I would like to argue that the relation between a subject and a predicate is best viewed as constituting a type of chain. Subsequently, I extend the resulting notion of predication chain to cases where two discontinuous elements are marked with the same case and appear to be related at the level of Logical Form.

The literature on syntactic chains has focused so far on the characteristic properties of A (argument)-chains and of Å (nonargument or operator)-chains, and on the distinction between these two types. In several contributions, however, a third type of syntactic chain is introduced. Williams (1980) has built a formal theory around the notion that the constituents standing in a subject-predicate relationship are coindexed and that the indexes established through predication have referential properties. Hale (1981) has extended the notion of secondary predication to cover cases in Warlpiri and other non-configurational languages where two noncontiguous elements have a part-whole relationship. In this article I elaborate on insights from the work of Williams and Hale in giving a more formal treatment of a number of phenomena that resemble scrambling in terms of predication. To accomplish this, I extend the notion of predication chain, making it necessary to separate it formally from Å-chains.

For the moment a predication chain can be defined as in (1):

\[(1) \text{NP}_i \ldots \text{XP}_i\]

The relationship between the NP subject and the XP predicate can be licensed in either of two ways:

\[
(2) \begin{align*}
&\text{a. Structurally (minimal c-command; see Williams (1980)) or} \\
&\text{b. Through co-case marking.}
\end{align*}
\]

On a more abstract level co-case marking can be viewed as providing another type of structural relationship, as for example in Van Riemsdijk (1981). The characteristics of

With many thanks to C. Lefebvre for earlier work on the Quechua data. U. Ammicht, M. Middeldorp, A. Schaufeli, K. Seifert, and E. Sezer helped with the Turkish data. None of these people is in any way responsible, of course, for errors of presentation and interpretation that remain. Several generations of anonymous reviewers and the European editors of this journal gave useful comments on earlier versions. I want to thank audiences in Salzburg, Montreal, Groningen, and Amsterdam for comments on oral presentations.
predication chains proposed here may be contrasted with those of Ā-chains in at least three ways:

(3) a. **Number of members**
   A predication chain contains two members, a subject and a predicate. An Ā-chain can have any number of members.

b. **Locality**
   A predication chain is always internal to a maximal projection, whereas an Ā-chain can cross a maximal boundary.

c. **Categorial continuity**
   I will make the strong assumption that Ā-chains always consist of categorically identical elements:
   \[
   \begin{array}{ccc}
   O_i & e_i & \text{Ā-chain} \\
   [\alpha N] & [\alpha N] \\
   [\beta V] & [\beta V] \\
   \end{array}
   \]
   There is no such requirement on predication chains, which consist of a nominal subject and a predicate that may or may not be nominal:
   \[
   \begin{array}{ccc}
   \text{NP}_i & \text{XP}_i & \text{Predication chain} \\
   \end{array}
   \]

The argumentation for the properties of predication chains is built around a comparison of Turkish and Quechua grammar, particularly the grammar of nominalizations and case. Relevant facts involve extractions out of nominalized clauses, small clauses, floating and extraposition, relative clauses, and passivelike structures. The Turkish data reflect the standard language; the Quechua data are from the area of Cuzco, Peru.

1. **Similarities between Quechua and Turkish**

A number of systematic differences between Quechua and Turkish can be explained by assuming a minimal difference in the case systems of the two languages. Clearly, however, such a comparison only becomes possible when the two languages involved exhibit systematic structural similarities as well. This is in accordance with the research strategy adopted in a number of recent studies that have explored the differences between closely related European languages, trying to account for these differences with parameters that have a much wider empirical scope.

And indeed, Quechua and Turkish—languages spoken in very different geographical areas and without any clear historical relationship—do exhibit a number of similarities. These include the case system, word order, the nature of the pro-drop system, and the type of complementation in both languages.

The case systems of the two languages are shown in (4):
(4) **Case systems**

<table>
<thead>
<tr>
<th>Quechua</th>
<th>Turkish</th>
</tr>
</thead>
<tbody>
<tr>
<td>-∅</td>
<td>-∅</td>
</tr>
<tr>
<td>-qpa</td>
<td>-(n)In</td>
</tr>
<tr>
<td>-ta/-∅</td>
<td>-I/-∅</td>
</tr>
<tr>
<td>-man</td>
<td>-(y)A</td>
</tr>
<tr>
<td>-pi</td>
<td>-DA</td>
</tr>
<tr>
<td>-manta</td>
<td>-DAn</td>
</tr>
<tr>
<td>-wan</td>
<td></td>
</tr>
</tbody>
</table>

With the exception of an extra instrumental in Quechua (and this matter is confused in any event because of the parallels between postpositions and oblique case), the two languages make exactly the same case distinctions. Below we return to the precise nature of nominative and objective case assignment, an issue discussed in detail in Lefebvre and Muysken (1988).

Both languages are underlyingly head-final (SOV). There is some possibility, however, for moving or scrambling constituents, although this is more restricted in Turkish:

(5) a. Q: mariya e, riku-n xwan-ta,  
   Maria see-3 Juan-AC  
   'Maria sees Juan.'

b. T: viski-yi, ahmet e, iç-ti  
   whisky-AC Ahmet drink-PA3  
   'Ahmet drank the whisky.'

See Kornfilt (1984) for an analysis of movement restrictions in Turkish.

Both languages allow for pro-drop of the subject in clauses as well as in noun phrases:

(6) Quechua Turkish

<table>
<thead>
<tr>
<th>Quechua</th>
<th>Turkish</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. puri-ni</td>
<td>gel-i-yor-∅</td>
</tr>
<tr>
<td>walk-1</td>
<td>go-EUPH-PR3</td>
</tr>
<tr>
<td>‘I walk’</td>
<td>‘He goes.’</td>
</tr>
</tbody>
</table>

b. mama-nki | anne-si

| mother-2 | mother-3 |
| ‘your mother’ | ‘his mother’ |

1 The following glosses appear in the examples:

<table>
<thead>
<tr>
<th>AC</th>
<th>accusative</th>
<th>PA</th>
<th>past tense</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF</td>
<td>affirmative</td>
<td>PL</td>
<td>plural</td>
</tr>
<tr>
<td>AG</td>
<td>agentive</td>
<td>PR</td>
<td>present tense</td>
</tr>
<tr>
<td>DA</td>
<td>dative</td>
<td>RE</td>
<td>reflexive</td>
</tr>
<tr>
<td>EUPH</td>
<td>euphonic particle</td>
<td>TO</td>
<td>topic</td>
</tr>
<tr>
<td>GE</td>
<td>genitive</td>
<td>1,2,3</td>
<td>1st, 2nd, 3rd person</td>
</tr>
<tr>
<td>LO</td>
<td>locative</td>
<td>4</td>
<td>4th person</td>
</tr>
<tr>
<td>NOM1</td>
<td>realized nominalizer</td>
<td>(that is, 1st person inclusive)</td>
<td></td>
</tr>
<tr>
<td>NOM2</td>
<td>unrealized nominalizer</td>
<td>su . . . ob</td>
<td>subject . . . object</td>
</tr>
</tbody>
</table>
Following the analysis given in Lefebvre and Muysken (1982), I will assume that both nominative and genitive cases are assigned by the pronominal agreement marker on the head: the verb in (6a) and the noun in (6b).

In both languages the primary way to form complement clauses is through morphological nominalization. Within this subsystem the principal distinction is between agentive (or subject-oriented) and nonagentive nominalizations. The principal nominalizers are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Quechua</th>
<th>Turkish</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>AG</td>
<td>-q</td>
<td>-En</td>
<td>agentive/subject</td>
</tr>
<tr>
<td>NOM1</td>
<td>-sqa</td>
<td>-DIk</td>
<td>realized</td>
</tr>
<tr>
<td>NOM2</td>
<td>-na</td>
<td>-i$</td>
<td>unrealized</td>
</tr>
<tr>
<td>INF</td>
<td>-y</td>
<td>-mE(k)</td>
<td>infinitive</td>
</tr>
</tbody>
</table>

Clauses are distinguished primarily by the type of morphological marking they carry. Agentive or subject nominalizations are primarily found in clauses in which the subject is relativized. Clauses with "realized" or "unrealized" marking can function as complements or nonsubject relative clauses.

2. Five Differences between Quechua and Turkish

Given these striking parallels between Quechua and Turkish, it becomes meaningful to look at possible differences between them. We will begin by considering five at first glance unrelated differences between the two languages.

2.1. Raising to Object (Move Case)

A first difference involves the possibility of extracting the subject of a complement clause and marking it with accusative case in the higher clause. Before I illustrate this difference, let us consider some cases of complementation in the two languages. In both languages it is possible to mark the subject of the embedded clause genitive: -pa in (8a) and -in in (8b). The embedded clause as a whole is nominalized and is marked accusative: -ta in (8a) and -i in (8b). Finally, in both languages the subject of the complement clause is marked on the nominalized clause: -n in (8a) and -in in (8b). In accordance with what was said above, I assume that this agreement marker assigns genitive case to the subject in both languages.

(8) Nominalizations

a. Q: yacha-ni [xwan-pa hamu-na-n-ta]
   know-1 Juan-GE come-NOM2-3-AC
   'I know that Juan will come.'

   Suleyman Ahmet-GE a house build-NOM1-3-AC know-PR-3
   'Suleyman knows that Ahmet built a house.'
Now let us return to the possibility of extracting the subject, with a rule that is
described as Move Case in Lefebvre and Muysken (1982). The extracted element is
marked with the same case as the constituent it is moved out of, and the effect is that
it receives extra focus. As the contrast between (9a) and (9b) shows, this is possible in
Quechua but not in Turkish:

(9) Move Case
a. Q: xwan-pa-ta, yacha-ni [e, hamu-na-n-ta]
   Juan-GE-AC know-1 come-NOM2-3-AC
   ‘Juan I know is to come.’

b. T: *ahmet-in-i, suleyman [e, bir ev yap-tig-in-i]
   Ahmet-GE-AC Suleyman a house build-NOM1-3-AC
   bil-i-yor
   know-PR-3
   ‘Ahmet Suleyman knows built a house.’

Below I will try to give an explanation for this contrast.

2.2. NP NP Predication in Small Clauses

A second difference is that in Quechua it is quite possible to mark both constituents of
an [NP NP] small clause accusative case, as shown in (10a). The directly equivalent
Turkish sentence, (10b), is ungrammatical:

(10) Small clauses
a. Q: pay-ta waqcha-ta tari-rqa-ni
   he-AC orphan-AC find-PA-1
   ‘I encountered him as an orphan.’

b. T: *on-u ihtiyar-i gor-du-m
   he-AC old man-AC see-PA-1
   ‘I saw him as an old man.’

In Turkish an [NP NP] small clause is possible only with resultative predicates in which
the predicate NP is marked oblique, as in (11a). (11b), where it is marked accusative,
is ungrammatical:

(11) Resultative small clauses
a. on-u başbakan yerin-e seç-tik
   he-AC president place-DA elect-IPL
   ‘We elected him president.’

2 In Lefebvre and Muysken (1982) we showed that—in addition to subjects—objects, adverbs, and complements can be raised in Quechua. In some cases several elements can be raised out of the same clause. We tried to extend the co-case marking account to the extraction of oblique complements (which are not marked overtly for -ta) by assuming that oblique cases have the features of -ta (which they would need in order to be co-case marked with a -ta complement clause) in addition to oblique case features.
b. *on-u başbakan-ı seç-tik
   he-AC president-AC elect-1PL
   ‘We elected him president.’

Apparently, predicates of an accusative noun phrase in Turkish cannot be marked accusative themselves.

2.3. Perception Complements

A similar result obtains with verbs of perception. In Quechua, but not in Turkish, the complement of a perception verb is a special type of small clause. As shown in (12a), in Quechua both the complement noun phrase and the nominalized perception clause take the accusative marker -ta. The equivalent sentence in Turkish involves an ordinary nominalized complement clause with a genitive subject and either one of two factive nominalizers, as in (12c) or (12d).

(12) Complements of the verb ‘see’

a. Q: [runa-ta] [hamu-q-ta] riku-rqa-ni
   man-AC come-AG-AC see-PA-1
   ‘I saw the man come.’

b. Q: *[runa/runa-q hamu-q-ta] riku-rqa-ni
   man man-GE come-AG-AC see-PA-1
   ‘I saw the man’s come.’

c. T: [on-un gel-dig-in-i] görü-yor-um
   he-GE come-NOM1-3-AC see-PR-1
   ‘I see his coming.’

d. T: [on-un gel-i§-in-i] görü-yor-um
   he-GE come-NOM2-3-AC see-PR-1
   ‘I see his coming.’

e. T: *[on-u] [ gel-en/di§/i§-(in)-i] görü-yor-um
   he-AC come-AG/NOM1/NOM2-3-AC see-PR-1

In Turkish any structure directly equivalent to the Quechua structure in (12a) is ungrammatical, no matter what complementizer is used, when both the subject of the complement clause and the clause itself are accusative. This is shown in (12e). (12b) shows that a Quechua equivalent of (12c,d) is ungrammatical as well.

2.4. Relative Clause Extraposition

A fourth difference between the two languages involves the possibility of extraposing a relative clause. Let us first consider some examples of relative clause formation in the two languages. It is sufficient for the argument just to look at subject relatives.
(13) *Relativization out of subject position*

a. Q: [hamu-q] runa-ta riqsi-ni
   come-AG man-AC know-1
   ‘I know the man who is coming.’

b. T: [gel-en] adam-i gör-dü-m
   come-AG man-AC see-PA-1
   ‘I saw the man who is coming.’

The structures in the two languages are parallel: the relative clause precedes the head and is marked with a special agentive nominalizer: -q in (13a) and -en in (13b). There is a gap in the relative clause, and the head, in final position, is marked for the case corresponding to the position of the relativized NP in the matrix clause, here accusative.

The two languages differ, however, in their ability to extrapose the relative clause. Again, Quechua allows it, and Turkish does not:

(14) *Extraposition of the relative clause*

a. Q: [e, runa-ta] riqsi-ni hamu-q-ta/*hamu-q,
   man-AC know-1 come-AG-AC/come-AG
   ‘I know the man who is coming.’

b. T: *[e, adam-i] gör-dü-m gel-en-i/gel-en,-
   man-AC see-PA-1 come-AG-AC/come-AG
   ‘I saw the man who is coming.’

As will be obvious by now, the extraposed relative in Quechua is marked accusative just like its head, as illustrated by runa-ta and hamu-q-ta in (14a). In Turkish the structure is ungrammatical whether case marking is present or not.

2.5. *Quantifier Float*

A final difference, which parallels the previous one, involves the floating of quantifiers. In Quechua it is possible to float a quantifier out of object position by marking it with the same case as the head; see, for example, the two accusatives in (15a). The equivalent Turkish structure (15b) is ungrammatical:

(15) *Floating*

a. Q: [e, quqli-y-ta] tari-rqa-ni llipi-n-ta,
   money-l-AC find-PA-1 all-3-AC
   ‘I found all my money.’

b. T: *[e, adam-lar-i] gör-üyor-um bütün-ü,
   man-PL-AC see-PR-1 all-AC
   ‘I see all the men.’
2.6. A First Preliminary Conclusion

What do all the differences between the two languages have in common? We can say that, quite independently of the issue of whether there is extraction or not, Quechua seems to allow sequences of the type . . . accusative . . . accusative . . . , with some relation holding between the two accusative elements, and Turkish simply does not. I will interpret this in terms of notions derived from predication theory and will formulate the following hypothesis. Quechua -ta objective case can occur both on thematic objects and on elements predicated of these objects, some of which correspond to apparently extracted elements and others to predicates in the standard sense. This gives the following five structures for the Quechua cases in sections 2.1–2.5:

(16) Quechua predication chains
- a. XP-ta, . . . [N[e, . . .] O_i]-ta, “raising”
- b. NP-ta, . . . XP-ta, “small clause”
- c. NP-ta, . . . [S PRO . . .]-ta, “perception complement”
- d. [NP e_i[. . .]]-ta, . . . [s . . .]-ta, “relative clause extraposition”
- e. [NP e_i[. . .]]-ta, . . . [QP . . .]-ta, “quantifier float”

In these cases the internal constituency of the “subject NP” of the predicate chain is very different, but the relation between “subject” and “predicate” is identical: co-case marking through -ta. The analysis presented in Lefebvre and Muysken (1988) of Move Case in Quechua involves A-movement to the Comp position of the constituent out of which extraction takes place, and then movement out of the constituent. Here I assume that an empty operator moves to a Comp position, either through adjunction or through movement to the specifier of Comp or Det (in the case of noun phrases) and that the index of the empty operator subsequently percolates to the top node of the constituent. Through this indexation, the element predicated of the noun phrase containing a gap can be interpreted as the element filling this gap at LF.

Turkish -I objective case can occur only on thematic objects and hence cannot participate in predication chains.

3. Subject-Object Asymmetries in Quechua

The hypothesis stated in section 2.6 was limited to accusative or objective case. When we look at nominative case in Quechua, a rather different picture emerges. In fact, Quechua exhibits a number of subject-object asymmetries. I will discuss them in parallel with the differences between Turkish and Quechua presented in section 2.

3.1. No Extraction out of Subject Clauses

First, extraction out of subject clauses is impossible in Quechua, even though it is possible out of object clauses, as shown in (9a). (17a) contains a subject clause with a genitive subject, and (17b) shows that it is ungrammatical to extract this subject out of the clause.
The constituents have been reordered to show that extraction has taken place:

(17) Move Case
   a.  [xwan-pa hamu-na-n]  allin-mi
       Juan-GE come-NOM2-3 good-AF
       'It is good that Juan is to come.'
   b.  *xwan-pa, allin-mi  [e, hamu-na-n]
       Juan-GE good-AF  come-NOM2-3

In my analysis, xwan-pa would need to be predicated of [e, hamu-na-n] for raising to work and (17b) to be grammatical. Since nominative cannot participate in co-case marking, (17b) is ungrammatical.

3.2. No NP NP Predication

Examples such as (18) could be used to argue that there can be no predication involving the subject of a clause:

(18) *mariya runa puri-n
     Maria man walk-3
     'Maria walks as a man.'

I am hesitant to draw this conclusion because there are grammatical predications involving resultative adjectives:

(19) mariya sayku-sqa chaya-mu-rqa-n
     Maria tire-NOM1 arrive-PA-3
     'Maria arrived tired.'

3.3. No Perception Complements

It is difficult to demonstrate a subject-object asymmetry with regard to perception complements since such complements by their very nature occur only in object position. There are medial constructions like (20a), however, whose equivalent with a complement, (20b), is ungrammatical:

(20) a.  chay-qa allin-ta kay-manta riku-ku-n
        that-TO good-AC this-from see-RE-3
        'That is seen well from here.'
   b.  *runa puri-q allin-ta kay-manta riku-ku-n
       man walk-AG good-AC this-from see-RE-3
       'The man walking is seen well from here.'

3.4. No Relative Clause Extrapoision

The contrast between (21a) and (21b) shows that it is not possible to extrapose a relative clause when the head is in the subject position of the matrix clause:
(21) a. [hamu-q runa] tiyu-y-mi
    come-AG man uncle-1-AF
    ‘The man coming is my uncle.’

    b. *[e, runa] tiyu-y-mi hamu-q,
    man uncle-1-AF come-AG

3.5. Quantifier Float Restricted

Although it is not absolutely certain that quantifier float out of subject position is im-
possible, it is certainly marginal at best, as shown by the dubious status of (22):

(22) *?[e, runa-kuna] hamu-n llipi-n,
    man-PL come-3 all-3
    ‘The men all come.’

3.6. Alternative Explanations for the Subject-Object Asymmetries

Disregarding the case of adjectival predication in (19), for which I have no explanation
at present, it is rather clear that Quechua nominative -Ø is like Turkish -I in appearing
only on arguments. No predications can be formed from subject position, according to
the hypothesis presented here, because of properties of nominative case in Quechua;
no co-case marking, hence no predication chain.

Of course, a number of the phenomena presented are explained under competing
analyses as well. This holds for the ungrammaticality of extraction from subject clauses
in (17b), of extraposing relative clauses from subject position in (21b), and of floating
quantifiers from subject position in (22). The Empty Category Principle (ECP) of Chom-
sky (1981) could be invoked to argue that the gap left internal to the subject position is
not properly governed. However, the classical ECP does not properly account for the
contrasts in Quechua, since the subject position may well be properly governed by the
agreement marker. Quechua is a pro-drop language. There is no direct evidence for the
ECP in Quechua involving subject-object asymmetries in extractions from complement
clauses.3

The same contrasts could be accounted for in terms of the theory of Connectedness
(Kayne (1983)), were it not for the fact that the branching direction, crucial in setting
up a connectedness path, is identical for subjects and objects. Explanations in terms of

3 The evidence presented for the ECP in Imbabura Quechua by Hermon (1985) and Cole (1987) is primarily
based on the impossibility of extracting subjects from complement clauses (without co-case marking them with
the clause they are extracted out of). In contrast, objects can be extracted. In the analysis given here, the
subject-object asymmetry noted by Cole and Hermon is due to the fact that objects are already marked for
-ta and are therefore co-case marked with the clause they are extracted out of. Subjects need to be marked
for -ta as well.

Hermon (1985) bases additional arguments for the ECP on the assumption that in Quechua experiencer
constructions objects are moved to subject position in LF. An alternative account of the ‘subject’ properties
of experiencers in Quechua would be to assume that they are small clause subjects, in a small clause consisting
of the experiencer and some experience predicate.
directionality of branching predict no subject-object asymmetries in Quechua since it is an SOV language and both subject and object are on left branches.

An additional reason to maintain the hypothesis based on co-case marking is that it explains the contrasts involving perception complements and small clauses, in (18) and (20b), as well. In the next section I will present additional evidence for the analysis based on predication chains.

4. Two Mysteries for Lefebvre and Muysken (1982; 1988) and Their Resolution

The explanation for the asymmetries given in section 3.6 has the virtue of solving two problems for which Lefebvre and Muysken (1982) had no solution.

4.1. Nominalizations

The first problem concerns the categorial status of nominalizations. In subject position nominalizations are nominal, in object position both nominal and verbal. Here I take the presence of a nominative subject to be indicative of a ‘verbal’ nominalization (that is, one with a [−N] feature). This is allowed in (23a), which contains an object complement. In a subject clause, however, as in (23b), only a genitive subject is allowed.

\[
\begin{align*}
(23) \text{a. } & \{xwan-pa \atop xwan-\emptyset\} \text{ hamu-sqa-n-ta} \text{ yacha-ni} \\
& \text{Juan-GE come-NOM1-3-AC know-1} \\
& \text{‘I know that Juan has come.’} \\
\text{b. } & \{xwan-\emptyset \atop *xwan-pa\} \text{ hamu-sqa-n} \text{ allin-mi} \\
& \text{Juan-GE come-NOM1-3 good-AF} \\
& \text{‘That Juan has come is good.’}
\end{align*}
\]

To account for this contrast, categorial restrictions on argumenthood turn out to be crucial. Recall the claim implicit in the formulation (1) that subjects in a predication chain must be [+N]. A further question is, Can only [+N] elements be arguments? It is clear that noun phrases are the archetypical arguments, but the status of clauses is less clear. The literature contains frequent references to the assignment of thematic roles to complement clauses, but at the same time there are indications that clauses have a different distribution from noun phrases. Stowell (1981) invokes the Case Resistance Principle to argue that S' cannot be in the domain of V. Kayne (1982) has suggested that a clause must have a “nominal” complementizer such as that heading it in order to be able to occur in the argument position of the verb. Elaborating this notion and applying it to Dutch, Hoekstra (1984) invokes the Unlike Category Condition to explain why clauses in Dutch must extrapose:

\[(24) \text{At S-Structure no element of the type } [\alpha N, \beta V]^0 \text{ may (canonically) govern a projection of } [\alpha N, \beta V].\]
He invokes it to account for the contrast between (25a), where the object NP occurs preverbally, and the ungrammatical (25b), where a complement clause occurs preverbally. With clauses, only the extraposed equivalent, (25c), is grammatical:

(25) a. ... toen ik [\textit{NP de jongen}] zag
    when I the boy saw

   b. *... toen ik [\textit{S' dat hij daar liep}] zag
    when I that he there walked saw

   c. ... toen ik zag [dat hij daar liep]
    when I saw that he there walked

By assuming that clauses share all categorial features with verbs and that verbs govern leftward in Dutch, (24) excludes (25b). Van Riemsdijk (1986) achieves a similar result with a different formal mechanism.

I will assume that such a restriction holds universally: all elements in argument position in Quechua and Turkish have the feature [+N]. Since the evidence for this is quite complex, the most plausible assumption from the perspective of learnability is that the requirement that all arguments are nominal is part of Universal Grammar.

If all argument positions are nominal, we must assume that -\textit{ta} marking permits Quechua verbal nominalizations to be predicated of an empty NP position for objects.\footnote{Of course, there is no co-case marking in a literal sense here, since the empty object is not marked -\textit{ta} on the surface. However, I will assume that the canonical object position is identified as a -\textit{ta} position by the verb and hence is able to participate in a predication chain.} -\textit{\emptyset} nominative does not allow this. I will assume that the structure of the \textit{xwan-\emptyset} variant of (23a)—that is, the variant in which nominative is assigned to the subject rather than genitive—is as in (26):

(26) \ldots [\textit{S'} \ldots ]-\textit{ta}, \ldots [\textit{NP e_i}] \textit{V}

This structure, in which the complement clause has been left-adjoined internal to the VP, parallels the Dutch example in (25c), in which the complement clause has been extraposed.

4.2. Extraction

A second problem involves extraction. "Raising" is possible only out of nominal nominalizations, as shown by the ungrammaticality of one of the forms in (27):

(27) \begin{align*}
   \{ & \textit{xwan-\emptyset-\textit{ta}} \cr & \textit{xwan-pa-\textit{ta}} \} \quad \text{yacha-ni} [\textit{e_i} \textit{hamu-na-n-ta}] \\
   \text{Juan-\textit{GE-AC} know-1} & \text{come-NOM2-3-AC} \\
   \text{Juan I know is to come.} & 
\end{align*}

In (27) \textit{xwan-pa-\textit{ta}} is predicated of an NP position containing a variable. We know that it is an NP position because its subject is genitive: \textit{xwan-pa-\textit{ta}} contains the genitive case
marker -pa, inherited from the ā-chain starting in the subject position. The equivalent without genitive marking is ungrammatical because the clause containing the variable would be [−N] and could not function as a subject in a predication chain. The explanation only works, of course, if we assume that the subject in a predication chain has to be a [+N] argument, something we will return to below.

When I say that xwan-pa-ta in (27) is predicated of the nominalized clause, this implies that xwan-pa-ta gives additional information with respect to that clause, so that (27) may be paraphrased as ‘I know that x is to come, and that x is Juan’. Thus, the interpretation of the construction in which the subject is extracted creates a subject-predicate relation different from the one in which a verb phrase is simply predicated of a subject.

5. The Case of the Subject in Turkish Nominalizations

Returning to Turkish, I predict that in this language nominalizations that function as arguments will always be nominal and contain a genitive subject. This follows from my analysis because in Turkish neither nominative nor accusative can participate in co-case marking. This prediction is confirmed in two unrelated constructions: complement clauses and adjunct relative clauses.

5.1. Complement Clauses

The ungrammaticality of the nongenitive alternative of (28) shows that this is the case for object complements:

(28) \[
\begin{cases}
\text{ahmet-} & \text{bir ev yap-tuğ-in-i]} \\
*\text{ahmet-∅} & \text{bil-i-yor-um}
\end{cases}
\]

Ahmet-GE a house build-NOM1-3-AC know-PR-1

‘I know that Ahmet has built a house.’

In Turkish object complement nominalizations have to be nominal because they cannot function as predicates. As demonstrated earlier, -I accusative case can only be attached to arguments. We will see shortly that it is not the morphology of the nominalizer itself in (28) that forces the subject ahmet to be genitive. The type of predication analysis adopted here explains the contrast with Quechua (23a).

5.2. The Subject Case of Relative Clauses

There are only a few instances in Turkish where the subject of a nominalized clause is not in the genitive case. One of these, involving relative clauses, provides striking support for my analysis, if we are willing to make one extra assumption. Consider the contrast between (29) and (30), which are the same in all but one respect. In (30) the subject of the relative clause is marked genitive -in and the antecedent is marked locative -da. In
the subject of the relative clause is nominative or genitive and the antecedent is without case.

(29) ali-Ø/ali-nin gel-diɣ-i zaman yok-tu-m
    Ali/Ali-GE come-NOM2-3 time absent-PA-1
    ‘When Ali came, I was not there.’

(30) ali-*Ø/ali-nin gel-diɣ-i zaman-da yok-tu-m
    Ali/Ali-GE come-NOM2-3 time-LO absent-PA-1
    ‘When Ali came, I was not there.’

In (30) the temporal clause is marked locative and hence must be in an argument position. Correspondingly, the relative clause must be nominal, with a genitive subject. In (29) the temporal expression is caseless and in an adjunct position. Subsequently, the relative clause need not be nominal and its subject can be nominative.

The extra assumption needed to make an explanation in terms of the [+ N] requirement for arguments work is that in Turkish the relative clause is categorically the head of the construction, and the antecedent is somehow adjoined to it. Thus, the structures for (30) and (29) would be like (31a) and (31b), respectively:

(31) a. [+ N] b. [- N]

[+ N] zaman-da [− N] zaman-Ø

Notice that the antecedents that allow for the contrast between (29) and (30) could be considered defective: (31b) is only allowed with words like gün ‘day’, yıl ‘year’, and zaman ‘time’.

6. Clitic Doubling, Quantification, Long-distance Extraction, and Argument Status

My analysis so far was crucially based on the assumption that only [+ N] elements can be arguments. Here I will provide independent support for this assumption by considering the interaction between clitic doubling and quantification in Quechua. I will begin by considering the interaction between clitic doubling and quantification, then turn to passivelike statives.

6.1. Clitic Doubling and Quantification

Consider first the familiar data from Jaeggli (1983) on River Plate Spanish, however. (32a) contains a quantified object noun phrase, and (32b) an object noun phrase represented by a clitic, las. (32c) has both a clitic and an object noun phrase, but the ungrammaticality of (32d) shows that the latter may not be quantified.

(32) Platense Spanish Clitic Doubling
    a. yo vi a todas las mujeres
       I saw CASE all the women
b. yo las vi
   I them saw
   'I saw them.'

c. yo las vi a las mujeres
   I them saw CASE the women
   'I saw the women.'

d. *yo las vi a todas las mujeres
   I them saw CASE all the women

Jaeggli explains this result by claiming that a noun phrase accompanied by a clitic is not a true argument but an adjunct, since in this case the clitic itself is assigned the features corresponding to the object of the verb. Since quantifier raising in LF necessarily takes place out of argument positions, and since in (32d) the quantifier todas 'all' is part of an adjunct, the expression is ungrammatical. For the purpose of the argument, I will assume that Jaeggli's account of the data in (32) is correct.

Consider now the forms in (33), not quoted by Jaeggli (1983). It turns out that a quantifier phrase predicated of an adjunct—or rather, a quantifier predicated of a chain consisting of an adjunct and an argument—is grammatical. In (33b), which is a schematic representation of (33a), the subscripts indicate the A-chain and the superscripts the predication chain.

(33) a. yo las vi a todas
   I them saw CASE all
   'I saw them all.'

b. yo las, vi e/ a todas

Both arguments, as in (32a), and elements predicated of chains containing an argument, as in (33a), may be quantified.

Since I have argued that in Quechua the possibility of co-case marking enables elements to be predicated of the object, I predict that the Quechua equivalent of clitic doubling is allowed even with quantified expressions. This prediction is borne out, as seen in (34). Since Quechua has no third person object markers, I give examples with the first person inclusive or fourth person, which is marked both on the verb and on the quantifier (in (34a)) or the wh-phrase (in (34b)).

(34) Quechua Clitic Doubling 1: Objects
a. xwan llipi-nchis-ta/ e/ riku-wa-nchis
   Juan all-4-AC see-3su-4ob
   'Juan saw all of us.'

5 In Quechua both subject and object marking are inflectional rather than enclitic, morphologically speaking. They share syntactic properties with Romance clitics, however, in being fully referential in themselves. When full pronouns occur in subject or object position (except for third person objects, for which there is no marking on the verb), they have the properties of "strong" or "distinctive" pronouns referred to in Rigau (1988) and other works.
which-EUPH-4-AC Juan see-3su-4ob
‘Which of us did Juan see?’

I will assume, then, that the quantifier phrase and the wh-phrase are predicated of the empty object position, just as in the Spanish example (33). Again, predication is marked with a superscript, and the relation holding between the empty object position and the marking on the verb with a subscript.6

The predicate chain analysis, coupled with the assumption that nominative case in Quechua does not allow co-case marking, predicts the existence of a subject-object asymmetry here. This prediction is correct:

(35) **Quechua Clitic Doubling 2: Subjects**

a. *llipi-nchis-mi papa-ta alla-nchis
   all-4-AF potato-AC dig-4
   ‘All of us dig potatoes.’

b. ?*mayqin-ni-nchis-mi papa-ta alla-nchis
   which-EUPH-4-AF potato-AC dig-4
   ‘Which of us dig potatoes?’

The fact that (35b) is marginally acceptable is perhaps due to an interpretation where the person features of the wh-phrase do not fully percolate, so that the sentence is interpreted as not really being a true case of clitic doubling.7

6.2. **Passivelike Statives**

The predication analysis is supported by a similar range of data involving passivelike statives in Quechua, as analyzed in Muysken (1986). In these biclausal constructions a gap in the object position of the lower clause corresponds to the subject of the matrix clause:

(36) nuqa, [e, maqa-sqa-n] ka-ni
    I hit-NOM 1-3 be-1
    ‘I have been hit.’

---

6 There is no true Wh Movement in Quechua, only local fronting, and I will not discuss the issue here of whether the wh-phrase in (34b) is directly predicated of the object position or coindexed with an empty position that is predicated of the object position, as schematically presented in (i):

(i) wh-phrase_1 . . . e/ . . . e/ . . . verb-clitic

From the descriptive point of view, the analysis presented here implies that local scrambling (as with quantifier float) and short-distance Wh Movement in Quechua involve predication, not A-binding. This could lead to a reinterpretation of scrambling phenomena in general as involving predication chains, but I will leave this as a possibility for later research.

7 The parametrization of clitic constructions has been discussed in the syntactic literature since the early 1980s (see, for example, Borer (1984), Hermon (1985)). Unfortunately, it is not possible to study the same range of phenomena in Turkish since Turkish does not have object clitics.
The fact that the gap in the lower clause is case-marked and that the lower clause contains a subject speaks against an A-chain analysis. I assume that the gap is Ā-bound by an empty operator in Comp, the index of which percolates to the top node of the lower clause. The lower clause is predicated of the matrix subject and linked to it, not through co-case marking (impossible since that would need to be accomplished with nominative case), but structurally.

Consider now the contrast between (36) and (37), which differ minimally in that in (37) the lower verb has an object clitic, -wa-.

(37) *nuqa maqa-wa-sqa-n ka-ni
     I    hit-lob-NOM1-3 be-1
     'I have been hit.'

Sentence (37) is ungrammatical for the same reason as (35), as can be seen from the tree representation in (38):

(38) S
    NP  VP
    XP   copula
    O_i
    e_i  V-wa

When there is an Ā-chain, there can be no clitic doubling: e in (38) must be in an argument position, and it is only an adjunct to the clitic.

7. Conclusion

I hope to have shown that adopting the notion of predication chain, established through co-case marking, coupled with the requirement that the subject of such a chain be nominal, enables us to account for a number of hitherto unexplained aspects of the grammar of Quechua and Turkish.

Within the parameter-setting model referred to in section 1, the question arises how a child can learn to differentiate between a system like that of Quechua in which accusative case allows co-case marking and a system like that of Turkish in which it does not. In Quechua it is not only with predication chains that we find double accusative, but also with adverbs (39a) and with temporal expressions (39b):
(39) a. chay-ta allin-ta-n ruwa-rqa-nki
    that-AC good-AC-AF do-PA-2
    'You did it well.'

  b. qayna-ta qusqu-ta ri-rqa-ni
    yesterday-AC Cuzco-AC go-PA-1
    'Yesterday I went towards Cuzco.'

In Turkish we find no such use of the accusative. Note incidentally that this account goes against the idea that co-case marking is necessarily linked to a particular thematic role. Rather the opposite, since it is Turkish accusative case that is associated with true direct objects. Though it is true that languages with extensive case copying also have inherent morphological case, we cannot simply equate the two notions.8

It is not correct, however, to equate case that can mark a predication chain directly with morphologically nonnull case in Quechua. Genitive -q/-pa, for instance, behaves like nominative in not being able to participate in predication chains. Consider examples like (40):

(40) *[\[e, qulqi-y-ni-q\] llipi-y-ni-q, kay-pi ka-sqa-n-ta] yacha-ni
    money-1-EUPH-GE all-1-EUPH-GE this-LO be-NOM1-3-AC know-1
    'I know that my money is all here.'

Sentence (40) is ungrammatical because elements marked genitive cannot participate in predication chains. This suggests that genitive, even though it is morphological, does not allow co-case marking.

References


8 A second way to distinguish case that allows co-case marking from case that does not may be in terms of locality. If scrambled NPs are always predicated of an argument NP in a fixed position, we would expect more restrictions in the second instance. In fact, the object is much freer with respect to the verb in Quechua than in Turkish.

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