

Bilingual children's object agreement and case marking in Cusco Quechua¹

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In what ways does feature transfer from L1 Quechua influence bilingual children in their construction of an L2 Spanish grammar? In what ways does contact with L2 alter L1? Based on a pilot study of Quechua sentence comprehension and production in Ccatcca, Peru, and building on our Spanish fieldwork in Bolivia we answer that because Quechua allows a null third person object agreement morpheme to be co-indexed with definite, specific locations and directional movement as well as persons, children generate a superset of agreement features in their L2 Spanish that is difficult to retreat from in the absence of negative evidence. As for changes to L1, we discuss the syntactic significance of borrowing Spanish verb roots, the emergence of underived verbs and nouns, and changes in word order. We compare our results to Van de Kerke's corpus study of underived verbs in Quechua (1996) and Sánchez' (2003) study in Lamas.

1 Introduction

Compared to many indigenous languages of the Americas, a great deal is known about the grammar of Quechua, the language of the Inca empire. Linguistic dominance of Quechua over other indigenous languages has been reinforced to this day by European and other imperial powers seeking a general indigenous language. Our focus here is Cusco-Quechua, spoken from south central Peru to southern Bolivia and in northern Argentina. This language is part of the Quechua IIC family according to a taxonomy developed by Torero (2002.) Both Peru and Bolivia have taken steps to recognize Quechua as a national language and as a language of instruction since the 1970's, but this effort encounters many obstacles.

Despite its widespread use, Quechua is declining and documentation of its properties is becoming urgent. According to the Peruvian Censo nacional de población y vivienda (2007:2.4.1.) declaration of Quechua as the language learned in childhood declined 3.3 percent between 1993-2007; down from 16.6 to 13.2 percent nationally. If we are serious about documenting not only general properties of endangered languages, but also fine points of mental representation and child language acquisition, there is no time to lose.

We situate the current study in a line of experimental tradition that places all human languages on equal footing. We define "grammar" not in a prescriptive sense as rules to be learned in school, but rather as the unconscious

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knowledge that allows an individual speaker to understand the speech of her community and generate sentences that can be recognized as correct within the community. An important substrate of grammar is held to be innate and universal, greatly constraining the class of possible human grammars (Chomsky 1995.) From this standpoint, a major task when acquiring a language is to discern the set of abstract features and functional categories which are associated with lexical items heard in everyday speech, as these have consequences for sentence structure. For example, the meaning and use of inflectional morphemes which correspond to the subjects of verbs are acquired very early by native speakers; it has been claimed that knowing these morphemes correlates with the licensing of null subjects and a host of other clustered properties in an Italian child's grammar (Hyams 1986.)

The idea that mastering the grammar of inflectional morphology is central to mastering sentence structure was developed first by Hagit Borer (1984) and has spawned a great deal of experimental research on children acquiring subject-verb agreement, direct and indirect object agreement in languages as diverse as English, Spanish, French and Quechua; see Kalt (2002) for a review of the relevant literature. Work by Camacho, Paredes and Sánchez, and Kalt, carried out independently in Peru and Bolivia respectively, has focused on the acquisition of Spanish object agreement and case morphology where the first language is Quechua. This work employs controlled psycholinguistic experiments to assess the interaction of universal principles and language-specific features in the bilingual child's mind.

1.1 Preliminary observations

Spanish is canonically SVO while Quechua is SOV with free word order in main clauses; Quechua is furthermore classified as an agglutinative/polysynthetic language, making heavy use of morphological case to indicate grammatical function. The Spanish object clitic system fuses morphological case and agreement, while in Quechua these are discrete. Third person object agreement is phonetically null in Quechua. The object agreement paradigm is as follows:

Table 1: Southern Quechua object agreement suffixes

4 person	3 person	2 person [1>2]	2 person [3>2]	1 person
- Ø 'you and me'	- Ø 'him/her'	-yki 'I to you'	-sunki 'he/she to you'	-wa 'me'

We follow proposals by Masullo (1992) and others that Spanish dative clitics spell out agreement features occupying a functional head above the main verb phrase in Spanish; we extend this same analysis to Quechua based on distribution facts, affectedness and case contingencies (Kalt 2002:50-57.)

2 Hypotheses and findings in Kalt 2000 and 2002

In 2000 we tested various hypotheses of L2 feature transfer by analyzing the production of non-direct object clitics in the speech of Quechua-speaking adults from a corpus collected by Sánchez and associates in a Peruvian market (1997.) We found a number of target-like dative clitics doubling objects with the thematic roles goal, source and experiencer. We also found that these adults had assigned target-like adjunct status to prepositions such as *dentro*, *hacia* and *encima de* (within, to, on top of, respectively) and did not double arguments predicated of them. We attributed this to a universal property of the human mind:

economy conditions dictate that the closest predicate is the preferred case assigner of an argument, prohibiting the formation of a chain above the adjunct.

There were two thematic contexts in the corpus where clitic doubling was non-target-like: the locative and possessor contexts. We found examples such as 2.1 and 2.2 respectively (co-indexing subscripts suggests common reference²):

- 2.1 el perro **lo**_i metió la cabeza al **frasco**_i
 the dog itACC_i put the head to the bottle
 “The dog put its head in the bottle”
- 2.2 luego el niño se agarrándole_i el cuerno del **venado**_i, se
 va velocidad
 then the child REF clinging-itDAT_i the horn of the deer, REF
 goes speed
 “then the boy, clinging to the horn of the deer, goes away quickly”
 (Kalt 2000:236-7)

Since suppliance of these forms was extremely small and reference of the clitics somewhat questionable, we decided to conduct a more targeted investigation of Quechua speaking children’s acquisition of locative and possessor object pronouns in Spanish with a large enough population so as to be statistically significant.

Our own fieldwork on object agreement and case in bilingual Quechua-Spanish began in 2000 in South Bolivia. Our central question was: how do monolingual and bilingual children interpret locative and possessive pronominal object markers in Spanish? We included reflexive as well as oblique object markers since an ample literature exists on acquisition of these elements. We assumed that since both languages instantiate pronominal object agreement, if feature transfer exists at all, transfer from Quechua should facilitate interpretation of Spanish pronominal object markers in sentences such as the following:

- 2.3 Ana ujut’a-ta (**José**-man_i) chura- ϕ _i-n. (Quechua)
 Ana sandal-ACC (**José**-DAT_i) put-3OBJ_i-3SUBJ
 “Ana puts the sandal on him.”
- 2.4 Ana **le**_i pone la sandalia (a **José**_i) (Spanish)
 Ana 3DAT_i puts the sandal (to **José**_i)
 “Ana puts the sandal on him.”

In sentences 2.3 and 2.4, the third person object pronoun correlates with a non-direct object that would receive dative case marking should it be overtly expressed. We refer to these sentences as dative locatives, or simply, locatives. In Standard Spanish, dative locatives tend to express a container-containee or part-whole relationship and have an affected interpretation, (Juan Romero Morales, p.c.) as do other participants in the larger class of dative clitic doubled constructions (Masullo, 1992.)

We also assumed that feature transfer from Quechua would play a facilitative role in the interpretation of possessive sentences such as the following, but that the case mismatch between the two languages might make these slightly more difficult to interpret than the locatives above:

² Legend for glosses: ACC=accusative, ASST=assertive, BILOC=locational, CAUS=causative, DAT=dative, GEN=genitive, INC=inceptive, OBJ=object, POSS=possessor, PROG=progressive, SUBJ=subject, SURP=surprise,

2.5 Ana (**José**-pa_i) chukcha-**n**_i-ta rutu-**ϕ**_i-n. (Quechua)
 Ana (**José**-GEN_i) hair-3POSS_i-ACC cut-3**OBJ**_i-3SUBJ
 "Ana cuts José's hair"

2.6 Ana **le**_i corta el pelo (a **José**_i) (Spanish)
 Ana 3DAT_i cuts the hair (to **José**_i)
 "Ana cuts José's hair"

In Quechua we note that the object pronoun is co-indexed with an object in genitive case, while in Spanish it is coindexed with a possessor object marked with dative case; in Standard Spanish one would not say

2.7 Ana le corta su pelo **de** José
 Ana 3DAT cut-3SUBJ 3POSS hair **GEN** José
 "Ana cuts José's hair"

This may be attributed to the fact that in Standard Spanish *de* functions as an adjunct. However, in varieties of Spanish in close contact with Quechua, sentences resembling 2.7 are frequently heard, as discussed in Escobar (1994) and Camacho, Paredes and Sánchez (1995.) We observe that in contact varieties, *de* cannot be considered an adjunct because it does not block the agreement relation between the possessor argument and the object clitic; it behaves more like the case assigner *a* in Standard Spanish.

3 Experimental task and design of Kalt 2002

3.1 Population

We chose the department of Sucre in South Bolivia for the initial site of our field research on bilingual children's grammar in order to ensure that we were truly looking at children who had spoken Quechua exclusively at home before entering school without excessive code mixing with Spanish (as in Cochabamba) and outside of the sphere of Aymara linguistic influence (as in Oruro and La Paz.) Our bilingual subjects came from four schools ranging from very rural to urban-peripheral areas and parents were mainly subsistence farmers and manual laborers. The 84 bilingual children's ages ranged from 6 – 14 years. The control group consisted of 16 monolingual Spanish speakers ages 6-10 in the cities of Cochabamba and Sucre; these children were middle class, and we made sure that none had Quechua-speaking family members or servants in their homes.

3.2 Instrument

The instrument was modeled after one created by Deutsch, Koster and Koster (1986) to test children's knowledge of anaphoric binding of reflexive and oblique pronouns in child Dutch. Their task consisted of a combined picture selection and description task which is especially useful for probing children's comprehension as well as production of sentences involving pronominal anaphors. We modified the task to probe knowledge of locative and possessive clitic pronouns, and commissioned drawings to conform to the racial, cultural and experiential characteristics of Andean children.

The picture sets introduce a brother and sister, Ana and José, engaged in familiar activities in the rural Andes. Three pictures on each page exhibit minimal contrasts among an action upon oneself, action upon another person, or action in relation to an inanimate object or place. We alternated instances in which Ana and José were the sentential subjects and randomized position of correct choices on the page; we also divided the task in half and administered it in

two different orders at random. The Spanish sentential test design is found in the Appendix and the full picture selection task is available online in Kalt (2002: 215:232.)

3.3 Experimental procedure

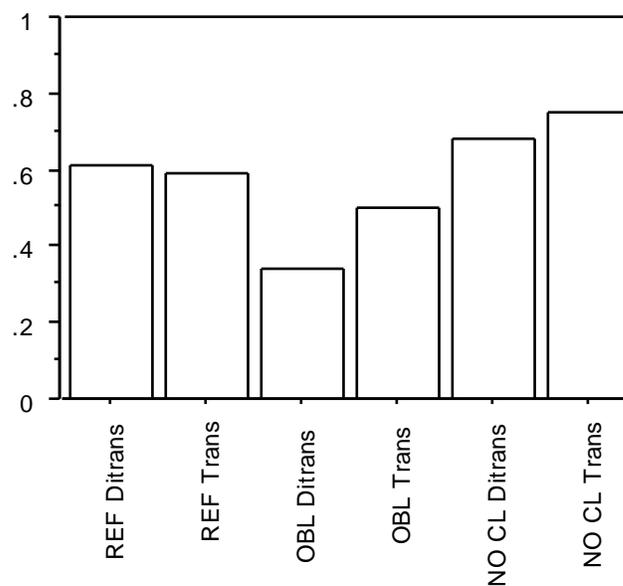
Children were called from their classes to look at the pictures with the interviewer in a separate room one by one. After getting comfortable with the recording devices and answering questions about name, age, grade and language use at home, they completed a brief pretest and began the test itself. The test procedure consisted of hearing a (taped) stimulus sentence uttered by a native speaker and pointing to the picture that corresponded to it. The interviewer then asked the child what the actor was doing in each of the other two pictures on the page. Selection data were recorded manually and production data were transcribed from an audio recording after test administration.

Although production data were elicited, we used them only as a check on interpretation in Kalt 2002, feeling that more empirical information about the children's L1 was needed before analysing the Spanish production data. The current study is a step toward amassing that information. All selection data were submitted to tests of statistical significance and multivariate analysis where appropriate.

3.4 Picture selection results and conclusions, Kalt 2002

Monolingual children's interpretation of object markers was almost perfect from the earliest age tested. Bilingual children's interpretation was passable with reflexive objects (marked by *se*) and below chance on oblique objects (marked by *le*.) This is represented in figure 1 below:

Figure 1: Bilingual children's correct picture selection results in Spanish (Kalt 2002)



We noted that performance on interpreting the reference of oblique clitics (*le*) was close to chance, while children did significantly better interpreting

reflexive pronouns (*se*) and even better with non-pronominal objects. There was significantly better performance on transitive (possessive) sentences than on ditransitive (dative locative) sentences according to a post hoc Tukey Kramer procedure. The difference between reflexives and non-pronominal objects was not statistically significant, but overall scores between reflexives and obliques were significantly different, with performance on reflexives generally better than that on obliques except in the youngest group.

We concluded that this population had not yet acquired the native-like feature specification associated with the third person oblique object as it should have if feature transfer were operative in early stages of exposure to L2. Furthermore, the superior performance on possessive vs. dative locative sentences led us to rule out feature transfer as a primary mechanism in this group's grammatical development. A discussion of reflexive vs. oblique results is beyond the scope of this paper but appears in Kalt 2002.

4 Current design and population

For the current pilot study of bilingual children in their native Quechua, we had very brief access to a community in Ccatcca, Perú, a community 70 km outside Cusco. The population tested was small (n=12) and children ranged in age from 7-12 years; their grades in school were first to sixth grade.

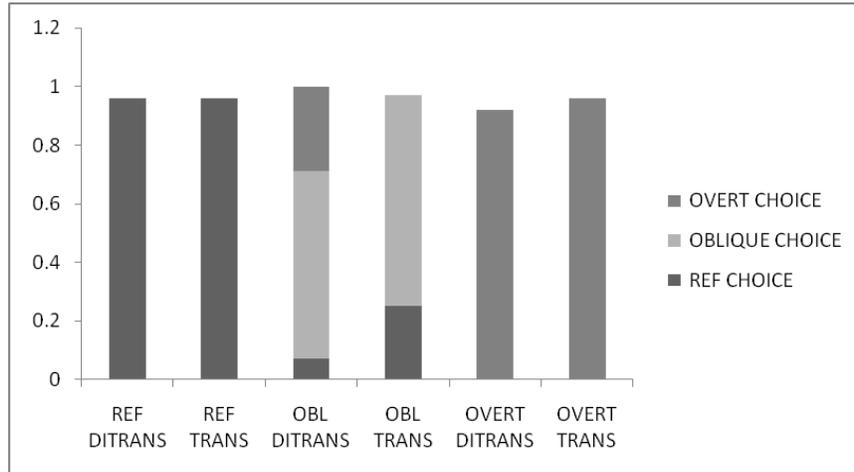
Children in Ccatcca speak Quechua exclusively until entering school, and they encounter Spanish in school by immersion. Their parents are engaged in similar occupations to those of their rural Bolivian counterparts. Therefore we assumed that these children belong to essentially the same linguistic and cultural population as the one in South Bolivia, and that the pictures created for South Bolivian children should be appropriate for this group as well. We used the same pictorial instrument and translated the stimulus sentences into Quechua, to probe their knowledge of object and case marking in L1. The hypothesis we tested with the picture selection task was that children should perform as well in their L1 as monolingual Spanish speakers do in their native language.

Our experimental procedure was nearly identical to that employed in South Bolivia: a native speaker of Cusco Quechua uttered a sentence corresponding to one of three pictures on a page, eg. *José chumpata puñunapataman churan* - "José puts the sweater on the bed." The child pointed to which picture best corresponded to the sentence, as opposed to pictures in which José puts the sweater on himself or on Ana. The interviewer then elicited a description of the other two pictures on the page. We recorded and transcribed the entire task, this time with video as well as audio.

4.1 Picture selection results and implications

We assumed that Quechua speaking children taking a test in their native Quechua would choose only one correct answer for each stimulus type. However, this group had surprising results in both of the oblique pronominal contexts, as shown in figure 2 overleaf:

Figure 2: Bilingual children’s correct picture selection results in Quechua



The above results indicate that the Quechua-speaking children allowed a wider range of interpretations than expected for the contexts that were designed to correspond to oblique locative and possessor clitics in Spanish. Post hoc tests in Quechua with adults showed that these interpretations were allowed in the adult grammar as well; children gave correct selections in virtually all contexts. In the Appendix, one can compare the sentence design in Spanish and Quechua respectively to see that Quechua contains multiple ambiguities in the oblique contexts, which Spanish does not. During the post hoc tests we discovered that Quechua resolves some of the ambiguities by requiring more specific verbs than Spanish does for the actions depicted; for example, there are different verbs for washing plates, body parts, and clothes; there are different verbs for cutting fibrous things such as hair, vs. solids such as paper.

Once we were aware of the multiple ambiguities in the oblique contexts, the comprehension results in our table above showed us that these Quechua-speaking children did in fact resemble the monolingual Spanish-speaking children in the sense that they chose all and only the correct answers allowed in their native language. These pilot data demonstrate the need to build a finer-grained analysis of third person object and reflexive constructions in Quechua than was assumed in Plaza (1987) and Kalt (2000, 2002.) Feature specification of the third person object agreement morpheme should include non-human antecedents, including locations and directional movement. Independent evidence that this analysis is correct come from Godenzzi (p.c.) who has been working on an analysis of the Andean Spanish clitic *lo* that includes non-human, locative antecedents.

4.2 Experimental hypothesis formation and language acquisition: the subset principle revisited

The bilingual Spanish data alone were not sufficient to dispel our mistaken assumption that the feature specification of object agreement in Quechua and Spanish is essentially the same, because Quechua agreement features form a superset of Spanish features for third person objects. Therefore, there was no reason to retreat from our hypothesis (no negative evidence) until we ran the experiment in Quechua and found children accepting a wider range of sentence interpretations than we had anticipated as being correct.

The subset principle was proposed by Borer and Wexler (1987) to account for part of the logical problem of language acquisition, namely that children acquire language in the absence of explicit negative evidence. The proposal was essentially that children assume the simplest possible language-specific parameters until positive evidence leads them to reset. The idea that parameters fall into nested relations has been challenged on empirical grounds, see Becker (2005.) Nevertheless, within the restricted context of third person object agreement in Andean Spanish, it seems a plausible explanation for why the bilingual children we tested in South Bolivia allowed a wider range of interpretations than expected for oblique *le* in their L2. When our Quechua pilot study is replicated on a larger scale we will be in a position to make a statistical comparison of comprehension results among bilingual children in Quechua and Spanish.

5 Influences of L2 Spanish on L1 Quechua

As mentioned in the introduction, use of Quechua in childhood is declining at an alarming rate in the Andes. The picture description portion of our experiment provides an opportunity to explore the extent to which Spanish has influenced Quechua structurally as well as lexically, and particularly, how robust the production of Quechua morphology is among children in Ccatcca.

5.1 The syntactic significance of lexical borrowing

The literature is divided regarding the syntactic significance of lexical borrowing of major constituents (nouns and verbs) from Spanish into Quechua. On the one hand, Van de Kerke (1996:73) conducted a corpus analysis of the transcribed speech of a monolingual adult speaker of Cusco Quechua, Gregorio Condori Mamani, who borrowed verb roots from Spanish 30% of the time in a four-hour taped corpus. Van de Kerke found that in sentences with verb roots borrowed from Spanish, the speaker tended to omit Quechua derivational affixes 49% of the time, while omitting them with Quechua verbs only 28% of the time. We imagine that the syntactic impact of omitting derivational affixes must be of great significance in an agglutinative language; Van de Kerke lists seven derivational affixes which change the case or theta grid of the verb (Van de Kerke 2006: 15-16.) These affixes with syntactic consequence are causative *-chi*, assistive *-ysi*, reciprocal *-na*, reflexive *-ku*, bi-locational *-mu*, benefactive *-pu*, and desiderative *-naya*.

On the other hand, Sánchez (2003) cites work by Pieter Muysken on a Quechua-Spanish variant called *Media Lengua* as evidence that a community may completely relexify a language without essential changes to syntax. Sánchez attributes the stability of Quechua syntax in *Media Lengua* to the continued use of Quechua affixal morphology on Spanish roots and infers that abstract functional structure has remained stable. Therefore we conclude that borrowing of verb or noun roots alone is not sufficient to cause syntactic change. Nevertheless, a combination of verb root borrowing, omission of derivational morphemes, and word order changes do indicate that structural change is underway. We will look at all three in turn.

5.2 Lexical borrowing in Ccatcca

As children in Ccatcca described the pictures on each page, they produced a total of thirty verbs. Only eight of these were repetitions of the verbs used by the interviewer. Of these thirty verbs, only four (13%) were borrowed from Spanish roots, as shown in the Appendix. In other words, they borrowed verbs with much less frequency than Gregorio Condori Mamani.

5.3 Use and omission of affixal morphology by Ccatcca children

It is difficult to imagine how one would measure omission of verbal derivational affixes in a production task without reading the mind of the child. However, we found that of Van de Kerke's seven derivational affixes with syntactic consequences, Ccatcca children used reflexive *-ku* over 150 times, causative *-chi* 13 times, and bi-locational *-mu* twice, productively and meaningfully. In addition, children used the following evidential morphemes³:

5.3.1 Q'ipi-ku-chka-n-**má**
 bundle-REF-PROG-3SUBJ-SURP
 "She's putting the bundle on!"

5.3.2 Maki-n-**mi** hich'a-chka-n kolynos-ta
 hand-3POSS-ASST put-PROG-3SUBJ toothpaste-ACC
 "He's putting toothpaste on his hand I'm sure"

One child also used the inceptive morpheme *-ri* which may indicate a softened question, a socially acceptable way to carry out an action, or that the action or state was just beginning or carried out for a short time. We are not sure which function was intended in the following sentence; here we gloss *-ri* as "right":

5.3.3 Pampa-man ka-chka-**ri**-n.
 ground-DAT be-PROG-INC-3SUBJ
 "It's right on the ground."

We conclude that this group of children continues to use Quechua verbal derivational morphology productively and meaningfully. However, we also note that in four out of seven instances where Spanish roots were borrowed, affixal and word order changes emerged, as shown in figure 3 below (italics are for Spanish roots.)

Table 2: Utterances with roots borrowed from Spanish
 Q=Quechua, S=Spanish, WO=Word order

Utterance	Affixes	WO
<i>Liyi</i> -chka-n read-PROG-3SUBJ "He's reading" (Joas 3B)	Q	n/a
<i>Carka</i> -chka- ϕ -n carry-PROG-3OBJ-3SUBJ "He's carrying it/She's loading him" (Maribel 6B)	Q	n/a
<i>Cubri</i> -ku-chka- ϕ -n cover-REF- PROG-3OBJ-3SUBJ "She's covering it for herself" (Gloria 5A)	Q	n/a
<i>Corta</i> -chka- ϕ -n <i>papel</i> -ta cut- PROG-3OBJ-3SUBJ paper-ACC "He's cutting paper" (William 3B)	Q	VO
<i>Corta</i> -mu-chka- ϕ -n chukcha-n-ta cut-BILOC-PROG-3OBJ-3SUBJ hair-3POSS-ACC "She's cutting her hair toward us so we can see it" ⁴ (William 3C)	Q	VO

³ For an interesting psycholinguistic experiment on Quechua speaking children's acquisition of evidential morphemes in L1, see Courtney (2008.)

⁴ Glossed with help of Alfredo Quiroz Villarroel.

Table 2: (continued)

Utterance	Affixes	WO
Ahh <i>papi_papil</i> -ta <i>corta</i> -chka- ϕ -n-mi uh pa_ paper-ACC cut- PROG-3OBJ-3SUBJ-ASST “uh... he’s cutting paper I’m sure” (Alan 3B)	Q ⁵	OV
<i>Papel corta</i> -chka- ϕ -n paper cut- PROG-3OBJ-3SUBJ “he’s cutting paper” [Note: <i>papel</i> is missing accusative case] (Reynaldo 3B)	Q	OV

Of the seven utterances above, three were simple inflected verbs. Spanish VO word order was used in two of the four utterances where word order was relevant. We note that all of the utterances contained Quechua affixes on Spanish verbs, but there was one instance of missing accusative case on a borrowed noun. A larger corpus is needed to draw any statistically significant conclusions.

5.4 Comparison with Lamas and Ulcumayu Quechua

Sánchez found that in Lamas and Ulcumayu Quechua, children have begun to omit the required accusative marker *-ta*, to insert determiners (Quechua has none) and to exhibit Spanish word order. (2003) In Ccatcca we found the following eight examples of missing accusative case on the overt object. Of these, only the last one had VO word order. Accusative objects are in boldface:

- 5.4.1 **Uma-n** llami-ku- chka- ϕ -n
head-3POSS touch-REF-PROG-3OBJ-3SUBJ
“He’s touching his own head” (Humberto 8C)
- 5.4.2 **Chaki-n** maklli -chka- ϕ -n
foot-3POSS wash- PROG-3OBJ-3SUBJ
“He’s washing his foot”
[picture denotes reflexive action] (Alejandra 11B)
- 5.4.3 Jose **chaki-n** maqch’i-ku -chka- ϕ -n
José foot-3POSS wash-REF- PROG-3OBJ-3SUBJ
“José is washing his own foot” (Rodrigo 11B)
- 5.4.4 Jose **chaki-n** maqch’i -chka- ϕ -n-mi
José foot-3POSS wash- PROG-3OBJ-3SUBJ-ASST
“José is washing her foot I’m sure” (Rodrigo 11C)
- 5.4.5 Jose mama-n-man **sunburu** chura-chka- ϕ -n
José mother-3POSS-DAT hat put- PROG-3OBJ-3SUBJ
“José is putting a hat on his mother” (Rodrigo 14C)
- 5.4.6 **Chaki-n** Ana-q-ta maqch’i-chka- ϕ -n José
foot-3POSS Ana-GEN-ACC wash- PROG-3OBJ-3SUBJ José
“José is washing Ana’s foot” (Julia 11C)

⁵ Immediately previous utterance from this child was completely in Spanish; then interviewer asked him to speak in Quechua.

5.4.7 **Papel** corta -chka- ϕ -n
paper cut- PROG-3OBJ-3SUBJ
“he’s cutting paper” (Reynaldo 3B)

5.4.8 Ana-q ladu-n-pi hich’ayu -chka- ϕ -n unu
Ana-GEN side-3POSS-in pour-PROG-3OGJ-3SUBJ water
“He’s pouring water into Ana’s side” (Alan 16A)

We also found two instances of missing dative and comitative case:

5.4.9 **Jose** chura -chka- ϕ -n (William 15C)
José put-PROG-3OBJ-3SUBJ
“She’s putting it on José.”
[should be Jose-man, Hipólito Peralta Ccama]

5.4.10 **Jose** q’ipi-chi -chka- ϕ -n (Juan 6B)
José carry-CAUS-PROG-3OBJ-3SUBJ
“She’s making him carry it.”
[should be Jose-wan, Pedro Plaza Martínez]

These results constitute evidence of missing nominal affixation which may eventually lead to deeper structural change.

5.5 Emergence of Determiners

Sánchez found that *suk*, the number one, is being used as a determiner in her corpora. We looked for instances of *huk* (the number one in Cusco Quechua) being used as a determiner, but found only a false start:

5.5.1 *Huqa*, chura- chka- ϕ -n
“huqa,” put-3PROG-3OBJ-3SUBJ
“She’s lift, putting it there” (Mariana 6C)

This child seems to intend to say *huqarichkan* “she’s lifting it” and changes to *churachkan* “she’s putting it there.” Another child said *huqarichkan* in this context.

5.6 Word order changes

We counted instances of VO word order in the Ccatcca corpus and found that of 302 sentences with an overt object and verb, 22 sentences (7%) followed this pattern. Since VO order is not ruled out in Quechua we would need to compare this number to a monolingual standard in order to make frequency comparisons; no claims are made here.

6 Conclusions

We conclude that in areas of contact between Cusco Quechua and Spanish, children may be reconfiguring the Spanish featural system to include a third person object pronoun that includes locations and directional movement as well as human antecedents. In the future, a larger population sample will allow us to make statistically significant comparisons of bilingual children's performance in Quechua and Spanish.

In Kalt (2002) we concluded that Quechua-speaking children's performance on the picture selection task in Spanish was not the result of feature transfer from Quechua. The results of the current pilot study suggest that some form of feature transfer from Quechua may play a larger role in the early L2 Spanish grammar than was previously noted.

Other important findings here include evidence that even in communities where Cusco Quechua is spoken predominantly by adults in a variety of home and civic contexts, bilingual children's Quechua speech shows influence from Spanish. These take the form of lexical borrowing, changes from OV to VO word order, and the occasional dropping of required accusative, dative and comitative case affixes. We take this as evidence of Sánchez' functional convergence hypothesis (2003) summarized as follows: where functional feature specifications have changed away from the monolingual standard in a language contact situation, it is due to the frequent activation of features not shared by the two languages. Lexical borrowing is not a sufficient condition for syntactic change, but as Van de Kerke points out, it may set the stage for the dropping of derivational affixes which does in fact have syntactic consequences.

In other ways the Ccatcca children's Quechua vocabulary and use of affixal morphology appears to be robust. Again, a full study of these phenomena with a larger population will allow us to draw more conclusive results and to re-examine our L2 Spanish production data with a better understanding of their L1 grammar.

Appendix

Ccatcca production data: verbs used by children

Used by children only	Used by children only (cont.)	Used by interviewer and children	Borrowed from Spanish
akny ruray, doing like this (with gesture)	kachay, send	churay, put	carkay, carry on one's back; Sp cargar
aysay, pull, tug	llamiy, knock gently	maylliy, wash things	cortay, cut; Sp cortar
chayay, arrive	na, an inflectable root that substitutes for forgotten or deleted word. variation: akna, doing like this (with gesture)	maqch'iy, wash body parts	cubriy, cover; Sp cubrir
chust'iy, peel	ñaqch'ay, comb	q'ipiy, carry on one's back	liyyi, read; Sp leer
hampiy, cure	qhaway, look after, look at	hach'iy, throw solids, scatter	
hayway, extend, offer	sut'uy, drip, dribble	hap'iy, grab, have, take, hold, use	
huqariy/uqariy, lift, pick up, raise	tanqay, push	hich'ay, throw liquids, pour	
k'apay, cut (paper)	tuqqiy, rub, bother	rutuy, cut hair, plants	
k'utuy, cut/bite	wit'uy, clip, amputate, cut in sections, chop		

Spanish Sentence Types from Kalt 2002

Sentence	Non-direct object type	Verb type
1) José se pone el sombrero. José REF puts the hat. “José puts the hat on himself.”	REF (reflexive pronominal) + human, +specific location	DITRANS
2) Ana le pone la sandalia. Ana 3DAT puts the sandal “Ana puts the sandal on him.”	OBL (oblique pronominal) +human, +specific location.	DITRANS
3) José pone la chompa en la cama. José puts the sweater on the bed. “José puts the sweater on the bed.”	OVERT (oblique) –human location	DITRANS
4) José se toca el codo. José REF touches the elbow. “José touches his own elbow.”	REF (reflexive pronominal) + human, +specific possessor	TRANS
5) José le toca la cabeza. José 3DAT touch the head. “José touches her head.”	OBL (oblique) + human, +specific possessor.	TRANS
6) Ana toca el telar. Ana touches the loom. “Ana touches the loom.”	OVERT (no secondary object)	TRANS

Quechua Sentence Types from Ccatcca study

Sentence	Non-direct object type	Verb type
1) José sumbuku-ta chura-ku-n. José hat-ACC put-REF-3SUBJ “José puts the hat on himself.”	REF (reflexive pronominal) + human, +specific location	DITRANS
2) Ana ujut'a-ta chura-φ-n. Ana sandal-ACC put-3OBJ-3SUBJ “Ana puts the sandal on him.” “Ana puts the sandal there.” “Ana puts the sandal on.” “Ana puts the sandal somewhere.”	OBL (oblique pronominal) ±human, ±specific location. Lack of reflexive morphology here doesn't exclude reflexive reading.	DITRANS
3) José chumpa-ta puñuna-pata-man chura-φ-n. José sweater-ACC bed-top-DAT put-3OBJ-3SUBJ “José puts the sweater on the bed.”	OVERT (oblique) –human location	DITRANS
4) José kukuchun-ta hap'i-ku-n. José elbow-3POSS-ACC touch-REF-3SUBJ “José touches his own elbow.”	REF (reflexive pronominal) + human, +specific possessor	TRANS

Quechua Sentence Types from Ccatcca study (cont.)

<p>5) José uman-ta hap'i-φ-n. José head-ACC touch-3OBJ-3SUBJ "José touches her head." "José touches someone's head."</p>	<p>OBL (oblique) + human, ±specific possessor.</p> <p>Lack of reflexive morphology here doesn't exclude reflexive reading.</p>	<p>TRANS</p>
<p>6) Ana awana-ta hap'i-φ-n. Ana loom-ACC touch-3OBJ-3SUBJ "Ana touches the loom."</p>	<p>OVERT (no secondary object)</p>	<p>TRANS</p>

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