

Agreement in Quechua: evidence against Distributed Morphology

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0. Introduction

In the fifteenth century the frontier of the Inca empire was pushed southward from Cuzco, Peru. The history of the conquest of the new territories is very complex. What is of interest here is the fact that the Quechua dialects which are spoken in the south of Peru, Bolivia and the north of Argentina are all closely related variants of the Cuzco prestige language, used by the Incas as a *lingua franca*.

In Bolivia, the Quechua language has slowly spread over the country in the centuries after the conquest and has been mainly in competition with Aymara and later with Spanish. Lexical influence from these languages is obvious, but structurally the Bolivian Quechua dialects are almost identical to the Cuzco dialect, since both the morphology and the syntax have undergone only superficial changes. Nevertheless, between the verbal paradigms of these dialects a considerable number of differences can be observed. It will be shown that in Cuzco Quechua the expression of tense and agreement is highly transparent, while Bolivian Quechua has a good number of opaque and underspecified entries in its verbal paradigm.¹ I will argue that a cluster of these differences can be attributed to a difference in the status of the morpho-syntactic category number. This is expressed separately in the Cuzco dialect, while it has been fused with person, at least for first and third person plural, in Bolivian Quechua. Another cluster of differences can be related to object marking. Two port-manteau suffixes which express the relation between a first or third person subject and a second person object are in a process of reinterpretation towards a suffix which only expresses second person object in Bolivian Quechua.

¹ I would like to thank Pieter Muysken en Willem Adelaar for our discussions about the complex Quechua verbal paradigm and for comments on earlier versions of this article. For the Cuzco data I relied on CusiHuáman (1976) and Lefebvre & Muysken (1988) and the Bolivian data, which I checked and confirmed with my informants in Tarata, Bolivia are from Herrero & Sánchez (1978). For a more elaborate presentation of the paradigmatic variation I refer the reader to my thesis on Bolivian Quechua verbal derivation (van de Kerke 1996), financed by the Dutch Organization for Tropical Research (WOTRO). In the examples the following glosses are used: *AC* accusative, *PST* past, *SudDis* Sudden Discovery tense, *NOM* nominalizer, *EUP* euphonic, *ob* object, *sub* subject *PL* plural *SG* singular.

The differences and the changes in the verbal paradigms of the different dialects are used for an evaluation of whether we should account for the expression of inflection and agreement as the result of post-syntactic insertion of morphemes in syntactically generated feature nodes (Halle & Marantz 1993) or are formed lexically and inserted in the syntax with subsequent feature checking (Chomsky 1993).

1. *Tense and Agreement suffixes in southern Quechua*

Most of the southern Quechua tense and agreement suffixes express one single morpho-syntactic feature, cf. Table 1:

Table 1: Tense and Agreement suffixes in southern Quechua

Main Tense		Main Tense Subject Marking		
-∅	Present	-ni	1 = [+I, -II]	'I'
-rqa	Past	-nki	2 = [-I, +II]	'you'
-sqa	SudDis	-n	3 = [-I, -II]	'he'
irregular	Future	-nchis	4 = [+I, +II]	'you and I'
Object marking			Number	
-wa	→[1]	'me'	-ku	[-2, PL]
irregular transitions		'you'	-chis	[+2, PL]
-yki	[1→2]	'I to you'		
-sunki	[3→2]	'he to you'		

The language distinguishes four main tenses: an unmarked present, a past and what it is known in the literature on Quechua as a sudden discovery tense; the latter two are expressed by *-rqa* and *-sqa* respectively. Future tense is not linked to one single suffix. Person marking distinguishes the three basic entities I, you and he/she and has a fourth form expressing both speaker and hearer. First person object marking is linked to the suffix *-wa*. Expression of second person object is dependent on whether person of subject is first or third, the 'transition' being expressed by means of one single suffix: *-yki* (1→2) or *-sunki* (3→2). The expression of number depends on whether the person to be pluralized is second: *-chis*, or first or third: *-ku*².

² On the basis of this chart one would expect that 1PL would be the concatenation of *-ni* and *-ku*. This is indeed the case in Ayacucho Quechua, another main southern dialect, but Cuzco and Bolivian Quechua realize it as *-yku*. This form is also used in the nominal paradigm to express a 1PL subject, and this may have been one of the incentives to reinterpret *-yku*, and subsequently *-nku*, as one indivisible suffix, as I will argue below.

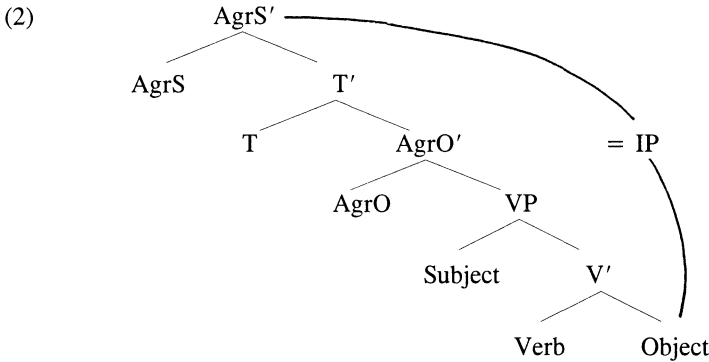
We may formulate a slot matrix to account for the linearization of these suffixes as in (1):

- (1) Root - object - tense - subject - number

However, apart from the fact that a slot matrix cannot cope with the subject-object transitions *-yki* and *-sunki*, it is silent about the question how the categorial features expressed by the tense and agreement suffixes are syntactically interpreted. Whether we adopt a pre- or a post-syntactic analysis of word formation, we need an explicit theory about the way features or feature bundles and are matched with morphemes.

2. *Halle & Marantz (1993) against Chomsky (1993)*

Both the model of Distributed Morphology (DM) as formulated in Halle & Marantz (1993), which relies on post-syntactic matching of morphemes with syntactically built up feature bundles, and the lexicalist analysis in Chomsky (1993) assume the clausal architecture of Chomsky (1991), presented in simplified form in (2):



Both theories accept that the verb raises by means of head-to-head movement through AgrO and T to AgrS. A strict Incorporation analysis (Baker 1988) assumes that the actual morphemes are generated in the different terminal nodes, which is observationally inadequate since extensive fusion of morpho-syntactic categories, where one morpheme expresses different categories, is widespread. In DM this forms the basis for the assumption that the verb on its way to AgrS does not pick up lexical material but only features. Through the mechanism of fusion, which has to obey restrictions like adjacency, morpho-syntactic categories may be collapsed into one categorial node with a complex feature bundle. After the

syntax, in a separate morphological module, the content of the different feature bundles is matched with morphemes from the Vocabulary. DM predicts the Mirror Principle (MP; Baker 1985) effect: the order of morphemes mimics the order of functional projections. Halle & Marantz' criticism of Chomsky's lexicalist analysis centers on this ordering effect. If verb formation is pre-syntactic, as in Chomsky's analysis, and a complete verb with a feature bundle is inserted in the syntax, the features of which are checked against the different functional projections, the MP effect is completely accidental. The discussion will evaluate this dispute in the light of the transition from Cuzco to Bolivian Quechua inflection and agreement and center on the following questions:

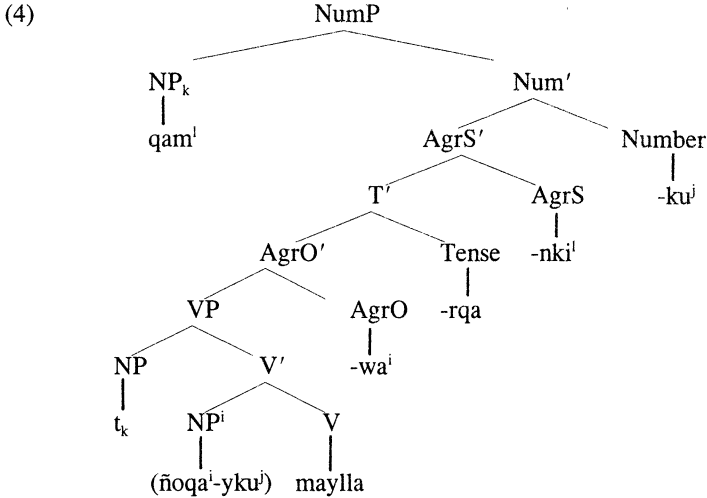
- a) Does the Mirror Principle hold for the constituent structure of inflection and agreement?
- b) What is the distribution of fused morpho-syntactic categories?

3. *Number expression*

In a lexicalist analysis of word formation a Cuzco Quechua verb form as in (3) can be fitted into Chomsky's (1991) clausal architecture for tense and agreement expression as given in (2):

- (3) (ñoqa -yku -ta) (qam) maylla -wa -rqa -nki -ku
 (I 1PL AC) you wash 1ob PST 2 PL
 'You washed us.'

In this form *-ku* skips *-nki* and refers back to *-wa*. The fact that the plural marker is not adjacent to the category which is pluralized may be analyzed as a lexical property of the slot matrix in which the morphemes are inserted. A feature matrix [1PLob, PAST, 2sg], which is matched with the different projections in the syntax, can be easily built up. However, such non-adjacency is impossible to account for in a theory like DM, in which the feature matrix is built up in the syntax and which, at the same time, tries to uphold a strong version of the MP. We might place the burden for discontinuous expression on the Vocabulary and relate the features [1PLob] to a discontinuous morpheme *-wa-..-ku*. Apart from their problematic theoretical status and lack of economy (both *-wa* and *-ku* can also occur singly with the same meanings) discontinuous affixes also violate the MP effect. Besides that, there is redundancy of feature expression, and we cannot explain why *-ku* must end up as the last element of Infl/Agr expression and why the plural markers can only be used once. If we stipulate for Cuzco Quechua an extra functional projection for the category number, the distribution of the plural markers is explained, although we have to accept a violation of local interpretation under adjacency. In the following simplified tree, Number has to modify AgrO, which is tree cycles down, rather than the adjacent AgrS :



The third alternative, stipulate that all of AgrO, Tense, and AgrS is fused and is matched with one entry from the Vocabulary, is very unattractive in the light of the complete transparency of (4).

However, the case against DM is even stronger in Bolivian Quechua, where the transparent make up of Infl/Agr in Cuzco Quechua has become opaque, since (5) not only expresses the meaning of (3), but all non-reflexive interactions relating to a first person plural object³:

- (5) maylla -wa -rqa -yku
 wash 1ob PST 1PL
 'He/they/you/you(PL) washed us.'

The first question is how the feature bundle [1PLob, PAST, 2/3 (PL)] may be matched with the features of the actually realized affixes: [1ob-PAST-1PLsub]? Whether we assume a syntactic representation as in (2) or (4), in DM *-wa-...yku* must be linked with the feature [1PLob], since *-yku* can never be the spell-out of [2(PL)] or [3(PL)]. This is an unattractive analysis for the reasons mentioned above, and it does not explain why subject marking is suppressed. The alternative is to analyze *-wa-...yku* as a discontinuous port-manteau morpheme with the

³ As a matter of fact the expression in (5) forms a strong argument for lexical integrity. There is no way in which *-yku* in AgrS may be matched with a second or third person subject in the syntax. Compositionally interpreted, (5) looks like a reflexive expression 'we washed me.' If the concatenation of morphemes takes place in the syntax, this would lead to a violation of the binding principles since the person markers are pronominal elements.

feature [unspecified sub→1obPL]. As we have seen in Table 1, Southern Quechua has other port-manteau suffixes, *-yki* [1→2] and *-sunki* [3→2], but they are realized after Tense. Since this is impossible with *-wayku*: **-rqa-wayku*, there is no straightforward way in which DM can match the features with elements from the Vocabulary.

If we allow double feature specification and underspecification (more on this below), a lexicalist analysis does not have great pains with (5): *-wa* fills in [1ob], *-rqa* [PAST], and *-yku* provides [1PL]. Given the fact that the feature [1ob] is already set, [1PL] can only change it to [1obPL] and leave subject expression unspecified.

The second question is why the transparent make up of Agr/Infl in the Bolivian Quechua dialects was distorted? I claim that this is due to the fact that *-ku* is no longer an independent categorial expression for the feature [-2PL]. It is has been fused with the person markers for first and third person into one indivisible morpheme: *-yku* and *-nku* with the features [1PL] and [3PL], and can no longer be used to pluralize person of object on its own.⁴ Given the clash between the features to express and the limited morphological means to do so, the choice for pluralizing the first person object, instead of marking the subject, seems to be completely random and even counter-intuitive. However, prominence of first person is a general pattern in the language, as argued in Lefebvre & Dubuisson (1978), as we will see below.

4. Evidence for the fused character of *-yku* and *-nku*

There is ample evidence for the fusion of morpho-syntactic categories in the verbal paradigm of southern Quechua. We find the subject-object interactions involving a second person, *-yki* and *-sunki*, which pose a theoretical problem since they present a fusion of two non-adjacent categories. A well-behaved type of fusion of categories is the one found in the future tense expression where the features of the adjacent categories Tense and Person have been collapsed into one morpheme: *-saq* [FUT, 1] and *-nqa* [FUT, 3]. In Cuzco Quechua pluralization takes place by means of affixation of *-ku*:

- (6) *-saq* [FUT, 1] + *-ku* [PL] → *-saq-ku* [FUT, 1, PL]
 -nqa [FUT, 3] + *-ku* [PL] → *-nqa-ku* [FUT, 3, PL]

⁴ An anonymous LIN-reviewer remarks that *-wa-nchis*, in many Quechua dialects used to mark the transition between a third person singular or plural subject and a fourth (you an I) person object, has been the form on which *-wa-yku* has been modeled. This may be true but *-wa-nchis* may also be analyzed as *-wa-n-chis*, in which *-n* would express the third person subject features. Besides that such an analysis does not explain why *wa-yku* is only found in those dialects that have lost *-ku* as an independent plural marker.

In Bolivian Quechua, however, a full person marker is attached to form the plural future. This produces cases of double feature expression, already alluded to above:

- (7) -saq [FUT, 1] + -yku [1, PL] → -s(q)a-yku [FUT, 1, PL]
 -nqa [FUT, 3] + -nku [3, PL] → -nqa-nku [FUT, 3, PL]

Additional evidence for the fused nature of *-nku* [3PL] can be found in the habitual construction, which consists of a nominalized form of the base verb and the verb *kay* 'to be'. As in many other languages, the third person singular form of the verb 'to be' is not realized. Obligatorily the underlying form *takiq kan* is realized as *takiq*, cf. (8):

- (8) taki -q ka -n → taki -q
 sing NOM be 3
 'He used to sing.' (all southern dialects)

Pluralization of the form in (8) leads to an underlying form *takiq kanku* in (9), which by means of the same process is reduced to *takiqku* in Cuzco Quechua:

- (9) taki -q ka -n -ku → taki -q -ku
 sing NOM be 3 PL
 'They used to sing.'

This reduction is impossible in Bolivian Quechua, presumably for the reason that the morphological structure of *kanku* is not *ka-n-ku* but *ka-nku*.

The fact that *-ku* has been fused with Person of subject into *-yku* [1PL] and *-nku* [3PL] would, by itself, not entail the suppression of *-ku* as an independent categorial marker of plurality. However, the impossibility of realizing a verbal form as in (3), (6), or (9) in Bolivian Quechua indicates that *-ku* can no longer be realized as an independent plural marker. Apparently the Cuzco subject and number categories are represented as in (10a), while in Bolivian Quechua they have to be represented as in (10b):

- | | | | | | |
|--------|-------------|---------------|--------|-------------|---------------|
| (10) a | AgrS | Number | (10) b | AgrS | Number |
| | -y/-ni | -ku | | -ni | |
| | -nki | -chik | | -nki | -chis |
| | -n | | | -n | |
| | -nchik | | | -nchis | |
| | | | | -yku | |
| | | | | -nku | |

In a lexicalist analysis we may obtain this effect by assigning the features [1PL] to *-yku* and [3PL] to *-nku*, and deleting the entry for *-ku*. In DM terms the shift from (10a) to (10b) looks like the fusion of the categorial expression of AgrS and Number, but this cannot be the case since *-chis* still functions as an independent plural marker of [+2] subjects and objects, as we will see below.

5. Second person object marking

In the first person object paradigm the clash between the features to be expressed and the morphemes to do so is restricted to the transitions with plural objects. However, in the second person object paradigm we find a great number of differences between Bolivian, i.c. Cochabamba, and Cuzco Quechua in the transitions with a singular object:

Table 2: *Second person singular object marking in Cochabamba and Cuzco Quechua*

Cochabamba		Cuzco
maylla-yki	'I wash you'	
maylla-sunki	'he washes you'	
maylla-yku	'we wash you'	maylla-yki-ku
maylla-su-nku	'they wash you'	maylla-sunki-ku
maylla-rqa-yki	'I washed you'	
maylla-su-rqa	'he washed you'	maylla-rqa-sunki
maylla-rqa-yku	'we washed you'	maylla-rqa-yki-ku
maylla-su-rqa-nku	'they washed you'	maylla-rqa-sunki-ku
maylla-s(q)a-yki	'I will wash you'	
maylla-su-nqa	'he will wash you'	maylla-sunki
maylla-s(q)a-yku	'we will wash you'	maylla-sqa-yki-ku
maylla-su-nqa-nku	'they will wash you'	maylla-sunki-ku

For ease of recoverability, the identical entries in both dialects are left open in the Cuzco paradigm. Three of these involve the port-manteau suffix *-yki* [1→2]. The fourth is the other port-manteau suffix *-sunki* [3→2], but this form only appears in the present paradigm in Cochabamba Quechua and is reduced to *-su* in the Past and Future Tense. Reduction in the present tense is probably blocked since there is already a form *mayllasun* in the paradigm which expresses 'you and I, we will wash'. In the Cuzco paradigm the use of *-ku* [PL] neatly distinguishes between the singular and plural entries, a strategy which has become obsolete in the Bolivian Quechua paradigm. Assuming (10) to be correct, neither *-yki-ku* nor

sunki-ku can be formed and this may have produced the reduction to *-su* in third person plural contexts (with subsequent generalization to third person singular), and the total drop of reference to person of object in first plural contexts, which presents one of the cases of underspecification to which I referred above:

- (10) a Cuzco: [maylla [1→2] PL]] → maylla-yki-ku
 b Cochabamba: [maylla 2] [1PL]] → maylla-yku
 (11) a Cuzco: [maylla [3→2] PL]] → maylla-sunki-ku
 b Cochabamba: [maylla 2] [3PL]] → maylla-su-nku

However, if (11b) is the correct representation for *mayllasunku* we would expect on the basis of (10b) *mayllasuyku*. In Cochabamba this step in the regularization of second person object expression has not yet been taken, but such forms can be encountered in the geographically close dialect of Norte de Potosí (Plaza 1987):

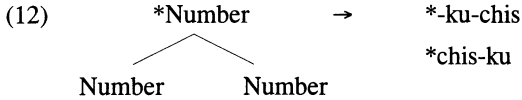
Table 3: *Present tense second person singular and plural object marking in the dialects of Norte de Potosí, Cochabamba and Cuzco Quechua*

	Norte de Potosí	Cochabamba	Cuzco
1→2	-(su)-yki	-yki	-yki
3→2	-sunki	-sunki	-sunki
1PL→2	-su-yku	-yku	-yki-ku
3PL→2	-su-nku	-su-nku	-sunki-ku
1→2PL	-(su)yki-chis	-yki-chis	-yki-chis
3→2PL	-sunki-chis	-sunki-chis	-sunki-chis
1PL→2PL	-su-yku-chis	-yku	-yki-ku
3PL→2PL	-su-nku-chis	-sunki-chis	-sunki-chis

Here we do not only find the form *-su-yku*, but regularization spreads even to the possible realization of *-su-yki*. This development appears to be accomplished in the Quechua dialect of Santiago del Estero in Argentina (Adelaar 1995) where one may find as an alternative for *-yki* both *-su-yki* and *-su-ni*, for *-rqa-yki su-rqa-ni*, and for *sqa-yki su-saq*. Especially the double expression of the feature [2ob] in *-su-yki* [1→2] is a problematic case for DM since, after matching the [2ob] feature with *-su*, only [1sub] is left over. This may be matched with *-ni* [1], but not with *-yki*.

In the entries which involve a singular subject and a second person plural object, we can observe the completely regular affixation of *-chis* as a [+2] plural marker. The interactions between a plural subject and a plural object [1PL→2PL] and [3PL→2PL] present a number of interesting facts. Since there is only one position available in the verbal architecture in (4) for the category plural, the

marking of plural-plural interactions presents an expression problem, formulated as a restrictive filter in Lefebvre & Dubuisson (1978):



According to these authors in Cuzco Quechua the choice of whether to pluralize the object with *-chis* or the subject with *-ku* is driven by a prominence hierarchy: 1>2>3, leading to *-yki-ku* and *sunki-chis*. In Cochabamba Quechua, as in all Bolivian dialects, *-ku* is no longer an independent plural marker and, since *-su* cannot be realized in [1PL] contexts, we find *-yku* and *-sunkichis*. In the dialect from Norte de Potosí *-su* has acquired the full status of an object marker, *-yku* and *-nku* are fused subject markers realized in AgrS, and *-chis* can be attached to pluralize the embedded [2ob], in apparent violation of the filter in (12).⁵

Given the fact that *-ku* has been fused and that *-chis* still is an independent plural marker, this paradigmatic variation can be accounted for in a pre-syntactic word formation component. From a theoretical perspective, it is unexpected for a theory like DM that the expression for Person and Number has been fused in the [-2] cases, while independent plural marking is still operative in [+2] contexts. Such irregularity is typically associated with lexical types of word formation.

6. Conclusion

The objective of this paper was to show how a relatively small change in the feature content of the Quechua person markers has had enormous repercussions for the expression of agreement in two closely related dialects, and by consequence for the question where matching of features with morphemes has to take place: pre- or post-syntactically. We have seen that Cuzco Quechua has a very transparent Agr/Tense system. Apart from the non-local character of the subject→object transitions *-yki* and *-sunki* and the non-local interpretation of the plural markers, it complies with the Mirror Principle in realizing a good match between the order of morphemes and the morpho-syntactic categories to be expressed. However, this ideal transparency has become opaque by a minor

⁵ In the little studied north Bolivian Quechua dialect of Apolo we find fusion of *-ku*, but it looks as if *-chis* has lost its [+2] selection feature since it can also appear as a [-2] plural marker:

(i) tata -s -ni -yki (kam -ta) maqlli -rqa -sunki -chis
 dad PL EUP 2SG (you AC) wash PST 3→2 PL
 'Your parents have washed you.'

In Cuzco Quechua we would have found *-rqa-sunki-ku* in this context, a form which was rejected by my informant from Apolo. In Cochabamba Quechua it is realized as *-su-rqa-nku*.

reinterpretation of first and third person plural marking in Bolivian Quechua, which not only led to a great number of underspecified and doubly specified surface realizations, but even to the realization of subject markers as pluralizers in the case of *-yku* as in *-wa-yku* '[unspecified sub→1PLob]'.

It was not the fusion of the category Number with that of Person which caused the problematic expression of 1PL-objects and the partial opacity of the Bolivian Quechua inflectional system, since only *-ku* was fused, while *-chis* was not. It is the lexically specified feature content of *-yku* [1PL] and *-nku* [3PL] which impedes a free interaction with the object markers. We do not find the form *-yki* [1→2] as an underspecified form for [1PL→2] but *-yku* [1PL], which in itself does not contain second person features.

In the 2PL-object paradigms we have also found a great number of differences between Cuzco and Bolivian Quechua. These were the result of the reinterpretation of the fused form *-sunki* [3→2] into a single [2ob] morpheme *-su*, which also may have been induced by the fused nature of *-yku* and *-nku*. Where Cuzco Quechua simply can express [1PL→2] and [3PL→2] with *-yki-ku* and *-sunki-ku*, in Bolivian Quechua there is no possibility for making reference to the second person object by means of one the transitional forms after the disappearance of *-ku* as an independent plural marker. This shows that inflectional forms are built bottom-up with lexical pieces and are not the result of post-syntactic matching of features with morphemes, as claimed by Halle & Marantz (1993).

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