuation</td>
<td>=munu/=mu̩nu</td>
<td>DE</td>
</tr>
<tr>
<td>“stopped V”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excessiveness</td>
<td>=vire/=vire</td>
<td>EE</td>
</tr>
<tr>
<td>“V too much”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Request</td>
<td>=ani/=ani̩</td>
<td>RE</td>
</tr>
<tr>
<td>“please, V”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The enclitics discussed in this paper are the two aspectual enclitics: factative tense/aspect marker =Vn FAC and the perfect aspect marker =te PRF.8

When aspect enclitics appear, they canonically right-adjoin to verbs, e.g. between a verb and an object (a)-(b), or a verb and a PP (c).

(3) *Aspect clitic adjacent to verbs*
   (a) Ohoso ọ=sá=ǹ ęnam
       Ohoso 3SG=shoot=FAC animal
       ‘Ohoso shot an animal’ (Kari 2004: 270)
The distribution of these enclitics varies depending on the type of object pronoun. The set of Degema pronouns is provided in Table X. Two marginal pronouns iyí ‘they’ [non-human] and eyí ‘they’ [human] are not discussed here (see Kari 2004:256-7).

<table>
<thead>
<tr>
<th></th>
<th>SUBJECT</th>
<th>OBJECT</th>
<th>POSSESSIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SG</td>
<td>méē</td>
<td>méē/méē</td>
<td>méē/méē</td>
</tr>
<tr>
<td>2SG</td>
<td>wóó</td>
<td>wóó</td>
<td>wóó</td>
</tr>
<tr>
<td>3SG</td>
<td>ọyí</td>
<td>ọyí</td>
<td>nónw</td>
</tr>
<tr>
<td>1PL</td>
<td>eni</td>
<td>eni</td>
<td>něni</td>
</tr>
<tr>
<td>2PL</td>
<td>máāny</td>
<td>máāny/máāny</td>
<td>máāny/máāny</td>
</tr>
<tr>
<td>3PL</td>
<td>ṣáaw</td>
<td>ṣáaw/ṣáaw</td>
<td>ṣáaw/ṣáaw</td>
</tr>
</tbody>
</table>

*Table X: Degema pronouns*
(4) **Surface position of enclitics with monosyllabic object pronoun**

(a) Osoabo o=kótú=ọyí

Osoabo 3SG=call=FAC him/her

‘Osoabo called him/her’ (Kari 2004: 113)

Cf. *Osoabo o=kótú ọyí=n

(b) o=kótú wóó=n

3SG=call you=FAC

‘(S)he called you’ (Kari 2004: 276)

Cf. *o=kótú=n wó

(c) o=gídí ḃáw=tē

3SG=look.for them=PRF

‘(S)he has looked for them’ (Kari 2004: 282)

Cf. *o=gídí=tē ḃáw

Example (a) illustrates that when a verb and aspectual enclitic appears with a vowel-initial bisyllabic pronoun ọyí 3SG ‘him/her/it’ or ení 1PL ‘us’, the enclitic adjoins to the verb, which is the same position as when the enclitic appears full NPs. However, examples (b)-(c) show that if the verb appears with a consonant-initial monosyllabic pronoun, the enclitic must attach to the right edge of that pronoun, and not directly next to the verb. Other orders are ungrammatical. This is summarized in the table below. The shading indicates the pattern where the enclitic attached to pronoun rather than the verb.
I refer to monosyllabic pronouns as prosodically ‘light’, and polysyllabic pronouns and others nouns as prosodically ‘heavy’. Unlike other languages which have a light vs. heavy distinction (very common West Africa), individual pronominal values do not come in pairs where one is light and the other heavy (e.g. 1SG light *mẹn* vs. heavy *imẹn* ‘I, me’, in Ogwa Esan [ish; Edoid: Nigeria]).

### 2.3 Two clitic patterns in serial verb constructions (SVCs)

Degema serial verb constructions are defined as having more than one independent non-auxiliary verb within a single clause, having the external argument and functional verbal semantics take scope over both verbs (e.g. tense, aspect, polarity), and having no (overt) marker of linkage, coordination, or subordination appear between the verbs. Serial verb constructions often show object sharing, though this is not a canonical property in Degema.

Verbal clitics within serial verb constructions show two patterns, shown below in X.

(5) **SVC clitic patterns**

(a) Double-marking SVC pattern – Presence of intervening object
In the pattern in (a), a subject agreement proclitic appears before both verbs, and an aspectual enclitic appears after both verbs with the SVC. This pattern occurs when there is an intervening object between the two verbs. I refer to this pattern as the double-marking SVC pattern. In the second pattern in (b), a proclitic appears only before the first verb, and an enclitic appears only after the second verb; in this way the clitics ‘book-end’ the entire verbal complex. This pattern occurs when there is no intervening object. I refer to this pattern as the single-marking SVC pattern. These patterns are consistent across the corpus of Usokun Degema data available and native speaker judgments, with all SVC types, and with all verbal proclitics and enclitics.

When the two verbs form a contiguous structure in the absence of an intermediate object, it is ungrammatical to have a medial clitic between the two verbs.

(6) No double-marking in absence of intervening object
(a) Ohoso o=sóm (*o=túl=n óyi
Ohoso 3SG=be.good (*3SG=)reach=FAC him/her
‘Ohoso is as handsome as him.’ (Kari p.c. 2015.10.24)

(b) Ohoso o=yí(*=tē) kótú=té óyi
Ohoso 3SG=come(*=PRF) call=PRF him/her
‘Ohoso has come and called him’ (Kari 2003a: 285)

It is ungrammatical to have a single-marking pattern when there is an intervening object. Example X below shows the obligatoriness of intermediate clitics with an intervening object present.

(7) Ungrammatical single-marking in presence of intervening object

(a) Tatane o=kótú=* (tē) éni ọ=kpéri=tē ėnúm
Tatane 3SG=call=* (PRF) us 3SG=tell=PRF something
‘Tatane has called us and told (us) something’ (Kari 2003a: 285)

(b) Mi=dúw=n óyi *(mị)=tá=ān
1SG=follow=FE her/him *(1SG)=go=FE
‘I went with her/him’ (Kari 2015.11.02 p.c.)

(c) Tatane o=kótú=n óyi *(ŋ)=kpéri=n ėnúm
Tatane 3SG=call=FE him *(3SG)=tell=FE something
‘Tatane called him and told (him) something’ (Kari 2015.11.02 p.c.)
The single-marking pattern is obligatory regardless of the number of verbs in the sequence, shown in X below. This sentence involves a number of different verbs forming a type of complex macro-event. Here, a proclitic precedes the first verb and an enclitic the fifth verb, illustrating the systematic ‘book-ending’ of such constructions.

(8) Ohoso \( q=tá \) đẹ \( vó \) yi \( kíyé=n \) óyi

Ohoso 3SG=go buy take come give=FAC him/her

‘Ohoso went and bought (something) and brought (it) to him/her’ (Kari 2004: 121)

With respect to the distribution of inflectional material, in typological terms the single-marking pattern resembles a nuclear serial verb construction/verb compound exhibiting singular morphological inflection and surface contiguity between verbs (i.e. a ‘single complex nucleus’), while the double-marking pattern resembles a core serial verb construction with a looser relationship between the verbs (Foley & Olson 1985: 37-39, Crowley 2002; summary in Cleary-Kemp 2015: 126-129).

An interesting pattern emerges when we look at object pronouns, which were presented in Table X above. Recall that if the verb appears with a complement object pronoun which is monosyllabic, the enclitic attaches to the right edge of that pronoun, and not directly next to the verb, i.e. \( V O_o=\text{cl} \), not \( *V=\text{cl} O_o \). We can observe that within serial verb constructions, if the intervening object is such
a monosyllabic pronoun, this shows the single-marking pattern. A minimal pair is shown below in X. Example (a) shows a double-marking pattern with bisyllabic pronoun oyi ‘him/her’, but a single-marking pattern with monosyllabic me ‘me’.

(9)

(a) *Double-marking pattern with bisyllabic pronoun*

\[ \text{Mi}=\text{dúw}=\text{n} \quad \text{ọyi} \quad \text{mi}=\text{tå}=\text{ān} \]

\[ 1\text{SG}=\text{follow}=\text{FAC} \quad \text{her/him} \quad 1\text{SG}=\text{go}=\text{FAC} \]

‘I went with her/him’ (Kari 2004: 201)

(b) *Single-marking pattern with monosyllabic pronoun*

\[ \text{Breno o}=\text{dúw} \quad \text{mé} \quad \text{tå}=\text{ān} \]

\[ 3\text{SG}=\text{follow me go}=\text{FAC} \]

‘Breno went with me’ (Kari 2004: 115)

No other non-verbal element is allowed to intervene between two verbs in an SVC and allow the single-marking pattern.

There is variation in the clitic patterns with monosyllabic object pronouns, depending on the exact construction. In example (10) below, both the single-marking and double-marking pattern are acceptable here with a monosyllabic pronoun.

(10)

(a) *Single-marking*
Tatane ṣá ṭáw gbíyé=ēn
Tatane 3SG=shoot them kill=FAC
‘Tatane shot them dead’ (Ethelbert E. Kari p.c.)

(b) Double-marking
Tatane ṣá ṭáw o=gbíyé=ēn
Tatane 3SG=shoot them\FAC 3SG=kill=FAC
‘Tatane shot them dead’ (Ethelbert E. Kari p.c.)

No discernable meaning difference could be determined between these examples.

In contrast, in example X below it is not fully acceptable to ‘split’ this verbal complex into two components by having double-marking.

(11)

(a) Single-marking
Breno ṣ=tútú mé ɗí ṭáw
Breno 3SG=be.first me eat them\FAC
“Breno ate them first before me” (Kari p.c. 2015.10.24)

(b) Ungrammatical~questionable double-marking
*Breno ṣ=tútú mé=ēn o=ɗí ṭáw

[Kari p.c. comment: ‘this sounds odd’]

The exact conditions which license double-marking with monosyllabic object pronouns are not worked out at the present moment (e.g. perfect =te is emphatically rejected in (11) above). With monosyllabic objects, what is
important to note is that the dominant/‘default’ pattern is the single-marking pattern.

Finally, at the beginning of this section, I presented the range of expressions which SVCs cover which include benefactives, directional, verbal comparison, instrumentals, etc. There is no correlation between the individual type of SVC and the two clitic patterns shown above (see Kari references for many examples of the different types).

2.4 Summary of core data

This section has laid out the core data which my analysis will account for. I have shown that Degema possesses a class of subject agreement proclitics which attach to the left edge of a verb and a semantically heterogeneous group of enclitics which canonically attach to the right edge.

<table>
<thead>
<tr>
<th>BASIC VERBAL CLAUSE ELSEWHERE PATTERN</th>
<th>EXCEPTIONAL PATTERN</th>
<th>SERIAL VERB CONSTRUCTION DOUBLE-MARKING PATTERN</th>
<th>SINGLE-MARKING PATTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>CL=V=CL XP {XP ← DP/PP/CP/etc.}</td>
<td>CL=V PRON$_\sigma$=CL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CL=V=CL PRON$_\sigma$=CL</td>
<td>CL=V=CL DP CL=V=CL (XP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CL=V=CL PRON$_\sigma$=CL CL=V=CL (XP)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(CL=V PRON$_\sigma$=CL CL=V=CL) (non-dominant pattern)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CL=V PRON$_\sigma$=CL CL=V=CL (dominant pattern)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Table X*: Summary of core data

From these data, we see that with respect to inflectional clitic marking, the sequences [V PRON$_\sigma$], [V V], [V PRON$_\sigma$ V], and [V PRON$_\sigma$ V PRON$_\sigma$] have the same distribution as a single [V]. This suggests that these complex sequences form a
constituent at some level of representation which the clitics are sensitive to.

Logically, such a constituency can be syntactic, morphological, and/or phonologically, depending on which module the constituency is formed at. In what follows below, I provide a number of arguments that these sequences do not form a single syntactic constituent, but rather form a morphological constituent.

3 Syntax as insufficent to account for patterns

In this section, I discuss the role of syntax in accounting for these SVC patterns, arguing that syntactic operations alone are insufficient. I show that the double-marking and single-marking patterns do not differ with respect to the types of functional morphology/functional heads they appear with, and both can appear with the same types of verbs. Due to these properties, I view the two patterns as sharing the same underlying numeration type and sequence of syntactic operations, and call them ‘syntax-equivalent’. In other words, up to the point of syntactic spell-out these two patterns have identical derivations.

I sketch out a number of possible syntactic structures which Degema SVCs may exhibit which have been established in the literature, and adopt one involving VP complementation (Collins 1997, 2002). Under this verbal structure, it is in theory possible to derive the single-marking pattern through multiple verb movements to a higher functional projection, a position explicitly argued for in Collins (2002) to account for lHoan verb compounds. I refer to this as the ‘verb
movement hypothesis’ of single-marking SVCs. I present three arguments against the verb movement hypothesis: (1) SVCs with no surface V1 object (O1) show the single-marking pattern, (2) there is unmotivated “blocking” of head movement by O1 when present, and (3) SVCs with inter-verbal prosodically light pronouns exhibit the single-marking pattern. These facts suggest that the Degema patterns cannot be captured through syntactic operations alone under any syntax of SVCs, and require additional postsyntactic operations.

3.1 Syntax of Degema SVCs

Verb serialization is a widespread areal linguistic feature of West Africa (Dimmendaal 2001, Ameka 2005), and is said to be a defining areal feature of the ‘Macro-Sudan Belt’ (Güldemann 2009), a largescale macro-zone spread across northern Sub-Saharan Africa. In Degema, serial verb constructions are used to express a wide range of meanings including exhaustion/completion of a situation, directionals, benefactives, verbal comparison, comitatives, instrumentals, accompanimentals, refusal, simultaneousness, abilitatives, consequentials, and event coordination (see Kari 2003a for details). Resultatives and purposives are not expressed through SVCs in Degema11.

2008, Aboh 2009, a.o.), as well as typological-functional traditions (Foley & Olsen 1985, Crowley 2002, Ameka 2005, Aikhenvald 2006, Aikhenvald & Dixon 2006, Kießling 2011). Zwicky (1990) calls the SVC a ‘pretheoretical umbrella term’, and notes that they refer to numerous distinct constructions in different literatures and languages. Therefore, it is most likely that a ‘SVC language’ such as Degema contains more than one syntactic structure which correspond to different SVC types.

Superficially, single- and double-marking SVC patterns appear distinct enough to warrant distinct verbal syntax. However, there is no evidence that they have drastically different numerations or are subject to different syntactic operations or orders of operations. For example, both patterns involve the same types of functional material and the same verbal categories are subject to both patterns. For example, (12)a below shows that the SVC som tul ‘be good as’ (good reach) appears with a double-marking pattern if the cognate object úsī ‘beauty’ is present, while (12)b shows that a single-marking pattern is found if this object is absent.

(12) SVC clitic patterns

(a) \[ O=s\dot{\text{o}}m=n \quad \ddot{\text{u}}s\dot{\text{i}} \quad o=t\dot{\text{u}}l \quad w\dot{\text{o}}=\ddot{\text{o}}n \]
\[ 3\text{SG}=\text{be.good}=\text{FAC} \quad \text{beauty} \quad 3\text{SG}=\text{reach} \quad \text{you}=\text{FAC} \]
‘He is as handsome as you.’ (Kari 2004:157)
Further, no grammatical structure has been found which co-occurs only with single-marking or double-marking, e.g. a particular tense, aspect, mood, or polarity value, a particular phi-feature on a subject, transitivity on the verb, SVC expression type, etc. In this way, these two structures are ‘syntax-equivalent’, and have identical derivations up to the point of syntactic spell-out.

There are a number of different proposals of SVC syntax in the theoretical literature which Degema SVCs may correspond to. One is Baker (1989) involving a ternary structure $[V1P[V1\ V1^o\ DP\ V2']]$ in which the object is simultaneously an argument of both $V1$ and $V2$, which results in a ‘double-headed’ structure, and whose main motivation was to capture internal argument sharing between verbs. In later work on SVCs in Dágáárè [dga; Gur: Ghana], Hiraiwa & Bodomo (2008) pick up on this insight regarding object sharing and formalize it using Parallel Merge (Citko 2005) where the object is ‘shared’ between the two lexical verbs, satisfying their c-selectional properties. This is shown in Figure X below.
In contrast to these proposals, Collins (1997, 2002) does not involve direct object sharing between the two verbs, shown in Figure X.

In this structure, the verbs are not ‘parallel’ in any way, and exhibit a more conservative structure involving a nested VP. In order to license multiple verbs under a single set of verbal projections which are not within coordinate or subordinate structures, Collins posits a ‘Serialization Parameter’, which states that a functional head I°/T° can license multiple Vs (Collins 1997: 493), or an
alternative in which little $v^o$ can license multiple Vs (Collins 2002: 8). Collins (2002: 27) says specifically that $V_2P$ can denote a direction, a benefactive, or a result, but cannot denote an event which is simultaneous with or consecutive to the event denoted by $V_1P$. This makes a formal distinction between ‘true’ SVCs and merely multi-event constructions better understood as covert coordination.

Still another proposal to capture SVC structure involves adjunction, e.g. Baker & Stewart (2002) argue that resultatives are complements, while consequential and purposive SVCs are adjoined. See Cleary-Kemp (2015) for a summary on adjunction proposals (and all other proposals).

For Degema SVCs, I adopt a proposal akin to Collins (1997, 2002) involving nested VP shells (a VP complementation SVC structure – Cleary-Kemp 2015). The order of heads in the verbal spine is given in (13).

(13) \[ Asp > v_1 > V_1 > v_2 > V_2 \]

Each lexical verb is associated with a functional little $v$ head, but higher level functional heads such as Asp take scope over both $v$Ps. Asp is structurally higher than the $v$ domains and in fact is the licensor of verb serialization in the same way that functional projections $I^0/T^0$ license verb serialization in Collins (1997) (under the assumption that ‘multiple licensing’ is permitted in grammar - Collins 1997: 494).

This structure captures the fact that verbal functional categories take scope over each verb by having only one set of functional projections above the verb, a
fundamental tenet of most analyses of SVCs (however, see aspect under Hiraiwa & Bodomo 2008, discussed below). In this way, these theories are able to capture the robust typological property that verbs in serial verb constructions ‘share’ core grammatical properties such as polarity, irrealis, mood, tense, aspect, subject agreement (Aikhenvald 2006) (although some typological studies of SVCs explicitly reject such functional category sharing as a core property of SVCs - Ameka 2005: 5, 15; Cleary-Kemp 2015: 102).

A syntactic tree is provided in Figure X.

*Figure X: Degema SVC Syntax*
I follow recent work in the syntax/morphology interface (Embick & Noyer 2007, Kramer 2010, Norris 2014, a.o.) that Agr features are inserted post-syntactically, and therefore no subject agreement (Agr) projections appear in the syntax which correspond to the subject agreement proclitics (this position is discussed at length in Section 4). Further, standard positions of subjects and objects are assumed in this structure. I abstract away from the element within spec,v2P, which I have designated with neutral e.$^{13}$

In the tree above, the head of Asp branches to the left despite the fact that it always appears after the verb it cliticizes to. One alternative to capture the (V-Asp) word order facts is to adopt that the Asp head actually branches to the right. However, under this scenario we would have to assume that all post-verbal material right-dislocates around Asp, which we do not have independent evidence for. Further, not all material right dislocates, e.g. monosyllabic pronouns would not right-dislocate as in ex. (9)(b) above (which present problems for any syntactic account – see Section 3.4.4 below).

Moreover, I adopt that Asp is high and not low, i.e. it is above $v$ rather than below it. Hiraiwa & Bodomo (2008) argue that Asp is low, with an order [$v >$ Foc $>$ Asp $>$ V] with Asp parallelism, where Asp expresses at least the aspectual category ‘imperfective’. This order and parallelism captures the obligatory repetition of aspectual suffixal morphology on each V in an SVC, unlike other functional projections which do not repeat, and are not suffixal. As will be shown,
I account for the double-marking pattern through post-syntactic operations only, and therefore lower Asp is not motivated. Further, the semantic categories which Asp expresses in Degema, namely perfect and ‘factative’ (roughly, perfective with eventive verbs and imperfective/perfect inchoative with stative verbs) are not canonical cases of inner aspect types (e.g. in terms of aktionsart, semantic interaction with internal argument definiteness/mass-count value, telicity, etc.).

Further, we are claiming here that serialization takes place with at the level of little $v$. One alternative would be that serialization takes place at the level of Asp, wherein there would be a separate Asp head above $V_2P$ which is identical to that above $V1P$. These two possibilities are presented in below.

(14)

(a) $v$-Serialization: One Asp head

\[ [\text{Asp }P \ldots [v^{-1}P \ldots [V^{-1}P \ldots [v^{-2}P \ldots [V^{-2}P \ldots] \ldots] \ldots] \]

(b) Asp-Serialization: Two Asp heads

\[ [\text{Asp }^{-1}P \ldots [v^{-1}P \ldots [V^{-1}P \ldots [\text{Asp }^{-2}P \ldots [v^{-2}P \ldots [V^{-2}P \ldots] \ldots] \ldots] \]

I reject this position because Asp, being a functional category, takes scope over both verbs, and the two values are identical. This is seen by the fact that the clitics are identical in the double-marking pattern. However, one important complication exists: a SVC which expresses multiple sequential events as in (15). Here, when both verbs express past tense, they are marked with the same
proclitics and enclitics (a), while when V2 expresses present tense, they are marked with different proclitics and enclitics (b).

(15)  
(a) Tatane o=kótú=ŋ òyi o=kpéři=ŋ ònúm  
   Tatane 3SG=call=FAC him 3SG=tell=FAC something  
   ‘Tatane called him and told (him) something’ (Kari 2003a: 285)  
(b) Osoabo o=kótú=ŋ òyi mó=kpéři ònúm  
   Osoabo 3SG=call=FAC him 3SG=tell something  
   ‘Osoabo called him and is telling (him) something.’ (Kari 2004: 113)  

These data suggest that such constructions are instances of covert coordination, which may not necessarily share the same SVC structure as non-coordinated structures (however, data from extraction suggests that neither VP is an island for Ā-movement)15.  

An interesting pattern emerges when these verbs are adjacent. When verbs under covert coordination express the same aspectual-temporal value and no intervening element is present, they too exhibit the single-marking pattern, shown in (16) (repeated from example X above).
(16) Ohoso ọ=tá Ṇ̣ vọ ọ́ yí ọ́ kiyẹ=n ọ́yi

Ohoso 3SG=go buy take come give=FAC him/her

‘Ohoso went and bought (something) and brought (it) to him/her’ (Kari 2004: 121)

To capture this parallel, I therefore assume that the structure of covert coordination when the aspectual value is the same involves v-level serialization, entailing that like in non-coordinate SVCs there is only one Asp head. In covert coordination when the aspectual value is different, structural differences can appear at or above the Asp head, and exhibit Asp-serialization (or other types of serialization).16 17

One advantage of the analysis adopted here involving VP complementation is that it avoids some of the difficulties present in the additional analyses in Baker and Hiraiwa & Bodomo. For example, it is unclear what the ontological status of Baker’s (1989) ‘double-headedness’ structure is under current Minimalist assumptions in which more than one head terminate the same phrase in the absence of head movement. Further, although the parallel merge variety is able to capture syntactic constituency of an internal argument with more than one verb simultaneously, there is no positive evidence in favor of it in Degema, e.g. there is no evidence of similar clefting facts in Degema which Hiraiwa & Bodomo discuss (though has yet to be systematically analyzed).18 Moreover, a major motivation for Baker and Hiraiwa & Bodomo is internal argument sharing, which is not a
definitional property of Degema SVCs, nor the two clitic patterns (see also Aboh 2009 for a similar position). For example, in example (14) there is no evidence for internal argument sharing between the two verbs *ụtụ* ‘to be first (before)’ and *дж* ‘to eat’, which together show the book-ending pattern because they appear with prosodically light pronouns.

(17) \[ \text{Breno} \quad ụ=tútú \quad mé \quad đị \quad ṣáw \]

*3SG* =be.first me eat them~FAC

“Breno ate them first before me” (Kari p.c. 2015.10.24)

### 3.2 Against verb movement

I have argued in favor of VP complementation as the syntactic structure of Degema SVCs. Regardless of which analysis best captures the facts, none of them can account for the patterns with clitics in SVCs by themselves. Under a purely syntactic account, the pattern which would require particular explanation is the single-marking pattern: *cl=V (pron\(_{a}\)) V=cl*. This single-marking pattern superficially resembles verb compounds, which canonically show contiguity between the verbs, and a single set of inflectional markers (typologically, they resemble ‘nuclear’ SVCs rather than ‘core’ SVCs – Foley & Olson 1985). An example of a resultative verb compound from the geographically proximate and genetically related language Igbo [ibo; Benue-Congo: Nigeria] is provided in (18). Like in the Degema cases, this example shows only one inflectional tense affix *-ru* which takes scope over both verbs.
Within the typological literature, the similarity between verb compounds and verb serialization has been widely recognized (Lord 1975, Margetts 1999: 101, Crowley 2002: 18, Aikhenvald 2006, a.o.), with Aikhenvald going the furthest advancing ‘a general typological framework which encompasses multi-word and one-word SVCs [which] helps breach the artificial (and unhelpful) terminological gap’ between the two types (Aikhenvald 2006: 38).

This similarity is formalized in Collins (2002)’s analysis of SVCs inǂHoan [huc; Kxa: Botswana], which show a single aspect marker, contiguity between the two verbs, and a clustering of the verbs before the objects, e.g. an order [V1 V2 O1 O2] with two transitive verbs, as below.

(19) Ma a- qǁhu |’o djo ki kx’u na
1SG PROG pour put.in water PART pot in

‘I am pouring water into the pot.’ (ǂHoan; Collins 2002: 1)

He argues for a [v > V1 > V2] structure involving standard head-to-head movement of V1 to v, forming a complex v°. I refer to this as a ‘verb movement hypothesis’. Collins assumes a Minimal Link Condition which causes V1 to adjoin to v° first, but additionally assumes that v is specified as [+multiple] in which all verbs must adjoin to v°, including the lower V2. This V2 “tucks in” by
attaching to v° after V1 is already adjoined, resulting in a verb compound under a
single terminal head (see Collins 2002: 11 for details). The key insight of this
theory is that the core difference between verb compounds and verb serialization
is a parametric difference between verbs in series which show verb head
movement, and those which do not.

The VP complementation analysis therefore gives us the best chance of
success to account for the Degema patterns through syntactic operations such as
head-movement alone under the verb movement hypothesis. A head movement
analysis would also be required for a double-head/parallel merge analysis, as
well). Despite surface similarities between Degema single-marking patterns and
verb compounds, I argue that Degema verbs do not undergo head movement and
that this cannot be invoked to explain the single-marking pattern, providing three
arguments below.

3.2.1 Argument 1: Phonologically null objects show single-marking pattern

The first argument is that phonologically null objects of V1 show the single-
marking pattern. We have already established above that there are no semantic
differences between the single- and double-marking pattern: all SVC types may
show either pattern, depending on the surface order of nouns and verbs. This
motivated a uniform syntax of the two patterns. It is conceivable that there is a
lurking syntactic difference between single- and double-marking patterns, e.g.
involving a different syntax associated with intransitive verbs in V1 vs. transitive
verbs in this position. If this were the case, we might expect for these patterns to be stable in the absence of an intervening object. This is in particularly expected under a Copy Theory of Movement (Nunes 1995), where lower ‘traces’ of moved items are in fact present in the syntax, but deleted at spell-out within the Phonological Form interface. I show below that this is not the case.

For example, Degema displays Ā-movement for wh-questions and focus (A-movement relevant to this study does not exist). Degema allows both wh-in-situ, and wh-ex-situ involving the wh-word dislocated to the left periphery in a cleft structure, shown below.

(20) Wh-patterns in SVCs
(a) Wh-in situ – Double-marking pattern
   Mi=ðúw=n óvo mj=tá=an ?
   1SG=follow=FAC who 1SG=go=FAC
   ‘I went with who?’ (Kari p.c., 2015.08.24)
(b) Wh-ex-situ – Single-marking pattern
   Ovô_i nú mi=ðúw ovô_i tá=ān
   who that 1SG=follow who go=FAC
   ‘Who did I go with?’ (Kari p.c.)
(c) Wh-ex-situ – Ungrammatical double-marking pattern

*Ovói nú mi=ðúw ovói mi=tá=ān

who that 1SG=follow\FAC who 1SG=go=FAC

Intended ‘Who did I go with?’ (Kari p.c.)

Example (a) shows a wh-in-situ pattern. Because the wh-object intervenes between the two verbs, it is marked with the double-marking pattern, as expected. In contrast, when there is wh-ex-situ involving a cleft, only the single-marking pattern is allowed, as the two verbs are adjacent to one another (b). The double-marking pattern is ungrammatical (c). This same pattern is seen in focus constructions and relativized clauses, which shows a uniform single-marking pattern.

(21) Focus – Single-marking pattern

kú óyi nú mi=ðúw Ø tá=ān

not her/him that 1SG=follow go=FAC

‘It was not her/him that I went with’ (E.E. Kari 2015.10.24 p.c.)

(22) Relativization

(a) owéy nú mi=ðúw Ø tá=tē

person that 1SG=follow go=PRF

“the person whom I have gone with” (Kari 2015.10.24 p.c.)

Cf. *owéy nú mi=ðúw=te Ø mí=tá=tē
Further, when an argument can be recovered from context, it can undergo discourse-licensed object drop. For example in X below, the transitive verbs dẹ ‘buy’ and vọ ‘take’ do not appear with any overt object, and the intended meaning is recovered from context. In this situation, the single-marking pattern also occurs.

(23) **Object drop - Single-marking pattern**

Ohoso ọ=tá dẹ vọ yí kiyé=n óyi

Ohoso 3SG=go buy take come give=FAC her/him

‘Ohoso went and bought (something) and brought (it) to her/him.’ (Kari 2004: 121)

From these data, we see further evidence that the distribution between single- and double-marking is sensitive to the surface order of elements.

3.2.2 **Argument 2: Unmotivated “blocking” of head movement by O1**

Recall that the single-marking pattern only occurs in Degema if the two verbs are surface-adjacent. For the most part, this consists of an intransitive verb, followed by another verb, either transitive or intransitive. It does not occur if the first verb is transitive followed by an intervening (prosodically heavy) object. Under a Collins type account where v° has a [+multiple] feature which triggers multiple V head movement, then we expect all instances of V2 to adjoin to v, e.g. in example
(23) above in which theǂHoan transitive verbs /qǁhu/ ‘to pour’ and /|’o/ ‘to put in’ formed a single verbal complex. In Figure X above presenting Degema SVC syntax, the object of V1 is in spec,V1P. It is unclear how the presence of an object in this specifier position could act as a syntactic blocker for movement of V₂°. The data below in (X)-(X) illustrate the ungrammaticality of moving V2 when there is an intervening object.

(24)  

Transitive + intransitive

(a) Breno o=d̩úw mé tã=ān

Breno 3SG=follow me go=FAC

‘Breno went with me.’ (Kari 2004:115)

Cf. *Breno o=d̩úw tá̩ mé=ēn tạ̃ (Kari p.c.)

(b) Transitive + transitive (sharing internal argument)

Jzakume ọ́=tam ̣d̩iyom ̣d̩ony

Jzakume NEG\3SG=chew food 3SG=swallow

‘Jzakume did not chew food (and did not) swallow’ (Kari 2003a: 278)

Cf. *Jzakume ọ́=tam ̣d̩ony ̣d̩iyom ̣d̩ony (Kari p.c.)

In verb compounding languages other than ǂHoan within which one could extend the head movement analysis, the presence of an object also does not block verb compounding, e.g. African languages Ju\’hoan [ktz; Kxa: Botswana/Namibia] (Collins 2002), Khwe [xuu; Khuo-Kwadi: Zambia] (Kilian-
Hatz 2006), Igbo (Lord 1975), Isu [isu; Grassfields Bantoid: Cameroon] (Kießling 2011), and non-African languages Toqabaqita [mlu; Oceanic: Solomon Islands] (Lichtenberk 2006, 2008), and Eastern Kayah Li [eky; Karen: Burma] (Solnit 2006). Because V2 does not undergo head movement in these cases where a head movement analysis predicts they should, this casts doubt on this being a viable analysis for the Degema facts.19

3.2.3 Argument 3: Prosodically light pronouns show single-marking

A third argument against V2 head movement involves prosodically light pronouns. Recall that although objects generally block the single-marking SVC pattern, intervening prosodically light pronouns allow it (and under unclear conditions, it allows both the single-marking and double-marking structure, shown in (x)-(x) above).

(25) Monosyllable object mé ‘me’ – Single-marking pattern

Breno o=ðúw mé tá=ān

Breno 3SG=follow me go=FAC

‘Breno went with me’ (Kari 2004:115)

If there were true V2 movement to form a complex head with V1, then these facts above would also entail that monosyllabic pronouns also underwent movement to form this head-constituent, a type of pronoun incorporation. Although pronominal incorporation of object pronouns has clear precedence (Bresnan & Mchombo 1987, Baker & Hale 1990), evidence exists against the viability of it for Degema.
First, it is not clear here how the syntactic trigger would only target those prosodically light pronouns to undergo this type of incorporation. If pronoun incorporation were due to a strong feature which must be checked only locally and therefore results in internal merge, this would be a feature of v/V. However, this strong feature would only be present in the context of monosyllabic/prosodically light pronouns. Assuming that the syntax would not have access to phonological information at this point, this variable incorporation results in a ‘Look-Ahead’ problem (I dismiss a Filter theory in Section 4.3 below). Moreover, recall that the prosodically light pronouns do not form any natural class either with respect to their feature makeup: prosodically light pronouns are 1SG, 2SG, 2PL, and 3PL, while heavy pronouns are 3SG and 1PL (see Table X above). If this feature triggering movement was located on the D pronoun itself, it would still remain coincidental that these also happen to be the prosodically light pronouns in the language.

Further, monosyllabic pronouns and bisyllabic pronouns do not exhibit different syntactic behavior which would to warrant different syntactic representations, e.g. monosyllabic object pronouns do not behave like syntactically incorporated pronouns such as being subject to Ā-movements in a left edge cleft:
(26) *Extraction of monosyllabic object pronouns*

(a) Wó̩ o ̩ =món ̩ mé̩ =ēn

you 2SG=see me=FAC

‘You saw me.’ (Kari 2004: 164)

(b) O=yí=n ̩ mé̩ _i_ nú ̩ w̩ o ̩ u=móōn ̩ me_i

3SG=be=FAC me that you 2SG=see\FAC me

‘It was I who you saw’ (Kari 2004: 164)

(c) o=méné ̩ w̩ ò̩ =n ̩ imo

3SG=do you=FAC what

‘What did s/he do to you (sg)?’ (Kari 2002d: 188)

(d) w̩ ò̩ i nú o=méné=n w̩ ò̩ i imo ?

you that 3SG=do=FAC you what

‘It’s you (sg.) that s/he did what to?’ (Kari 2002d: 188)

If the pronoun is internally merged with a verb via head-to-head movement, and then subsequently moved out of that complex, this would be a type of ‘excorporation’ (Roberts 1991, 2011). Julien (2002: 67-87) argues against the theoretical possibility of excorporation, and summarizes a number of different authors who have argued explicitly against excorporation (Baker 1988: 73, Lieber 1992: 146, Kayne 1994). See further arguments in Matushansky (2006). Roberts in fact notes that there exist possible alternatives to analyzing excorporation data (2011: 201)?
Finally, monosyllabic pronouns can be modified by quantifiers, such as kíre ‘all’, e.g. báw kíre ‘all of them’, a distribution which mirrors other nouns/pronouns. When such a quantified pronoun appears in object position, the enclitic follows the pronoun, shown below.

(27) mĩ=món báw=tē kíre

1SG=see them=PRF all

‘I have seen them all/all of them’ (Kari p.c. 2015.10.24)

Cf. *mĩ=món=tē báw kíre

Here, kíre would presumably head a QP phrase which the D head báw ‘them’ would be within. Although it is not impossible to derive this order through head movement, head movement out of a QP is presumably not a canonical property of pronoun incorporation.²¹,²²

Therefore, in order to maintain syntactic operations which are not sensitive to phonological information, these data involving prosodically light pronouns motivate an analysis which does not involve verb movement.

3.2.4 Lack of evidence for verb movement generally

As a final note, it is difficult to find positive evidence for any verb movement outside of SVCs generally. For example, diagnostics involving adverbials are not possible because Degema does not have pre-verbal adverbials (such pre-verbal ‘adverbial’ modification is accomplished through serial verb constructions, or auxiliaries), and sentential negation is expressed tonally. Further, VP ellipsis
licensed by a higher functional head does not exist in Degema. For example, in response to a question involving an auxiliary and a verb, when one responds in the affirmative the object may drop but both the auxiliary and verb must be used; using only the auxiliary is ungrammatical. [More patterns are found in this endnote: 23]

\((28)\)

(a) Ō=kú ṣból Ṣkpoki néni ?

Q3SG=EMP.PST.AUX hold=FAC money our

‘Did she (indeed) hold our money?’ (Kari 2015.10.24 p.c.)

(b) íín, Ō=kú ṣból a

yes 3SG=EMP.PST.AUX hold NPM(?)

‘Yes, she did.’ (Kari 2015.10.24 p.c.)

Cf. Ungrammatical *Ō=kú.

Therefore, I maintain as our null hypothesis that there is no movement to a functional position in the VP spine higher than v.

3.3 Summary

This section has discussed the role of syntax in accounting for these SVC patterns, arguing that syntactic operations alone are insufficient. I showed that the double-marking and single-marking patterns do not differ with respect to the types of functional morphology/functional heads they appear with, and both can appear
with the same types of verbs. Due to these properties, I viewed the two patterns as ‘syntax-equivalent’.

I sketched out a number of possible syntactic structures which Degema SVCs may exhibit which have been established in the literature, and adopt one involving VP complementation (nested VP shells) (Collins 1997, 2002). Under this verbal structure, it is in theory possible to derive the single-marking pattern through multiple verb movements to a higher functional projection, a position explicitly argued for in Collins (2002) to account for Hoan verb compounds. I refer to this as the ‘verb movement hypothesis’ of single-marking SVCs. I presented three arguments against the verb movement hypothesis: (1) SVCs with no surface V1 object (O1) show the single-marking pattern, (2) there is unmotivated “blocking” of head movement by O1 when present, and (3) SVCs with inter-verbally prosodically light pronouns exhibit the single-marking pattern. These facts suggest that the Degema patterns cannot be captured through syntactic operations alone under any syntax of SVCs.

4 Postsyntactic Operations, Verbs, and Clitics

In light of the fact that syntactic operations cannot wholly account for these data, we are therefore left with the following questions: (1) how do we account for the two SVC patterns with inflectional clitics without reference to syntax, (2) why are these patterns conditioned by the contiguity of the verbs, and (3) why do
prosodically light pronouns allow the single-marking pattern? I repeat the core facts of these patterns below.

<table>
<thead>
<tr>
<th>SERIAL VERB CONSTRUCTIONS</th>
<th>DOUBLE-MARKING PATTERN</th>
<th>SINGLE-MARKING PATTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>CL=[[V]]=CL DP CL=[[V]]=CL</td>
<td>CL=[[V \ V]]=CL</td>
<td></td>
</tr>
<tr>
<td>CL=[[V]]=CL PRON_{σ} CL=[[V]]=CL</td>
<td>CL=[[V \ PRON_{σ} \ V]]=CL</td>
<td></td>
</tr>
<tr>
<td>CL=[[V \ PRON_{σ} \ V \ PRON_{σ}]]=CL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table X: Clitics within SVCs

In what follows, the central intuition I attempt to capture is that both the single-marking and the double-marking patterns are responses to a MORPHOLOGICAL WELL-FORMEDNESS CONDITION which states that finite verbs be properly morphologically ‘marked’ at the surface, and in this way the two patterns form a CONSPIRACY. I use operations from Distributed Morphology framed in an Optimality Theory framework modeling operations in competition to derive the two patterns, showing they emerge from the same constraint ranking. The single-marking pattern exhibit what I term ‘morphological’ verb compound constituents. I support their constituency with evidence from the distribution of grammatical tone.

4.1 Analysis of Degema: Post-syntactic operations in competition

place after syntax (a strong non-Lexicalist view), and that morphology is in effect
the interface between syntax and PF.

Figure X: Distributed Morphology & Minimalism (Embick & Noyer 2007: 292)

Distributed morphology maintains that syntax is built up of syntactic feature
bundles and roots which are subject to Merge and Move (as well as notions such
as c-command). At the transference to the PF interface, these features are ‘filled
in’ with Vocabulary Items, which are largely equivalent to morphemes as
traditionally understood.

Two Distributed Morphology Operations play a role in my analysis: LOCAL
DISLOCATION (LD) and DISSOCIATED INSERTION (DI). Local Dislocation is a
merger operation of two elements into one, which operates ‘in terms of linear
adjacency’ (Embick & Noyer 2001: 561). If two separate constituents α and β are
linearly adjacent (notated with *) they may be converted into a single constituent
(notated with +): α * β → α+β / β+α. Informally, this operation converts two
adjacent otherwise independent words into an affixal relationship. Example X
provides an example commonly cited in the literature involving the Latin conjunct
clitic = *que* which attaches to the right edge of the first word of the second conjunct.

(29) *Local dislocation:* *(que)**(barbaris)*… → *(barbaris+que)*…

\[
\text{[cum hac et praetoria cohorte cetratorum]}
\]

with this-ABL and official-ABL escort-ABL escort-ABL caetratus-GEN

\[
\text{[barbaris=que equitibus paucis]}
\]

barbarian-ABL.PL=and cavalry-ABL.PL few-ABL.PL

‘[with these and his official retinue of lightly-armed troops] [and a few barbarian cavalry-men]’ (Embick 2006: 5)

The other key morphological operation is Dissociated Insertion. Embick & Noyer (2007: 305-310) discuss the insertion of dissociated material at spell-out, which they understood as two types: dissociated feature insertion and dissociated node insertion. I collapse both of these categories referring to them as dissociated material. Dissociated material can be what Embick & Noyer term ‘Ornamental’ morphology, which canonically includes agreement morphology, and also m-case morphology (Bobaljik 2008). An example is from Latin below.

(30) *Latin insertion of ‘ornamental’ morphology*

\[
\text{laudābāmus}
\]

\[
\text{laud-ā-bā-mus}
\]

root-\text{TH-TNS-AGR}

‘We were praising’
Here, they claim that the morphemes –ā- (a theme vowel) and –mus (an agreement morpheme) are inserted in the transference to PF based on specific language-specific rules, and do not expone any syntactic heads *per se*. This dissociated material insertion crucially relies on a concept of ‘Feature Copying’, which is defined below (Embick & Noyer 2007: 309):

\[(31)\] **Feature Copying**

A feature is present on a node *X* in the narrow syntax is copied onto another node *Y* at PF.

I claim that in Degema, these two operations can account for the clitic distribution facts. I illustrate the derivation of Degema SVCs with the following three patterns, which I hereafter refer to as [V V], [V Dσ V], and [V Dσσ V] respectively as a shorthand (*Dσ* = a monosyllabic pronoun, *Dσσ* = noun/noun phrase or bisyllabic pronoun), shown below.

\[(32)\]

(a) **[V V] - Single-marking pattern**

Ohoso o=sóm  tǔl=ṇ  őyi

Ohoso 3SG=be.good  reach=FAC  him

‘Ohoso is as handsome as him.’ (Kari 2004:156)
The local dislocation operation is employed in the following cases: (1) when a verb is adjacent to a prosodically light pronoun, (2) when two verbs are adjacent, and (3) when a deficient aspectual marker (the factative and perfect enclitic) is surface adjacent to a verb.

(33) Local dislocation in Degema

(a) \((V)^*(D_o) \rightarrow (V+D_o)\)  Example (c): \((tul)^*(wo) \rightarrow (tul+wo)\)

(b) \((V1)^*(V2) \rightarrow (V1+V2)\)  Example (a): \((som)^*(tul) \rightarrow (som+tul)\)

(c) \((asp)^*(V) \rightarrow (V+asp)\)  Example (c): \((n)^*(som) \rightarrow (som+n)\)

In these cases, if these two configurations are present after linearization takes place, local dislocation takes place in which two formally independent terminal syntactic nodes, i.e. independent morphological words (MWds), are merged into a single constituent, i.e. a complex morphological word. In this way, they form a type of ‘morphological’ post-syntactic constituent, which have the same
distribution of other morphological constituents. In (a)-(b), local dislocation takes place but does not re-order the two elements. Having local dislocation here accounts for the fact that sequences of \((V+D\sigma)\) and \((V1+V2)\) have the same exact distribution as verbs with respect to clitic placement. In effect, local dislocation can result in a \(V+V\) ‘compound’ in a *morphological* sense, not a syntactic sense (i.e. they are *not* located under a single syntactic terminal head). Further, local dislocation in (c) involving the asp head and the verb accounts for the fact that even though the verb does not undergo syntactic head movement to internally merge with the Asp head, they appear as one morphological constituent. Critically local dislocation must take in a specific order in order to get the correct clitic placement: \(V+D\sigma > V1+V2 > \text{asp} + V\).

Further, the operation of dissociated insertion takes place in these examples as well. In these examples, the agreement marker proclitic expones subject agreement and is inserted post-syntactically in all three examples. This is inserted only before a single morphological word which contains a verb. Therefore, in (35) (a)-(b), the verbs form a single morphological MWd and only one subject agreement AGR node appears. In contrast, in (c) the two verbs do not form separated MWds, and an AGR node appears on each verb. Superficially, the exact same facts hold for aspect marking: one aspect marking when the verbs form one MWd, but two when they form separate MWds. However, in an example like (c) with double-marking, I view the first enclitic on
V1 to be the exponent of the syntactic Asp terminal, and the second enclitic on V2 to be the insertion of an Asp ‘agreement’ node, exhibiting aspect concord. Both of these have the exact same features, and consequently both are exponed by the same Vocabulary Items (subject to phonologically conditioned allomorphy). This ‘splitting’ of different morphosyntactic origins of identical concord morphemes has precedence in Amharic definiteness marking [amh; Semitic: Ethiopia] (Kramer 2010). Example (48) below shows ‘definiteness agreement’.

Kramer argues that the first instance of –u is the exponent of D° (undergoing local dislocation), whereas the second –u is the exponent of a post-syntactically inserted Agr feature which is valued through copy featuring (this latter exponent is optional).

(34) tillik’-u t’ik’ur(-u) bet

    big-DEF black-DEF house

‘the big black house’ (Kramer 2010: 229)

An analogous situation holds here regarding the latter Asp head for Degema, illustrating a type of ‘aspect’ concord. This results in a situation in which on V2, there are two agreement nodes: one for subject agreement, and one for aspect agreement (see Kramer 2010: 229 for a similar discussion of the Amharic facts regarding multiple Agr nodes). Dissociated material insertion captures the fact that features which realize agreement or concord processes are not semantically meaningful (a least in a truth-conditional sense).
We see from this analysis that local dislocation and dissociated agr-insertion interact, e.g. local dislocation ‘bleeds’ agr-insertion. This is problematic under many conceptualizations of post-syntactic derivation. For example, Trommer (2001), Embick (2006), Embick & Noyer (2007) propose the following order of operations: (1) Dissociated insertion + feature copying (e.g. Agr nodes) > (2) vocabulary insertion > (3) local dislocation. The problem with this scenario is seen with the [V V] sequences, which show a single-marking pattern.

(35) Problem in deriving [V V] sequences

(a) Syntax …[v+V] [v+V]…
(b) Agr-Insertion …[AgrSbj+v+V] [AgrSbj+v+V+AgrAsp]…
(c) Vocab. Ins. (cl+/V/)*(cl+/V/+cl)
(d) Local Disl. (cl)*(cl+/V/)*(cl+/V/+cl) →
   (cl+/V/+cl) (cl+/V/+cl)
(e) Expected: *o=só×m o=túl=n  Double-marking pattern
(f) Actual: o=só×m túl=n  Single-marking pattern

Thus, assuming the uniform syntax argued for above, this order of operations predicts that agr-insertion should precede local dislocation in all cases, and would predict that all SVCs should appear with a double-marking pattern, which is incorrect.

One way to save this ordering account of morphological rules (which I do not adopt) is to say that these operations take place cyclically. Thus, at an initial level
of morphological rules, \([v+V \ v+V]\) is spelled out and subsequently undergoes local dislocation resulting in \((V)*(V) \rightarrow (V+V)\). This is problematic for two reasons. First, it is not only \((V)*(V)\) sequences which undergo this type of dislocation, but also \((V+D)*(V)\) and \((V+D)*(V+D)\) sequences as well. Second, unlike with the prosodically driven local dislocation discussed above with the \(V\ D\sigma\) sequences, neither of the participating MWds is prosodically deficient or has clear alignment conditions causing left or right adjacency with a host. Therefore, it is unclear what actually licenses local dislocation in this case other than the adjacency relation itself.

In contrast, I advocate for a slightly different analysis here, couched in an Optimality Theory (OT; Prince & Smolensky 1993, Kager 1999). I assume that morphological operations of local dislocation and dissociated Agr node insertion are in competition, and their outputs are evaluated in a larger candidate set. My main motivation for this unconventional view (from a DM perspective\(^25\)) is that I see the Degema facts as forming a CONSPIRACY. It is clear from the double-marking pattern that verbs must be marked with a subject agreement proclitic and aspectual enclitic if the features it expones are present in the syntax. Further, if two verbs undergo local dislocation under adjacency, it allows V2 to be in a morphological word which is likewise marked with these clitics.

I do not view this as a coincidence, but as rather view this as a MIMPHOLOGICAL WELL-FORMEDNESS CONDITION (MWC) the driving force
behind both dissociated Agr node insertion and local dislocation. I define this
Morphological Well-Formedness Condition as follows:

(36) Morphological Well-Formedness Condition (MWC)– Degema Verbs

Verbs appear in a MWd marked with both subject agreement and aspect
(subject to input syntactic features)

If a verb can locally dislocate to satisfy this condition, it does so, avoiding the
need for unnecessary dissociated node insertion. If however local dislocation is
not ‘allowed’, dissociated node insertion takes place. In this way, the double-
marking pattern represents a ‘repair’ when a single-marking pattern is not
possible. Thus, Degema exhibits two types of local dislocation: ‘prosodically
driven local dislocation’ for \([V \, D_\sigma]\) sequences, and ‘morphologically driven local
dislocation’ for \([V \, V]\) sequences, satisfying the MWC for verbs stated above.

Although this MWC is arbitrary, such conditions reappear frequently in
grammars, and it is difficult to understand such conditions in language as
anything but arbitrary. In particular they play a role in language description (e.g.
in reference grammars), but they also play a role in formal analyses. Halle &
Marantz (1993: 137) note ‘it is a morphological fact about the English Tns
morpheme that is requires a V to make a well-formed MS word’ \([=\text{MWd}]\).

Further, Embick & Noyer (2007: 320) illustrate that local dislocation of Subwords
in Huave occurs with the reflexive suffix \(-ay\) in order to meet a well-formedness
condition that \(-ay\) appear ‘directly before the final inflectional affix of a verb, if
Further cases which can be understood with MWCs are arbitrary/templatic affix orders which cannot be captured through relevancy (Bybee 1985) or scope (Rice 2000), Bigram Morphotactic Constraints (Ryan 2010), word internal affix doubling, e.g. reciprocal in Chichewa [nya; Bantu: Malawi] (Hyman 2002: 11), or the Latin ‘ornamental morphology’ introduced above involving thematic vowels and agreement markers. In the absence of deriving all surface structure from syntax (very likely impossible), and in the absence of reducing all post-syntactic operations adjusting structure to being prosodically optimizing (also not viable), MWCs are required in a derivation to account for a significant body of observations, and Degema presents strong evidence for their positive ontological status.

I propose that morphological operations take place cyclically (similar to Stratal OT – Kiparsky 2000, Bermúdez-Otero 2012). These cycles are associated with specific layers of structure within a sentence. I use the term layer here in order to not invoke any theoretical commitments which accompany the notions of ‘phase’ or ‘stratum’ (a separate line of research is needed to relate these Degema data to advances in phase studies). The different layers are provided below. In each layer, local dislocation takes place, and at higher layers, dissociated material is inserted (the clitics). The output of each layer is the input for the next layer.
I propose a deviation from standard DM theory. In DM as normally practiced, local dislocation is ‘licensed’ by a specific component within the local dislocation operation. For example, in the Latin example with =*que* above, this can be understood as licensed from the =*que* which must align to the right edge of the MWd to the right (easily captured with an alignment constraint). I refer to this as the **Strict Licensing Local Dislocation** view. In contrast, I propose a theory in which local dislocation is always an available operation between any
two appropriate constituents, and is a potential candidate. I refer to this as the
FREE GENERATIVE LOCAL DISLOCATION view. The Free Generative view is in line
with general principles of OT about the nature and capacity of GEN, the device
capable of generating candidates for evaluation (EVAL). Under this view,
licensing of local dislocation comes from GEN itself (and is therefore always
available), rather than from an individual Vocabulary Item or configuration of
Vocabulary Items. It is only those candidates which somehow improve a
phonological or morphological well-formedness condition which show local
dislocation at the ‘surface’, relative to other candidates and the overall constraint
ranking. I leave aside here the discussion of Dissociated Insertion, but one could
sketch a similar proposal.

We can derive the two single-marking patterns with [V V] and [V Dσ V] and
the double-marking pattern with [V Dσσ V] as in the Tableaux below. For these
Tableaux, I adopt the following constraints in Table X (adapting from Kager
1999). The constraints at the top are more highly ranked than the ones below.

<table>
<thead>
<tr>
<th>Constraint</th>
<th>Description</th>
<th>Explains</th>
</tr>
</thead>
<tbody>
<tr>
<td>V=WF_MWD(SBJ)</td>
<td>The verb is a well-formed morphological word with respect to subject agreement features</td>
<td>Penalizes not having a proclitic</td>
</tr>
<tr>
<td>V=WF_MWD(ASP)</td>
<td>The verb is a well-formed morphological word with respect to subject aspect features</td>
<td>Penalizes not having a enclitic</td>
</tr>
</tbody>
</table>
### Table X: Constraint set

I discuss the role of these constraints (and their ranking) as they come up in the tableaux below.

The derivation for the first layer involves V2 and O2 if present (and any V2 level adjuncts). In Tableaux 1-2, candidate (a) shows V and D not undergoing local dislocation, whereas (b-d) show local dislocation. The local dislocated candidate is selected if otherwise the D would be a deficient prosodic word.
(MWD=PrWD). The winner then is the one which does not unnecessary change the relative position of the MWds (IDENT-IO(ORDER)). It is also the one which maintains an appropriate ‘label’ on the entire MWd, a type of diacritic. All morphological words have a label which ‘types’ them appropriately based on the content of the morphological word, for example a verb morphological word is typed as \{V\}. When these morphological words are evaluated at later morphological cycles, there is an input-output correspondence maintaining the level, the constraint IDENT-IO(MWD\{LABEL\}). Within local dislocation, this converts two MWds to a SWd relation within a single MWd. Because the MWd can only be labeled with a single feature (a constraint on Gen), the type of label which results is based on competition of candidates. In Tableau 1, the new MWd is labeled \{V\} because the label matches the ‘head’ of the MWd, i.e. that element which is prosodically superior in some sense over the prosodically deficient pronoun N. If this new MWd were labeled \{D\}, it would violate this markedness condition. I leave aside further discussion on determining ‘heads’ within morphological words. Labeling plays a role below with later morphological levels. I maintain that later phonological processes may access this labeling information under a ‘Direct’ view of the Syntax Phonology Interface.
<table>
<thead>
<tr>
<th></th>
<th>$(V2)<em>{MWd(V)} \star (D</em>\sigma)_{MWd(D)}$</th>
<th>$MW_D = PRWD$</th>
<th>IDENT-IO($MWD_{LABEL}$)</th>
<th>LABEL=HEAD$_{MWd}$</th>
<th>IDENT-IO($WD_{TYPE}$)</th>
<th>IDENT-IO(ORDER)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>$(V2)<em>{MWd(V)} (D</em>\sigma)_{MWd(D)}$</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$(V2+D_\sigma)_{MWd(V)}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>$(D_\sigma+V2)_{MWd(V)}$</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>$(D_\sigma+V2)_{MWd(D)}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>$(V2+D_\sigma)_{MWd(D)}$</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Tableau 1: Derivation of $V D_\sigma$ sequences

<table>
<thead>
<tr>
<th></th>
<th>$(V2)<em>{MWd(V)} \star(D</em>{\sigma\sigma})_{MWd(D)}$</th>
<th>$MW_D = PRWD$</th>
<th>IDENT-IO($MWD_{LABEL}$)</th>
<th>LABEL=HEAD$_{MWd}$</th>
<th>IDENT-IO($WD_{TYPE}$)</th>
<th>IDENT-IO(ORDER)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>$(V2)<em>{MWd(V)} (D</em>{\sigma\sigma})_{MWd(D)}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$(V2+D_{\sigma\sigma})_{MWd(V)}$</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>$(V2+D_{\sigma\sigma})_{MWd(V)}$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>$(D_{\sigma\sigma}+V2)_{MWd(V)}$</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>$(D_{\sigma\sigma}+V2)_{MWd(D)}$</td>
<td>*</td>
<td></td>
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</tbody>
</table>

Tableau 2: Derivation of $V D_{\sigma\sigma}$ sequences
The winning candidates in Tableaux 1-2 are then transferred to the next morphological level of evaluation. In this level, local dislocation may take place, and also Agr insertion with feature copying of external arguments. This is shown in Tableaux 3-5 below. No Agr nodes are present in the input, but are present in the output, capturing ‘dissociation’. These tableaux show the three main patterns: [V V] and [V D_σ V] (showing the single-marking pattern) and [V D_σσ V] (showing the double-marking pattern). Tableau 3 shows the [V V] sequence. The highest ranked constraint is V=WF_MWD(SBJ) which requires verbs to be morphologically well-formed with respect to subject agreement. This therefore eliminates any candidate MWds which are not marked with agreement.

The main competition after this is between candidate (b) (agr+V1)_MWd(V) (agr+V2)_MWd(V) which would result in a double-marking pattern, and candidate (g) (agr+V1+V2)_MWd(V) which results in the attested single-marking pattern. The candidate (g) pattern is more optimal because it violates DEP-IO(NODE) less often, which penalizes the insertion of dissociated nodes. Crucially, the constraint DEP-IO(NODE) is ranked above IDENT-IO(WD_TYPE) which penalizes a MWd undergoing Local Dislocation which makes it a SWd (subword), and changes its morphological word typing (for ‘typing’, see Embick 2006: 4).

Tableaux 4-5 involving inputs with an intermediate object between the verbs. This minimal difference between these two patterns is found with the constraints involving with labeling, as discussed above. In Tableau 5 involving the [V D_σσ V]
pattern, we see that there is competition between candidate (m) \((\text{agr}+\text{V}1)_{\text{MWd}\{\text{V}\}}\) \((\text{D}_\sigma)_{\text{MWd}\{\text{D}\}}\) \((\text{agr}+\text{V}2)_{\text{MWd}\{\text{V}\}}\) with a double-marking pattern, and candidates (g) \((\text{agr}+\text{V}1+\text{D}_\sigma+\text{V}2)_{\text{MWd}\{\text{V}\}}\) and (h) \((\text{agr}+\text{V}1+\text{D}_\sigma+\text{V}2)_{\text{MWd}\{\text{D}\}}\) with a single-marking pattern. The double-making pattern with candidate (m) wins because it does not violate any labeling conventions: input-output label relations are maintained. In contrast, both candidates (g) and (h) result in labeling violations. In both candidates (g) and (h), local dislocation has taken place. Whether the new MWd is labeled as \{D\} or \{V\} will violate an input relation, and is therefore dispreferred to maintaining two separate MWds without local dislocation (candidate (m)).

This is crucially distinct from the case in Tableau 4 (and Tableau 1 above) where the D is prosodically light: if this does not undergo local dislocation, it is prosodically ‘stranded’, violating a highly ranked constraint \(\text{MWD}=\text{PRWD}\). In contrast, prosodically strong D’s do not violate \(\text{MWD}=\text{PRWD}\) if they do not undergo local dislocation. Therefore in Tableau 4, in evaluating candidate (g) \((\text{agr}+\text{V}1+\text{D}_\sigma+\text{V}2)_{\text{MWd}\{\text{V}\}}\) with a single-marking pattern and candidate (k) \((\text{agr}+\text{V}1+\text{D}_\sigma)_{\text{MWd}\{\text{V}\}}\) \((\text{agr}+\text{V}2)_{\text{MWd}\{\text{V}\}}\) with a double-marking pattern, both of these equally violate the labeling conventions, and therefore the one with less violations of \(\text{DEP-IO(NODE)}\) is more optimal (i.e. having less dissociated material), namely candidate (g) with single-marking.
<table>
<thead>
<tr>
<th></th>
<th>(V1)\text{MWd}(V1) *(V2)\text{MWd}(V1)</th>
<th>V=WF \text{MWd}(\text{SBJ})</th>
<th>M\text{WD}=\text{Pr WD}</th>
<th>IDENT-IO(M\text{WD} _\text{LABEL})</th>
<th>\text{LABEL}=\text{HEAD}_\text{MWd}</th>
<th>DEP-IO(\text{NODE})</th>
<th>IDENT-IO(\text{WD} _\text{TYPE})</th>
<th>\text{ALIGN-agr-L}</th>
<th>IDENT-IO(\text{ORDER})</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>(V1)\text{MWd}(V1) (V2)\text{MWd}(V1)</td>
<td>**</td>
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<tr>
<td>b</td>
<td>(agr+V1)\text{MWd}(V1) (agr+V2)\text{MWd}(V1)</td>
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<tr>
<td>c</td>
<td>(agr+V1)\text{MWd}(agr) (agr+V2)\text{MWd}(agr)</td>
<td>**</td>
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<tr>
<td>d</td>
<td>(V1)\text{MWd}(V1) (agr+V2)\text{MWd}(V1)</td>
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<tr>
<td>e</td>
<td>(agr+V1)\text{MWd}(V1) (V2)\text{MWd}(V1)</td>
<td>*</td>
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<tr>
<td>f</td>
<td>(V1+V2)\text{MWd}(V1)</td>
<td>*</td>
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<tr>
<td>g</td>
<td>(agr+V1+V2)\text{MWd}(V1)</td>
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<tr>
<td>h</td>
<td>(V1+V2+agr)\text{MWd}(V1)</td>
<td>*</td>
<td></td>
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<td>**</td>
<td>**</td>
</tr>
<tr>
<td>i</td>
<td>(agr+V1+agr+V2)\text{MWd}(V1)</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>**</td>
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<td>**</td>
</tr>
<tr>
<td>j</td>
<td>(agr+V2+V1)\text{MWd}(V1)</td>
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</tbody>
</table>

Tableau 3: Derivation of V V sequences
| a | (V1)MWd_{V} (D_σ)MWd_{D} (V2)MWd_{V} | V=WF_{MWd(SBJ)} | MWd=PrWD | IDENT-IO (MWd_LABEL) | LABEL=HEAD_MWd | DEP-IO(NODE) | IDENT-IO (WD_TYPE) | ALIGN-AGR-L | IDENT-IO (ORDER) |
| b | (V1)MWd_{V} (D_σ+V)MWd_{D} | ** | * | * | ** | |
| c | (V1)MWd_{V} (D_σ+V)MWd_{V} | ** | * | ** | |
| d | (V1+D_σ)MWd_{V} (V2)MWd_{V} | ** | * | ** | |
| e | (V1+D_σ+V2)MWd_{V} | * | * | ** | |
| f | (**V1+V2+D_σ)MWd_{V} | * | * | ** | ||
| g | (**V1+D_σ+V2)MWd_{V} | * | * | ** | |
| h | (**V1+D_σ+V2)MWd_{D} | ** | * | * | ** | |
| i | (agr+V1+D_σ)MWd_{V} (V2)MWd_{V} | * | * | ** | |
| j | (agr+V1+D_σ)MWd_{V} (agr+V2)MWd_{V} | * | * | ** | |
| k | (agr+V1+D_σ)MWd_{V} (agr+V2)MWd_{V} | * | ** | ** | |
| l | (agr+V1+D_σ)MWd_{D} (agr+V2)MWd_{V} | * | * | ** | |
| m | (**V1+D_σ)MWd_{D} (agr+V2)MWd_{V} | * | ** | ** | |

Tableau 4: Derivation of V D_σ V sequences
<table>
<thead>
<tr>
<th></th>
<th>(V1)<em>{Mwd[V]}*(D</em>{oa})<em>{Mwd[D]}*(V2)</em>{Mwd[V]}</th>
<th>V=WF_{Mwd[Sbj]}</th>
<th>MWD=PrWD</th>
<th>IDENT-IO(MWD_LABEL)</th>
<th>LABEL=HEAD_MWD</th>
<th>DEP-IO(NODE)</th>
<th>IDENT-IO(WD_TYPE)</th>
<th>ALIGN-AGR-L</th>
<th>IDENT-IO(ORDER)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>(V1)<em>{Mwd[V]} (D</em>{oa})<em>{Mwd[D]} (V2)</em>{Mwd[V]}</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>(V1)<em>{Mwd[V]} (D</em>{oa}+V)_{Mwd[D]}</td>
<td>**</td>
<td></td>
<td></td>
<td>*</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>(V1)<em>{Mwd[V]} (D</em>{oa}+V)_{Mwd[V]}</td>
<td>**</td>
<td></td>
<td></td>
<td>*</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>(V1+D_{oa})<em>{Mwd[V]} (V2)</em>{Mwd[V]}</td>
<td>**</td>
<td></td>
<td></td>
<td>*</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>(V1+D_{oa}+V2)_{Mwd[V]}</td>
<td>*</td>
<td></td>
<td></td>
<td>**</td>
<td>***</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>(agr+V1+V2+D_{oa})_{Mwd[V]}</td>
<td>*</td>
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<td>(agr+V1+D_{oa})<em>{Mwd[V]} (V2)</em>{Mwd[V]}</td>
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<td>m</td>
<td>(agr+V1)<em>{Mwd[V]} (D</em>{oa})_{Mwd[D]}</td>
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Tableau 5: Derivation of V D_{oa} V sequences
The role of labels on MWds in this analysis is to counteract ‘mass local dislocation’ for well-formedness conditions, e.g. so that a sequence \([V \, D_{\sigma_{\alpha}} \, V]\) with a prosodically strong D element (or phrase, by default strong) does not automatically come out as a single MWd \((V+D_{\sigma_{\alpha}}+V)\). Strictly speaking, this makes the prediction that morphologically-driven local dislocation should only happen when the two MWds share the same label, as in the \([V \, V]\) sequences above. This is not likely empirically true. Alternatives may be to impose strict binarity in local dislocation which takes place cyclically within a morphological level, or to have more refined markedness constraints on IDENT-IO(WD_TYPE) particular to prosodic status and part of speech (what labels in fact attempt to capture). I leave this issue for future work.

Further, I do not show the derivations with the aspectual clitics at morphological Level 3 for reasons of space. Here, the aspectual clitic appears on the first constituent \((ag+V)/(agr+V+D_{\sigma}+V)\) through local dislocation with inversion due to the alignment requirement specific to these Vocabulary Items \((ALIGN-asp-R)\). When the input is \([V \, D_{\sigma} \, V]\) with a prosodically strong object, asp falls on both verbs to satisfy the constraint \((V=WF_{MWD}(ASP))\) which requires all verb to be well-formed with respect to aspect. This therefore results in dissociated material being inserted on V2. Note that in this scenario, asp falls on the MWd \((agr+V+D_{\sigma}+V)_{MWD(V)}\) which is no longer a strictly hierarchical representation (as it is in syntax). Therefore, this requires us to understand
dissociated material insertion in this case to be added to the MWd and not strict adjoining to a terminal syntactic node (cf. the Latin examples above which do adjoin to syntactic structure). In this way, such dissociated material insertion is more similar to morphological inflection under Anderson (1992) and Legendre (1998).

4.2 Support for V V morphological constituency: Evidence from tone

The analysis above claims that adjacent verbs (and any accompanying prosodically light pronouns) form a complex morphological word MWd, despite the fact they are not a single syntactic word. We therefore expect this MWd to have phonological properties of other types of non-complex MWds. Data in support of this come from grammatical tone (ATR Harmony shows no support\(^2\)).

Before presenting this data, it should be noted that no full tonological study of Degema exists, and therefore it is difficult to know if tone data as a whole support or contradict this morphological analysis.

Tone in Degema has a low functional load distinguishing words at the lexical level, but a high functional load in marking grammatical distinctions. Nouns are lexically contrastive for tone, but verbs do not. The tone on nouns frequently changes based on grammatical context, and tone on verbs is entirely determined by its grammatical context. When verbs appear between a proclitic and an aspectual enclitic, they are marked with H tone, shown in (40) (repeated from X above). This H tone may conceivably be understood as part of the exponence of
one or both of these clitics [a small number of examples show HL between these clitics, outside of the scope here].

(37) \textit{H tone pattern on verbs between clitics}

\begin{align*}
\text{Tatane} & \quad o=\text{kótú=}tē \quad ēnī \quad o=\text{kpérí=}tē \quad īnūm \\
\text{Tatane} & \quad 3SG=\text{call=}\text{PRF} \quad \text{us} \quad 3SG=\text{tell=}\text{PRF} \quad \text{something}
\end{align*}

‘Tatane has called us and told (us) something’ (Kari 2003a: 285)

In this example, both syllables of the bisyllabic verb \textit{kotu} ‘to call’ and \textit{kpēri} ‘to tell’ bear high tone. This uniform H tone pattern is also seen in contexts when the verb forms an MWd with another verb and/or a monosyllabic pronoun, shown below.

(38)

(a) \quad o=\text{gídí} \quad ṣáw=tē

\begin{align*}
\text{3SG=} & \quad \text{look.for} \quad \text{them=}\text{PRF}
\end{align*}

‘(S)he has looked for them’ (Kari 2004: 282)

(b) \quad Breno \quad o=\text{dúw} \quad ìmé \quad tá=ān

\begin{align*}
\text{Breno} & \quad 3SG=\text{follow me go=}\text{FAC}
\end{align*}

‘Breno went with me’ (Kari 2004: 115)

(c) \quad Ohoso \quad o=\text{tá} \quad đé \quad ví \quad yí \quad kıyé=n \quad òyi

\begin{align*}
\text{Ohoso} & \quad 3SG=\text{go buy take come give=}\text{FAC her/him}
\end{align*}

‘Ohoso went and bought (something) and brought (it) to her/her’

(Kari 2004: 121)
These data show the distribution of tone in simple MWds is the same for complex MWds.

Crucial evidence for this view comes from grammatical tone expressing negation. Standard sentential negation is exponed through grammatical tone changes on morphological verbal word (which also co-varies with the choice of subject agreement marker – \(mV=\) set 1 vs. \(V=\) set 2 above in Table 1). Negation tone is realized as a HL pattern which anchors to the left edge of the agreement proclitic on the verb. The L spread to the end of the verb, shown below.

(39)  **HL negation tone on verb**

(a)  \(e=k\text{ötú} \quad më=en \quad dọ \quad më=m\text{eme}\)

\(3\text{PL}=\text{call} \quad \text{me}=\text{FAC} \quad \text{but} \quad \text{NEG}\backslash 1\text{SG}=\text{answer}\)

‘They called me but I didn’t answer’ (Kari 2004: 139)

(b)  \(mëë \quad më=t\text{á}=\text{an} \quad dọ \quad mëë \quad më=m\text{on} \quad \dot{\text{o}}\text{yi}\)

I \(1\text{SG}=\text{go}=\text{FAC} \quad \text{but} \quad \text{I} \quad \text{NEG}\backslash 1\text{SG}=\text{see her/him}\)

‘I went but I didn’t see her/him’ (Kari 2004: 138)

(c)  \(më=m\text{eneke} \quad më \quad ìvom\)

\(\text{NEG}\backslash 1\text{SG}=\text{think} \quad \text{in} \quad \text{inside}\)

‘I don’t think so’ (Kari 2004: 32)

When a verb forms an MWd with another verb or a prosodically light pronoun, the HL melody spreads across this constituent (i.e. it is distributionally equivalent with a simplex verb).
(40) **HL Negation tone with complex MWd**

(a) $\text{ó=}\text{deri} \quad \text{me} \quad \text{kábuló} \quad \text{ó=meme} \quad \text{dí} \quad \text{ídiyóm} \quad \text{yó}$

NEG\3SG=know me because NEG\3SG=agree eat food the

‘(S)he refused to eat the food because (s)he doesn’t know me’

(Kari 2004: 45)

(b) Ohoso $\text{ó=}\text{kotu} \quad \text{me} \quad \text{kake} \quad \text{inum}$

Ohoso NEG\3SG=call me show something

‘Ohoso did not call me and (did not) show (me) something’ (Kari 2003a: 278)

(c) Breno $\text{ó=meme} \quad \text{mene} \quad \text{úmene}$

Breno NEG\3SG=agree do work

‘Breno refused to work’ (Kari 2004: 117)

(d) Osamá $\text{yó} \quad \text{ó=buw} \quad \text{kel} \quad \text{me}$

shirt the NEG\3SG=be.big be.more.than me

‘The shirt is not bigger than me’ [i.e. not oversized] (Kari 2004: 155)

The HL negation tone pattern is consistent throughout Kari’s (2004) grammar (which is tone-marked throughout), with very few exceptions.²⁸

In contrast, when the verbs are separated by a prosodically heavy noun, only the V1 bears negation tone and does not spread across the intervening object,
shown below. Here, although negation tone is marked on only V1, negation takes scope over both verbs (they are not separate polarity domains) (Kari 2004: 111).

(41)

(a) Ohoso  ó=kotu  éni  q=káké  ínúm

Ohoso  NEG\3SG=call  us  3SG=show  something

‘Ohoso did not call us and (did not) show (us) something’ (Kari 2003a: 279)

(b) Osoabo  ô=von  élege  q=fíyá

Osoabo  NEG\3SG=take  knife  3SG=cut

‘Osoabo did not use a knife to cut something’ (Kari 2004: 111)

(c)  Cf. Ungrammatical ‘doubling’ of negation tone

*Osoabo  ô=von  élege  ô=fíya

Osoabo  NEG\3SG=take  knife  NEG\3SG=cut

In these examples, V1 is marked with negation tone, but V2 is not marked with negation tone (it bears a LH pattern). This illustrates that whether V2 is able to bear negation tone or not corresponds to whether it is adjacent or non-adjacent to V1 (i.e. if it is in the tone spread domain of the HL pattern).

As stated above, the full tonology of Degema has not been worked out. It is therefore not understood how additional grammatical tone processes interact with the tone patterns laid out here.
4.3 *Debating movement after syntax*

As a final note, there is a debate in the interface literature as to the locus of movement operations. It is uncontroversial that movement takes places in syntax, at least of full XPs and under most assumptions also X° movement as well (whether as head-to-head movement or head movement to a specifier position with merger -Matushansky 2006). However, whether the terminal nodes created by the syntax are subject to a separate set of morphological and phonological constraints and operations affecting surface position is not currently settled. This analysis takes it that morphological operations can manipulate the order/relationship of syntactic objects when transferred to PF.

These different positions are typologized in Bošković (2001). Anderson (2005: 116) summarizes these positions with respect to clitics as below (I supplement this summary, and also bolden certain aspects).

(42) **Typology of interface theories (for clitics) - Bošković (2001)**

(a) *Strong syntax*

Surface position of clitics determined by **syntax alone**

(Position of clitics in syntax and at surface is identical)

(b) *Strong Phonology*

Surface position of clitics determined by **phonology alone**

(Independence of position of clitics in syntax and at surface)
(c) **Weak Syntax**

Surface position of clitics determined largely by syntax in conjunction with morphophonological operations

(Position of clitics in syntax and at surface is identical except for morphological/phonological, e.g. ‘Prosodic Inversion’)

(d) **Weak Phonology**

Surface position of clitics determined by syntax in conjunction with morphophonological filters

(Multiple position of clitics in syntax which are selected at surface as prosodically optimal)

The two approaches I will discuss here is between ‘Weak Syntax’ and ‘Weak Phonology’ approach. Under ‘Weak Syntax’, featural nodes/elements are manipulated by the syntax and are then transferred to the interface, where a small number of morphophonological operations may adjust the syntactic output. The DM approach I advocate here is an example of this theory, as well as ‘Prosodic Inversion’ (Halpern 1995). In contrast, under ‘Weak Phonology’ the syntax can generate a number of grammatical constructions (e.g. multiple positions of the same element under movement), and the ‘candidate’ which is selected as optimal is that one which optimizes prosodic well-formedness. The main difference between these theories is the role of the interface: does it act merely as a Filter, or does it also have its own set of morphophonological operations?

I argue here that the Degema facts involving verbs and pronouns do not allow a filter theory. This position is one also recently advocated for in Jenks & Rose (2015), who show phonological conditions determining the position of mobile object marker affixes in Moro [mor; Heiban: Sudan]. Jenks & Rose (2015) shows that the position of object markers depends on an interaction of tonal properties of the object marker (an inherent prosodic property of the morpheme), and the tonal properties of the verb stem they appear with. Example (43) shows the mobile position of object marker affix /ŋa/ 2SG.

(43) **Mobile position of Moro object markers (OMs)**

(a) *Proximal imperfective with OM ŋá – Pre-verbal position*

\[ g-a-ŋá-vəleð-a \]

\[ \text{SM.CL-RTC-2SG.OM-pull-IPFV} \]

‘s/he is about to pull you’ (Jenks & Rose 2015: 271)
(b) *Distal imperfective with OM ŋá – Post-verbal position*

\[ g-á-vəleð-á-ŋá \]

SM.CL-DIST.IPFV-pull-DIST.IPFV-2SG.OM

‘s/he is about to pull you from there to here’ (Jenks & Rose 2015: 271)

Jenks & Rose (2015: 297-298) argue that appealing only to syntactic movement with different spell-out positions (a Passive PF Interface filter model), this would not explain the Moro facts. Under such a syntactic movement account, all object markers undergo syntactic movement (internal merge) to left adjoin to the verb. If the higher/leftward position is more phonologically optimizing, it is spelled out in this higher position; otherwise the object marker is spelled out in a lower position. Jenks & Rose point out that one problem with this analysis is that although it is straightforward to understand why an object marker would be spelled out in a higher position if that higher position is phonologically optimizing, it is not clear what principle would prevent all object markers from being spelled out in that higher position, given (1) certain analogous prosodic conditions do in fact occur with other object markers but do not allow higher position spell-out, and (2) the default position of spell out should be a higher position. That is, there is a contradiction here: theoretically, the marked position should be a lower position, which would only be spelled out under specific morpho-phonological conditions. However, in Moro the marked position is the *higher* position, which is *only*
spelled out under specific morpho-phonological conditions. That the lower
position is the default violates theoretical principles, overwhelming typological
tendencies, and independent principles of Moro regarding spell-out positions of

The Degema facts are similar to those of Moro. Under a Passive PF Interface
model in Degema, it would be the case that the verb undergoes verb movement in
all cases to form a complex verbal head, and that all pronouns undergo
incorporation into a verb, shown below.

(44)  Alternative theory – Uniform movement with filter (Not adopted)

(a)  Verb movement

\[
\begin{array}{lll}
\text{Movement} & \text{Spell-out} \\
\text{i.} & V_1 V_2 & \Rightarrow [V_1+V_2] V_2 & \Rightarrow [V_1+V_2] V_2 \\
\text{ii.} & V_1 \text{ DP} V_2 & \Rightarrow [V_1+V_2] \text{ DP} V_2 & \Rightarrow [V_1+V_2] \text{ DP} V_2 \\
\end{array}
\]

(b)  Pronoun incorporation

\[
\begin{array}{lll}
\text{Movement} & \text{Spell-out} \\
\text{i.} & V \ \text{PRON}_\sigma & \Rightarrow [V+\text{PRON}_\sigma] \text{ PRON}_\sigma & \Rightarrow [V+\text{PRON}_\sigma] \text{ PRON}_\sigma \\
\text{ii.} & V \ \text{PRON}_{\sigma\sigma} & \Rightarrow [V+\text{PRON}_{\sigma\sigma}] \text{ PRON}_{\sigma\sigma} & \Rightarrow [V+\text{PRON}_{\sigma\sigma}] \text{ PRON}_{\sigma\sigma} \\
\end{array}
\]

In (a.i), the verb is spelled out in a higher position adjoined to V1 if there was no
intervening DP, but spelled out in a lower position if there was such a DP (a.ii). It
is not clear what type of morphophonological filter would generate this result.
Facts similar to the Moro case are in (b) in which all pronouns incorporate.
Example (b.i) shows that if a pronoun is monosyllabic, it would have to incorporate into the verb; the lower copy is deleted. I would account for this by saying that if it were spelled out in a lower position, by virtue of being prosodically deficient it would violate a prosodic restriction. Therefore being spelled out in a higher position is prosodically optimal. However, it is unclear what type of morphophonological filter would disallow a bisyllabic pronoun being spelled out in this higher position. Other suffixal material which is multisyllabic is fine in this position e.g. =Vīne rečq ‘reciprocal’ with an initial copy vowel, presumably also heads combined through head movement. The arguments laid out for Moro above also apply here. I therefore conclude that these Degema and Moro patterns cannot be assimilated to a Passive PF Interface model, which is shown to be insufficient.

In summary, analyses such as Bošković (2001) are well-motivated in their attempts to capture interface phenomena as due to a filter in a Passive PF Interface. However, a Dynamic PF Interface is also compatible with PF filters and therefore the existence of PF filter phenomena is not in and of itself evidence for a Passive PF interface. The Passive PF Interface view is falsified under phenomena not amenable to a filter, which has as its consequence that post-syntactic operations are able to more significantly manipulate input objects for specific well-formedness conditions during the course of their interface interpretation.
4.4 Summary

This section has argued for two DM operations to handle the Degema clitic distribution: local dislocation and dissociated node insertion. I noted that the interaction of local dislocation and agreement insertion cannot be captured under common models used in DM in which vocabulary insertion and dissociated node insertion precedes local dislocation, specifically that local dislocation ‘bleeds’ dissociated node insertion. In contrast, I understood the interactions as resulting from local dislocation and dissociated insertion being in competition for resolving a morphological well-formedness condition. I defend a view here that these two operations are not licensed by specific morphemes (=Vocabulary Items), but rather generate freely (in line with assumptions of the capacity of GEN in OT) and are selected as more or less optimizing depending on the constraint ranking of a specific grammar/co-grammar. The single-marking pattern emerges as optimal in that it has the least amount of inserted material not in the input (less violations of DEP-IO(NODE)). In contrast, the double-marking pattern was optimal when local dislocation violated certain morphological label constraints, and in this way acts as a ‘repair’ when the single-marked pattern is not optimized. I supported the constituency of the V+V sequences with single-marking with evidence from the distribution of grammatical tone. Finally, I argued that data like this from Degema support the notion of a Dynamic PF interface as opposed to a Passive PF interface.
allowing only post-syntactic filter operations, which has consequences for the architecture of grammar.

5 AGAINST DELETION-UNDER-IDENTITY OF INTERMEDIATE CLITICS

Finally, I discuss another alternative to the DM + OT analysis presented here. This alternative views the double-marking SVC pattern as the base, with deletion of intermediate clitics (post vocabulary insertion) under specific conditions resulting in the single-marking pattern. These clitics would delete when two conditions are met: that the deleted clitics appear adjacent to one another before deletion, and that the clitics be featurally identical. I call this alternative theory the Deletion-Under-Identity theory of clitic patterns (henceforth DUI).

(45) Alternative analysis: Deletion-Under-Identity of internal clitics

(a) Derivation step n (Not attested at surface)

Ohoso o=sóm=n o=túl=n óyi

Ohoso 3SG=be.good=FAC 3SG=reach=FAC him

‘Ohoso is as handsome as him.’ (Kari 2004:156)

(b) Derivation step n+1 – Deletion of intermediate clitics

Ohoso o=sóm=n o=túl=n óyi

There is clear empirical precedence for such a theory. In many languages, when two phrases form a type of constituent within a relevant domain and these phrases both exhibit certain identical features, under specific conditions some
features from one or the other phrase may not appear. Phenomena which fall under this rubric go by different names, which include different processes of Deletion-Under-Identity and coordination/conjunction reduction (Merchant 2012: 3), ‘suspended affixation’ (Kabak 2007, Kornfilt 2012), and certain cases of verbal ‘unbalanced coordination’ (Johannessen 1998).

(46)  

**Coordinate reduction – German nouns**

(a)  

**Coordination reduction**


‘Friendship or hostility’ (Booij 1985: 144)

This alternative analysis would have a number of advantages. This analysis would result in both a uniform set of morphological operations, supplying all verbs in a SVC with dissociate morphs exponing agreement and aspect enclitics. Further, the two verbs would not form any type of morphological constituent, and therefore complications involving the licensing of local dislocation with verbs would not exist (and also avoiding needing any discussion of ‘competition’ in the grammar). This alternative would also be compatible with multiple syntactic analyses involving multi-verb constructions, e.g. those in which there is ν-Serialization, or serialization of a higher functional head such as Asp.

Despite the advantages which this alternative has, I argue that the single-marking SVC pattern in Degema does not have the profile common for DUI cases, providing four arguments: 33
(47) **Arguments against DUI analysis of Degema single-marking SVCs**

(a) DUI makes the wrong predictions

(b) Requires Deletion-Under-Identity to be obligatory

(c) Requires SVC syntax to assimilate to coordinate structure

(d) The deleted structure is prosodically weak

5.1 **Argument 1: Deletion-Under-Identity theory makes wrong predictions**

First, the DUI analysis makes the wrong predictions for Degema. Under a DUI analysis, the Degema single-marking pattern involves simultaneous backward deletion (deletion of material in the first conjunct) and forward deletion (deletion of material in the second conjunct) (Wilder 1995, 1997).

This analysis makes three wrong predictions with respect to the Degema data. Consider the data below. Example (a) involves a double-marking pattern with a [V pronσ V] structure, tokens of which are accepted as grammatical (though not all, *e.g.* example (11)b above). Example (b) involves a double-marking pattern [V aux V] structure which does not allow the single-marking pattern.

(48)

(a) *V pronσ V – Double-marking pattern optional*

Tatane φ=sá ḣáāw o=gbiyé=ēn

Tatane 3SG=shoot them\FAC 3SG=kill=FAC

‘Tatane shot them dead’ (Ethelbert E. Kari p.c.)

Cf. grammatical Tatane φ=sá ḣáw gbiyé=ēn
(b) \( V \ aux \ V – \text{Double-marking pattern obligatory} \)

Tatane \( o=\text{kpé\-ny} \quad \emptyset=kírí \quad wá\-áy \)

Tatane \( 3SG=\text{wash}\|\text{FAC} \quad 3SG=\text{also.AUX spread}\|\text{FAC} \)

‘Tatane washed and also spread (something)’ (Kari p.c. 2015.10.24)

cf. \( *…o=\text{kpé\-ny} \emptyset kírí wá\-áy \)

These structures have parallel structures with other \([V \ V]\) structures which obligatory require DUI in that the deleted clitics occur adjacent to a (covert) conjunct break, though do not require obligatory deletion. Further, example (b) involving the auxiliary before V2 may be a structure most similar to (covert) coordination in Degema. It is in exactly this situation that DUI is \textit{not} allowed, which is paradoxical under a DUI analysis.

Further, Wilder (1995, 1997) illustrates that Backward Deletion and Forward Deletion are distinct operations subject to different phonological, syntactic, and semantic conditions. Therefore, we understand that they are independent processes. However, in Degema, when clitic deletion takes place, Backward and Forward Deletion must take place simultaneously, and do not occur without each other. For example, in \textit{example (49)} below (repeated from x above), the conditions for Forward Deletion DUI are met in that (1) there is identity between the proclitics, and the second proclitic appears at a (covert) conjunct boundary (cf. He fell and \( \&\) he threw up his hands). However, deletion here is never found in this
position throughout the bulk of the Degema data available, and ungrammatical from native speaker judgments.

(49) **Ungrammatical – Forward Deletion in the absence of Backward Deletion**

(a) Miyúw=n ọyi *(mị)=tá=ánn

1SG=follow=FE her/him *(1SG)=go=FE

‘I went with her/him’ (Kari 2015.11.02 p.c.)

(b) Tatane o=kótú=n ọyi *(ọ)=kpérí=n ìnúm

Tatane 3SG=call=FE him *(3SG)=tell=FE something

‘Tatane called him and told (him) something’ (Kari 2015.11.02 p.c.)

Therefore, a forward deletion analysis makes the wrong prediction here.34

Finally, Wilder (1997: 84-86) shows that in backward deletion (deletion in the first conjunct), both the deleted portion and the non-deleted portion must be in the ‘right peripheral in its conjunct’. In the German data below, in (a) both the deleted material and the identical material licensor are at the right edge (in a right peripheral position). In (b) in contrast, although the deleted material is at the right edge, the identical material licensor is not, and therefore results in ungrammaticality.
(50) **Right peripherality condition – German backward deletion**

(a) [Er hat einen Mann, der drei **Katzen** besitzt, 
he has a man who three **cats** own 
gekannt,] und [sie hat eine **Frau, die vier **Katzen** 
known] and [she has a woman who four **cats** 
besitzt, gekannt]

own known

‘[He knew a man who owns three cats, and [she knew a woman 
who owns four cats]’ (Wilder 1997: 85)

(b) *[Maria hat drei **Katzen gesehen**, und [sie glabut, 
[Maria has three **cats** seen] and [she thinks, 
daß Hans vier **Katzen gesehen** hat]
that Hans four **cats** seen has]

*Intended* ‘[Maria saw three cats] and [she thinks that Hans saw 
four cats]’ (Wilder 1997: 86)

However, compare the Degema data below.

(51) Ohoso  o=yi(*=tē)  kótú=té  ọyi

Ohoso  3SG=come(*=PRF)  call=PRF him/her

‘Ohoso has come and called him’ (Kari 2003a: 285)
Here, the single-marking pattern still takes place even if the enclitic on V2 (the ‘licensor’) is not in a peripheral position, e.g. when V2 is followed by a complement or adjunct.\(^{35}\)

5.2 \textit{Argument 2: Requires Deletion-Under-Identity to be obligatory}

One prevailing aspect of Deletion-Under-Identity is that it is optional (REFs). This is in stark contrast with the two SVC patterns seen above. With [V V] sequences, the single-marking pattern is obligatory. To my knowledge, all ellipsis processes are optional and can easily be converted to a grammatical sentence without deletion (if sometimes stilted-sounding), noted overtly in Van Oirsouw (1985: 365).

(52) \textit{Optionality of ellipsis}

(a) He bought and cooked the chicken.
   \[< \text{He bought the chicken and he cooked the chicken}>\]

(b) He bought the chicken and he cooked the chicken.

Ellipsis has been argued to be a ‘repair’ strategy in which case it is obligatory, e.g. Merchant (2001) on sluicing and repairing island violations, and Merchant & Kennedy (2000) on N’-Ellipsis repairing Left Branch Condition violations. I see these cases of obligatory ‘repair’ ellipsis as not relatable to the Degema facts presented here.\(^{36}\)
5.3 Argument 3: Requires SVC syntax to assimilate to coordinate structure

If we adopt that the single-marking pattern is the result of DUI, then the syntactic structure which these verbs in would need to assimilate to structures which unequivocally demonstrate DUI, namely coordinate structures. At the very least, any analysis would have to relate the Degema structures appropriately, especially given that the majority of Degema SVCs (outside of the sequential type discussed above in examples X – X) are not assimilable to covert coordination involving parallelism. DUI has not been studied in any depth in SVCs of the types seen in West Africa, and it is therefore difficult to know how the Degema facts fit into any typology.

Cleary-Kemp (2015: 226) notes that a coordination analysis of SVCs is found in Muysken & Veenstra (2006), who do assimilate all SVCs to coordinate structures. However, Cleary-Kemp also notes that many syntacticians explicitly deny this assimilation, and formally distinguish true verb serialization from covert coordination (Baker 1989, Collins 1997, Stewart 2001). As it stands, it is unclear whether allowing a DUI analysis will require reanalyzing previous syntactic structure, or would expand the scope of DUI.

5.4 Argument 4: The deleted structure is prosodically weak

A final argument against DUI is that the deleted clitics in Degema are prosodically weak. Many studies have shown conditions in which structure smaller than a word are deleted (deleting SWds within an MWd in DM
terminology). Booij (1985) presents an extensive study of coordination reduction in which there is deletion of a morpheme within a word which is found in two conjuncts, e.g. as below in which the German derivational affix –schaft deletes under identity.

(53) Coordinate reduction – German nouns


‘Friendship or hostility’

The Degema single-marking SVC pattern involving clitic book-ending is similar to these cases described by Booij in that the gap is adjacent to a (hypothetical covert) conjunction, a type of peripherality condition required for many types of ellipsis (Van Oirsouw 1985: 366-7).

Booij identifies that a requirement for coordinate reduction is that the deleted portion of the word itself be a prosodic word. This criterion holds for many Germanic languages which have been systematically examined (Booij 1985 for Dutch and Wiese 1996 for German, relating to literature on ‘cohering’ vs. ‘non-cohering’ affixes), as well as for European Portuguese (Vigário 2003: 250-253). Vigário & Frota (2002: 250) argue in fact that in coordinate reduction contexts, ‘the deleted unit, the remnant and the identical counterpart must all be prosodic words’, based on evidence from European Portuguese (and comparison to other Romance languages). The example below from European Portuguese shows that the deleted component must be a prosodic word (Vigário & Frota 2002: 249-250),
e.g. a prosodically strong suffix –mente versus a prosodically weak suffix –mento which forms a single prosodic word with its stem.

(54)  European Portuguese DUI (Vigário 2003: 252)

(a) (alegre)ω(mente)ω e (trise)ω(mente)ω

(b) cf. *(acampamento)ω e (acantoamento)ω

Therefore, if we were to subsume the single-marking pattern as an instance of DUI, this would be a case in which prosodically light material (the intermediate clitics) are deleted, contra Booij. That the clitics are prosodically deficient is well-established: subject proclitics and aspectual enclitics are monosyllabic (and sometimes only tonally realized), and unlike full words vowels in these clitics do not have their own Advanced Tongue Root (ATR) value, receiving it from the stem they integrate with. Aspectual enclitics also have a number of allomorphs depending on the phonological environment. Thus Degema clitics fail the requirement stated by Vigário & Frota (2002) that the deleted unit be a prosodic word.37

5.5 Summary

This section has argued against an alternative Deletion-Under-Identity theory (DUI), in which the grammar uniformly generates both proclitics and enclitics on both verbs, but that there is obligatory deletion of intermediate clitics post vocabulary insertion under specific conditions, resulting in the single-marking pattern. The first argument was that DUI makes the wrong predictions: it is
overgenerative, predicting there would also be deletion in [V Aux V] sequences, and the possibility of V2 proclitic deletion in [V1 D_σ σ V2] sequences, both contradictory to fact. Additional arguments against DUI were that (1) this DUI operation would be obligatory, which would be highly unusual and with little precedence in the literature, (2) it would require SVC syntax to assimilate to coordinate structure, and (3) the deleted structure is prosodically weak which at least in some languages is prohibited from deleting in DUI contexts.

6 CONCLUSION

This paper examined two clitic patterns in serial verb constructions (SVCs) in Degema. I claimed that both of these patterns should be derived with the same syntax, that is, the syntactic structure of these two patterns is identical when they are transferred to the Phonological Form (PF) interface for interpretation.

In particular, I have argued that the single-marking pattern is due to adjacent verbs undergoing local dislocation to form a single morphological word (MWd) (with or without additional local dislocation involving a prosodically deficient monosyllabic pronoun). In contrast, the double-marking pattern is due to insertion of dissociated nodes subject to feature copying, which takes place when local dislocation of two verbs does not apply (and in this way, is a ‘repair’ strategy).

Both of these operations have as their result that the verb is in an MWd which is ‘marked’ by subject agreement and aspect morphology. I therefore view this as
forming a type of conspiracy in which multiple surface patterns can be attributed to a single constraint, which in this case is a morphological well-formedness constraint on verbs requiring certain ‘inflection’ be present on all verbs in a clause. I couched this analysis within Optimality Theory, and viewed morphological operations such as local dislocation as a component of candidate generation (with specific restrictions GEN), which are then evaluated against faithfulness and markedness constraints. This analysis, therefore, presents a crucial development for integrating these two theories, both of which are extremely widespread but whose meeting point is still not yet understood (Embick 2010).

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The distribution of clitics in SVCs in the ọtala dialect is not the same as it is in Usokun, the dialect of this paper. When two verbs are adjacent in an SVC, depending on the type they show both the single-marking pattern with a single proclitic on V1, and also a double-marking pattern in which both verbs are marked with a proclitic, despite adjacency. Examples are found in Offah (2000: 7, 30, 33, 46-48, 57, 66-70, 79). Account for the ọtala data is outside of the present scope.

Degema orthography is consistent with the IPA, with the following language-specific conventions: <ḅ> = /ɓ/, <ḍ> = /ɗ/, <nw> = /ŋʷ/, <ny> = /ɲ/, <y> = /j/, <n̄ > = /ŋ/, and <v> = /β/.

A dot under a vowel indicates retracted tongue root [-ATR], and no dot under the vowel indicates advanced tongue root [+ATR], e.g. <a> = /ɜ/ [+ATR], whereas <ạ> = /a/ [-ATR]. ATR is only marked on the first vowel of the word, though ATR harmony applies to all vowels within the word. A high tone is indicated by an acute accent <V́>, a downstepped high (phonetically mid) is indicated by a macron <V̄>, and a low tone is orthographically unmarked. Super high tone denoting questions is conventionally marked here (and in Kari 2004) with a double acute accent <V̋>.

The distribution of these sets is more complex than this, and falls outside of the scope of this paper. What is important to note is that these two sets are in syntactic complementary distribution. Third person subject proclitics used with non-human referents are not provided here.

Tone variations are not indicated in this table. In negative-imperative sentences, the second-person singular subject clitic is exponed as e/ẹ=. A marginal subject clitic a= also exists, but only attaches to the bound copular verb bọ ‘be present’ (Kari 2004: XX, Kari 2008: 21).

There are two patterns which appear with auxiliary + verb constructions. In one, the proclitic appears only on the auxiliary, as in (a). In another pattern, the proclitic appears on both the auxiliary and the lexical verb, as in (b)-(c).

(i)  Proclitics with Auxiliaries
(a) **Proclitic on auxiliary verb only**

\[ \text{É̩=}\text{nwányki yì ə} \]

3PL=U.AUX come NPST

‘They intended to come’ (Kari 2004:290)

(b) **Proclitics on both auxiliary and lexical verb – Identical clitics**

\[ \text{Mj} = \text{dá} \quad \text{mī} = \text{gbé} \]

1SG=INI.AUX 1SG=go\NPST

‘I am about to go (home)’, ‘I am on my way home’ (Kari 2004:286)

(c) **Proclitics on both auxiliary and lexical verb – Non-identical clitics**

\[ \text{igbény } \text{yọ ı} = \text{dá} \quad \text{mī} = \text{bìy} \quad \á } \]

mangoes the 3PL=INI.AUX 3PL=become.ripe NPST

‘The mangoes are about to get ripe’ (Kari 2004:286)

No pattern is found in which the proclitic attaches to the lexical verb to the exclusion of the auxiliary verb. I remark upon the interaction of clitics and auxiliary constructions in Section X.

The factative tense/aspect enclitic has a number of allomorphs depending on its environment. Roughly, the /n/ portion of this morpheme is realized except when it would appear between two consonants or between a consonant and a clause boundary. This morpheme is also associated with tonal changes, realized as /V́/, /VV́/, or /VV̄/ depending on environment. It always takes on the quality of the preceding vowel. The term ‘factative’ is used in West African linguistics to refer to a tense/aspect marker whose perfectivity and temporal value roughly depend on whether it appears with an eventive or a stative verb (see Welmers 1973:345-348, Hewson 2012:518-519). It is distinct from the term ‘factive’, e.g. ‘factive mood’.

Further, the perfect aspect clitic shows morphophonological alternations, in which its initial consonant surfaces as /t/, /d/, /l/, or /r/ depending on context (Kari 2004: 340-341). This aspect
clitic is transparently related to the intransitive verb *te ‘be complete’ and derivative *tese ‘to make complete’, though I assume this relation is diachronic only.

In subject position, all pronouns have their own ATR and tone value. In object and possessor position, 1sg *mẹẹi/mee, 2pl *maany/maany, and 3pl *baaw/baaw show harmony for ATR with the preceding verb, whereas the three other pronouns do not show this harmony (including monosyllabic *wo 2sg ‘you’). The tonal value of objects also depends on its environment and does not always show a /NV̄/ pattern, discussed further in Section X below.

Additional data show that the position of enclitics is sensitive only to consonant-initial monosyllabic pronouns, and no other material which is monosyllabic and/or consonant initial. This is shown below with the consonant-initial nouns *dóony ‘red colobus monkey’, *díhile ‘umbrella shaped ant-hill’, the general preposition *nụ, the locative *báa ‘there’, the post-nominal definite marker *yọ DEF ‘the’ (as found in relative clauses), the ideophone *gbáany ‘a sudden deafening noise’. Note that the vast majority of Degema nouns are multisyllabic and vowel-initial due to the obligatory noun class prefixes, limiting comparison to the pronouns.

(ii) \(\text{ẹ=món=dé } \text{dóony}\)

\(3\text{PL}=\text{see=}\text{PRF }\text{monkey.SP}\)

‘They have seen a red colobus monkey’ (Kari p.c. 2015.10.24)

Cf. \(\text{ẹ=món } \text{dóony=}\text{de}\)

(iii) \(\text{mị=dé=n } \text{díhile}\)

\(1\text{SG}=\text{buy=}\text{FAC }\text{umbrella.ant.hill}\)

‘I bought an umbrella shaped ant hill’ (Kari p.c. 2015.08.24)

(iv) \(\text{mi=lóvúrá=n } \text{inum } [\text{nú } \text{ú=kpéri } \text{mē=en}] \text{yọ}\)

\(1\text{SG}=\text{remember=}\text{FAC }\text{thing } [\text{that } 2\text{SG}=\text{tell } \text{me=}\text{FAC}] \text{the}\)

‘I remembered what [you told me]’ (Lit. ‘…the thing that…’ ; Kari 2008: 95)
(v) Atúm mé sąy e=gúwá-né=en nụ Misweite e=yi=în
persons DPM three 3PL=add-REFL=FAC with Misweite 3PL=come=FAC
‘Three persons came in addition to Misweite’ (Kari 2004: 212)

(vi) Breno o=tá=te ṣáa
Breno 3SG=go=PRF there
‘Breno has gone there’ (Kari p.c.)
Cf. *Breno o=tá ṣáa=te

(vii) ạmanya ọ=sáa=n gbáany
thunder 3SG=shoot?=FAC sudden.deafening.noise
‘The thunder roared with a deafening noise’ (Kari 2008: 52)

Monosyllabic pronouns in the Usokun dialect presented here correspond to an additional pronoun set in the Atala dialect (not discussed), e.g. úmē ‘I’, úwō ‘you’ (sg), úmāny ‘we’, and úbāw ‘they’ (Kari 2008). Offah (2000: 19) notes that the ụ- portion is optional.

11 Purposives are expressed with C elements óku nú ‘in order to’ (Kari 2004: 59), and resultatives are expressed through result adverbial clauses with màa ‘until, because’ (Kari 2004: 60, 206). In structures which in other SVC languages involve true resultative SVCs, in Degema we see that V2 is unequivocally a transitive verb whose external argument is the same as V1, e.g. in examples X and X below. Note the valence-increasing derivational morphology –se CAUS ‘causative’ on (X).

(viii) Tatane ọ=sá ọbáw gbíyé=en
Tatane 3SG=shoot them kill=FAC
‘Tatane shot them dead’ (Ethelbert E. Kari p.c.)
To replace these V2 verbs would be ungrammatical, e.g. replacing *gbiye* ‘to kill’ with *wu* ‘to die’.

12 Although, it is the case that some auxiliaries select VPs with subject agreement, while others do not (see endnote 7). However, this issue is not particular to SVCs, but for any type of VP, and is therefore orthogonal to the current discussion. See also endnote 16.

13 The problem with having multiple little v projections is how to understand external argument sharing in SVCs. Collins discusses a similar situation involving how best to capture object sharing in the absence of direct object sharing (i.e. parallel merge, double-headedness), though this issue is outside of the scope of this paper. The core components of my analysis are not altered if V2P is selected by a V1 (as in Collins 2002), rather than little v2. Positing little v between the two verbs has also been proposed in (Carstens 2001), cited in Collins (2002: 8).

14 Hiraiwa & Bodomo (2008) assume that verbal function morphemes which follow the verb are in this post-verbal position due to appearing in a functional projection between v and V, with accompanying v-to-V movement. This requires violations of the Head Movement Constraint (Travis 1984), an undesireable move.

15 The covert coordination analysis predicts that coordinates should be islands for extraction (‘Coordinate Structure Constraint’ - Ross 1967; Aboh 2009: 5 for SVC discussion). However, in sequential multi-verb constructions in Degema, either object may undergo Ā-movement.
Extraction is also grammatical even if the verbs share different aspectual values.

Further research is required on these facts.

16 One other complication exists, whose syntax I do not know how to treat. In certain constructions of event simultaneity, the verbs can appear with different proclitics and enclitics, presumably reflecting different aspectual values. For example, in (x) below compare the different clitics on the verbs (boldened).

The entire macro-event being denoted here has a present tense reference, e.g. one can’t add *udée* ‘yesterday’ here. In contrast, in the example below the final verb is not marked by a clitic (exhibiting the single-marking pattern), and the entire macro-event is interpreted as past tense (e.g. one can add *udée* ‘yesterday’ here).

(x)  imó  nú  Osoabo  o=kótú=n  ọyi  ọ=kpéri=in
what  that  Osoabo  3SG=call=FAC  tell  3SG=tell=FAC
‘What did Osoabo call him and tell what?’ (Kari 2015.08.24 p.c.)

(xii)  Breno  ọ=dì=n  ịdịyōm  ọ=vó  mọ=réré  mú úsuweny
Breno  3SG=eat=FAC  food  3SG=take  3SG=walk  on  road
‘Breno is eating while working’ (Kari 2003a: 282; Kari 2015.10.24 p.c.: ‘Breno is eating and walking on the road’)

(xiii)  Breno  ọ=dì=n  ịdịyōm  ọ=vó  Ø  réré  mú úsuweny
Breno  3SG=eat=FAC  food  3SG=take  walk  on  road
‘Breno was eating and walking’ (Kari p.c. 2015.10.24)
The grammatical role which the verb *vo* ‘to take’ places in this language likely is the contributing factor here, and is outside of the scope of this paper. Also compare the auxiliary patterns provided in endnote 7, which these patterns with *vo* ‘to take’ may be reducible to.

17 In other types of multi-verb constructions, verbs also do not necessarily share the same clitic values, though these have unequivocally different syntactic structures. For example, in example (Xa)-(b) below, the verb phrases do not have identical clitic marking, though example (Xc) shows that an overt complementizer can occur between the two verb phrases, which is not possible for SVCs.

(xiv)  
\[ mị=kpéri=n \quad ōyi \quad ō=jzá bána \]
\[ 1SG=\text{tell=FAC} \quad \text{her/him} \quad 3SG=\text{stay here} \]

‘I told her/him to stay here’ (Kari 2004: 76)

(xv)  
\[ Ohoso \quad ọ=kpéri \quad báw \quad é=yī \]
Ohoso \[ 3SG=\text{tell} \quad \text{them=FAC} \quad 3PL=\text{come} \]

“Ohoso told them to come” (Kari 2003a: 276)

(xvi)  
\[ Ohoso \quad ọ=kpéri \quad báw \quad mámū \quad báw \quad é=yī \]
Ohoso \[ 3SG=\text{tell} \quad \text{them=FAC} \quad \text{that} \quad \text{they} \quad 3PL=\text{come} \]

“Ohoso told them that they should come”

As shown in endnote 11, SVCs in Degema do not express resultative or purposive meanings, therefore such cases are irrelevant for our understanding of sameness or distinctness of asp values.

18 Kari notes that if a verb is focused, a gerundive deverbal noun or non-gerundive deverbal noun (if one exists) appears in the left-peripheral focus position.

(xvii)  
\[ O=\text{yi}=n \quad ụ-tá \quad nú \quad mj=tá=n \quad mú \quad éki \]
\[ 3SG=\text{be=FAC} \quad \text{GER-go} \quad \text{that} \quad 1SG=\text{go=FAC} \quad \text{to market} \]

‘It is going that I went to the market’ (Kari 2004: 169)
When a verb is topicalization, it shows the same nominal marking (Kari 2004: 180-181). As stated, predicate clefting has not been tested.

A true pattern of verb compounding may exist in Degema. The verb *kiye* ‘to give’ can be used in a SVC to indicate the recipient/benefactor of a clause. When it is used in this role, two patterns are found. In one, *kiye* ‘to give’ appears in V2 position separate from V1 in a [V O V O] pattern. This is shown in (X) below.

(xviii) Tatane  o=gbiyé=n  ĕnám  o=kiyé=n  ōyi
tatane  3sg=kill=FAC  animal  3sg=give=FAC  him
“Tatane killed an animal for him.”

In a second pattern, *kiye* ‘to give’ forms a contiguous structure with V1, followed by the recipient/benefactor and then the theme. This pattern can be schematized as [S V1 Vgive Ogive O1]. In some contexts, *kiye* can appear adjacent to V1 even if V1 is transitive and multiple objects are present. In such contexts, *kiye* surfaces as monosyllabic allomorph *kẹ/kụ*.

(xix) Tatane  o=gbiyé  kẹ=n  ōyi  ĕnam
tatane  3sg=kill  give=FAC  him  animal
“Tatane killed an animal for him.”

No discernable meaning difference is found between these structures (E. E. Kari p.c.). It is unclear if *kẹ* should be analyzed as an allomorph of ‘give’ shows verb movement, or as a separate valence increasing applicative suffix. I leave these issues aside here.

I leave open the possibility that such pronouns could merge directly in this left-peripheral position and bind an empty variable.

There are no observations of quantifier float in this language, though this has not been systematically elicited. Unlike in certain varieties of English which show Pron-Q order (e.g. *us all*, cf. *all us*) termed ‘Q-Pro-Flip’ involving short movement (Maling 1976, cited in Bobaljik 2001: 35-37).
9), there is no motivation for such ‘flipping’ in Degema. For the order of DP elements, see Kari (2004: 103).

22 I also dismiss another alternative: V2 movement forms a complex head with V1, but subsequently in the PF component, the prosodically weak DP pronoun must attach in between these two verbs (a type of ‘endoclitic’ – a clitic which anchors to some internal edge within a prosodic object, rather than to an external edge). I do not entertain this possibility given that it is exceptionally rare cross-linguistically, and theoretically questionable (see in particular Smith 2013).

23 In responses to questions without auxiliaries, the verb may appear on its own, though I attribute this to object drop which is common in Degema speech (although tests have not been done to distinguish it from verb-stranding VP ellipsis – McClosky, Goldberg).

(xx) Ụ=ḍé=n atonw?
    Q\2SG=buy=FAC clothes
    “Did you (sg.) buy wrappers?” (Kari 2004:31)

(xxii) íín,  mị=ḍéēn
    yes,  1SG=buy\FAC
    ‘Yes, I did’ (Kari 2015.10.24 p.c.)

This is seen by the fact that when a post-verbal particle appears (not subject to object drop), it cannot delete in such an answer, shown below.

(xxii) Mu=kun a?
    2SG=weed NPM
    ‘Will you weed (something)?’ (Kari 2015.10.24 p.c.)
I will.” (Kari 2015.10.24 p.c.)

cf. *iín, me=kún

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24 Peter Jenks (p.c.) bring up the question of why this should not be understood as post-syntactic lowering, e.g. as used to account for inflection on English verbs. It is difficult to resolve this matter as potential interveners which should block local dislocation but allow lowering are very few in Degema verbal syntax. The only known type are auxiliaries. Auxiliaries themselves never bear enclitics, but in aux+V construction the verb may appear with an enclitic, e.g. with the time lag auxiliary ḍa ‘after a while’ (correct translation?).

(Kari 2004:302)

However, I do not know what the syntactic position of the auxiliary is with respect to the Asp head, and therefore cannot support nor dismiss the lowering alternative.

25 Embick (2010: ix) explicitly states that DM ‘is incompatible with the dominant view in phonological theory, Optimality Theory (OT), which posits competition among infinite sets of complex objects.’ It is interesting to note in early work by Rolf Noyer on Huave (Noyer 1994), he discusses (p 68) readjustment rules (not in the strict DM sense), which include ‘merger, reordering, splitting and insertion of syntactic terminals in the mapping to Phonological Form (PF),’ and notes such readjustment rules form a type of conspiracy, and notes that because morphological well-formedness ‘has such a heterogeneous character’ (p. 68), it makes it well-suited for OT.
26 Within the \([V \ D_{\sigma \sigma} V]\) context where the two verbs ‘shared’ the internal argument, we might expect it to be possible for an object to be spelled-out in a lower position, which would result in the following: \(V \ D_{\sigma \sigma} V \ D_{\sigma \sigma} V \ D_{\sigma \sigma} V \rightarrow (\text{agr} + V + V) \) \((D_{\sigma \sigma})\). This candidate would not incur any violations of IDENT-IO(MWD_LABEL) as only verbs undergo local dislocation, and it would more optimally satisfy the DEP-IO(NODE) by having only one inserted node. Such a structure is not possible in Degema:

\[(xxv)\] Only \(V \ D_{\sigma \sigma} V\) order permitted

\[
\begin{array}{cccc}
\text{Jzakume} & \dot{o}=\text{tam} & \dot{\text{idiyom}} & \circ=\text{dony} \\
\text{Jzakume} & \neg3\text{SG}=\text{chew} & \text{food} & 3\text{SG}=\text{swallow} \\
\end{array}
\]

‘Jzakume did not chew food (and did not) swallow’ (Kari 2003a: 278)

\[(xxvi)\] Cf. ‘Jzakume \(\circ=\text{tam} \ \text{dony} \ \text{idiyom} \) (Tone not marked)

\[
\begin{array}{cccc}
\text{Jzakume} & \neg3\text{SG}=\text{chew} & \text{swallow} & \text{food} \\
\end{array}
\]

Intended ‘Jzakume did not chew food and (did not) swallow’ (Kari p.c.)

I take this as evidence that the object is not base generated in V2, and therefore cannot resort to a lower copy position.

27 Recall from Section 2, Degema has ATR harmony in which vowels within a ‘word’ agree for ATR. In most cases, this also applies to affixes, clitics, prosodically light pronouns (note: \(\dot{\text{wo}}\) 2sg does not change), and certain other function words. We may therefore expect for there to be ATR harmony within a complex MWd involving more than one verb. This is not the case. When more than one verb appear in an MWd, their inherent ATR value does not change, e.g. [-ATR] \(\text{de} /\text{de}/\) ‘to buy’ and [+ATR] \(\beta\text{irese} /\beta\text{irese}/\) ‘to cause to finish’.
Lack of ATR Harmony

Tatane ọ=đé virésé=tē

Tatane 3SG=buy cause.to.finish=PRF

‘Tatane has bought the quantity variable of something’ (Kari 2003a: 277)

This results in a situation in which multiple lexical items within a single morphophonological
word by virtue of having their own phonological properties create surface contradictions to criteria
defining morphophonological words generally.

Although this is a problem for this analysis, it is by no means rare, and in fact appears to be
typologically most common. For example, front/back vowel harmony is widespread in Finnish,
but does not operate in compounds, e.g. pää ‘head’ [Front] + kaupunki ‘town’ [Back] → pää-
kaupunki ‘capital city’ (Spencer & Luís 2012: 101), and similar facts are observed for Dagbani
[Gur: Ghana] ATR harmony violations in compounds (e.g. no sɔ-ɣʊ ‘hen coop’, Olawsky 2002:
210). Internal to Degema grammar, violations of the ATR harmony are also seen in derivational
N+V compounds, e.g. eki /èkí/ ‘market’ [+ATR] + dụ /dʊ/ ‘to bargain’ [-ATR] → eki dú-a
‘trading’.

28 I have found two contradictions to this HL negation tone melody on complex verbs from Kari’s

Ohoso ó=som fiyé óyi

Ohoso NEG3SG=be.good be.more.than him

‘Ohoso is not handsomer than him’ (Kari 2004: 155)

mi=kpény=n ọsama mée dọ mi=way ḃáaw

1SG=wash=FAC dresses my but NEG1SG=spread them

‘I washed my dresses but I didn’t spread them out’ (Kari 2004: 139)
In subsequent discussion with the author, the first example was an error. The correct tones are ó som fìye ūyi [ó sòm fìjè ëjì], with both verbs bearing low tone (E.E. Kari p.c., 2015.08.24). I do not have an answer for the second example, which is a clear contradiction.

The LH pattern on this V2 here (and perhaps also when appearing with enclitics as shown throughout) may be a default pattern. This is supported by the fact that LH is the default tonal pattern for verbs in isolation (Kari 2004, 2008).

I do not analyze the agreement proclitic and the negation tone pattern as forming a portmanteau. If this were the case, we would expect the proclitic to be identical on both verbs, and therefore show negation tone on both V1 and V2 (contrary to fact). Instead, I view negation tone as a separate exponent which falls on the proclitic + verb.

For example, it is clear that the tone of the object affects the tone on verbs in serial verb constructions, e.g. shown below:

(XXX) Object has LH lexical tone – ísèn /ìsèn/ ‘fish’, ābì /âbì/ ‘book’

a. H - downstepped !H tone pattern on verbs

Tatane  mó=tá  ðé  ísèn.
Tatane  3SG=go  buy  fish

‘Tatane will go and buy fish’ (Kari 2003a: 273)

b. H - downstepped !H tone pattern on verbs

mó=tá  ðé  âbì.
3SG=go  buy  book

‘(S)he will go and buy a book’ (E.E. Kari p.c., 2015.08.24)
c. Object modified by yọ ‘the’ – H H pattern on verbs

\[ mọ=\text{tā} \quad \text{dé} \quad \text{ābì} \quad yọ \]

\[ 3\text{SG}=\text{go} \quad \text{buy} \quad \text{book} \quad \text{the} \]

‘(S)he will go and buy the book’ (E.E. Kari p.c., 2015.08.24)

Similar data are seen with imperatives. The tone on verbs in series under imperatives is complicated, and shows a number of tone patterns, e.g. [H L H] and [L H !H] below, among others, shown in the examples below (recall downstepped H is conventionalized with a macron <V>)

(33i) Complexity of imperative tone patterns

a. \[ yí \quad \text{düw} \quad \text{mè} \quad \text{tā} \]

come follow me go

‘come and follow me’ (E.E. Kari p.c., 2015.08.24)

b. \[ sìrè \quad \text{tå} \quad \text{kpéri} \quad \text{á} \]

run go tell NPM

‘run go (and) tell (someone something)’ (Kari p.c., 2015.08.24)

It is unclear how this relates to the fact that it also does not show the presence of any clitics.

Further, if the object were pronoun incorporation and the spell-out position were different, it is unclear how a child would learn that pronouns incorporate if they never actually appear in an incorporated position at the surface (notwithstanding a lurking semantic effect not discovered yet).

33 I do not entertain the possibility that the single-marking pattern is an instance of Right Node Raising (RNR) which (arguably) can also involve simultaneous backward and forward deletion.

An example of RNR is below:

(33ii) John caught and Mary killed the rabid dog (Van Oirsouw 1985:363).
Féry & Hartmann (2005: 75) note the following conditions on ellipsis in RNR (and gapping): (1) the conjuncts must exhibit a parallel syntactic and focus structure, (2) the focus constituents in the two conjuncts must allow for a contrastive interpretation. In Degema, the two verbs showing the single-marking pattern do not have these focal properties (the verbs are typically semantically ‘unified’ in some sense). Further, Hartmann (2000: 96) discusses conditions of deletion in RNR, and notes that the deleted material must correspond to phonological word (quoting Booij 1985, as discussed in Section X below).

Simultaneous Forward and Backward Deletion is also present in so-called ‘scattered deletion’ within movement chains (Wilder 1995/1996?, Vicente 2003, Sheehan 2010; references in Potsdam 2015). One type of scattered deletion is “Chain-Internal Selective Deletion” (CISD) (Wilder 1995: 292), defined as phonological deletion removing part of the antecedent and the complementary part of the trace, e.g. for the following:

(33ii) We talked [about her claim that Mary will hire Peter] yesterday [about her claim that Mary will hire Peter]

Wilder (1995: 294) explicitly establishes a parallel between movement-chains and coordination in that (1) both have c-command (if a conjunct phrase &P is thought to intervene allowing XP1 to command XP2), and (2) deletion of a terminal string αi inside βi under identity within an overt antecedent occurs in a peripheral conjunct. One of the clearest differences, however, is that in movement chains the deletion is by default obligatory, whereas in ellipsis it is optional, and further that in chains there is complete uniformity, which is not true in ellipsis contexts.

Wilder (1997: 88-89) shows that Backward Deletion requires strict identicality of form, not true of Forward Deletion. In the German example below, Backward Deletion is only allowed if the form of sein ‘to be’ is form-identical, even if these forms are syncretic. For example, (a) is
Backward Deletion requirement – Identical phonological forms

nicht nur [daß wir krank—sind] sondern auch [daß sie krank sind]

not only that we sick be-1PL. but also that they sick be-3PL.

‘not only that we, but also that they are sick’

If this condition for phonological form is strictly interpreted, then Degema presents a counter-example. In endnote X I noted that the factative aspect enclitic has a number of allomorphs. Roughly, the /n/ portion of this morpheme is realized except when it would appear between two consonants or between a consonant and a clause boundary; otherwise it is realized strictly tonally (/V́/, /V́V/, or /V́V̄/). Therefore in X below (repeated from X), if this derives from a double-marking pattern, the first conjunct would be marked with the allomorph /n/, whereas the second is marked only tonally. This would then violate the requirement for form identity given above.

Hypothetically derived from [...]ọ=tútú mé=n ọ=ḍı̣́ ḅáw]- Different enclitic allomorphs

Breno ọ=tútú mé ḍị ḅáw
Breno 3SG=be.first me eat them

“Breno ate them first before me” (Kari p.c. 2015.10.24)

I am indebted to Line Mikkelsen for discussion here.

One note should be made. No typological survey on the deletion of clitics, function words, and/or subwords (e.g. derivational morphemes) exists that the author knows of, and therefore it is not known how these theories extend outside of Europe. Further, even within European languages, there is variation which the prosodic analysis of DUI does not capture. For example Vigário (2003: 338) notes that DUI in Brazilian Portuguese also occurs with words containing certain
prosodically weak prefixes which are not prosodic words (citing Schwindt 2000), which is not possible in European Portuguese. Similar facts hold for Turkish suffix –m which is not a prosodic word but is subject to DUI (Sharon Inkelas p.c.). Further, Miller (1992: 155) shows that the deletion of French function words/clitics is complex and not reducible to prosodic status. See also Progovac (1997) for discussion on conditions of clitic deletion in DUI contexts Serbo-Croatian.