The Placement of Arabic Pronominal Clitics

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1 Introduction

Clitics – particularly special clitics (Zwicky 1977) – have a crucial place in the literature on the prosody-syntax interface, since it is so often acknowledged that the constraints or rules that determine their linearization cannot be solely prosodic or solely syntactic (Hale 1973; Tegey 1975; Zwicky 1977; Inkelas 1990; Zec and Inkelas 1990; Halpern 1995; Inkelas and Zec 1995; Aissen 2000; Chung 2003; Dost 2007). In many cases, clitics are driven leftward into a 'second position' of some sort, the definition of which differs according to language, but in quite a few such cases the definition refers to both syntactic and prosodic information.

The analytical aim of this paper is to provide an account of the placement of pronominal clitics of Classical Arabic within Optimality Theory (Prince and Smolensky 1993/2004). I follow many of the assumptions of Grimshaw (1997) in importing OT into the domain of syntax. The structures I assume are essentially bare phrase structure. I assume that the mapping between syntactic and prosodic structure is governed by alignment constraints (McCarthy and Prince 1993), largely following ideas developed by Selkirk and others (Selkirk 1984, 1986, 1995; Nespor and Vogel 1986; Inkelas 1990). I additionally employ some constraints developed more recently in OT work on the syntax-phonology interface (Truckenbrodt 1995, 1999; Büring 2001; Samek-Lodovici 2005). The constraints that drive the movement of clitics to T are of a general sort, not specific to the object pronouns of Arabic.

With regard to prosodic structure, I assume exhaustive parsing. With the possible exception of the foot, no level of the prosodic hierarchy can be skipped (i.e., there is no weak layering (Selkirk 1984, 1986, 1995; Ito and Mester 1992)); hence, an intonational phrase must directly dominate only phonological phrases, and a phonological phrase must directly dominate only prosodic words. This also rules out recursivity, although recursivity will never bear on the analysis (see Truckenbrodt (1999) for arguments that recursive structure is necessary).

My theoretical objective is to compare theories of the syntax-phonology interface. Recent work in Optimality Theory has argued that phonological and syntactic constraints are intermingled and evaluated in parallel (Büring 2001; Dehé 2005; Samek-Lodovici 2005; Teeple to appear). This view differs from theories in which there is a sharp division of syntax and phonology, either in terms of ordered modules (Zwicky and Pullum 1986; Pullum and Zwicky 1988; Miller et al. 1997; Zubizarreta 1998), or in terms of non-overlapping constraint blocks (Golston 1995; Szendrői 2001). I argue that there is no particularly compelling some evidence that constraints from different modules intermingle.

The following constraints will be employed or discredited.

(1) Syntactic (S) constraints
   a. Finite-Matrix (Fin-Mx): Matrix clauses must be finite.

b. EPP (Grimshaw 1997): Clauses have subjects.

c. Stay (Grimshaw 1997): Trace is not allowed.

d. No Particle Pied-Piping (Dehé 2005): Do not pied-pipe a verbal particle.

e. Obligatory Heads (Ob-Hd)(Grimshaw 1997): A projection has a head [and trace counts as a head - Author].

f. Topicalize: Topics occupy the specifier of TopP.

g. Local Case: Case is assigned to a complement or the specifier of a complement.

(2) Mapping (M) constraints

a. *[Cl]$_{PWd}$: A clitic cannot be the sole member of a prosodic word.

b. Align(XP, R, P, R) (XP-R) (Selkirk 1995): The right edge of a lexical maximal projection should be aligned with the right edge of a phonological phrase.

c. Align(XP, L, P, L) (XP-L) (Selkirk 1995): The left edge of a lexical maximal projection should be aligned with the left edge of a phonological phrase.

d. Align(I, R, Head(I), R) (H-I) (Samek-Lodovici 2005): Align the right boundary of every intonational phrase with its head.

e. Align(P, R, Head(P), R) (H-P) (Samek-Lodovici 2005): Align the right boundary of every phonological phrase with its head.

f. Pred (Büring 2001): A predicate shares its phonological phrase[1] with at least one of its arguments.

g. Stress-XP (Truckenbrodt 1995; Samek-Lodovici 2005): Each lexically headed XP must contain a *phrasal stress* (where 'phrasal stress' refers to the head of a phonological phrase P).

h. Wrap-XP (Truckenbrodt 1995, 1999): Each XP is contained in a phonological phrase.

i. Focus Prominence (FP) (Büring 2001): Focus is most prominent.

j. Topic Prominence (TP): Topic receives a phrasal stress.

k. *PF-mv: PF-movement is not allowed.

l. Person Template (Pers-Temp): Clitics are attached to a verb according to the person hierarchy $1 < 2 < 3$.

m. Argument Template (Arg-Temp): Clitics are attached to a verb according to the argument hierarchy IO < DO.

n. Full Interpretation (Full-Int) (Grimshaw 1997): Lexical conceptual structure is parsed [i.e., 'no semantically vacuous lexical items' - Author].

A note on Full-Int: this constraint is a mapping constraint inasmuch as it punishes elements in PF which have no correspondent in lexical conceptual structure. It could be renamed Dep(LCS-PF).

2 On parallelism and intermingling

Since the placement of special clitics is sensitive to both syntactic and prosodic factors, one could ask of an OT analysis of these items the following important questions: (1) Is parallel evaluation of syntactic and mapping constraints necessary to position special clitics correctly; and (2) If so, are constraints of different components of the grammar free to intermingle?

[1] Büring uses the term 'accentual domain' rather than phonological phrase.

A long-cherished view of the interface has it that no rule of syntax can make reference to phonology. This is the Principle of Phonology-Free Syntax (Zwicky and Pullum 1986; Pullum and Zwicky 1988; Miller et al. 1997; Zubizarreta 1998). One possible OT interpretation of this principle might be to answer question (1) in the negative, and to impose a derivational ordering such that the syntactic evaluation precedes the phonological one. But the principle has also been interpreted by Golston (1995) as a fixed ranking on three blocks of constraints evaluated in parallel, such that Syntax outranks Phonology, and Phonology outranks Morphology. This means that it is still possible to answer question (1) in the affirmative without predicting atrocious affects of phonology on syntax, but it may require answering question (2) in the negative.

Like Golston (1995), Szendrői (2001) believes in parallel evaluation with non-overlapping constraint blocks, but she does not fix the ranking of these blocks with respect to one another. In her theory, the constraint blocks are Syntax, Prosody and Mapping, and they may be ranked in any order, but their constituent constraints may not intermingle.

(3) Hungarian focus fronting (Szendrői 2001):
LEFT-ALIGN STRESS ≫ STAY (M ≫ S)

Opposed to this, Samek-Lodovici (2005) and Dehé (2005) argue that the answer to both questions is yes. However, their arguments for intermingling are weak. Consider the constraint rankings defended by each of the authors in order to support intermingling (which itself demands parallel evaluation).

In his analysis of French object shift, Samek-Lodovici (2005) defends the rankings in (4). He argues that this is support for intermingling: EPP and STAY are syntactic (S) constraints, while H-I, H-P, STRESS-XP and WRAP are syntax-prosody mapping (M) constraints. In (4a), an M constraint is sandwiched between S constraints, and in (4b), an S constraint is sandwiched between M constraints.

(4) a. EPP ≫ H-I ≫ STAY (S ≫ M ≫ S)
b. STRESS-XP, H-P ≫ STAY ≫ WRAP (M, M ≫ S ≫ M)

It is a curious fact that the constraint STAY is crucial to both sandwichings. In order for these rankings to be strong evidence for intermingling, it would have to be ascertained that movements triggered by the M constraints involved are indeed syntactic, leaving bound traces and therefore violating STAY. If the movements were in fact purely phonological, however, having no effect on syntactic structure, then we would need to replace STAY in the rankings above with a constraint that punishes syntax-phonology mismatches (*PF-MV), rather than syntactic movement. In this event, there would be no sandwiching: (4a) would be consistent with the macro-ranking S ≫ M, and (4b) would be located entirely within the confines of the M constraint block.

Likewise, Büring (2001) argues that focus scrambling in German can be attributed to a ranking – that in (5) – where again STAY is the only syntactic constraint outranked by mapping constraints.

(5) FINALFOCUS ≫ STAY (M ≫ S)

Dehé (2005) makes very similar claims about English particle movement, defending the ranking in (6), involving the constraint NO PARTICLE PIED-PIPING (NPPP). She argues that this contradicts Szendrői's macro-ranking for English, S ≫ M.

(6) H-P ≫ STRESS-XP ≫ NPPP ≫ H-I (M ≫ M ≫ S ≫ M)

But NPPP could be viewed as a very specific version of STAY, forbidding movement specifically of verbal particles. And again, since the constraints argued to drive the movement of these particles

are mapping constraints, it is possible that the movement itself is not syntactic but phonological. If so, then the ranking in (6) can be entirely confined to the M constraint block, casting doubt on the possibility of constraint intermingling.

One wonders, then, if any syntactic constraint other than those prohibiting movement can be violated in order to satisfy a mapping constraint. What would be required as convincing proof of constraint intermingling, and by transitivity, of strongly parallel constraint evaluation, is a ranking in which unquestionably syntactic constraints were sandwiched between mapping constraints, or vice-versa. I first propose an analysis of Arabic clitics involving intermingled constraints, but then go on to show that this too suffers from the weakness that the pivotal constraint (again, STAY) is only questionably syntactic, and that a perfectly sound alternative involving PF-movement can account for the same facts. I believe that a similar reanalysis could be applied to the phenomena described by Samek-Lodovici and Dehé.

3 Arabic pronominal clitics

3.1 Basic word order facts

When there are only full DP arguments, the order of arguments is relatively free, although the default is V-S-DO-IO. In the absence of focus or topicalization, the verb is always clause-initial. The three argument orders shown in (7) are common, and the other three orders are possible but more marked.

(7) a. ʔarsala l-mudarris-u risaːlat-a-n ʔila-l-muħarrir-i
sent DEF-teacher-NOM message-ACC-INDEF to-DEF-editor-GEN
'The teacher sent the message to the editor.' (V-S-DO-IO)

b. ʔarsala l-mudarris-u ʔila-l-muħarrir-i risaːlat-a-n
sent DEF-teacher-NOM to-DEF-editor-GEN message-ACC-INDEF
(V-S-IO-DO)

c. ʔarsala risaːlat-a-n ʔila-l-muħarrir-i l-mudarris-u
sent message-ACC-INDEF to-DEF-editor-GEN DEF-teacher-NOM
(V-DO-IO-S)

When an accusative argument is pronominalized, however, it is subject to a more rigid order, since pronominal objects are enclitics, and the pronominal object of a verb generally must take that verb as its prosodic host. A complication is that finite verbs in Arabic must move to T, and therefore the object pronoun must follow it there if the verb is to serve as its host. This is illustrated in (8a), where the object pronoun *-haː* 'her/it (f.s.)/them (inan.pl.)' cliticizes to the verb in T, having moved there from object position. Sentences in which the pronoun simply leans left onto the subject DP (8b), or else in which it leans onto another argument of the verb (8c), are unacceptable. Also unacceptable, for obvious reasons, I hope, is assigning the clitic to a prosodic word of its own (8d).

(8) a. ʔarsala-haː l-mudarris-u ʔila-l-muħarrir-i
sent-3fsO DEF-teacher-NOM to-DEF-editor-GEN
'The teacher sent it to the editor.'

b. *ʔarsala l-mudarris-u-haː ʔila-l-muħarrir-i
sent DEF-teacher-NOM-3fsO to-DEF-editor-GEN

c. *ʔarsala l-mudarris-u ʔila-l-muħarrir-i-haː
sent DEF-teacher-NOM to-DEF-editor-GEN-3fsO

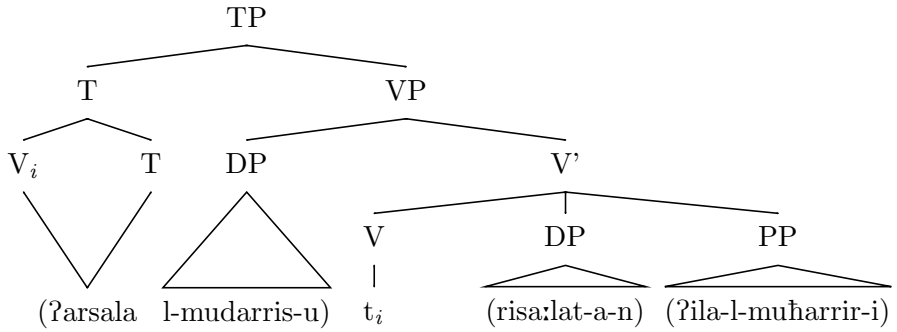
d. *ʔarsala l-mudarris-u ha: ʔila-l-muħarrir-i
sent DEF-teacher-NOM 3fsO to-DEF-editor-GEN

I will assume that in Classical Arabic, the verb is incorporated into a phonological phrase with the immediately following argument, such that (VS)(O) should be a very common phrasing, while (V)(S)(O) should be ungrammatical (cf. Irish, McCloskey 1999). I believe that this is the case, though there are no native speakers left to provide definitive evidence.

Interpreting this assumption in OT terms, the ranking PRED ≫ XP-L will force the verb to integrate a following argument into its p-phrase – preferably a clitic if there is one, since this allows for better satisfaction of XP. This ranking is an essential ingredient in my analysis of clitic placement, which might be taken as an argument for the view that Classical Arabic did indeed pattern with these other verb-initial languages with respect to p-phrase construction; i.e., they all seem to require the ranking PRED ≫ XP-L.

Following Mohammed (1988) and Fassi Fehri (1989) I assume that V moves to T in Classical Arabic (see references in Carnie and Guilfoyle (2000:8-9) for similar analyses of other languages). Example (7a) would therefore be represented by the tree in (9). Parentheses indicate assumed phonological phrase boundaries.

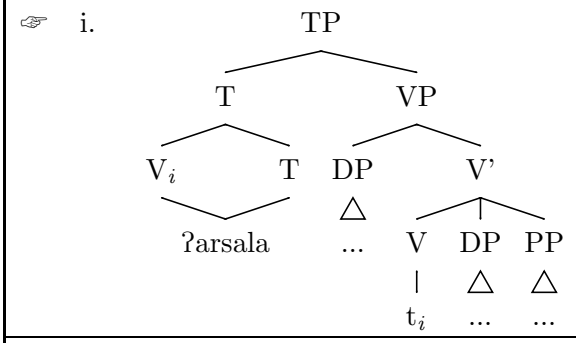
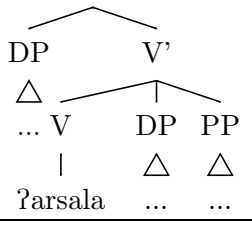
(9)



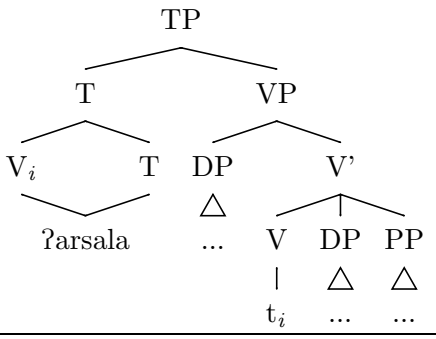
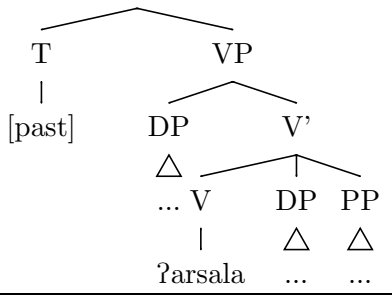
The constraint ranking that forces V-to-T movement is FIN-MX, OB-HD ≫ STAY: movement is preferred to leaving the sentence without tense (10a), or to leaving T without any lexical item (10b).

(10) V-to-T

a. FIN-MX ≫ STAY

PAST(send(X, Y, to Z))	FIN-MX	STAY
☞ i. 		*
ii. 	*!	

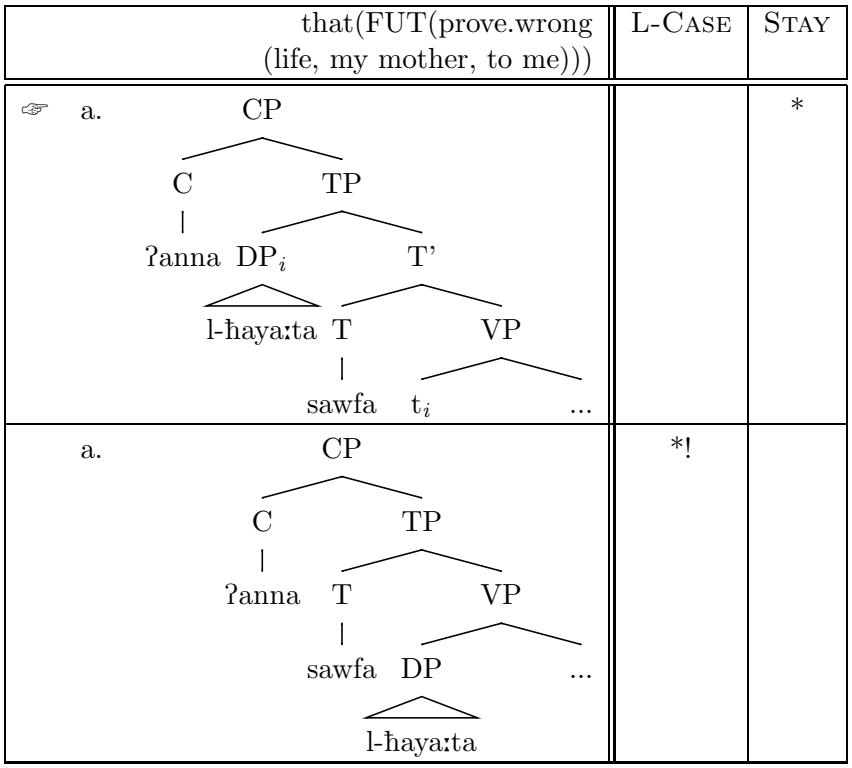
b. OB-HD ≫ STAY

PAST(send(X, Y, to Z))	OB-HD	STAY
☞ i. 		*
ii. 	*!	

For the purposes of this paper, I will take V-to-T movement to be clearly syntactic, though that could also be questioned.

Local assignment of accusative case by a complementizer may drive movement of subjects to Spec, T. Hence I assume the ranking LOCALCASE ≫ STAY

(11) Subject to Spec, T



I assume that the same analysis applies to pronominal clitics under case-assigning complementizers.

3.2 Object pronouns are clitics, not agreement morphology

In languages with verbal object agreement affixes, such as Swahili, the agreement morphology can cooccur with a full DP correspondent (though not obligatorily). This is expected if the affixes are not themselves determiners, but generated as part of the verb's morphology.

(12) Swahili object agreement

a. ni-li-(mw-)ona Juma
1sS-PAST-(3sO-)see Juma
'I saw Juma'

b. ni-li-mw-ona
1sS-PAST-3sO-see
'I saw him'

Arabic object pronouns, on the other hand cannot cooccur with corresponding full DPs; the two are mutually exclusive.

(13) Arabic object pronouns

a. raʔay-tu(*-hu) ʤumʕah
saw-1sS(*-3msO) Jumah
'I saw Jumah'

b. raʔay-tu-hu (*ʤumʕah)
saw-1sS.PERF-3msO (*Jumah)
'I saw him'

Furthermore, in some cases an object pronoun can be removed from the prosodic domain of the verb to which it serves as complement. The pronoun can instead cliticize to a dummy lexical item, *ʔiyyaː*, which serves as its prosodic host. This happens most often when the object is placed under focus, either in topic position (14a) or in situ (15a).

(14) a. ʔiyyaː-ka naʕbudu wa-ʔiyyaː-ka nastaʕiːnu
ʔiyyaː-2msO we.worship and-*ʔiyyaː*-2msO we.ask.for.help
'Thee do we worship and thee do we ask for help' (Qur'an 1:5).

b. naʕbudu-ka wa-nastaʕiːnu-ka
we.worship-2msO and-we.ask.for.help-2msO
'We worship you and we ask you for help.'

(15) a. raʔaytu ʔiyyaː-haː
saw.1sS *ʔiyyaː*-3fsO
'I saw [her]$_{FOC}$.'

b. raʔaytu-haː
saw.1sS-3fsO
'I saw her.'

Among Zwicky and Pullum's (1983) diagnostics for differentiating affixes from clitics, criterion A states that, "Clitics can exhibit a low degree of selection with respect to their hosts, while affixes exhibit a high degree of selection with respect to their stems." The availability of a dummy prosodic host for object pronouns suggests that they are not highly selective, since the dummy host presumably has no syntactic features.

Furthermore, some complementizers assign accusative case to the subject, forcing it to front (16a). While nominative pronouns generally pro-drop (16b), accusative pronouns cannot (16c-16d): they must appear directly after the clitic.

(16) Complementizer cliticization

a. lam ʔataṣawwar ʔanna **l-ħayaːt-a** sawfa tukaððibu l-iː
NEG.PST imagine.1sS C DEF-life-ACC FUT contradict.2fsS to-1sGEN
ʔumm-iː bi-haːðihi s-surʕat-i
mother-1sGEN with-this DEF-speed-GEN
'I didn't imagine that life would so quickly prove to me that my mother was wrong.' (As-Saʕdāwi 1999:25)

b. lan ʔafʕala **Ø** ðaːlika
NEG.FUT do.1sS *pro* that
'I won't do that.' (As-Saʕdāwi 1999:24)

c. ʔinna*(**-hu**) ʃayʔ-u-n muʔlim-u-n ʤiddan
C-3msACC thing-NOM-INDEF painful-NOM-INDEF very
'It's a very painful thing.' (As-Saʕdāwi 1999:57)

d. liʔanna*(**-haː**) lam taʕud tuʔlimu-niː
because-3fsACC NEG.PAST return.3fsS hurt.3fsS-1sACC
'Because she would no longer hurt me.' (As-Saʕdāwi 1999:16)

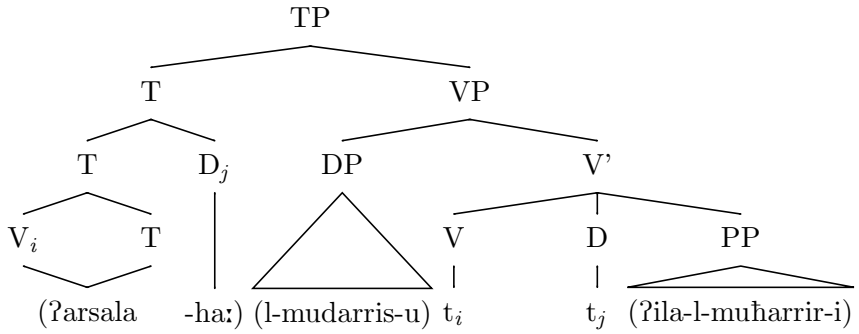
The fact that object pronouns can occur in A- and A'-positions, as well as the fact that they cannot occur with a corresponding full DP, seems to me strong evidence that they are generated in D, and associated with a prosodic host at the prosody-syntax interface. They cannot be agreement affixes.

4 Assuming syntactic movement of clitics

4.1 Clitics move to T

For the moment, let us assume that the pronominal clitics are generated in D and move to T along with the verb, and that the clitic (or clitic group) is rightmost in its phonological phrase. Further, assume that this clitic movement is indeed syntactic, and that it is driven by syntax-prosody mapping constraints; this requires parallel evaluation, but does not a priori require constraint intermingling, since the macro-ranking M ≫ S could conceivably achieve the desired results. Given the assumption of syntactic movement, example (8a) would be represented by the tree in (17); the clitic leaves a properly bound trace.

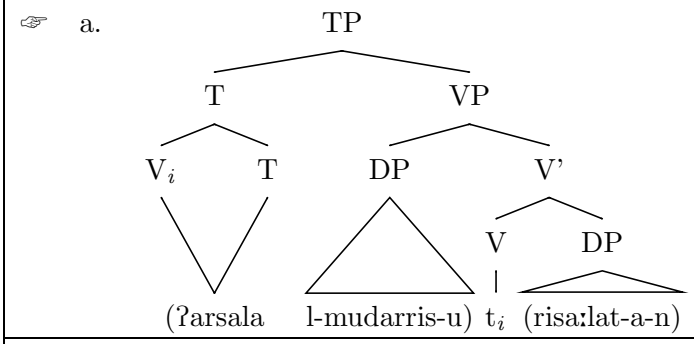
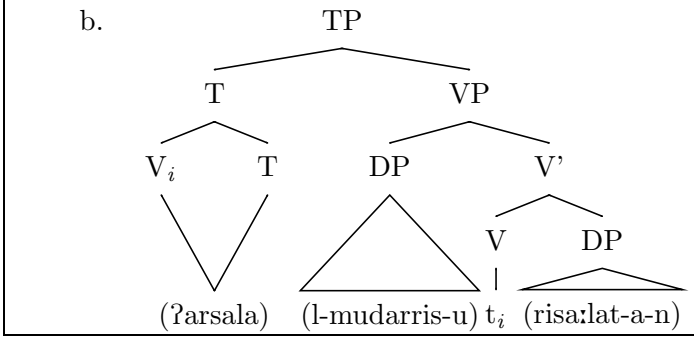
(17)



Short of stipulating a morphological or syntactic rule, forcing the clitic to adjoin to T along with the verb requires a ranking of four constraints: *[Cl]$_{PWd}$, Pred, XP-R ≫ XP-L ≫ Stay (M, M, M ≫ M ≫ S). To see why this is so, consider the following series of tableaux.

When there is no clitic, the nearest argument integrates into a p-phrase with the verb, satisfying Pred at the cost of XP-L. Pred here requires that the verb share its p-phrase with one of its arguments, while XP-L requires the right edge of each lexical XP to coincide with the right edge of a p-phrase (and I assume that DP, being an extended NP (Grimshaw 2005), counts as lexical).

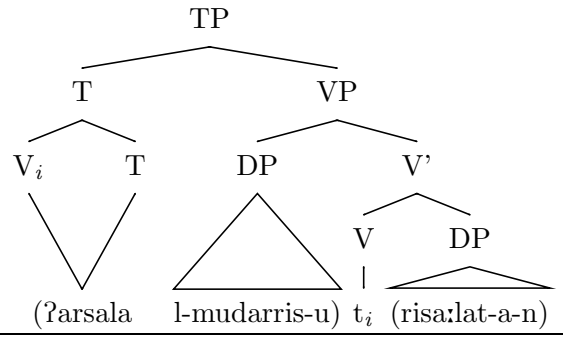
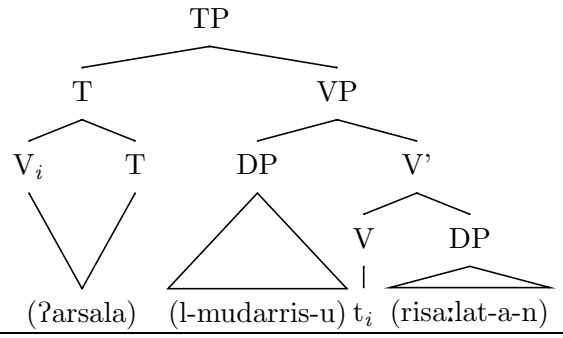
(18) Phrasing: (VS)(O)

PAST(send(the teacher, a message))	PRED	XP-L
☞ a. 		*
b. 	*!	

I employ Büring's (2001) PRED in preference to STRESS-XP (Truckenbrodt 1995; Samek-Lodovici 2005). As Büring argues, PRED – unlike STRESS-XP – favors integration of a verb and an argument even if the verb ends up being the head of the phonological phrase, and also applies even if the predicate is an XP of its own, for instance "subject–intransitive verb, object–secondary-predicate, and NP–short relative clause, which all have been reported to allow, if not require single [phonological phrases]" (Büring 2001:13-14).

For the analysis of Arabic, this choice of constraints is crucial, since PRED can force the phrasing (VS)(O), but STRESS-XP cannot. For each of the candidates in (19), every lexically headed XP receives a phrasal stress, selection falls to XP-L, which prefers (V)(S)(O).

(19) Stress-XP fails

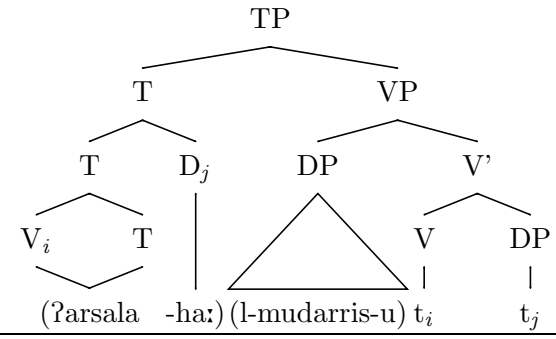
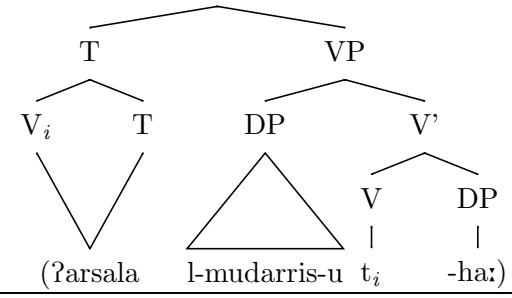
PAST(die(the teacher))	Stress-XP	XP-L
☛ a. 		*!
☞ b. 		

Because Pred makes no demands about which element in a phrase should be stressed, it correctly groups the verb and a following subject into a phonological phrase.

The situation is of course slightly different for a sentence with a clitic, which must find a host. Rather than cliticizing to a fellow argument of the verb, it cliticizes to the verb itself. There are many logically possible phonological phrasings, not all of which would force the clitic to move to T along with the verb. Those in which the entire sentence is assigned a single phonological phrase, potentially allowing the clitic to stay in situ and cliticize to a fellow argument, gratuitously violate XP-L. Hence, we must assume that XP-L outranks Stay. Since Pred is satisfied by all of the candidates below, selection falls to XP-L.

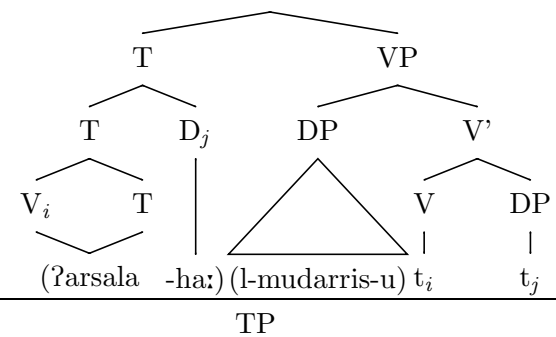
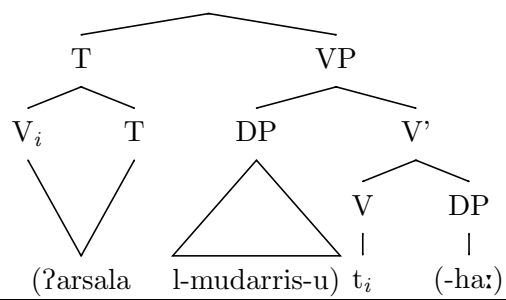
It is important that clitics alone integrate with the verb in a single p-phrase. Allowing a full argument of the verb to integrate as well would lead to gratuitous violations of XP-L without any better satisfying Pred. Also note that for candidate (b), because the clitic is functional rather than lexical, failing to align the left edge of its DP with a p-phrase boundary does not violate XP-L.

(20) Two p-phrases, not one

PAST(send(the teacher, it))	PRED	XP-R	XP-L	STAY
☞ a. 				**
b. 		*!	*	*

Leaving the clitic to form its own prosodic word and phonological phrase is also unacceptable, hence we have the ranking $*[\text{CL}]_{PWd} \gg$ STAY.

(21) Clitic needs a host

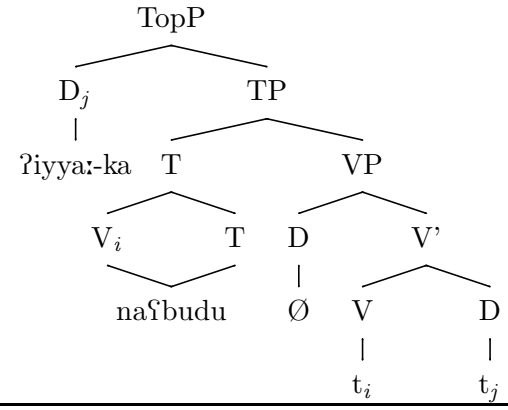
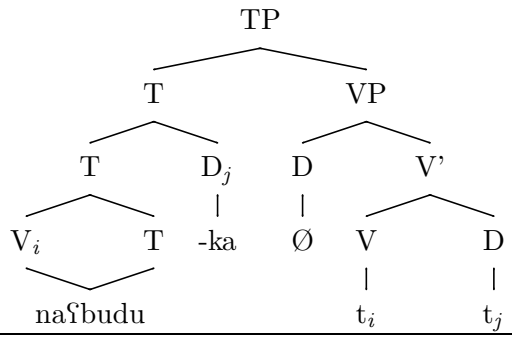
PAST(send(the teacher, it))	$*[\text{CL}]_{PWd}$	STAY
☞ a. 		*
b. 	*!	

4.2 Topicalized and focused objects

The availability of the dummy host under topicalization and/or focus can be attributed to the ranking TOPIC, FOCUS PROMINENCE, *[CL]$_{PWd}$ ≫ FULL-INT ≫ STAY (S, M, M ≫ M ≫ S). This ranking involves intermingling among constraint blocks, which could be taken as support for strongly parallel evaluation.

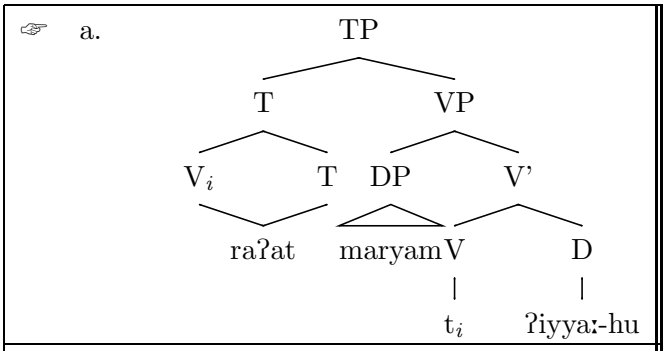
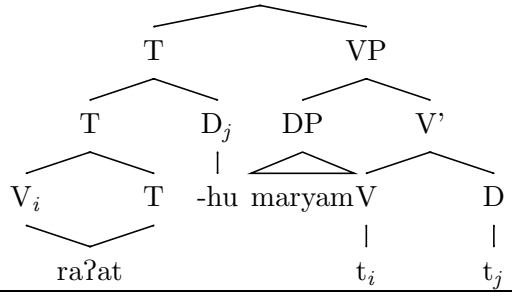
Insertion of the dummy host is required in order to move the object pronoun into Spec, Top, since it would otherwise have no prosodic host.

(22) Topicalized object pronoun needs dummy

	PRES(worship(we, you$_{TOP}$))	TOPIC	FULL-INT
☞ a.			*
b.		*!	

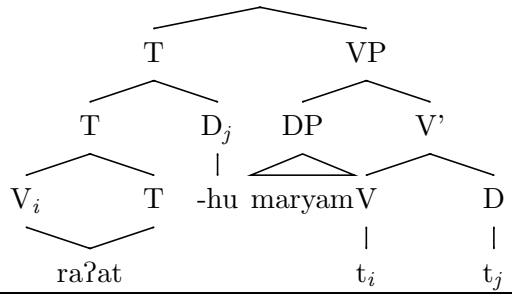
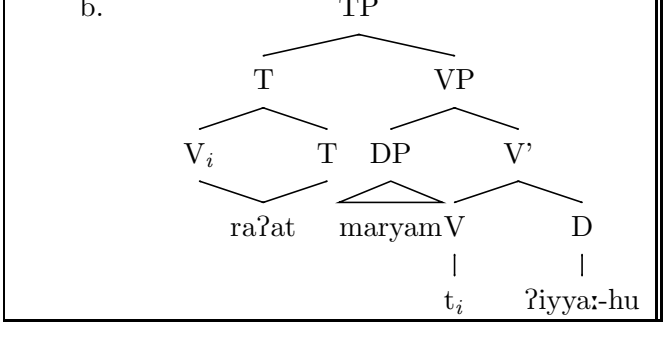
The dummy host is also required as a bearer of focal prominence, since the pronoun is not stressable, and since placing that prominence on the verb would be interpreted as simple sentential focus. The ungrammaticality of (23b) as an expression of object focus is not fully formalized here, because Unidirectional OT is incapable of ruling out ambiguity (as opposed to Weak Bidirectional OT, which evaluates both form and meaning in pairs, recursively, allowing marked meanings to be paired with marked forms; Blutner 1999; Beaver and Lee 2003; Aissen 2003); i.e., (23b) should be able to ambiguously express either sentential focus or object focus. For now, I simply assume that this ambiguity results in a violation of FP.

(23) Focused object pronoun needs dummy

PAST(see(Maryam, him$_{FOC}$))	FP	Full-Int
☞ a. 		*
b. 	*!	

The ranking Full-Int ≫ Stay ensures that the dummy host is not available more generally: movement of the clitic to adjoin to the verb is preferred to insertion of the dummy host.

(24) No dummy under normal sentential focus

PAST(see(Maryam, him))	Full-Int	Stay
☞ a. 		*
b. 	*!	

4.3 Conflicting hierarchies and differential coding

The dummy host may also be employed as a means of expressing a marked meaning in a ditransitive clause. While it is possible to attach two clitics to a single verb, their order is fixed according to a person hierarchy, such that 1st person precedes 2nd or 3rd, and 2nd precedes 3rd (Fischer 2002:144). At the same time, the clitic nearest the verb is always interpreted as the indirect object (there is no morphological differentiation between indirect and direct objects). In the unmarked case, where the direct object is lower in the person hierarchy than the indirect object, the pronouns are both cliticized to the verb; for example, in (25a), the 2nd person indirect object precedes the 3rd person direct object. But in the marked case, where the direct object is higher in the person hierarchy than the indirect object, there is a conflict between the verb template, which prefers 2nd to precede 3rd, and the interpretive mechanism which prefers indirect objects to precede direct (call it the argument template).

(25) a. ʔaʕṭaː-ka-haː
gave-2msO-3fsO
'He gave her to you.'

b. ʔaʕṭaː-haː ʔiyyaː-ka
gave-3fsO *ʔiyyaː*-2msO
'He gave you to her.'

This situation is reminiscent of others analyzed in terms of hierarchy alignment (Aissen 1997, 2003): two hierarchies impose potentially conflicting demands on the same structure. Use of the dummy host, as in (25b), resolves the conflict; either the DO or the IO may remain in its base-generated complement position (see Fischer (2002:144)).

The following is an interesting literary example. The resumptive pronoun in the relative clause requires the dummy host, because the alternative would be to misalign the person and hierarchies for clitic ordering; i.e., the IO is lower in the person hierarchy than the DO.

(26) a. sa-ʔuθbit-u li-ṭ-ṭabiːʕat-i ʔanna-haː bi-r-raʁm-i min ðaːlika
FUT-prove.1sS-IND to-DEF-nature-GEN that-3fsO in-DEF-spite-GEN from this
l-ʒasad-i ḍ-ḍaʕiːf-i llaði: ʔalbasat-niː ʔiyyaː-hu...
DEF-body-GEN DEF-weak-GEN REL.ms dressed-1sO *ʔiyyaː*-3msO
'I will prove to nature that in spite of this frail body which she dressed me in (it)... [I will prevail over her[2]]' (As-Saʕdāwi 1999:22-23)

b. *ʔalbasat-hu-niː
dressed-3msO-1sO
Intended: 'She dressed me in it' (violates person template)

c. ʔalbasat-niː-hu
dressed-1sO-3msO
'She dressed it in me' (the more sensible meaning violates argument template)

d. ʔalbasat-hu ʔiyyaː-ya
dressed-3msO *ʔiyyaː*-1sO
'She dressed me in it' (also possible)

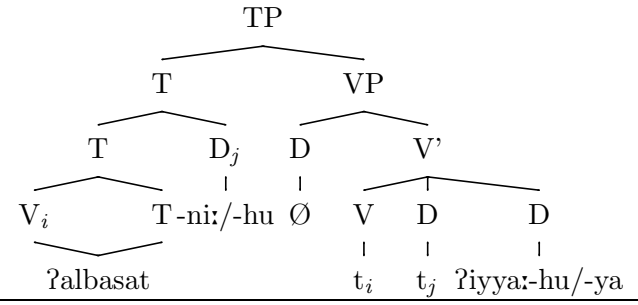
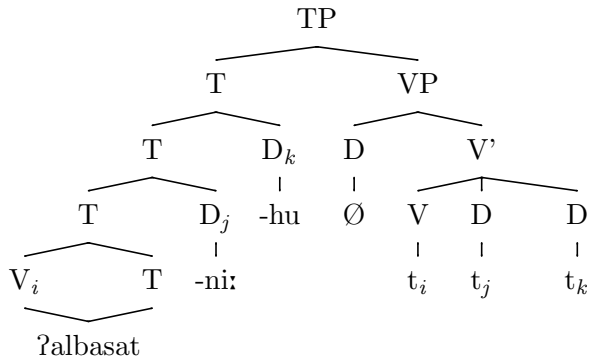
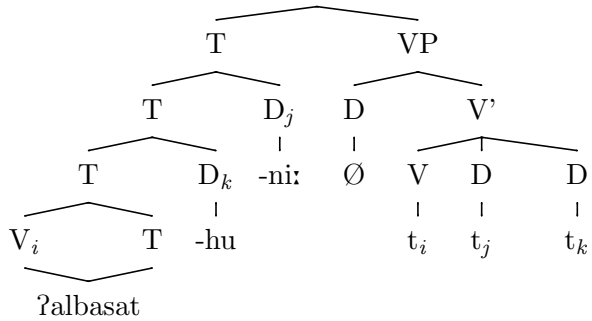
In the cases of differential coding analyzed by Aissen (2003), an unmarked structure is paired with an unmarked meaning (e.g., something like (26c), which despite its bizarre meaning, properly aligns the person and argument hierarchies), and a marked structure is selected to express

[2]The word for 'nature' is feminine, and I have preserved that in the translation for the sake of clarity, though the author might not have intended such personification.

a different meaning (e.g., those with the dummy host above); the pairings are accomplished by recursive bidirectional evaluation (Blutner 1999). The Arabic facts could also lend themselves to a Bidirectional OT analysis, but I will not pursue that here, because, as it happens, Unidirectional OT is capable of modelling the facts correctly. The ranking required is PERS-TEMP, ARG-TEMP ≫ FULL-INT (M, M ≫ M). PERS-TEMP and ARG-TEMP may be considered mapping constraints inasmuch as they impose a linear order on syntactic objects.

Under the proposed ranking, the dummy host can be inserted to resolve a conflict between the person template and the argument template.

(27) Dummy for differential coding

PAST(dress(she, me, in it))	PERS	ARG	FULL-INT
☞ i. 			*
ii. 		*!	
iii. 	*!		

4.4 Summary

At this point, then, we seem to have some evidence for constraint intermingling, and therefore for strongly parallel evaluation.

[total ranking]

Unfortunately, this evidence completely unravels if we adopt the assumption that clitics undergo PF-movement rather than syntactic movement. The same facts can be accounted for without appealing to constraint intermingling, or even to parallel evaluation of constraint blocks.

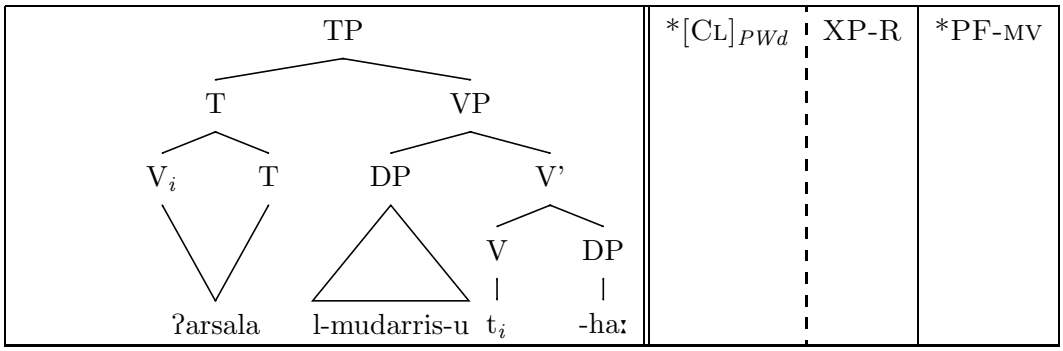
5 Assuming PF-movement of clitics

If we allow for purely phonological movement in addition to syntactic movement, violating *PF-MV rather than STAY, then all of the foregoing analysis could be characterized in terms of a macro-ranking S ≫ M, consistent with the claims of Szendrői (2001). But further, if S ≫ M is the only possible macro-ranking (though Szendrői argues that it is not) then there is no reason even to believe that parallel evaluation of constraint blocks is necessary: the syntactic evaluation can precede the mapping evaluation. In this section I will assume that it does.

5.1 Clitics move at PF

Again assume that the pronominal clitics are generated in D, but now assume that the syntax leaves them there. In this case, syntax-prosody mapping constraints force PF-movement only after the syntactic evaluation is done. (Here I consider only candidates that satisfy the highly ranked PRED).

(28) Two p-phrases, not one



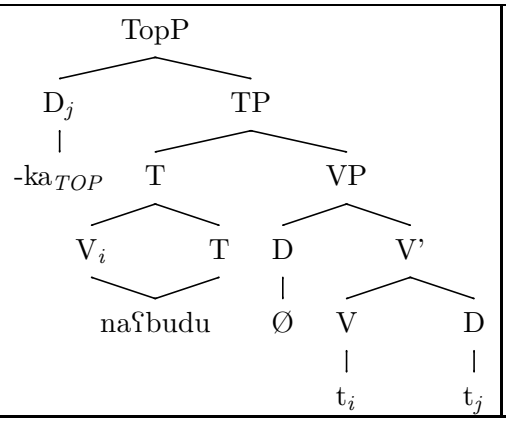
		*[CL]$_{PWd}$	XP-R	*PF-MV
☞	a. (ʔarsala-haː) (l-mudarris-u)			*
	b. (ʔarsala l-mudarris-u -haː)		*!	
	c. (ʔarsala l-mudarris-u) (-haː)	*!		

Here the placement of the clitic reflects a syntax-phonology mismatch, rather than the direct influence of prosody on syntax.

5.2 Topicalized and focused objects

As for topicalized objects, we must assume that the ranking TOPIC ≫ STAY forces syntactic movement of the object pronoun to topic position. The syntax, however, does not impose a dummy host, since it has no access to prosodic information. The dummy is inserted to satisfy mapping constraints. The clitic can neither remain without a host in topic position, nor undergo PF-movement back out of topic position. In order to prevent such PF-movement, a constraint TOPIC PROMINENCE (TP) must outrank FULL-INT.

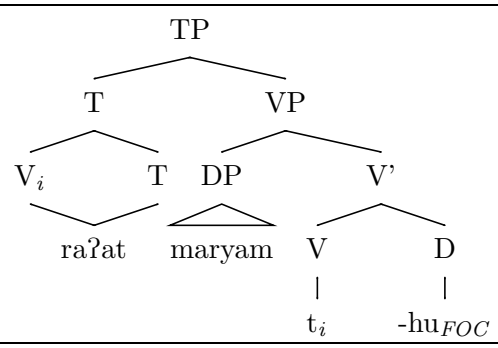
(29) Topicalized object pronoun needs dummy



		TP	*[CL]$_{PWd}$	FULL-INT
☞	a. (ʔiyyaː-ka) (naʕbudu)			*
	b. (-ka) (naʕbudu)		*!	
	c. (naʕbudu-ka)	*!		

The ranking for focused objects remains the same, as it relied solely on mapping constraints.

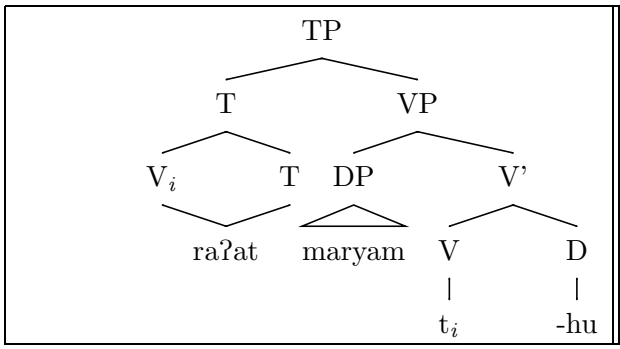
(30) Focused object pronoun needs dummy



		FP	FULL-INT
☞	a. (raʔat maryam) (ʔiyyaː-hu)		*
	b. (raʔat-hu) (maryam)	*!	

The unavailability of the dummy host under normal sentential focus requires the ranking FULL-INT ≫*PF-MV.

(31) No dummy under normal sentential focus

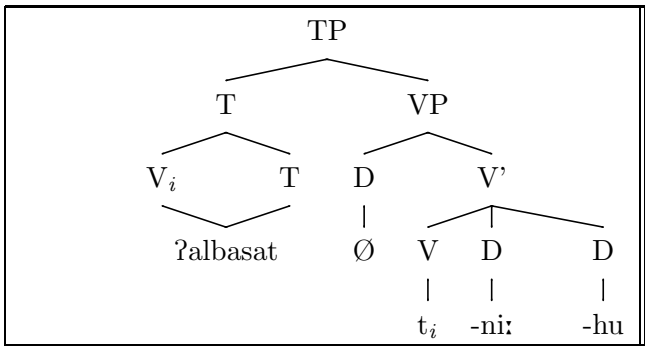


		FULL-INT	*PF-MV
☞	a. (ra?at-hu) (maryam)		*
	b. (ra?at maryam) (?iyya:-hu)	*!	

5.3 Conflicting hierarchies and differential coding

Since the constraints enforcing hierarchical alignment within clitic groups are mapping constraints, the ranking remains the same.

(32) Misalignment of person and argument hierarchies requires dummy



		PERS	ARG	FULL-INT
☞	a. (?albasat-ni:) (?iyya:-hu)			*
	b. (?albasat ?iyya:-ya) (?iyya:-hu)			**!
	c. (?albasat-ni:-hu)		*!	
	d. (?albasat-hu-ni:)	*!		

5.4 Summary

As illustrated, the Arabic facts can be accounted for without assuming that clitics move in the syntax. As such, there is no argument for constraint intermingling, or for parallel evaluation. Indeed, any such arguments that are crucially based on the ranking of a syntactic anti-movement constraint must be able to show that the movement involved is unquestionably syntactic.

6 Conclusion

Extending the PF-movement analysis of Arabic clitics to the phenomena treated by Samek-Lodovici (2005) and Dehé (2005) should not be difficult: In each case, a constraint on syntactic movement can be abandoned in favor of a constraint on PF-movement. Since constraints against syntactic

movement are crucial to the arguments of both authors that constraints intermingle, it would have to be shown that PF-movement cannot achieve the same results.

There is no compelling evidence for intermingling of syntactic and mapping constraints, nor is there any compelling evidence for parallel evaluation of those sets of constraints.

Moreover, in some cases, there is compelling evidence that movement of certain clitics *cannot* be syntactic, but must be phonological, since their movement may break up a syntactic constituent; this is the case for the weak pronouns of Chamorro (Chung 2003). Chung argues that these pronouns (italicized in the glosses) cliticize to the first phonological phrase within their intonational phrase, even if that breaks up a syntactic constituent.

(33) Chamorro weak pronouns break up constituents (Chung 2003)

a. Hayi hao na famalao'an gäi-che'lu?
which? *you* L women WH[NOM].AGR.have-sibling
'Which girls have you as a sibling?'

b. Bunitu gui' na lahi pa'gu
handsome *he* L man now
'He was a good-looking man now.'

Not only do these clitics appear where their full DP counterparts cannot, but in these examples they cannot be in a syntactic position to bind their trace. Syntactic movement would be nearly impossible to defend in such cases. The only reasonable explanation for the placement of these clitics must be prosodic.

That being said, let me stress that strongly parallel evaluation and intermingling are not disconfirmed by any of the foregoing evidence: it is not unthinkable that both STAY and *PF-MV are evaluated in parallel, and rerankable with respect to each other. What the Chamorro evidence illustrates, though, is that not all movement can be argued to be syntactic.

What I hope to have demonstrated is that the argument for intermingling syntactic and mapping constraints cannot be based solely on an anti-movement constraint, unless it can be shown definitively that the movement in question is syntactic.

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