University of Texas at El Paso

From the SelectedWorks of Ellen H Courtney

2002

Child acquisition of Quechua causatives and change-of-state verbs

Ellen H Courtney

Available at: http://works.bepress.com/ellenhcourtney/3/

SELECTEDWORKS™

Child Acquisition of Quechua Causatives and Change-of-state Verbs

Introduction

The language of the Incan Empire, Quechua is today spoken by 6 to 8 million people in the Andean countries of Peru, Bolivia, Ecuador, northern Argentina, and southern Colombia (Cerrón-Palomino, 1987). The language is agglutinative, with morphologically complex words formed exclusively through suffixation. The morphology is highly regular, as is word stress: primary stress falls on the penultimate syllable. The Cuzco-Collao variety of Quechua spoken in southern Peru is one of several similar varieties, including Bolivian Quechua, which are classified together as Quechua A (Parker, 1963; Cusihuamán, 1976).

Following the classification presented by Song (1995), causative constructions in Quechua are confined to the COMPACT type, comprising only lexical and morphological causatives, as contrasted with periphrastic causatives. Both transitive and intransitive roots may be causativized through affixation of Causative /-chi-/. For instance, there are two verb stems available to Quechua speakers for expressing the notion of 'kill', the lexical causative root *sipi-* 'kill, assassinate' and the analytic (morphological) causative *wañu-chi-* 'cause to die' = 'put to death'. In like manner, Quechua speakers produce stems such as *yacha-chi-* 'cause to know' = 'teach', *riku-chi-* 'cause to see' = 'show', *mikhu-chi-* 'cause to eat' = 'feed', *puñu-chi-* 'cause to sleep' = 'put to sleep', *asi-chi-* 'cause to laugh', and *waqa-chi-* 'cause to cry'. Occasionally, Quechua speakers produce double causatives, as in *yacha-chi-chi-n* 'He makes someone teach someone.'

As straightforward as this linguistic recourse might seem, children learning Quechua as their first language are faced with intriguing challenges. First, the case-marking on the complement subject of causativized roots may vary, depending on semantic features such as the degree of control assigned to the causee (Bills, 1969; Cole, 1983; Comrie, 1989). Second, many of the change-of-state verbs which tend to be basically transitive across languages (Levin & Rappaport Hovav, 1994, 1995) are in fact basically intransitive in Quechua; that is, the transitive variant is produced by causativizing the root, e.g., *t'impu-*

chi- 'boil'; *chaya-chi-* 'cook' (change-of-state); *rikch'a-chi-* 'awaken'. Following scholars such as Pinker (1989) and Levin & Rappaport Hovav, these morphosyntactic variations reflect distinctions in the underlying lexical semantic representations and argument structures of verbs.

What is the developmental course for children learning Quechua as their first language in the acquisition of these morphological and semantic features? With respect to the acquisition of causativized verbs in general, Berman (1988) has proposed five developmental phases for children acquiring Hebrew as their first language. The phases delineated by Berman have since been instantiated by Allen (1998) for Inuktitut. Following Berman, children initially produce causative forms that are unanalyzed amalgams (Phase 1). In the next phase (2), children produce permutations (basic forms and morphological causatives) for only a few very familiar verbs. They then progress from partially productive rules (Phase 3) to strictly rule-governed production (Phase 4). Phase 5 is characterized by adult constraints on the application of rules. Berman and Allen further support a theory of verb-by-verb learning. In that case, as very young Quechua speakers learn causative verbs, we might expect them to make both of the following types of errors: causativizing transitives that are already causative and using unaccusative intransitives causitively (e.g., **He disappeared it = He made it disappear* in English).

Aksu-Koç & Slobin (1985) observed that children learning Turkish, typologically similar to Quechua, produced both types of errors: they used the Causative morpheme with verbs that were already inherently causative-transitive, and they treated intransitive verbs as if they were lexically transitive. In what follows, evidence from naturalistic child data will show that young Quechua speakers do not make the first type of error, while frequently making the second. Moreover, they appropriately form the causative-transitive variants of some intransitive roots, while failing to do so for others. How might we account for this differential pattern of errors, especially in light of the premise that children learn verbs one-by-one? A related issue concerns the order of (productive) acquisition of the case inflections on the complement subject of causative verbs, i.e., the causee. Quechua exhibits three different case suffixes for marking the causee, and the variation produced by adult speakers is based on semantic criteria. However,

very young children consistently inflect the causee with only one of these, even though they use all three case markers in other contexts.

These error and usage patterns are puzzling. The present preliminary investigation sheds light on the problem by exploring the order of acquisition of two morpho-semantic features: (a) varied case inflection on the complement subjects of morphological causatives and (b) transitivity permutations for basically transitive and basically intransitive change-of-state verbs. The outcome reveals that semantic criteria play an important role in the acquisition of these features. The data suggest that children (a') initially interpret all complement subjects of morphological causatives as directly affected patients lacking volitional control and (b') uniformly construe change-of-state verbs as transitive roots expressing changes that are externally caused. In what immediately follows, a brief review is presented of the relevant phenomena across languages. Thereafter, before discussion of the child language data, the pertinent features of Quechua morphology and change-of-state verbs will be highlighted.

Variable case-marking on the causee

Variation in the case-marking on the complement subject of analytic causatives is a widespread phenomenon across languages. In some cases, formal criteria dictate the variation (e.g., Turkish), while in others, semantic factors come into play (e.g., Japanese). To account for the semantic differences encoded in the case variation, Comrie proposed a Case Hierarchy (1989: 181) that stipulates three possible case inflections for the complement subjects of causative verbs, each reflecting a different degree of control retained by the causee. In Comrie's hierarchy, the degree of control, from greatest to least, is Instrumental > Dative > Accusative. With specific regard to Bolivian Quechua, Cole (1983) asserts that the Accusative inflection on the causee indicates that the causation is direct and coercive, whereas Instrumental case indicates that the causation is indirect and noncoercive. In fact, Cole characterizes Instrumental complement subjects as more 'agentive' and Accusative subjects as 'nonagentive' patients.

Similar case-marking facts are observed in languages such as Catalan (Alsina, 1996) and Urdu/Hindi (Saksena, 1980). Geuder & Butt (1998) explain that the semantic nuances expressed in the

different case inflections relate to the notion of affectedness. Accordingly, an Accusative-marked causee is construed as directly affected, while an Instrument-marked causee is not interpreted as directly affected (with a Dative-marked causee falling in between). English has a comparable phenomenon, the locative alternation, with different features highlighted in the event, e.g., *I filled the glass with milk/I poured milk into the glass.* In their discussion of this alternation, Gropen, Pinker, Hollander, & Goldberg (1991) underscore the importance of affectedness as a means of identifying the direct object. They characterize the affected argument as that which is 'caused to change' in the main event of a verb's semantic representation, and they propose a rule linking the affected argument to the grammatical object (marked in Accusative Case in languages such as Quechua). In terms of the notion of affectedness, Comrie's Case Hierarchy can be interpreted as moving from least affected to most affected.

It is helpful to consider the relationship among the notions of coercion, affectedness, and degree of control. If the causation is direct and coercive, the causee is more patient-like and therefore construed as the directly affected constituent; the causee has no control and, in fact, the causee's participation in the event is *nonvolitional*. By contrast, the agent-like causee of indirect, noncoercive causation has a greater degree of control: the causee's participation in the event is *volitional.*

Change-of-state verbs and the causative alternation

Levin & Rappaport Hovav (1994, 1995) have provided interesting insights into the causative alternation of English change-of-state verbs such as *break, open, boil,* and *awaken.* Verbs such as these have both intransitive and transitive uses, so that the transitive meaning of *break*, for example, approximates 'cause to break-INTRANSITIVE'. The alternation for *break, open, boil,* and *awaken* is illustrated in (1). Verbs such as *flower* and *kill* cannot participate in the alternation because they lack either the transitive interpretation (*flower*) or the intransitive construal (*kill*).

(1)	INTRANSITIVE	TRANSITIVE	
break	The glass broke.	Carla broke the glass.	[=cause to break]
open	The door opened.	Carla opened the door.	[=cause to open]

boil	The water boiled.	Carla boiled the water.	[=cause to boil]
awaken	The boy awakened.	Carla awakened the boy.	[=cause to awaken]
laugh	The plant flowered.	*Sunlight flowered the plant.	[=cause to flower]
kill	*The boy murdered.	Carla murdered the boy.	[=cause to be murdered]

On Levin & Rappaport Hovav's analysis, there is a common denominator in the English lexical causative verbs participating in the causative alternation: they all express changes that are externally caused. Moreover, the eventualities expressed by these verbs do not require the participation of an actor; that is, the changes can occur spontaneously, without the intervention of an agent (e.g., *The boy awakened* vs. **The boy murdered*). On this basis, the intransitive reading for *murder* is ruled out because the change it expresses cannot take place spontaneously. In like manner, the transitive construal for *flower* is ruled out because the causation is internal; that is, the ability to flower is a property inherent to plants. On the same grounds, Levin (1993) explains why English verbs of disappearance do not participate in the alternation, e.g., *die, disappear, vanish, expire.*

With respect to the underlying argument structure representation of alternating verbs, Levin & Rappaport Hovav further assert that the intransitive variant derives from the transitive: the non-causative uses of these verbs are formed from the causative ones. In other words, these verbs are basically transitive, with the intransitive version resulting from a process of detransitivization. On their analysis, a verb such as *break* is inherently a dyadic predicate, even when the external cause is not expressed, as in the intransitive variant. In this sense, the intransitive variant behaves like an unaccusative verb, as contrasted with the prototypically unergative verb, *laugh,* an inherently monadic predicate. The representation of the arguments for intransitive *break* and *laugh* provided by Levin & Rappaport Hovav (1994:58) shows the contrast:

break $_{\text{INTRANS}}$: ___[$_{\text{VP}}$ V NP]

laugh: NP [$_{\text{VP}}$ V]

Since the external cause is unexpressed for intransitive *break*, the NP within the VP (the Patient) becomes the syntactic subject. (Unaccusatives like *flower* exhibit the same behavior.)

Citing evidence from Nedjalkov & Silnitsky (1973) and Haspelmath (1993), Levin & Rappaport Hovav point out an intriguing tendency across languages: the transitive causative form of verbs such as *break* is usually unmarked morphologically; the intransitive variant is derived morphologically. In their discussion of verbs that do/do not alternate, Levin & Rappaport Hovav (1995) also cite supporting evidence from Modern Hebrew, Russian, and Italian. Nevertheless, they acknowledge variability across languages, which they attribute to the possibility of classifying some kinds of events as either internally or externally caused. Accordingly, the syntactic behavior of unaccusative verbs is therefore unstable. This instability may explain diachronic change in the construal of events. A case in point is the Spanish verb *desaparecer* 'disappear', which once alternated (Peers, Barragán, Vinyals & Mora, 1960; Moliner, 1992), even though Levin & Rappaport Hovav maintain that verbs of appearance and existence do not exhibit instability.

Levin & Rappaport Hovav remark that verbs equivalent in meaning to English *boil, burn,* and *melt* pattern like *break:* they tend to be basically transitive across languages and therefore cognitively construed as expressing external causation. These verbs might be classed as a group expressing "temperature-induced" changes of state, those that result in an entity's going out of existence or changing into a solid, a liquid, or a gas. Nevertheless, Levin & Rappaport Hovav recognize that a verb such as *melt* might be construed as expressing a change-of-state that is internally caused, especially if the language in question limits the possible subjects for *melt* to specific, inanimate entities in which the ability to melt inheres (e.g., *snow, ice*). In like manner, Pinker (1989) accounts for the variability in verbs such as *boil* and *burn* by noting that many of them may be construed as either internally or externally caused. We find, then, that there is no universal cognitive blueprint for the construal of change-of-state verbs: the classification is language-specific.

Relevant highlights of Quechua morphology

Case-marking of the lower subjects of causative verbs

Among the case inflections available to speakers of Quechua A, three are of interest in the present discussion: Accusative /-ta/, Dative /-man/, and Instrumental /-wan/. (The Nominative inflection is /-ø/.) The direct object of finite Quechua transitives invariably bears the Accusative suffix, and there is no constraint in Quechua barring the expression of multiple Accusative objects.[1] In like manner, the indirect object is marked in Dative case, with Instrumental /-wan/ appended to instruments or serving a comitative function. Both the Accusative and the Dative also appear on NPs in directional locative expressions, roughly indicating 'direction to' (Accusative) and 'direction towards' (Dative). These basic case-marking facts are illustrated in (2)-(3). Example (3) also illustrates the use of Reflexive /-ku-/.[2]

(2) Mariya - **ø** misk'i - **ta** wawa - **man** qo - rqa - n.

Maria-NOM sweet-ACC child-DAT give-PAST-3SG

'Maria gave the sweets to the child.'

(3) Chay kuchillo - **wan** kuchu - ku - rqa - ni.

that knife-INSTR cut-REFL-PAST-1SG

'I cut myself with that knife.'

The case-marking on the causee of causativized transitive roots varies, as discussed by Cole (1983) and Bills (1969) for Bolivian Quechua. Like Bolivian Quechua, the variety of Quechua spoken in southern Peru exhibits three possible case inflections on the complement subject, or causee: Accusative, Dative, and Instrumental.

The complement subjects of causativized transitives such as *mikhu-chi-* 'cause to eat', *ukya-chi-* 'cause to drink', and *riku-chi-* 'cause to see' are marked in Dative Case, /-man/. Cole groups verbs such as these in a category of verbs of experience, and he identifies the Dative-marked constituent as the causee, assigned the Experiencer role. However, a simpler explanation is available. Pinker (1989) has made the intriguing observation for English that *feed* does not actually mean 'cause to eat': 'It really means something like "give food to" (actually, "give food to so that the recipient may eat". . .), as its

participation in the dative alternation would suggest' (1989: 302). Following Pinker, for each of these Quechua verb types, the Dative-marked causee is the recipient or beneficiary rather than an affected object, and so the constituent bears the Dative inflection rather than the Accusative suffix.[1] This is illustrated in the following examples, each with the verb *mikhu-* 'eat'.

(4a) Wawa t'anta - **ta** mikhu - n. 'The child eats bread.'

child bread-ACC eat-3SG

(4b) Mama t'anta - **ta** wawa - **man** mikhu - **chi** - n. 'Mom feeds the child bread.'

mother bread-ACC child-DAT eat-CAUS-3SG

(4c) Mama wawa – **man** mikhu - **chi** - n. 'Mom feeds (something) to the child'

mother child-DAT eat-CAUS-3SG

Bills and Cole further remark that the lower subject of other types of transitive verbs is marked either in Accusative Case or Instrumental Case. The variation in case-marking is illustrated in (5), using the verb root *hampi-* 'cure'. Note, in (5b), that both the lower subject and the lower object bear Accusative /-ta/.

(5a) Doctor wawa - **ta** hampi - rqa - n.

doctor child-ACC cure-PAST-3SG

'The doctor cured the child.'

(5b) Mama doctor - **ta** wawa - **ta** hampi - **chi -** rqa - n.

mother doctor -ACC child-ACC cure-CAUS-PAST-3SG

'Mom made the doctor cure the child.'

(5c) Mama doctor - **wan** wawa - **ta** hampi - **chi** - rqa - n.

mother doctor -INST child-ACC cure-CAUS-PAST-3SG

'Mom had the doctor cure the child.'('Mom had the child cured by the doctor')

According to Cole, as discussed previously, the causation in (5b) is direct and coercive, whereas in (5c) it is not. For Bills, the contrasting case markers on the causees signal semantic differences such that, in

(5b), the emphasis is on the fact that the doctor, and no other, did the curing, while the highlighted feature of the event expressed in (5c) is not the actor but the action of curing itself, with the Instrumental-marked causee demoted to adjunct status.[3]

In Peru, we find that speakers of the Cuzco-Collao variety of Quechua may further modulate the force of the causation by marking the complement subject of causativized roots, both intransitive and transitive, in Dative /-man/. The utterance in (6), with the intransitive root *parla-* 'talk', was produced by an adult speaker in Chalhuanca (Arequipa, Peru), home of the children observed in this study. In (7), part of an example presented from Cuzco Quechua by Calvo Pérez (1993: 175) and re-glossed here in English, both the Dative causee and the Accusative lower object are expressed for the transitive root *qara-* 'serve'.

(6) Wawito - **man** parla - **chi** - sun chay - manta.

little child-DAT talk –CAUS-1PL-FUT that-ABL

'Let's have the little child speak then.'

(7) Mama - qa wawa - n - **man** qara - **chi** - rqa - n papa - **ta** . . .

mother-TOP child-3SG-DAT serve-CAUS-PAST-3SG potato-ACC

'The mother got her child to serve the potatoes. . ."

In this way, speakers of Cuzco Quechua make a distinction between directly coerced (Accusative) and less directly coerced (Dative), to use Cole's terms. In directional or locative expressions, Accusative Case indicates something akin to directness: precision or exactness. In the same contexts, using Dative Case reduces the degree of precision. This is shown in (8)-(9).

(8a) Wasi - **ta** puri - sha - n.

House-ACC walk-PROG-3SG

'He is walking to the house.'

(8b) Wasi - **man** puri - sha - n.

house-DAT walk-PROG-3SG

'He is walking towards the house.'

(9a) Chay - **ta (-pi)** chura - yku - y.

that-ACC (-LOC) put-AUG-IMP

'Put it right there.'

(9b) Chay - **man** chura - yku - y.

that-DAT put-AUG-IMP

'Put it over there.'

Quechua-speaking children acquire the basic case inflections available in their language at least by the age of 2;8 (Courtney, 1998). Therefore, by that age, we would expect children to make use of all three case suffixes--Accusative, Dative, and Intstrumental--in their marking of the complement subjects of causative verbs.

Quechua change-of-state verbs

Quechua verb suffixes are semantically transparent, and the suffixation rules are applied very consistently. In addition to Causative /-chi-/ and Reflexive /-ku-/, two derivational suffixes are relevant to the following discussion of change-of-state verbs. Transformative /-ya-/, when appended to a noun root, might be glossed as 'become' or as 'assume the properties of' (e.g., *rumi-ya-* 'become petrified' from *rumi* 'stone'). Stems formed in this way are almost always intransitive. The approximate translation of Factitive /-cha-/ is 'make, make into' (e.g., *qhelli-cha-* 'to dirty' from *qhelli-* 'dirty'). Stems formed in this way are transitive, with the intransitive variant constructed through reflexivization (e.g., *qhelli-cha-ku-* 'to become dirty'). Quechua change-of-state verbs fall into two groups, each with a different basic event structure, or lexical semantic representation (herein, LSR). We now turn to a brief description of the two groups: (a) basically transitive change-of-state verbs and (b) basically intransitive change-of-state verbs.[5]

a. The assumed LSR for the basically transitive Quechua change-of-state verbs is the following (Levin & Rappaport Hovav, 1996: 108). Verbs with this LSR necessarily describe events construed as externally caused.

[x CAUSE [BECOME [y <*STATE*>]]]

The English equivalents of some of these verbs alternate, while others do not. The transitive change-of-state verbs that do not alternate are those that clearly express eventualities requiring the participation of an actor, e.g., *kill, assassinate, hide.* The verb *hide* is included on this list, even though it is possible to say both 'Mary hid John' and 'John hid'. Since *'The money hid' is not an acceptable alternation with 'Mary hid the money', it seems clear that 'John hid' really means 'John hid himself'. The act of hiding must always require an animate subject because it is construed as an eventuality that cannot occur

spontaneously without the volitional intervention of an agent. As one might expect, the Quechua equivalents of these verbs are also basically transitive, e.g., *sipi-* 'kill, assassinate' (*sipi-ku-* means 'commit suicide') and *paka-* 'hide'. Like the English counterparts, these Quechua verbs describe events straightforwardly interpreted as requiring agents.

As discussed earlier, Levin & Rappaport Hovav (1994, 1995) maintain that English verbs that do participate in the causative alternation express externally caused changes that can occur spontaneously. Moreover, they point out that in many other languages, the equivalents of such verbs are basically transitive, (i.e., they are morphologically simpler than the intransitive variant). Some of the Quechua verbs corresponding to the English causative alternation follow this pattern. That is, the roots of these verbs are basically transitive, with the corresponding intransitive stem constructed by adding the Reflexive suffix /-ku-/, e.g., *p'aki-*, transitive 'break'; *p'aki-ku-,* intransitive 'break'. In addition to *p'aki-* and *rompi-* 'break' (from Spanish *romper*), other verbs of this type are encountered in the child language samples: *llik'i-* 'tear', *kicha-* 'open', *wisq'a-* 'close', and *t'ikra-* 'overturn'.[6]

b. A second LSR template, also taken from Levin & Rappaport Hovav (1996:108), is shared by Quechua change-of-state verbs that are basically intransitive.

[BECOME [x <*STATE*>]

The absence of a CAUSE event in this representation shows that the verbs in this group express eventualities that are construed as internally caused. English intransitives construed in this way include *deteriorate, shudder,* and *bloom*. The group also includes verbs categorized as expressing appearance (*arrive*, *appear*) and disappearance (*die*, *disappear, vanish*). Quechua verbs of this type, to be discussed subsequently, are *wañu-* 'die', *chinka-* 'disappear, become lost', and *chaya-* 'arrive; cook (change-of-state)'[7]. There are two other basically intransitive Quechua verbs which might also be classified as expressing appearance and disappearance/going out of existence, respectively: *rikch'a-* 'awake' and *phata-* 'burst'. It is actually not surprising that these Quechua verbs should be construed as expressing changes that are internally caused. The verb *rikch'a-* 'awake' relates to the noun *rik'chay*, glossed approximately as '(facial) features, semblance, physical appearance'. Accordingly, the ability to change

to a state of wakefulness might be construed as inhering in the entity that awakens (becoming awake = appearing). In like manner, *phata-* 'burst (open)' describes an entity-specific change-of-state (Levin, 1993), such that the ability to burst inheres in a restricted set of inanimate entities with specific properties. Four hundred years ago, González Holguín (1989) presented some of the possible subjects for *phata-*: kernels of corn that burst from being heated and parts of the body (lips, feet, hands) that split. To this list, Cusihuamán (1976) later added balloons, rockets that explode after take-off, and dikes.

Levin (1993) explains that entity-specific change-of-state verbs, such as *rikch'a-* 'awake' and *phata-* 'burst' above, are those which describe changes that "often cannot be directly caused, but rather are inherent to the entities that undergo them" (246-247). Other Quechua verbs that fall into this category are those that describe changes in temperature and moisture or a change to solid, liquid, or gas. Examples are *t'impu-* 'boil', *waksi-* 'evaporate', *unu-ya-* 'become water = melt', *rumi-ya-* 'become stone/ petrified', *'theqti-* 'fry', *rupha-* 'burn'[8], *chiri-ya-* 'become cold = cool', *qasa-* 'freeze', *ch'aki-* 'dry', and *chullu-* 'dissolve, soak'. (The verb *hoq'o-cha-* 'make wet' is basically transitive because it is formed by adding Factitive /-cha-/ to *hoq'o* 'wet'.) Some of these verbs exemplify the transparency of Quechua verb morphology. One example is the set of verbs built from the root *chiri-* 'cold': *chiri-* 'be/feel cold', *chiri-ya-* 'become cold', *chiri-ya-chi-* 'cause to become cold = cool-TRANSITIVE'. Verbs such as *t'impu-* 'boil' are basically intransitive in Quechua because the ability to boil is construed as inhering in specific entities in nature. In this regard, Ruelas Quispe (1994) defines the noun *t'impu* as 'the agitation of boiling water'. Four centuries ago, González Holguin associated this lexical element with naturally occurring geological phenomena: "*tinpuk pukyo* = 'hot (thermal) springs'" (1989:342). It is therefore not surprising that these verbs are not basically transitive like their English counterparts. In the present study, the following such verbs will be discussed: *t'impu-* 'boil' and *chiri-ya-* 'cool'.

With further respect to Quechua intransitive change-of-state verbs, there are two more entity-specific verbs that occur in the child language data: *thuñi-* 'collapse' and *punki-* 'swell, inflate' (as contrasted with transitive *phuku-* 'inflate by blowing'). Finally, the data also include a pair of verbs of spatial configuration, *saya-(ri)-* 'stand (up)' and *tiya-* 'sit (down)'. Both of these are basically intransitive,

possibly because each conveys the basic meaning of "simple position". Simple position verb are akin to verbs of existence according to Levin & Rappaport Hovav (1995), who note that the alternating pattern of verbs of spatial configuration is irregular.

It turns out that many of the verb roots corresponding to the English alternating verbs are basically intransitive in Quechua, and the eventualities they express are construed as internally caused. Although they are unaccusative intransitives, they pattern with ergative *asi-* 'laugh' insofar as the causative transitive variant is formed by adding Causative /-chi-/. We thus find the contrast shown in (10) between *t'impu-* 'boil', which is basically intransitive, and *p'aki-* 'break', which is basically transitive.

(10)	INTRANSITIVE	TRANSITIVE
	Yaku t'impu - **ø** - n.	Yaku - ta t'impu - **chi** - n.
	water boil-3SG	water-ACC boil-CAUS-3SG
	'The water boils.'	'He/she boils the water.'
	Manka p'aki - **ku** - n.	Manka - ta p'aki - **ø** - n.
	pot break-REFL-3SG	pot -ACC break-3SG
	'The pot breaks.'	'He/she breaks the pot.'

To sum up this description of Quechua change-of-state verbs, it is helpful to present the relevant verbs in two lists according to event structure (LSR). In Table 1, list (a) presents transitive causative verbs describing events that are externally caused. The first column under (a) includes verbs expressing events that cannot occur spontaneously, while the second column presents verbs describing events that can. The verbs in the second column under (a) have English equivalents that alternate. List (b) shows the unaccusative change-of-state verbs that express internally-caused events in Quechua. The verbs on this list that are marked with an asterisk (*) have English equivalents that participate in the causative alternation.

Table 1: *Quechua change-of-state verbs*

(a) [x CAUSE [BECOME [y <*STATE*>]]] (external causation)		(b) [BECOME [x <*STATE*>]
cannot occur spontaneously	can occur spontaneously	must occur spontaneously
sipi- 'kill, assassinate'	*t'ikra-* 'tip over, overturn'	*wañu-* 'die'
paka- 'hide'	*kicha-* 'open'	*punki-* 'swell'
	wisq'a- 'close'	*chaya-* 'arrive, (cook)'
	llik'i- 'tear'	*chinka-* 'disappear'
	p'aki- 'break'	*t'impu-* 'boil' (*)
	rompi- 'break' *fr. Spanish*	*rupha-* 'burn' (*)
		rikch'a- 'awaken' (*)
		chiri-ya- 'cool' (*)
		phata- 'burst' (*)
		thuñi- 'collapse' (*)
		saya-(ri)- 'stand' (*)
		tiya- 'sit (down) (*)

In light of this discussion, young children might be expected to make errors such as the following along the route to full competence in the production of the Quechua change-of-state verbs.

	INTRANSITIVE	TRANSITIVE
(11a)	*Yaku t'impu - **ku** - n.	*Yaku - ta t'impu - **ø** - n.
	Water boil-REFL-3SG	water-ACC boil-3SG
	'The water boils.'	'He/she boils the water.'
(11b)	*Manka p'aki - **ø**- n.	*Manka - ta p'aki - **chi** - n.
	pot break-3SG	pot-ACC break-CAUS-3SG
	'The pot breaks.'	'He/she breaks the pot.'

In (11a), the verb *t'impu-* has been interpreted as basically transitive (externally caused), and the intransitive variant has been constructed through affixation of Reflexive /-ku-/. In (11b), just the opposite error is observed: the verb *p'aki-* has been misconstrued as basically intransitive (internally caused), and the transitive variant has been formed through affixation of Causative /-chi-/. If, as proposed by Berman (1988) and Allen (1998), children undergo a process of verb-by-verb learning, we might expect them to make both the errors in (11), as well as inappropriate causative-transitive uses of ergative intransitives.

Method

Participants

The naturalistic Quechua speech of five children, ranging in age from 2;4 to 3;5, was recorded in Chalhuanca (Caylloma Province, Arequipa) in southern Peru. The five children included three girls and two boys. Situated at 14, 000 feet in the midst of barren, rocky hills, the community of Chalhuanca has no fields for growing crops. There is no electricity or telephone service, although most dwellings now boast a single spigot for running water. Life in Chalhuanca is a difficult struggle for survival, since the economy is based exclusively on the raising of alpacas and llamas. Hence, the socioeconomic status of four of the five children is very low. The situation of the fifth child, Hilda, is better, since she is the daughter of the most affluent store owners (affluent by Chalhuancan standards). In fact, Hilda was the lone possessor of any toys. Although the Cuzco-Collao variety of Quechua prevails in Chalhuanca, all children in the community are exposed to Spanish in varying measures. Of these five children, four are being raised in homes which are predominantly Quechua-speaking, while one child, herein called Pablo, is learning Quechua and Spanish simultaneously at home.

Table 2 provides the children's pseudonyms, the total hours of recorded naturalistic speech for each child, and the ages at which each child was recorded in years and months. The columns indicate five age ranges which correspond to developmental phenomena to be discussed in following sections.

Table 2: *Recorded children by pseudonym, total recorded hours, and ages at recording*

	2;4 - 2;5	2;6 - 2;8	2;9 - 2;11	3;0 - 3;2	3;3 - 3;5
Pablo (8 hours)	2;4	2;6	2;9		
	2;5	2;7			
		2;8			
Ana (11 hours)	2;5	2;6	2;9		
		2;7	2;10		
		2;8			
Hilda (6 hours)			2;10	3;0	
			2;11	3;1	
Juan (6 hours)				3;0	
				3;2	
Ines (6 hours)				3;2	3;3
					3;4
					3;5

Data collection procedures

All the recordings were carried out in the homes of the children or in the one-room daycare facility our research team set up as a service to the community. The children were recorded with researchers sometimes present and usually with older siblings or cousins on hand. While most of the taped conversation consists of natural interactions between the children and family members in the home setting, the research team sometimes showed the children photographs or drawings to get the conversation going. During the daycare activity, the children especially enjoyed stories enacted with toys and figures, and sometimes, in the context of the story-telling activity, investigators handed the figures to the children so that they could tell their own stories.

The recordings were made using small cassette recorders with mini-sized tiepin type microphone attachments. This equipment was kept in a small, brightly colored woven pouch with a shoulder strap, which the children quickly became accustomed to and even wore quite proudly. The audiotapes were transcribed by native speakers of the Cuzco-Collao variety. The recordings yielded a total of 334 utterances containing (a) verbs exhibiting or requiring causative morphology and (b) change-of-state verbs in both transitive and intransitive form. It should be mentioned the children produced these utterances spontaneously; none of the utterances were mere attempts to repeat structures produced by older interlocutors. The breakdown of this total by child is as follows: Pablo, 79; Ana, 83; Hilda, 52; Juan, 61, and Ines, 59.

Results

Child production of causativized verbs and casemarking of the causee

The youngest children, Pablo and Ana (2;5 to 2;6), produced very few causative verb forms.[9] They produced three appropriate utterances, shown in (12)-(14), each containing a verb with a causativized stem [root + /-chi-/]. However, between the ages of 2;5 and 2;8, the two children each produced only three morphological causatives formed from only two roots. Pablo's causativized stems were *ukya-chi-* 'cause to drink' and *pasa-chi-* 'cause to pass'; Ana's were *toka-chi-* 'cause to play (as a tape recorder)' and *lava-chi-* 'cause to wash'.

(12) Pablo, 2;5 Kuchi__ ukya - **chi** - ni.

Pig-(ACC) drink-CAUS-1SG

'I make the pig drink.'

(13) Pablo, 2;5 Mate – ta ukya - **chi** - n?

Mate-ACC drink-CAUS-3SG

'Does he make (someone) drink mate?'

(14) Ana, 2;6 Kukuli lava - **chi** - ku - sha - n.

Kukuli wash-CAUS-REFL-PROG-3SG

'Kukuli is getting (himself) washed.'

It should be mentioned that, in general, the case-marking of internal arguments between the ages of 2;4 and 2;6 is unstable: children often fail to case-mark constituents, as in (12), or they overgeneralize the use of Accusative /-ta/ to arguments requiring Dative, Benefactive, or Instrumental inflections (Courtney, 1998). In fact, the total set of utterances produced by Ana at 2;5 to 2;6, including both causative and non-causative transitives, exhibited only Accusative and Locative inflections. This makes it very difficult to pinpoint error or to identify obligatory contexts for causative verb forms. For example, both children frequently produced utterances such as **Osota mikhu_ noqa* (literally, 'Bear-eat-1st person pronoun'). Because of the dearth of inflections, there are at least three possible reconstructions: *Oso-taq mikhuwan noqa-ta* ('And the bear eats me.'); *Oso-ta mikhuni noqa* ('I eat the bear.'); *Oso-ta mikhu-**chi-**ni noqa* ('I cause the bear to eat. = I feed the bear.') While one must thus proceed with caution in the identification of errors, anomalous verb forms such as that in (15), with the interlocutor's utterance provided (IL), as well as the omission of Causative /-chi-/ in obligatory contexts (16), are typically observed during this age range.

(15) Pablo, 2;5 IL: Wayk'u - ku - nki?
cook REFL-2SG
'Will you cook for yourself?'
P: *Manka wayk'u - **chi** - n - **chi** - n kay - ta.
pot cook -CAUS?-3SG?-CAUS?-3SG? this-ACC
? ? ?

(16) Ana, 2;6 *Chay carru - ta phawa - ___ - y.
that car-ACC fly-(CAUS)-IMP
'Make the car fly.'

By the age of 2;8, the same two children produce longer utterances, allowing closer observation of the case-marking of the internal arguments of causativized verbs. Pablo produced only one such utterance, shown in (17), with the causee, *wawa-ta* 'baby', marked in Accusative Case. Before the age of 2;10, Ana never inflected the lower subject, or causee, in any case other than the Accusative, even

though, by the ages of 2;7 to 2;8, she appropriately produced other types of constituents bearing Dative or Instrumental inflections. The utterances in (18)-(20) were produced by Ana at age 2;8. Observe, in (19)-(20), that Ana still produces occasional utterances with missing case inflections and/or causative morphology, as revealed by the interlocutor's responses. In (20), for example, Ana refers to a person named Elena, who could not possibly have brought anything to Ana that day because she had already left the community for good two months before.

(17) Pablo, 2;8 Noqa pasa - **chi** - pu - sa_ wawa - **ta** pampa - pi.
I go-CAUS-REG-1FUT baby-ACC ground- LOC
'I'll make the baby go/pass/walk on the floor.'

(18) Ana, 2;8 Tata - y - man toka - **chi** - saq, tata - y - man.
dad-1POSS-DAT play-CAUS-1FUT dad-1POSS-DAT
'I'll play it (make it play) for my dad.'

(19) Ana, 2;8 A: *Wawa -__ talli - ____ - rpari - ni, wawa -___- qa.
baby-(ACC) pour-(CAUS)-INTEN-1SG baby-(ACC)-TOP
'I've made the baby pour.'

IL: Imatapaq chay wawata yachachinki talliyta?
'Why have you taught that baby how to pour?'

(20) Ana, 2;8 A: *Elena apa - ____ - mu - sqa bolsa - ta.
Elena carry- (CAUS)-DIR-RES bag -ACC
'Elena brought the bag.'

IL: Apa - **chi** - mu - sqa - n.
carry-CAUS-DIR-RES-AFF
'She's sent it (= had it brought).'

At ages 2;9 and 2;10, both Ana and Hilda produced utterances containing causativized verbs with both Accusative and Dative causees. It is also during this period that the children began extending use of Causative /-chi-/ to a variety of verb roots. In this age range, Ana produced 14 morphological causatives

from 10 roots; between the ages of 2;10 and 3;1, Hilda produced 24 such verbs from 14 roots. As shown in (21), at age 2;9, Ana continues to inflect the causee in Accusative Case. In (22)-(23), we find that both children have failed to inflect Accusative objects. However, the apparent lapses partly reflect Chalhuancan adult usage: adult speakers may omit the Accusative inflection if the noun is a lexical item borrowed from Spanish (*avión* 'airplane'). Example (22) clearly reveals that Ana knows the distinction between the adverbial forms, *chay-ta* 'there, in that place' (demonstrative + ACC) and *chay-man* 'over there, around there' (demonstrative + DAT).

(21) Ana, 2;9 Kay - lla - pi - chu keda - **chi** - nki Chikitina - **ta**?
this-DEL-LOC-INTERR stay-CAUS-2SG Chikitina-ACC
'Will you make Chikitina stay right here?'

(22) Ana, 2:10 Chay - ta - pis puri - **chi** - y aviun - __; chura - y chay - man.
that-ACC-ADD go-CAUS-IMP plane-(ACC) put-IMP that-DAT
'And make the plane go there; put it over there.'

(23) Hilda, 2;10 Caballu-<u>cha</u> wasi - n - ta, wasi - ta, ayku - **chi** - sha - n anchay.
horse-DIM house-3POSS-ACC house-ACC enter-CAUS-PROG-3SG that
'That one (over there) is making the horse enter its house.'

In (24), Hilda has inappropriately case-marked the causee *wawa-cha-n-ta* 'his little baby' in Accusative /-ta/, since Dative /-man/ is the correct inflection on the lower subjects of causativized verbs such as *ukya-chi-* 'cause to drink' and *mikhu-chi-* 'cause to eat = feed'.

(24) Hilda, 2;10 *Wawa - cha - n - **ta** - wan ukya - yku - **chi** - sha - n.
baby-DIM-3POSS-ACC-INST drink-AUG-CAUS-PROG-3SG
'He's making his little baby drink, too.'

However, examples (25)-(26), reveal that both children now sometimes inflect the causee in Dative Case. In (25), Ana has appropriately casemarked the lower object in Accusative while marking the lower subject in Dative. In (26), Hilda has inflected the lower subject of the intransitive root *puri-* 'walk' in Dative Case. Perhaps her choice of Case inflection expresses semantic nuance, with the causee retaining

relatively greater volitional control, or being less directly affected, than would an Accusative-marked lower subject.

(25) Ana, 2;10 Qhawa - **chi** - sun chay - **ta** - qa Aurora - **man** qhawa - **chi** - sun.

look-CAUS-1PL-FUT that-ACC-TOP Aurora-DAT look-CAUS-1PL-FUT

'Let's show that to Aurora.'

(26) Hilda, 2;10 Chika - lla - **man** puri - **chi** - sha - n.

girl-DEL-DAT walk-CAUS-PROG-3SG

'He's making the little girl walk.'

Even at age 3;1, Hilda continues making infrequent errors, either omitting Causative /-chi-/ as in (27) or inserting it inappropriately as in (28), where she corrects herself by switching to a different, synonymous verb root. Errors such as these, however, are probably 'slips' rather than competence deficits. It is likely that the error in (27) is a performance error, brought about by the processing load created by having to assemble a complex verb form with several suffixes. The error in (28) probably results from confusion in the synonymous stems, *maqlli-* and *maqchhi-*.

(27) Hilda, 3;1 *Sapu - ta - qa mana qan riku - ___ - wa - nki - chu.

toad-ACC-TOP NEG you see-(CAUS)-1OBJ-2SG-NEG

'You haven't shown me the toad.'

(28) Hilda, 3;1 H: *Maqlli - **chi** - sha - n - chu?

wash-CAUS-PROG-3SG-INTERR

'Is she washing?'

IL: Ima?

'What?'

H. Maqchhi - sha - n - chu?

wash-PROG-3SG-INTERR

'Is she washing?'

By contrast, the other three-year-olds, Juan (3;0 to 3;2) and Ines (3;2 to 3;5), make errors very rarely, and their utterances reveal greater structural complexity, as well as secure production of both causativized verb forms and varied case-marking of lower arguments. Examples (29)-(30) are presented to illustrate Juan's production of Causative /-chi-/ in combination with the first-person object marker /-wa-/. In (29), the object marker represents the causee, while the lower object is the Accusative-marked infinitive, *pukllay-ta* 'to play'. In both utterances of (30), the first-person object marker, /-wa-/, serves as a Dative or Benefactive argument of the verb *nana-* 'hurt': in the first utterance, the verb is intransitive, while, in the second, it has been transitivized through affixation of Causative /-chi-/. The different case inflections on *wiqsay* 'my stomach' vary accordingly, i.e., Nominative in the first, Accusative in the second.

(29) Juan, 3;0 Puklla - y - ta - taq muna - **chi** - wa - n.

play-INFIN-ACC-CONT want-CAUS-1OBJ-3SG

'She makes me want to play.'

(30) Juan, 3;0 Noqa-__ wiqsa - y nana - sha - wa - n.

I-(GEN) stomach-1POSS hurt-PROG-1OBJ-3SG

'My stomach is hurting me.'

Chay ankay wiqsa - y - **ta** nana - rqu - **chi** - wa - n.

that that stomach-1POSS-ACC hurt-EXH-CAUS-1OBJ-SG

'That makes my stomach hurt a lot.'

Utterances (31)-(32) illustrate that Juan also correctly case-marks the arguments of causativized verbs in Dative (causee) and Accusative (lower object). In fact, the Dative-marking of the lower subject *señoritay-man* 'my señorita' in (31) suggests an intentional semantic choice, intended to increase the volitional control of the causee.

(31) Juan, 3;2 Señorita - y - **man** pukllana - **ta**, puklla - **chi** - sha - n.

señorita-1POSS-DAT toy-ACC play-CAUS-PROG-3SG

'She is letting my señorita play (with) the toy.'

(32) Juan, 3;2 Mati - t**a** ukya - **chi** – sha - n ankay wawachita - **man**.

mate-ACC drink-CAUS-PROG-3SG that little baby-DAT

'He's making that little baby drink mate.'

It is not until the beginning of the fourth year that we first find children using Instrumental /-wan-/ to case-mark the causee, although, as previously mentioned, this case inflection has already been well-established in other contexts. Examples (33)-(37) present utterances containing causativized verbs with Instrumental causees, all produced by the three-year-olds. The utterance in (33) shows that some attempts at Instrumental case-marking were not always successful. Here, Hilda has inappropriately inflected in Instrumental /-wan/ *p'acha* 'clothing', the directly affected object of the Factitive stem, *qhelli-cha-* 'dirty' [*qhelli-* 'dirty' + Factitive /-cha-/ 'make']. However, in (34), Hilda's intention is to emphasize the act of tape-recording rather than the person(s) carrying out the recording: she accomplishes this by inflecting the causee in Instrumental /-wan/. In like manner, Juan assigns to the causee in (35) the least degree of volitional control by means of the Instrumental inflection: the causee *zorro* 'fox' is not a directly affected object, but an agent relegated to adjunct status in the syntax.

(33) Hilda, 3;0 *Huq p'acha - **wan** qhelli - cha - ku – y -man.

one clothing-*INST dirty-FACT-REFL-1-COND

?'I'd dirty one (piece of) clothing.'

(34) Hilda, 3;1 Wasi - yki - pi graba - **chi** - nki, papa - yki - **wan** graba - **chi** - nki,

house-2POSS-LOC tape-CAUS-2SG dad-2POSS-INST tape-CAUS-2SG

'In your house you'll have something recorded, recorded by your father,'

mama - yki - ___ - pis graba - **chi** - nki, tukuy - **ta** graba - **chi** - nki.

mom-2POSS-(CASE)-ADD tape-CAUS-2SG all-ACC tape-CAUS-2SG

'and you'll have your mom record(ed), you'll have everything recorded.'

(35) Juan, 3;2 Noqa zorro - **wan** kani - **chi** - wa - nichis.

I fox-INST bite-CAUS-1OBJ-PL

'We get ourselves bitten by the fox.'

Ines appears to switch emphasis in (36) by first marking the inanimate causee in the Instrumental Case, later to inflect the same constituent in Accusative Case. The glosses in (36) are intended to reflect the semantic distinctions conveyed in her utterances. Although Ines has left out Causative /-chi-/ in (37), probably a performance error (her only error), she successfully highlights the action of bestowing a gift--and not the giver, which is marked in /-wan/.

(36) Ines, 3;2 Hina - taq grabadora - **wan** toka - **chi** - ku - sha - n.

thus-CONT recorder-INST play-CAUS-REFL-PROG-3SG

'And so he's having something played for himself on the recorder.'

Grabadora – n - **ta** toka - **chi** - ku - sha - n.

recorder-3POSS-ACC play-CAUS-REFL-PROG-3SG

'He's making the recorder play something for himself.'

(37) Ines, 3;5 *Señorita-**wan** kunan regala - ___ - pu - saq - mi kay - **ta** - qa.

señorita-INST now give-(CAUS)-REG-1FUT-AFF this-ACC-TOP

'Now I'll have this given to me by the señorita.'

In the final set of utterances (38), all produced by Ines at age 3;4, we find five different causativized verbs, each with exactly the same causee, *wawa* 'baby', marked either in Accusative or Dative. The causee bears the Dative inflection in the first utterance because the verb is *ukya-chi-* 'drink' (the lower object is *mate-ta* 'mate'). Thereafter, in the subsequent utterances, the variation in the case-marking of the causee is attributable uniquely to semantic nuance, i.e., distinctions in the volitional degree of control or affectedness assigned to the lower subject.

(38) Ines, 3;4 Chay - pi - qa ukya - **chi** - sha - n mate - **ta** wawa - cha - **man**.

that-LOC-TOP drink-CAUS-PROG-3 mate-ACC baby-DIM-DAT

'There, he's having the little baby drink mate.'

P'acha - y__ - **chi** - sha - n wawa - **man**.

dress-AUG-CAUS-PROG-3SG baby-DAT

'He's having the baby get dressed.'

Chaqay - pi puri - **chi** - sha - n wawa - n - **ta**.

that-LOC walk-CAUS-PROG-3SG baby-3POSS-ACC

'Over there he's making the baby walk.'

Wawitu - **ta** waqa - **chi** - n - ku.

little baby-ACC cry-CAUS-3-PL

'They've made the little baby cry.'

Hap'i - **chi** - sha - n wawa - cha - **man**.

grab-CAUS-PROG-3Sg baby-DIM-DAT

'She's having the little baby grab something.'

The data presented so far suggest a tentative pattern in the overall productive acquisition of the Causative suffix and the corresponding case inflections on the lower arguments of causativized verbs. (a) Quechua-speaking children start producing causativized verb forms at least by age 2;5. The causative stems produced by the children, perhaps as unanalyzed amalgams, are limited to only a few verb roots through the age of 2;8. During this early period, children frequently omit the Causative suffix in obligatory contexts or they use it anomalously. In general, at ages 2;5 to 2;6, children sometimes fail to case-mark internal arguments, and, in fact, their repertoire of case inflections is limited to Accusative /-ta/ and Locative /-pi/. In the longer utterances produced by children during the range of 2;8 to 2;9, the lower subjects of causativized verbs are marked in Accusative Case, even though children have by this time acquired productive use of the full set of basic Case inflections. (b) At around age 2;10, children start affixing Causative /-chi-/ to a variety of verb roots, and they sometimes case-mark the causee in Dative /-man/. Errors in the production of the Causative suffix, either omissions or inappropriate uses, are very rare and probably attributable to performance lapses. (c) The first half of the fourth year is characterized by stable use of the Causative suffix, as well as competent marking of the causee in Accusative, Dative,

or Instrumental to express semantic nuances, i.e., variation in the degree of volitional control assigned to the causee or to the affectedness of the causee.

Child production of basically transitive change-of-state verbs

From early on, the children had no trouble producing the verb types that clearly require the volitional participation of an agent. These verbs express externally-caused changes that cannot occur spontaneously. Their production was error-free for the transitive/intransitive permutations of unergatives such as *puri-* 'walk' and for change-of-state verbs such as *wañu-/sipi-* 'die/kill' and *paka-* 'hide', which would require the intervention of an actor. As shown in (39)-(40) and in (22), repeated below, Ana correctly manipulated *puri-* at an early age.

(39) Ana, 2;7 Hawa - ta puri - sha - n.
outside-ACC walk-PROG-3SG
'He's walking outside.'

(40) Ana, 2;8 Puri - sun señorita - man.
walk-1PL-FUT señorita-DAT
'Let's walk over to the señorita.'

(22) Ana, 2:10 Chay - ta - pis puri - **chi** - y aviun -__; chura - y chay - man.
that-ACC-ADD go-CAUS-IMP plane-(ACC) put-IMP that-DAT
'And make the plane go there; put it over there.'

Examples (41)-(42) were produced by the two youngest children using the verb *paka-* 'hide'. Pablo produced the only error in the use of this verb. In (41), his response to the interlocutor's utterance makes no sense because of the absence of Reflexive /-ku-/ and the inappropriate person-of-subject marking. As shown in (42), Ana's production of *paka-* forms was competent and errorless (as was that of all the older children):

(41) Pablo, 2;4 IL: Haku, paka - ra - **ku** - sun.
come hide-EXH-REFL-1P-FUT
'C'mon, let's hide.'

P: *_aku, paka - ru - n - cha. (? intended: paka-**ku**-n-chis)

come hide-EXH-3SG-DUB

??

(42a) Ana, 2;8 Paka - sha - ni - n noqa chay - pi papa - ta - qa.

hide-PROG-1SG-AFF 'I' that-LOC potato-ACC-TOP

'I'm hiding the potatoes in that place.'

(42b) Ana, 2;9 Chaqay - pi paka - **ku** - sha - *n_. Mosca - cha kani - wa - nqa.

that-LOC hide-REFL-PROG-(1SG) fly-DIM bite-1OBJ-3FUT

'I'm hiding over there. The little fly will bite me.'

As for the *wañu-/sipi-* 'die/kill' suppletive alternation, no errors were observed in the children's production. This is illustrated below with utterances containing *sipi-* 'kill' (43)-(44) and *wañu-* 'die' (45)-(46). It is noteworthy that none of the children attempted to detransitivize *sipi-* 'kill' by affixing Reflexive /-ku-/; the resulting stem would mean 'kill oneself, commit suicide'.

(43) Ana, 2;6 IL: *Matamos.*

'We kill (*Spanish*).'

A: Sipi - ru - sun - chu?

kill-EXH-1PL-FUT-INTERR

'Shall we kill it?'

(44) Juan, 3;0 Kani - sha - n alqo sipi - ru - na - n - kama. Yasta sipi - rqu - n.

bite PROG 3SG dog kill EXH POT 3SG TERM already kill EXH 3SG

'The dog is biting it until it will die (= to death). It's already killed it.'

(45) Juan, 3;2 IL: Maypi kashan vaca?

'Where is the cow?'

J: Wañu - ru - n vaca.

die-EXH-3SG cow

'The cow has died.'

(46) Hilda, 2;11 Kuliba - ta ahina wañu - **chi** - nqa alqo.

snake-ACC thus die-CAUS-3FUT-dog

'The dog will kill the snake like this.'

Let us now consider the children's production of basically transitive change-of-state verbs that are construed as expressing externally-caused events that can occur spontaneously. Again, the children's performance from the outset was virtually error-free. The data yield both appropriate transitive forms and the reflexivized variants. Remarkably, only one error was observed, occurring in an utterance produced by the youngest child, Pablo, at age 2;5. Presented below are sample utterances produced by the children with five such verbs: *t'ikra-* 'tip over', *kicha-* 'open', *wisq'a-* 'close', *llik'i-* 'tear', and *p'aki-/rompi-* 'break'. The first set of utterances, (47)-(50), illustrates the children's production of the first three of these verbs. The children produced no errors.

(47) Pablo, 2;5 Manka t'ikra - **ku** - __.

pot tip over-REFL-(3SG)

'The pot has tipped over.'

(48) Juan, 3;0 Kicha - ri - ru - yku, ayku - yku - yku, wisq'a - yku - yku.

open-INCH-EXH-1PL enter-AUG-1PL close-AUG-1PL

'We suddenly opened (it), carefully entered, and carefully closed (it).'

(49) Ines, 3;4 Chay punku - n kicha - **ku** - sha - n.

that door-AFF open-REFL-PROG-3SG

'That door is opening.'

(50) Ines, 3;5 Ama kay - nin - ta - taq kicha - rqu - na - yki - chu - qa.

PROH this-3POSS-ACC-CONT open-EXH-POT-2POSS-NEG-TOP

'And you're not to open this (of his).'

Three of the children produced forms of *llik'i-* 'tear', and all the children produced utterances with the verb *p'aki-* 'break', the prototypical verb of this type. In addition to this verb, Pablo produced several

utterances with synonymous *rompi-,* a loanword from Spanish. Utterances (51)-(53) all show instances of *llik'i-*.

(51) Pablo, 2;9 Llik'i - ra - mu - n?

tear-EXH-DIR-3SG

'Has he (gone and) torn it?'

(52) Juan, 3;2 IL: Imatataq ruwashanki?

'And what are you doing?'

J: Llik'i - ru - **ku** - n.

tear-EXH-REFL-3SG

'It has torn.'

(53) Ines, 3;3 Llik'i - ra - pu - wa - n - ku.

tear-EXH-BEN-1OBJ-3-PL

'They've torn it on (for) me.'

The following utterances (54)-(59) with *pak'i-/rompi-* 'break' were produced by the youngest children, Pablo and Ana, between the ages of 2;5 and 2;9. The only error observed in the formation of this verb, in (56), was produced by Pablo at age 2;5. The first two utterances, (54)-(55) are Ana's.

(54) Ana, 2;6 P'aki - yu - n uma - ta.

break-AUG-3SG head-ACC

'He's broken the head. '

(55) Ana, 2;9 P'aki - rpari - **ku** - n.

break-INTEN-REFL-3SG

'It has broken abruptly.'

Except for the inappropriate reflexivization in (56), the first group of Pablo's utterances, (56)-(59), reveals early competence in the production of the synonymous verbs for 'break', which Pablo uses interchangeably.

(56) Pablo, 2;5 **Otro* p'aki - **ku** - __ cucharilla - __.

another break-REFL-(3SG) spoon-(ACC)

'Another has broken the spoon.'

(57) Pablo, 2;6 Mira, p'aki - rqu - n manka - ta.

look break-EXH-3SG pot -ACC

'Look, he's broken the pot.'

(58) Pablo, 2;6 Banca - ta rompi - yku - n.

bench -ACC break-AUG-3SG

'He's broken the bench.'

(59) Pablo, 2;7 IL: P'aki - ru - **ku** - sqa.

break-EXH-REFL-RES

'(It is) broken.'

P: Rompi - ru - **ku** - n.

break-EXH-REFL-3SG

'It has broken.'

Before leaving the discussion of early child production of Quechua verbs for 'break', we turn briefly to an interesting phenomenon in the utterances produced by Pablo, whose language is the most influenced by Spanish. As shown in (60)-(63), Pablo uses a variety of forms to express the perfective notion of 'broken', on a continuum from Spanish to Quechua. For example, the form *(se-ha-)rompiu,* occurring in (60)-(61), appears to serve Pablo holistically as a substitute for Quechua *p'aki-sqa* or *rompi-sqa* '(it is) broken', which bears the Resultative suffix /-sqa/. The form *rompiu* is not a directly borrowed past participle for Spanish *romper* 'to break': the Spanish past participle is not *rompido* but *roto,* which Pablo correctly produces in (62). Remarkably, as shown in (61), Pablo's grandmother corrects Pablo by providing the more purely Quechua root, *p'aki-,* without correcting the Spanish-like morphology. Is it possible that the grandmother also accepts *(se-ha)-p'akiu* as a substitute for *p'aki-sqa*?

(60) Pablo, 2;7 P'aki - **ku** - n, *se ha* rompi - u *ese.*

break-REFL-3SG CL 3PERF break-? that

'It has broken, that has broken.'

(61) Pablo, 2;7 P: *Se ha* rompi - u.

CL 3PERF break-?

'It has broken.'

IL: *Se ha* p'aki - u ni - nki.

CL 3PERF break-? say-2SG

'Say, "Se ha p'akiu".'

(62) Pablo, 2;8 *Se ha roto* vaca - cha, *se ha roto.*

CL 3PERF PP cow-DIM CL 3PERF PP

'The little cow has broken, it has broken.'

(63) Pablo, 2;8 Rompi - sqa zorro.

break-RES fox

'The fox is broken.'

As illustrated by these examples, the production of basically transitive change-of-state verbs was virtually error-free from the outset. These verbs are those that are construed as describing externally caused events, whether or not they can occur spontaneously. The children never produced errors such as the transitive variant shown in (11b); that is, they never attempted to transitivize these roots by affixing Causative /-chi-/ to the root. This shows that the children never misconstrued these verbs as basically intransitive.

Child production of basically intransitive change-of-state verbs

In marked contrast to the largely error-free performance observed in the early production of basically transitive change-of-state verbs, competence in the production of basically intransitive verbs develops slowly. Errors in the verbs produced by the two-year-olds, Pablo and Ana, were common; even Hilda and Juan sometimes produced inappropriate forms between the ages of 3;0 and 3;2. In what follows,

child utterances are presented for seven basically intransitive change-of-state verbs: *t'impu-* 'boil', *chaya-* 'cook', *rupha-* 'burn'[5], *chiri-ya-* 'cool', *chinka-* 'disappear, lose', *saya-(ri)-* 'stand (up), and *rikch'a-* 'awaken'. It is important to note that the errors were not limited to omissions of Causative /-chi-/ in the transitive variants of these verbs, as illustrated in (11a). Since children also inappropriately reflexivized these verbs as they attempted to form the intransitive variants, they must have been considering them basically transitive verbs, such as *p'aki-* 'break'.

The first set of utterances, (64)-(69), serves to illustrate typical errors produced by Pablo and Ana between the ages of 2;5 and 2;8 in the formation of two basically intransitive verbs: *t'impu-* 'boil' and *chaya-* used as change-of-state 'cook'.[6] Correct utterances appear in (66) and (69): the children did not always make errors in the production of these verbs. Nevertheless, production of these verbs is clearly unstable. While two of the errors in this set, (65) and (68), involve omission of Causative /-chi-/ in the transitive variant, the inappropriate forms in (64) and (67) suggest that the children have construed these verbs as basically transitive. In (67), Ana has also incorrectly appended part of Resultative /-sqa/ to the root.

(64) Pablo, 2;5 *T'impu - sun - chu?
boil-1PL-FUT-INTERR
'Shall we boil [*intransitive*]?

(65) Pablo, 2;6 *Manka - ta, tetera - __ t'impu - ___ - y.
pot-ACC bottle-(ACC) boil-(CAUS)-IMP
'Boil the pot and the bottle.'

(66) Pablo, 2;7 *Una* manka t'impu - ru - rqu - n.
one pot boil-EXH-EXH-3SG
'One pot has really boiled.'

(67) Ana, 2;6 *Chaya - s - **ku** - sha - n.
cook -*RES-REFL-PROG-3SG
?'It is cooking.'

(68) Ana, 2;8 A: *Yasta chaya - ___ - rpari - ni.

already cook-(CAUS)-INTEN-1SG

?'I've already cooked [INTR].'

IL: Yasta chaya-rpari-**chi**-nki-ña.

'You've already made it cook (= cooked it).'

(69) Ana, 2;8 Manka - y chay - pi chaya - sha - n - mi.

pot-1POSS that-LOC cook-PROG-3SG-AFF

'My pot is cooking there.'

Ana also failed to form the transitive of *rupha-* 'burn' through affixation of Causative /-chi-/:

(70) Ana, 2;8 IL: Quemasqa.

'It is/has burned.'

A: *Mana wawa - ta - pis rupha - n - chu.

NEG baby-ACC-ADD burn-3SG-NEG

'They haven't burned the baby.'

(71) Ana, 2;10 *Rupha - sha - n p'acha - n - ta.

burn-PROG-3SG clothes-3POSS-ACC

'He's burning his clothes.'

Pablo and Ana also had great difficulty learning the verb *chinka-* 'disappear, become lost'. Although this change-of-state verb does not alternate in English, one of its meanings, 'disappear', once alternated in Spanish (intransitive/transitive *desaparecer*). Also, children may have special difficulty learning this verb because it is commonly used to mean 'become lost', such that the causativized form, *chinka-chi-*, means 'cause to disappear; lose'. The utterances presented in (72)-(77) show that both children initially hypothesized that the verb was basically transitive. They usually omitted Causative /-chi-/ in the transitive variant, and they formed the intransitive variant by inappropriately reflexivizing the root. The utterance in (73) is one of few containing an appropriate form of *chinka-*.

(72) Pablo, 2;5 *May - ta chinka - ___ - ni? Kuchita may - ta?

where-ACC lose-(CAUS)-1SG little pig where-ACC

?'Where have I lost it? Where is the little pig?'

(73) Pablo, 2;6 Chinka - rqu - n - ña vaca - lla.

lose-EXH-3SG-DISC cow-DEL

'Just the cow is already lost.'

(74) Pablo, 2;7 *Wawito chinka - ru - **ku** - n.

little baby lose-EXH-REFL-3SG

'The little baby is lost.'

(75) Pablo, 2;8 *Noqa chinka - **ku** - ni.

I lose-REFL-1SG

'I am lost.'

(76) Ana, 2;6 *Mana noqa chi_ka-_a - **ku** - sa_ noqa wawa - ta.

NEG I lose-EXH-REFL-1FUT 'I' baby-ACC

'I won't lose the baby.'

(77) Ana, 2;9 *Caramelo - ta chinka - ___ - rpari - n.

candy-ACC lose-(CAUS)-INTEN-3SG

'He's carelessly lost the candy.'

One might attribute most of the above errors to generally insecure production of Causative /-chi-/. However, the older children also made similar errors in the production of basically intransitive verbs. Recall that the older children competently produced causativized verbs which were not change-of-state, with varied case-marking on the causee. Utterances (78)-(84) illustrate typical errors produced by Ana, Hilda, and Juan in the formation of the verbs *saya(ri)*- 'stand (up)', *rikch'a*-'awaken', and *chiri-ya*- 'become cool = cool'. (As mentioned earlier, the stem, *chiri-ya-,* is formed through affixation of Transformative /-ya-/ to the root, *chiri* 'cold'.) Again, not all the utterances contain errors: (79) and (84) are fine.

(78) Ana, 2;10 *Pata -cha - pi saya - **ku** - nqa runa - cha.

top-DIM-LOC stand-REFL- FUT man-DIM

'The little man will stand up on top.'

(79) Hilda, 2;10 Noqa mana yacha - ni - chu saya - **chi** - y - ta - qa.

'I' NEG know-1SG-NEG stand-CAUS-INFIN-ACC-TOP

'I don't know how to stand it up.'

(80) Hilda, 3;0 IL: Imata ruwan runa kanchonta?

'What has the man done to the corral (fence)?'

H: *Kanchon - ta saya - ___ - sha - n.

corral-ACC stand-(CAUS)-PROG-3SG

*'He has stood the corral (fence) up.'

(81) Hilda, 2;11 IL: Rikch'a - rqa - mu - sqa.

awaken EXH DIR RES

'He's awoken.'

H: *Rikch'a - ra - **ku** - sha - n.

awaken-EXH-REFL-PROG-3SG

'He's awakening.'

(82) Hilda, 2;11 IL: Qhaway kaldota.

'Look at the soup.'

H: *Chiri - ya - **ku** - sha - n.

cool-TRS-REFL-PROG-3SG

'It is cooling.'

(83) Juan, 3;2 *Chiri - ya - ___ - pu - sha - yki - ña.

cool-TRS-(CAUS)-REG-PROG-1>2 OBJ-DISC

'I'm already cooling it for you.'

(84) Juan, 3;2 Chiri - ya - **chi** - pu - sha - rqa - ni ankay - pi.

cool-TRS-CAUS-REG-PROG-PAST-1SG there-LOC

'I was cooling it (for someone) over there.'

Utterances (79) and (84), produced by Hilda and Juan, respectively, both contain appropriately causativized verb forms, the required transitive variants in both cases. Ana does not produce such a form, i.e., [intransitive root + /-chi-/] until the age of 2;9:

(85) Ana, 2;9 Phata - **chi** - ku - ___, pay phata - **chi** - ku - n.

deflate-CAUS-REFL- (3SG) he deflate-CAUS-REFL-3SG

'He's deflated it for himself.'

In fact, every child except Pablo produced at least one appropriately causativized stem for basically intransitive change-of-state verbs, as shown in (86)-(88), for the verbs *thuñi-* 'collapse', *rikch'a-* 'awaken', and *punki-* 'swell, inflate'. Utterance (86) was a complaint made by Hilda about another little girl who had knocked down something she was making on the playground. In (87), Juan describes what a young man is doing to a child.

(86) Hilda, 2;10 Thuñi - yku - **chi** - n. *Todito.*

collapse-AUG-CAUS-3SG all (SP)

'She's knocked it down. The whole thing.'

(87) Juan, 3;2 Wayna - qa rikch'a - **chi** - sha - n.

young man-TOP awaken-CAUS-PROG-3SG

'The young man is waking him up.'

(88) Ines, 3;5 Punki - **chi** - sha - n bomba - ta.

inflate-CAUS-PROG-3SG balloon-ACC

'He's blowing up the balloon.'

All the permutations of intransitive change-of-state verbs produced by Ines, the oldest child (3;2 to 3;5), are error-free. Ines also produced appropriate variants for verbs of spatial configuration, such as *tiya-* 'sit':

(89) Ines Sapu tiya - sha - n mesa - pata - pi.

toad sit-PROG-3SG table-top-LOC

'The toad is sitting on top of the table.'

Wawa - cha - ta mama - n tiya - **chi** - sha - n ama hisp'a - na - n - paq.

baby-DIM-ACC mom-3POSS sit-CAUS-PROG-3SG PROH urinate-POT-3SG-BEN

'His mother is sitting the little baby down so he doesn't urinate.'

To sum up this section, we find that all the children except Ines made errors in the formation of the basically intransitive change-of-state verbs. The errors were not limited to omissions of Causative /-chi-/: since children sometimes attempted to detransitivize the root by affixing Reflexive /-ku-/, they were construing the verbs as basically transitive. Although the Causative omissions of the younger children might plausibly be attributed to general instability in the production of this suffix, even the three-year-olds made such errors. The earliest utterances containing causativized stems of basically intransitive change-of-state verbs were observed at age 2;9.

Discussion

Table 3 presents a summary of the phenomena observed and discussed previously.

Table 3: *Deficiencies, productive use of /-chi-/, and case-marking of causee by age*

Observed Deficiencies	2;4 - 2;5	2;6 - 2;8	2;9 - 2;11	3;0 - 3;2	3;3 - 3;5
Anomalous uses of Causative /-chi-/; errors in basically transitive change-of-state verbs (none causativizing root)	---------->				
Only a few causativized roots, probably unanalyzed stems; omission of /-chi-/ in obligatory contexts in non-change-of-state verbs	---------->				
Errors in basically intransitive change-of-state (omission of /-chi-/ or reflexivization)	---------->				

Productive Use of /-chi-/	2;4 - 2;5	2;6 - 2;8	2;9 - 2;11	3;0 - 3;2	3;3 - 3;5
Causative /-chi-/ extended to a variety of roots and used to form transitive of basically intransitive change-of-state			---------->		

Case-marking of Causee	2;4 - 2;5	2;6 - 2;8	2;9 - 2;11	3;0 - 3;2	3;3 - 3;5
Generally unstable production of case inflections (including non-causative transitives)	---------->				
Causee marked only in Accusative case (ACC)	---------->				
Causee marked only in (ACC) and Dative (DAT)			----->		
Causee marked in three cases: ACC, DAT, INST				---------->	

General development of morphological causatives and case-marking of the causee

In general, children acquire a stable productive system of case inflections by the age of 2;7 or 2;8 (Courtney, 1998). With respect to the case-marking on the complement subject of morphological causatives, no child in the present study inflected the causee in any case but the Accusative until the age of 2;10. It is plausible that, at first, children invariably interpret the participation of the causee as nonvolitional and directly coerced (causee as patient/directly affected object). At that age, the children began marking some causees in Dative Case. The earliest instances of complement subjects bearing the Instrumental inflection were observed at age 3;0.

The children aged 2;4 to 2;8 often omitted the Causative suffix in obligatory contexts, including verbs which were not change-of-state. During the same period, they produced only a few causativized verb stems. Therefore, it is plausible that the children had not yet analyzed the Causative morpheme for productive use. However, children aged 2;9 to 2;10 extended the use of Causative /-chi-/ to a variety of roots, including basically intransitive change-of-state verbs. In fact, the period from 2;9 to 2;10 may represent an important milestone in the development of the causative and case morphology. At that age, the children in this study began using the Causative morpheme productively, and they no longer omitted it in obligatory contexts. This behavior coincided with the onset of varied case inflections on the complement subjects of morphological causatives.

Acquisition of change-of-state verbs

There were striking differences in the error patterns observed in the formation of the change-of-state verbs. The production of basically transitive change-of-state verbs, describing both changes that can occur spontaneously and those that cannot, was virtually error-free from the outset. (Recall that the English equivalents of basically transitive change-of-state verbs expressing changes that can occur spontaneously participate in the causative alternation.) In fact, the children never produced morphological causatives as the transitive variants of these verbs. They also formed the intransitive variant, as required, by affixing Reflexive /-ku/ to the verb root. From the beginning, then, the children correctly construed these verbs as dyadic predicates expressing external causation.

By contrast, errors in the formation of the basically intransitive change-of-state verbs persisted until at least the age of 3;2. The lone exception was *wañu-* 'die', which might be considered as prototypically expressing internal causation. Also, the children had learned the contrasting transitive root, *sipi-* 'kill'. There were two types of errors in the production of the basic intransitives. The children failed to produce morphological causatives for the transitive variant, even though they no longer omitted the Causative suffix in verbs which were not change-of-state. The second error was reflexivization of the root for the intransitive variant. It is the latter type of error which shows that the children initially interpreted these verbs as basically transitive. This, in turn, suggests that the children construed all change-of-state verbs as dyadic predicates expressing changes that are externally caused, brought about by the volitional participation of an agent.

Conclusion

With respect to the overall development of Quechua causatives, the order of acquisition observed in the present preliminary study suggests the five-stage developmental sequence shown in Table 4. While this must be considered as a working model, the stages very much resemble the phases proposed by Berman (1988) for Hebrew and instantiated by Allen (1998) for Inuktitut.

Table 4: Stages in the development of Quechua causatives and related case-marking

Stage	Characteristics
1	Omissions and anomalous uses of the Causative morpheme; Case inflections on internal arguments of causative and non-causative verbs often missing; Case system limited to Accusative and Locative.
2	Production of a very few morphological causatives as unanalyzed amalgams; continued omission of the Causative morpheme in obligatory contexts; causee never marked in any case but the Accusative.
3	Productive use of the Causative morpheme on a variety of roots; marking of the complement subject of morphological causatives in Dative and Accusative, sometimes inappropriately; errors in the formation of basically intransitive change-of-state verbs.

4	Reliable production of morphological causatives for non-change-of-stage verbs; marking of the complement subject in three cases; continued errors in the formation of basically intransitive change-of-state verbs.

Berman and Allen further support a theory of verb-by-verb learning, and children do not start off with innately given categories defined by semantic or syntactic primitives. However, if children learn verbs one-by-one, we might expect very young Quechua speakers to make errors in the production of all types of causative verbs. The outcome of this investigation suggests that they do not.

While the present analysis does not directly refute the premise that children do not rely on innate primitives, one must account for the difficulty Quechua-speaking children have in learning an entire class of verbs: the change-of-state verbs construed as describing changes that can occur spontaneously. These verbs might be considered as falling in the middle of a conceptual continuum. One end of the continuum would include events expressing non-spontaneous changes that transparently require the volitional participation of an agent (e.g., 'kill' events). The corresponding verbs are dyadic predicates across languages. At the other end of the continuum, we would find events describing changes universally construed as internally caused because the ability to cause the change strictly inheres in the entity that undergoes the change (e.g., 'die' events). The corresponding verbs are monadic predicates across languages. The children in this study had no trouble producing the Quechua verbs corresponding to events at either end of the continuum.

The Quechua verbs that take longer to learn seem to be those that express changes that can occur spontaneously and that might be construed as either internally or externally caused crosslinguistically. Many spontaneously occurring changes construed as externally caused across languages (Levin & Rappaport Hovav, 1994, 1995) are construed as internally caused in Quechua. This behavior places these events in the middle of the conceptual continuum described previously. The outcome of this study suggests that children initially interpret all of the corresponding Quechua verbs as expressing eventualities that are externally caused, since they treat them all as basically transitive.

Pinker (1989) maintains that variation by any one verb is not totally idiosyncratic and arbitrary, and children do not learn verbs through lexical conservativism. On Pinker's account, children are innately endowed with a set of thematic cores, or lexical semantic templates; they eventually develop representations for entire sub-classes of verbs by discovering the variations in semantic structure shared by different verbs. The set of thematic cores would include the representations previously presented for basically transitive and basically intransitive change-of-state verbs, respectively:

a. [x CAUSE [BECOME [y <*STATE*>]]] (externally caused events)

b. [BECOME [x <*STATE*>] (internally caused events)

Assuming that these templates are both innately given, why would children initially assign template (a) to most of the Quechua change-of-state verbs? Why would they interpret them as dyadic predicates?

The earliest case-marking of the causee in Accusative, as well as the initial interpretation of change-of-state verbs as dyadic predicates, suggest that Quechua-speaking children first construe all causation as coercive and direct; that is, they uniformly assign volitional, agentive control to the subjects of causative verbs. Children may be predisposed to construing causative and change-of-state verbs in this way; that is, their initial hypotheses as to the interpretation of verbs may favor universal tendencies. Pinker (1984) has proposed that children are guided in their learning of inflectional paradigms by a hierarchy of grammaticizability derived from Greenberg's universals (1963). Accordingly, as they undertake form-function mappings, children are innately constrained to hypothesize those features that are most prevalent across languages. For example, children would more likely hypothesize the notion of NUMBER for a given inflectional form than the notion of SHAPE. We might extend this principle beyond the realm of paradigm acquisition to the task of assigning lexical semantic representations to distinct classes of causative verbs. If, as Levin & Rappaport Hovav have proposed, many events expressing changes that can occur spontaneously tend to be construed as externally caused across languages, we might expect children's initial hypotheses to reflect this crosslinguistic tendency.

The naturalistic data reported in this study offer significant insight into the development of the morphology and argument structure associated with Quechua causative verbs. Though preliminary, this

study yields findings that provide a clear basis for hypothesis generation and further research. Additional research would benefit from gathering a larger corpus of naturalistic data and from carrying out complementary formal measures of elicited production and comprehension, including causative forms constructed from novel roots.

Notes

[1] In fact, on the basis of this phenomenon, Lefebvre & Muysken (1988) maintain that morphological Case in Quechua is not assigned but rather is checked during the syntactic derivation.

[2] Abbreviations used in interlinear glosses are presented in the APPENDIX.

[3] A Chalhuancan adult produced the following utterance, with the causee, *kuchi-ta* 'pig', of the verb, *ñuñu-chi-* 'cause to suckle', marked in Accusative Case.

Chay kuchi - **ta** ñuñu - yku - **chi** - na - y, mana lechi - ta apa - mu - ni.

that pig-ACC suckle-AUG-CAUS-POT-1 NEG milk-ACC carry-DIR-1SG

'I need to make that pig suckle, (and) I haven't brought any milk.'

It may be that the speaker has marked the causee in Accusative Case because it is animate but not human.

[4] Possibly because of Quechua influence, a similar form has crept into colloquial Andean Spanish:

Lo hice curar con el médico.

CL=him I made cure with the doctor

'I had him cured by the doctor.'

An informal acceptability survey carried out among educated native speakers of Spanish from different countries yielded an interesting division: the sentence was unacceptable for speakers from Spain and Puerto Rico, and totally acceptable for speakers from Peru and Argentina.

[5] There may well be variations in the lexical semantic structures of Quechua change-of-state verbs that would reflect membership in different sub-classes. Nevertheless, the basic distinction regarding the presence or absence of an external CAUSE predicate holds for these causatives.

[6] Levin & Rappaport Hovav point out an intriguing characteristic of this group of verbs: they allow the addition of 'by itself' when used intransitively, e.g., 'The door opened (by itself)'. In expressions such as these, 'by itself' means 'spontaneously'. In the earliest Quechua dictionary, written four hundred years ago, Gonzalez Holguin defined the intransitive variant of *llik'i-* as meaning 'break by itself': "lliqquicu- = romperse de suyo mismo" (1989: 214).

[7] The root *chaya-* means 'arrive'. Quechua speakers commonly use this verb to express the notion of change-of-state 'cook'. They also make frequent use of another verb for 'cook': *wayk'u-*. The latter verb means 'cook' in the sense of actively preparing food.

[8] It is possible that this verb actually alternates in Quechua (Cusihuamán, 1976). However, according to other sources (notably, Cordero, 1989; González Holguín, 1989; Ladrón de Guevara, 1998; Ruelas Quispe, 1994), it is basically intransitive, and the transitive is formed by means of the causative suffix: *rupha-chi-*.

[9] A younger child, Max, was recorded for approximately five hours between the ages of 2;0 and 2;2. He produced not a single causative verb form. For this reason, it is likely that Quechua-speaking children do not causativize verbs until close to the two-and-a-half year mark.

References

A. Aksu-Koç and D. Slobin, 'The Acquisition of Turkish' In D. Slobin (ed.), The Crosslinguistic Study of Language Acquisition, Volume 1 (Hillsdale, NJ: Erlbaum, 1985)

S. E. M. Allen, 'Categories within the verb category: learning the causative in Inuktitut' Linguistics, 36(4), (1998), 633-77

A. Alsina, The Role of Argument Structure in Grammar: Evidence from Romance (Stanford, CA: CSLI Publications, 1996)

R. Berman, R. 'A step-by-step model of language acquisition' In I. Levin (ed.), Stage and Structure: Reopening the Debate (Norwood, NJ: Ablex, 1986)

G. Bills, On Case in Quechua, Doctoral Dissertation, (The University of Texas at Austin, 1969)

J. Calvo Pérez, Pragmática y Gramática del Quechua Cuzqueño (Cuzco, Peru: Centro de Estudios Regionales Andinos Bartolomé de Las Casas, 1993)

R. Cerrón-Palomino, Lingüística Quechua (Cuzco, Peru: Centro de Estudios Rurales Andinos 'Bartolomé de las Casas', 1987)

P. Cole, 'The Grammatical Role of the Causee in Universal Grammar' IJAL, 49(2), (1983), 115-33.

B. Comrie, Language Universals and Linguistic Typology (Chicago, IL: The University of Chicago Press, 1989)

L. Cordero, Quichua Shimiyucpanca (Quito, Ecuador: Corporación Editora Nacional, 1989)

E. Courtney, Child Acquisition of Quechua Morphosyntax, Doctoral Dissertation, (Tucson, Arizona: University of Arizona, 1998)

A. Cusihuamán, Diccionario Quechua Cuzco-Collao (Lima, Peru: Ministerio de Educación/ Instituto de Estudios Peruanos, 1976)

A. Cusihuamán, Gramática Quechua Cuzco Collao (Lima, Peru: Ministerio de Educación/ Instituto de Estudios Peruanos, 1976)

W. Geuder and M. Butt, 'Introduction' In W. Geuder and M. Butt (eds.), The Projection of Arguments; Lexical and Compositional Factors (Stanford, CA: CSLI Publications, 1998)

D. González Holguín, Vocabulario de la Lengua General de todo el Perú Llamada Qquichua o del Inca, 3rd edition (Lima, Peru: Editorial de la Universidad Nacional Mayor de San Marcos, 1989)

J. H. Greenberg, Universals of language (Cambridge, MA: The MIT Press, 1963)

J. Gropen, S. Pinker, M. Hollander and R. Goldberg, 'Affectedness and direct objects: The role of lexical semantics in the acquisition of verb argument structure' Cognition, 41 (1-3), (1991), 153-95

M. Haspelmath, 'More on the typology of inchoative/causative verb alternations' In B. Comrie (ed.), Causatives and transitivity (Amsterdam: Benjamins, 1993)

L. Ladrón de Guevara, Diccionario Quechua (Lima, Peru: Editorial Brasa, S.A., 1998)

C. Lefebvre and P. Muysken, Mixed Categories; Nominalizations in Quechua (Dordrecht, The Netherlands: Kluwer Academic Publishers, 1988)

B. Levin, English verb classes and alternations: A preliminary investigation (Chicago, IL: University of Chicago Press, 1993)

B. Levin and M. Rappaport Hovav, 'A preliminary analysis of causative verbs in English' In L. Gleitman and B. Landau (eds.), The Acquisition of the Lexicon (Cambridge, MA: The MIT Press, 1994)

B. Levin and M. Rappaport Hovav, Unaccusativity: At the syntax-lexical semantics interface (Cambridge, MA: MIT Press, 1995)

B. Levin and M. Rappaport Hovav, 'Building Verb Meanings' In M. Butt and W. Geuder (eds.), The Projection of Arguments; Lexical and Compositional Factors (Stanford, CA: CSLI Publications, 1998)

M. Moliner, Diccionario de Uso del Español, Volume 1 (Madrid: Editorial Gredos, S.A., 1992)

V. P. Nedjalkov and G.G. Silnitsky, 'The typology of morphological and lexical causatives' In F. Kiefer (ed.), Trends in Soviet theoretical linguistics, 1-32. (Dordrecht: Reidel, 1973)

E. A. Peers, J. V. Barragán, F. A. Vinyals and J.A. Mora, Cassell's Spanish Dictionary (NY: Funk & Wagnalls, 1960)

S. Pinker, Language Learnability and Language Development (Cambridge, MA: Harvard University Press, 1984)

S. Pinker, Learnability and Cognition: The acquisition of argument structure (Cambridge, MA: The MIT Press, 1989)

J. Ruelas Quispe, Hable Quechua sin Problemas (Arequipa, Peru: Publicaciones Humanitas UNSA, 1994)

A. Saksena, 'The Affected Agent' Language, 56(4), (1980), 812-26

J. J. Song, Causatives and Causation: A Universal-Typological Perspective (London and New York: Longman, 1996)

Appendix: Terms for abbreviations used in interlinear glosses

Independent suffixes	Aff - Affirmative marker	/-mi/, /-n/
	Dub - Dubitative suffix	/-cha/
	Top - Topic marker	/-qa/
	Neg - Negation	/mana ... -chu/
	Proh - Prohibition	/ama ... -chu/
	Interr - Interrogative	/-chu/
	Add - Additive suffix	/-pis/
	Cont - Contrastive suffix	/-taq/
Nominal Suffixes	Acc - Accusative Case	/-ta/
	Dat - Dative Case	/-man/
	Inst - Instrumental Case	/-wan/
	Loc - Locative Case	/-pi/
	Gen - Genitive Case	/-pa/, /-q/
	Ben - Benefactive Case	/-paq/
	Abl - Ablative Case	/-manta/
	Term - Terminative	/-kama/
	Del - Delimitative	/-lla-/
	Dim - Diminutive	/-cha/
	Poss - Person-of-possessor	1st: /-y/, 2nd: /-yki/, 3rd: /-n/
Verbal Suffixes	Subj - Person-of-subject1 sg:	/-ni/, 2 sg: /-nki/, 3 sg: /-n/,
		1 pl: /-nchis/, /-yku/, 3 pl: /-n-ku/
	Obj - Person-of-object	1sg: /-wa-/, 1sg >2 sg: /-yki/

Imp - Imperative	/-y/
Infin - Infinitive	/-y/
Fut - Future	1 sg: /-saq/, 2 sg: /-nki/, 3 sg: /-nqa/
Cond - Conditional	1 sg: /-y-man/
Past	/-r(q)a-/
Prog - Progressive	/-sha-/
Refl - Reflexive	/-ku-/
Res - Resultative	/-sqa-/
Pot - Potential	/-na-/
Caus - Causative	/-chi-/
Disc - Discontinuous	/-ña/
Dir - Directional	/-mu-/
Reg - Regressive	/-pu-/
Ben - Benefactive	/-pu-/
Inch - Inchoative	/-ri-/
Exh - Exhortative	/-r(q)u-/
Aug - Augmentative	/-y(k)u-/, /-(y)ku-/
Inten - Intentional	/-rpari-/
Fact - Factitive	/-cha-/
Trs - Transformative	/-ya-/

Spanish glosses:	Perf - Perfect	auxiliary forms of *haber,* e.g., *ha*
	PP - Past participle	e.g., *roto* for *romper*
	CL - Clitic	e.g., *se, lo*