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CUZCO QUECHUA QUANTIFIERS

Martina Faller and Rachel Hastings

1 INTRODUCTION

Cuzco Quechua (CQ)[1] possesses a variety of markers that encode quantificational functions. There are nominal quantifiers, adverbial quantifiers, distributive suffixes and pluractional verbal suffixes. In this paper we will focus on nominal quantifiers and their distribution across different constructions, including their interaction with quantificational suffixes. The examples in (1) illustrate some of the quantifiers to be discussed.[2,3]

[1] Cuzco Quechua belongs to the A or II branch of the Quechua language family (Cusihuaman 2001[1976]:29). While Quechua as a whole still has an estimated number of 10 million speakers, sociolinguists agree that it is endangered due to the "contraction of Quechua domains and a gradual cessation of intergenerational transmission" (King and Hornberger 2004:1). The data on which this paper is based were largely collected during fieldwork carried out by both authors in 2006 in Cuzco, Peru, and extracted from published texts. We are indebted in particular to our main bilingual consultants Inés Callalli Villafuerte, Natalia Pumayalli Pumayalli and Edith Zevallos Apaza. For insightful comments that helped us to be more precise in our analysis we would like to thank Ed Keenan, Lisa Matthewson, Craige Roberts, Malte Zimmermann, and an anonymous reviewer.

[2] Abbreviations used in glosses (mostly based on labels used by Cusihuaman (2001)): 1,2,3: first, second, third person, ABL: ablative, ACC: accusative, ADV: adverbializer, AG: agentive, COM: comitative, CONT: continuative, CONTR: contrastive, DAT: dative, DEF: definite, DELIM: delimitative, DET: determiner, DIM: diminutive, DISC: discontinuative, DISTR: distributive, EUPH: euphonic, EXCL: exclusive, FOC: focus, FUT: future, GEN: genitive, HORT: hortative, ILLA: illative, INCL: inclusive, INDEF: indefinite, INT: intensive, LOC: locative, NMLZ: nominalizer, NX.PST: non-experienced past, PA: pluractional, PL: plural, POSS: possessive, PROG: progressive, PST: past, REFL: reflexive, TOP: topic.

[3] These examples also illustrate some of the basic properties of CQ, which is an agglutinative language with overt case-marking on nouns and often extensive derivational and inflectional suffixation on verbs to encode a variety

(1) a. T'anta-ta-qa raki-yku **lluy** runa-paq **sapanka** wasi-pi.
bread-ACC-TOP distribute-1EXCL all person-DAT each house-LOC
'We distribute the bread to every person in every house.' (Espinoza 1997:54)

b. **Kinsa**-nti-cha-yku khuyay-ta qoqaw-cha-yku-ta,
three-DEF-DIM-1EXCL sad-ADV packed.lunch-DIM-1EXCL-ACC
hank'a-cha-yku-ta k'utu-ru-ku-sa-ra-yku.
toasted.corn-DIM-1EXCL-ACC eat-HORT-REFL-PROG-PST-1EXCL
'The three of us sadly ate our packed lunch and toasted corn.' (Espinoza 1997:16)

c. **Wakin** chay tusu-q-ni-y-kuna kawsa-sa-nku-raq-mi
some that dance-AG-EUPH-1-PL live-PROG-3PL-CONT-FOC
'Some of those dancers of mine are still alive.' (Espinoza 1997:48)

What we call nominal quantifiers in this paper are those that can appear prenominally, typically appearing before the noun and adjective, if there is one.[4] CQ has no overt definite and indefinite articles,[5] but the demonstratives *kay* 'this', *chay* 'that', and *haqay* 'yonder' are candidates for the category of non-quantificational determiners (Hastings 2004:27). (2) is a list of CQ nominal quantifiers to be discussed.[6] Note that we include the question words *hayk'a* 'how many' and *mayqin* 'which' in this group.

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of semantic notions (see Cusihuaman (2001) for an overview). The basic word order is Subject-Object-Verb, but this is highly variable and pronominal subjects and objects are often omitted.

[4] In the terminology of Bach et al. (1995) these quantifiers can be classified as D-quantifiers in as much as they are structurally part of a DP. In this paper we remain agnostic as to whether they actually occupy a determiner position, though see Hastings (2004) for arguments that at least some nominal quantifiers do. Many quantifiers can also be floated, subject to structural restrictions. See Hastings (2004) for discussion.

[5] However, the suffix *-nti* can be used as a definiteness marker, see example (1b). This suffix will be discussed in section 4.2.

[6] This is not a complete list of nominal quantifiers in CQ. We exclude the universal quantifier *q'ala* 'every, all' from discussion because it also has a use as an adjective meaning 'naked', 'without anything', which sometimes interferes with its quantifier use. We also exclude *as* 'a few/little', for which we have only a limited set of data, but which appears to behave similarly to *pisi* '(a) few'. Lastly, we exclude *kuskan* 'half' which sometimes appears to function as a quantifier but which may also be a measure phrase. More research is required to confirm its status as a quantifier. We are also unable to consider negative quantifiers like English *no* in this paper, because these are not expressed by a single lexical item, but require complex interactions between quantificational elements, an indefinite marker, and sentential negation (consisting of *mana* 'not' and the polarity enclitic *-chu* 'NEG'). The examples in (i) and (ii) show how 'nobody' and 'no child' can be expressed.

(i) Mana pi-pis ri-nqa-chu.
not who-INDEF go-3FUT-NEG
'Nobody will go.'

(ii) Mana (mayqin) irqi-pas puklla-ra-n-chu.
not which child-INDEF play-PST-3-NEG
'No child played.'

The absence of simple negative quantifiers is not uncommon cross-linguistically. Hausa, as discussed by Malte Zimmermann in this volume, is another language that lacks them, to mention just one. The expression of negative quantification promises to be a rich area for both language-specific study and cross-linguistic comparison.

(2) a. *huk* 'one', *iskay* 'two', *kinsa* 'three', and other numerals
b. *sapanka* 'each', *llapa(n)* (alternatively *llipi(n)*) 'every/all', *tukuy* 'every/all', *lliw* (alternatively *lluy*) 'every/all'
c. *pisi* '(a) few/little', *askha* 'many', *wakin* 'SOME'
d. *hayk'a* 'how many', *mayqin* 'which'

While these quantifiers can occur prenominally, they often also occur without a head noun, as illustrated in (3).[7]

(3) Hinaspa unu **llapan**-ta apa-ya-pu-q ka-sqa . . .
then water every/all-ACC take-INT-DEF-AG be-NX.PST
'Then the water took everything . . .' (Gow and Condori 1976:9)

When not modifying a head noun, some quantifiers can take person inflection, as shown for example in (1b).[8] The semantics of this construction will be the topic of section 4.

In the next part of the paper, section 2, we will discuss to what extent the empirical distribution of nominal quantifiers can be explained in terms of standard classification criteria such as the weak/strong distinction, presuppositionality, cardinality, and definiteness. In section 3 we look more closely at these issues with respect to distributivity, as encoded in distributive suffixes, as well as at differences in distributivity between the various universal quantifiers. In section 4 we will discuss how the existence presupposition of some quantifiers accounts for their ability to combine with person inflection, e.g. (1b), and in section 5 we will discuss the quantifier *wakin* 'SOME', illustrated in (1c), which, unlike English *some* but like English *SOME* carries an existence presupposition.

[7] This raises the question of whether the quantifier itself functions as the head of NP or whether it modifies a phonologically null head noun in examples such as (3). The first alternative is plausible given that, according to Muysken (1994:190), quantifiers are morphologically nouns. However, based on a study of the inflection and agreement properties of quantifiers, Muysken (1994) concludes that only some quantifiers can be heads, and argues that the others modify a phonologically null element. We do not aim to contribute to further clarifying this issue here, though our conclusion that some quantifiers are essentially relational in Partee's (1995) sense suggests that these quantifiers may indeed be best analyzed as modifying a phonologically null element when occurring without an overt noun.

[8] Some of the quantifiers obligatorily contain a final 3rd person *-n* even when modifying a head noun, e.g. *llapa-n llama* 'all/every-3 llama'. However, as Muysken (1994) already observed, this suffix is semantically empty, and he therefore calls it a dummy 3rd person marker. Support for this claim is provided by the fact that this is the only person marker that can occur in this position: **llapa-y llama* 'all/every-1 llama'. This suffix is morphologically separable, as can be seen by the fact that other suffixes can intervene between it and the root, *llapa-lla-n* 'every/all-LIM-3'. Nevertheless, because of the semantic emptiness of the dummy marker, we treat *llapan* as a unit and do not gloss *-n* separately in the examples. We have not found that the presence of this dummy marker affects the semantics of the constructions we discuss in this paper.

2 EMPIRICAL CLASSIFICATION

In this section we will discuss how the criteria of compatibility with existential constructions, ability to function as adjectival or verbal modifiers, and ability to function as predicates, serve to group CQ nominal quantifiers into distinct classes. Before discussing these groupings, we will lay out our theoretical background assumptions in the next subsection.

2.1 Theoretical background assumptions

In the following, we will make use of certain terms which are used in different ways by different authors, and we therefore start by clarifying what we mean by them in (4).

(4) a. **Strong/weak quantifiers.** We use these terms in purely descriptive terms. Weak quantifiers are those that can occur in existential sentences, and strong ones are those that are excluded from this environment (Milsark 1977).

b. **Proportional quantifiers.** We adopt Keenan's (2002) definition of this term, according to which a proportional quantifier requires that its restriction constitute some proportion or range of proportions of its domain, which may be 0% or 100%.

c. **Presuppositional quantifiers.** Cross-linguistically, quantifiers have been analyzed as carrying a variety of presuppositions. Some CQ quantifiers presuppose that their restriction is non-empty, and we will use 'presuppositional quantifier' to refer to such quantifiers (Diesing 1992).

d. **Definiteness.** We use the term definite NP to refer to NPs that presuppose the existence of a unique referent. We do not take definiteness and strength to be equivalent.

As a general backdrop for our analysis, we assume, following Partee (1986) and much subsequent work, that noun phrases can occur in three different semantic types, a referential type e, a predicative type <e,t>, and a quantificational type <<e,t>,t>. These different types are related to each other by a set of type-shifting operations which are assumed to be universally available. Some of these operations may have overt morphological realization in a language, while others may be applied non-overtly. Moreover, only some quantifiers are "essentially relational quantificational operators" (Partee 1995:560), in the sense that they require an analysis as relations between sets, that is, as necessarily being of type <<e,t>, <<e,t>,t>>. In English, these are primarily the proportional quantifiers, e.g. *all, every, each, most.* The

interpretation of in particular cardinal quantifiers,[9] e.g. *three, many*, "as a relation between sets is always reducible to a property of the intersection of the sets" (Partee 1995:561). That is, a simpler analysis of these quantifiers is as predicates, type <e,t>. This predicts that such quantifiers should themselves be able to occur in predicative positions, and we will see below that this prediction holds true of CQ cardinal quantifiers.

We furthermore assume, following Link (1998), that the domain of individuals contains both singular and plural individuals, and that this domain is structured by the part-of relation $\leq$. For example, the plural individual consisting of John and Mary, represented as $j \oplus m$, has Mary as a singular part, $m \leq j \oplus m$. While it is usually assumed that common nouns in English denote sets of singular individuals, there is evidence that common nouns in CQ have general number and denote sets of singular and plural individuals (Corbett 2000, Rullmann and You 2006).[10] For example, a common noun without the optional plural marker *-kuna* may refer to either a singular or plural individual,[11] as shown in (5). In the context of the narrative from which (5) is taken, *uwiha* is interpreted as plural, but out of context, it could also refer to a single sheep.

(5) Uwiha-q qhepa-n-ta urqo-ta ri-spa-n, . . .
sheep-GEN behind-3-ACC mountain-ACC go-NMLZ-3
'Walking behind the sheep (pl.) to the mountains . . .'
(Valderrama Fernandez and Escalante Gutierrez 1982:26)

Furthermore, common nouns unmarked for plural may freely combine with quantifiers that require their restriction to be semantically plural, e.g., *askha llama* 'many llamas', *kinsa llama* 'three llamas'.

We also assume that Verb Phrases denote sets of singular and plural individuals. Again, this is supported by the fact that verbs without overt plural marking can be interpreted as having either singular or plural subjects as shown in (6).[12]

(6) Puñu-sha-n.
sleep-PROG-3
'(S)he/it/they is/are sleeping.'

[9] We adopt Keenan's (2002:632) definition of cardinal quantifiers as those whose "value depends just on how many objects lie in the intersection of their two arguments."

[10] That common nouns denote sets of both singular and plural individuals has been argued for a variety of languages, including Mandarin Chinese (Rullmann and You 2006) and Hausa (Zimmermann, this volume) amongst others.

[11] The plural suffix *-kuna* restricts the denotation of common nouns to plural individuals (see Faller (2007) for a slightly more detailed discussion of this issue).

[12] Kratzer (2007) argues, following work by Krifka and Landman, that English predicative stems should be analyzed as having plural denotations. Thus, this analysis of CQ verb phrases is not particularly unusual. Note though that in Kratzer's event-based theory, VPs do not denote sets of plural and singular individuals, but sets of ordered tuples of events and singular and plural individuals. We thank Lisa Matthewson for pointing this out.

Analyzing common nouns as denoting sets of both singular and plural individuals requires an adjustment to the meaning of certain quantifiers as well. In particular, the numerals cannot be analyzed as requiring that the intersection of their restriction and domain have a certain cardinality. We propose to analyze numerals as denoting a set of sum individuals, each with the cardinality indicated by the numerals. When occurring attributively, they are shifted to the modifier type <<e,t>, <e,t>>. For example, the denotation of modifier *kinsa* 'three' is shown in (7a). In contrast, the semantics usually given for essentially relational quantifiers such as *llapan* 'every/all' can remain the same, given that their domains also denote sets of both singular and plural individuals. The truth conditions for *llapan* are shown in (7b).

(7) a. ⟦*kinsa* A⟧ = {x|x ∈ A & |x| = 3}
b. ⟦*llapan* A B⟧ = true iff A ⊆ B[13]

Further evidence for the distinction between predicative and essentially relational quantifiers in CQ will be presented in the following sections.

2.2 Existential constructions

Existential *there*-sentences are the canonical environment for distinguishing between what Milsark (1977) called weak and strong quantifiers. In purely descriptive terms, weak quantifiers are those that can occur in such sentences, and strong ones are those that cannot. For example, *three llamas* can, but *every llama* cannot occur in this construction in English: *There are three llamas in the field, *There is every llama in the field.* The corresponding construction in CQ typically employs the verb *kay* 'be' in its simple third person, non-plural form *kan* which takes a full subject, not a dummy subject like English there.[14]

As in English, some quantifiers can occur in this environment, while others cannot.

[13] As one reviewer pointed out, this semantics for universal quantifiers as it stands does not capture the case of collective predicates. Within the lattice-theoretic approach adopted here, collective predicates such as 'gather' denote sets of plural individuals, that is, a common noun denotation which contains singular individuals could not form the subset of a collective predicate. The semantics required to account for examples like (33a) ("All people gathered") discussed in section 3.2 would have to map the denotation of 'people' onto its maximal sum and require that it is an element in the set denoted by 'gather' (cf. Link's (1998:107f) discussion of *all* with collective predicates). For current purposes we will stick to the simple semantics given here, however.

[14] The verb *kay* 'be' is also used as a copula. Its third person, non-plural form *kan* is obligatorily dropped in copular sentences so there is generally no ambiguity between the two constructions (Hastings 2004:29). However, this rule is violable for some speakers. These speakers allow an interpretation of, for example, (8a) as 'Many llamas are in the field' and accept for example (9a) as grammatical under the interpretation 'All llamas are in the field.' This interference of the copula interpretation of *kan* makes the application of this test somewhat problematic. Nevertheless, the fact that for some speakers there is a clear grammatical difference between the sentences in (8) and (9) constitutes good evidence that we are indeed dealing with an existential sentence effect.

Examples with weak quantifiers are shown in (8)[15] and examples with strong quantifiers in (9) (Hastings 2004).

(8) a. **Askha** llama-kuna chakra-pi ka-n.
many llama-PL field-LOC be-3
'There are many llamas in the field.'
b. **Kinsa** llama-kuna chakra-pi ka-n.
three llama-PL field-LOC be-3
'There are three llamas in the field.'

(9) a. *__Llapan__ llama-kuna chakra-pi ka-n.
all llama-PL field-LOC be-3
'*There are all llamas in the field.'
b. *__Wakin__ llama-kuna chakra-pi ka-n.
SOME llama-PL field-LOC be-3
'*There are SOME llamas in the field.'
c. *__Kinsa__-ntin llama-kuna chakra-pi ka-n.
three-DEF llama-PL field-LOC be-3
'*There are the three llamas in the field.'

Note that while simple numerals are weak, numerals that carry the suffix *-nti*[16] are strong. As reflected by the translation of (9c), such quantifiers are definite. An account of this construction will be presented in section 4. Another environment that distinguishes between weak and strong quantifiers are existential *have*-sentences with relational nouns (Partee 1999). For example, *Mary has three sisters* is fine, but **Mary has every sister* is bad. The equivalent construction in CQ involves the possessive suffix *-yuq*, as illustrated in (10).

(10) a. Marya-qa **kinsa/pisi** ñaña-yuq-mi.
Marya-TOP three/few sister-POSS-FOC
'Marya has three/few sisters.'
b. *Marya-qa **llapan/wakin** ñaña-yuq-mi.
Marya-TOP all/SOME sister-POSS-FOC
'*Marya has all/SOME sisters.'

[15] An anonymous reviewer suggests that the examples in (8) might be more natural with an evidential/focus enclitic added. These markers are common in CQ–for example, note the focus marker *-mi* at the end of sentence (1c). However, focus/evidential enclitics are not obligatory in CQ, witness, e.g., the naturally occurring examples in (1a,b). We have therefore often not included such an enclitic in our elicited examples in order to keep them simple. Our consultants accept such examples without reservations. We refer to Muysken (1994) for a discussion of the focussing function of these enclitics and to Faller (2002) on their evidential meaning.

[16] We will use *kinsantin* 'the three' as the representative for this class of numerals throughout the paper.

These two existential constructions divide the CQ quantifiers as follows:

(11) a. Weak quantifiers: numerals, *pisi* '(a) few', *askha* 'many', *hayk'a* 'how many'
b. Strong quantifiers: *sapanka* 'each', *llapa* 'every/all', *tukuy* 'every/all', *lliw* 'every/all', *wakin* 'SOME', *mayqin* 'which', *kinsantin* 'the three'

This classification into weak and strong quantifiers is mostly unsurprising, though there are two interesting points to note. First, notice that *wakin* comes out as strong, that is, it is not a translational equivalent of English existential *some*, which is unproblematic in these contexts, but rather of stressed, strong SOME, witness the unacceptability of *There are SOME llamas in the field.*[17] The semantics of *wakin* will be discussed in more detail in section 5.

Second, *mayqin* 'which' is not acceptable in existential constructions when its restriction is interpreted as a set of individuals.[18] This is shown in (12).[19]

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[17] In fact, CQ does not possess a quantifier that is equivalent to English *some*. A very common way of expressing existence of an unspecified quantity of individuals in CQ is by means of bare nouns, singular or plural, as in the following:

(i) Llama-kuna chakra-pi ka-n.
llama-PL field-LOC be-3
'There are (some) llamas in the field.'
(ii) Marya-qa ñaña-yuq-mi.
Marya-TOP sister-POSS-FOC
'Marya has a/some sister(s).'

In some cases, the numeral *huk* can be employed in the function of an indefinite article:

(iii) Chay panpa-pi llank'a-q ka-sqa **huk** runa inkarnasyun p'unchay.
this pampa-LOC work-AG be-NX.PST one person Encarnación day
'On the day of Encarnación a man worked in the pampa.' (Gow and Condori 1976:9)

Further study is required to determine under what circumstances *huk* is used this way.

[18] Note, however, that *mayqin* becomes acceptable in existential sentences, at least to some consultants, when the restriction is interpreted as a kind. For example, (i) could be used to ask which kinds of flowers there are in your garden, but not which particular flowers there are.

(i) **Mayqin** t'ika-kuna jardin-ni-yki-pi ka-n?
which flower-PL garden-EUPH-2-LOC be-3
'Which *(kinds) of flowers are there in your garden?'

In fact, even *llapan* becomes acceptable under a kind interpretation. Thus, (ii) is fine.

(ii) Jardin-ni-y-pi **llapan** sacha-kuna ka-n.
garden-EUPH-1-LOC all tree-PL be-3
'In my garden there are all *(kinds of) trees.'

A similar phenomenon can be observed in English. McNally and van Geenhoven (1998:7) offer examples like *There was every sort of complaint imaginable* in which a *there*-sentence with a strong quantifier is rendered felicitous by making explicit the type interpretation of the associated noun. At least in Quechua, this interpretation can apparently be triggered by placing strong quantifiers in an existential context. We therefore clarify here that the existential meanings we are interested in for current purposes are those in which common nouns represent sets

(12) a. *Salon-ni-yki-pi **mayqin** irqi-kuna ka-n?
class(room)-EUPH-2-LOC which child-PL be-3
'Which children are there in your class?'

b. ***Mayqin** ñaña-yuq-mi Marya-qa.
which sister-POSS-FOC Marya-TOP
'*Which sisters does Mary have?'

Which semantic property of quantifiers is responsible for the (in)felicity of quantifiers in existential contexts has been the topic of much debate in the literature. It is sometimes claimed that the weak/strong distinction corresponds to (in)definiteness, but this cannot be true of CQ since the indefinite quantifiers *wakin* 'SOME' and *mayqin* 'which' are strong. Others have claimed that the relevant property characterizing strong quantifiers is non-intersectivity (Keenan 1987). Since *mayqin* 'which' comes out as strong but nonetheless intersective, this cannot be the relevant property for CQ either.[20] Yet others have suggested that it is the presupposition that their restriction be non-empty that excludes strong quantifiers from these environments (Zucchi 1995), and we believe that it is this property that accounts best for the strong/weak distinction in CQ. However, there is a growing body of evidence that it might not actually be possible to find a single property that could account for the weak/strong distinction across languages, or even within a single language. Thus, de Hoop (1995) argues on the basis of Dutch data that the weak/strong distinction does not map onto a single underlying semantic property. Similarly, Matthewson (2006) has argued that it cannot be the lack of a presupposition of existence that allows NPs in the St'át'imcets equivalent of *there*-sentences, since the presuppositional element *nukw* is felicitous in this environment. Their respective accounts of elements roughly meaning 'some' in Dutch and St'át'imcets will be discussed in more detail in section 5.

While we cannot go into detail on what causes CQ quantifiers to be excluded from existential environments, the quantifier data that is relevant for this paper can be summarized by identifying presuppositionality as the key factor which excludes strongly quantified noun

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of individuals rather than kinds. Very likely the right analysis of these kind-existentials may be similar for Quechua and for English.

[19] It is not clear to what extent the data in (12) differ from English. As mentioned in Keenan (2003:11), English judgments on questions like 'Which children are there in your class?' are variable, as are reported data in the literature. Keenan marks this type of question with one ?, pointing out that adding 'just' improves it substantially ('Just which children are there in your class?') but he cites other authors who have rejected these same types of sentences. Thus, while we take *mayqin* phrases to be unacceptable in CQ existential contexts, we leave open whether this represents some difference from English existentials, or perhaps a difference in the semantics of 'which'.

[20] (Keenan 2003:9) presents a slightly different characterization of weak quantifiers as those which are conservative on their second argument. A quantifier D is conservative on its second argument if:

(i) $DAB = DA \cap B,B$ for all A,B.

This characterization also does not rule out *mayqin* in CQ.

phrases from existential environments. That is, universal quantifiers like *tukuy* as well as other strong quantifiers like *wakin* 'SOME' and *mayqin* 'which' are felicitous only when it is understood that their restrictions are non-empty. (That the true situation is more complicated than this is seen, for example, in the sentences (i) and (ii) in footnote 18.) Also as mentioned above, Diesing (1992) and Zucchi (1995) among others have used presuppositionality as a key to understanding strong quantifiers in English. In fact, whether universals like *all* and *every* are truly presuppositional in English is much debated. In CQ, we find presuppositionality to be relevant to the behavior of this set of quantifiers in other environments as well (see section 4.1) and so assume this relatively inclusive view of presuppositionality is correct for CQ.

2.3 Nominal quantifiers as predicates

Some nominal quantifiers can be used as predicates. Examples are shown in (13).

(13) a. **Kinsa**-n regidor-ni-y-kuna.
three-FOC regidor-EUPH-1-PL
'My regidores[21] are three.' (Espinoza 1997:354)

b. Pay-kuna **pisi**-lla-n (ka-sha-n).
(s)he-PL few-DELIM-FOC be-PROG-3
'They are few.'

The quantifiers that can readily function as predicates are cardinal quantifiers, that is, the numerals, *askha* 'many', *pisi* '(a) few' and *hayk'a* 'how many'. This suggests that CQ cardinal quantifiers are of type <e,t>, which accords well with Partee's claim mentioned above, that cardinal quantifiers are not essentially relational quantifiers but amenable to a predicative analysis.

As shown in (14), the quantifier *sapanka* 'each' is infelicitous in this construction.

(14) *Pay-kuna **sapanka** (ka-sha-n).
(s)he-PL each be-PROG-3
'*They are each.'

However, the data for the other strong quantifiers *llapa*, *tukuy*, *lliw* 'every/all', *wakin* 'SOME' and *mayqin* 'which' are not as straightforward. The examples in (15) with *llapan* and *mayqin* are acceptable with and without person inflection, and *wakin* is acceptable at least with person

[21] *Regidores* are elected local council members.

inflection.[22]

(15) a. **Llapan**-(**chis**)- ña-n ka-nchis.
every/all-1INCL-DISC-FOC be-1INCL
'We are already all (of us).'
b. **Mayqin**-(ni-**n**)-kuna-n (ka-sha-nku).
which-EUPH-3-PL-FOC be-PROG-3PL
'Which (of them) are they?'
c. Pay-kuna **wakin**-ni-nku.
(s)he-PL some-EUPH-3PL
'They are some of them.'

The universal quantifiers *tukuy* and *lliw*, which are incompatible with person inflection (see section 4), are also marginally acceptable with the copula, as shown in (16), though consultants strongly prefer *llapan.*

(16) Kay-lla-n **llapan/tukuy/lliw**.
this-DELIM-FOC every/all
'This is all/everything.'

However, note that the examples in (15) and (16) are not predicational in any simple sense. That is, they do not mean that the subject has the property denoted by the quantifier. Instead these examples appear to be equative, stating that the (sum) individual referred to by the subject is identified with the sum individual referred to by the quantifier phrase.[23] Thus, (15a) means that the group denoted by 'we' is the same group as that denoted by 'all of us'. One of the most accessible interpretations of such a sentence would be locative: the people who are here, that is, 'we', are all of us, that is, all the ones expected to be here. We will leave it for a future occasion to develop an analysis of equative constructions in CQ and the quantifiers that can occur in them. The point for the purposes of the current paper is simply to note that the strong quantifiers that can occur as the argument of the copula do nevertheless not appear to be used as predicates.

In summary, we found that ability to function as a predicate classifies the quantifiers as follows:

[22] We lack clear data on *wakin* without inflection in this construction.

[23] An alternative hypothesis of how the meaning of (16) could be derived is to assume that there is a purely predicative, but non-quantificational variant of *llapan* in which it means 'complete', that is, (16) might mean 'This is complete.' Evidence for the existence of such a meaning variant is provided in section 3.1, example 31. Such an analysis would also not invalidate our claim that quantificational *llapan* cannot be used as a predicate.

(17) a. Quantifiers that can function as predicates: the numerals, *pisi* ‘(a) few’, *askha* ‘many’, *hayk’a* ‘how many’

b. Quantifiers that cannot function as predicates: *wakin* ‘SOME’, *mayqin* ‘which’, *sapanka* ‘each’, *llapa* ‘every/all’, *tukuy* ‘every/all’, *lliw* ‘every/all’, *kinsantin* ‘the three’

That is, it is the cardinal quantifiers which can be used as predicates, reinforcing our claim that their primary type is <e,t>. Note that these are also the quantifiers that do not presuppose the existence of individuals in their restriction set (see section 2.2 for a brief discussion of presuppositionality as a classifying criterion).

2.4 Nominal quantifiers as adjectival and verbal modifiers

The quantifiers that we have labeled nominal quantifiers do also appear as modifiers in non-nominal phrases. In particular, certain of these quantifiers can appear as adjective and verb phrase modifiers. Here these meanings often overlap with those of certain other modifiers which are limited to non-nominal phrases and will not be discussed in detail here.

Examples of AP and VP modification by nominal quantifiers are shown in (18), along with examples of modification by the non-nominal modifiers *nishu* ‘very’ and *sinchi* ‘very’.[24]

(18) a. **Pisi**-lla-ta sayk’u-ra-ni.
a.little-DELIM-ADV tire-PST-1
‘I am a little tired.’(lit.: ‘I tired (out) a little.’)

b. **Tukuy**-ta sayk’u-ra-ni.
all-ADV tire-PST-1
‘I am completely tired.’

c. **Lliw** paya-ña ka-sha-ni.
all old-DISC be-PROG-1
‘I am already very old.’

d. **Nishu/Sinchi** paya-ña ka-sha-ni.
very old-DISC be-PROG-1
‘I am already very old.’

Adjectival and verbal modification by the nominal quantifiers under discussion in this paper is summarized as follows:

[24] The suffix *-ta*, normally an accusative marker, is also used frequently on VP modifiers.

(19) a. Nominal quantifiers that can appear in Adjective Phrases: *lliw* ‘every/all’, *tukuy* ‘every/all’

b. Nominal quantifiers that can appear in Verb Phrases: *lliw* ‘every/all’, *tukuy* ‘every/all’, *pisi* ‘(a) few’, *askha* ‘many’

Verb Phrases are clearly somewhat more receptive than Adjective Phrases to (otherwise) nominal quantifiers. A preliminary observation regarding VPs is that quantifiers that necessarily select for count nouns (such as numerals and *sapanka* ‘each’) are disallowed here. This is perhaps unsurprising, given that CQ has a noun *kuti* equivalent of the English ‘time’ (as in *We jumped three times*), which allows for numerical quantification of verb phrases (and *kinsa* ‘three’ on its own will not serve this function). It is also unsurprising that the necessarily relational quantifiers *wakin* ‘SOME’ and *llapan* ‘every/all’ are not possible as VP/AP modifiers. What is perhaps surprising is that *lliw* and *tukuy*, also strong quantifiers, are possible in these domains, as shown in (18b) for VPs.

While we do not have a complete understanding of these cases, what is of particular interest in both the AP and VP data is simply that it provides evidence for distinguishing between the universal quantifiers *llapan* on the one hand and *lliw* and *tukuy* on the other. Semantic differences between these quantifiers have been very difficult to tease apart. All three seem to be potentially distributive (like *every*) but not necessarily so, as will be discussed in section 3.2. Now we find that only *llapan* is exclusively compatible with nominal phrases. In section 4.4 we look at these facts again in light of some inflection data which also distinguishes *llapan* from *lliw* and *tukuy*.

This concludes our initial survey of empirical data based on existentials, predicate and AP/VP modification possibilities. In the following we explore in greater depth three topics that we consider most interesting from a cross-linguistic point of view. The first is distributivity in CQ, the second is the semantics of quantifiers taking person inflection, and the third the semantics of *wakin* ‘SOME’.

3 DISTRIBUTIVITY

The notion of distributivity is useful for the classification of CQ quantifiers in two ways. First, there are two distributive suffixes which place restrictions on the quantifiers they can co-occur with. Second, the universal quantifiers can partly be distinguished with respect to their distributive properties. These will be discussed in turn.

3.1 Interaction with distributive suffixes

In CQ, distributivity over the members of a plural subject group, the *distributive key*, is expressed by means of one of two distributive markers.[25] The distributive suffix *-nka* marks an object NP as *distributive share*, and may attach either to the quantifier or the head noun when present (Faller 2001, Hastings 2004) as shown in the examples in (20).[26]

(20) a. Irqi-kuna **kinsa** papa-**nka**-(ta) mikhu-nku.
child-PL three potato-DISTR-ACC eat-3PL
'(The) children eat three potatoes each.'

b. Irqi-kuna **kinsa-nka** (papa-ta) mikhu-nku.
child-PL three-DISTR potato-ACC eat-3PL
'(The) children eat three potatoes each.'

While some speakers accept distributive interpretations of sentences with two plural NPs without *-nka*, there is a strong preference for using overt marking. That is, most speakers would interpret (20a) without *-nka* as there being a total of three potatoes even in a context in which there are many children.[27] The addition of *-nka* forces a distributive interpretation.

The suffix *-kama* is used for marking nominal predicates[28] as distributive, as for example in (21).[29]

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[25] The terms distributive key and distributive share are adopted from Choe (1987). An exception to the claim that distributivity in CQ is overtly marked are sentences with inherently distributive predicates, where overt markers may be omitted, as in (i).

(i) Irqi-kuna puñu-sha-nku.
child-PL sleep-PROG-3PL
'The children are sleeping.'

[26] Note that the accusative marker is dropped by some speakers in the presence of *-nka*. Faller (2001) also discusses so-called group-forming uses of *-nka*. An example of this use is given in (i).

(i) **Iskay**-ni-**nka**-lla ri-sha-nku.
two-EUPH-DISTR-DELIM go-PROG-3PL
'They are going in twos / two by two.'

Note that while examples like (i) might alternatively be analyzed as distribution over events ('For each going event, there are two goers'), Faller (2001) also presents (stative) examples for which this is not possible. Since the group-forming analysis covers both cases, it is preferable, unless it can be shown that a distribution over events reading is empirically distinguishable from the group-forming reading. We will not discuss this use of *-nka* further in this paper.

[27] As Malte Zimmermann pointed out to us (personal communication), this preference can also be observed in English or German. However, it appears to us that this preference is much stronger in CQ. Even in a context that strongly favors the distributive reading, most speakers reject descriptions that do not contain a distributive marker (see Faller (2001) for discussion).

[28] It is generally assumed in the literature on Quechua that adjectives are morphosyntactically nouns, see for example Weber (1989). We use the term *nominal* to refer to the adjective/noun class.

[29] The suffix *-kama* has another, non-distributive use as a case marker, meaning 'up to/until' or 'during' (Cusihuaman 2001:129). Distributive *-kama* can also attach to argument NPs, but its function is then still to mark

(21) Llama-y-kuna yuraq-**kama**.
Llama-1-PL white-DISTR
'My llamas are all white.'

That *-kama* enforces distributivity can be seen by the contrast in acceptability of *-kama* in the following examples.

(22) a. Pay-kuna-qa volley equipo-**kama** ka-nku.
(s)he-PL-TOP volley team-DISTR be-3PL
'They are all volleyball teams.'
b. Chay **suqta** irqi-kuna volley equipu-(*__kama__) ka-nku.
that six child-PL volley team-DISTR be-3PL
'Those six children are (*all) a volleyball team.'

(22a) is acceptable to describe a situation in which there are several groups of six people each. In such a situation, *-kama* can distribute the group noun *equipu* over those groups. In contrast, in (22b), there is only one group of the right size, and there is therefore no suitable plurality for *-kama* to distribute over.

It has been observed in the literature that distributive elements may put restrictions on the type of quantifier allowed in either the distributive share or the distributive key. For example, Safir and Stowell (1989:429) state that the distributive key NP with English binominal each is "typically plural and specific." Similarly, Link (1998:117ff) claims that the German distributive particle *je* requires its distributive key NP to be plural and definite,[30] though he also notes that sufficiently specific indefinite NPs are sometimes acceptable. The examples in (23) illustrate this restriction for English binominal *each* (Safir and Stowell 1989:429).

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a nominal predicate as distributive rather than to establish a distributive relation between two arguments. For example, (i) does not mean that each of us will sell one male llama, but rather that we will sell any llama that is male.

(i) Urqu-ta-**kama** vindi-sunchis.
male-ACC-DISTR sell-FUT.1INCL
'We will sell all the male ones.'

We will not discuss such examples here. Also note that *-kama* cannot occur on verbs to mark distributivity. To our knowledge, it is also not possible for *-kama* to distribute over events.

[30] For Link (1998:120), this includes NPs with the universal quantifier *alle* 'all':

(i) **Alle** Kinder bekamen je drei Äpfel.
'All the children got three apples each.'

Such NPs are not definite according to the definition of definite NPs we have adopted in this paper as presupposing the existence of a unique referent.

(23) a. They/The men/Those men/The five men saw two women each.
b. Some men/Several men/Many men saw two women each.
c. *The man/*A man/*Someone/*She saw two women each.
d. ?Everyone/*Every man saw two women each.
e. ?All men/?All the men saw two women each. (Safir&Stowell 1989, (9a,c,e,f,g,h))[31]

Safir and Stowell (1989:428) moreover observe that the distributive share of binominal *each* must be cardinal and indefinite, and Link (1998) observes for German *je* that its distributive share has to be indefinite. These restrictions are shown by the contrast in (24).

(24) a. Die Kinder bekamen je drei Äpfel.
'The children got three apples each.' (Link 1998:120, (6a))
b. Die Kinder bekamen (*je) die Äpfel.
'The children got the apples (*each).'

It is therefore to be expected that the study of the interaction of the CQ distributive suffixes with the nominal quantifiers will provide further insights into their classification.

To begin with *-nka*, we have found that it imposes no restriction on its distributive key other than that it has to be plural. Examples are given in (25).[32]

(25) a. **Askha/kinsa/hayk'a** irqi kinsa papa-**nka**-(ta) mikhu-rqa-nku.
many/three/how.many child three potato-DISTR-ACC eat-PST-3PL
'Many/three/how many children ate three potatoes each.'
b. **Sapanka/llapan/wakin** irqi kinsa papa-**nka**-(ta) mikhu-rqa-nku.
each/all/SOME child three potato-DISTR-ACC eat-PST-3PL
'Each child/all/SOME children ate three potatoes each.'
c. ***Huk** irqi/**pay** kinsa papa-**nka**-(ta) mikhu-rqa-nku.
one child/(s)he three potato-DISTR-ACC eat-PST-3PL
'*One child/(s)he ate three potatoes each.'

Thus, CQ *-nka* is not like German *je* or English binominal *each* in this respect, and any analysis of this distributive marker must take this into consideration. However, since the semantics of the distributive markers themselves is not the topic of this paper, we will leave this for another occasion.

CQ *-nka* is however more restrictive with respect to its distributive share. First, bare NPs are disallowed as distributive share. Thus, dropping *kinsa* from the examples in (20) will lead

[31] According to Safir & Stowell (1989:429), the judgments of the sentences with universally quantified plural NPs (23e) "are delicate but the sentences seem basically acceptable."
[32] The quantifiers not exemplified in (25) can also occur in the distributive key.

to ungrammaticality.[33] Second, only cardinal quantifiers can occur in the distributive share marked by *-nka*. We have already seen in (20) that *-nka* combines readily with numerals. The other cardinal quantifiers behave the same way, as is shown for *pisi* '(a) few' in (26a). (26b) shows that non-cardinal quantifiers are ungrammatical in this construction.[34]

(26) a. **Pisi-nka**-lla-ta mikhu-rqa-nchis.
few-DISTR-DELIM-ACC eat-PST-1INCL
'We ate only a few each.'
b. ***Llapa/wakin/mayqin-nka**-lla-ta mikhu-rqa-nchis.
all/SOME/which-DISTR-DELIM-ACC eat-PST-1INCL

Thus, the restriction *-nka* imposes on its distributive share appears to be the same one as those imposed by English binominal *each* and German *je*, namely cardinality.[35] We would like to point out, however, that the set of quantifiers admitted in the distributive share of *-nka* can also be characterized as the set of non-presuppositional quantifiers or the set of quantifiers that are amenable to a predicative analysis. The analysis of the cardinal quantifiers in CQ as predicates is in fact corroborated by the observation made above in connection with (20) that sentences with two plural NPs and no distributive element cannot normally receive a distributive interpretation. This indicates that the cardinal quantifiers (as well as non-quantified NPs) themselves are non-scopal and can only participate in scope relations with the support of a quantificational element such as *-nka*.[36]

In summary we found the following distribution of quantifiers as distributive share and key of *-nka*:

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[33] Exceptions are some measure nouns. For example, (i) is fine, though note that it is understood that each recipient received one pack each. That is, the numeral *huk* is implicit.

(i) Q'ipi-**nka**-ta qu-ni.
pack-DISTR-ACC give-1
'I gave (them) one pack each.'

[34] Note that *sapanka* 'each' can also not function as distributive share. It can occur in object position, but is then interpreted as distributive key. For example, (i) does not mean 'each potato per child', but rather that for each potato there was one child (or more) that ate it.

(i) Irqi-kuna **sapanka** papa-ta mikhu-rqa-nku.
child-PL each potato-ACC eat-PST-3PL
'The children ate each potato.'

While this quantifier is composed from *sapa* and *-nka*, the function of *-nka* is not that of the distributive suffix discussed in this section. Instead, its function appears to be to turn the event quantifier *sapa* into a nominal quantifier (Hastings 2004:224).

[35] Link (1998) only requires the distributive share of *je* to be indefinite, though all the examples he gives involve cardinal NPs. Indefiniteness alone is not sufficient for explaining why the CQ indefinite quantifiers *wakin* 'SOME' and *mayqin* 'which' are not permitted in the distributive share.

[36] Adopting the Heim-Kamp treatment of indefinite NPs (Heim 1982, Kamp 1981), we assume that the variables introduced by indefinite NPs will be bound by some general mechanism such as existential closure.

(27) a. Permitted as distributive key of *-nka*: All quantifiers except *huk* 'one'
b. Permitted as distributive share of *-nka*: numerals, *pisi* '(a) few', *askha* 'many', *hayk'a* 'how many'

Turning now to the distributive suffix *-kama*, it differs from *-nka* in imposing a restriction on its distributive key. Only examples with the universal quantifiers *tukuy*, *lliw*, and *llapa* as well as with definite numerals higher than one[37] are uncontroversially acceptable, as illustrated in (28).

(28) a. **Llapa/tukuy** llama-kuna yuraq-**kama**.
every/all llama-PL white-DISTR
'All the llamas are white.' (Each one is white.)
b. **Kinsa-ntin** llama-kuna yuraq-**kama**.
three-DEF llama-PL white-DISTR
'The three llamas are each white.'
c. ***Kinsa/pisi/askha** llama-kuna yuraq-**kama.**
three/few/many llama-PL white-DISTR
'Three/few/many llamas are (*each) white.'
d. ?**Sapanka** llama-(kuna) yuraq-**kama**.
each llama-PL white-DISTR
'Each llama is (*each) white.'

What NPs containing the universal quantifiers *tukuy*, *lliw*, *llapa* and definite NPs have in common is that they focus on the totality of their plural referent, not its individual members or a subset.[38] It appears to be this aspect of totality that is relevant for *-kama*, not specificity. The

[37] Note that some speakers accept numerals in this construction without the definite marker *-nti* but only under a definite interpretation. One of our consultants is moreover rather more liberal than others and accepts all quantifiers with the exception of *huk* 'one' in this construction. Possibly, she is treating *-kama* as equivalent to *-nka*. Regarding (28d), this example is marked with a question mark rather than a star, because some speakers marginally accept examples like it, but comment that they are redundant. Examples with *sapanka* in the distributive key become perfectly acceptable when *-kama* does not mark the main predicate as distributive, but an adjunct phrase, as, for example, in (i).

(i) **Sapanka** yanapa-q ri-n **sapanka** iskina-man wik'uña puku-cha-ntin-**kama**.
each help-AG go-3 each corner-ILLA vicuña bag-DIM-with-DISTR
'Each assistant goes to each corner of the field with his respective vicuña skin bag.'

At this point, we have no explanation for why moving *-kama* to an adjunct phrase should improve acceptability with *sapanka*.

[38] Non-quantified definite NPs can also function as the distributive key of *-kama*, as shown in (i).

(i) Kay sacha-cha-kuna durasnu-**kama**.
this tree-DIM-PL peach-DISTR
'These trees are all peach.'

semantic contribution of *-kama* is to distribute over the members that make up the totality. Support for this hypothesis is provided by examples with *mayqin* 'which' such as (29), which are at least marginally acceptable.

(29) **Mayqin** llama-kuna yuraq-**kama**.
which llama-PL white-DISTR
'Which kinds of llamas are white?'

This example cannot be interpreted as asking which individual llamas in a given group of llamas are white, but only as asking which kinds of llamas are such that all its members are white. Kinds are also totalities, and it is this aspect that licenses *-kama* in (29).

With respect to any restrictions *-kama* places on the distributive share, recall that its function is to mark nominal predicates as distributive. Thus, this issue amounts to the question of which quantifiers can function as predicates. It is therefore not surprising to find that the quantifiers that can be distributed by *-kama* are the same ones that can occur as predicates with the copula, that is, the cardinal quantifiers listed in (17a). Examples are given in (30).

(30) a. Volley equipu-kuna-pi **suqta-kama** ka-na-n.
volleyball team-PL-LOC six-DISTR be-NMLZ-3
'In each volleyball team there must be six.'
b. Futbol equipu-kuna-pi **hayk'a-kama** ka-na-n.
soccer team-PL-LOC how.many-DISTR be-NMLZ-3
'How many must there be in each soccer team?'

As was the case with the copular predicate construction, the universal quantifier *llapa* 'every/all', and to a lesser extent *tukuy* and *lliw*, are also accepted with *-kama* by some consultants, though only marginally. An example is given in (31).

(31) Kay-kuna ña **llapan-kama**-ña.
this-PL already every/all-DISTR-DISC
'These ones are complete.'

In a context in which a school goes on excursion, and the students of each class stand together in clearly identifiable groups, one could point to the groups that are already complete and utter (31). As indicated in the English translation, *llapan* seems to have the meaning of 'complete' in this position,[39] rather than universally quantifying over a context set of individuals. The generalization that only cardinal quantifiers can be used as predicates can therefore be upheld.

Again to summarize the data, we found the following distribution of quantifiers as distributive share and key of *-kama*:

(32) a. Permitted as distributive key of *-kama*: *tukuy* 'every/all', *lliw* 'every/all', *llapa* 'every/all', *kinsantin* 'the three', and marginally *mayqin* 'which (kinds of)'
b. Permitted as distributive share of *-kama*: numerals, *pisi* '(a) few', *askha* 'many', *hayk'a* 'how many', and marginally *llapa* 'every/all' ('complete')

3.2 Universal quantifiers and distributivity

Given that CQ has several universal quantifiers, *sapanka*, *llapa*, *tukuy* and *lliw*,[40] one immediate question is what the differences between them may be, if any. In sections 2.3 and 2.4 we have seen that *sapanka* differs from the other universal quantifiers in not having even marginal uses as a predicate or as a modifier of AP/VP, that *tukuy* and *lliw*, but not *llapa* can be used as modifiers of AP/VP, and that *llapa* is more easily employed as a predicate than *tukuy*/*lliw*.

Another property that is known to distinguish between universal quantifiers in other languages is distributivity (see for example Roberts (1990, Ch. 3) and Gil (1995), among others). Thus, Gil (1995) observes that some universal quantifiers are necessarily distributive, that is, they do not allow collective interpretations, while others are non-distributive in allowing both distributive and collective interpretations.[41] For CQ, we found that distributivity divides the universal quantifiers into two groups: *sapanka* is necessarily distributive, whereas *llapa*, *tukuy* and *lliw* allow both distributive and collective interpretations. The examples in (33) show that all universal quantifiers except *sapanka* can receive a collective interpretation.[42]

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[39] As pointed out in footnote 23 in section 2.3, this might also be the right meaning for *llapan* when appearing with the copula *kay*. To fully understand the non-quantificational use or uses of *llapan* more research is needed.

[40] As well as *q'ala*, which we have excluded from discussion in this paper, see footnote 6.

[41] The term non-distributive should be taken to mean 'not necessarily distributive', not 'necessarily not distributive.' Note that there does not seem to exist a class of universal quantifiers that only allow collective interpretations, at least Gil does not mention it.

[42] Note that Gil also discusses a number of morphosyntactic differences between the two types. For example, number agreement distinguishes between English distributive *every* and non-distributive *all*: *every man carries two suitcases*, *all men carry two suitcases*. Such tests are difficult to apply in CQ, because number agreement is often optional. We are not aware of any morphosyntactic differences that identify *sapanka* as being distinct from the other universal quantifiers. For example, one might expect it, like English *each*, to be incompatible with plural morphology, but this is not the case, as shown by the acceptability of (i).

(i) Sapanka llamakuna puñu-sha-nku.
each llama-PL sleep-PROG-3PL
'Each llama sleeps.'

Having said this, there are morphosyntactic differences between the universal quantifiers, but they do not map onto the distributive/non-distributive distinction. For example, only *sapanka* and *llapa* can take person inflection

(33) a. **Llapan/tukuy/lliw** runa huñu-na-ku-rqa-nku.
every/all person meet-PA-REFL-PST-3PL
'All people gathered.'
b. **Sapanka** runa huñu-na-ku-rqa-nku.
each person meet-PA-REFL-PST-3PL
(i) #Every person gathered.
(ii) 'All families gathered (that is, each family had their own gathering).'

While (33b) is not ungrammatical, it can not receive the interpretation that all people went to a gathering. Instead it can only be construed to refer to groups of people, e.g. families, each of which held their own gathering.

That all universal quantifiers allow distributive readings is shown in (34).[43]

(34) **Sapanka/llapan/tukuy/lliw** runa iskay sacha-(nka)-ta aysa-sha-nku.
each / every/all person two tree-DISTR-ACC pull-PROG-3PL
'Each person/all persons is/are pulling two trees.'

Moreover, only *llapa*, *tukuy* and *lliw* but not *sapanka* can convey the meaning that a single object is affected in its totality.

(35) a. **llapan/lliw/tukuy** sunqu-y-wan
every/all heart-1-COM
'with all my heart'
b. #**sapanka** sunqu-y-wan
each heart-1-COM
'with each of my hearts'

(35b) can only receive the absurd interpretation that the speaker has more than one heart. Similarly, only *llapa*, *tukuy* and *lliw* can combine with mass nouns and then specify the totality of the quantity. In contrast, when *sapanka* modifies a mass noun, it necessarily quantifies over units or kinds.

(36) a. llapan/tukuy/lliw unu
every/all water
'all (the) water'

(see section 4).
[43] Some speakers accept such sentences without the distributive suffix *-nka*.

b. **sapanka** unu
each water
'each bottle/kind of water'

To summarize this section, we have shown that the two distributive suffixes classify the nominal quantifiers in different ways. *-nka* places no restrictions on its distributive key other than requiring it to be plural, but allows only cardinal quantifiers in its distributive share. *-kama* requires its distributive key to refer to the totality of some group, and also allows only cardinal quantifiers as its distributive share. The latter conforms with the observation made earlier that only cardinal quantifiers can easily be used as predicates.

We have furthermore shown that the collectivity/distributivity distinction divides the universal quantifiers into two sets: the necessarily distributive *sapanka*, and the set of *llapa*, *tukuy*, *lliw*, which allow both collective and distributive interpretations.

4 PERSON INFLECTION

Some Quechua quantifiers can be inflected for person and number. The inflection paradigm is that of nominal, and not verbal inflection.[44] When inflection is allowed, the inflection reflects the restriction set over which quantification is taking place. Examples are shown in (37). Also illustrated in (37a) is the fact that in the presence of inflection, overt mention of the restriction is not possible.

(37) a. **Llapa-nku** (*warmi-kuna) ri-sha-nku.
every/all-3PL woman-PL go-PROG-3PL
'All of them (the women) are going.'
b. **Wakin**-ni-**nchis** ri-su-nchis.
some-EUPH-1INCL go-FUT-1INCL
'Some of us will go.'

This construction has been studied previously by Muysken (1994). Muysken points out that different quantifiers exhibit different semantic behaviors in combination with person/number

[44] CQ regularly inflects both tensed verbs, in agreement with their subject, and possessed nouns, in agreement with their possessor. The inflection paradigms are slightly different, and it is the nominal morphemes which can appear on quantifiers. We consider the person markers on quantifiers to be inflection morphologically because they can be followed by case markers, e.g. *llapa-nku-ta* 'all-3PL-ACC'. Lefebvre and Muysken have argued that the case markers are inflectional in CQ, and it is generally assumed in morphology that elements occurring inside inflectional elements are themselves inflection (Lefebvre and Muysken 1988:89). The fact that the person/number markers are morphologically inflectional does not, however, mean that they cannot function like independent pronominal forms semantically, as we conclude below.

inflection. Furthermore, not all quantifiers are compatible with this inflection at all. These facts make person/number inflection a useful tool for probing the syntax and semantics of quantifier classes in Quechua.

The examples in (38) illustrate the incompatibility of some quantifiers with inflection.

(38) a. ***Askha-nku** ri-sha-nku.
many-3PL go-PROG-3PL
Intended meaning: 'Many of them are going.'
b. ***Tawa-nku** ri-sha-nku.
four-3PL go-PROG-3PL
Intended meaning: 'Four of them are going.'

The sentences in (37) and (38) raise the immediate question of to what extent Quechua inflected quantifiers resemble or differ from English partitive constructions. Perhaps the most obvious difference between the two is that English partitives (e.g. 'some of them', 'some of those boys') allow either pronominal or full noun phrase restriction sets, expressed in the post-*of* position. In Quechua, since this set is given through person/number inflection only (and no common noun specifying the restriction set is permitted), there is no inflected quantifier equivalent of a partitive like 'some of those boys'. In fact, we are not aware of any construction in Quechua which replicates the English partitive within a single noun phrase. If the restriction is not evident given preceding discourse or other contextual factors, then an adjunct phrase can supply the missing material, as shown in (39a). Similarly, in cases involving quantifiers which are incompatible with inflection (such as *askha* in (38a)) the same kind of circumlocution gets employed, as shown in (39b).

(39) a. Chay irqi-kuna-manta, **llapa-nku** ri-nqa.
those child-PL-ABL every/all-3PL go-3FUT
'Of those children, all will go.'
b. Chay irqi-kuna-manta, **askha** ri-nqa.
those child-PL-ABL many go-3FUT
'Of those children, many will go.'

In considering quantifier inflection, it is important to distinguish this phenomenon from noun inflection, which follows the same morphological paradigm. One way to distinguish the two is that noun inflection is (optionally) accompanied by the presence of an overt possessor and so can be understood as agreement with a (potentially null pronominal) possessor. This is not the case with most quantifier inflection, as illustrated in (40).[45] A standard example of a

[45] Here we will not discuss the few instances in which quantifiers can be understood as representing possessees in

possessive noun phrase is illustrated in (40a). By contrast, an overt possessor is incompatible with the use of inflected quantifiers illustrated above in (38) as shown in (40b).

(40) a. (Nuqa-nchis-pa) llama-**nchis** mihu-n.
I-1INCL-GEN llama-1INCL eat-3
'Our llama eats.'
b. (*Pay-kuna-q) **llapa-nku** ri-sha-nku.
(s)he-PL-GEN every/all-3PL go-PROG-3PL
'All of them are going.'

Our focus here is on inflection of the type illustrated in (37) and (38) since this construction is, so far as we know, limited to quantifiers. We have found that the following quantifiers are compatible with person inflection:

(41) a. Compatible with inflection:
huk 'one', *iskay* 'two', *sapanka* 'each', *llapa* 'every/all', *wakin* 'SOME', *mayqin* 'which', *kinsantin* 'the three'
b. Incompatible with inflection:
kinsa 'three' and higher numerals, *pisi* '(a) few', *askha* 'many', *hayk'a* 'how many', *tukuy* 'every/all', *lliw* 'every/all'

Despite the chaotic appearance of this classification, which cuts across all previously discussed groupings (numerals, universal quantifiers, strong quantifiers, etc.), we will claim that the primary distinction here is best expressed in terms of presuppositionality. In particular, we claim that quantifiers compatible with inflection presuppose the non-emptiness of their restriction. The case of *huk* 'one' appears to be the one exception to this generalization, as we will see below. Presumably this case needs to be learned separately by Quechua speakers.

Since it is not at all evident from the data in (41) that presuppositionality is a relevant property when it comes to person inflection, we must mention and temporarily bracket several apparent counterexamples to our claim. We will return to these at the end of this section. Specifically, we will discuss why *huk* 'one' and *iskay* 'two' can be inflected while *kinsa* 'three' and higher numerals cannot. Furthermore, we need to consider why *tukuy* 'all' and *lliw* 'all' are incompatible with person inflection, though *llapan* 'every/all' can be inflected. Finally, note that *wakin* 'SOME' is not a counterexample to the presupposition claim. Recall that this version of 'some' is incompatible with existential contexts, roughly the equivalent of stressed SOME in English. In the next section we will discuss its presuppositional nature in more detail.

The remainder of our discussion of person/number inflection will thus be divided into

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a possessive noun phrase construction.

section 4.1, in which we provide a semantic analysis of the contribution of inflection, section 4.2, in which we provide additional evidence for our analysis by looking at the suffix *-nti*, which converts indefinite numerals into definite ones, and section 4.3 in which we address the bracketed apparent counterexamples mentioned above.

4.1 On the semantics of quantifier inflection

In this section we provide a semantic analysis of quantifier inflection with the aim of explaining why inflection is associated with presuppositional quantifiers, limiting ourselves to the data in (42). As mentioned above, the other quantifiers from (41) will be discussed separately in section 4.3.

(42) a. Compatible with inflection:
sapanka ‘each’, llapa ‘every/all’, *wakin* ‘SOME’, *mayqin* ‘which’
b. Incompatible with inflection:
kinsa ‘three’ and higher numerals, *pisi* ‘(a) few’, *askha* ‘many’, *hayk’a* ‘how many’

Recall that the examples of inflected quantifiers seen thus far suggest that the meaning of an inflected quantifier is at least roughly aligned with that of the English partitive construction.

(43) a. llapa-nchis
every/all-1INCL
‘each/all of us’
b. mayqin-ni-nchis
which-EUPH-1INCL
‘which of us’
c. *hayk’a-nchis
how.many-1INCL
Intended meaning: ‘how many of us’
d. *pisi-nchis
a.few-1INCL
Intended meaning: ‘few of us’

Observe that English partitives are possible in each of the glosses in (43). That is, the presupposition associated with the definite post-*of* noun phrase (in each of these examples, *us*) does not in any way constrain the identity of the quantifier itself (e.g. *few* in ‘few of us’). This fact stands in contrast to Quechua, where the person inflection requires that the quantifier it attaches to presupposes the non-emptiness of its restriction. This suggests to us an explanation

for the ungrammaticality of (43c,d) as follows. Let us suppose that person/number inflection, unlike an overt pronoun, does not carry its own presupposition but rather relies on the presuppositionality of the quantifier it is attached to. That is, person/number inflection is licensed only insofar as it agrees with features of the maximal individual in the set presupposed by the quantifier itself. It is this maximal individual that corresponds to the English pronoun in the partitive translations of the sentences in (43). Quantifiers like *pisi* '(a) few' in (43c) which do not presuppose the existence of any particular set of individuals do not come in inflected varieties. If this reasoning is on the right track, then inflection of quantifiers in Quechua can be likened to the features on pronouns that reflect the person and number of the individuals they refer to.

On a more technical level, given that inflected quantifiers are incompatible with an overt common noun restriction, the inflection can be analyzed as playing a semantic role as well as agreeing with a presupposed set. Specifically, the inflected quantifier must be of the type of a quantified noun phrase and not just a quantifier. In Quechua, it is reasonable to adopt a standard account of strong quantifiers as taking type <e,t> arguments, with the entire quantifier phrase denotating a function from predicates (the VP) to truth conditions. We can thus implement the semantics of the person/number inflection by analyzing its semantic contribution as that of a type <e,t> predicate which plays the same semantic role as a common noun restrictor. These ideas are encapsulated in the equation in (44a), with the specific case of *llapan* 'all' and *llapa-nku* ('all-3PL') shown in (44b) and (44c).[46]

(44) a. Contribution of -infl:
⟦QUANT-infl B⟧ is defined only if the maximal element in the set A that is presupposed by QUANT has the person and number features encoded by infl.
If defined, ⟦QUANT-infl B⟧ = ⟦QUANT A B⟧

b. Denotation of *llapan*:
⟦*llapan* A B⟧ is only defined if $A \neq \varnothing$
If defined, ⟦*llapan* A B⟧ = true iff $A \subseteq B$

c. Example: *llapa-nku* (ALL-3PL)
⟦*llapa-nku* B⟧ is defined only if the maximal element in the set A that is presupposed by ALL is 3PL.
If defined, ⟦*llapa-nku* B⟧ = ⟦ALL A B⟧ = true iff $A \subseteq B$

[46] As pointed out by a reviewer, English partitives such as *all of the llamas* presuppose familiarity with the llamas in question. Familiarity may also play a role with inflected quantifiers in CQ in the sense that one could not use *llapanku* 'all of them', for example, to refer to a set of llamas, unless it is understood from the context that one is talking about llamas and which particular ones. More research is required to determine whether familiarity is a

4.2 Role of the suffix *-nti*

Strong evidence for our analysis of inflected quantifiers comes from a closer look at *kinsa* 'three' (and higher numerals). To fully understand the behavior of these numerals with respect to person inflection, we need to take a brief detour to look at the behavior of another Quechua morpheme, the suffix *-nti*. This morpheme has a number of uses, and we will not investigate the full range here. Our main focus will be instances in which *-nti* attaches directly to the quantifier of a quantified noun phrase. This occurs only in the case of numerals greater than or equal to three. The role of *-nti* in this case is similar to that of the definite article in English, as illustrated in (45).

(45) **Kinsa-ntin** irqi puklla-sha-n.
three-DEF child play-PROG-3
'The three children are playing.'

As suggested by the gloss, sentence (45) is only felicitous in an environment in which there are exactly three contextually prominent children. It is this use of *-nti* which is of particular interest in the context of person inflection.[47] Once this suffix has been added, all numerals greater than two become compatible with person/number inflection. Examples are illustrated in (46).

(46) a. kinsa-nti-nchis
three-DEF-1INCL
'the three of us'

b. isqun-ni-nti-nchis
nine-EUPH-DEF-1INCL
'the nine of us'

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necessary requirement in the interpretation of inflected quantifiers, in which case more detail will need to be added to the presuppositions in these denotations.

[47] There is at least one other version of *-nti* which can attach to quantifiers in certain cases, but with quite a different semantic effect. This alternative *-nti* adds the meaning 'with' or 'accompanied by' and can also attach to other sorts of noun phrases as illustrated in (i). Thus, when this *-nti* appears on quantifiers as in (ii) it is best analyzed as attached to a quantified noun phrase (with no overt noun).

(i) Iirqi-kuna-ntin hamu-nqa.
child-PL-with come-3FUT
'(S)he will come with children.'

(ii) Tukuy-ni-ntin hamu-nqa.
every/all-EUPH-with come-3FUT
'(S)he will come with everything."

It is clear that the *-nti* is licensing person/number inflection in these cases, leading to the acceptability of *kinsa-nti-nchis* despite the unacceptability of **kinsa-nchis*. We therefore analyze *-nti* as adding a definiteness presupposition to numerals like *kinsa* 'three', that is, *kinsantin* presupposes the existence of a unique sum individual with cardinality three. This uniqueness presupposition entails that the restriction is non-empty and therefore puts *kinsantin* on a par with the other strong quantifiers discussed in this paper. These data support our analysis of inflection as licensed only on presuppositional quantifiers. We elaborate this intuition as follows.

Recall that this use of *-nti* is limited to numerals. Its semantic contribution must therefore be one which creates a presuppositional out of a non-presuppositional quantifier. We see two choices for how to implement this notion. If *-nti* can somehow be understood to raise at LF to gain scope over the rest of the quantifier phrase, it may have the semantic contribution of a presuppositional quantifier: schematically, [*-nti* [THREE *llama*]]. On the other hand, an analysis that sticks closer to the surface structure of an *-nti*-containing noun phrase will place *-nti* in the role of converting a numeral to a presuppositional quantifier: [[THREE-*nti*] *llama*]. An argument in favor of the second option comes from our analysis of person/number inflection. Since inflectional morphology can only attach to presuppositional quantifiers, and is presumed to take the semantic role of the common noun, we would predict that *[-nti* [THREE-*nku*]] is not a possible analysis.

In (47) we implement a semantics for *-nti* in which *-nti* combines with a numeral to create a presuppositional quantifier. (Recall from section 2.1, example (7a), that we take THREE to be a set of sums each with three terms.)

(47) ⟦[NUM-*nti* A B]⟧ is defined only if $|A \cap NUM| = 1$
If defined, ⟦[NUM-*nti* A B]⟧ = true iff $A \subseteq B$[48]

Notice that the presupposition in (47) immediately rules out such forms as **askha-ntin* ('many-*nti*') which might otherwise be predicted to be acceptable, meaning 'the many'. This is because the requirement that $|A \cap NUM| = 1$ would, in the case of *askha-ntin* require that $|A \cap MANY| = 1$, which, informally put, entails that only the maximal element of A can contain many individuals. This seems incompatible with the vagueness of 'many'.

When we combine (44) and (47) the denotation of complex quantifiers like *kinsa-nti-nku* 'THREE-nti-3pl' comes out as shown in (48).

[48] A slight variation on the second clause of this definition, making use of a maximality operator, is:
"If defined, ⟦[NUM-*nti* A B]⟧ = true iff $max(A) \in B$." This variation has the advantage that it may be more easily extendable to a related use of *-nti* as a kind of generalized maximality operator as illustrated in *tuta-ntin* (night-*nti*) 'all night'. This version of *-nti* is limited to certain temporal and spatial expressions. We do not attempt an analysis of this use of *-nti* here.

(48) Calculation of *kinsa-nti-nku* ‘three-nti-3pl’:
⟦THREE-*nti*-3pl B⟧ is defined only if the maximal (i.e., only) element in the set A that is presupposed by THREE-*nti* is 3pl and has cardinality three.
If defined, ⟦THREE-*nti*-3pl B⟧ = ⟦THREE-*nti* A B⟧ = true iff A ⊆ B

In informal terms, this calculation tells us that *kinsantinku* B is defined as long as the quantifier presupposes the existence of a unique 3pl referent with cardinality three. And in that case, *kinsantinku* B is true if all three elements of the restriction have property B.

4.3 First special case: Small numbers

We turn now to the full range of inflection data presented back in (41), which has not yet been fully explicated by our work in the preceding two sections. In particular, it remains to be explained why the numerals *huk* ‘one’ and *iskay* ‘two’ are compatible with inflection, and why the universal quantifiers *tukuy* and *lliw* are not.

We begin with the numerals. Consider the data in (49).

(49) a. huk-ni-nchis
one-EUPH-1INCL
‘one of us’
b. iskay-ni-nchis/*iskay-ni-nti-nchis
two-EUPH-1INCL/two-EUPH-DEF-1INCL
‘the two of us’
c. kinsa-nti-nchis
three-DEF-1INCL
‘the three of us’

In light of the work we have just completed on *-nti*, the data in (49a) and (49b) are quite surprising. Note that although we expect *huk* ‘one’, as a non-presuppositonal quantifier to be incompatible with inflection, in fact *huk* can be inflected. Furthermore, the resulting form is explicitly indefinite as it picks out a single individual from a group. As mentioned earlier, we have no explanation to offer for this case other than the stipulation that speakers must learn this special construction on its own. However, in the case of *iskay* ‘two’ we are confronted with a rather different problem. Despite the incompatibility of *iskay* with the definite marker *-nti*, the meaning of an inflected construction such as *iskay-ni-nchis* (‘two-EUPH-1INCL’) is not simply ‘two of us’ but ‘the two of us’. That is, the context set associated with the second person plural inflection must contain two people. We must ask how the definite reading comes about in the absence of *-nti*, since it is certainly not inherent in the meaning of *iskay* ‘two’. In particular,

when we consider other weak quantifiers like *askha* 'many', *pisi* '(a) few' and especially *kinsa* 'three' we may wonder why they, too, can't take on the definite reading in the same way that *iskay* 'two' apparently does, and thus be compatible with inflection.

We believe that this state of affairs has arisen through a diachronic change which has rendered *iskay* incompatible with *-nti* while allowing the definite reading of *iskay* to be retained in the presence of person/number inflection. Evidence for this theory can be found in the 1608 dictionary by Holguin (1989[1608]). This dictionary translates "yskaynintin" (which is to say, using modern transcription, *iskay-ni-ntin* 'two-EUPH-nti') as "the two together." In modern Cuzco Quechua, *-nti* can no longer appear overtly on *iskay* but the meaning of inflected *iskay* remains as it would have been in the presence of this suffix. It thus appears that *-nti* has been elided in this case, but the presence of inflection triggers the same definite interpretation as there would be in the presence of *-nti*.

4.4 Second special case: Universals

We now turn to the universal quantifiers, which present another problem for our characterization of inflection as associated with presuppositional quantifiers. In particular, two universal quantifiers (*sapanka* and *llapan*) permit person inflection while two do not (*tukuy* and *lliw*). Our remarks here will be speculative since we do not have a fully satisfactory explanation for this difference. In particular, given our association of inflection with presuppositionality, we would expect that all universal quantifiers should allow person inflection. However, the facts we do have provide a contribution towards our effort to tease apart the semantics of the different universals, and are in line with previously mentioned data which distinguish between *tukuy* and *lliw* on the one hand, and *llapan* on the other.

To review what we know so far about universal quantifiers, the clearest division is between the necessarily distributive *sapanka* and the only optionally distributive *llapan*, *lliw* and *tukuy*, as discussed in section 3.2. In that section we found that the latter three quantifiers were compatible with collective predicates and mass noun restrictions, while *sapanka* was not. We also now have three pieces of evidence which suggest a distinction between *llapan* and *lliw*/*tukuy*. Of these three quantifiers, only *llapan* can be inflected for person/number (section 4.1); only *tukuy* and *lliw* can be AP or VP modifiers (section 2.4); and, *llapan* has a slightly less restricted distribution in the VP of equative copular sentences (section 2.3).

If we were to focus purely on the inflection data, then one option of course would be to suppose that *tukuy* and *lliw* reject inflection out of some morphological quirk–that they are semantically identical to *llapan* in every way but don't exhibit overt inflection in this case.[49]

[49] That the quirk could not be on the level of phonology is seen in the fact that *tukuy* can be inflected in the event that it is the possessee in a possessive noun phrase, e.g. *tukuy-ni-y* (all-EUPH-1) 'all of my things'.

However, in light of the other distribution data it is compelling to imagine that there is a deeper significance here. One possibility, which we are unable to pursue in detail at this point, is that the AP/VP modification data reveal that in fact the underlying semantics of *tukuy* and *lliw* is that of a maximalizing operator in those domains and that their meaning is paraphrasable by English *completely, to a maximal point*. Under this view, the nominal quantifier meaning of these words is derived, presumably through a type-shifting operation that effectively converts a maximalizer into a universal quantifier. If this is correct, then the incompatibility of *tukuy* and *lliw* with person/number inflection may be due to the fact that they are not nominal quantifiers at the level of their basic meaning. *Llapan* would only have a denotation as a nominal quantifier, consistent with its incompatibility with AP and VP environments.

As a final note on the semantics of universal quantifiers in CQ, it should be clear by now that we are not aware of any evidence, syntactic, semantic or morphological, which allows us to distinguish *tukuy* from *lliw*.

5 PROPORTIONAL *WAKIN* 'SOME'

In the course of our discussion up until now it has become clear that Quechua *wakin* 'SOME' is quite a different quantifier from English *some*. Here is what we have seen of *wakin* so far:

- *Wakin* is incompatible with possessive *-yuq* sentences and existential *kan* sentences, and hence we have classified it as strong and presuppositional. (Section 2.2)
- *Wakin* is incompatible with distributive *-nka* (a sign of being non-cardinal). (Section 3.1)
- *Wakin* is compatible with person/number inflection, consistent with presupposing the non-emptiness of its restriction. (Section 4.1)
- *Wakin* quantified subjects are incompatible with *-kama* predicates, suggesting that *wakin* is neither universal nor definite. (Section 3.1)
- *Wakin* cannot function as an AP or VP modifier, nor as a predicate. (Sections 2.2, 2.3)

Strong or presuppositional versions of 'some', like *wakin*, have been identified in many other languages, and there turn out to be important differences between quantifiers in this general category. In this section we will discuss the semantics of *wakin* in more detail, making particular comparisons to Dutch *sommige*, as studied by de Hoop (1995), and St'át'imcets *nukw* as studied by Matthewson (2006). Our aim will be to clarify and formalize the meaning of *wakin*.

We start by examining the existence presupposition. *Wakin*-quantified noun phrases are felicitous only in contexts where the non-emptiness of the restriction is presupposed. This can

be seen by the contrast illustrated in (50). Each of these sentences mentions a collection of birds. However, the use of 'dodo' (a species believed to be extinct) is judged strange with *wakin*, while the use of *loro* 'parrot' is fine. Note that the contrast here is not due to the surprising nature of finding dodos at all, since without *wakin*, sentence (50a) is fine, though newsworthy.

(50) a. Tari-sqa-ku-raq (#**wakin**) dodo-kuna-ta.
find-NX.PST-PL-CONT SOME dodo-PL-ACC
'They found some dodos.' (Surprisingly...given we had believed them extinct.)
b. **Wakin** loro-kuna rima-nku.
SOME parrot-PL talk-3PL
'Some parrots talk.' (and others are presumed not to talk)

The examples in (50) illustrate another aspect of *wakin*'s presuppositionality. *Wakin* can be used in out-of-the-blue contexts; it does not require familiarity (in the current context) with the particular individuals it is quantifying over. (We do, as stated above, have to be familiar enough with the species (say) to know that it is not extinct and hence can be expected to have existing members.) This is consistent with *wakin*'s status as indefinite but proportional. For instance, in (50b), we do not need to have any parrots in the current context to use this expression felicitously. In this regard, *wakin* is therefore more similar to English stressed SOME than the partitive *some of (the)*.

We now turn to another aspect of the meaning of *wakin*, which is non-universality. This quantifier, while typically translated as 'some' ('algunos' in Spanish), is also often defined by consultants as meaning 'a part'. Thus, when confronted with a situation in which there are only sleeping llamas, consultants will not accept the truth of (51).[50]

(51) **Wakin** llama-kuna puñu-sha-nku.
some llama-PL sleep-PROG-3PL
'Some (of the) llamas are sleeping.' (and some aren't.)

Thus our conclusion is that *wakin* entails not only that 'some are' but also that 'some aren't'. Formally, the denotation of *wakin* is given in (52). Here we capture not only entailments but also the existence presupposition associated with *wakin*.

[50] Here we must be careful about jumping to the conclusion that the non-universality of *wakin* is an entailment and not just a strong implicature, however. For instance, although English *three* is often interpreted as 'exactly three', this is frequently analyzed as a scalar implicature and not an entailment. However, the refusal of our consultants to accept *wakin* other than in situations in which there is a clear communication of a contrast between

(52) ⟦*wakin* A B⟧ is only defined if A ≠ ∅
If defined, ⟦*wakin* A B⟧ = true iff 0 < |A ∩ B| < | A |

Having come this far we are able to associate the quantifier *wakin* with the property of proportionality as elaborated in Keenan (2002) and related work. Here, proportional quantifiers are defined as those quantifiers D satisfying the property in (53).

(53) Keenan (2002: 634), Definition (15)
D is proportional iff DAB = DXY whenever |A ∩ B| / |A| = |X ∩ Y| / |X |

Our denotation of *wakin* in (52) makes *wakin* proportional in this sense. This is because any *wakin* sentence of the form [*wakin* A B] will be true just in case the proportion of A's that are in *A* ∩ *B* is strictly greater than 0 and less than 1.

Before we go on it is worth clarifying this use of proportionality, as this term gets used in different ways in different parts of the literature. In particular, the next two authors we discuss, (de Hoop 1995 and Matthewson 2006) make it clear that for them, the 'not all' aspect of proportionality is paramount. For Keenan, however, what is important is that the proportion of A's in B should determine the truth value of DAB, and this proportion might well be 100%. Thus, *every* is a proportional quantifier for Keenan. In fact, *wakin* fulfills the conditions of both views of proportionality, since it both sets a range of allowable proportions (in fact, anywhere above 0% and below 100%), and contains a strong 'not all' component to its meaning.

We close by briefly comparing *wakin* with two other proportional versions of 'some': Dutch *sommige* 'some' as analyzed in (de Hoop 1995) and St'át'imcets *nukw* as analyzed by Matthewson (2006).

De Hoop's analysis of *sommige* is interesting in the current context because *sommige*, like *wakin* is a version of 'some' that is barred from existential sentences. This is shown in the contrast between (54a) and (54b).

(54) a. **Sommige** eenhoorns zijn wit.
some unicorns are white
'Some unicorns are white.' (de Hoop 1995:426, (17))
b. *Er zijn **sommige** eenhoorns in dit bos.
there are some unicorns in this forest (de Hoop 1995:424, (10))

To summarize de Hoop's analysis in informal terms, for [*sommige* A B] to be true, some but not all elements of A must be in B, and additionally, the members of A ∩ B must share a

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the individuals included in the predicate and the others, who are not, leads us to analyze the 'not all' aspect of *wakin* as an entailment.

property P known to the speaker. That is, the collection of elements of A picked out using *sommige* cannot be arbitrary from the point of view of the speaker.

Comparing de Hoop's analysis with (52) we see that *wakin* and *sommige* are similar in that each requires that the restriction of the quantifier strictly contain the (nonempty) set which is a subset of the predicate set. However, *sommige* also requires that the proper subset be united by some additional property. We have not found evidence that this requirement is relevant for Quechua *wakin*. In Dutch, it appears that this property condition is what excludes *sommige* from existential environments. Matthewson (2006) interprets the condition on Dutch existential contexts in terms of familiarity, since partitives that lack a property condition are acceptable in existential contexts. In Quechua, however, *wakin* is excluded from existential contexts despite the fact that it presupposes only the non-emptiness of its restriction set.

We now turn to the case of St'át'imcets *nukw*. According to the analysis in Matthewson (2006), *nukw* carries a presupposition of proportionality, but based on its distribution is not itself a quantifier. An illustration of *nukw* is given in (55), where the glosses indicate the association to the meaning of English some.

(55) q'aylec tu7 [i **núkw**-a sk'wemk'úk'wmi7t]
run.away then DET.PL nukw-DET children
'Some/some other/some of the/the other children ran away.' (Matthewson 2005:1, (2))

Nukw is of interest to us here because it shares with *wakin* the properties of presupposing the non-emptiness of its restriction, and of not requiring familiarity with particular contextually prominent individuals (Matthewson shows that *nukw* can be used in out-of-the-blue contexts). Syntactically, *nukw* is analyzed as an element which combines with a determiner to form a complex determiner. The semantic contribution of *nukw* proposed by Matthewson is that it introduces the presupposition that the individuals picked out by the (simplex) determiner in combination with the noun restriction represent a proper subset of the complete set of individuals satisfying the restriction.

Again we compare with *wakin*: *wakin* is itself quantificational; unlike *nukw* it appears in syntactic positions associated with other quantifiers. Furthermore, we have encoded the 'not all' aspect of *wakin*'s meaning into its truth conditions, while Matthewson analyzes *nukw* as leading only to an implicature of non-universality. On the other hand, both *nukw* and *wakin* presuppose the non-emptiness of their restriction.

One aspect of the meaning of *nukw* that Matthewson focuses on is its ability to translate English 'other' in contexts such as that already shown in (55). *Wakin* is sometimes also used to encode English 'other', as illustrated in (56). Note that in (56b) the first clause shows clearly that a contrast with an already-familiar set is not an aspect of *wakin*'s meaning, as is the case for English 'other'.

(56) a. Qan-kuna qarpa-ychis, **wakin**-taq qurachu-nku.
you-PL water-2PL some-CONTR weed-3PL
'You water, the others weed.' (Here it is only an implicature that we have exhausted all of the individuals available to work. It is possible to continue with further *wakin*-quantified groups, doing other types of work.)
b. **Wakin**-kuna puklla-sha-nku, **wakin**-taq puñu-sha-nku.
some-PL play-PROG-3PL some-CONTR sleep-PROG-3PL
'Some are playing, others are sleeping.'

A final point in connection with *wakin*, *sommige* and *nukw* is that these three elements highlight the ways in which conditions on acceptability in existential contexts differ across languages. We have already mentioned that *wakin* and *sommige* are unacceptable in existential sentences in Quechua and Dutch respectively. The reasons for this are not the same, however, as already mentioned. While Quechua prohibits quantifiers which presuppose non-empty restrictions in existential 'have'-and 'be'-sentences (*-yuq* and *kan* respectively), Dutch appears to prohibit *sommige* due to its shared property requirement. On the other hand, in St'át'imcets, *nukw* is permitted in existential sentences, as shown in (57).

(57) wá7 [i núkw-a sqweyíts] 1-ta lep'cálten-a
be [DET.PL nukw-DET rabbit] in-DET garden-DET
'There are some rabbits in the garden.' (Matthewson 2006, (22a))

Matthewson points out that data like (57) show that, since *nukw* is presuppositional, this condition alone is clearly not enough to rule a noun phrase out of existential contexts in St'át'imcets. Thus, Quechua differs from both Dutch and St'át'imcets with respect to the constraint on noun phrases in existential sentences.

6 CONCLUSION AND OPEN ISSUES

This paper has sought to identify classes of quantifiers in CQ by evaluating empirical data in light of some semantic categories known to be relevant cross-linguistically. Table 1 summarizes our main empirical findings (omitting some of the finer points discussed in the text).

	exist. constr.	pred.	AP mod.	VP mod.	distr. key of *-nka*	distr. share of *-nka*	distr. key of *-kama*	distr. share of *-kama*	pers. infl.
llapan ‘every/all’	–	–	–	–	+	–	+	–	+
lliw ‘every/all’	–	–	+	+	+	–	+	–	–
tukuy ‘every/all’	–	–	+	+	+	–	+	–	–
sapanka ‘each’	–	–	–	–	+	–	?	–	+
wakin ‘SOME’	–	–	–	–	+	–	–	–	+
mayqin ‘which’	–	–	–	–	+	–	–	–	+
kinsantin ‘the three’	–	–	–	–	+	–	+	–	+
huk ‘one’	+	+	–	–	–	+	–	+	+
iskay ‘two’	+	+	–	–	+	+	–	+	+
kinsa ‘three’	+	+	–	–	+	+	–	+	–
hayk’a ‘how many’	+	+	–	–	+	+	–	+	–
pisi ‘(a) few / little’	+	+	–	+	+	+	–	+	–
askha ‘many’	+	+	–	+	+	+	–	+	–

Table 1: The CQ quantifiers in empirical constructions

As in many other languages the division into ‘strong’ and ‘weak’ quantifiers based on existential contexts provides an important starting point for our classification. We have characterized the relevant distinction in Quechua as the presence/absence of a presupposition of a non-empty restriction, but other theoretical categories could be used to generate the same

breakdown. In particular, the weak quantifiers in CQ are also the cardinal ones. Empirically, weak quantifiers turn out to be those that can function as predicates and can quantify over distributive shares. Strong quantifiers are those which can receive person/number inflection. Table 2 summarizes our classification of the CQ quantifiers in terms of the semantic properties discussed.

	weak	strong	cardinal	presuppositional	proportional	definite
llapan ‘every/all’	–	+	–	+	+	–
lliw ‘every/all’	–	+	–	+	+	–
tukuy ‘every/all’	–	+	–	+	+	–
sapanka ‘each’	–	+	–	+	+	–
wakin ‘SOME’	–	+	–	+	+	–
mayqin ‘which’	–	+	–	+	–	–
kinsantin ‘the three’	–	+	–	+	–	+
huk ‘one’	+	–	+	–	–	–
iskay ‘two’	+	–	+	–	–	–
kinsa ‘three’	+	–	+	–	–	–
hayk’a ‘how many’	+	–	+	–	–	–
pisi ‘(a) few/little’	+	–	+	–	–	–
askha ‘many’	+	–	+	–	–	–

Table 2: The semantic properties of CQ quantifiers

However (and also as in many other languages), various subtleties arise upon closer inspection and this is where things get interesting. We conclude this paper by highlighting

some of these cases and pointing out questions that remain open.

To begin with distributivity, we have shown that CQ's two distributive suffixes (*-nka* and *-kama*) are similar to known distributive constructions such as that involving binominal each in English in that they place a restriction (in this case to weak/cardinal quantifiers) on the distributive share. However, the two suffixes are quite different in the restrictions they place on the distributive key: essentially none (beyond plurality) in the case of *-nka*, but a restriction to a universal (or definite) distributive key in the case of *-kama*. The precise semantics of these suffixes needs to be analyzed to understand the source of this difference.

In our study of universal quantifiers we have only gone partway towards distinguishing the four universals in this study. *Sapanka* was found to be the only inherently distributive universal, and as such followed standard patterns except in that it is compatible with plural restrictions–another mystery. *Lliw* and *tukuy* could be distinguished from *llapan* on the bases of certain empirical facts (in particular, only *llapan* is limited to nominal uses, and can be inflected for person and number). But we have yet to develop a principled explanation for these differences.

When we compare CQ with English, we find that two quantifiers which are weak in English are classified as strong in CQ. These are *mayqin* 'which' and *wakin* 'some'. Both of these quantifiers presuppose the non-emptiness of their restriction and are excluded from existentials, predicates and distributive shares. We investigated *wakin* in some detail and found that it is proportional, both in the sense that the truth value of [*wakin* A B] depends on the ratio $|A \cap B| / |A|$, and in the sense that it requires some A's to not be in B. Given these facts it becomes unsurprising that it patterns with strong quantifiers. Rather more surprising, and a topic for future research, is the behavior of *mayqin*. This quantifier, too, follows the distribution of a strong quantifier. However, though presuppositional, it is not proportional and in fact we are unaware of differences from English which on the level of basic denotation. Like English *which*, it is intersective. According to Keenan's analysis (2002 and previous work), *which* as an intersective (though not actually cardinal) quantifier is allowed in existential environments, at least under some interpretations of the data. This shows that intersectivity has differing import in the two languages.

To pursue the cases of *mayqin* and *wakin* a bit farther, we close with some intriguing data that further serve to distinguish these two quantifiers from the others. We have seen that in CQ there is an optional plural suffix, *-kuna*, which forces a plural interpretation on nouns. Thus, *irqikuna* unambiguously refers to two or more children. This suffix can also attach to nouns modified by a quantifier as in (58).[51]

[51] Lefebvre (1975:64,66) found that when plurality was already encoded through a quantifier, the associated noun was less likely to be marked overtly with a plural suffix. Our consultants are all happy with both (58) as well as with *kinsa irqi* without the plural marker. Moreover, such examples also occur in natural text, see e.g. (i).

(58) **kinsa** irqi-kuna
three child-PL
'three children'

All quantifiers (with the exception of *huk* 'one', for fairly obvious reasons) allow plural marking on the noun they modify. However, only *wakin* and *mayqin* allow *-kuna* to attach to them directly when they occur without a noun:[52]

(59) wakin-kuna / mayqin-kuna
SOME-PL / which-PL

At this point, our only means to distinguish these two quantifiers from the rest on theoretical grounds is by identifying them as the non-universal presuppositional (strong) quantifiers. This seems unsatisfactory as a characterization of this empirical class. Indeed, these plural facts seem to point to a significant difference in the syntax and/or semantics of these quantifiers, that may also shed light on the contrasts with the behavior of their English equivalents discussed above.

What is perhaps most intriguing about CQ quantifiers from a cross-linguistic perspective is their ability to be inflected. We have shown that this is only possible with presuppositional quantifiers, and that CQ possesses a device, the suffix *-nti*, to turn the non-presuppositional numerals into presuppositional ones and then licenses inflection. Quantifiers in other languages, e.g. German or Dutch, can also be inflected, but to our knowledge, inflection in these languages only serves the purpose of morphological agreement. In CQ in contrast, the inflection has semantic import.

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(i) . . . tawa mula-kuna-n trampia-ta aysa-q . . .
four mule-PL-FOC tram pull-AG
'four mules pulled the tram' (Espinoza 1997:24)

[52] One consultant also suggested that *hukkuna* may be acceptable when *huk* is used as an indefinite marker.

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