

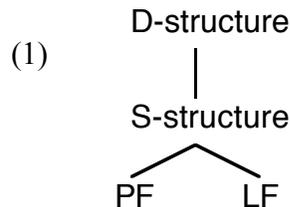
The optimal second position in Pashto¹

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Introduction

In a detailed study of Pashto clitics, Tegey (1977) argues that some interesting interactions between clitic placement and phonology in the language cannot be accommodated in a derivational model of grammar like (1), in which there is a strict separation between the syntactic and phonological components.



Rather, Tegey suggests that phonological rules must be interleaved among syntactic ones. Kaisse (1981; 1985: 132-143), on the other hand, observes that the Pashto data may be accounted for simply by regarding a small set of verb stems as polymorphemic, rather than as monomorphemic. The present paper brings additional evidence to support Kaisse's conclusion that Pashto may be accommodated by a grammar like (1), though from a different body of facts. After outlining the facts of Pashto second position clitic placement in section 1, section 2 will challenge the assumption of both Tegey and Kaisse that second position clitic placement in Pashto is a syntactic process. It will be shown that Pashto clitic placement in fact is best explained by a purely phonological account, a point suggested recently also by van der Leeuw (1995) and Hock (1996). The extent to which syntactic structure contributes to clitic placement is narrowly constrained by principles proposed by Selkirk (1984; 1986) for the mapping of syntactic structure to prosodic structure. Pursuing recent ideas of Anderson (1996) regarding second

position phenomena, it will be claimed that, once the prosodic structure of a sentence has been derived, principles of Optimality Theory (Prince and Smolensky 1993; McCarthy and Prince 1993b) select the output form. This analysis will be proposed in section 3. Pashto clitics are particularly well suited to an analysis within Optimality Theory, since highly ranked prosodic constraints may compel clitics to move away from second position in either direction.

Pashto has often been cited as a language that is recalcitrant to traditional models of grammatical analysis. However, the conclusion here—that clitic placement in Pashto is not syntactic—reveals that Pashto clitics do not pose a serious challenge to traditional ideas about grammar and clitics. The Pashto data remain as interesting as ever, though not necessarily for the reasons originally brought forth by Tegey (1977); rather, Pashto clitic placement is fascinating now because its general "second position" requirement is violated by other constraints in the language, suggesting that Anderson's (1996) application of Optimality Theory to second position clitics may yield considerable force in an explanation of their behavior. Additionally, the Pashto facts will be seen to suggest strongly that the mapping of syntactic structure to prosodic structure may apply to parallel syntactic representations of the kind proposed by Goodall (1987), among others; this consequence is surely unexpected, since—although the phrase markers associated with such parallel structures are crucially unordered with respect to each other—they may nevertheless be seen to feed the level of prosodic structure, a level that crucially encodes linear relations.

For general grammatical information about Pashto, such works as MacKenzie (1987), Penzl (1955), Shafeev (1964), Skjærvø (1989), and Tegey and Robson (1996) may be consulted.

1. The variable nature of second position in Pashto

Optimality Theory is particularly well suited to explaining the placement of clitics in Pashto, since there are cases in which what looks to be second position (in the sense that it follows a clause-initial phrase) turns out not to be the locus of clitics, due to other, more highly ranked prosodic constraints. Thus, these additional constraints are implicated in the determination of

second position, at times compelling a "second position" clitic to appear considerably further away from the left edge, and at other times inducing a clitic to violate the integrity of a word in order that it may appear as close as possible to the left edge. While Anderson has demonstrated how variable constraint ranking permits the variable interpretation of "second position" in a language, the Pashto facts to be presented below show rather strikingly how the notion of "minimal violation"—a hallmark of Optimality Theory—forms a salient part of the grammar of Pashto.

Pashto clitics demand close scrutiny, for reasons alluded to in the literature (e.g., Halpern 1995: 16, 23-25, 47-48), but rarely fully explored. Pashto is like Bulgarian in having two kinds of clitics that may appear within a single sentence: second position clitics and verbal clitics. Only the former will be discussed here, though it is clear that the grammar must distinguish between the two types. The second position clitics of Pashto include pronominals, modals, and adverbials, listed below (Tegey 1977: 81):

(2) **Second position clitics**

Pronominal (ergative, accusative, genitive)

me 1sg

de 2sg

ye 3sg, 3pl

am 1pl, 2pl

mo 1pl, 2pl

Modal

ba will, might, must, should, may

de should, had better, let

Adverbial

xo indeed, really, of course

no then

The following paradigm illustrates for the modal *de* that it occurs in second position. As optional, sentence-initial items are removed, *de* becomes enclitic on whatever other element appears initially. (Here and throughout, clitics are underlined for perspicuity.)

(3) a. tor de nən xar nə rɔwali

Tor should today donkey not bring

'Tor should not bring the donkey today.'

b. nən de xar nə rɔwali

today should donkey not bring

'He should not bring the donkey today.'

c. xar de nə rɔwali

donkey should not bring

'He should not bring the donkey.'

d. nə de rɔwali

not should bring

'He should not bring it.'

e. rɔwali de

bring should

'He should bring it'

(Tegey 1977: 82-83)

Pashto is fairly rigidly verb-final, and so (3e) is of particular interest, as it illustrates that the clitic's need to have a host to its left is strong enough that it compels the verb to appear non-finally in a sentence containing only one word (the verb) other than the clitic. Although it is not obvious from the sentences in (3), clitics are positioned not after the first word, but rather after the first constituent, as the following examples make clear:

- (4) a. [NP αya jel kaləna danga aw khaysta peyla] me nən bya wəliða
 that 20 year tall and pretty girl I today again saw
 'I saw that twenty-year-old tall and pretty girl again today.'
- b. [NP xufal aw patang] ba ye dər ta rawɽi
 Khosal and Patang will it you to bring
 'Khosal and Patang will bring it to you.'

(Tegey 1977: 83-84)

The clitics in (2) may co-occur—as illustrated by such sentences as (4b) and (9b)—and when they do, their respective order is fixed, as schematized in the following template (Tegey 1977: 191).

(5)	1	2	3	4	5	6	7	8
	xo	ba	am	am	me	de	ye	no
				mo				
	'indeed'	'will'	1pl, 2pl	1pl, 2pl	1sg	2sg;	3sg, 3pl	'then'
						'should'		

The modal 'should' and the 2sg pronoun are homophonous (*de*), and have the same position with respect to surrounding clitics, and do not co-occur, hence they are listed in a single column. In the theory of Anderson (1996), the order of clitics would be derived not by a template like (5), but rather by a family of EDGEMOST constraints, ranked as follows:

- (6) EDGEMOST(*xo*,L) » EDGEMOST(*ba*,L) » EDGEMOST(*am*,L) »
 EDGEMOST(*am/mo*,L) » EDGEMOST(*me*,L) » EDGEMOST(*de*,L) »
 EDGEMOST(*ye*,L) » EDGEMOST(*no*,L)

In Generalized Alignment (McCarthy and Prince 1993a), each of these constraints would instead take the form ALIGN(*clitic*,L,*clause*,L), though the name EDGEMOST will be retained here for perspicuity.

The imperfective aspect of a monomorphemic verb bears stress on its final or penultimate syllable, as illustrated in (7a); the perfective aspect, however, is formed by adding the prefix /wə/, which attracts stress from the root, as shown in (7b).

- (7) a. *tor* *sra* *skundóla*
 Tor *Sra* *pinch*
 'Tor was pinching Sra.'
- b. *tor* *sra* *wó* *skundəla*
 Tor *Sra* PERF *pinch*
 'Tor pinched Sra.'

When occurring with imperfective monomorphemic verbs, the clitic follows the verb, as illustrated below:

(8) a. matʃawóle ye
 kiss he
 'He was kissing you.'

b. təxnawóla me
 tickle I
 'I was tickling her.'

(Tegey 1977: 86)

With a /wə/ prefix, however, clitics follow the prefix:

(9) a. wó de riṭə
 PERF you insult
 'You insulted him.'

b. wú ba de guri
 PERF will you see
 'He will see you.'

(Tegey 1977: 87)

A possible analysis of this alternation is that the clitics prefer to be hosted by a stressed element, and that the integrity of VP is violated in (9), in which the clitic intervenes between perfective /wə/ and the verb. While this analysis indeed will be seen to be correct, the sentences of (9) in fact do not prove that a constraint like Anderson's (1996) INTEGRITY(XP) is violated, as the perfective marker may well head its own maximal projection, an aspect phrase, as depicted below:

- (10) a. [AspP wó] de [VP riṭə]
 PERF you insult
 'You insulted him.'
- b. [AspP wú] ba de [VP guri]
 PERF will you see
 'He will see you.'

However, there is evidence in Pashto that not only INTEGRITY(XP), but also INTEGRITY(WORD), are violated by second position clitics, since they may intervene between the two parts of verbs that comprise a prefix and a root. Although Tegey regards perfective /wə/ as a prefix, he does not always transcribe it as such. There are other morphemes, though, that are more clearly prefixes on the verb, and which are not as likely as /wə/ to head their own maximal projections. For a subset of these verbs, their imperfective forms may have stress either near the end of the verb (the usual pattern) or initially. In the latter case, the clitic will intervene between the prefix and the verb stem. The contrast is exemplified in (11-12).

- (11) a. a-xistólə me
 buy I
 'I was buying them.'
- b. á me xistələ
 PREFIX I buy
 'I was buying them.'

(12) a. a-γustó me
 wear I
 'I was wearing it.'

b. á me γustə
 PREFIX I wear
 'I was wearing it.'

(Tegey 1977: 89)

Crucially, in monomorphemic verbs that show the same stress alternation, clitics may not intervene, but rather must follow the verb:

(13) a. satóm ye
 keep it
 'I keep it.'

b. sátəm ye
 keep it
 'I keep it.'

(14) a. pərebdó me
 beat I
 'I was beating him.'

- b. párebdə me
 beat I
 'I was beating him.'

(Tegey 1977: 88)

These paradigms thus show that both stress and morpheme structure contribute to the determination of "second position". Initial stress alone does not suffice for the initial, stressed syllable to host the clitic, as the sentences of (13-14) illustrate; the verb undergoing stress shift must also be polymorphemic, as they are in (11-12).

The alternation in (11-12) also applies to compound verbs. Here, however, stress does not shift optionally. Rather, the imperfective forms have final or penultimate stress; the perfective is formed not by adding the prefix /wə/, but rather by shifting stress to the initial syllable. Regardless of the source of the stress shift (optionality versus perfective formation), then, initial stress on a verb prefix licenses the prefix to host clitics. The imperfective (non-initial stress) versus perfective (initial stress) alternation and its interaction with clitic placement is exemplified below:

- (15) a. tɛl-wahó me
 push I
 'I was pushing it.'

- b. tɛl me wahə
 PREFIX I push
 'I pushed it.'

- (16) a. ʃak-wahó me
 shake I
 'I was shaking it.'
- b. ʃák me wəhə
 PREFIX I shake
 'I shook it.'
- (17) a. pore-westó me
 carry I
 'I was carrying it across.'
- b. póre me westə
 PREFIX I carry
 'I carried it across.'

(Tegey 1977: 92)

The data of (11-17) thus illustrate that perfectivity itself is irrelevant in determining the location of clitics; rather, only stress (regardless of its source: optionality or perfective formation) and morphological structure compel a clitic to intervene between parts of a verb. For further evidence that stress alone (this time derived via focus) is relevant to clitic placement, see (43) below.

Just as stress may compel a clitic to appear further left than the syntactic second position, so too may the absence of stress compel a clitic to appear further to the right of the syntactic second position. If the first constituent of a sentence does not bear at least one main stress, the clitic will occur further to the right, following the first unit that does bear stress. This point is illustrated by the following data:

(18) a. [pp pə rasáy] ba ye wá-taʔi
 with rope will it PERF-tie
 'He will tie it with the rope.'

b. [pp pe] wú ba ye taʔi
 with-it PERF will it tie
 'He will tie it with it.'

c. [pp pe] taʔí ba ye
 with-it tie will it
 'He will be tying it with it.'

(19) a. [pp laylá na] de a-xistə
 Layla from you PREFIX-buy
 'You were buying it from Layla.'

b. [pp tre] á de xistə
 from-her PREFIX you buy
 'You were buying it from her.'

c. [pp tre] a-xistó de
 from-her PREFIX-buy you
 'You were buying it from her.'

(Tegey 1977: 114)

The (a) sentences of (18-19) have a full pre/postpositional phrase in initial position, and—because the nominal complements in such PPs bear stress—the clitic appears after that first,

stressed constituent. In contrast, the initial PP of the (b) and (c) sentences comprises the proforms *pe* 'with it' and *tre* 'from her'. Because these proforms are always stressless, the clitic may not be hosted by them. Rather, in the (b) sentences, a preverbal morpheme that bears stress hosts the clitic. In the (c) sentences, only the verb root itself bears stress, and so the clitic may have an appropriate host only by appearing in final position. Thus, "second position" may be characterized in the usual terms, with initial, stressless constituents essentially regarded as absent with respect to clitic placement. That clitic placement ignores initial, stressless constituents, is even more strikingly illustrated by such sentences as the following, in which several stressless constituents may appear initially and are unable to host the clitic:

(20) a. [pp ra ta] [pp te] [AdvP ra] ʃkawó de
 me for from-it here pick you

'You were picking it for me from it (and bringing it) here.'

b. [pp ra ta] [pp te] [AdvP ra] wó de ʃkawə
 me for from-it here PERF pick you

'You picked it for me from it (and brought it) here.'

(Tegey 1977: 119)

As shown above, the clitic behaves as if the initial, stressless constituents were absent, but otherwise is positioned with respect to stress, morpheme structure, and constituency, as in the usual cases.

Pashto data of the kind in (11-12) and (15-17) have received the most attention in studies of clitics, as it is typologically unusual for clitics to intervene among the segments of a word. The fact that clitics may not intervene among the segments of a word when it is monomorphemic—as was shown in (13-14)—might be taken as evidence that the "prefix" in the sentences of (11-12) and (15-17) is in fact an independent word, in which case the clitic would be

appearing in the canonical second position. However, one problem with such an analysis is that these separate "words" would nevertheless be contained in the same maximal projection (the VP). Since clitics are placed after the first full constituent, not merely after the first word—as was seen above in (4)—the clitic would incorrectly be expected to follow the verb, exactly as if it were monomorphemic. Another difficulty is that there is already some debate about the status of these separable segments; Tegey (1977) regards a-initial verbs as monomorphemic, since the initial *a* does not have an isolable, synchronic meaning, whereas Kaisse (1981; 1985) takes the possibility of separation alone as evidence that the initial *a* is a prefix. A further consideration is that not all Pashto speakers share Tegey's judgments about stress shift, perfective formation, and the separability of the segments of verbs, suggesting that such forms may be undergoing reanalysis. Until independent evidence may be brought to bear on the question of where such verbs fall on the morphological continuum, Kaisse's analysis of the structure of these verbs—and Tegey's grammaticality judgments—will be assumed.

2. Against the syntactic movement of clitics

Although both Tegey (1977) and Kaisse (1981; 1985) assumed that clitic placement was a purely syntactic process, problems quickly arise once the details of a syntactic account of clitic placement are sketched. While the clitics surely have their own distinct syntactic positions and properties, this section will show that a syntactic account of their surface placement is untenable for Pashto.

A purely syntactic analysis of clitic placement generally derives the surface position of clitics via head-to-head movement, similar to the fashion in which verb-second phenomena are characterized by movement of the verb to C^0 (e.g., Baltin 1982). A question that arises in an analysis in which clitics move syntactically is the landing site of the clitics. Halpern (1995: 57-60) claims that clitics in Serbo-Croatian appear in IP-adjoined position, as schematized below (abstracting away from whether the clitic is base-generated in, or moved to, its final position):

(21) [CP [IP CLITIC [IP . . .]]]

In subordinate clauses in Serbo-Croatian, clitics attach to the *wh*-word or complementizer that introduces the subordinate clause (Halpern 1991: 21, 71 n. 50). The structure in (21) would seem to be able to account for that surface word order, but Schütze (1994: 410 ff.), following an analysis of Progovac (1993), suggests rather that the clitic in fact occupies C⁰. The reason for preferring this structure is that Serbo-Croatian has multiple *wh*-word fronting, with the first *wh*-word appearing in Spec/CP, and the second adjoined to IP. When clitics appear in such sentences, they may not be IP-adjoined below the (already IP-adjoined) *wh*-word; rather, the clitics must precede that lower *wh*-word. This is in contrast to the situation with IP-adjoined adverbs, which may freely precede or follow the lower *wh*-word. The adverbs themselves always follow the clitics. Thus, such multiple *wh*-questions would have one of the structures in (22), depending on the order of the lower *wh*-word with respect to the sentential adverb.

(22) a. [CP WH [C CLITIC] [IP WH [IP ADVERB [IP . . .]]]]

b. [CP WH [C CLITIC] [IP ADVERB [IP WH [IP . . .]]]]

Crucially, the location of the clitics is fixed firmly after the first *wh*-word because the clitics appear in C⁰ (rather than adjoined to IP, as they are in Halpern's analysis).

Unfortunately, Pashto does not have overt *wh*-movement in questions, and so the position of clitics with respect to Spec/CP cannot be ascertained clearly. However, in subordinate clauses, the clitics do not directly follow the obligatory complementizer *tʃe*, but rather follow the next constituent, as exemplified in (23). Pashto thus differs from Serbo-Croatian in this respect, since Serbo-Croatian clitics directly follow the complementizer:

- (23) a. aya ndzəlay [CP tʃe [IP tor ba ye arawra cinema ta bowə]]
 that girl COMP Tor would she everyday movies to took
 amrika ta laɽa
 America to went
 'The girl that took Tor to the movies everyday went to America.'

- b. zə ɣwaɽəm [CP tʃe [IP tor me wuguri]]
 I want COMP Tor me see
 'I want Tor to see me.'

(Tegey 1977: 127-128)

Halpern and Schütze take the positioning of clitics as strictly following the initial *wh*-word or complementizer to indicate that clitics have moved fairly high in the representation (IP-adjoined for Halpern, and to C^0 for Schütze). The fact that the clitics in Pashto do not immediately follow the complementizer suggests that they cannot have adjoined to IP or moved to C^0 .

In order to see that Halpern's analysis of Serbo-Croatian may not be extended straightforwardly to Pashto, consider how Halpern derives the two kinds of "second position" in Serbo-Croatian. In this language, second position may be interpreted as either "after the first constituent" or "after the first word"; thus, there are two variants of the following sentence, in which the clitic is the auxiliary *je*:

- (24) a. *Lav Tolstoi je veliki ruski pisac*
 Leo Tolstoi is great Russian writer
 'Leo Tolstoi is a great Russian writer.'
- b. *Lav je Tolstoi veliki ruski pisac*
 Leo is Tolstoi great Russian writer
 'Leo Tolstoi is a great Russian writer.'

In Halpern's mixed phonological/syntactic account of clitic placement, the two varying orders are derived as follows. In both cases, the clitic *je* is syntactically fronted by adjoining to IP, as was schematized in (21). When the clitic follows the first constituent, as it does in (24a), it is because the first constituent has been fronted to a sentence-initial topic position; thus, the word order exemplified in (24a) is derived entirely by syntactic movement.

In sentences in which the clitic follows the first word, however, as it does in (24b), both syntax and phonology contribute to the positioning of the clitic. In (24b), the constituent that is divided is a name, *Leo Tolstoi*, and—although Serbo-Croatian has extensive scrambling—the parts of names may not be separated by scrambling operations. The fact that the clitic *je* intervenes between the two parts of the name in (24b), then, may not be explained by *Lav* having scrambled to the topic position. For this reason, Halpern (1995: 44-52) notes that it is difficult to defend an account of second position phenomena that is stated solely in terms of syntactic projections. Rather, he suggests a prosodic account of second position phenomena, in which clitics are phonologically subcategorized to attach to an item on their left. This requirement is vacuously satisfied in sentences like (24a), since the clitic has as its host the constituent that was syntactically fronted. In sentences like (24b), however, no constituent has been topicalized, and so (24b) would have the following S-structure:

- (25) [IP je [IP *Lav Tolstoi veliki ruski pisac t_i*]]
 is Leo Tolstoi great Russian writer

For such cases, Halpern invokes a rule of **Prosodic Inversion**, in which a clitic adjoins to the right side of the directly adjacent prosodic word, ensuring that the subcategorization requirement of the clitic will be satisfied. Thus, the clitic *je* in (25) right-adjoints to the adjacent word, *Lav*, and the surface order in (24b) is derived.

Although Tegey's (1977: §4) discussion of clitic placement in subordinate clauses concludes that clitic placement operates identically in main and subordinate clauses, he does not cite embedded clauses having long, initial constituents—like those in (4) above—and so it is not yet clear that the clitics in (23) indeed follow the first constituent of the embedded IP, or merely the first word. However, the following data, from Habibullah Tegey (p.c.), show that such an analysis is correct:

- (26) a. *zə* *ɣwɑɾəm* [CP *tʃe* [IP [NP *xuʃal aw patang*] *me* *wuguri*]]
 I want COMP Khosal and Patang me see
 'I want Khosal and Patang to see me.'
- b. **zə* *ɣwɑɾəm* [CP *tʃe* [IP [NP *xuʃal* *me* *aw patang*] *wuguri*]]
 I want COMP Khosal me and Patang see
 'I want Khosal and Patang to see me.'

- (27) a. zə ɣwɑɾəm [CP tʃe [IP [NP αγα ʃel kaləna danga peyla] me wuguri]]
 I want COMP that 20 year tall girl me see
 'I want that twenty-year-old tall girl to see me.'
- b. *zə ɣwɑɾəm [CP tʃe [IP [NP αγα me ʃel kaləna danga peyla] wuguri]]
 I want COMP that me 20 year tall girl see
 'I want that twenty-year-old tall girl to see me.'

The (a) sentences of (26-27) show that embedded clitics indeed follow the first constituent—not merely the first word, as they do in the ungrammatical (b) sentences. In fact, the clitic may not appear anywhere within the subject of the embedded clause. The placement of clitics in embedded clauses is therefore exactly parallel to their placement in main clauses, as was illustrated in sentences like (4) above.

The placement of clitics in embedded clauses, as exemplified by (26-27), therefore reveals a striking difference between Serbo-Croatian and Pashto: whereas in Serbo-Croatian, clitics attach to the complementizer, Pashto clitics may not attach to the complementizer, but rather must appear after the following constituent. If there is a syntactically defined domain for clitic placement, the domain in Pashto apparently is not larger than IP.

Recall from the discussion of (24a) that Halpern (1995) derives sentences in which second position means "after the first constituent" via syntactic movement of a constituent to a topic position at the periphery of the clause, and via syntactic movement of the clitic, adjoining it to IP. Such a word order thus follows directly from the syntax, since the phonological requirement of the clitic (that it have a host to its left) is vacuously satisfied. This analysis may not be extended to the Pashto sentences in (26a) and (27a), however, since the NP that hosts the 1sg clitic *me* appears after the complementizer *tʃe*, and hence cannot have moved to an external topic position. The only option for attachment of the clitic would be to assume some form of Prosodic Inversion, but even that analysis faces difficulties; assuming with Halpern that clitics adjoin to

IP, the S-structure of the relevant portion of (26a) would be as follows (parallel to the S-structure [25] representing Serbo-Croatian [24b]):

(28) [IP me_i [IP [NP xuʃal aw patang] t_i wuguri]]
 me Khosal and Patang see

Since the 1sg clitic *me* does not have a host in this structure (the complementizer that introduces this embedded IP being outside of the domain of cliticization, and perhaps also not being heavy enough itself to host clitics), Prosodic Inversion should apply in (28), right-adjointing *me* to the adjacent prosodic word, *xuʃal* 'Khosal'. However, as was shown in (26b), this word order is ungrammatical.

Two solutions to this difficulty might be offered. First, Halpern's (1995: 63) definition of Prosodic Inversion could be revised in such a way that a clitic seeks a host appropriate in that particular language. In particular, it could be stipulated for Pashto that this host was, for example, a phonological phrase (as will be suggested in the following section). Unfortunately, such a revision of the theory of Prosodic Inversion would appreciably diminish its predictive force. Moreover, altering the theory in such a way only in order to allow the clitic first to adjoin to IP, and then to return (at PF) to what was its D-structure position, involves vacuous syntactic movement of the clitic—and as Halpern (1995: 18) himself states, there is already little motivation for the syntactic movement of the clitic to the periphery of IP, nor for its being base-generated there. Anderson (1996) has leveled a similar criticism at this analysis.

However, there is another solution to this difficulty. Given that syntactic movement of the clitic to the clause-periphery only serves the purpose of allowing the syntax to derive the surface word order whenever possible, and given the fact that such an analysis does not derive the correct word order for a language like Pashto, the hypothesis that clitics move in the syntax should be abandoned. Given the extent to which clitic placement in Pashto is determined by phonological considerations like stress, and the extent to which there is no motivation for a rule

that moves clitics in the syntax (its surface effect would be vacuous, and its consequences opaque), it is preferable to allow the phonology to determine the placement of clitics. The influence of syntactic structure on clitic placement is at best indirect, supplying phonological phrase boundaries at the right edges of maximal projections. In the phonological component, alignment constraints on clitics refer to properties of stress and prosodic structure, according to which clitics may be correctly placed. Such an analysis of Pashto clitic placement will be pursued in the following section.

3. Deriving the prosodic structure of Pashto

The previous sections demonstrated that constituency as well as stress determine the placement of clitics in Pashto. Given this fact, it is clear that clitics are not merely aligning with a maximal projection, but rather with a maximal projection that bears a high degree of stress. The relevance of stress to clitic placement in Pashto has been noted also by Halpern (1995: 47-48), who proposes that data like (11-12) and (15-17)—in which the clitic appears between the morphemes of a verb in order that it may be enclitic on the stressed prefix—suggest that Pashto clitics prosodically subcategorize for a foot. In terms of Generalized Alignment (McCarthy and Prince 1993a), the constraint on clitics would be stated as follows:

(29) ALIGN(clitic,L,Ft,R): Align the left edge of a clitic to the right edge of a foot

While this subcategorization gives the desired result for leftward movement of clitics under leftward stress shift in compound forms—as in the (b) sentences of (11-12) and (15-17)—this subcategorization would not work for sentences like (4), in which the initial constituent presumably has more than one foot. A similar analysis of Pashto second position clitics has recently been undertaken by van der Leeuw (1995), in which he characterizes the position of clitics with respect to the verb via a high-ranking constraint that aligns clitics to the right edge of a stressed prefix. Analyses like those of van der Leeuw and Halpern have captured the same

important insight, namely, that clitic placement in Pashto is determined principally by prosody. However, such an analysis does not adequately characterize the fact that this group of clitics (Tegey's "Group II" clitics) are second position clitics. As was illustrated in (18-19), the clitics will not intervene within the morphemes of the verb if other material precedes it; in such cases, the clitic moves to second position if the first constituent bears stress. Because Pashto has a separate set of verbal clitics—Tegey's (1977: §7) "Group III" clitics, which generally express oblique pronominal roles—it is important to distinguish the two groups. Another important difference between the two groups of clitics is that the verbal clitics—unlike the second position clitics—do not intervene between the morphemes of a verb (Tegey 1977: 240).

This section will show that clitic placement in Pashto is an entirely phonological process, *contra* the assumptions of Tegey (1977) and Kaisse (1981). While the syntax participates in the positioning of clitics, its participation is indirect, being mediated by the level of prosodic structure, which is the level at which the position of clitics is actually determined. Selkirk (1984; 1986) and similar work suggest that the representation of a sentence at the level of prosodic structure is not isomorphic to its syntactic structure, but is partially defined by it. Much of an expression's syntactic constituency is erased in the derivation of prosodic structure, and any constituents that do remain lose their categorial distinctions. A prosodic representation, then, is largely an impoverished syntactic representation. The Pashto data suggest moreover that prosodic representation may even be derived from parallel syntactic structure of the kind proposed by Goodall (1987), among others.

Among the properties that Selkirk (1986: 384) ascribes to prosodic structure are the following:

(30) **Properties of prosodic structure**

- a. It consists of prosodic (phonological) categories of different types, e.g., syllable, foot, prosodic word, phonological phrase, intonational phrase, and utterance.

Prosodic words are defined on word boundaries (X^0 categories), while phonological phrases are defined on maximal projections. Only the directionality of these parameters needs to be chosen in order to determine on what side of the syntactic projection (left versus right) the relevant prosodic boundary is placed.

By now it will be obvious that the Pashto facts may be accommodated rather transparently in such a framework. As was demonstrated in the previous section, clitics are generally placed after the first maximal projection that bears stress. Because the clitics are enclitic upon the right edges of maximal projections, phonological phrases may be derived from the right edges of maximal projections via the following parameter setting:

(33) Pashto end parameter setting: $]X_{\max}$

Consider how the phonological phrase boundaries will be demarcated in a sentence like (4b), repeated below as (34a). In (34b), the gross syntactic structure of this sentence is shown, excluding clitics for the sake of clarity, since they are presumably not maximal projections, and hence will not induce the placement of boundaries. The phonological phrases that will be derived via the end parameter setting are indicated in (34c).

(34) a. $[\text{NP } xofal \quad aw \quad patang] \quad \underline{ba} \quad \underline{ye} \quad dər \quad ta \quad rəwʈi$

Khosal and Patang will it you to bring

'Khosal and Patang will bring it to you.'

b. $[\text{IP } [\text{NP } xofal \quad aw \quad patang] \quad [\text{VP } [\text{PP } dər \quad ta] \quad rəwʈi]]$

Khosal and Patang you to bring

c. $xofal \quad aw \quad patang) \quad dər \quad ta) \quad rəwʈi))$

unordered with respect to each other. Given that prosodic structure crucially encodes precedence relations, it might be unexpected that it could be determined from a syntactic structure that is not yet completely linearized.

With a representation as in (38b) having been derived, the alignment of clitics may now be stated entirely prosodically, not with respect to the foot, as in (29), but rather with respect to the phonological phrase:

(39) ALIGN(cl,L,PPh,R): Align the left edge of a clitic to the right edge of a phonological phrase

A constraint like Anderson's INTEGRITY(XP) is irrelevant in a system like this, because the phonology does not refer directly to maximal projections; rather, phonological phrase boundaries are supplied at the edges of maximal projections via the mapping from syntax to phonology, as constrained by the parameter setting in (33). In this respect, then, ALIGN(cl,L,PPh,R) derives the work formerly done by INTEGRITY(XP). The constraint INTEGRITY(WORD) may appear to have a role to play in a system like this, inasmuch as "word" may also be a phonological notion; for example, by being derived by one of the end parameter settings in (32.i). But INTEGRITY(WORD) is easily violable in Pashto, as shown by the (b) sentences of (11-12) and (15-17), in which the clitic's effort to incur minimal violations of EDGEMOST(cl,L)—i.e., in its effort to appear as close to the left edge as possible—allows violations of lowly ranked INTEGRITY(WORD). See also the discussion of (51) below for evidence that INTEGRITY(WORD) is not needed.

The Pashto clitic data now may be accounted for by the constraint ranking in (40). The constraint EDGEMOST(cl,L) is to be taken as shorthand for the hierarchy in (6), which derives the relative position of clitics within a cluster.

(40) ALIGN(cl,L,PPh,R) » EDGEMOST(cl,L)

Of course, clitics may never appear so far to the left that they would be in initial position. Anderson invokes the undominated constraint $\text{NON-INITIAL}(\text{cl})$ for this purpose, but $\text{NON-INITIAL}(\text{cl})$ does not play a salient role in Pashto, since a clitic that appears initially will not have a phonological phrase to its left, and thus will fatally violate $\text{ALIGN}(\text{cl}, \text{L}, \text{PPh}, \text{R})$ in such cases.

Some further assumptions concerning the derivation of phonological phrases are needed in order to explain the two most interesting aspects of clitic placement in Pashto: first, why clitics may intervene within the phonological phrases that have been generated from the syntactic structure, as would happen with the (b) sentences of (11-12) and (15-17); and second, why phonological phrases determined by the syntax may be skipped, resulting in clitics appearing to the right of "second position", as in the sentences of (18-20).

In the framework of Selkirk (1986), the end parameter settings in (32) express the overwhelming tendency across languages for minimal and maximal syntactic projections to determine (respectively) phonological word and phonological phrase boundaries. However, languages may invoke additional rules that explain the non-canonical behavior of prosodic categories. For example, some languages have phonological phrases that do not correspond exactly to the ones that are directly derived by the maximal projections of the syntax—as in, for example, liaison contexts in French (Selkirk 1986: 394-395). Similarly, two additional assumptions are needed to explain the placement of clitics in Pashto. The first such assumption is a natural one, and may well extend to other languages: in particular, an optimal phonological phrase bears stress; a phonological phrase containing a stressed constituent is preferred to a phonological phrase that does not contain a stressed constituent. This requirement may be stated as follows:

(41) PHONOLOGICAL PHRASE PROMINENCE (PPH-PROM):

$$\text{PPh}/x > \text{PPh}/y \text{ if } |x| > |y|$$

I.e., x is a better phonological phrase than y if the intrinsic prominence of x is greater than that of y

Such a constraint is similar to the effect of PEAK-PROMINENCE (PK-PROM) in prominence-driven stress systems (Prince and Smolensky 1993: 38-39). There, the constraint PEAK-PROMINENCE prefers a stressed syllable to be heavier than surrounding, unstressed syllables in an utterance. This constraint in turn is similar to the NUCLEAR HARMONY CONSTRAINT (HNUC), which prefers a nucleus to be of higher, rather than lower, sonority (Prince and Smolensky 1993: 16). There are a number of possible ways to derive the correct result for Pashto, though this paper will regard the requirement that clitics be hosted by stressed phrases as another instance of the more general family of constraints on prominence.

Consider in this light the contrast between the sentences of (18a,b), repeated below:

- (42) a. [pp pə rasóy] ba ye wó-taʔi
 with rope will it PERF-tie
 'He will tie it with the rope.'
- b. [pp pe] wú ba ye taʔi
 with-it PERF will it tie
 'He will tie it with it.'

In (42a), a phonological phrase will be demarcated at the right edge of the initial PP. Because this phrase contains a lexical complement (a noun phrase, which bears stress), the initial PP does indeed form a licit phonological phrase, in accordance with (41). In contrast, the initial PP in (42b) does not contain a lexical complement (rather, it presumably contains a phonologically null complement). In all languages, the unmarked case for function words, such as prepositions, is that they are unstressed. As further evidence that stress alone (rather than categorial information in itself) may affect clitic placement, consider the following contrast:

(43) a. [pp ra sara] wí de

me with be let

'Let it be with me.'

b. [pp ra sará] de wi

me with let be

'Let it be with me.'

(Tegey 1977: 121)

In (43), placement of the clitic *de* depends on whether the copula is focused, as in (a), or the PP, as in (b). The latter sentence shows that a functional phrase, which is usually stressless, may indeed be brought to bear stress under focus, and hence serve as a host for clitics.

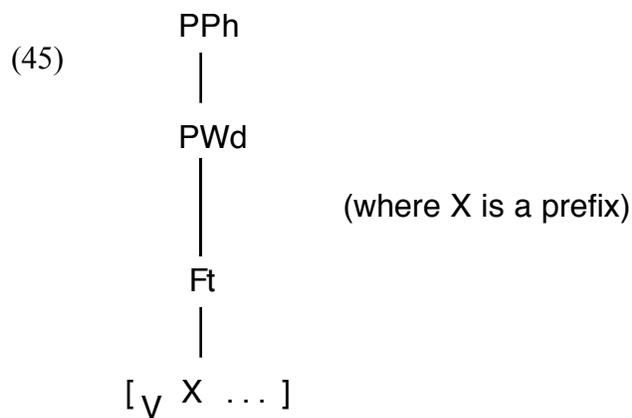
Returning to (42a,b), their phonological phrase boundaries will therefore be as follows (again, at this stage ignoring the clitics):

(44) a. (pə rasáy) (wá-taɽi)

b. (pe) (wá-taɽi)

But these representations are not yet correct. Because clitics may follow the stressed, perfective prefix *wá*, a phonological phrase boundary is needed there. The same issue will arise, of course, with all such instances in which a stressed, verbal prefix may host clitics, as in the (b) sentences of (11-12) and (15-17). What is special about Pashto, then, is that verbal prefixes that happen to bear stress (whether they bear it optionally or via perfective formation) project higher in the prosodic hierarchy than merely to the level of prosodic word; rather, they project independently to the level of phonological phrase. A rule like the one in (45) therefore applies in the mapping from syntactic structure to prosodic structure, and, because (45) is an exceptional rule that disrupts the usual prosodic structure of the language, it presumably applies before the more

general mapping principles—as restricted by the parameter setting in (33)—that exhaustively parse the sentence into phonological phrases and obliterate its syntactic properties.



The dashed line indicates that an existing foot is associated to its own prosodic word and, in turn, phonological phrase. As usual, other ways of implementing the exceptional behavior of stressed verbal prefixes are conceivable, but the rule in (45) will suffice. Returning to the sentences of (42), their parsing into phonological phrases will not be as in (44), but rather as in (46).

- (46) a. (pə rasóy)(wá)(taɽi)
 b. (pe)(wá)(taɽi)

PPH-PROM (41) might be taken as a filter or repair strategy on the mapping from syntax to prosodic form, or even as part of Gen (i.e., an undominated constraint in all languages), with the result that the candidate set that is generated for any particular sentence would not contain members that violate PPH-PROM. Adding PPH-PROM to the top of the ranking in (40), the following, final constraint hierarchy is proposed for Pashto:

- (47) PPH-PROM » ALIGN(cl,L,PPh,R) » EDGEMOST(cl,L)

Consider now how the constraint ranking in (47) accounts for the placement of clitics in the contrasting sentences of (42). In the following tableaux, clitics are positioned preverbally in the input form, though no claim is made concerning their base position, and indeed it would in any case be irrelevant to determining the position of the clitics. Sentence (42a) contains three phonological phrases; although positioning the clitic at the right edge of any of these phonological phrases will satisfy $\text{ALIGN}(\text{cl,L,PPH,R})$, the constraint $\text{EDGEMOST}(\text{cl,L})$ selects the candidate in which the clitic is placed after the leftmost element while still satisfying the more highly ranked ALIGN constraint.

(48)	$\text{pə rasóy } \underline{\text{ba ye}} \text{ wó taɾi}$	PPH-PROM	$\text{ALIGN}(\text{cl,L,PPH,R})$	$\text{EDGEMOST}(\text{cl,L})$
a.	$(\text{pə rasóy})(\text{wó})(\text{taɾi}) \underline{\text{ba ye}}$			$\sigma\sigma\sigma\sigma!\sigma$
b.	$(\text{pə rasóy})(\text{wó}) \underline{\text{ba ye}} (\text{taɾi})$			$\sigma\sigma\sigma\sigma!$
c.	$\text{☞ } (\text{pə rasóy}) \underline{\text{ba ye}} (\text{wó})(\text{taɾi})$			$\sigma\sigma\sigma$
d.	$(\text{pə } \underline{\text{ba ye}} \text{ rasóy})(\text{wó})(\text{taɾi})$		*!	σ
e.	$\underline{\text{ba ye}} (\text{pə rasóy})(\text{wó})(\text{taɾi})$		*!	

The optimal candidate in (42b), however, is different, because the first PP is stressless. Consider the following tableau:

(49)	pe <u>ba</u> <u>ye</u> wó taɾi	PPH-PROM	ALIGN (cl,L,PPh,R)	EDGEMOST (cl,L)
a.	(pe)(wó)(taɾi) <u>ba</u> <u>ye</u>			σσσ!σ
b.	☞ (pe)(wó) <u>ba</u> <u>ye</u> (taɾi)			σσ
c.	(pe) <u>ba</u> <u>ye</u> (wó)(taɾi)	*!		σ
d.	<u>ba</u> <u>ye</u> (pe)(wó)(taɾi)		*!	

Here PPH-PROM is seen to play a crucial role in deciding among candidates. Candidate (a) satisfies the two highest constraints, but the clitic is not close enough to the left edge to rank better than candidate (b), which also satisfies the two highest constraints. Candidate (d) is excluded because the clitic cluster appears initially, violating the highly ranked ALIGN constraint. Only candidates (b) and (c) remain; the latter performs better on EDGEMOST, being as close to the left edge as possible while still satisfying ALIGN. A higher constraint is therefore needed to exclude (c), and here PPH-PROM chooses the winner. PPH-PROM is evaluated with respect to the relevant phonological phrase of each candidate; in particular, with respect to the phonological phrase that allows the candidate to satisfy ALIGN. In candidate (c), the clitic cluster is aligned to the first phonological phrase; that phrase, however, incurs a violation of PPH-PROM, as the candidate contains another phonological phrase that is more prominent, namely, the subsequent phrase wó. In candidate (b), however, the clitic cluster is aligned exactly to that phrase, hence this candidate is the grammatical output.

More dramatic examples of initial constituent skipping, like (20a), are handled equally straightforwardly. Note that the optimal candidate (a) in the following tableau incurs many violations of EDGEMOST, but these are irrelevant, since EDGEMOST is ranked below PPH-PROM, which removes from consideration several candidates whose clitics are nevertheless closer to initial position than is the clitic in the optimal form.

(50)	ra ta te ra <u>de</u> ʃkawó	PPH-PROM	ALIGN (cl,L,PPh,R)	EDGEMOST (cl,L)
a.	☞ (ra ta)(te)(ra)(ʃkawó) <u>de</u>			σσσσσσ
b.	(ra ta)(te)(ra)(ʃka <u>de</u> wó)		*!	σσσσσ
c.	(ra ta)(te)(ra) <u>de</u> (ʃkawó)	*!		σσσσ
d.	(ra ta)(te) <u>de</u> (ra)(ʃkawó)	*!		σσσ
e.	(ra ta) <u>de</u> (te)(ra)(ʃkawó)	*!		σσ
f.	(ra <u>de</u> ta)(te)(ra)(ʃkawó)		*!	σ
g.	<u>de</u> (ra ta)(te)(ra)(ʃkawó)		*!	

The only examples remaining to be explained are those having stress shift. As was seen above in (13), repeated below as (51), monomorphemic words may not be divided by clitics, regardless of the location of stress:

- (51) a. satóm ye
 keep it
 'I keep it.'
- b. sátəm ye
 keep it
 'I keep it.'

In the present theory, this behavior is directly derived by the fact that inserting a clitic among the segments of a monomorphemic verb will violate ALIGN, since such words will be parsed into phonological phrases that already respect the integrity of such forms. Clearly, then, it is seen

again that a constraint like Anderson's INTEGRITY(WORD) does not play a role in this system. The tableau for (51a) is given below:

(52)

	<u>ye</u> satám	PPH-PROM	ALIGN (cl,L,PPh,R)	EDGEMOST (cl,L)
a.	☞ (satám) <u>ye</u>			σσ
b.	(satá <u>ye</u> m)		*!	σσ
c.	(sa <u>ye</u> tám)		*!	σ
d.	<u>ye</u> (satám)		*!	

There being only one phonological phrase in all of the candidates, only one option is available—given the ranking of ALIGN over EDGEMOST—and that is to place the clitic directly after that phrase. The placement of stress is irrelevant, as shown below, which is the tableau for (51b).

(53)

	<u>ye</u> sátəm	PPH-PROM	ALIGN (cl,L,PPh,R)	EDGEMOST (cl,L)
a.	☞ (sátəm) <u>ye</u>			σσ
b.	(sátə <u>ye</u> m)		*!	σσ
c.	(sá <u>ye</u> təm)		*!	σ
d.	<u>ye</u> (sátəm)		*!	

The constraint violations are identical in (52) and (53) because the candidate sets are identical. Since there is only one phonological phrase in each candidate, the location of stress within that phrase is irrelevant for PPH-PROM.

On the other hand, it was seen in examples like (15) above—repeated below as (54)—that polymorphemic words may be divided by clitics when a syllable of the prefix bears stress:

- (54) a. $\text{t}\acute{\text{e}}\text{l-wah}\acute{\text{o}}$ $\text{m}\acute{\text{e}}$
 push I
 'I was pushing it.'
- b. $\text{t}\acute{\text{e}}\text{l}$ $\text{m}\acute{\text{e}}$ $\text{wah}\acute{\text{o}}$
 PREFIX I push
 'I pushed it.'

The verb of (54a) will be parsed into a single phonological phrase and be treated identically to the sentences of (51). But the verb in (54b) has stress on the prefix, and so rule (45) applies to ensure that the footed prefix is parsed into its own phonological phrase. The following tableau illustrates the placement of the clitic:

(55)

	<u>$\text{m}\acute{\text{e}}$</u> $\text{t}\acute{\text{e}}\text{l}$ $\text{wah}\acute{\text{o}}$	PPH-PROM	ALIGN (cl,L,PPh,R)	EDGEMOST (cl,L)
a.	$(\text{t}\acute{\text{e}}\text{l})(\text{wah}\acute{\text{o}})$ <u>$\text{m}\acute{\text{e}}$</u>	*!		$\sigma\sigma\sigma$
b.	$(\text{t}\acute{\text{e}}\text{l})(\text{wa } \text{m}\acute{\text{e}} \text{ h}\acute{\text{o}})$		*!	$\sigma\sigma$
c.	$\text{t}\acute{\text{e}}\text{l}$ <u>$\text{m}\acute{\text{e}}$</u> $(\text{wah}\acute{\text{o}})$			σ
d.	$(\text{t}\acute{\text{e}} \text{m}\acute{\text{e}} \text{ l})(\text{wah}\acute{\text{o}})$		*!	σ
e.	<u>$\text{m}\acute{\text{e}}$</u> $(\text{t}\acute{\text{e}}\text{l})(\text{wah}\acute{\text{o}})$		*!	

The optimal candidate is (c), exactly as desired.

In this and all of the examples given above, then, principles in the mapping of syntax to phonology strongly constrain the set of possible locations of clitics. Most importantly, once the syntactic structure of a sentence have been impoverished and the appropriate phonological

representations have been derived, the placement of clitics is determined solely with respect to phonological information.

4. Conclusion

Halpern (1995: 19) suggests that the placing of second position clitics after the first constituent is best regarded as a syntactic process, rather than a prosodic one. While this analysis may seem to be necessary in languages that distinguish among different kinds of maximal projections, Pashto clitic placement appears to be entirely amenable to a purely prosodic account, with syntactic information only indirectly accessible (in the form of prosodic boundaries) to the phonological component of the grammar. These phonological representations emerge after the bulk of the syntactic information has been impoverished between S-structure and PF (Selkirk 1984; 1986). This conclusion has broader implications for a general theory of clitic placement. In particular, the alignment constraints associated with individual clitics across languages might well compel the alignment of clitics with a variety of categories—phonological, morphological, and syntactic—with the result that the details determining the placement of clitics are defined by different components of the grammar. Moreover, to the extent that such an analysis is correct, the Pashto facts show rather strikingly that phonological phrases may be demarcated by parallel syntactic structures, i.e., constituents that have not been ordered with respect to each other at the level at which syntactic structure is mapped to prosodic structure.

A purely syntactic account of Pashto clitic placement seems highly inappropriate, given the extent to which it depends on the location of stress. Tegey's (1977: 124-125) assumption that clitic placement is a syntactic process leads him to conclude that the grammar must be reorganized in order to allow the possibility of the syntactic component referring to phonological information. But if Pashto clitic placement is a prosodic process rather than a syntactic one, as shown here, the Pashto facts do not pose problems for a traditional model of grammar like that in (1). The same point has been raised by Kaisse (1981; 1985) with respect to the interaction of vowel coalescence and clitic placement in Pashto, and she has demonstrated that it is possible to

maintain the traditional model of grammar simply by reclassifying certain verbs as polymorphemic. The conclusion of this paper—that clitic placement is entirely a phonological process—can only strengthen the same conclusion (though from different arguments) by Kaisse. The present analysis is thus well in accord with a derivational model of grammar, in which syntax precedes phonology, and in which there is no "look-ahead" from one component to the next. As Pashto is an Indo-European language, it is surely not surprising that it may be handled easily by a traditional model of grammar.

Finally, the present analysis follows Anderson (1996) in employing Optimality Theory to account for clitic placement. Pashto is particularly amenable to an analysis within Optimality Theory, since clitics appear in second position, but may appear farther to the left edge or to the right edge, under the force of highly ranked prosodic constraints. Pashto exemplifies a language in which clitic placement is overwhelmingly determined by the phonology, rather than by the syntax, as has hitherto been assumed.

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Footnote

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