

A note on inflected quantifiers in Quechua

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This paper is a first exploration of some aspects of quantification in Quechua.¹ The paper will assume a level of representation much like the Logical Form proposed in the literature, and provide evidence that agreement in Quechua is checked at this level. I will be using the word quantifier in a loose sense, to designate a class of elements that determines the scope of reference of a noun phrase.

Quantifiers in Quechua have some properties worthy of note:

- (a) Quantifiers, morphologically nouns, can be inflected for person and number.
- (b) Quantifiers may be 'floated away from' the element they modify.
- (c) Quantifiers differ in the extent to which they trigger subject or object agreement on the verb.

I will discuss these features one by one, in consecutively numbered sections, slowly developing a theoretical analysis of the elements involved. What I want to argue is that it is not purely morphological properties of the quantifiers that determine the pattern of agreement, but rather their semantic properties.

1. Inflected quantifiers

I will begin by describing the inflection markers quantifiers may carry.² A number of quantifiers carry inflectional markers. Three cases must be distinguished:

- A. obligatory inflection (cf. 1.1);
- B. optional inflection (cf. 1.2);
- C. no inflection (cf. 1.3).

(1) To my knowledge, this is the first time that some aspects of quantifiers in Quechua have been studied systematically. I will be describing the variety of Quechua spoken in the provinces of Cuzco and Chumbivilcas, Peru. Fieldwork was carried out with the support of the Netherlands Foundation for the Advancement of Tropical Research (WOTRO), in 1986. Part of the material analyzed here was presented at the Workshop on Logical Form held in Tilburg, the Netherlands, in 1988. I am grateful for comments by Willem Adelaar and Simon van de Kerke.

(2) The person and number paradigm in Quechua is as follows:

	singular	plural
first	-y	-y-ku
second	-yki	-yki-chis
third	-n	-n-ku
fourth	-nchis	

1.1 *Obligatorily inflected quantifiers*

The quantifiers *llipi-* 'each and all', (glossed below as 'each'), *sapa-* 'alone', and *kiki-* 'self' cannot occur without person marking. Consider first the case of *llipi-* in (1):

- | | |
|------------------------------------|--------------------------|
| (1) a. *llipi - ta riku - sha - ni | c. llipi - n runa - kuna |
| b. llipi - n - ta riku - sha - ni | each DUM man PL |
| each 3 AC see PR 1 | 'each of the men' |
| 'I see each one'. | d. llipi - nchis |
| | each 4 'each of us' |

Notice that this inflection is even obligatory when *llipi-* is used attributively (in which case a dummy 3rd person occurs), as in (1c); I return to this in section 2.³

The forms *sapa-* 'alone' and *kiki-* 'self' function in a similar manner:

- | |
|--|
| (2) a. *sapa hamu - nki - chu |
| b. sapa - yki hamu - nki - chu |
| alone 2 come 2 Q 'Do you come alone?' |
| (3) a. *kiki - ta riku - ku - sha - ni |
| b. kiki - y - ta riku - ku - sha - ni |
| self 1 AC see RE PR 1 'I see myself' |

It should be kept in mind that the ungrammaticality of (1a), (2a), and (3a) cannot be due to morpho-phonological restrictions. CVCV words are quite frequent in Quechua.

1.2 *Optionally inflected quantifiers*

In contrast, the sentences in (4) show that another class of elements can occur both with and without person marking:

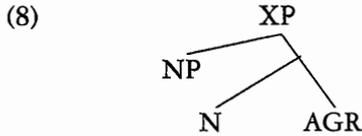
- | |
|--|
| (4) a. pi - n / pi - n - ni - nchis - mi ri - sha - n |
| who AF who 3 EUPH 4 AF go PR 3 |
| 'Who/who of us is going?' |
| b. ima - ta - n / ima - y - ta - n muna - nki |
| what AC AF what 1 AC AF want 2 |
| 'What/what of me do you want?' |
| c. mayqin - mi / mayqin - ni - nchis - mi ri - sha - n |
| which AF which EUPH 4 AF go PR 3 |
| 'Which/which of us is going?' |

Fourth person is first person plural inclusive. I classify it as singular, even though its reference is clearly plural and it has no alternative plural form. The reason for this is that it does not trigger the restrictions on double plural agreement (subject and object) in the verb that hold otherwise (cf. Lefebvre and Muysken 1987).

Other abbreviations used in the glosses include AC = accusative; AF = affirmative; DUM = dummy element; EUPH = euphonic element; FU = future tense; GE = genitive; LO = locative; NEG = negation; PA = past; PL = plural; PR = progressive; Q = question; ob = object marker; su = subject marker.

(3) Willem Adelaar of Leiden University reports a quantifying element *rapqa-* 'both', which functions like *llipi-*, in the dialect of Pacaraos (personal communication). Given our analysis, the parallel behaviour is to be expected: the set denoted by 'both' and 'us' is coextensive in 'both of us'.

Notice that in (7b) the verb 'come' agrees with 'mother' and not with the inflection on it. If we assume something like (8) as the structure for (7a,b), and if we take XP to be a projection of AGR, as in much recent work, we cannot assume that the features of this AGR percolate to the XP node so as to trigger agreement with the verb:



I will not enter into the problems raised by this structure for ordinary noun phrases. All of the elements in (1)-(6) can receive nominal morphology, and the unmarked case would be to assume that the person marking on quantifiers reflects the same structure as that on other nouns. Unlike ordinary nouns, however, it is not possible to have a subject with an inflected quantifier, either with or without genitive marking (neither can we have a subject with an uninflected quantifier, to be sure):

(9) * runa - kuna - (q) llipi - n - ku
 man PL GE each 3 PL 'each of the men'

(10) * nuqa - nchis - (pa) pi - ni - nchis
 I 4 GE who EUPH 4 'who of us'

(11) * qan - kichis - (pa) mayqin - ni - yki - chis
 2 PL GE which EUPH 2 PL 'which of you'

In addition, we will see below in section 3 that agreement facts appear to suggest a rather different analysis than the one implied by a tree such as (8). The analysis provided there and in the concluding section 4 will need to account for the ungrammaticality of (9)-(11) and for the agreement patterns found.

2. Quantifier Floating

A second question is where the quantifiers can appear. Ordinarily modifiers are attributive and occur in pre-nominal position, but they can also function independently and even adverbially. Consider the following contrast, where (12a) exemplifies an attributive quantifier, (12b) one used independently, and (12c) an adverbial one:

- (12) a. [ashka papa - ta] mikhu - ni b. ashka - ta mikhu - ni
 many potato AC eat 1 much AC eat 1
 'I eat many potatoes'. 'I eat a great deal'.
- c. papa - ta ashka - ta mikhu - ni
 potato AC many AC eat 1 'Potatoes I eat many (of them)'.

Examples (12b) and (12c) show that when modifiers appear by themselves, they carry their own case marking. This phenomenon was labelled co-case marking for 'floated', adverbially used modifiers, in Lefebvre and Muysken (1988), and analysed as the basis for a predication chain between the noun phrase and the pre-nominal

element in Muysken (1989). The same thing is possible with a number of quantifiers.

- (13) a. [llipi - n papa - ta] mikhu - ni
 each 3 potato AC eat 1 'I eat each of the potatoes'.
 b. papa - ta llipi - n - ta mikhu - ni
 potato AC each 3 AC eat 1 'I eat each of the potatoes'.
 c. papa - ta - n mana llipi - n - ta - chu mikhu - ra - ni
 potato AC AF not eat 3 AC NEG eat PA 1
 'I did not eat each of the potatoes (only some)'.

In (13c) the floated quantifier is negated independently of the element in its scope, showing that it is a separate constituent. In (13b) other constituents could intervene between *papata* and *llipinta*.

Prenominal attributive usage is impossible with *sapa-* 'alone', *kiki-* 'self', which can only be used adverbially, and with *pi* 'who', and *ima* 'what', which cannot be used adjectivally.

As shown in (14) and (15), not only inflected quantifiers can float, but also uninflectable quantifiers such as *hayk'a* and *lluy*:

- (14) a. [hayk'a t'anta - ta - n] qawa - nki chay - pi
 how much bread AC AF see 2 that LO
 'How much bread do you see there?'
 b. hayk'a - ta - n t'anta - ta qawa - nki chay - pi
 how much AC AF bread AC see 2 that LO
 'How much bread do you see there?'
- (15) a. riku - ra - nki - chu [lluy qari - kuna - ta]
 see PA 2 Q all man PL AC
 'Did you see all the men?'
 b. riku - ra - nki - chu lluy - ta qari - kuna - ta
 see PA 2 Q all AC man PL AC
 'Did you see all the men?' ('en bloque')

Again the quantifier can also be separated from the noun it modifies.

Let us assume, as in Sportiche (1988), that the floated quantifiers appear in NPs containing the quantifier and a small pro. In addition, the small pro is interpreted as coreferential with the quantified noun phrase. We will assume that the coreferential interpretation is possible through the establishment of the predication chain.

Generally, the floated quantifier, if inflected, needs to agree in person, but not in number (for third persons), with the element it modifies:

- (16) a. nuqa - nchis - ta llipi - nchis - ta riku - wa - nchis
 I 4 AC each 4 AC see 3su-4ob
 'He sees each of us'.
 b. * nuqa - nchis - ta llipi - n - ta riku - wa - nchis
 I 4 AC each 3 AC see 3su-4ob

(16b) is ungrammatical because *llipi-n* does not carry fourth person (first person plural inclusive) marking. As pointed out by Lefebvre & Dubuisson (1978), the presence of an overt pronoun as in (16a) is slightly marginal; nonetheless the contrast between (16a) and (16b) is quite clear.

There is evidence, presented in some detail in Lefebvre and Muysken (1988), that expressions with independently used modifiers also contain a small *pro* in Quechua. Thus they are structurally similar to adverbially used floated quantifiers, and indeed they have the same properties.

3. Subject and Object Agreement on the Verb

In addition to varying with respect to inflection and capability of being used attributively, the elements in (1)-(6) differ in the agreement they trigger on the verb. Some forms, such as *mayqin* 'which', trigger optional subject (cf. 17a) and object (cf. 17b) agreement. Thus they are quite different, at first sight, from ordinary nouns, where the inflection does not trigger agreement on the verb (cf. the discussion of (7) and (8) above):

- (17) a. *mayqin - ni - nchis ri - sunchis / ri - nqa*
 which EUPH 4 go 4FU go 3FU
 'Which of us will go'.
 b. *mayqin - ni - nchis - ta riku - n / riku - wanchis*
 which EUPH 4 AC see 3 see 3su-4ob
 'Which of us does he see?'

The full pattern is presented in (18) (? = data lacking or unclear):

(18)	subject	object	inflection	
(A)				
<i>llipi-nchis</i>	+	±	obl.	'each'
<i>sapa-nchis</i>	+	±	obl.	'alone'
<i>kiki-nchis</i>	?+	±	obl.	'self'
(B)				
<i>pinninchis</i>	-	-	opt.	'who'
<i>imanchis</i>	-	-	opt.	'what'
(C)				
<i>mayqinninchis</i>	±	±	opt.	'which'
<i>tawantinichis</i>	±	±	opt.	'four'
<i>huqninchis</i>	±	?	opt.	'one'
<i>wakinninchis</i>	±	±	opt.	'some'
(D)				
* <i>hayk'a-nchis</i>	n.a.	n.a.	*	'how many'
* <i>lluy-ni-nchi</i>	n.a.	n.a.	*	'all'

I will discuss the clusters of data one by one.

Notice that the first group, (A), shows obligatory subject marking. The elements in this group also show obligatory inflection, and if we assume that the features of this inflection percolate to the phrase as a whole the obligatoriness of the subject agreement is explained. Notice that the set of elements denoted by the quantifier is identical with the set of elements denoted by the inflection feature here: *x-self*, *x-alone*, *all of x*. These quantifiers do not trigger obligatory object marking, however. This case of a Subject-Object asymmetry can be accounted for by the claim in Muysken (1989) that in Quechua overt *-ta* object marking is required for a predication chain. This claim was supported by evidence involving asymmetries in exceptional case marking, relative clause extraposition, small clauses and perception complements. The reasoning with respect to agreement is as follows: assume that agreement is obligatory when the triggering element is in either subject or object position. However, quantifiers can be predicated of object positions, but not of subject positions, since there needs to be accusative co-case marking. Hence the quantifiers of the first group will trigger obligatory agreement when they function as subjects.

The second group, (B), consists of the optionally inflected quantifiers *pi* 'who' and *ima* 'what', which never show agreement between the verb and their inflection. Assume here that at the relevant level of semantic interpretation, say Logical Form, the head of these phrases is the unique subset of individuals or elements questioned, rather than the set with respect to which this subset must be chosen. Thus the head of 'who with respect to us (inclusive)' is 'who', and this is what agrees. While in actual fact this 'who' may be part of the other subset, this is not relevant for the level at which agreement is established. Notice that in (4a), repeated here, *pi-n-ni-nchis* 'who of us' carries an additional inflection marker *-n* 'third person', but only when there is the inflection of the group with respect to which the 'who' is questioned as well:

- (4) a. pi - n / pi - n - ni - nchis - mi hamu - sha - n
 who AF who 3 EUPH 4 AF come PR 3
 'Who/who with respect to us is coming?'

The form *pi-nchis*, without this additional inflection marker, is ungrammatical, and I will assume that the reference of *-n* 'third person' is disjoint at Logical Form from the reference of *-nchis* 'us'. I take the pattern in (4a) to support the analysis proposed here. The disjoint reference of the two sets is particularly clear with *ima* 'what'. In *ima-nchis* 'what of us' the set of elements questioned obviously does not form a subset of the persons denoted by the inflection marker.

In group (C) the quantifiers show optional agreement. Assuming once again that agreement is obligatory, and that there are no predication chains involving subjects, the optionality of agreement with *mayqin* in subject position etc. must reflect the fact that the constituents these quantifiers are part of are only optionally marked with the relevant person features. Notice that the quantifiers in this group always denote subsets, proper or not, of the individuals denoted by the inflection: 'four of us', 'which of us', 'one of us', 'some of us'. Along the lines of the analysis above, we

can assume that there is no agreement when there is indeed a *proper* subset denoted by the quantifier, and that there is agreement when the sets denoted by quantifier and person inflection are coextensive.

I have no explanation for the fact that *bayk'a* 'how many' cannot be inflected; as for *lluy* 'all', it refers to the set as a whole rather than to individuals in it, and this may be the reason why it cannot be inflected. That these elements do not trigger agreement speaks for itself.

4. Conclusion

What I have tried to argue here is that there is a direct relation between the logical properties of different quantifying elements in Quechua and the kind of agreement they trigger. The situation can be represented as in (19):

- (19) a. same set denoted by inflection and quantifier = obligatory agreement between inflection and verb;
 b. disjoint sets denoted by inflection and quantifier = no agreement between inflection and verb;
 c. quantifier denotes subset of set denoted by inflection = optional agreement between inflection and verb, since the subset may or may not be a proper one.

The generalization to be drawn from this is that in no case there is a need to assume agreement of the verb independently of the set delimited by the quantifier itself. This means that in principle it is possible to maintain the structure in (8) for the inflected quantifiers, with percolation from the head noun.

The restriction on pre-nominal possessor phrases with quantifiers, noted in (9)-(11), remains unexplained, however. Notice that there are restrictions on possessor phrases with quantifiers in English as well:

- (20) a. Each of the men b. * The men's each

Perhaps the pre-nominal possessor phrases are thematically restricted in both languages. This remains a matter for further research.

References

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