

RESEARCH

The many functions of Cuzco Quechua =pas: implications for the semantic map of additivity

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The additive enclitic =pas of Cuzco Quechua is multifunctional: besides marking additivity it also participates in the marking of concessivity, epistemic possibility and the formation of non-specific indefinite pronouns. This paper provides a description of these functions and proposes that they all involve a presupposition of existential quantification over alternatives. Their differences result from the type of alternatives quantified over, namely focus, epistemic or *wh*-alternatives. The particular clustering of functions found with =pas has implications for the semantic map of additivity proposed by Forker (2016), and presents a counterexample to three implicational universals it encapsulates. Modifications to the map are proposed to accommodate =pas, including connecting it with the semantic map of modality, and recognizing scalar additivity as a subtype of additivity.

Keywords: additivity; concessivity; epistemic modality; indefinite pronouns; semantic map

1 Introduction

Additive markers are focus-sensitive elements that entail the sentence they occur in and presuppose that it is true of at least one alternative to the focus constituent. (1) gives examples with the Cuzco Quechua (referred to as CQ in the following) additive enclitic =pas,¹ which will be the main focus of this study, and, for comparison, with the German additive adverb *auch* (and English *too* in the translations).

- (1) a. [Noqa]_F = **pis** yacha-ni = n aymara rima-y-ta = qa.
I = ADD know-1 = BPG Aymara speak-INF-ACC = TOP
'I, too, can speak Aymara.' (Cusihuaman 2001: 95)
>> Someone other than the speaker can speak Aymara
- b. [Ich]_F kann **auch** Aymara sprechen.
'I, too, can speak Aymara.'
>> Someone other than the speaker can speak Aymara

The examples in (1) entail that the speaker can speak Aymara, and, assuming that the subject 'I' is in focus, presuppose that someone else can speak Aymara.

¹ The CQ data presented in this paper have been drawn mostly from published texts which either explicitly state that the variety is CQ or give the region of origin from which this can be inferred. The data have been confirmed as grammatical and acceptable by at least one native speaker within the context of the text from which it was drawn. A few data points were obtained by elicitation with two bilingual CQ/Spanish speakers (see footnote 7). When citing from other sources, I maintain the original spelling and glosses. I use '>>' to indicate presuppositions in examples.

Additivity is a rich domain of study for researchers interested in cross-linguistic semantic variation. Many languages have more than one additive and it is then of interest what additional features distinguish between them and how languages carve up the notional domain of additivity (König 1991; Gast & van der Auwera 2011). Additive markers in many languages are multifunctional, that is, they have other uses that do not (obviously) involve additivity, including as discourse connectives, constituent coordinators, concessives, as part of indefinite pronouns and markers of contrastive topic (König 1991; Forker 2016). The fact that there are recurrent patterns of multifunctionality across languages suggests that these functions are semantically related. A common typological tool for capturing such patterns are semantic maps, and Forker's (2016) map for additivity in Figure 1 will be reviewed and modified in section 7.²

The current paper is an in-depth study of a single additive marker and its other uses, the enclitic =*pas* in the Cuzco variety of Quechua. The main semantic contribution is the claim that =*pas* contributes an additive presupposition, that is, existential quantification over alternatives, in all its uses. What distinguishes them is the *type* of alternatives.

The second contribution of the paper is typological: since CQ =*pas* was not included in Forker's (2016) sample, it can serve as a test case for the validity of Figure 1. =*pas* lacks the functions scalar additivity and contrastive topic, and thus violates the principle of Connectivity, the idea that linguistic expressions cover contiguous regions on a map. Two types of modifications will therefore be proposed. One is a simple rearrangement, putting discourse connectivity below coordination. The second involves representing scalar additivity as a subtype of additivity, which has consequences for semantic map methodology more broadly.

CQ =*pas* is moreover of particular interest for the typology of additives because it also participates in the marking of epistemic modality, suggesting that the semantic map of additivity should be linked to that of modality (van der Auwera & Plungian 1998).

In combining insights and methodologies from both the formal and typological literature on additivity, the paper also hopes to foster the dialogue between these two approaches to meaning.

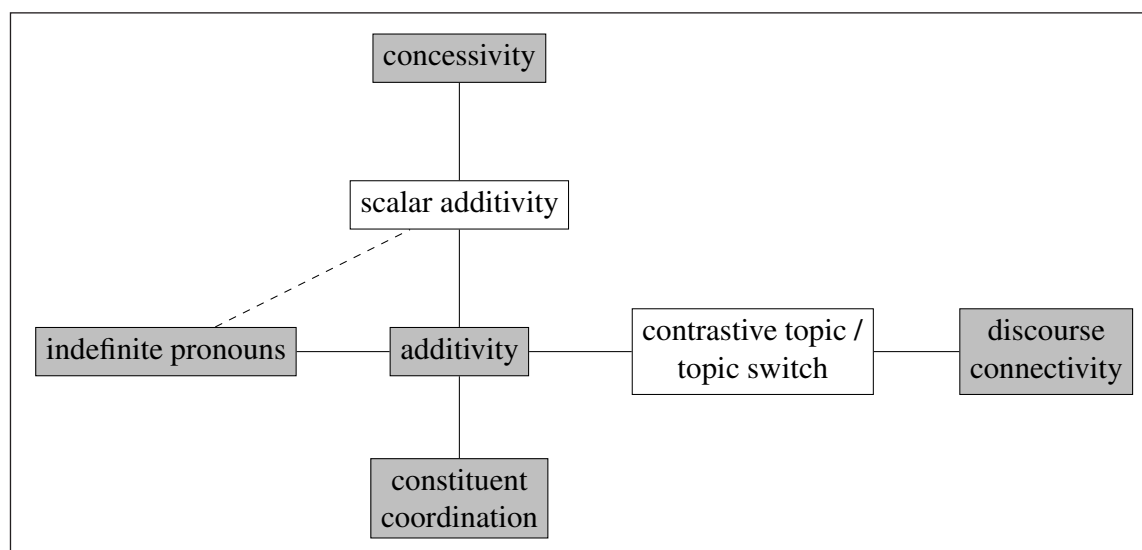


Figure 1: Forker's (2016) semantic map of additives, CQ =*pas* grey shaded.

² The labels have been adapted, and name the semantic notion rather than the marker, that is, *additivity* rather than *additive*. Also, Forker (2016) uses the term *conjunctive adverb* instead of *discourse connective*.

The discussion proceeds as follows. Sections 2–6 provide theoretically informed descriptions of the different uses of CQ =pas. Section 7 introduces the semantic map approach to additivity, and argues that Gast & van der Auwera’s (2011) notion of *generalized utterance meanings* is better able to handle subtype relations than the notion of *functions*. Sections 7.2 and 7.3 propose the modifications to the map necessary to accommodate =pas, while section 7.4 links it to the map of modality. Section 8 concludes with a summary and outlook.

1.1 Background on CQ

CQ belongs to the Quechua II branch of the Quechua language family (Cusihuaman 2001: 29). It is spoken in the southern parts of Peru, the particular variety studied here in the *department* of Cusco.³ Its morphological type is agglutinative and exclusively suffixing. Its basic word order is SOV but other orders are possible. It has a nominative-accusative case marking system and cross-references both subjects and objects on the verb. Pro-drop is frequently used.

CQ possesses a large number of enclitics that mark information structural notions (topic, focus, contrastiveness), evidentiality, modality, aspectual notions, and, most relevant for the current paper, additivity and exclusivity. (2) exemplifies some of them.

- (2) Chay = **qa** kaq awla-cha-man saqe-ru = **lla-n** = **taq** = **sis**
 that = TOP same old.woman-DIM-ILLA leave-HORT = EXCL-3 = CONTR = REP
 anillu-cha-ta = **pas**
 ring-DIM-ACC = ADD
 ‘Then he left also the ring with the same old woman again.’ (Espinoza 1997: 88)

With the exception of the evidential focus enclitics (Weber 1986; Muysken 1995; Floyd 1999; Faller 2002) (and to a lesser extent topic enclitics (Grzech 2016)), the semantics of enclitics have not received a lot of attention beyond grammars. One notable exception is the work by Tellings (2012; 2014) on the exclusive enclitic =lla in Ecuadorian Quichua. Many enclitics are multifunctional and their combinations are not always transparently compositional. For example, the combination of the exclusive =lla⁴ and the contrastive -taq in (2) indicates that the described event is a continuation or repetition of a previous event (see also Tellings (2012) for Quichua). The combination of additive =pas and exclusive =lla expresses scalar additivity in negative sentences (section 2.2).

2 Additive uses of =pas

2.1 Simple additivity

Additives quantify over a set of propositional alternatives to their prejacent. This set is obtained by replacing the denotation of the focus constituent ($[...]_p$) the additive *associates* with (Rooth 1992), with contextually relevant alternatives (Kay 1990; Gast & van der Auwera 2011). They assert their prejacent and presuppose that at least one of the alternatives is true (König 1991; Gast 2013; Forker 2016). For example, the additive *too* in the second conjunct in (3), associates with the NP *his brother*. The relevant set of alternative propositions is the set obtained by assigning different values to x in the open proposition x was there, that is, {Fred’s brother was there, Fred was there, Mona was there, Sara was there, ... }. In (3), the first conjunct verifies that Fred was there, and therefore the entire utterance is felicitous.

³ I adopt the spelling *Cuzco* for the language variety, following Cusihuaman (2001) and others. However, I use *Cusco* to refer to the city and region where it is spoken, adopting the spelling of the local authorities for these geographical entities.

⁴ Cusihuaman (2001) calls it *limitativo* ‘limitative’.

- (3) Fred was there and [his brother]_F was there **too**. (König 1991: 35)
 >> someone other than Fred's brother was there (namely Fred)

The principal marker of simple additivity in CQ is the enclitic =*pas* (allomorph =*pis*). Cusihuaman (2001: 237) labels it *aditivo* 'additive', suggesting that he thought this to be its primary function. As an enclitic, =*pas* can attach to constituents of all major types: NPs in (1a) and (4), a nominalized adverbial clause in (5), and the verb in (6). The constituent it attaches to contains its associate.⁵

- (4) Chay miste-q wasi-n-pi = **pas** uwiha-lla-ta = taq michi-mu-ni.
 this *misti*-GEN house-3-LOC = ADD sheep-EXCL-ACC = CONTR herd-CISL-1
 'In the house of this *misti*, too, I was herding only sheep.'
 (Valderrama & Escalante 1982: 26)

- (5) Regidor ka-spa = **pas** siempre hacienda-q muchachu-n = mi ka-ra-ni.
 councilor be-NMLZ.SS = ADD always hacienda-GEN boy-3 = BPG be-PST-1
 'Also when I was councillor, I was always the servant of the landowner.'
 (Espinoza 1997: 54)

- (6) Chay laru-pi = taq nace-ra-n, chay laru-pi = taq
 this side-LOC = CONTR be.born-PST-3 this side-LOC = CONTR
 wañu-chi-ra-n-ku = **pas**
 die-CAUS-PST-3-PL = ADD
 'He was born on that side, and they killed him, too, on that side.'
 (Espinoza 1997: 262)

Forker's (2016) sample includes the Huallaga Quechua additive =*pis* (allomorph =*si*), illustrated in (7).⁶

- (7) *Huallaga Quechua*
 Ima-naw + pa-taq riiku-ya-n pay? Noqa-si riiku-ya: = shaq.
 what-adv-?? rich-3 he I-indef rich-3-1FUT
 'How does he become rich? I too will become rich.'
 (Weber 1989: 374)

The two varieties are substantially different, and it cannot be assumed that their additives have the same set of functions. I will discuss cases of potential differences in the following sections.

If additives *presuppose* the existence of an alternative, they should only be felicitous in contexts in which this presupposition is satisfied. This is the case for =*pas*: it is felicitous in contexts that establish such an alternative such as (8), but not in contexts that do not, (9). That is, =*pas* imposes a Strong Contextual Felicity constraint in the sense of Tonhauser et al. (2013).⁷

⁵ The additive =*pas* may, and in fact usually does, attach to a different constituent than evidential enclitics, see e.g., (1a), (2) and (5). Since these are typically analyzed as focus markers (Muysken 1995), the question arises as to whether they mark different kinds of foci. I will set this question aside, but see Tellings (2014) for a discussion of this issue with respect to the exclusive =*lla*.

⁶ The gloss of this example is as in the original, including the question marks for *-taq*. Note that Weber (1989: 369) chooses the "arbitrary label" *indefinite* for =*pis*/=*si* rather than *additive*.

⁷ The elicited examples in this paper were obtained: (i) by asking a native speaker whether a CQ sentence was acceptable within a given context (presented in Spanish); (ii) by asking for grammaticality judgments of sentences in isolation; or (iii) by asking for a translation from Spanish. (See the papers in Bochnak & Matthewson (2010) for a discussion of semantic fieldwork methodology in general and Tonhauser (2012) for projective meanings in particular.) When judging a context-sentence pair as unacceptable, speakers typi-

- (8) [Context 1: At a dinner in a restaurant, Mario is eating potatoes. The mother of another child says to Mario's mother:]
 Wawa-y = **pas** papa-ta = n mikhu-sha-n.
 child-1 = ADD potato-ACC = BPG eat-PROG-3
 'My child is eating potatoes, too.'

- (9) [Context 2: At a dinner in a restaurant, Mario is eating noodles. The mother of another child says to Mario's mother:]
 #Wawa-y = **pas** papa-ta = n mikhu-sha-n.
 child-1 = ADD potato-ACC = BPG eat-PROG-3
 'My child is eating potatoes, too.'

The following examples moreover show that the additive presupposition projects. Despite being in the scope the question operator, =pas is only felicitous in (10), which satisfies its additive presupposition.

- (10) [Context 3: At a dinner in a restaurant, Mario is eating potatoes. His mother says to the mother of another child:]
 Wawa-yki = **pas** papa-ta = chu mikhu-sha-n.
 child-2 = ADD potato-ACC = POL eat-PROG-3
 'Is your child eating potatoes, too?'

- (11) [Context 4: At a dinner in a restaurant, Mario is eating noodles. His mother says to the mother of another child:]
 #Wawa-yki = **pas** papa-ta = chu mikhu-sha-n.
 child-2 = ADD potato-ACC = POL eat-PROG-3
 'Is your child eating potatoes, too?'

These tests confirm the additive implication as a presupposition.

Additives may be specified for additional semantic features such as scalarity, polarity or scope (König 1991). Section 2.2 argues that =pas is not scalar. It is also not marked for polarity and freely occurs in negative sentences such as (12).

- (12) Mana = n qolqe-ta = **pas** runa-man = qa qo-wa-q-ku = chu
 not = BPG money-ACC = ADD person-ILLA = TOP give-1O-AG-PL = POL
 alcadevara-kuna = qa.
 mayor-PL = TOP
 'The *alcaldes* didn't give us *runas* money either.' (Espinoza 1997: 54)

English *either*, illustrated in (13a), is only felicitous in negative polarity contexts, and can only have wide scope over negation, that is, it is the negated proposition that is asserted and that is used to calculate the alternatives (König 1991: 31). In contrast, *too* can occur in both positive and negative clauses and may have narrow scope (13b), that is, the alternatives are calculated without the negation.

- (13) a. You cannot eat [this]_p either.
 >> Addressee cannot eat something other than this

cally comment on what they perceive to be the problem and offer a correction. For example, one speaker commented on (9): "No pues, si has dicho que Mario está comiendo tallarín. Deberías decir *Wawaypas tallarintan mikhushan*." 'No, since you've said that Mario is eating noodles. You should say'

- b. You cannot eat [this]_F, too.
 >> Addressee has eaten / can eat something other than this

=pas is to my knowledge not restricted with respect to scope. (12) presupposes that there are other things that the *alcadevaras* did *not* give to the *runas*; =pas therefore has wide scope. While I have not come across any naturally occurring examples of =pas having narrow scope, (14) is an elicited example.

- (14) Maria =qa ri-ru-n =ñá =n mircadu-ta ranti-q, **mana =n**
 Maria =TOP go-HORT-3 =DISC =BPG market-ACC change-AG, not =BPG
 ri-y =ñá =**chu** qan =**pas**.
 go-IMP =DISC =POL you =ADD
 ‘Maria already went to the market to go shopping, don’t you go as well.’
 >> Someone other than the addressee went to the market (elicited)

The main aim of this paper is to establish the various functions of =pas as the basis for the discussion of the consequences for the map of additivity in section 7, not to provide a fully fledged semantic account. Nevertheless, it is useful to introduce some basic semantic representations to facilitate comparison. I adopt a version of Rooth’s (1992) focus semantics for characterizing the set of alternatives =pas quantifies over. In this approach, a sentence *S* not only denotes its ordinary semantic value $\llbracket S \rrbracket^o$, the proposition expressed *p*, but also has a *focus semantic value* $\llbracket S \rrbracket^f$, which is the set of propositions denoted by sentences *S'* that are obtained from *S* by replacing the focus constituent with a contextually salient alternative of the same type (see also Guerzoni & Lim (2007), Gast & van der Auwera (2011: 10), Gast (2013), among many others).

For example, the focus value for *Pilar speaks Aymara* is (15a) when *Pilar* is the focus, and (15b) when *Aymara* is the focus. The ordinary semantic value (15c) is the same for both.⁸

- (15) a. $\llbracket [Pilar]_F \text{ speaks Aymara} \rrbracket^f =$
 $\{q \mid q = \text{that } x \text{ speaks Aymara, for contextually salient values of } x\}$
 b. $\llbracket \text{Pilar speaks } [Aymara]_F \rrbracket^f =$
 $\{q \mid q = \text{that Pilar speaks } x, \text{ for contextually salient values of } x\}$
 c. $\llbracket \text{Pilar speaks Aymara} \rrbracket^o = p = \text{that Pilar speaks Aymara}$

I use F-Alt as a short-hand to refer to the set of focus alternatives in the following. The semantic contribution of additive =pas can then be schematically represented as in (16).

- (16) Simple additive =pas:
 a. Assertion: *p*
 b. F-Alt = {*p*, *q*, *r*, ... }
 c. Additive Presupposition: there is at least one contextually salient proposition *q* in F-Alt such that *q* ≠ *p* and *q* is true

=pas does not contribute to the asserted content *p*, but contributes the presupposition that there is at least one true alternative proposition in F-Alt that is distinct from *p*. Moreover, Strong Contextual Felicity requires this proposition to be *salient* and established in the common ground (Tonhauser et al. 2013: 100).⁹

⁸ I adopt the convention of representing the proposition denoted by *S* as *that S*.

⁹ Other authors, e.g., Kripke (2009[1990]) and Heim (1992), analyze additives as anaphors to account for the observation that they are infelicitous in contexts that trivially satisfy the existential presupposition. For

(17) applies this to (17a) (repeated from (1a)). Assume that Ana is the speaker and the salient alternative individuals are Mario and Pilar.

- (17) a. Noqa=**pis** yacha-ni=n aymara rima-y-ta=qa.
 I=ADD know-1=BPG Aymara speak-INF-ACC=TOP
 ‘I, too, can speak Aymara.’ (Cusihuaman 2001: 95)
- b. *p* = *that Ana can speak Aymara*
- c. F-Alt = {that Ana can speak Aymara, that Mario can speak Aymara, that Pilar can speak Aymara}
- d. Additive presupposition: A contextually salient individual other than Ana can speak Aymara.

Following Gast (2013), I also make use of a set of parameters to capture the variation in meaning between different types of additives and their other uses. To his parameters of quantificational *force* (existential/universal), informational *status* of the prejacent P and the quantificational statement Q (asserted/presupposed), and *scalarity*, I add the *type* of alternatives quantified over, the *polarity* of the sentence (pos(itive)/neg(ative)), and the *scope* of the marker with respect to other scope-bearing markers (wide *w*, narrow *n*). Table 1 presents these parameters for the additives discussed so far (scalarity will become relevant only in the next section).

The exclusive *only* is included for comparison. As shown in (18), *only* also quantifies over the set of focus alternatives, but the quantificational force is a negated existential, and it is the quantificational statement Q that is asserted, while the prejacent P is presupposed (Gast 2013).

- (18) a. Only Ana can speak Aymara.
 b. F-Alt = {that Ana can speak Aymara, that Mario can speak Aymara, that Pilar can speak Aymara}
 c. Assertion: No-one other than Ana can speak Aymara
 d. Presupposition: Ana can speak Aymara

Table 1: Parameters of variation for exclusives and additives.

	type	polarity	scope	status P	status Q	force
<i>only</i>	focus	pos/neg	w/n	presupposed	asserted	$\neg\exists$
<i>too</i>	focus	pos/neg	n	asserted	presupposed	\exists
<i>either</i>	focus	neg	w	asserted	presupposed	\exists
<i>auch</i>	focus	pos/neg	w/n	asserted	presupposed	\exists
=pas	focus	pos/neg	w/n	asserted	presupposed	\exists

example, many people would have had dinner in New York last night, but (ia) requires there to be a *salient* person in the context. This presupposition cannot be accommodated, in contrast to the presupposition that Ana has a sister triggered by the possessive.

- (i) **Ana's sister** had dinner in New York last night, **too**.
 a. Additive presupposition: Someone else had dinner in New York last night
 b. Possessive presupposition: Ana has a sister

See Ruys (2015) for a critical review of the different approaches. I retain the existential formulation of the presupposition plus Strong Contextual Felicity because this is how it is formulated in the literature this paper relies on most, e.g., König (1991), Krifka (1999), Gast (2013), Tonhauser et al. (2013), Forker (2016), and for ease of comparison with the contribution of =pas in its other uses.

The scope parameter is omitted in what follows, as I currently lack data on scope interactions for the non-additive uses of =pas.

To conclude this section, note that while =pas is the main marker for additivity, in the sense that native speakers typically use it to translate Spanish sentences with *tambien* ‘also’, the instrumental-comitative suffix -(pu)wan also has an additive function, as shown in (19) (Cusihuaman 2001).¹⁰

- (19) Additive -puwan
 Noqa-**puwan** = mi tarpu-q = qa ri-saq-ku.
 I-COM = BPG SOW-AG = TOP go-1.FUT-PL
 ‘I, too, will go to sow with them.’ (Cusihuaman 2001: 127)

Additive -(pu)wan differs from =pas in requiring the referent to be part of a group with the presupposed alternative(s). (19) is not felicitous in a context in which the speaker goes to sow on their own, while the presupposed alternatives go separately. This will be relevant for the discussion of the coordinative use of =pas in section 2.4.

2.2 Scalar additivity

Scalar additives such as English *even* or German *sogar* interact with a pragmatic scale that orders the alternatives in terms of informativeness or strength (Kay 1990; Gast & van der Auwera 2011).¹¹ They presuppose that their prejacent is stronger/more informative than its alternatives. Often, the overall effect is one of unexpectedness (König 1991: 38). For example, in addition to the additive presupposition that Pilar speaks another language, (20a) and (20b) presuppose that the proposition that Pilar speaks Aymara is more informative than its alternatives, that she speaks Quechua or Spanish according to the scale in (20e) (ordered from most to least informative). If Pilar was born and lives in Cusco, where Aymara is not commonly spoken, the fact that she speaks Aymara is unexpected.

- (20) a. Pilar spricht **sogar** [Aymara]_F.
 b. Pilar **even** speaks [Aymara]_F.
 c. Additive presupposition: Pilar speaks a language L other than Aymara
 d. Scalar presupposition: It is less expected that Pilar speaks Aymara than it is expected that she speaks L
 e. Scale: <Shipibo, Aymara, Quechua, Spanish >

Gast & van der Auwera (2011) illustrate scalar additives from different languages with, amongst other things, translations of Bible verse Luke 8:25. (21a) is the English translation in the *New International Version* and (21b) the German one from the *Einheitsübersetzung 2017* (both last accessed on the bibleserver.com on 5 April 2019).

- (21) a. Who is this? He commands **even** the winds and the water, and they obey him.
 b. Wer ist denn dieser, dass er **sogar** den Winden und dem Wasser gebietet und sie ihm gehorchen?

¹⁰ That comitative markers can be used as additives is cross-linguistically not uncommon (Haspelmath 2004; Malchukov 2004).

¹¹ For a detailed discussion of how these scales are constructed in context and how scalar additives interact with them, please see Gast & van der Auwera (2011) and references therein.

CQ does not have a dedicated scalar additive, and the translation of this verse in (22) uses the additive =pas.¹²

- (22) ?Pi = taq kay = ri? Wayra-ta = **pas** unu-ta = **pas** kamachi-n,
 who = CONTR this = RESP wind-ACC = ADD water-ACC = ADD order-3,
 pay-ta = qa kasu-n-ku = taq.
 (s)he/it-ACC = TOP take.heed-3-PL = CONTR
 ‘And who is this? He commands (even) the wind and the water, and they obey him.’
 (Sociedad Bíblica Peruana 1988)

(23) gives two further examples (which are not translations) with a scalar interpretation.¹³

- (23) a. Kunan = qa orqo qhata-kuna = **pas** wasi wasi = lla = ña ka-pu-n.
 now = TOP mountain side-PL = ADD house house = EXCL = DISC be-REG-3
 ‘Now, even the mountain sides are full of houses.’ (Cusihuaman 2001: 133)
- b. Kunan alcaldevara ka-sha-n = taq mana = n rini = **pas** = taq = chu.
 now mayor be-PROG-3-CONTR not-BPG go-1 = ADD = CONTR = POL
 ‘Now he is mayor, I don’t even go.’ (Espinoza 1997: 50)

Forker (2016) classifies 30 out of 42 additives in her sample as also having a function as scalar additives. This amounts to an ambiguity claim: as simple additives, they contribute an additive presupposition; as scalar additives, they contribute an additive and a scalar presupposition. I argue that CQ =pas is not ambiguous in this way, and that the scalar interpretation in these examples arises from contextual assumptions.¹⁴ First note that even though the German version of Luke 8:25 in (21b) uses the scalar additive *sogar*, in other versions of the Bible, the simple additive *auch* is used instead, as shown in (24).

- (24) Wer ist dieser, dass er **auch** dem Wind und dem Wasser gebietet und sie sind ihm gehorsam? (Lutherbibel 2017, accessed on the bibleserver.com on 5 April 2019)
 ‘Who is this, that he orders also the wind and the water and they obey him?’

The reason we do not need to encode scalarity linguistically in this example is that our world-knowledge tells us that humans can not command the winds and the water. It is therefore entirely unexpected to see Jesus calm the storm in this way. The translators of (21b) decided to make this explicit by using *sogar*, while those of (24) rely on the reader’s world knowledge. The same holds for the CQ example in (22). If we were to change the context to one that is not inherently scalar, such as a world of supernatural heroes with powers to control the natural elements, the simple additive sentences (in contrast to the scalar additive ones in (21)) would no longer be interpreted as scalar.

¹² Note that =pas occurs on both object NPs, suggesting that it is here used for constituent coordination. This use of =pas, which is discussed in section 2.4, is not normally translated with an additive. I have included an optional *even* in the translation of (22) to reflect the fact that it would typically be interpreted as scalar in the given context.

¹³ They are translated with Spanish *hasta* ‘even’ and *ni siquiera* ‘not even’ respectively by Cusihuaman (2001) and Espinoza (1997).

¹⁴ The Basque additive *ere* has both simple and scalar uses. According to Etxeberria & Irurtzun (2015), it is however not ambiguous. Rather, focus intonation interacts with the additive presupposition in such a way as to create the scalar presupposition. While I cannot rule out that there is a distinct intonation pattern for =pas when used in scalar contexts, this seems unlikely in light of previous literature showing that intonation is not used to mark focus in Quechua (O’Rourke 2005; Tellings 2014; van Rijswijk & Muntendam 2014).

Similar observations apply to the examples in (23): the town in (23a) was built in a valley. We know that it is easier to build houses on the flat than on steep mountain sides. Thus, the proposition that the mountain sides are full of houses is surprising. The speaker of (23b) used to be mayor and preside over meetings. He no longer is mayor, but given his previous involvement in local government, one would expect him to still attend meetings. The proposition that he does not is therefore unexpected. Thus, the scalar interpretation of these examples is not triggered by =pas but part of the wider context.

A second way in which sentences with =pas can have a scalar interpretation is if other expressions in the sentence reference a scale. For example, in negative polarity sentences, the combination of =pas with the exclusive enclitic =lla results in a scalar additive reading, as illustrated in (25).¹⁵

- (25) a. Chay-manta=taq ni choqlllo=**lla**-ta=**pas** qo-ya-mu-wa-n-ku=chu
 this-ABL=CONTR not corn=EXCL-ACC=ADD give-TRANS-CISL-1O-3-PL=POL
 ‘And with all that, they didn’t even give us corn. (Espinoza 1997: 51)
- b. Israel runa-kuna-q uywa-n=qa mana=n huk=**lla**=**pas**
 Israel person-PL-GEN cattle-3=TOP not=BPG one=EXCL=ADD
 wañu-sqa=chu
 die=NX.PST=POL
 ‘Not even one of the animals of the Israelites had died.’
 (Sociedad Bíblica Peruana 1988)

Exclusives are commonly assumed to contribute a scalar presupposition to the effect that their prejacent is the least noteworthy or informative amongst the alternatives (König 1991; Guerzoni 2003). Combining this with the additive presupposition of =pas results in an overall scalar interpretation. In (25a), the thing that is most expected to be given, and therefore the least remarkable, is corn, and they didn’t give that, in addition to any less expected thing not being given. In (25b), one animal being killed would be the least remarkable, and this didn’t happen in addition to more animals not being killed.

Guerzoni (2003: 189ff) develops a compositional analysis along these lines for German *auch nur* and similar constructions in other languages (see also Gast & van der Auwera 2011).¹⁶ I expect her analysis also to be applicable to CQ =lla=pas, but will have to leave the details for future work. The point for current purposes is that the scalarity in these examples is contributed by =lla and not by =pas.

In sum, then, =pas does not have a separate function as a scalar additive. Since Forker (2016) classifies the Huallaga Quechua additive =pis as having such a function, I briefly review the relevant examples from Weber (1989) in (26).

- (26) Scalar uses of Huallaga Quechua =pis
- a. Chay muku-n tinri-ta-**pis** wañu-chi-sha!
 that lamb-3P tiger-OBJ-indef die-cause-3PERF
 ‘That lamb of his has even killed tigers.’ (Example 1580, Weber 1989: 372)
- b. Chay-chaw aycha-ta-**pis** miku-yka-n-chari
 there-LOC meat-OBJ-indef eat-impfv-3-surely
 ‘They even eat meat there.’ (Example 1579, Weber 1989: 372)

While the scalar interpretation of (26a) can easily be attributed to world knowledge, this is not obviously the case for (26b). We can imagine a context in which meat is rarely

¹⁵ Compare (25) with the non-scalar (12).

¹⁶ Please see these authors’ work for examples of *auch nur* ‘also only’ as a scalar additive.

eaten in the speaker's community, in which case the scalar interpretation of (26b) would arise from this contextual assumption. But for all we know (26b) may also be felicitous in contexts that do not contain any such assumption. More research is needed to ascertain whether this is a genuine difference between Huallaga Quechua =pis and CQ =pas.

2.3 Discourse connectivity

Both König (1991) and Forker (2016) identify *conjunctive adverb* as a separate use. Around one fourth in Forker's sample have this use, illustrated in (27) for German *auch* and English *also*.

- (27) a. **Also**, many people fail to see that immediate action is required.
(König 1991: 65)
- b. Ich habe keine Zeit. **Auch** fehlt es mir an Geld.
'I haven't got the time. Also I lack the funds.'
(König 1991: 65)

Since not all additives that have this use are adverbs, I will use the term *discourse connective* (Schiffrin 1987) instead. This use is still very much additive in the sense that it requires an antecedent that is distinct from its prejacent. In this case though, the associate is the entire prejacent, and so the relevant alternatives do not necessarily share any material. The set of alternatives is nevertheless restricted, namely to those propositions that contribute the same discourse topic (Zeevat & Jasinskaja 2007; Forker 2016). Additive discourse connectives often express "a continuation or a consequence of the situation referred to in the first clause," and are then translatable with "*and then, moreover, therefore* [italics added], etc." (Forker 2016: 81f).

CQ =pas also has this use, as shown in (28). On its own, =pas seems to be closer in meaning to the discourse connective *and*, as reflected in the translation with Spanish *y* in the original. Translations of (28) with the additive *also/moreover* (Spanish *tambien/además*) would not render a coherent discourse. Nevertheless, (28) still presupposes relevant prior discourse.

- (28) Kuti-mu-saq-ku = puni = n!, ni-spa Inka-kuna ni-sqa-ku.
return-CISL-1.FUT-PL = DEF = BPG say-NMLZ.SS Inca-PL say-NX.PST-PL
Inka-kuna = pas kuti-mu-y-pi = puni = n ka-sha-n-ku.
Inca-PL = ADD return-CISL-NMLZ-LOC = DEF = BPG be-PROG-3-PL
'We will definitely return!, the Incas said. And the Incas are definitely about to come back.'
(Espinoza 1997: 272)

=pas also combines with other discourse connectives such as *hinaspá* 'and then', and then has a more strongly additive flavour, as shown in (29).

- (29) Allin mikhuna ka-ra-n, **hinaspá = pas** siempre noqa-yku-paq
good food be-PST-3 and.then = ADD always I-PL.EXCL-DAT
ima = lla = pas ka-q = puni = n.
what = EXCL = ADD be-AG = DEF = BPG
'It was good food and there was also always something for us.'
(Valderrama & Escalante 1982: 78)

No additional semantic components are needed to account for this use, except the requirement that the set of alternative propositions have to address the same overall discourse topic. Zeevat & Jasinskaja (2007) argue that this is in fact a general feature of additives,

not just when they are used as discourse connectives. There is then no distinction between the standard additive and the discourse connective use.

2.4 Constituent coordination

CQ has a number of strategies for coordinating constituents, including juxtaposition, the instrumental/comitative suffix *-wan*, the contrastive enclitic =*taq* and two independent particles, *ima* ‘and’ and *utaq* ‘or’ (Cusihuaman 2001: 141–143). (30) illustrates juxtaposition.

- (30) Chay=lla-man huk arriero llaqta-y-ta chaya-mu-n, **kachi asucar**-ta
 this=EXCL-ILLA one *arriero* village-1-ACC arrive-CISL-3, salt sugar-ACC
 ashka **mula caballo**-pi apa-mu-sqa
 many mule horse-LOC bring-CISL-PRTC
 ‘In this, an *arriero* arrived in my village, bringing salt and sugar on many mules
 and horses, ...’ (Valderrama & Escalante 1982: 18)

Of interest for current purposes is that the additive =*pas* can also be used for constituent coordination. This is a cross-linguistically frequent extension of additives, occurring with more than half of the languages in Forker’s (2016) sample.

The constituents coordinated with =*pas* can be of any type, though impressionistically, the coordination of NPs (including nominalized clauses) as in (31) is most common. Coordinating =*pas* tends to occur on all conjuncts (Cusihuaman 2001: 142), though there are cases of =*pas* only appearing on the last conjunct.

- (31) a. Paqay=**pis** paltay=**pis** ka-n=mi yunka-pi=qa.
 pacay=ADD avocado=ADD be-3=BPG jungle-LOC=TOP
 ‘In the valley, there are (also) pacays and avocados.’ (Cusihuaman 2001: 142)
- b. Regidor ka-spa=**pas**, alcaldevara ka-spa=**pas** bastante
 councilor be-NMLZ.SS=ADD mayor be-NMLZ.SS=ADD a.lot
 waka-ta ñak’a-ra-ni.
 cow-ACC slaughter-PST-1
 ‘Being councillor and being mayor, I slaughtered a lot of cows.’
 (Espinoza 1997: 46)

(32a) and (32b) are examples of VP and clause coordination respectively.

- (32) a. Pero chay tiempo bastante phortalesa-yoq-ta mihu-ra-n-ku, uha-ra-n-ku,
 but that time a.lot strength-POSS-ACC eat-PST-3-PL drink-PST-3-PL
 llank’a-ra-n-ku=**pas**
 work-PST-3-PL=ADD
 ‘But in those times they ate, drank and worked with a lot of strength.’
 (Espinoza 1997: 129)
- b. Apu ka-qti-n=mi para=**pas** para-n, chhulla=**pas** chhulla-n,
 apu be-NMLZ.DS-3=BPG rain=ADD rain-3 dew=ADD dew=3
 phuyu=**pas** hamu-n.
 cloud-ADD come-3
 ‘Because the Apu exists, the rain rains, the dew dews and the cloud comes.’
 (Espinoza 1997: 288)

Given that juxtaposition is already interpreted as conjunction (see (30)), the question arises whether =*pas* simply makes this meaning overt or whether it narrows down the

interpretive possibilities. Forker (2016: 83) (see also Szabolcsi 2015: 181) observes that additives tend to force a distributive interpretation, and this is also the case for =pas: (33) can only mean that Tomás and Alicia each met other people, not each other.

- (33) Tomas = **pas** Alicia = **pas** plasa-pi tupa-ra-n-ku.
 Tomás = ADD Alicia = ADD square = LOC meet-PST-3-PL
 ‘Tomás and Alicia met (someone) in the town square.’ (elicited)
 Consultant’s comment: “Each meets someone else.”

Even with inherently distributive predicates such as *eat*, =pas coordination adds a further meaning element of separation. Thus, (34) is interpreted as Tomás and Alicia eating separately. In this respect, =pas contrasts with the additive use of the comitative marker -(pu)wan in (19), which, recall, requires accompaniment.

- (34) Tomas = **pas** Alicia = **pas** mikhu-sha-n.
 Tomás = ADD Alicia = ADD eat-PROG-3
 ‘Tomás and Alicia are eating (separately).’ (elicited)
 Consultant’s comment: “as if each is eating on their own”

To what extent can the constituent coordination function of =pas be assimilated to its additive function? According to König (1991: 66), both “link separate but parallel information to the preceding discourse.” However, coordination differs from additivity in that the two pieces of parallel information are part of the same constituent, and on the face of it, does therefore not carry an additive presupposition. I suggest, however, that =pas can also in this use still be analyzed as involving a presupposition of sort. Consider again (35a) (repeated from (31a)). Each instance of =pas refers to the set of focus alternatives F-Alt calculated from its associate. Given that these are of the same type and occur in the same sentence, there is in effect only one F-Alt, as shown in (35c). (35a) asserts that there are *paqays* and avocados in the valley. The predicted presuppositions of the two instances of =pas are indicated in (35d). As can be seen, each presupposition is satisfied by the other conjunct. They do therefore not project beyond the sentence, that is, (35a) can be uttered out of the blue.

- (35) a. Paqay = **pis** paltay = **pis** kan = mi yunka-pi = qa. (Cusihuaman 2001: 142)
 b. Assertion: *p* = that there are *paqays* and avocados in the valley.’
 c. F-Alt: {that there are *paqays*, that there are avocados, that there are bananas, ...}
 d. Additive presuppositions:
 (i) there is at least one proposition *q* in F-Alt such that *q* ≠ that there are *paqays* and *q* is true
 (ii) there is at least one proposition *q* in F-Alt such that *q* ≠ that there are *avocados* and *q* is true

Presupposition satisfaction is usually assumed to proceed incrementally (Rothschild 2011; Chemla & Schlenker 2012), so the assumption that the first conjunct’s additive presupposition is satisfied by the second may seem problematic. However, following Szabolcsi (2015: 168), who analyzes similar data with quantifier particles such as Japanese *mo* ‘too/and/every’, we can appeal here to Brasoveanu’s (2013) notion of *post-suppositions*. Post-suppositions are constraints that need “to be satisfied relative to the *context that results after* the at-issue meaning is evaluated” (p. 158) [his emphasis], within a specified

Table 2: Features of discourse connective and coordination uses of CQ =pas.

	type	status P	status Q	force
=pas _{add}	constituent focus	asserted	presupposed	∃
=pas _{disc}	sentence focus	asserted	presupposed	∃
=pas _{coord}	constituent focus	asserted	presupposed, mutually satisfied by coordinands	∃

domain. Thus, the post-supposition of the first =pas can be satisfied within a larger domain that includes the second conjunct.¹⁷

Such an additive semantics for the coordinative use of =pas also goes some way towards explaining why it can not be interpreted collectively (see above, examples (33) and (34)): as an additive, =pas presupposes the existence of a distinct propositional alternative, not just an individual, and therefore also of a distinct event. While, in principle, this is compatible with the summation of the relevant individuals and events into a collection, the fact that =pas highlights their distinctness puts it in pragmatic competition with the non-additive strategies of coordination, including juxtaposition, resulting in an implicature of non-collectivity for coordinative =pas. While this account needs to be fleshed out, these considerations suffice to highlight the similarity between the additive and coordinative uses.

The sketched analysis is also compatible with the fact that additive markers can be the diachronic source of constituent coordinators (Mithun 1992). Constituent coordinators like *and* have in turn been claimed to evolve into discourse connectives (Koops & Lohmann 2015). In section 7.3 I will therefore suggest to put these three functions on the same path in Forker’s map.

To summarize, Table 2 shows the shared features between the discourse connective, the coordinative and additive uses of =pas. Their differences result from the type of associate selected.

2.5 =pas does not mark contrastive topic/topic switch

Forker’s semantic map predicts that additives that can be used as discourse connectives can also be used for marking contrastive topic (CT). Cusihuaman (2001) describes neither topic nor contrast marking for =pas and there are dedicated markers for both, namely =qa for topic (Cusihuaman 2001: 227) and =taq for contrast (Cusihuaman 2001: 240). There is then no *a priori* reason to think that =pas has this use. This section presents evidence to confirm that =pas does indeed not mark contrastive topics.

CTs may informally be defined as providing a *partial* answer to a question with at least two sub-questions (Krifka 1999; Büring 2003; Constant 2014). For example, *Fred* in (36b) partially answers the question in (36a), in particular, it answers the subquestion *What did Fred eat?* Thus, *beans* in (36b) is the focus and *Fred* is *contrasted* with the relevant alternatives (Büring 2003: 520).¹⁸ The sequence in (36c) is a (more) complete answer to (36a), with both *Fred* and *Mary* being CTs.

- (36) a. Who ate what?
- b. [FRED]_{CT} ate the [BEANS]_F.
- c. [FRED]_{CT} ate the [BEANS]_F. [MARY]_{CT} ate the [EGGPLANT]_F.

¹⁷ The analysis as it stands overgenerates somewhat: it predicts that it should be possible to have =pas only present on the first conjunct, and still have its post-supposition satisfied by the second. However, in the examples with only one =pas, it occurs on the last conjunct, see (32a). There does then seem to exist a certain degree of conventionalization of the X=pas X=pas construction as a whole. I thank an anonymous reviewer for pointing this out.

¹⁸ In English, the difference between contrastive topics and foci manifests as different accent patterns (Büring 2003). To what extent contrastive topics are *topics* is a matter of debate.

Typically, different CTs combine with different foci, as in (36c), but this *distinctiveness* condition (Krifka 1999: 122) is only an implicature which can be canceled with an additive. This is shown in (37).¹⁹

- (37) a. [FRED]_{CT} ate the [BEANS]_F. [MARY]_{CT} also/too ate the beans.
b. Additive presupposition: Someone other than Mary ate the beans.

In such cases, the associate of the additive is a CT, but this is not sufficient to conclude that the additive *marks* CT. That *also* and *too* do not mark contrastive topic is confirmed by the fact that they cannot be added to the second sentence in (36c) (unless there is someone other than Mary or Fred in the context who ate eggplant).

The same pattern obtains for CQ =pas. =pas is fine in (38b) in response to (38a), where the speaker's mother and father both went to the field. But in (38c), where they went to different places, the contrastive =taq has to be used instead. Replacing =taq with =pas would result in the interpretation that a third person went to the field, which within the confines of the given context would result in infelicity.

- (38) a. May-pi =n taytamama-yki ka-sha-n?
where-LOC =BPG parent-2 be-PROG-3
'Where are your parents?' (elicited)
- b. Mama-y =qa chakra-ta =n ri-n; tayta-y =pas chakra-ta ri-n.
mother-1 =TOP field-ACC =BPG go-3; father-1 =ADD field-ACC go-3
'My mother went to the field; my father also went to the field.' (elicited)
- c. Mama-y =qa qheswa-ta =n ri-n; tayta-y =taq chakra-ta.
mother-1 =TOP valley-ACC =BPG go-3; father-Y =CONTR field-ACC
'My mother went to the valley; my father to the field.' (Cusihuaman 2001: 240)

Examples of additives that do have contrastive topic marking as a distinct function are Sheko =k'ara, illustrated in (39a) and Udihe =de, illustrated in (39b).

- (39) a. *Sheko*
yordanos fik'-n-s tə-k-ə, k'orint'os =k'ara jaad-n-s tə-k-ə
yordanos short-DEF-M COP-REAL-STI {Qorinxos} =ADD tall-DEF-M COP-REAL-STI
'Yordanos is short, Qorinxos is tall.' (Forker 2016: 75)
- b. *Udihe*
min-du sata bie s'ei =de anči
me-DAT sugar be.PRS.HAB salt =ADD no
'I have sugar but not salt.' (Forker 2016: 75)

Equivalent examples in CQ, for example, (40a) and (40b), require the contrastive enclitic =taq. Attempts at substituting it with =pas are rejected by the CQ speakers consulted.

- (40) a. Pablu huchuy =mi, Marya =taq/*pas hatu =n.
Pablo little =BPG Marya =CONTR/ADD big =BPG
'Pablo is little, Marya is big.' (elicited)
- b. Kachi-y ka-sha-n, miskhi-y =taq/*pas mana ka-n =chu.
salt-1 be-PROG-3 sugar-1 =CONTR/=ADD not be-3 =POL
'I have salt, but not sugar.' (elicited)

¹⁹ See Krifka (1999) and Constant (2014) for discussion of how this implicature arises and why it cannot be canceled by simply uttering *Fred ate the beans. Mary ate the beans.*

In conclusion, while CQ =pas can associate with a CT, it cannot be claimed to have CT marking as a distinct function.

Since Huallaga Quechua is classified as having this function by Forker (2016), let me point out that Weber (1989), which is given as Forker's (2016) only source for HQ, does not use the term *contrast(ive)* in describing the different uses of =pis, nor does he discuss =pis in his chapter on topic. There are also no examples like (39) with =pis in these sections. Just as in CQ, it is possible that the associate of =pis happens to be a contrastive topic, as in (41), but as discussed above, this is not sufficient to conclude that it marks CT.

- (41) *Huallaga Quechua*
 Wakin lloqshi-sha saanu-lla. Noqa-pis lloqshi-shka-: saanu-lla.
 some get:out-3PERF healthy-just I-indef get:out-perf-1 healthy-just
 'Some got out all right (from a truck that went off a bridge). I too got out alright.'
 (Weber 1989: 375)

Since Forker does not include any HQ examples, it is not clear on what basis she classifies HQ =pis as a CT marker.

3 Concessive conditionals

The previously discussed functions of =pas as an additive, coordinator and discourse connector form an intuitive semantic cluster: they all involve the notion of adding chunks of information to other chunks of the same type, broadly speaking contributing to the same discourse topic. The use of additives in concessive constructions does not fit this pattern, but with 27 out of 42 additives in Forker's (2016) sample having this use, it is common cross-linguistically. Following a proposal by Pasch (1994; 1995) for German *auch*, this section suggests that the concessive interpretation of CQ =pas can be pragmatically derived from its additive presupposition.

Concessives are subordinating constructions which assert the propositions expressed by the subordinate clause, *p*, and the main clause, *q*, and presuppose that *q* would normally not be expected given *p*, that is, "if *p* then normally not-*q*" (Haspelmath & König 1998: 566). (42) illustrates the concessive subordinator *although*.

- (42) a. Although it was raining, the view was still pretty spectacular.
 (tripadvisor.co.uk)
 b. Assertion: It was raining and the view was spectacular.
 c. Concessive presupposition: "One wouldn't normally expect the view to be spectacular when it's raining."

By asserting *p* & *q* the speaker makes it clear that, in this instance, the normal expectation is not met, or, in the possible worlds analysis proposed by Müller (2016), that the actual world is not a normal world.

Closely related to standard concessives are concessive conditionals, a subset of which are formed by adding an additive marker to an *if*-clause,²⁰ often a scalar one like *even* as in (43).

- (43) Even if we do not get any financial support, we will go ahead with our project.
 (Haspelmath & König 1998: 563)

²⁰ Haspelmath & König (1998) also discuss universal concessive conditionals and alternative concessive conditionals. These also exist in CQ and involve =pas (Faller 2020), but will not be discussed here.

Concessive conditionals do not entail the concessive clause but still presuppose “if p then normally not- q ”. Thus, (43) is asserted against the expectation that we might not go ahead without financial support. Moreover, the consequent is only entailed if the focus is on the *polarity* of the antecedent (Haspelmath & König 1998: 572, Guerzoni & Lim 2007).²¹ This has the effect of only p and $\neg p$ being considered relevant conditions for the truth of the consequent q . Since one is asserted and the other presupposed, q is entailed. Thus, (43) means that we will go ahead regardless of whether or not we get financial support.

To my knowledge, CQ does not have a genuine concessive construction, that is, one that asserts p & q , but only concessive conditionals. These are formed by attaching =pas to the *if*-clause in a conditional construction. There are two types of conditionals, one in which the antecedent is a non-finite nominalized clause, the other in which the antecedent is a finite clause with a complementizer. Since they do not differ with respect to the semantics of concessivity, I will only exemplify the former.

With CQ concessive conditionals, the antecedent can be interpreted factually, as shown in (44) and non-factually, see (45). Which interpretation is intended can usually be inferred from the context. For example, (44) is part of a story in which the young man was turned into a dragonfly, and so is factual, whereas (45) is non-factual, as no-one has offered the speaker a *hacienda*.

- (44) Hina-man = qa chay rimay-sapa wayna = qa, chinchilku-man = ña
 like.this-ILLA = TOP this talk-A.LOT young.man = TOP dragonfly-ILLA = DISC
 tuku-chi-sha-**qti**-n-ku = **pas**, mana ñaka-pa-ku-sqa = chu
 finish-CAUS-PROG-NMLZ.DS-3-PL = ADD not repent-BEN-REFL-NX.PST = POL
 chay hayrata-sqa-n-ku = manta.
 that punish-PRTC-3-PL = ABL
 ‘Then, this gossiping young man, despite having been turned into a dragon-fly,
 didn’t repent from the punishment.’ (Choque 2017: 118)

- (45) mana = n pay-wan = qa alli-pu-na-ku-y-man = chu,
 not = BPG he = COM = TOP good-BEN-RECIP-REFL-1-COND = POL
 hacienda-ta = ña paga-wa-**qti**-n-ku = **pas**.
 hacienda-ACC = DISC pay-1O-NMLZ.DS-3-PL = ADD
 ‘I would not reconcile with him, even if they were to pay me a *hacienda*.
 (Valderrama & Escalante 1982: 109)

How is the concessive use of =pas related to its additive use? Forker (2016: 78) suggests that “[t]he basic meaning of concessives containing additives is scalar concessivity. It is the scalar meaning of the additive that is responsible for the induced scales that come with scalar concessives.” This is a reasonable hypothesis for scalar additives such as *even* (Karttunen & Peters 1979; Haspelmath & König 1998), but as argued in section 2, =pas does not *encode* a scalar meaning, but is merely compatible with scalar additive contexts. It is thus not obvious how it would induce a scale with concessives. The same issue arises for the German non-scalar *auch*, which, as shown in (46a), can also be used in concessive conditionals.

I suggest instead that the concessive presupposition can be derived from the additive presupposition of =pas and *auch* as an instance of *conditional perfection*, a pragmatic process that strengthens conditionals of the form “If p , then q ” with “If not p , then not q ” (Geis & Zwicky 1971). This analysis was first proposed by Pasch (1994; 1995) for German

²¹ Guerzoni & Lim (2007) take this to be an instance of VERUM focus in Höhle’s (1992) sense.

Table 3: Features of concessive uses of the additive in CQ.

	type	status P	status Q	force	implicature
=pas _{add}	focus	asserted	presupposed	∃	–
=pas _{conc}	polarity focus	asserted $p \rightarrow q$	presupposed $\neg p \rightarrow q$	∃	$p \rightarrow \neg q$

concessive conditionals with *auch wenn*.²² Consider (46a) and its CQ translation in (46b). Assuming that the focus is on the polarity of the antecedent clause and therefore the relevant alternatives are (46c), both have the additive presupposition in (46d). Conditional perfection of (46d) renders (46e).

- (46) a. Wir gehen **auch wenn** es regnet.
 b. Para-sha-**qti-n = pas** ri-sunchis.
 rain-PROG-NMLZ.DS-3 = ADD go-1.INCL.FUT
 ‘We will go even if it is raining.’ (elicited)
 c. F-Alt: {We will go if it is raining, We will go if it is not raining}
 d. Additive presupposition: We will go if it is not raining.
 e. CP of (46d): We will not go if it is raining.

Under the restrictor analysis of conditionals (Kratzer 1986; von Stechow 2011), (46e) can be more fully paraphrased as *In all worlds that comply with our expectations and in which it is raining, we will not go*. Asserting (46a) or (46b) against this background assumption implies that the actual world does not comply with our normal expectations. Müller (2016) argues for a restrictor analysis of the concessive presupposition of genuine concessives, which, recall, takes the form “if p then normally not- q ”. Concessive conditionals would then only differ from genuine conditionals in pragmatically implicating rather than presupposing this background assumption. The details of this proposal fall outside the scope of this paper, but are developed in (Faller 2020).

Table 3 compares the features of the concessive with the simple additive use.

4 Epistemic modal uses

Forker (2016) discusses as some minor extensions of additives the marking of surprise and unexpectedness, but there seem to be rather few languages where modal uses play a major role. CQ =pas, however, has a very well established use in the expression of epistemic possibility.²³ In addition, there are two other modal uses of =pas. In conjunction with the conditional mood and (typically) the adverb *hina* ‘like, same’, =pas forms hypothetical comparison clauses, and together with the exclusive enclitic =lla, it creates wish-clauses.

4.1 Epistemic possibility

In the epistemic modal use, =pas typically co-occurs with the conjectural enclitic =chá, (47a), and/or the conditional mood -waq (2nd person) as in (47b) or -man (1st and 3rd person). According to my consultants, adding =pas to the conjectural =chá weakens the epistemic force from being almost certainly true to being only possibly true. I argue below

²² In (46b), *auch* appears immediately in front of *wenn* ‘if’. It is also possible for it to appear after *wenn* and need not be adjacent to it. The German scalar adverbs *sogar* and *selbst* can also be used in concessive conditionals. For an overview of the various concessive constructions in German, see Breindl (2014).

²³ The only language mentioned by Forker (2016) whose additive has a function as an epistemic modal marker is Jaqaru, which belongs to the Aymaran language family, which has been in extensive contact with the Quechuan languages for several centuries (Cerrón Palomino 2000). Note that Weber (1989) does not describe an epistemic use for the Huallaga Quechua additive, though he does describe a concessive one (p. 372).

that this is due to the additive presupposition requiring that the speaker entertain at least two epistemic possibilities.

- (47) a. Papa-ta = qa qasa-ra-pu-n = **pas** = **chá**
 potato-ACC = TOP freeze-HORT-BEN-3 = ADD = CONJ
 ‘Maybe it froze the potatoes.’ (Cusihuaman 2001: 239)
- b. Phawa-y mana = **pas** aypa-ru-**waq**.
 run-IMP not = ADD catch.up-HORT-2.COND
 ‘Run, you might not get there in time.’ (Espinoza 1997: 86)

Epistemic =pas is also found in questions, as for example in (48a), and with the future tense, as in (48b).

- (48) a. Kunan = qa Qosqo-pi imayna = s aqha ka-ku-n = **pas**.
 now = TOP Cusco-LOC how = REP beer be-REFL-3 = ADD
 ‘Now, how (much) might the beer be in Cusco?’ (Espinoza 1997: 26)
- b. ...pisi-pa-ru-saq = chu ima-saq = chu ka-m = **pas**, mana = chu
 ...little-BEN-HORT-1.FUT = POL what-1.FUT = POL be-3 = ADD not = POL
 puntu-n-pi = **pas** mihuna-ta apay-saq!
 point-3-LOC = ADD food-ACC take-1.FUT
 ‘Or perhaps I will get weak or I might do something, perhaps I might not take the food on time.’ (Espinoza 1997: 190)

Epistemic =pas is not found in past or present tense declarative sentences without another epistemic operator, suggesting that it does not mark epistemic modality by itself. Rather, I propose that it operates on a set of alternatives introduced by a modal. I focus here on non-future declaratives like (47) with an epistemic possibility modal.

Following Aloni (2007), I assume that modals quantify over sets of propositional alternatives. With an epistemic possibility modal, all alternatives in this set Epist-Alt are live epistemic possibilities. =pas then quantifies over this set, requiring there to be at least one epistemic possibility in Epist-Alt that is distinct from the asserted one.

As in the simple additive use, focus contributes to the determination of the relevant alternatives: in (49), =pas attaches to the negation particle and the relevant alternatives Epist-Alt are the prejacent and its negation.

- (49) a. Mana = **pas** aypa-ru-**waq**.
 not = ADD catch.up-HORT-2.COND
 ‘You might not get there in time.’ (Espinoza 1997: 86)
- b. Epist-Alt = {that you get there in time, that you don’t get there in time}
- c. Epistemic additive presupposition: You might get there in time

In (50),²⁴ =pas attaches to the subject NP, and the alternatives are constructed by replacing it with relevant alternatives.²⁵

²⁴ The =pas attached to the object NP is a simple additive. The event referred to by *chay* ‘this’ happened to an acquaintance of the speaker, and he considers here the possibility that it may also happen to himself. We are here only concerned with the =pas that is attached to the subject.

²⁵ The attachment site of =pas does, however, not always determine the epistemic alternatives. E.g., (i) does not mean that something else might make the speaker wet, but that the speaker might not get wet.

- (i) Para = **pas** = **chá** api-ya-mu-wa-nqa!
 rain = ADD = CONJ wet-TRANS-CISL-1O-3.FUT
 ‘Maybe the rain will get me wet.’ (Cusihuaman 2001: 233)

- (50) a. Noqa-ta = pas **chay** = **pas** = **chá** pasa-wa-nqa.
 I-ACC = ADD this = ADD = CONJ happen-1O-3.FUT
 ‘This may also happen to me.’ (Valderrama & Escalante 1982: 88)
- b. Epist-Alt = {thing₁ happens, thing₂ happens, thing₃ happens, ...}
- c. Epistemic additive presupposition: There is a possibility that something other than ‘this’ may happen²⁶

We need to be careful to formulate the epistemic additive presupposition in such a way that (50) is not given the meaning *This may happen to me in addition to something else happening to me*. This would simply be the regular additive reading of =pas. While this might be a possible reading of (49),²⁷ we are aiming to capture the epistemic meaning *There is a possibility that this may happen to me in addition to there being a possibility that something else may happen to me*. This can be achieved by adding the requirement that the presupposed alternative be true at a world v distinct from the world w' at which the prejacent is true. The epistemic use of =pas can then be represented as in (51).²⁸

- (51) *Epistemic additive*:
- a. Assertion: $\exists w' \in \cap f_e(w)[p(w')]$
- b. Epist-Alt(p) = { p, q, r, \dots }
- c. Epistemic additive presupposition:
 $\exists v \in \cap f_e(w)[\exists q \in \text{Epist-Alt}(p)[w' \neq v \wedge p \neq q \wedge q(v)]]$

(51a) represents the assertion that the prejacent p is an epistemic possibility, that is, it is true at at least one epistemically accessible world w' . The epistemic additive presupposition in (51c) requires there to be a distinct epistemically accessible world v , at which a distinct proposition q from the set of epistemic alternatives Epist-Alt is true.

This analysis captures the observation by native speakers mentioned above, that =pas weakens an epistemic modal sentence. The epistemic assertion and additive presupposition together entail that the speaker entertains at least two propositions as live epistemic possibilities. Without the additive presupposition, the assertion would be compatible with the prejacent being the only epistemic possibility.²⁹

4.2 Hypothetical comparison and wish-clauses

In addition to the simple epistemic possibility use, =pas participates in constructions with the conditional mood to produce *as if* and wish clauses, neither of which have to my knowledge been described in the previous literature. The first construction typically also

²⁶ Unlike in its simple additive use, the epistemic presupposition does not appear to be subject to Strong Contextual Felicity. That is, the possibility of the presupposed epistemic alternative does not need to have been explicitly mentioned or be otherwise salient in the context. This is also the case for its use in *wh*=pas pronouns discussed in the next section. How this difference can be accounted for is left for future research.

²⁷ Whether or not it is remains to be confirmed with native speakers.

²⁸ Where f_e is the set of propositions that are known to be true in w ; $\cap f_e(w)$ is the set of worlds in which these propositions are true, that is, the epistemically accessible worlds.

²⁹ There is no epistemic modal in CQ with universal quantificational force that is in direct competition with *-man* or =*chá*. The conjectural =*chá* in particular is often used by itself to convey a strong inference.

involves the adverb *hina* ‘like, same’, and the second the exclusive marker =*lla*. The *as-if* construction is exemplified in (52).³⁰

- (52) a. Chay =qa, macha-sqa =pas ka-sha-y-man ka-ra-n hina, chay
 that =TOP drunk-PRTC =ADD be-PROG-1-COND be-PST-3 like that
 señora uyari-ru-spa, juicio-y-man kuti-ni.
 lady hear-HORT-NMLZ.SS reason-1-ILL return-1
 Then, as if I had been drunk, when I heard this lady, I returned to reason.’
 (Valderrama & Escalante 1982: 96).
- b. ... ñawi-y-kuna nana-y-ta qallari-wa-n, ñawi-y-kuna-man =pas =si
 eye-1-PL hurt-INF-ACC start-1O-3 eye-1-PL-ILL =ADD =REP
 chay caballo markana rupha-sha-q fierro-ta sat’i-ru-wa-n-ku-man
 that horse mark heat-PROG-AG iron-ACC stick-HORT-1O-3-PL-COND
 ka-ra-n hina =raq.
 be-PST-3 like =CONT
 ‘My eyes started to hurt as if someone had stuck that burning iron for
 marking horses into my eyes.’ (Valderrama & Escalante 1982: 20)

The wish-construction is exemplified in (53). (53a) was volunteered by one of my consultants as a further example of the combination of the exclusive =*lla* with =*pas*, before I was aware of this use, and, when prompted, offered (53b) as a further example of this sort.

- (53) a. Paula =lla =pas ka-y-man Inglaterra-ta ch’usa-na-y-paq.
 Paula =EXCL =ADD be-1-COND England-ACC travel-NMLZ-1-DAT
 ‘I wish I was Paula so that I could travel to England.’ (spontaneous)
- b. Congresista =lla =pas ka-y-man askha qulqe-yuq ka-na-y-paq.
 congresista =EXCL =ADD be-1-COND much money-POSS be-NMLZ-1-DAT
 ‘I wish I was a member of congress so that I had lots of money.’ (elicited)

In both sets of examples, the conditional =*man* again references a set of epistemic possibilities, which are here understood as counterfactual. =*pas* in turn presupposes the existence of an alternative distinct from the one denoted by the prejacent, which can be assumed to be the way the world is known to be, that is, the speaker of (52a) not having been drunk and the speaker of (53a) not being Paula. The particle *hina* ‘like’ explicitly marks the comparison in the hypothetical comparison clauses, whereas the role of =*lla* in the wish construction is perhaps comparable to English *only* in *If only I was a member of congress ...* A full analysis of such examples is left for future research, though I hope to have shown that =*pas* can, in principle, be analyzed as an additive operator over epistemic possibilities also in these constructions.

There is then a clear connection between this and the simple additive use of =*pas*. As summarized in Table 4, the main difference between the two uses is again the type of alternatives quantified over.

Table 4: Features of epistemic use of CQ =*pas*.

	type	status P	status Q	force
= <i>pas</i> _{add}	constituent focus	asserted	presupposed	∃
= <i>pas</i> _{epi}	epistemic alternatives	asserted	presupposed	∃

³⁰ This is one of the few constructions that allows the evidentials =*si* and =*mi* to attach to the same constituent as =*pas*.

5 Formation of indefinite pronouns

The third cluster of functions of =pas is the derivation of indefinite pronouns from *wh*-words. This is a function of 26 additives in Forker's (2016) sample of 42, and so is rather common. The CQ pronouns occur in both positive and negative (or more generally downward entailing) polarity as well as free-choice contexts, and are translatable with English *some*-, *no*- and *any*-forms (Faller 2019b). The question addressed in this section is whether =pas can still be analyzed as contributing an additive presupposition in this use also. I argue that this is indeed the case, and that, moreover, the additive presupposition is responsible for these indefinites being interpreted non-specifically. This point is most clearly made for *wh*=pas in positive polarity declarative clauses such as (54). I only illustrate the other subtypes at the end of this section.

- (54) a. **Icha** pi = lla = **pas** hamu-n-**man** yana-paq-ni-y.
perhaps who = EXCL = ADD come-3-COND help-DAT-EUPH-1
'Maybe someone will come to help me.' (Mejía Huamán 2016: 194)
- b. wiraqocha dueño-n ni-n nisita-n = si **pi** = lla-ta = **pas** kay-pi
mister owner-3 say-3 need-3 = REP who = EXCL-ACC = ADD this-LOC
tiya-y-ta
live-INF-ACC
'Its owner says he needs someone to live here.'
(Valderrama & Escalante 1982: 78)

The indefinites in (54) are interpreted as non-specific existentials.³¹ That is, the speakers of (54) do not have a particular person in mind who may come to help or live on the land. Continuing (54a) with, for example, *Maryam* 'It's Marya' is judged infelicitous by my consultants, nor can the referent be picked up by an anaphoric pronoun in a subsequent sentence (Faller 2019).

Wh=pas pronouns have to be licensed by a non-veridical operator (Giannakidou 2001) such as the conditional mood *-man* and the adverb *icha* 'perhaps' in (54a) or the propositional attitude verb *muna-* 'want/need' in (54b). Sentences lacking such an operator are ungrammatical, as shown in (55).

- (55) a. *Marya **ima** pukllana-ta = **pas** ranti-mu-sqa.
Marya what toy-ACC = ADD buy-CISL-NX.PST
(Intended: 'Marya bought a toy.')
- b. *Qayniunchaw **pi** warmi = **pas** qan-wan rima-q hamu-rqa-n.
yesterday who woman = ADD you-COM speak-AG come-PST-3
(Intended: 'Yesterday, a woman came to speak to you.')

As above, I assume that modals apply to a set of propositional alternatives. In the case of sentences with an indefinite pronoun, these are the propositions obtained by assigning each salient individual to the variable introduced by the pronoun. For example, assuming Alicia, Mario and Pilar are the salient individuals, the set of alternatives for (56a) (a simplified (54a)) is (56b). The conditional mood *-man* is here interpreted as an epistemic possibility modal, and so each of the propositions Epist-Alt is an epistemically possibility (Aloni 2007), resulting in the interpretation that one of Alicia, Mario, Pilar may come.

³¹ They are therefore an exception to the generalization made by Szabolcsi (2015) that *wh*-words plus an additive are universal indefinite pronouns. I use the term "(non-)specific" informally, in the sense of Haspelmath (2001: 37f).

- (56) a. **Pi = pas** hamu-n-man.
 who = ADD come-3-COND
 ‘Someone may come.’
- b. Epist-Alt = {that Alicia comes, that Mario comes, that Pilar comes}
- c. Epistemic additive presupposition: Someone else may come

=pas adds the additive presupposition in (56c), which ensures that at least two propositions in Epist-Alt are live possibilities, that is, that there are at least two distinct people who may come. Because of the additive presupposition, (56a) would be infelicitous in a context in which there is only one salient individual. It is this that accounts for the non-specificity of *wh = pas* indefinites.³²

As mentioned above, *wh = pas* indefinites can also be used in downward-entailing environments such as (57), and in free choice contexts such as (58).

- (57) Mana **pi-ta = pas** ni cheqni-ku-ni = chu.
 not who-ACC = ADD not hate-REFL-1 = POL
 ‘I don’t hate anyone/I hate nobody.’ (Espinoza 1997: 26)

- (58) **Ima** cosa-kuna rura-na-y-ta = pas estimacion-wan kama-chi-wa-q
 what thing-PL do-NMLZ-1-ACC-ADD respect-COM order-CAUS-1O-AG
 ‘She would give me orders for anything I had to do with respect.’ (Espinoza 1997)

Faller (2019) develops a Hamblin analysis of *wh = pas* indefinites in CQ building on work by Ramchand (1997) and Kratzer & Shimoyama (2002), and I refer the reader to that paper for an account of how these examples can also be analyzed along the lines sketched here for the positive polarity declaratives.

6 Summary of the main uses of =pas

The features of the main uses of =pas discussed in the previous sections are summarized in Table 5.

Despite the at first sight rather disparate uses of =pas, it is striking that it nevertheless seems to be possible to extract a core meaning, namely the presupposition of the existence of an alternative to the asserted proposition. To recap, I have argued that its uses as constituent coordinator and discourse connective are in fact just additive uses; the concessive meaning of concessive conditionals can be pragmatically derived from the additive

Table 5: Summary of the main features of the different uses of =pas.

	type	status P	status Q	force
=pas _{add}	constituent focus	asserted	presupposed	∃
=pas _{disc}	sentence focus	asserted	presupposed	∃
=pas _{coord}	constituent focus	asserted	presupposed	∃
=pas _{conc}	conditional antecedents	asserted $p \rightarrow q$	presupposed $\neg p \rightarrow q$	∃
=pas _{epi}	epistemic	asserted	presupposed	∃
=pas _{indef}	wh- & modal	asserted	presupposed	∃

³² It is not possible to omit =pas from (56a), that is, bare *wh*-phrases do not function as possibly specific indefinite pronouns. For specific reference the numeral *huk* ‘one’ is used as in (i).

- (i) “May-manta = n ka-nki-chis?” ni-spa tapu-wa-n **huk runa**.
 where-ABL = BPG be-2-PL say-NMLZ.SS ask-1O-3 one man
 “‘Where are you from?’ a man asked me.” (Espinoza 1997: 16)

presupposition; and in its epistemic and indefinite pronoun uses, =pas operates on a set of modal alternatives. The main difference between these uses is the *type* of alternatives quantified over. These alternatives are contributed by other elements in the sentence, namely focus, modals, *wh*-phrases, or a combination thereof. Further in-depth analysis of each of these constructions is necessary to determine their precise compositional semantics.

7 The semantic map approach to additives

Traditional semantic maps³³ relate a set of *tertia comparationis* in a connected graph structure. They facilitate the comparison of multifunctional linguistic expressions across languages (Haspelmath 2003; Cysouw 2007; Gast & van der Auwera 2013). Figure 2 is the semantic map of additives proposed by Forker (2016) based on a typological study of 42 languages.

The lines connecting the nodes indicate functional similarity, and for the semanticist, the question of interest is what exactly this similarity consists in. The previous sections argued that the various uses of CQ =pas are linked by a presupposition of the existence of alternatives.

Linguistic expressions can be compared with each other by comparing the regions they map onto. The typologically most important tenet of semantic maps is the Connectivity Hypothesis (Croft 2001; Haspelmath 2003; Cysouw 2007; Gast & van der Auwera 2013), the idea that any particular multifunctional linguistic expression must map onto a connected region (Haspelmath 2003). When constructing a map, the nodes and connecting lines must therefore be arranged in a way that ensures that Connectivity holds for all relevant expressions. In Forker's (2016) sample, all additives that have a concessive function also mark scalar additivity, but not all additives with a scalar additive function also have a concessive function. The arrangement in Figure 2 places scalar additivity between additivity and concessivity and thereby ensures that both types of additives map onto a connected region.

Connectivity can then be used to formulate implicational universals: if an expression has two known functions, it is predicted to also cover any intervening functions on at least one path connecting them. Figure 2 encapsulates the universals in (59).

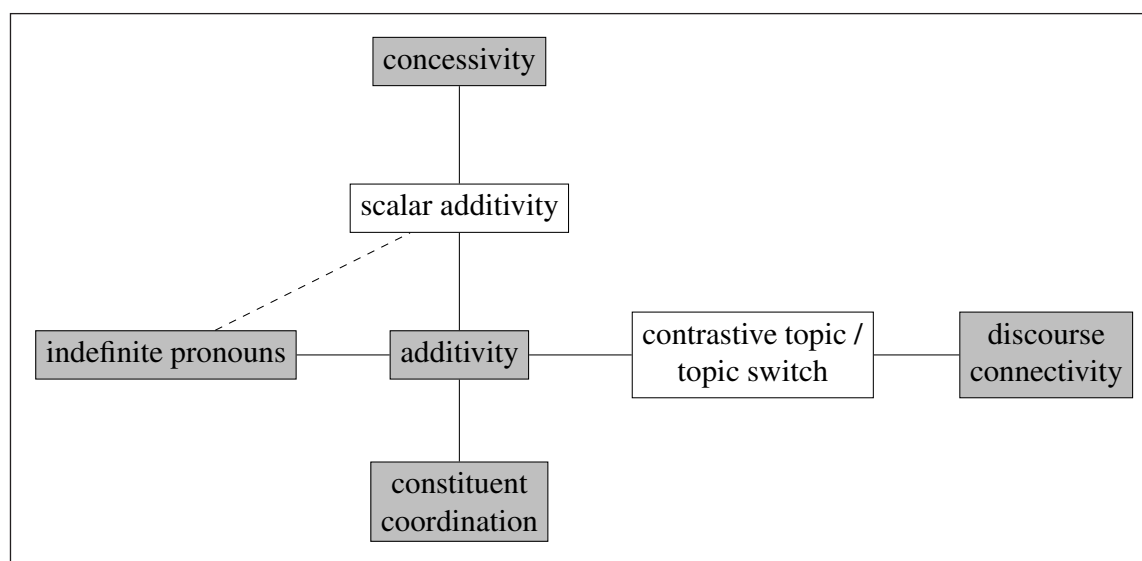


Figure 2: Forker's (2016) semantic map of additives, CQ =pas grey shaded.

³³ This paper is only concerned with traditional maps, that is, maps that are constructed "by hand" by a researcher and are informed by linguistic theory (Gast & van der Auwera 2013). They contrast with statistical maps that are generated using multidimensional scaling methods in an entirely bottom-up fashion from large data sets (Cysouw 2007; Croft & Poole 2008).

- (59)
- a. If a language makes use of additive markers for the expression of concession, its additive will also have a scalar reading.
 - b. If a language employs additives as discourse connectives, it will also employ them for contrastive topics/topic switch.
 - c. If a language has indefinite pronouns containing an additive marker, the additive will most probably allow for a scalar interpretation.

If an expression is found that does not conform to a proposed implicational universal, the semantic map must either be revised so as to no longer make that claim, or the implicational universal must be weakened to a probabilistic one such as (59c).

CQ =pas maps onto the grey shaded nodes in Figure 2. As can be seen, Connectivity is not met. Since it does not map onto Scalar Additivity and Contrastive Topic, =pas is a counter-example to all three universals. Sections 7.2 and 7.3 therefore propose revisions to the map that accommodate =pas. Moreover, in section 7.4, the map of additivity is connected to that of modality (van der Auwera & Plungian 1998). First, however, I review two ways of conceiving of the nodes on a semantic map, functions and generalized utterance meanings, and argue that the latter is better able to deal with subtypes such as scalar additivity.

7.1 Functions and generalized utterance meanings

The nodes on a semantic map are often taken to be *functions* of linguistic expressions, a cover term for both its *senses* as well as its *uses*, that is, both its conventional meanings and its contextual meanings (van der Auwera & Plungian 1998; Haspelmath 2003). The main advantage of this approach is that it avoids having to commit “to a particular claim about which functions are part of the conventionalized linguistic knowledge [...] and which functions only arise in different utterances depending on the pragmatic context” (Haspelmath 2003: 213). Typologists often do not have the relevant data to make this distinction and from a diachronic perspective, this approach can deal with expressions that are in the process of conventionalizing previously pragmatic meanings.

With semantic maps based on functions, an expression is taken to have the functions represented by the nodes it covers. This becomes problematic, however, when we include subtypes, as discussed in section 7.2.

Another notion that has been used to define the nodes of semantic maps is that of *generalized utterance meanings*, GUMs. GUMs take account not only of the relevant properties of individual expressions but also of the utterance they occur in. They “can be thought of as utterance types that are stripped of their lexical content” and represent “properties of sentences such as the illocutionary force of the corresponding utterance, the (non-)veridicality of the proposition expressed, the (non-)instantiation of an event, TAM-features, etc.” (Gast & van der Auwera 2013: 132). To give a non-additive example, Gast & van der Auwera (2013: 137ff) show that the distribution of impersonal pronouns such as *they* is constrained by properties of the pronouns themselves, for example, their quantificational force, as well as by properties of the state of affairs described, for example, whether it is episodic or generic. Whether a linguistic expression covers a node on a GUM-based map is determined by its ability to occur in diagnostic sentences that unambiguously exhibit the relevant properties such as (60a) and (60b).

- (60)
- a. **They** are knocking on the door.
 \exists , episodic ...
 - b. **They** eat dragonflies in Bali.
 \forall , generic ...

Since *they* can occur in both (60a) and (60b) it maps onto the respective nodes in the semantic map of impersonal pronouns. In contrast, Italian *si* can occur in (60b), but not in (60a) (Gast & van der Auwera 2013: 146), and so will only map onto the node corresponding to (60b).

Crucially, the fact that an expression can be used in a diagnostic sentence does not, at least not in and of itself, constitute evidence that it has the *function* of expressing the particular features associated with that node.³⁴ Thus, impersonal *they* does not have the function of expressing episodicity, despite being able to be used in all episodic diagnostic sentences. Replacing *they* with a personal pronoun, for example, *She is knocking on the door*, only removes the impersonal feature, not episodicity.

Replacing functions with GUMs on a semantic map affects the nature of the implicational universals it encapsulates, which now take the form in (61).

- (61) If an expression can felicitously be used in utterances instantiating GUM₁ and GUM₂, then it can also be used in utterances instantiating any intervening GUMs on at least one path connecting them.

Such universals are weaker than function-based ones because, again, compatibility with a GUM does not equate to an expression marking a particular feature of that GUM. Of course, in many cases, we are in a position to make this stronger claim, but such a claim must be argued for on the basis of evidence other than mere compatibility with the corresponding GUM. I will in the following adopt GUM-based maps precisely because their claims are weaker to start with.

7.2 Scalar additivity as a subtype of additivity

Scalar additivity is often treated as a subtype of additivity with an additional scalar presupposition (König 1991; Gast & van der Auwera 2011; Forker 2016), but this is not reflected in Figure 2, which represents it as an independent node on an equal footing with additivity. In order to formally capture that some GUMs are subtypes of others, I adopt Gast & van der Auwera's (2013) feature-based approach. Restricting ourselves to binary features *F*, there are three possible value specifications for any *F*:

- (62) a. [*F* +]: requires contexts that have feature *F*
 b. [*F* -]: incompatible with contexts that have feature *F*
 c. [*F* +/-]: not specified for *F*

The values are interpreted relative to a context, including the linguistic co-text as well as the wider context of utterance. A positive specification requires *F* to be present, a negative specification indicates incompatibility with a context exhibiting *F*, and underspecification (+/-) means that there is no constraint one way or another.

A GUM is defined as a set of feature-value pairs. (63) shows the feature structures for simple and scalar additivity. The feature [ADD +] is to be understood as short-hand for the set of features identified in section 2, namely, presupposition of the existence of a distinct alternative to the prejacent in the set of focus alternatives.³⁵

³⁴ In this, GUM-based maps are similar to the *extensional* maps of Levinson & Meira (2003), in which the nodes are taken to be extra-linguistic situations. The fact that an element covers a node only attests to its compatibility with the type of situation it represents. I do not review such maps here.

³⁵ GUMs are not intended as full semantic analyses of the expressions that are mapped, and nodes are only added to a map "if there is at least one pair of languages that differ with respect to this function" (Haspelmath 2003: 217) or relevant GUM feature. In particular, the additive GUM does not capture the role syntactic structure plays in the determination of the focus alternatives.

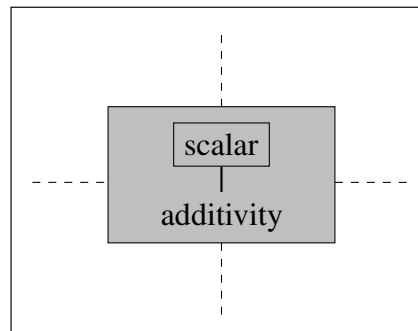


Figure 3: Scalar additivity as a subtype of additivity.

The feature [SCAL +] requires a context in which these alternatives are ordered.

- (63) a. *additivity*: [ADD +, SCAL +/-]
 b. *scalar additivity*: [ADD +, SCAL +]

Subtypes can be defined as follows. GUM G_1 is a *subtype* of G_2 , iff it agrees on all feature values for which G_2 is specified, and has a specified value for at least one feature for which G_2 is underspecified. Thus, scalar additivity is a subtype of additivity. The relevant part of the additive map in Figure 3 captures that scalar additivity is a subtype of additivity by representing it as a subset (van der Auwera & Plungian 1998).

GUMs, recall, are generalizations over utterance tokens that share the same set of features. Some of these features are contributed by the expression that is being mapped, while others are not. Simple additives like CQ =*pas*, German *auch* or English *also, too* contribute [ADD +], scalar additives such as *even* in addition contribute the feature [SCAL +]. We know that these feature values are contributed by these expressions because removing them also removes the features. Thus, *Pilar even speaks Aymara* requires a context in which Pilar speaks a language other than Spanish and in which her speaking Spanish is less expected than her speaking that other language, whereas *Pilar speaks Aymara* has no such requirements.

(64) presents the features for some of the additives we have encountered:³⁶

- (64) a. *even, sogar, -puwanpas*: [ADD +, SCAL +]
 b. *also, too, auch, =pas*: [ADD +, SCAL +/-]

Leaving the SCAL feature underspecified for the simple additives in (64b) predicts that they should be able to occur in non-scalar as well as scalar contexts. This prediction is borne out for CQ =*pas* and German *auch*, as argued in sections 2.1 and 2.2. (65a) is an example of =*pas* in a scalar context (repeated from (22)).

- (65) a. ?Pi=taq kay=ri? Wayra-ta=**pas** unu-ta=**pas** kamachi-n,
 who=CONTR this=RESP wind-ACC=ADD water-ACC=ADD order-3,
 pay-ta=qa kasu-n-ku=taq.
 (s)he/it-ACC=TOP take heed-3-PL=CONTR
 ‘And who is this? He commands (even) the wind and the water, and they obey to him.’ (Sociedad Bíblica Peruana 1988)
- b. GUM: [ADD +, SCAL +/-].

³⁶ The feature value combination [ADD +, SCAL -] describes an anti-scalar additive, that is, one that is incompatible with scalar contexts. Gast & van der Auwera (2011) and Gast (2013) specify *too, also* and *auch* as [SCAL -]. This seems too strong, however, given that these additives are fine in scalar contexts.

(65a), recall, is interpreted as scalar due to background knowledge that people cannot control the natural elements, and is, in English, translated with *even*. GUMs, as defined above, do not directly capture features of contexts, but linguistic features of utterance types. Since there is no linguistic expression that specifies a value for SCAL, this example instantiates a [SCAL +/-] GUM as shown in (65b).

A further prediction of underspecifying =pas and *auch* for scalarity is that they should be able to occur with scalar GUMs, that is, in utterances that contain other expressions that are specified [SCAL +]. This prediction is also borne out, as discussed in section 2.2 for sentences containing the exclusive =lla. As mentioned in section 2.2, the German construction *auch nur* ‘also only’ also has scalar additive uses (Guerzoni 2003; Gast & van der Auwera 2011). (66a) is repeated from (25a), and (66b) represents the relevant features of the GUM instantiated by it.

- (66) a. Chay-manta = taq **ni** choqlllo = **lla-ta = pas** qo-ya-mu-wa-n-ku = chu
 this-ABL = CONTR not corn = EXCL-ACC = ADD give-TRANS-CISL-1O-3-PL = POL
 ‘And with all of that, they didn’t even give us corn. (Espinoza 1997: 51)
- b. GUM: [ADD +, SCAL +].

We are now in a position to justify more fully the use of GUMs instead of functions as nodes. Mapping CQ =pas (or German *auch*) onto the partial map in Figure 3, we grey in the simple additivity node. With scalar additivity a subtype, this node automatically also becomes grey. A function-based map would commit us to the claim that all simple additives have a function as scalar additives, which, as argued for CQ =pas, is too strong. Moreover, since anti-scalarity, [SCAL -], is its logical sister subtype,³⁷ we would also be committed to the claim that all simple additives have a function as anti-scalars. This is clearly wrong. A GUM-based map allows us to capture the irrelevance of the SCAL feature as underspecification and only commits us to the claim that =pas is compatible with both scalar and non-scalar utterances and contexts, which is the case.

We do of course still want to be able to say that an expression E has the function of expressing a particular set of features F. I propose that this requires that we can trace the respective features to the presence of E, in other words, that E is causally implicated in bringing them about.³⁸ The CQ and German additives have the function of marking additivity, but not scalar additivity.

As mentioned, the adoption of GUMs instead of functions affects the implicational universals that can be read off a semantic map. Consider (67) (repeated from (59a)) in relation to Figure 3.

- (67) If a language makes use of additive markers for the expression of concession, its additive will also have a scalar reading.

Assuming that Forker (2016) uses *reading* synonymously with *function*, the CQ =pas constitutes a counterexample to (67).³⁹ =pas is however not a counterexample if we rephrase (67) in terms of GUMs:

³⁷ This is not included in the map because it is not relevant to any of the additives discussed in this paper.

³⁸ This formulation is vague on purpose to allow for both lexical and pragmatic specification of feature values, as argued by Haspelmath (2003).

³⁹ =pas would still be a counterexample if we do not make this assumption, as the term *reading* implies ambiguity. =pas is not ambiguous but merely underspecified for scalarity.

- (68) If an additive marker can felicitously be used with concessive GUMs, it can also felicitously be used with scalar GUMs.

Note though that (68) does not make interesting predictions. Any additive that is under-specified for scalarity validates it. Such an additive would equally validate it, if the conclusion referred to anti-scalar GUMs instead. Moreover, (68) makes no useful predictions for scalar additives, because they are able to be used with scalar GUMs by definition. In general then, connections between subtypes and their supertypes should not form the basis for implicational universals.⁴⁰

The last issue to be addressed with respect to subtypes is Connectivity, the requirement that the region that any particular expression maps onto must form a connected graph. We saw in section 3 that both non-scalar additives like =pas and auch as well as scalar additives like even can be used in concessive conditionals. In Figure 3, additivity is directly linked to concessivity, which ensures that Connectivity holds for the simple additives. In addition, I suggest that subtypes are understood as being connected to another node if their supertype is connected to that node. That is, Figure 3 satisfies Connectivity for even by virtue of it being an additive.

In sum, adopting GUMs as the nodes of the semantic map for additivity allows us to capture that scalar additivity is a subtype of additivity. The revised map in Figure 3 satisfies Connectivity for CQ =pas and German auch without having to claim that these additives have a separate function as scalar additives.

7.3 From additive to discourse connective via coordination

Recall from section 2.5 that CQ =pas does not mark contrastive topic or topic switch and therefore falsifies the universal in (59b). Given that I argued that both the conjunctive and the discourse connective use can still be analyzed in terms of additivity, it seems natural to put these three GUMs on the same path, as in Figure 4. As can be seen, =pas (grey nodes) no longer violates Connectivity. The revised map in Figure 4 now encapsulates the implicational universal in (69).

- (69) If an additive can felicitously be used with the discourse connectivity GUM, it can also felicitously be used with the constituent coordination GUM.

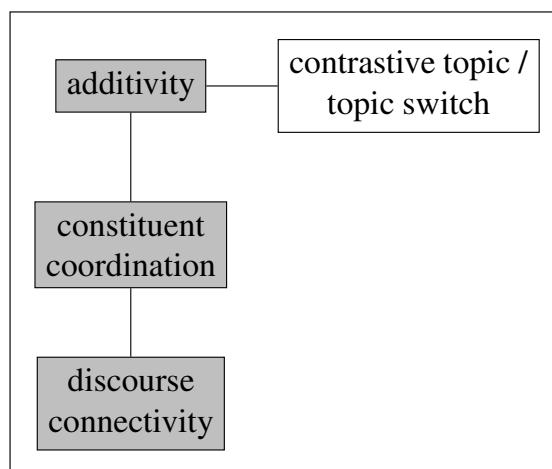


Figure 4: The additive path.

⁴⁰ Though such connections are useful for stating generalizations about diachronic developments of expressions (van der Auwera & Plungian 1998).

Forker does not explicitly discuss this, but the reason that she did not opt for this arrangement herself is presumably that there are two languages in her sample that appear to be counterexamples, namely, Laz and Karbi. These languages have additives that can function as discourse connectives but which are marked by Forker as not having a function as constituent coordinators. A closer look reveals, however, that it is not entirely clear that they do not. Konnerth (2012) explicitly states that Karbi disallows NP coordination with the additive marker =tā, but she also describes uses of this marker as a bisyndetic coordinator for verb phrases and clauses. Thus, if we include constituents other than NPs, Karbi conforms to (69).

Regarding Laz, Lacroix (2009: 79) includes French *et* ‘and’ as a possible translation for the additive =ti. Some of his examples appear to be coordinations of verb phrases or clauses, e.g., (70).⁴¹

- (70) hemu-s uci-ti ku-ĝ-u-n, toli-ti ku-ĝ-u-n,
 DEM2-DAT ear-ADD PV-II3.VAL4-have-STH-I3S eye-ADD PV-II3.VAL4-have-STH-I3S
 xe-ti ku-ĝ-u-n.
 hand-ADD PV-II3.VAL4-have-STH-I3S
 ‘She has ears, eyes and hands.’ (Lacroix 2009: 79)

While I cannot commit to the claim that -ti here is definitely used as a constituent coordinator, it also seems too strong to claim that it is not. Therefore, I would also not consider it a counterexample to (69) at this point, though further research may prove otherwise. If it turns out to be a counterexample, the only way to accommodate it as well as CQ =pas would be to add a link between Constituent Coordination and Discourse Connectivity on Forker’s original map. The disadvantage of adding links, however, is that it reduces the predictive power of the map (Gast & van der Auwera 2013).

7.4 Connecting with the map of modality

Our last task is to incorporate the epistemic use of =pas into the map. Semantic maps for modality link epistemic possibility to concessivity (van der Auwera & Plungian 1998; van der Auwera et al. 2009), based on the fact that possibility modals often have concessive uses as well. This is illustrated for English *may* in (71).

- (71) He may be a genius, but he knows nothing about following a recipe. (<https://www.goodreads.com/book/show/22461527-phineas-l-macguire-gets-cooking>)

This suggests that the map of additivity can be connected to that of modality via concessivity. There is however some disagreement as to how epistemic possibility and concessivity relate to each other: van der Auwera & Plungian (1998) treat them as two separate, connected, nodes, while van der Auwera et al. (2009) take concessivity to be a subtype of epistemic possibility.

Müller (2016) argues that genuine concessives with German *obwohl* ‘although’ imply that the actual world does not comply with normal expectations. As argued in section 3, this also holds for concessive conditionals with non-scalar additives. That is, concessives express a *slight* possibility in Kratzer’s (1981) terminology. I therefore adopt here the approach that analyzes concessivity as a subtype of epistemic modality.

The final map in Figure 5 incorporates this proposal and the other modifications to Forker’s (2016) map discussed in sections 7.2 and 7.3.

⁴¹ Lacroix (p.c.) clarifies that, despite containing three instances of the finite verb ‘have’, this example only involves one event, namely “having”, as reflected in the translation provided.

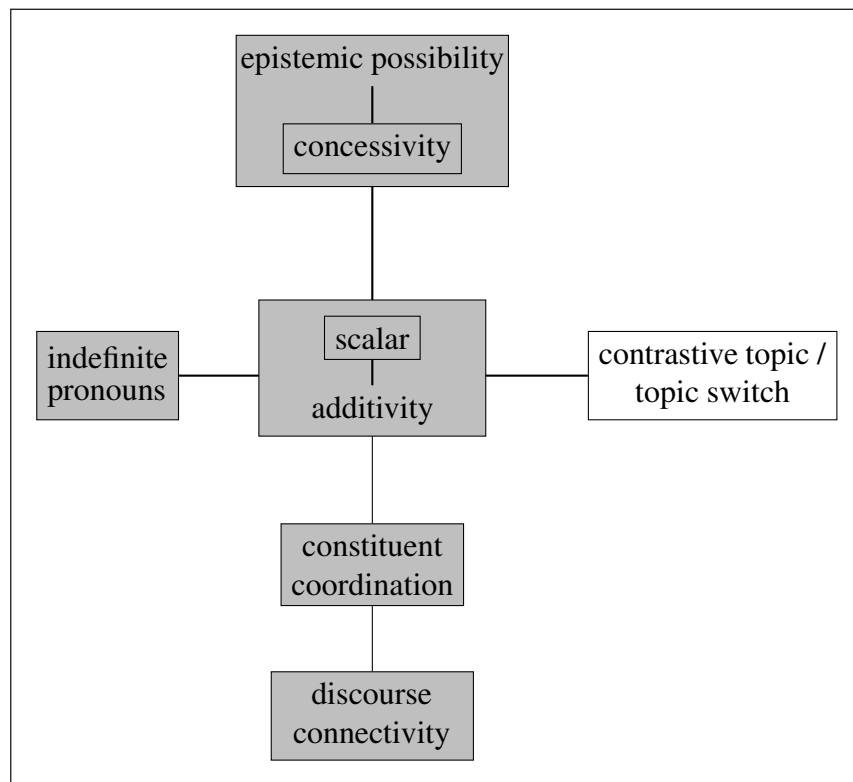


Figure 5: Final map of additivity.

The nodes that the CQ additive =*pas* maps onto (grey shaded) form a connected region without gaps. Figure 5, unlike Forker's (2016) original map in Figure 2, therefore satisfies Connectivity also for this marker. Recall that the fact that scalar additivity and concessivity are also grey shaded due to them being subtypes of additivity and epistemic possibility respectively does not commit us to the claim that =*pas* marks these notions. Since the nodes are understood as GUMs, not as functions, the only requirement is that =*pas* be compatible with scalar additive and concessive contexts, which is the case.

8 Conclusion

This paper had two goals: (i) to provide an in-depth description of the various uses of the additive enclitic =*pas* of CQ and identify any common meaning components between them, and (ii) to discuss the implications of its multifunctionality for the semantic map of additivity proposed by Forker (2016). It was shown that =*pas* violates Forker's implicational universals and the map was revised accordingly. In addition, in order to take account of the fact that =*pas* has a use as an epistemic, a link was established to van der Auwera & Plungian's (1998) map of modality.⁴²

In the course of modifying the map of additivity, two general contributions to semantic map methodology were made. First, it was argued that we should allow subtype relations between nodes. However, if we conceive of the nodes on a semantic map as functions, this makes the undesirable prediction that a linguistic expression with some function *F* also has all of its subfunctions. For example, any additive marker would be predicted to have the subfunction of scalar additivity. This can be avoided if we adopt Gast & van der Auwera's (2013) notion of generalized utterance meanings instead of functions. Linguistic expressions can still be classified as having a particular function if they can be shown to

⁴² The map of additivity also links to other maps not discussed in this paper, for example, Malchukov's (2004) map for coordinating connectives.

be causally implicated in specifying the relevant feature(s). Second, it was argued that implicational universals that involve subtypes and their supertypes do not make interesting predictions. I have focussed on scalar and simple additivity, but subtypes are needed more generally. For example, van der Auwera & Plungian (1998) recognize deontic as a subtype of participant-external modality and van der Auwera et al. (2009) analyze concessivity as a subtype of epistemic possibility. Furthermore, scalar additivity itself (Gast & van der Auwera 2011) and indefinite pronouns (Haspelmath 2001) have recognized subtypes. The question how subtype relations affect the predictive strength of implicational universals is therefore of more general importance. One way to avoid the issue altogether is, as proposed by de Haan (2004), to only allow *primitive* nodes to be included, that is, nodes that do not have any subdivisions (see also de Schepper & Zwarts (2009)). A linguistic expression can still map onto a supertype, by picking out all its subtypes, but the supertype would not have its own node. This has the consequence that we can no longer have links to/from supertypes (e.g., to/from additivity), and so such maps would no longer capture implicational universals involving supertypes.

Regarding the different functions of CQ =pas itself, =pas has been shown to have most of the uses identified by Forker (2016), with the exception of scalar additivity and the marking of contrastive topic. In addition, it has an epistemic use which seems cross-linguistically uncommon. While a semantic map approach to multifunctional elements does not assume that a core meaning can be identified, it has nevertheless been possible to establish such a core meaning for =pas: in all its uses, =pas presupposes existential quantification over alternatives. They differ with respect to the type of alternatives quantified over. It seems reasonable to hypothesize that this may also be the case for multifunctional additives of other languages.

Abbreviations

1, 2, 3 = first, second, third person, 1O = first person object, ABL = ablative, ACC = accusative, ADD = additive, AG = agentive, BEN = benefactive, BPG = best possible grounds, CAUS = causative, CISL = cislocative, COM = comitative, CONJ = conjectural, COND = conditional, CONT = continuative, CONTR = contrastive, DAT = dative, DEF = definitive, DIM = diminutive, DISC = discontinuative, DS = different subject, EUPH = euphonic, EXCL = exclusive, FUT = future, GEN = genitive, HORT = hortative, ILLA = illative, IMP = imperative, INCL = inclusive, INF = infinitive, LOC = locative, NMLZ = nominalizer, NX.PST = non-experienced past, PL = plural, POL = polarity, POSS = possessive, PROG = progressive, PRTC = participle, PST = past, RECIP = reciprocal, REFL = reflexive, REG = regressive, REP = reportative, RESP = responsive, SS = same subject, TRANS = transformative, TOP = topic.

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Competing Interests

The author has no competing interests to declare.

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