Mechanisms Constraining Word Order in Quechua: Alternatives to Phrase Structure

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MECHANISMS CONSTRaining WORD ORDER IN QUECHUA:
ALTERNATIVES TO PHRASE STRUCTURE

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Two mechanisms have been traditionally used in generative grammar to account for restrictions on word order in natural languages: (1) ordering the constituents of a given phrase structure node and (2) creating articulated trees involving several levels of branching, while not allowing discontinuous constituents. While these two mechanisms both follow from the phrase structure mechanism, they are formally separate, and can be adopted or rejected independently one from the other. For the sake of clarity I will schematically illustrate them:

(1) a. \( X \rightarrow A \ B \ C \quad \longrightarrow \quad A \ B \ C ; \ *B \ C \ A ; \ \text{etc.} \)
   b. \( X \rightarrow \{A, B, C\} \quad \longrightarrow \quad A \ B \ C ; \ B \ C \ A ; \ \text{etc.} \)

(2) a. \( X \rightarrow \{A, B, C\} \quad \longrightarrow \quad A, \{D, E, F\}, \ C ; \ A, C ; \{D, E, F\} ; \ \text{etc.} \)
   b. \( B \rightarrow \{D, E, F\} \quad \longrightarrow \quad *D, E, A, F, C ; \ *D, A, E, C, F ; \ \text{etc.} \)
   b. \( X \rightarrow \{A, D, E, F, C\} \quad \longrightarrow \quad D, E, A, F, C ; \ A, D, C, E, F ; \ \text{etc.} \)

The strings in (1a) and (2a) illustrate the orders made impossible with the two mechanisms mentioned, while (1b) and (2b) show the possibilities when the two mechanisms are not adopted.
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In this paper I will explore some alternatives to phrase structure in accounting for word order or more precisely constituent order restrictions in Quechua, alternatives made necessary by the fact that in some cases Quechua seems to present the patterns in (1b) and (2b), but not fully. Additional factors must be involved. One alternative has to do with the constituent-final position of the head in governed constituents, which, I will argue, is due to the requirement that morphological control be local. The other type of restriction is that raised or floated elements (which follow the pattern in (2b), of course) must be associatable with their "base" position in specific ways.

These are not the only restrictions on word order not given by phrase structure rules. I will assume in addition without discussing them, principles of phonological linearization, shifting heavy complements to the end; principles of topic and focus positioning, which have not yet been sufficiently explored to be discussed here; and perhaps specific locality principles in case assignment, which result in the fact that, as has been discussed most extensively by Stowell (1981) in his thesis and again at NELS XI, objective constituents are interior to oblique constituents with respect to the case-assigning head, such as the verb. I will briefly return to this last point towards the end of this paper.

I will begin by sketching a partial theory of Quechua phrase structure in terms of X-bar, in an account which assures linear order and which will be slightly modified later. This will serve as a basis for discussion.

(3) a. S' = Y'''
   NP = N'''
   AP = A'''
   PP = P'''

b. X'''' --> ... X'' .. CASE ...
   X'' --> ... Spec ... X' ...
   X' --> ... Comp ... X ...

c. CASE = a generally abstract position, controlled by the case morphology of the head;
   Spec = subjects, possessor NP's, modifiers, specifiers, measure phrases of PP's, etc.;
   Comp = objects of verbs and postpositions, manner adverbs, sentential and postpositional complements, perhaps adjectives.

As can be seen in (3a) I make the assumption that there are four major (=X''') projections of the major lexical categories. In (3b) a very general hypothesis is brought forward regarding their internal structure, stressing parallelisms. The only original claim is that in Quechua CASE is a category of all four projections, rather than just of the nominal projections N''' and A'''. I will return to the CASE position in a moment. While it is possible to determine for a number of constituents outside of the head whether they are part
of the complement or of the specifier system, this is by no means always easy or automatic. Attributive adjectives, for instance, seem to be somewhat like specifiers, somewhat like complements. These problems are by no means limited to Quechua, of course, and may be revealing of the essential inadequacies of the system outlined in (3b). Here I will take the position that (3b) is fruitful as a hypothesis at a somewhat abstract level of analysis.

As was mentioned in (3c) I assume CASE to be an abstract, minor position, controlled by the case morphology of the head. Only in subordinate clauses there are sometimes lexical complementizers in clause-final position (Lefebvre, 1980), but generally it is lexically unrealized. If the CASE position on the X'''' level has features assigned to it externally by a governing category, these must correspond to the features of the case affix of the head of the constituent. This feature correspondence is called morphological control here, in accordance with my paper for NELS XI (Muysken, 1980). There I argued that it is necessary to postulate the morphological control relation for Quechua, in contrast with analyses in terms of cliticization of case markers to the head or percolation of case features.

I assume that the CASE position on X'''' is a language-particular option of Quechua. In most languages CASE is limited to nominal constituents, both with respect to the case morphology of the head and to case features of the maximal projection. Quechua is exceptional in that all X'''' constituents can have CASE. At the same time, only +N elements, i.e. nouns and adjectives, can be marked for case morphologically. The discrepancy between limitations on the head and possibilities of the maximal projection in Quechua is resolved by the marked feature that clauses, i.e. V'''' can have nominalized, i.e. +N, verbs as their heads, and that postpositional phrases, i.e. P'''', can have head nouns. Of course this discussion presupposes the familiar cross-classification of Chomsky (1973) of N as +N,-V, A as +N,+V, V as -N,+V and P as -N, -V. The details of the marked extension of Quechua phrase structure at the X' or head level can be elegantly presented in a rule using alpha convention mechanisms.

A final comment on (3) concerns the status of V as the head of S'. While there is no space here to argue this point in detail, there is considerable evidence, both from the structure of nominalized clauses and from the formulation of the rule of verbal and nominal personal agreement, that there is a structural parallelism between clauses and noun phrases, a parallelism which can only be formally expressed by making V the head of S'.

In (4) I present a contrast between main clauses and subordinate clauses: the latter show order restrictions absent in the former. This contrast, I will argue, can be accounted for by assuming that in fact the order of constituents at the X' level is free, but restricted by independent requirements of morphological control. Consider the relevant cases:
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(4) a. chay wasi - ta riku - ni
    that house AC see 1
    'I see that house'

b. riku - ni chay wasi - ta
    see 1 that house AC
    'I see that house'

c. chay wasi - ta riku - sqa - y - ta] yacha - n
    that house AC see NOM 1 AC know 3
    'He knows that I saw that house'

d. riku - sqa - y - ta chay wasi - ta] yacha - n
    see NOM 1 AC that house AC know 3

In (4a) we find that the complement, /chay wasi-ta/, precedes the verb 'see', but, as in (4b), it can follow the verb as well. Both are grammatical and not unfrequent. In (4c) we find a nominalized subordinate clause, the complement preceding the nominalized verb. In (4d) we find that the complement cannot follow the verb within the subordinate clause. This is the classical type of phenomenon which has commonly been accounted for by the requirement that movement in non-root clauses be structure-preserving, as in Emonds (1976) (5a). In (5b), however, I propose an alternative explanation: morphological control must be strictly local. Intervening material blocks it.

(5) a. The contrast between (4b) and (4d) is due to the requirement that movement in non-root clauses be structure-preserving

b. In clauses to which Case is assigned (i.e. all non-root clauses in Quechua) the head must occur in rightmost position so that the head morphology can locally control the abstract CASE position.

\[ \text{X'} \rightarrow \text{Comp, X, ...} \] (alternative to (3b))

It is clear why (5b) explains the ungrammaticality of (4d). There the verb 'know' assigns accusative case to its complement clause,
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and the nominalized verb of that clause must occur in rightmost position for its case morphology to control that accusative case.

Of course structure-preservingness covers a range of types of movement within subordinate clauses, but morphological control holds in other constituents as well. In fact, the case-marked/non-case-marked distinction, which I claimed holds in clauses, can be extended to the categories AP and NP, as I will show in (6) and (7). We have to modify the X' extension rule as in (5d), specifying that X' dominates both a head and its complements, but leaving their order free. Then the locality of morphological control, in addition to some other principles, will specify the actual order in which elements will occur. In (6) I contrast case-marked NP's, as in (6a) and (6b), with non-case-marked NP's, as in (6c) and (6d):

(6) a. Pedru - q kurirur - ni - yuq wasi - n - ta riku - ni Comp N Peter GEN balcony EUPH with house 3 AC see 1 'I see Peter's house with the balcony'

b. *Pedru - q wasi - n - ta kurirur - ni - yuq riku - ni *N Comp Peter GEN house 3 AC balcony EUPH with see 1

c. chay - qa Pedru - q kurirur - ni - yuq wasi - n - mi Comp N that TO Peter GEN balcony EUPH with house 3 AF 'That is Peter's house with the balcony'

d. chay - qa Pedru - q wasi - n kurirur - ni - yuq - mi N Comp that TO Peter GEN house 3 balcony EUPH with AF

(6b) is ungrammatical since a complement follows the head in a case-marked NP, while (6d) is grammatical since the NP is in a non-case-marked predicate position. This result parallels the contrast between root and subordinate clauses in (4).

We find an exactly parallel situation with AP's, as in (7):

(7) a. mikhuy - na - paq allin - ta wayk'u - n Comp A eat NOM for good AC cook 3 'He/she cooks well to eat'

b. *allin - ta mikhuy - na - paq wayk'u - n *A Comp good AC eat NOM for cook 3

c. chay papa mikhuy - na - paq allin - mi Comp A that potato eat NOM for good AF 'those potatoes are good to eat'

d. chay papa allin mikhuy - na - paq - mi A Comp that potato good eat NOM for AF

(7a) and (7b) represent the AP which receives case marking. Here (7b) is ungrammatical, since the complement intervenes between the head morphology and the abstract CASE element. Since in (7c) and (7d) the adjective phrase is in predicate position, not case-marked, both the order complement/head and head/complement are permitted. There is no need for morphological control. This result is similar
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to the constraint that Reuland (1979) posed on right-branching pre-
nominal relatives: the adjective has to be adjacent to the head
noun for both to be able to agree in gender.

The contrast shown in (4), (6), and (7) was argued to follow
from the locality of morphological control. In (4b), (6d), and
(7d) a constituent to the right of the head blocks control by the
morphology of the head of an abstract CASE position. Hence these
sentences are ungrammatical. Only in non-case-marked constituents,
such as main clauses and predicate AP's and NP's do we find that
complements can occur to the right of the head. It was assumed that
case-marking provided the significant parameter, but it may well be
that other types of government dependencies may be involved in mor-
phological control as well in specific cases.

In (5d) I have assumed that the constituent order alternation
in (4), (6), and (7) is due to the freedom of order within the X'
expansion. In (8) I argue that this assumption is superior to one
which assumes that the movement of the complement to the right of
the head is the result of extraposition. The argument is based on
the distribution of validators. Validators are enclitic minor ele-
ments which indicate the type of information expressed in the pro-
position. Examples are given in (8a):

(8) a. -mi 'affirmative'
    -si 'hearsay'
    -cha 'conjecture'

    validators

b. Pedru wasi - n - ta riku - n - mi
   Peter house 3 AC see 3 AF
   'Peter sees his house'

c. Pedru wasi - n - ta - n riku - n
   Peter house 3 AC AF see 3

d. Pedru - n wasi - n - ta riku - n
   Peter AF house 3 AC see 3

e. V^j --> .. val, .. V^j-1 ..

f. amigu - y - mi ka - nki
   friend 1 AF be 2
   'you are my friend'

g. \[ V_p ... AP/NP -mi \left[ V \vartheta \right] \] (=(6c), (6d), (7c), (7d))

h. \* V X-val (the scope of tense and validation interpretation
   is the domain of the tensed verb and elements to its left)

In (8b) through (8d) the position of the validators is shown: in
(8b) on the verb, in (c) on the direct object, and in (d) on the
subject. The differences reflect slight shifts in focus. In fact,
validators can occur anywhere, but they have to be dominated by a
projection of V: the verb phrase, S, or S', as formalized in (8e).
The validator is always cliticized to the element on its left.
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The evidence that the complements in (6d) and (7d) are still within the verb phrase, and not extraposed (assuming that extraposition involves adjunction to S or S') is provided by (8f) and (8g). In (8f) we find a predicate marked with /-mi/ and followed by the second person copula. In (8g), corresponding to (6c-d) and (7c-d), the third person copula is zero but /-mi/ is present in its usual position, to the right of the predicate. This shows that in (6d) and (7d) the complements are not extraposed outside of the verb phrase. They might of course be extraposed within their own projection, e.g. to the A' (in (7d)) or to the N' (in (6d)) level.

Unfortunately, it is not possible to construct a similar argument in the case of the verb phrase, as in (4b). As shown in (6h), constituents may not occur to the right of the verb with a validator attached to them. This could be argued to be counter-evidence to our claim that there is no extraposition in the case of (4b), since it seems to suggest that the restriction on validators on elements to the right of the verb follows from the fact that these elements would have been extraposed outside of the validator domain. Note that S and S' can dominate validators as well, so that this does not hold. More plausible is to assume that there is rule of semantic interpretation for validators which takes the verb and everything to its left as its scope. This rule has to do in as yet ununderstood ways with rules for tense interpretation.

This concludes the first part of this paper. Note that the idea of morphological control being responsible for the contrast presented above in Quechua is not meant to be a universal account of word order restrictions in governed constituents. Given that in other languages obligatory verb-final is due to other factors, e.g. in Dutch to the fact that the tense position in COMP is filled in subordinate clauses, so that the tensed verb cannot move there (Den Besten, to appear), this means that the penthouse-type phenomenon as such (Ross, 1973) is not unified. Apparently similar phenomena in different languages fall out from quite different factors. They are not unified in the grammar, although they might be of course in the perception mechanism. It should be mentioned here that Safir (to appear) has proposed that the verb-final order in Dutch and German subordinate clauses also follows from the fact that these clauses are governed. In that case, the difference between Quechua and Dutch would be less big than is suggested here, and the two cases might be ultimately reduced to one restrictive mechanism.

The proposal in (5d) to make a limited part of the X' system order-free, namely the relation between the head and its complements, supports the idea that there is no clear-cut contrast between configurational and non-configurational languages, but rather a series of options of configuration-type versus other types of structures at different levels of the grammar. Alternatives were proposed to mechanisms of type (1a) to restrict word order. In the second part of this paper I will explore another set of phenomena which are
non-configurational in nature: floating quantifiers and other nominal modifiers. These will illustrate alternatives to mechanism (2a) in restricting word order. Consider the examples in (9). In (9a) the rule is given for generating an indefinite number of maximal projections as complements of the verb within the VP or V'. I will assume that this expansion holds for each X' level, and quite possibly for the other levels of the X projection as well, overgenerated sequences being ruled out, among other things, by the case filter. In (9b) and (9c) two alternatives are given of the same sentence, one, (9b), in which the quantifiers are part of the constituent over which they quantify, and one in which they appear as separate constituents of the VP and have to be linked to the noun phrase over which they quantify by a separate mechanism. In (9b) the two quantifiers have no case-marking of their own, while in (9c) they are marked accusative case in the same way as the corresponding noun phrases.

(9) a. V' --> ... X'1:1 ... X'... 
    b. [wakin runa - ta][llipin papa - ta]alla - schi - ni
       some man AC all potato AC dig help 1
       'I help some men dig all the potatoes'
    c. [runa - ta][wakin - ta][papa - ta][llipin - ta]alla - schi - ni
       man AC some AC potato AC all AC dig help 1
       'I help some men dig all the potatoes'

In (9c) we have four accusative noun phrases. The adjacency falling out of the Case projection mechanism brought forward in Van Riemsdijk's NELS XI talk (1980) makes exactly the correct predictions: only those associations in which the quantifier is linked to the adjacent noun phrase are permissible when there are two quantifiers present. There may be a problem when there is only one quantifier, linkable to two NP's, but those cases might be resolved. The general pattern is clear. As I will try to argue below, the proposal by Van Riemsdijk, and hence that of Hale (1980) as well, may need to be reformulated, but some adjacency criterion remains necessary. Linking the Waibiri non-configurational phenomena discussed in Hale (1980) to the more general phenomenon of quantifier floating makes it possible to put the adjacency requirements on case-linking in the framework of the large literature on constraints on quantifier floating, an endeavor which goes much beyond the scope of this paper, to be sure.

In (10a) I present an example of quantifier float out of subject position. Either in a base generation framework, where the quantifier is generated as a sister to its source NP, or in a movement framework, where movement must be structure-preserving, since it can occur in subordinate clauses, this means that the S expansion rule (10b) must be able to generate several X'' as sisters to VP. This result confirms that, strictly from the point of view of non-head material, independently of its ordering, the X'' and the X' expansion rules are rather similar.
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(10) a. [runa] [llipin] papa - ta alla - n
    man all potato AC dig 3
    'all men dig potatoes'
    ('the men dig all the potatoes')

b. V'' (=S) --> ... X'...* ... V''...

c. [mana llipin (* -chu)] papa - ta alla - ni
    not all NEG potato AC dig 1
    'I dig not all the potatoes'

d. Vj --* ... -chu ..., .. Vj-1 ...

e. [papa - ta][mana llipin - ta - chu] alla - ni
    potato AC not all AC NEG dig 1
    'I dig not all the potatoes'

The data in (10c) through (10e) suggest that there is perhaps no movement in the strict sense involved in quantifier float. The argument turns on negation. In (10c) we find a negated quantifier internal to the NP, but negated only with mana 'not'. The negative particle -chu is impossible here, since it is like a validator in being a dependent of the V projection, as indicated in (10d). The same negated quantifier, but now floating, in (10e) does get marked with -chu, however, making (10c) unlikely as a direct source for (10e). There may be ways of solving this problem, but at first sight it suggests a non-movement analysis.

Not only quantifiers can float in Quechua, but also numerals, certain complements, and those adjectives that do not easily adopt a manner adverb interpretation when floating. All floating elements are of the category +N, but some seem part of the N', some part of the N'' projection. In (11a) an example is given of a floating adjective, and in (11b) of a floating possessive wh-phrase. Here wh-movement can take place whereby the source noun phrase remains in its original position.

(11) a. warmi - ta munay - ta riqsi - ni
    woman AC beautiful AC know 1
    'I know a beautiful woman'

b. pi - paq - ta ususi - n - ta riku - nki
    who GEN AC daughter 3 AC see 2
    'whose did you see the daughter'

The question now becomes, of course, what is the proper mechanism to handle these cases of floating. There are two major types of proposals: Merger/Projection (Hale, 1979; Nash, 1980; Van Riemsdijk, 1980) and Movement/Coindexation (the original transformational proposal). In the first proposal the floated element and its source noun phrase as generated as sisters, while the source noun phrase does not contain a gap which is coindexed with the floating element. Rules of merger (as in the work of Hale and Nash) or of projection (as in the work of Van Riemsdijk) will link these elements at some level of representation (probably Logical Form) and will create a
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constituent out of the two. This is illustrated in (12a). In the
merger or projection proposals the created LF constituent does not
have a structure which is directly comparable to the structure
which the X' rules would create. In the Coindexation/Movement
proposal (I will not distinguish them here) the source noun phrase
contains an empty position which is coindexed with the floating
element. The rule which creates a single constituent in LF relates
the floating element to this empty position, and the new constit-
uent has the internal structure given by the X' rules. This type
of analysis is illustrated in (12b). Both (12a) and (12b) refer
back to the example of (11b).

(12) a. pi - paq - AC unusi - n - AC \Rightarrow [pi - paq unusi - n - AC] (LF)
b. \left[pi - paq - AC, \right] \left[e, unusi - n - AC\right] \Rightarrow [pi - paq unusi - n - AC] (LF)

While in many cases the difference between (12a) and (12b)
may not have large empirical consequences, there are, I believe,
some reasons to prefer the Movement/Coindexation analysis. First
of all, there is agreement within the source NP, in that the head
noun is marked for the person of the possessor phrase. In (11b)
=(12a,b), this is the third person, n. The agreement rule is in
general formulated structurally, as holding between the head and
a constituent on the X'', here N'', level, part of the specifier.
It is not clear how agreement would be formulated in the floating
case, if there were no specific position to refer to. Actually,
although this was not indicated in the glosses, the quantifiers in
(9) and (10) are also marked for (third) person, so that the same
holds for quantifier float.

Second, the floating element is marked genitive in addition
to accusative. Genitive case marking is assigned, again, structur-
ally in the ordinary case, to a sister of N'. If we assume a Case
checking rule in LF, at the moment when the possessor phrase is
associated with the empty position in the source noun phrase, or
an assignment rule operating in deep structure before floating
takes place in the movement analysis, there is no problem for
structural case. In the Merger/Projection analysis, on the other
hand, it is not clear how genitive case would be assigned in the
absence of a position to refer to.

Third, a problem with the Merger/Projection analyses may be
that in some cases interpretation hinges on structural information
about the internal constituency of the noun phrase, in terms of
scope relations, in addition to lexical information. In the absence
of concrete examples I will leave that matter rest here.

I would like to conclude with a few remarks concerning the
parallelism between raising and floating. Raising to object position
in the analysis of Lefebvre & Muysken (in prep.) involves a constitu-
ent which appears outside of its S', and carries the same case mark-
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ing as that clause, CASE_o in (13b). An example is (13a), where a raised element carries accusative marking just as the subordinate clause. In addition, the raised element may be marked for the case of the position it is raised out of, CASE_i in (13b). The raised element is assigned CASE_q as it moves into the CASE complementizer position of the subordinate clause.

(13) a. runa warmi - ta - n1 muna - n [e_i hamu - na - n - ta ]
   man woman AC AF1 want 3 come NOM 3 AC
   'the man wants the woman to come'

   b. ...
   \[ e_i (+CASE_p) \]
   \[ \ldots \]
   \[ X'''+CASE_q \]
   \[ \ldots \]
   \[ Y'''+CASE_{(p+)}q \]
   \[ \ldots \]

Note now that (13b) is not only the presentation of the raising configuration, but also of the floating configuration, where X''' is not a clause, as with raising, but a noun phrase. Again, we find identity in case marking between the floated element and its source, which can be accounted for by assuming that noun phrases also have a CASE complementizer through which a case-marked element can move out of its constituent. Of course the word 'move' is used in a loose sense, since the same results obtain if we just assume coindexing. Floating and raising in this analysis become possible through the existence of a CASE complementizer.

The identity of case marking between the source and the floated or raised element is now the result of movement through the CASE complementizer, not a prerequisite for merger or projection, as in the Hale/Nash and V. Riemsdijk analysis. Nor is it a marker placed to avoid ambiguity, as in the functional analysis. Lack of ambiguity is at most an effect. Note finally, returning to the option posed in (12) between a coindexing/non-coindexing analysis, that equating raising and floating and upholding the projection principle (Chomsky, 1981), which holds that grammatical relations must be the same at all levels of grammatical representation, forces one to an analysis of raising and floating in terms of movement or coindexation.

This concludes these brief remarks on alternatives to phrase structure to account for word order restrictions in Quechua. Phenomena of relatively free order, coupled with specific restrictions of various kinds, suggest that the mechanism of phrase structure to constrain word order may be dispensed with and replaced by a set of independently needed interacting principles. Two such locality principles were discussed here, those of morphological control and those for interpreting floated elements. Locality is not simply a result of the phrase structure mechanism, but rather an inherent feature of grammar.
REFERENCES


Safir, K., (to appear) "Inflection-Government and Inversion. The Linguistic Review.
