It's OK to be alone
The underlying structure of person portmanteaux agreement*

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Abstract

Person portmanteau agreement (PPA) has recently been analyzed (Georgi 2013b, Woolford 2016) as involving a special type of syntactic head, distinct from the type of heads underlying separate subject and object agreement. I provide evidence that the difference between discrete agreement markers and PPA is best seen as superficial (morphological), and that there is no evidence for systematic syntactic differences correlated with agreement type. The syntactic independence of the probes can be masked in the morphology via Contextual Allomorphy (Bobaljik 2000, Trommer 2007). Restrictions on PPA are shown to follow from independently known conditions on Contextual Allomorphy.

Keywords: person agreement, portmanteaux, locality, phi-features

1 Introduction

Looking at agreement patterns cross-linguisticially, several ways of marking agreement are possible, and I show in this paper that languages can superficially use different strategies to mark arguments, but underlyingly these languages are the same. When a language has both subject and object agreement, it is possible to mark each argument with a different morpheme. This is shown in (1) for Itelmen (Chukotko-Kamchatkan), where the subject is marked in the prefix and the suffix marks the object.[1]

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[1]The abbreviations and conventions used in this paper are the following. *x*>*y* = portmanteaux morpheme where *x* is the agent and *y* is the patient, *x.y* = fused element where multiple features (other than only person) are expressed

(1) **t'**-əlčqu-**(ɣ)in** 1S>2O
1.SG.SUB-see-2.SG.OBJ
'I saw you' (Bobaljik and Wurmbrand 2001: ex 5)

A superficially radically different option is where both arguments are marked in a single, unsegmentable morpheme, a person portmanteaux marker. This is for example the case in De'Kwana (Carib), (2), where the marker for first person is *w-* and for second person *y*.

(2) **mən**-endantə-a. 1S>2O
1>2-meet-PRES
'I meet you' (Hall 1988, p.155, 327/8)

The question arises if there is a parametric difference in the formation of encoding arguments on the verb. That is, does one account for the difference between languages exemplified by Itelmen and those illustrated by De'Kwana in the syntax or morphology? Recently it has been proposed that PPA a can arise due to a single agreement head probing multiple times (Georgi 2013b, Woolford 2016); languages without PPA use a different probing mechanism. In section 2 I survey six languages from four families that have PPA (Algonquian: Maniwaki; Carib: De'Kwana, Hixkaryana; Chukotko-Kamchatkan: Itelmen, Chukchi; Penutian: Nez Perce). I show that all these languages have a combination of PPA and independent subject and object agreement in their paradigms. That means that none of the languages are 'pure PPA' languages: PPA is thus not a parameter that characterizes languages (or even paradigms). Instead, I argue, languages with PPAs are a special case of languages with two agreement markers generally and all instantiations of PPA are derived in the morphology.

If these languages all have two agreement markers in the syntax, the question is how the morphology only expresses one marker. I assume that the syntax can be masked in the morphology via Contextual Allomorphy, following Bobaljik (2000), Trommer (2007). I show in section 3 that it is not only possible, but even desirable to derive PPA via a general morphological mechanism found in other places as well. Moreover, in section 4, I not only show that PPA can be modelled as allomorphy, it also has the same restrictions. That is, directionality and locality constraints that are found for contextual allomorpy (Bobaljik 2012, Embick 2010, Moskal 2015, Thornton 2017) also hold for PPA,

Thus, languages with PPA do not constitute a special class of languages. PPA arises due to conspiring factors, found independently in most languages. That is, languages can have contextual

in one morpheme, 1 = first person, 2= second person, 3 = third person, 12 = first person inclusive, 13 = first person exclusive (excluding addressee), π = person, # = number, ABS = absolutive, ACC = accusative, AP = antipassive, APPL = applicative, ASP/ A = aspect, CAUS = causative, DAT = dative EA = external argument, ERG = ergative, F = feminine, HAB = habitual, IA = internal argument, IMM.PST = immediate past IMPERF = imperfective, INV = inverse, LOC = locative, M = mood, MASC = masculine, NEG = negation, NPAST = non past, NOM = nominative, OBJ/O = object, PFV = perfective, PL = plural, PRES = present tense, PST = past tense, SG = singular, SUB/S = subject, T = tense, TV = theme vowel, V = verb

allomorphy in various domains and languages can mark subject and object agreement with multiple markers in different positions of the clause (following Béjar 2003, Cinque 1999, Julien 2002). Only when the agreement probes are placed in the same domain, is the condition met to interact and form opaque agreement markers. In fact, taking PPA as an instantiation of a syntactic operation leads to the wrong empirical result, as illustrated in section 5. Thus, even though PPA is a phenomenon best accounted for with a general morphological mechanism, it is an important indicator for locality domains and the crosslinguistic variation of agreement probes in the syntax.

2 PPA is formed in the morphology

Since one of the goals of this paper is to show that PPA is in fact allomorphy, I will show in this section that PPA does not form a specific group of languages formed via a unique syntactic property. That is, I show that the differences between languages with PPA and languages with two agreement markers are only superficial. To this end, I compare multiple languages from different language families: Algonquian: Maniwaki (Oxford 2015); Carib: De'Kwana (Hall 1984, 1988), Hixkaryana (Derbyshire 1985); Chucotko-Kamchatkan: Chukchi (Bobaljik 2000, Bobaljik and Branigan 2006), Itelmen (Bobaljik 2000), (Bobaljik and Wurmbrand 2001); Penutian: Nez Perce (Crook 1999, Deal 2015).

I show that despite considerable differences for many aspects of their verbal morphology, two important generalizations arise. First of all (section 2.1), I show that even though languages differ with regard to the placement of the agreement on the verb, they all express agreement at the edge of the verb, and inside the same complex head. This leads to the conclusion that the languages discussed here can be analyzed with a very similar hierarchical verbal template. Second, (section 2.2) by focussing on the exponents of the agreement, I show that PPA is only found in a subset of a paradigm. Moreover, I show that (i) languages generally marking each argument with a different marker can show PPA and (ii) languages generally marking both arguments as one marker do have non-PPA markers as well.

The differences between languages with PPA are then only superficial and formation of PPA cannot constitute a parametric choice in the syntax. This leads to the analysis presented in 3 where PPA is modelled as CA (following Bobaljik 2000, Trommer 2007).

2.1 Evidence #1: languages with PPA have the same verbal template

This section provides evidence that the hierarchial verbal template is very similar in languages that allow for PPA. The evidence that the agreement probes are located high in the structure comes from the order of verbal morphemes. That is, all languages discussed in this paper have different means

and different linear order of expressing inflectional and agreement morphology, but the hierarchical location of the agreement markers is similar.

To start, consider the table below. The abstract linear templates for verbal inflection are given, with the position of the verb stem, marked V. Languages can mark *v*/Asp/T/M morphemes either to the left or right of the stem, but all languages surveyed conform to the cross-linguistically predominant pattern (Cinque 1999, Julien 2002) in which the hierarchy Mood > Tense > Aspect corresponds to peripherality of affixes from the verb stem.[2] Note also that the agreement markers are in different positions for each language family, indicated with shaded cells for person agreement. The templates are based on Oxford (2014, 2015) for Algonquian; Gildea (1998) for Carib; Bobaljik (2000) for Chukotko-Kamchatkan, and Deal (2015) for Nez Perce.

Verbal Template									Language
AGR	M	*v*	V	*v*	T/A	AGR	M	AGR	
			V	TS	T	π, #	M		Conjunct Alg.
π			V	TS	T	π, #	M	π, #	Independent Alg.
π		PRF	V	CAUS	T/A			#	Carib
$\{\pi, \#\}_S$	M (T)	CAUS	V	CAUS	A -T			$\{\pi, \#\}_{S/O}$	Chuk.-Kamch.
π-$\#_{S/O}$		CAUS	V	APPL	A/M-T				Nez Perce
π-$\#_O$		CAUS	V	APPL	A/M	$\#_S$			

Table 1: person agreement and verb morphology

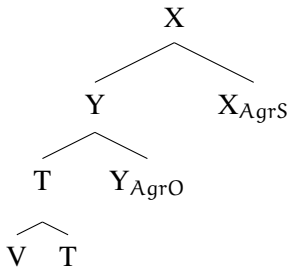
Most importantly, observe that even though markers are expressed in different positions with regard to the verb, none of the (person) agreement markers are expressed in between the verb and aspectual marking, or between the verb and tense marking . Some observations can be made: languages can express person and number marking separately, as in Carib or Nez Perce, or together as in Algonquian and Chukotko-Kamchatkan; languages can mark agreement only prefixally, or both suffixally and prefixally. Thus there is a lot of variation, but agreement is always expressed at the edge, outside of other verbal material.

If we assume that affix order reflects hierarchical structure, agreement, including object agreement, is always peripheral to Asp and usually to T (Julien 2002). This is not expected if agreement is on *v* (Chomsky 2000, 2001). Therefore, the relative positions of subject and object person agreement, and position of agreement relative to T is as in (3).[3]

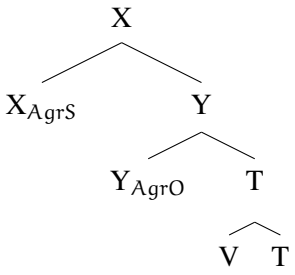
[2]Two notes are in order about Algonquian and Nez Perce respectively. Algonquian has two verbal templates, called independent and conjunct order, and which template is used depends on clause typing (Goddard 1974, Brittain 2001, a.o). Second, as the table shows, Nez Perce seems to have number marking spread out in different positions of the verb: number is either marked as a prefix, or as a suffix in between aspect and tense. As Deal (2015) points out, this number marker depends on aspect and tense. In perfect/perfective and future a prefix is used; imperfective, habitual and imperative use a suffix that appears next to the aspect/mood suffix. Thus, in the latter case, Tense is never expressed on the verb.

[3]An alternative to having two high probes would be an analysis where the object agreement is still on *v*, but moves

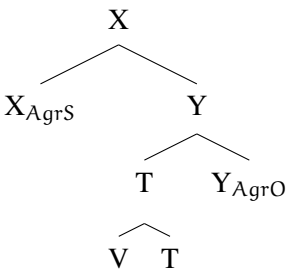
(3) a. Algonquian:
(AgrS)-V-T-Agr-Agr



b. Carib: AgrS/AgrO-V-T
Nez Perce π-{#s}-#o-V-{#s}-T



c. Chukotko-Kamchatkan:
AgrS-V-T-AgrO



A couple of comments about the placement of agreement are in order. First, each of the languages will have agreement at the edge of the verb, but each language can order their probes in a different way: The CK languages mark the subject probe as a prefix, and the object probe as a suffix. The Carib languages on the other hand mark both of the probes as a prefix. Observe that for all these language families it is never the case that the subject is marked as a suffix and the object as a prefix. In other words: if a head is a prefix, the higher heads cannot be suffixes anymore. Compare this to Julien (2002)'s observation on Tense and Aspect and the Final-Over-Final-Constraint for word order Biberauer et al. 2014. They show that languages can always have the order head>complement (and are thus left headed), or complement>head (right headed) and that mixed patterns are only possible in one direction: e.g. once the head appears to the left of the complement, the higher head cannot have its complement to the right anymore. This pattern is similar for the agreement markers found here. Thus, it seems that even though agreement markers are – partial –exceptions to the mirror principle (Baker 1985), as they can appear in any position, they do always occur in the same hierarchical order (e.g. subject > object) and obey the FOFC.

Second, note that I am only considering the placement of person agreement, since number is expressed differently in the language families. Both Carib languages and Nez Perce (3b) have separate marking for number and person; the person marking is expressed as a prefix on the verb

to the edge of all other verbal material as a clitic. This might be problematic, since in the languages that have suffixes, the suffixes behave less clitic-like than the prefixes.

whereas the number marking is expressed elsewhere.[4] For both Algonquian (3a) and Chukotko-Kamchatkan, (3c), person and number are generally combined into one morpheme and it can be a prefix or a suffix, even though there can be execptions. However, even though number might be expressed differently, in general, all person marking occurs at the edge of the verb: in all cases there is a prefix preceding all other material. There is some variation in the suffix, but person suffixes in this group of languages are mostly following all other verbal material. This means that the patterns in the table fit well with the idea of two probes as high as T. Even though structurally the agreement probes are local, they can be linearized in different ways in different languages.

Third, the patterns here are also found in a larger survey on verb morphology by Julien (2002). She shows, based on 530 languages (from 280 genera) that several positions for agreement to be marked on the verb are possible, the most common pattern being to mark the agreement at the edge of the verb. Even when agreement is marked inside other functional material, the most frequent option is to still mark it relatively high. However, there are exceptions to this generalization. In section 4.2 I show that the account here predicts a partial correlation between affix order and the possibility of PPA, which is borne out.

Finally, note that all agreement markers are represented as X_{AgrS} or Y_{AgrO}. I do not assume that agreement markers are separate phrases in the structure, but the structures represent where the probes are. Presumably they are on specific inflectional heads such as T or M. Thus a more accurate representation would be to replace X and Y with those labels. However, since this distribution might differ from language to language and I do not have specific evidence for all of the languages to know where exactly the agreement markers are, I keep the labels abstract. Ultimately, evidence will need to be provided to see which heads carry object and subject marker. What is important for the proposal here is that both markers are as high as T and in the same complex head.

Thus, we have seen that the verbal templates differ for the languages discussed here, they all have the same hierarchical template with regard to the agreement markers: those are located high inside a single complex head. This is the first piece of evidence that the languages are underlyingly the same. In the next section we look at the exponents of the agreement probes and we will see that all languages have PPA in a small subset of their paradigm, and also all have evidence for multiple separate agreement morphemes.

2.2 Evidence #2: The exponents

As a second piece of evidence that PPA is best accounted for in the morphology I look in this section at the actual exponents and the distribution of PPA in verbal paradigms. More specifically, I

[4]Number marking in Nez Perce can occur before T, as can be seen in (3b). It should be noted however, that the position of the number marking is dependent on aspect/mood and that number never occurs as a suffix if Tense is overtly expressed (Deal 2015).

provide evidence in this section that the different strategies of marking subject and object agreement, which were briefly mentioned for Itelmen and De'Kwana in the introduction (examples (1), (2) are repeated as (4), (5)), are underlyingly the same.

(4) **t'**-əlčqu-**(ɣ)in** 1S>2O
1.SG.SUB-see-2.SG.OBJ
'I saw you' (Bobaljik and Wurmbrand 2001: ex 5)

(5) **mən**-endantə-a. 1S>2O
1>2-meet-PRES
'I meet you' (Hall 1988, p.155, 327/8)

What I show in this section is that cross-referencing both arguments in one morpheme as (5) or on two morphemes as in (4) are both derived in the morpholgy and their syntax is similar. This means that I am arguing against proposals that take PPA to be either formed in the syntax via multiple probing of one agreement probe or morphology (Woolford 2016) or syntax (Georgi 2013b). The prediction for forming PPA in the syntax with one head agreeing with multiple arguments, as Woolford points out, is that a language should have a verbal paradigm that has portmanteaux throughout their paradigm, and for all person combinations (first, second and third). In contrast, languages that form PPA in the morphology, according to Woolford, only have PPA in small parts of the verbal paradigm, namely only for first and second person. I show that in fact all languages discussed here look like the morphological-PPA strategy, even the languages that have PPA for third person. This, taken with the evidence provided in the previous section, points toward a morphological analysis. Finally, I show that languages like Itelmen have PPA in some parts of their paradigm and that languages like De'Kwana can spell out two markers as well.

To start, below is a list including the languages discussed in this paper. All possible person combinations are given for verbs that agree with two arguments: Subject > Object. De'Kwana, Hixkaryana and Nez Perce have markers for person that do not distinguish number; all combinations given for those languages are only given for the singular. 1PL represents first person exclusive, 12 first person inclusive. The grey boxed areas represent the absence of this distinction in the language. Finally, the checkmarks represent parts in the paradigm where a PPA marker is found. All other cells of the paradigm are filled differently, as we will see below (i.e. two markers or only one marker).

Observe that for all languages there are PPA's found in different parts of the paradigm, but none of the languages have it throughout their entire paradigm. Second, in order to determine where PPA occurs, the arguments where the features come from are important. For example, Maniwaki has a PPA marker for 2SG>3SG and 2SG>3PL, but it only has a PPA for 3PL>2PL, and not for 3PL>2SG. As Woolford (2016) points out, this is not expected in a syntactic approach where one probe agrees

S>O		Maniwaki	De'Kwana	Hixkaryana	Chukchi	Itelmen	Nez Perce
1SG	>2SG		✓				
	>2PL						
	>3SG	✓		✓	✓	✓	
	>3PL	✓			✓	✓	
1PL	>2SG			✓			
	>2PL						
	>3SG	✓			✓	✓	
	>3PL	✓			✓	✓	
12	>3SG						
	>3PL						
2SG	>1SG		✓				
	>1PL						
	>3SG	✓				✓	
	>3PL	✓				✓	
2PL	>1SG						
	>1PL						
	>3SG				✓	✓	
	>3PL				✓	✓	
3SG	>1SG			✓			
	>1PL	✓					
	>2SG			✓			
	>2PL	✓					
	>3SG					✓	✓
	>3PL				✓	✓	
3PL	>1SG						
	>1PL	✓					
	>2SG						
	>2PL	✓					
	>3SG					✓	
	>3PL					✓	

Table 2: PPA throughout the verbal transitive paradigm

and spells out the whole paradigm as PPA. That is, the distribution of PPA occurence is indicative of morphology. Third, Itelmen seems to mark the most agreement with two arguments as a PPA, but observe that this is the case when the third person is the object. Moreover, as we will see below, these markers show various degrees of opaqueness. That is, most checkmarks in the table above can be analyzed as allomorphs, and not necessarily as PPA. This is predicted under approach where PPA is in fact that: contextual allomorphy.

Now, before we turn to the analysis, let us look to some paradigms in detail and see what the PPA markers look like in the languages discussed here. Let us focus on those that seem to be the opposite: Itelmen and De'Kwana. Paradigms for all languages in table 2 are included in the appendix. First, let us discuss Itelmen. This language, as mentioned before, cross references subject and objects on the verb. Table 3 summarizes the agreement for each subject and first and second person objects for both the realis (R) and irrealis paradigm (IR). The prefixes are marked as x– and suffixes as –y.

ea	ia	1SG		1PL		2SG		2PL	
1SG	R		—		—	t–	–[ɣ]in	t–	–sxen
	IR		—		—	m–	–[ɣ]in	m–	–sxen
1PL	R		—		—	nt–	–[ɣ]in	nt–	–sxen
	IR		—		—	mən–	–[ɣ]in	mən–	–sxen
2SG	R	Ø	–βum	Ø	–βuʔm		—		—
	IR	q–	–βum	q–	–βuʔm		—		—
2PL	R	Ø	–βum	Ø	–βuʔm		—		—
	IR	q–	–βum	q–	–βuʔm		—		—
3SG	R	Ø	–βum	Ø	–βuʔm	Ø	–[ɣ]in	Ø	–sxen
	IR	xɐn–	–βum	xɐn–	–βuʔm	xɐn–	–[ɣ]in	xɐn–	–sxen
3PL	R	n–	–βum	n–	–βuʔm	n–	–[ɣ]in	n–	–sxen
	IR	xɐn–	–βum	xɐn–	–βuʔm	xɐn–	–[ɣ]in	xɐn–	–sxen

Table 3: Itelmen transitive verb agreement: 1π/2π objects(Bobaljik 2000:7)

Note that the subject is generally marked in the prefix: comparing the first row for 1π subjects, the prefix does not alternate when the object does alternate (2SG vs 2PL). The same holds for the object markers, which are expressed in the suffix: the first singular object marker remains stable even when the subject changes. This holds systematically for second person objects as well. When we now turn to the third person objects, the markers are not as stable. This can be observed in the following table, which has the same general format as the one above. All the grey marked cells are opaque markers.

ea	ia	3SG		3PL	
1SG	R	t–	–čen	t–	–čeʔn
	IR	m–	–čen	m–	–čeʔn
1PL	R	nt–	–čen	nt–	–čeʔn
	IR	mən–	–čen	mən–	–čeʔn
2SG	R	Ø	–(i)n	Ø	–(i)ʔn
	IR	q–	–x(č)	q–	–(x)iʔn
2PL	R	Ø	–sx	Ø	–sxʔn
	IR	q–	–sx	q–	–sxiʔn
3SG	R	Ø	–nen	Ø	–neʔn
	IR	xɐn–	–nen	xɐn–	–neʔn
3PL	R	n–	–nen	n–	–neʔn
	IR	xɐn–	–nen	xɐn–	–neʔn

Table 4: Itelmen transitive verb agreement: 3π objects(Bobaljik 2000:7)

For the prefixes the same pattern arises as above: they all mark the subject. Even though number is most of the time marked in third person objects (ʔ), person for 3π is not marked: for each alternating subject, the suffix alternates. In fact it can be shown that, by looking at the intransitive paradigm, a version of the subject marker is used in the suffix except for 3πSG, which is a new

marker. Table 5 show the intransitive paradigm. Observe that now both markers track one person.

π	#	SG		PL	
1	R	t–	–kičen	nt–	–kiče?n
	IR	m–	–kičen	mən–	–kiče?n
2	R	Ø	–č	Ø	–sx
	IR	q-	–xč	q-	–sx
3	R	Ø	–n	Ø	–?n
	IR	xɐn	–n	xɐn	–?n

Table 5: Itelmen intransitive verb agreement (Bobaljik 2000:7)

The prefixes are similar in the transitive and the intransitive paradigm. The suffix now also tracks the intransitive subject. This can be taken as evidence that there are always two probes in the languages which agree with one argument in intransitive clauses, or two in transitive clauses. Importantly, note that part of each suffix matches part of the suffixes in the transitive paradigm. Thus, in most cases with a third person object the suffix is not a completely new morpheme, but it expresses information of both the subject and the object. The 3SG>3 marker on the other hand seems to be the most opaque marker, closest to PPA. The fact that there are allomorphs and separate markers for subject and agreement is not expected under an approach where one probe agrees with multiple arguments (Georgi 2013b, Woolford 2016), since the baseline is that the probe only spells out one morpheme. However, we see PPA in some parts of the paradigm, but the PPA is spelled out together with a separate subject marker. A one probe analysis can account for two markers by assuming a splitting (fission) operation in the morphology, where each feature is spelled out as a different marker[5]. However, in order to spell out the Itelmen paradigm, where there is a combination of PPA plus separate markers additional operations are needed. Moreover, since we only find PPA in a small part of the paradigm, it follows the observations found by Woolford (2016) that PPA is best accounted for in the morphology.[6]

At this point we have evidence for languages with two probes and two separate markers to also form PPA. Now, let us focus on the opposite, namely languages where generally one marker is spelled out. I will present evidence that even in Carib languages there are multiple probes. The first piece of evidence comes from the distribution of 1/2π versus 3π, the second piece comes from PPA markers in addition to another marker. Most Carib languages have an active alignment system. This means that in intransitive clauses, the agreement marker differs based on whether the sole argument is EA or IA. The following table consists of both the intransitive and transitive paradigm for De'Kwana, where only person combinations are given since number is expressed separately. As before, the shaded cells are PPA markers. [7]

[5]This is in fact what Georgi (2013b) assumes for some of the languages discussed in her paper

[6]Even though she assumes an even more restrictive version where languages with 3π PPA are formed in the syntax.

[7]The '–' in the table refer to non-existent forms, or forms that belong to a different (reflexive) paradigm, which has

π	EA	IA
1	w-	∅ (y-)
12	k-	k(ɨ)-
13	(nña:)n-	(nña:) ∅
2	m-	ə(d)-
3	n-	

(a) Intransitives

EA IA	1	12	13	2	3
1	–	–	–	mən-	w-
12	–	–	–	–	k-
13	–	–	–	nña:mən-	nña:n-
2	kə-	–	nña:kə-	–	kə/m-
3	∅	k-	nña:∅	ə(d)-	n-/∅

(b) Transitives

Table 6: De'Kwana (Hall 1984, 1988:151/287/327)

Focusing on the intransitive paradigm, table 15a, the markers for 1π and 2π are different, depending on whether the argument is EA or IA. This is not the case for the 3π exponent: both IA and EA for this person is spelled out as /*n*-/. I propose that this can be analyzed if VI's are only sensitive to marked features (Calabrese 1995) and that /*n*-/ is inserted when no marked features are present.[8]

Turning to the transitive paradigm, table 15b, the intransitive markers for 1/2π are visible when one of the arguments is 1/2π and the other argument is 3π. Thus, /*w*-/ is spelled out in the context of 1π.EA, even when the IA is 3π. Taking the analysis proposed above, 1/2π the VI-rules are sensitive to positive features; 3π-marker does have an unmarked value and is not spelled out. At this point we then have our first piece of evidence for two separate probes in this language: since features of the EA and IA are spelled out differently, both features come from a different probe. The features of 3π do not play a role, since they are not marked and are thus not visible for VI-rules. Let us now turn to the second point. This has to do with the shaded cells in table 15b. As mentioned before, in general when there is a 3π present in a transitive configuration, 1/2π features are spelled out. In case of a combination of 1+2π, it is not the case that both features are spelled out, but a PPA marker occurs, which is either /*kə*-/ or /*mən*-/. Again, it looks like there is only one slot for agreement on the verb, but this is not the case in a slightly different context. With the combination of an exclusive first person (13π, excluding the addressee) and 2π, the PPA shows up plus an additional marker /*ñña:*-/. This marker only shows up in 13π contexts, and can thus be taken to spell out [+sp, -add]. Crucially, this marker also shows up with the PPA marker, which means that two slots for agreement are needed. Moreover this also means that the requirement of the De'Kwana verb is such that it requires at least one agreement affix, but there is no upper limit, since it can have two affixes as well.

different markers.

[8]This type of analysis is at this point similar to that of Georgi (2013), who proposes that in languages like De'Kwana probes are sensitive only for marked features. The analysis proposed here, however, can also capture language systems that still favour 1/2π to be spelled out over 3π, but still have PPA with 3π, since both markedness effects and PPA are dealt with in the morphology. That is, the current system does not correlate person hierarchies with the existence of PPA, whereas a system like Georgi, incorrectly, does.

Thus, at this point we have seen evidence that languages from different ends of the spectrum both have PPA in small parts of their paradigm and have evidence for multiple agreement heads. Similar arguments can be made for languages from the same families (Chukchi, Hixkaryana) and different families, such as Maniwaki. The paradigms with the PPA markers are attached in the appendix. This leads to the conclusion that PPA is formed in the morphology.

2.3 Agreeing with two heads

One of the main points of this paper is to show that languages that exhibit PPA are syntactically similar to languages where the predicate agrees with two arguments and the markers do not interact. I assume that all languages with two agreeing arguments have two agreement probes located on distinct heads, one for subject and one for object agreement (Bobaljik 2000, Chomsky 1995, Julien 2002, a.o.).[9] One probe agrees with the subject, the other probe agrees with the object. Since PPA by definition involves agreement with two arguments, the null hypothesis should be that they too have two probes, in fact the same two probes as other complex agreement languages. Object and subject probes occur crosslinguistically in different positions in the clausal spine (cf. Béjar 2003, Cinque 1999, Julien 2002, Mitchell 1994) and due to the theory of locality in morphology and morphosyntax (cf. Bobaljik 2000, Embick 2010, Moskal 2015, Thornton 2017), some configurations may (but need not) yield portmanteaux, while other configurations cannot. I have shown in 2.1 that all languages discussed in this paper have probes at least as high as T. Unlike recent proposals for agreement, I do not assume that the object agreement is placed on *v* and the subject probe is placed on T (Chomsky 2000, 2001, a.o.) As pointed out above, agreement does not obey the mirror principle (Baker 1985), since it encodes a different sort of information from tense, aspect and mood and is often redundant. To whatever extent the order of affixes in the mood-tense-aspect sequence may be semantically-based, those considerations do not apply to agreement, which can therefore be placed in different positions in the clausal spine (Cinque 1999, Julien 2002, Mitchell 1994).

3 PPA as Contextual Allomorphy

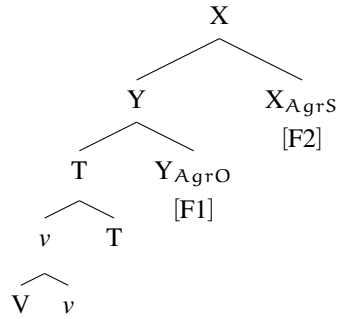
Now that we have established that languages employing PPA somewhere in their paradigm do not constitute a separate class of languages and that PPA is not formed in the syntax, we can

[9] At this point I have only looked at subject–object agreement. It will be interesting to see how agreement works in double object constructions and if agreement with three arguments is possible or if there are restrictions. I will leave this for future work, but one language with agreement for three arguments is Kiowa (Watkins 1984, Adger and Harbour 2007). However, it is not clear if the agreement prefix is a portmanteaux or can be separated into different markers Harbour (2003). Moreover, it seems that in this language it is not possible to have full agreement with all three arguments (Adger and Harbour 2007). This seems to be a more general property of languages according to Baker (2008).

ask the question what PPA is. The evidence from the previous section points towards PPA as a morhpological phenomenon. Moreover, based on the Itelmen data, it looks like markers can be more or less opaque. I take this to mean that all forms of opaque morphology, including PPA is derived with the same mechanism. More precisely, I provide an analysis for PPA as Contextual Allomorphy (Bobaljik 2000, Trommer 2007). Below I discuss how an approach with two agreement probes and contextual allomorphy can account for PPA. This then means that the syntax is similar to that of languages with two separate agreement markers on the verb, the only difference being that allomorphy can apply since the agreement heads are in the appropriate domain. The following section 4 provides more evidence that PPA correlates with properties associated with the approach sketched here.

Recall that I have shown in the previous section that languages where the verb agrees with two arguments there are separate agreement slots for subject and object.[10] In the basic case, with no PPA, both slots can be spelled out separately, via the rules in (6b-ii) and (6b-iii). Following Bobaljik (2000) and Trommer (2007) I also recognize the possibility of Contextual Allomorphy (CA). The lower head may have a special allomorph in the context of the higher one (6b-i). When the allomorphy rule in (6b-ii) cooccurs with an impoverishment rule as in (6c), the appearance of PPA obtains. Note though, that CA (6b-i) and impoverishment (6c) are independent of one another and attested independently. Thus, PPA can be adequately described with independently needed processes, without recourse to special mechanisms that are unique to portmanteaux.

(6) a.



b. (i) [F1] → *Z* / [F2] [__
(ii) [F1] → *X*
(iii) [F2] → *Y*

c. [F2] → Ø / [__ [F1]

In the remainder of this section, PPA as an instantiation of CA is illustrated with two languages from the same language family: Itelmen and Chukchi (Chukotko-Kamchatkan). I show that both languages have PPA markers that can be accounted for via CA, and that the impoverishment rule in (6c) is needed in one language, but not in the other. This means that there is language variation in that in some languages [F2] is visible twice: once in combination with [F1] as PPA, and once separately, whereas in other languages [F2] is only spelled out as part of a PPA. Moreover, in

[10] I remain agnostic as to where the probes are exactly and represent them with the labels X_{AgrS} and Y_{AgrO}. I do assume the probes themselves are on different functional heads and do not represent Chomsky (1991)-style agreement phrases in the clausal spine. See also the discussion at the end of 2.1.

the following two sections, I show that not only can PPA be modeled as CA, PPA correlates with properties that are expected if PPA is in fact an instantiation of CA.

Chukotko-Kamchatkan languages, as we have seen for Itelmen in section 2, have a verbal template with agreement markers at the beginning and end of the verb. In the remainder of the discussion I will provide examples to illustrate differences and similarities between the two languages. The full paradigms are given in the appendix (and for Itelmen in 2). Below, examples are given for Chukchi, (7) and Itelmen, (8) where the prefix marks the subject, and the suffix marks the object.

(7) a. **tə-**ɬʔu-**ɣət**
1.SG.SUB-see-2.SG.OBJ
'I saw you'

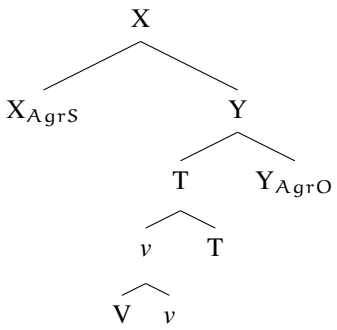
b. **ne-**ɬʔu-**ɣəm**
3.PL.SUB-see-1.SG.OBJ
'They saw me'
Chukchi (Bobaljik and Branigan 2006, p.55)

(8) a. t'-əlčqu-**(ɣ)in**
1.SG.SUB-see-2.SG.OBJ
'I saw you'

b. **n-**əłčqu-**(ɣ)in**
3.PL.SUB-see-2.SG.OBJ
'They saw you'
Itelmen (Bobaljik and Wurmbrand 2001, ex. 5)

With two arguments, two markers are present on the verb. Repeated from 2.1, I assume the following underlying verb structure for both languages, following Bobaljik (2000), (9).

(9)



The agreement markers are in one m(orphological)-word or complex X^0, but they are spelled out at different edges of the verb. I assume, following Bobaljik (2000), Embick (2010), that vocabulary insertion proceeds cyclically, starting at the deepest embedded element, V. Both object and subject agreement markers are inserted last and can be spelled out without any interaction between the two. This then instantiates the options (6b-ii) and (6b-iii) above. However, interaction between X_{AgrS} and Y_{AgrO} is possible in both languages: PPA arises in the context of 3π>3π. First, let us examine Chukchi in more detail, examples are shown in (10a). Observe that there is only a suffix present, and no prefix. This means that in this case, the suffix encodes both subject and object information and therefore is descriptively a PPA. Moreover, it truly encodes information of the subject and the object, since the exponent of the 3π object suffix is different depending on the subject, thus in (10b) the subject is 1π and the suffix is /-ɣ*ʔen*/ instead of /-*nin*/.

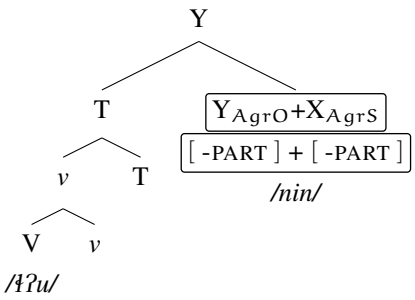
(10) a. ɬʔu-**nin**
see-3.SG>3.SG.OBJ
'(S)he saw him/her/it'

b. tə-ɬʔu-**ɣʔen**
1.SG.SUB-see-3.SG.OBJ
'I saw him/her/it'
(Bobaljik 2000, p.19)

On the basis of the data above, several analyses are possible to model the interaction of subject and object features. A first option, which will turn out to be problematic for other languages, is one where the object and subject features are fused into one head and spelled out as a separate marker, as in (11a) (Noyer 1992).[11] In this case, according to the elsewhere principle, the most specific VI will be inserted into the fused head, which is in this case (11b-i), since it spells out [-PART] twice, whereas (11b-ii) only does once.[12]

(11) Chukchi ✓**Fusion**: /ɬʔu-**nin**/

a.



b. VI rules Y_{AgrO}

(i) [-PART, -PART] ⟶ -nin

(ii) [-PART] ⟶ -ɣʔen

(iii) [+PART] ⟶ -ɣət

(iv) [+SP] ⟶ -ɣəm

An issue to be considered on a fusion analysis is whether there is any internal structure to the features on a fused node. The spirit of the operation suggests there should not be, but then the rule in (11b-i) needs to refer to [-participant] twice. It is not clear why a rule should differentiate between a negative feature value once or twice, if there is no structure inside the feature bundle after fusion. This then leads to the broader question of how to differentiate between two feature bundles that come from different arguments. We have seen in section 2.1 that it is not sufficient to only collect person features (i.e. 1π>2π can lead to a PPA, but 2π>1π does not). A solution to this is proposed by (Georgi 2013b), but as I will show in section 5 this leads to other issues.

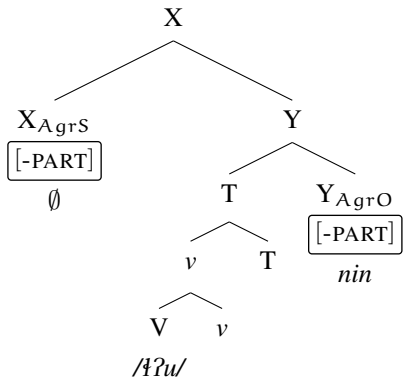
A second analysis, which derives all languages discussed in this paper, is to model the interaction between X_{AgrS} and Y_{AgrO} as CA. In this case both subject and object features are present in separate heads, (12a). There is an additional VI rule, (12b-i) that take precedence over less specific VI rules, (12b-ii). To ensure that the subject features are not spelled out, I follow Bobaljik (2000, 2017) in that an impoverishment rule, (12c) deletes the features of this node, making it impossible insert the marker for subject features.

[11] An updated version of fusion is a spanning account, where multiple terminal nodes are spelled out as one marker (Svenonius 2016, Merchant 2015). The same problems that arise for fusion also arise for spanning.

[12] The VI's for both Itelmen and Chukchi are abbreviated, which does not bear on the analysis presented here. For example, the Itelmen plural markers are more complex for [+part]. I refer the interested reader to Bobaljik (2000).

(12) Chucki ✓**CA**: /ɬʔu-**nin**/

a.



b. VI rules Y_{AgrO}

(i) [-PART] → -nin / [-part]$_{AgrS}$[__]

(ii) [-PART] → -ɣʔen

(iii) [+PART] → -ɣət

(iv) [+SP] → -ɣəm

c. Impoverishment rule

[-PART]$_{AgrS}$ → ∅ / __ /-*nin*/[13]

On the basis of the data in Chukchi, the analysis is underdetermined: both a fusion or a suppletive approach work equally well: either a specific operation in the morpho-syntax can be postulated, or in addition to a suppletive VI-rule an impoverishment rule is needed. Next, I show evidence that suppletion plus impoverishment leads to a better result and illustrate the independence of the suppletive VI rule and the deletion operation.

Let us turn to Itelmen to see why only CA works. Consider the data in (13), which have the same feature specifications as in (10). Observe that for 3π>3π the subject prefix is present in Itelmen, (13a), whereas this prefix was absent in Chukchi, (10a). Again, 3π is different when there is a different subject, as in (13b). Thus, the suffix in (13a) is PPA.

(13) a. **n**-zəl-**nen**
3.PL-give-3>3.SG
'They gave it'

b. **t'**-əłčqu-s-**čen**
1.SG.SUB-see-PRES-1>3.SG.OBJ
'I see him'

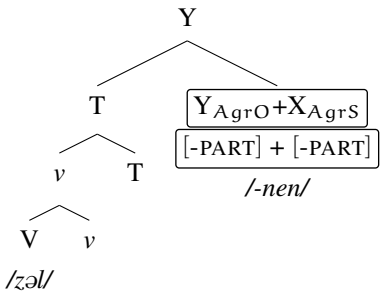
(Bobaljik 2000, p.19)

Applying the same analyses for Itelmen as for Chukchi, leads to the wrong result for fusion, but not for CA. First, consider fusion, where the subject and object features merged into a single head, (14). In order to spell out the object features, the VI rule that refers to multiple features is inserted and spells out the suffix, (14b-i). The problem arises with spelling out the prefix:(14c-iii) needs to be inserted to derive to correct surface form, but there is no location to insert the marker, since the subject features are already spelled out in the suffix. Thus, a fusion approach does not lead to the desired result, since Itelmen requires PPA in addition to spelling out the subject features separately.

[13] See Bobaljik (2000) for arguments that in Chukchi impoverishment of the subject features is sensitive to the phonological form of the object and not the syntactic features.

(14) Itelmen ✗ **Fusion**: */zəl-nen/

a.



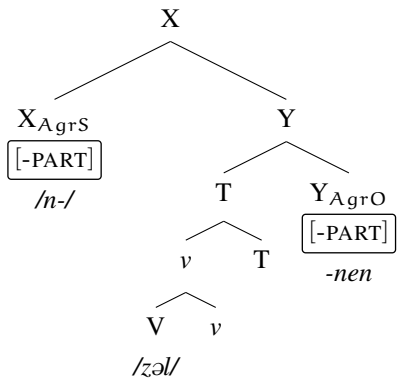
b. VI-rules Y_{AgrO}
   (i) [-PRT,-PRT]⟶ -nen
   (ii) [-PART] ⟶ -n
   (iii) [+SP]⟶-βum
   (iv) [-SP]⟶ -[ɣ]in

c. VI-rules X_{AgrS}
   (i) [+SP] ⟶ t'-
   (ii) [-SP, IRREALIS] ⟶ q-
   (iii) $[+PL, -PART]_{AgrS}$ ⟶ n-/

The subject features and the PPA marker can be spelled out in a CA approach. In this case the morphological tree does have a slot for subject and object features, as shown in (15a). Just as in Chukchi, the more specific allomorphy rule in (15b-i) ensures that /*-nen*/ is spelled out and not just the features of 3π. Thus, the marker still spells out object features and subject features, but the subject features themselves are at this point still present in the derivation. This means that (15c-i) can still be inserted to derive the correct surface form, with the prefix.

(15) Itelmen ✓**CA**: /n-zəl-nen/

a.



b. VI-rules Y_{AgrO}
   (i) [-PRT]⟶ -nen / $[-PRT]_{AgrS}$ [__]
   (ii) [-PART] ⟶ -n
   (iii) [+SP]⟶ -βum
   (iv) [-SP]⟶ -[ɣ]in

c. VI-rules X_{AgrS}
   (i) [+PL] ⟶ n-
   (ii) [+SP] ⟶ t'-
   (iii) [-SP, IRREALIS] ⟶ q-

To summarize, Itelmen shows that CA is needed, and I have shown that once CA is admitted, PPA can be described without recourse to any operations other than CA. In the absence of evidence to the contrary, there is no motivation to add an ad hoc operation such as fusion or spanning into the theoretical toolkit for PPA. The approach taken here leads to an interesting learnability question. From an acquisition perspective in particular, the option of having both fusion or CA yields indeterminacy. If both operations would be available, then the Chukchi child has no empirical basis for the choice among analyses, but if all PPA is modeled by CA, then there is simply no choice to be had, reducing the learning burden on the child. One possible concern is that under the view presented here impoverishment is needed as an additional operation to account for Chukchi. However, just as for CA, impoverishment is an operation that is independently needed in the language. It turns out that in Chukchi the two operations are used in the same verbal domain,

leading to the superficial pattern that there is only one marker.

In the next section I show that PPA correlates with properties of CA, providing evidence for the claim that no additional machinery is needed. I show that the languages discussed in this paper can be analyzed best with a CA approach as well and provide evidence for interesting correlations between PPA and CA. By providing derivations for different languages I show that it is generally the object marker that shows allomorphy for subject features, and not vice versa. Second, I provide evidence that the observation made in section 2 that the languages discussed here have the same verbal template with regard to the placement of their agreement probes by looking at when PPA is not possible. This correlates with observations about when CA is not possible.

4 PPA has properties of CA

As mentioned before, I assume that languages with PPA are similar to languages where the verb agrees with two arguments, in that all these languages have two agreement probes on distinct heads. This has been illustrated in the previous sections. I claim that the underlying two heads can sometimes be masked in the morphology by contextual allomorphy (Bobaljik 2000, Trommer 2007). This system then, makes particular predictions for what type of interaction between different nodes is possible, thus when the suppletive VI rules are available. This is important, since I am claiming that PPA is exactly that: interaction between two agreement probes. I explain in more detail what predictions are made by assuming a suppletive analysis to portmanteaux and in 4.1 and 4.2 I illustrate both predictions.

First, recall that I assume the following for the languages with two agreement markers: A verb consists of a stem and functional material, including two agreement probes. I assume, among others (Bobaljik 2000, Embick 2010), that the most deeply embedded elements receive phonological information first. This means that the verb stem is inserted first and only after that inflectional material. In general, people assume that the features of higher nodes can influence the phonological form of the lower nodes. However, it has been debated in the literature if the reverse is also possible, thus if the syntactic features of Aspect for example, can influence higher heads such as Tense (Bobaljik 2000, Bonet and Harbour 2012, Gribanova and Harizanov 2016). In the remainder of the paper I show evidence in favour of the view that contextual allomorphy is uni-directional: only higher features influence lower features via suppletion and not vice versa (Bobaljik 2000). This evidence comes from the type of portmanteaux markers that are allowed. As will become clear in section 4.1, the following abstract representations are found.

(16) Object Features:

a. $[F]_{AgrO} \rightarrow X$

b. $[F]_{AgrO} \rightarrow X' / [F]_{AgrS}$ (also PPA)

c. $[F]_{AgrO} \rightarrow \emptyset / [F]_{AgrS}$ (=b.)

(17) Subject Features:

a. $[F]_{AgrS} \rightarrow Y$

b. $[F]_{AgrS} \rightarrow \emptyset / [F]_{AgrO}$ ($\neq$ CA)

Overall, I present evidence that there are more different instantiations of object features (16) than subject features (17). What this boils down to is that when object features are spelled out, there can be a marker that only marks object features, (16a), spells out object and subject features, (16b) or is zero, (16c). Since, PPA is an instantiation of allomorphy, it falls under (16b). Now, in case of subject features, we never see overt allomorphy, thus we do not see the equivalent of (16b) for subject markers. I argue that the zero marking in (17b) is an instantiation of impoverishment of features, rather than allomorphy (Bobaljik 2017). Thus, the first piece of evidence for PPA being accounted for via CA comes from the fact that both obey the same directionality restriction.

A second prediction for the hypothesis that PPA is CA, is that both should obey the same locality restrictions. In section 4.2 I show that the following hypothesis holds (following Bobaljik 2012, Moskal 2015, Thornton 2017):

(18) CA (=PPA) is only possible when two heads are in the same X^0

What this means specifically for PPA is that the formation of portmanteaux is only possible when both agreement probes are in the same domain, e.g. the same complex head. This means that this account can distinguish between languages that never allow for PPA, but do have two agreement probes, and languages that allow PPA. The first type of languages should show evidence that the agreement probes are in different domains, whereas the second type of language has evidence for the probes ending up in the same domain. That is, we can take the existence of PPA as an indication of what constitutes as a word domain in a particular language. I will provide evidence from languages that in certain cases allow PPA, but in other environments this is blocked and evidence from languages that never allow PPA.

In the next two subsections both predictions for PPA as CA will be discussed.

4.1 Directionality and PPA

This section focuses on the first claim that CA = PPA and the predictions made in (16) and (17) that only object features are influenced. The discussion first focuses on the variation in Chukotko-

Kamchatkan. After that the other language families will be discussed.

Recall from the discussion in section 3 that Itelmen and Chukchi generally express subject features as a prefix and object features as a suffix. Examples are repeated from (7) and (8).

(19) a. tə-ɬʔu-ɣət
1.SG.SUB-see-2.SG.OBJ
'I saw you'

b. ne-ɬʔu-ɣəm
3.PL.SUB-see-1.SG.OBJ
'They saw me'
Chucki (Bobaljik and Branigan 2006, p.55)

(20) a. t'-əlčqu-**(ɣ)in**
1.SG.SUB-see-2.SG.OBJ
'I saw you'

b. **n**-əłčqu-**(ɣ)in**
3.PL.SUB-see-2.SG.OBJ
'They saw you'
Itelmen (Bobaljik and Wurmbrand 2001, ex. 5)

Moreover, both languages have PPA in the suffix for 3π>3π and I modeled this as CA. Thus, on this analysis it means that PPA is in essence a more opaque case of standard allomorphy. In most cases, it is still possible to see parts of the separate subject and object morphemes, as discussed in section 2, but this can not be analyzed with just phonological rules. Moreover, it means that the PPA form can be listed together with other allomorphs for agreement. As already mentioned above, the 3π suffix in Itelmen is spelled out as */-čen/* with a 1π subject. This means that there is a list of CA rules, as shown (21) for Itelmen 3π object markers.[14]

(21) VI rules Transitive Object Agreement (singular only)

a. [-PART]⟶ -čen / [+SP]$_{AgrS}$[__

b. [-PART]⟶ Ø / [-SP, PL]$_{AgrS}$[__

c. [-PART]⟶ -(i)n / [-SP]$_{AgrS}$[__

d. [-PART]⟶ nen / [-PART]$_{AgrS}$[__

Observe that the 3π>3π form discussed above is listed in (21). This means that this is not a true PPA marker, since all other markers are also the spell out of multiple features. Thus, as mentioned above, a system that argues for two probes and PPA as CA can account for a verbal paradigm with (i) separate markers, (ii) allomorphs and (iii) PPA. All three options are visible in Itelmen and Chukchi. Crucially, these languages also show multiple options in one form: in case of xπ>3π, the prefix is always (i), whereas the suffix can be (i/ii/iii).

Secondly, PPA shows similar directionality effects as CA. Recall from above that only higher heads are able to influence lower heads. This is exactly what we see in Itelmen and Chukchi. That is, in (21) the rules always have the features of the object head changing, whereas the subject features

[14]Technically, 3π>3π could be marked without negative features, which would make it a default marker. However, the language has a marker used when there is no subject (impersonal constructions), which is not */nen/*, but */čen*, and thus it might be the case that */nen/* is truly a portmanteaux and not a default marker.

are always influencing the form of the object. There are no opposite rules, where object features are the context for the changing subject markers. In case of (21) subject features can be spelled out as a marker, as was the case in (13), or can be zero. Thus, it is never the case that subject features are an overt allomorph; the only option is to spell out subject features as zero, as we have seen for Chukchi in (12c).

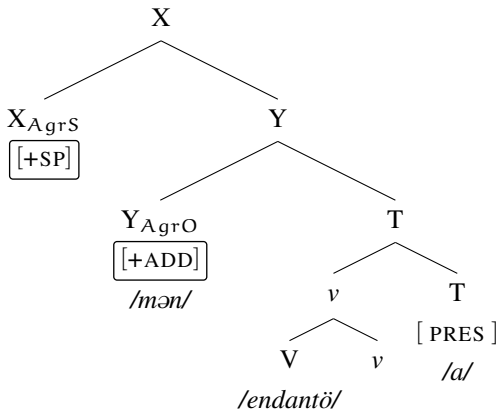
Now we turn to different language families. As discussed in 2.2 there is evidence for two agreement heads in Carib languages, because sometimes there are two markers spelled out, and because there is a difference between the markers for 1/2π and 3π. As will be shown in this section, a language like De'Kwana also shows evidence for the hierarchy constraint, predicted by a contextual allomorphy analysis. To start, consider the examples below where there are 1π and 2π arguments, expressed in one morpheme.

(22) a. **mən**-endant(ö)-a. 1π>2π
1>2-meet-PRES
'I meet you'

b. **kə**-(e)ndant(ö)-a. 2π>1π
2>1-meet-PRES
'You meet me'
(Hall 1988, p.155, 327/8)

Thus, both combinations of 1/2π lead to a PPA. This is analyzed as follows for (22a). Just as in Chukchi, the features of the higher head are deleted and thus cannot be spelled out, and the features of the lower head are spelled out as an allomorph of 2π features.

(23) a.



b. VI Rules AgrO
(i) [+ADD] → mən- / [+SP]__
(ii) [+ADD] → əd
(iii) [+SP] → ∅(y)-

c. Impoverishment rule
[+sp] → ∅ / __ [+ADD]$_{AgrO}$

Evidence against a fusion approach comes from the data where two markers are spelled out. The data given in (24). Observe that in these cases, the PPA marker from (22) are spelled out, in addition to the [+sp, -add] marker.

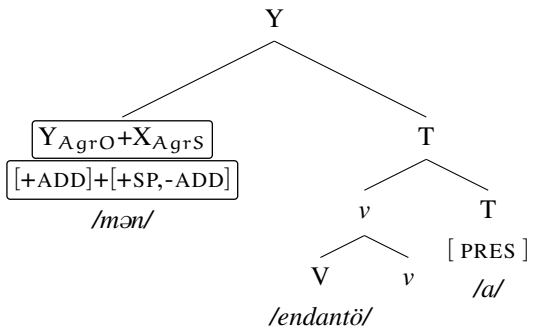
(24) a. **nña:-mən**-edantö-a 13>2
13-1>2-meet-PRES
'We(excl) meet you'

b. **nña:-kə**-edantö-a 2>13
13-2>1-meet-PRES
'You meet us(excl)'
(Hall 1988, p.151/5, 287, 328)

Now, if we analyze (24a), a fusion account does not lead to the desired result for the same reason as in Itelmen: The PPA marker can be formed, but there is no room for the additional marker */ñaː-/*, this is shown in (25). The data are correctly analyzed with a contextual allomorphy approach, as is shown in (26). The derivations are similar to the derivations presented before.

(25) Fusion: * /mən-endantö-a/

a.



b. VI rules:

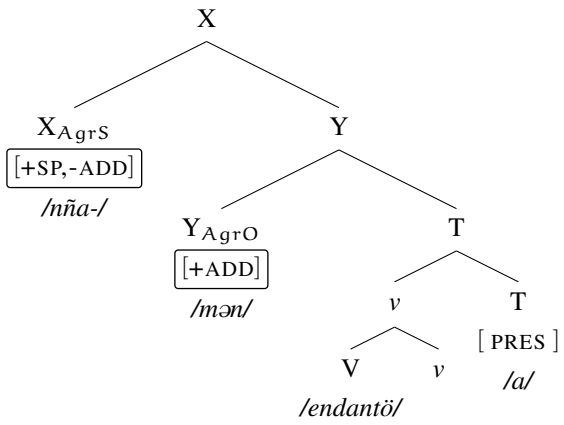
(i) $\{[+SP]_{AgrS}, [+ADD]_{AgrO}\} \rightarrow$ mən

(ii) [+SP,-ADD] → ñaː

(iii) $[+ADD]_{AgrO} \rightarrow$ əd

(26) CA: ✓/ñaː-mən-endantö-a/

a.



b. VI Rules

(i) [+SP,-ADD] ↔ ñaː

(ii) $[+ADD]_{AgrO}$ ↔ mən- / $[+sp]_{AgrS}$

(iii) $[+ADD]_{AgrO}$ ↔ əd-

This means that even in a language where in general one marker is spelled out there is evidence for two markers and evidence for contextual allomorphy. Moreover, in case of 13π>2π there is evidence for the directionality of allomorphy, where the higher head is spelled out and the lower head is spelled out as PPA. There is a potential problem, however. This has to do with the fact that *ñaː-* in both (24a) and (24b) is expressed before the PPA marker, even though it expresses subject features in one case and in the other object features. Thus, in case of 2π>13π we do expect the PPA plus the *ñaː-* marker. This would mean that there is allomorphy in the higher head. However, this would still not explain why the marker spelling out 13π is expressed at the edge of the verb and not in between the subject marker and the verb. This could point to these elements being slightly different than prefixes as the other markers.

Finally, let us provide evidence from a family other than Chukotko-Kamchatkan or Carib. Maniwaki is an Algonquian language and in some clause types it has only suffixal agreement. This

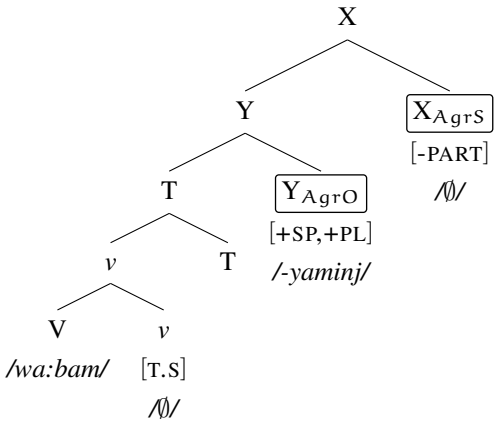
agreement still shows evidence for multiple agreement heads. The data are given below, where (27a) shows two separate morphemes, corresponding to the intransitive paradigm, and (27b) shows an unsegmentable marker.

(27) a. wa:bam-∅-**ang**-**ij** 1>3
see-TS-1PL-3
'We see her'

b. wa:bam-i-**yaminj** 3>1
see-TS-3>1PL
'She sees us.(excl)
(Oxford 2015, p.9,10)

In case of (27a) both subject and object agreement are spelled out, whereas in (27b) there is a PPA. In case of the PPA marker, it is the lower head that is spelled out, whereas the features of the higher head are impoverished. Observe that in this language, both agreement markers are suffixes and therefore the tree has all the heads merged to the right.

(28) a. Maniwaki 3>1PL



b. VI rules AgrO
(i) [+SP,+PL] → -yaminj / $[\text{-PART}]_{AgrS}$[__]
(ii) [+SP,+PL] → (y)a:ng
(iii) [+SP] ↔ (y)a:n
(iv) [-PART] ↔ j

c. Impoverishment rule
[-PART] → ∅ / $[\text{+SP}]_{AgrO}$

To summarize, at this point I have shown that all languages with PPA can be derived with contextual allomorphy and that, moreover, PPA correlates with hierarchial effects that are expected if PPA is an instantiation of CA. In the next section I show when PPA and thus contextual allomorphy, is not possible.

4.2 Locality and PPA

Since I argue that portmanteaux can only be formed if the agreement probes are local enough, the question is if there are language types where portmanteaux cannot occur. Moreover, the question is what 'local enough' means. I argue based on data in this section that agreement probes can only show allomorphy if they are in the same morphological domain, namely a complex X^0. Moreover, we will see that there is a difference in the locality requirement for the probe to agree and contextual allomorphy. Section 4.2.1 shows evidence from languages that show PPA in some environments, but in other environments, the same argument combinations do not surface as PPAs; section 4.2.2 discusses languages that never exhibit PPA.

4.2.1 PPA vs no PPA

The first piece of evidence for a locality requirement in forming PPA comes from looking at languages that usually allow PPA. Recall that in languages like De'Kwana and Itelmen in general all agreement is expressed on one verb, and thus the agreement heads are in one complex X^0. However, De'Kwana and Itelmen contrast when multiple verbs are present. As we have seen, both languages have evidence for multiple heads which can interact. Now, it turns out that these languages differ with the expression of agreement markers if there are different verbs. Recall that De'Kwana has portmanteaux for 1π>2π and vice versa, the examples are repeated in (29).

(29) a. **mən**-endant(ö)-a. 1S>2O
1>2-meet-PRES
'I meet you'

b. **kə**-(e)ndant(ö)-a. 2S>1O
2>1-meet-PRES
'You meet me'

Now, when there is a sentence including negation, there is an auxiliary verb. In that case, there are two verbs, and on each verb one of the phi-feature bundles is marked, as shown in (30). Recall that De'Kwana has an active agreement system and thus marks person features differently depending on the argument the features come from. This can be seen by comparing the a. and b. example since 1π are marked differently in both sentences, since in the a. example 1π is EA, whereas it is the IA in the b. example. The same goes for 2π.

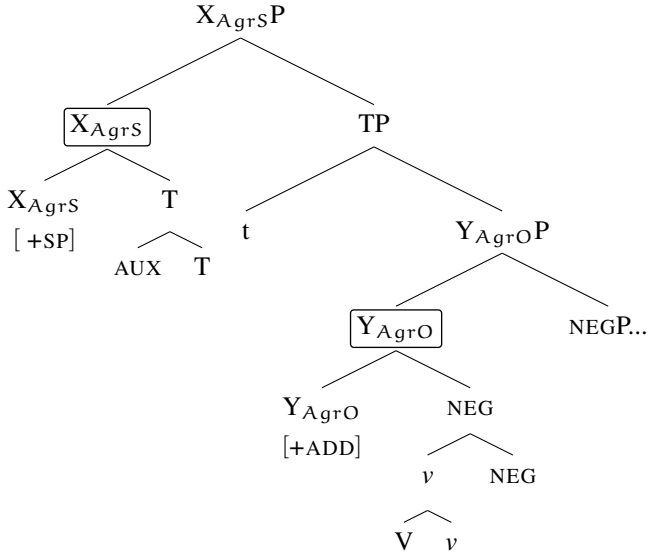
(30) a. **ad**-ayhuku-'da **w**-ö-a üwü 1π>2π
2.IA-hit-NEG 1.EA-be-PRES I
'I don't hit you'

b. **y**-ayhuku-'da **m**-ö-a ömödö 2π>1π
1.IA-hit-NEG 2.EA-be-PRES you
'You don't hit me' (Hall 1988, p.338)

Thus, even though the language allows for PPA, it is not the case that there always is a PPA when 1π and 2π are present.[15] I argue that this is because of the requirement for contextual allomorphy to be only possible when both heads that interact are in the same complex head. In the case of (30), the heads end up in different domains, and therefore, even though the CA rules are still part of the grammar, these rules cannot apply. A derivation is given in (31), with the corresponding VI rules in (32).

[15] Woolford (2016) reaches the same conclusion in her approach and argues that these data favour a morphological rather than syntactic approach.

(31) De'Kwana two verbs, after head movement



(32)
a. [+ADD,+SP] → k-
b. [+SP,-ADD] → nña:-
c. $[+SP]_{AgrO}$ → kə / $[+ADD]_{AgrS}$[__
d. $[+ADD]_{AgrO}$ → mən- / $[+SP]_{AgrS}$[__
e. $[+SP]_{AgrO}$ → ∅(y)-
f. $[+SP]_{AgrS}$ → w-
g. $[+ADD]_{AgrO}$ → ə(d)-
h. $[+ADD]_{AgrS}$ → m-

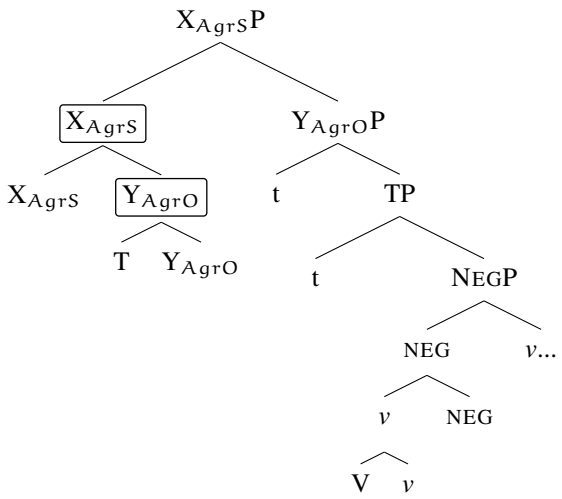
Let us go over the derivation. Due to negation, the verb cannot move into T. This means that in order for Tense and the subject features to be spelled out, a dummy element is inserted. This means there are two verbs: the main verb including negation and object features, and a dummy verb including tense and subject features. This means that the two agreement probes end up in different heads, and thus in different domains. Recall that the requirement for CA to apply is that the two interacting heads need to be in the same X^0. In the case of (31), this is not the case. Therefore, for the object agreement, the most specific VI-rule is (32g) and not (32d). Thus, even though the suppletive VI-rule is still present, it cannot apply.

We can contrast this with a language that also allows for PPA, and even has PPA when there are two verbs. Consider the following example from Itelmen:

(33) qa'm łem-aq **t'**-iɬ-**čen** 1π>3π
NEG kill-NEG 1.SG-AUX-1>3.SG
'I didn't kill it' Bobaljik, Field Notes [S3:10, ex. 23]

The difference between Itelmen and De'Kwana is that in Itelmen all agreement is expressed on the auxiliary verb, and not spread out, like in De'Kwana over the main and auxiliary verb. Moreover, in Itelmen, allomorphy is still allowed: the same affixes appear in clauses with and without negation. This means that the agreement probes end up in the same domain, as is shown in the following structure.

(34)



Since the agreement heads end up in the same domain, the allomorphy rules can still apply. This then contrasts with the De'Kwana two-verb constructions, where the agreement probes end up in different domains. Moreover, there is a difference between the locality of the forming of portmanteaux and the locality of probing of arguments. In both De'Kwana and Itelmen, each of the arguments can be agreed with in both single verb clauses and clauses where there are multiple verbs. However, there is a difference with regard to the forming of portmanteaux: only when all the agreement is expressed on one verb (in one morphological word) can the agreement markers form a portmanteaux.

4.2.2 Languages without PPA

At this point we have seen that PPA is allowed in languages as long as the agreement probes are in one morphological head. This then predicts that as long as the probes are not in the same domain, PPA is disallowed. This prediction is borne out in languages where PPA is sometimes allowed, but not when there the agreement markers are spread out over different verbs and thus end up in different domains. A second prediction is that when a language has subject and agreement markers in different complex heads, a language cannot have PPA. Languages that fall under this type of syntax are Bantu languages, since they have object markers and subject markers (Bresnan and Mchombo 1987). An example is given in (35).[16]

(35) Njuchi **zi**-na-**wa**-lum-a alenje 3>3π
bee SUB-PAST-OBJ-sting-FV hunter
'Bees stung hunters' Chichewa, (Monich 2015, p.155)

As can be seen, the tense marker intervenes between the subject and object markers, and each

[16] I have adapted the glosses slightly, they do not include the class markers, since I only want to focus on the position of the subject and the object markers in the verb. Moreover, as pointed out before, agreement markers can have a different status and it has been argued by Brensan and Mchombo that object markers are more clitlic-like and subject markers are more agreement-like

marker only spell out one set of phi-features. At this point it could be an accident that PPA does not occur in this language family, but there is additional evidence that verbs in Bantu languages consists of multiple domains. Several authors, going back to Barret-Keach (1986) have shown that there are several phonological processes that behave differently in different parts of the verb (Myers 1987, Monich 2015, a.o). Thus, in general, the domains for phonological application are below, where the verb stem and the object marker from the first domain, and the higher functional heads are in a separate domain.

(36) [Su-T] [Obj - V]

To see this more clearly we can look for example at tone assignment and deletion. Myers (1987) shows tone deletion is sensitive exactly to the grouping found in (36). In particular there is a rule of deletion, common in Bantu, which deletes a high tone that is preceded by another high tone, given in (37).

(37) $H \rightarrow \emptyset$ / H ___

In (38), the verb stem is associated with a high tone, which surfaces in (38a). Now, when the same verb stem is preceded by the future marker, carrying a high tone, (38b), (37) applies and the high tone on the verb is deleted. However, (38c) shows that when the verb stem is preceded by the object marker carrying a high tone, (37) is not triggered.

(38)

a.	b.	c.
ku-téngésá	ndi-chá-tengesa	ku-rí-téngésá
INF-sell	1.SG-FUT-sell	INF-OBJ-sell
'to sell'	'I will sell'	'To sell it'

Shona, (Myers 1998:240-241)

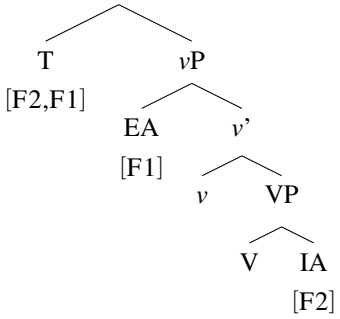
The alternation between (38b) and (38c) can be explained if we assume a boundary between the verb+object marker and inflectional material. That means that rule (37) applies over this boundary, but not inside the boundary. Different properties have been discussed that follow the same boundary presented in (36), including stress assignment in Swahili and relative clauses containing resumptive pronouns (Barret-Keach 1986, Henderson 2003, a.o) If we believe that phonological domains are derived from morphological domains, it is no surprise that PPA is disallowed in Bantu languages. That is, the phonology gives evidence for two domains inside the verb. If that is the case, contextual allomorphy between subject and agreement markers is blocked, since both markers end up in different domains.

5 Alternative: PPA in the syntax

The goal of this paper is to show that PPA is formed in the morphology and can be accounted for via independently motivated operations found elsewhere in the language. It is conceivable to think that PPA is actually formed in the syntax. This has been recently proposed by (Georgi 2013a,b, Woolford 2016). The abstract idea of such approaches is that functional heads are special. Below I will explain the main ideas behind these proposals and draw out specific predictions. That is, PPA should correlate with properties generally assigned to multiple probing proposals, which are not borne out.

The (abstract) idea of multiple probing is as follows. There is one probe on a head in the syntax, in (39a) on T, that can probe multiple times. In case of the example below it agrees with the EA and the IA. At this point it has features of both arguments and these features can be spelled out together as a new, unsegmentable marker, as in (39b). The key difference from the approach I have developed is that in (39), the features of both arguments are on a single, multiple-valued probe. Since there is only one probe, only a single overt exponent is expected. This could be a PPA, or one of the two arguments.

(39) a.



b. [F1, F2] ↔ Z
[F1] ↔ /X/
[F2] ↔ /Y/

This type of approach could in principle allow for PPAs. As Woolford (2016) points out, it is expected that a language with such an agreement system should in principle allow for PPA throughout the paradigm. However, as we have seen in the previous sections, this does not hold for the languages discussed here. Moreover, a system as in (39) can account for the expression of multiple arguments via a splitting of the features. This is what Georgi (2013b) proposes. However, in order to account for the Itelmen pattern where a prefix plus a PPA is marked on the verb requires additional operations.

Now let us focus on the proposals in some more detail. In the model presented by Georgi (2013a,b) the observations made by Heath (1991, 1998) are captured, that PPA mostly occurs with 1π and 2π and that PPA markers can be syncretic to 1π inclusive markers. To illustrate this, look at the paradigm in table 7 from Surinam Carib (Carib, Gildea 1998). This language has an active alignment, and has a different set of markers in intransitive contexts, exemplified in table 7a,

depending on the features on the verb coming from the internal or external argument. In transitive contexts, table 7b, with 3π, the marker of 1/2π is expressed on the verb; in the contexts of a 1π and a 2π, the inclusive marker shows up.

π	EA	IA
1	∅-	j-
12	kit-	k-
2	m-	aj-
3	n-	n-

(a) Intransitives

EA \ IA	1	12	2	3
1	–	–	k-	s-
12	–	–	–	kiʃ
2	k-	–	–	m-
3	j-	k-	aj-	n-

(b) Transitives

Table 7: Surinam Carib (Gildea 1998)

Observe that this PPA marker for 1π>2π and 2π>1π is identical to the marker that shows up in 12π intransitive contexts. In this sense, the */k-/* always marks [+1, +2], implying that there is no such thing as a PPA marker. This pattern is the core of Georgi's analysis. She assumes that there is a single probe on T that probes multiple times. Following relativized probing approaches (Nevins 2011, Preminger 2011, Calabrese 1995), where probes can be tailored to look for only certain features, Georgi proposes that T only looks for positive feature values. This means that in case of 12π intranstive context, as well as in transitive contexts with [+1] and [+2], the same features will be collected by the probe. This then means that this feature bundle can be spelled out similarly in all these contexts, e.g. as /*k*-/ in Surinam Carib, as is shown in (40).

(40) [+1, +2] ↔ /k-/

Moreover, this accounts for the fact that in a language like Surinam Carib 1π and 2π are more 'marked' than 3π, in that 1/2π are usually expressed in a context with a 3π present. For example, observe in table 7 when the IA is first person, it will be spelled out as /*j*-/ when it is intransitive or when there is a transitive configuration 3π>1π.[17]

As we have seen, not all 1π>2π and 2π>1π PPAs and 12π markers are syncretic. That is, the argument plays a role too. To account for this, Georgi proposes that case agreement distinguishes [F1] coming from EA or IA (following Rackowski 2002, Richards 2011, Hamann 2011). This is done as follows. When the first feature on T agrees for person with EA, it also picks up the case features associated with this DP due to case assignment. In the end, both person features are associated with a case feature. This means that case and person always are aligned the same way. An example of case agreement is found in De'Kwana. These are the examples from the introduction

[17]Note that this is similar to the proposal made in this paper for De'Kwana, where it is the VI-rules that are sensitive to marked features. See the discussion in 5.2 for why this type of markedness should be in the morphology.

where 1π>2π leads to /*mən*-/, whereas 2π>1π leads to /*kə*-/. The VI rules for these markers are given in (41).

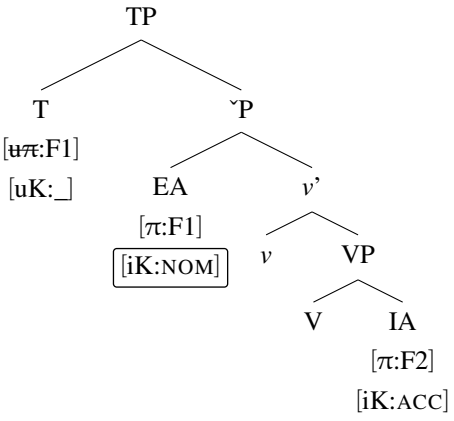
(41) a. { [+1, ABS], [+2, ERG]} ↔ /kə-/ [VI's De'Kwana]
b. { [+1, ERG], [+2, ABS]} ↔ /mən-/
c. { [+1], [+2]} ↔ /k-/

This type of system allows for non-syncretism, as long as the alignment for NPs and agreement is the same. Moreover, it accounts for syncretisms, by assuming that agreement markers only spell out person features, as is the case for the most underspecified form in (41c). A language where all combinations of [+1, +2] lead to the same marker, is Surinam Carib (Gildea 1998). In this language PPA markers for 1π>2π and 2π>1π as well as the intransitive inclusive 1π marker all are spelled out with the same morpheme.

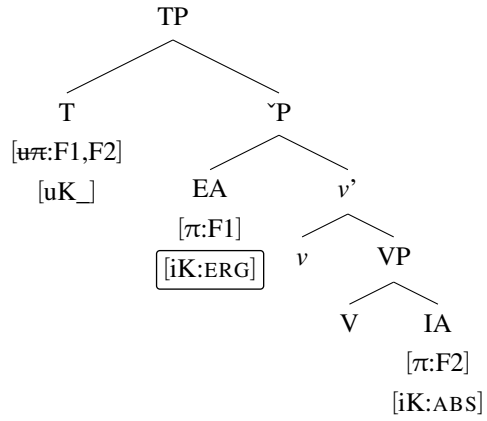
To summarize, this account elegantly captures the fact that PPA markers can be syncretic to inclusive markers and the existence of PPA markers to correlate with languages showing hierarchy effects for person marking. Before we turn to the predictions, let us briefly discuss the other recent proposal on PPA, made by Woolford (2016). She extends Georgi's proposal and assumes two ways to form PPA: in the syntax via multiple probing, and in the morphology, via adjacency (partly following Trommer (2006)).

As Heath (1998) points out, most languages in his sample have only PPA for 1/2π. However, there are PPA with 3π, as Georgi also points out. Woolford (2016) claims that languages that never have PPA with 3π are derived differently than languages that do allow this. She argues that only languages with 3π are derived via multiple probing, as in (42b), whereas other language types are derived in the morphology. She argues that whether or not a language has multiple probing is related to the type of case system it has. That is, multiple probing is only possible in ERG-ABS languages. Woolford assumes that T will probe for person features until it finds unmarked case (e.g nominative, absolutive). Thus, all languages with 1/2π-PPA are predicted by Woolford to have a NOM-ACC alignment, since T stops probing after it finds the EA, (42a).

(42) a. NOM-ACC



b. ERG-ABS



In ERG-ABS languages, the EA has marked case, ERG, and therefore T will collect the person features of EA, but continues probing. This way, T ends up with a configuration as in (42b). Since this means that there will always be two feature bundles, and there are no morphological restrictions, 3π can be included in PPA-formation. In NOM-ACC languages, PPA is derived in the morphology and obeys morphological restrictions, such as person markedness hierarchies (Gouskova 2003). Woolford captures this in an OT-style analysis where hierarchies interact with constraints on which features are allowed to be expressed on the verb. The result is that 1/2π are more special than 3π, which means that 3π will be excluded from PPA-formation.

To summarize, both Georgi and Woolford propose that PPA is only possible if certain restrictions hold. It is these restrictions that make the multiple probing account distinct from the null hypothesis I have been arguing for, which posits no syntactic difference between PPA configurations and other multiple agreement configurations. In the remainder I focus on two such restrictions and show that they are not empirically adequate. There should be, firstly, a correlation between case and agreement and, second, a correlation between certain types of PPA and the existence of person markedness restrictions in the language.

5.1 No restrictions on Case

As observed by Georgi, the source of π features, in addition to their values, need to be tracked. To do so Georgi proposes case agreement, as illustrated above. However, for case agreement to work, the alignment for NPs and verbs should be the same: both NPs and verbs should have a NOM-ACC alignment or both should have ERG-ABS alignment. However, there are languages with different alignment, and have PPA. Thus, for example for languages such as Chukchi (Bobaljik and Branigan 2006) or Coos (Frachtenberg 1992) the alignment for agreement is NOM-ACC, whereas the alignment for NPs is ERG-ABS. This then leads to a problem if case features track where person come from. Let us discuss an example from Chukchi, (43). The prefix can track ABS arguments,

(43a), or ERG arguments, (43b). Thus, the prefix tracks the underlying subject, regardles of the case of the NP. This becomes even more clear if we look at the distribution of ABS NPs in verb agreement. The ABS argument will be marked in the prefix if it is a subject, (43a). For the suffix, there is no true ABS marker, since the suffix tracks subject or object (Volodin and Vakhtin 1986, Bobaljik and Wurmbrand 2001).

(43) a. ɣəm **tə**-kətɣəntat-ɣʔak — 1 ABS
1.ABS 1SG.SUB-run-1.SG.SUB
'I ran'

b. ɣəm-nan ɣet **tə**-ɬʔu-ɣət — 1.ERG > 2.ABS
1-ERG 2.ABS 1.SG.SUB-see-2SG.OBJ
'I saw you'

c. ərɣə-nan ɣəm **ne**-ɬʔu-**ɣəm** — 3.ERG>1.ABS
3PL-ERG me.ABS 3.SUB-see-1SG.OBJ
'They saw me.' (Bobaljik and Branigan 2006, p48.)

This means that person features are tracked via grammatical role, not via surface case.

5.2 No restrictions on person combinations

A second putative correlation observed by both Georgi and Woolford is that specific PPA's are only allowed in languages that have restrictions on person combinations. For Georgi either 1π and 2π form PPA, and those languages also have a preference for 1π and 2π in general. If a language allows PPA with 3π, the language does not have any person markedness, e.g. 3π is expressed similarly to 1/2π on the verb.[18] She derives this correlation between PPA and hierarchy via the probing mechanism: languages with hierarchies and 1/2π PPA agree only for positive feature values, whereas languages without hierarchies and 3π agree for positive and negative feature values. However, if we look at the languages in the sample discussed here, languages can have PPA with 3π and still have person markedness, where 1/2π are in a sense more special than 3π. This is for example the case for languages from the Algonquian language family where there is in some clauses agreement in both a prefix and a suffix. The suffix shows agreement for all persons, but the prefix only shows 1/2π features. Moreover, if there is agreement with two arguments, and one of the arguments is 3π, in general the marker for 1/2π shows up and not the marker for 3π. This is similar to the languages discussed by Georgi, with the addition that there are 3π PPA. This is

[18]Even though PPA mostly occurs in 1/2π combinations in her language sample (based on Heath 1998), she does note that PPA with 3π is allowed in some cases. She argues that in case of 3π languages have 4 probes on a single head that probe for negative feature values. In a sense this is similar to the approach taken here, where there is never a restriction on which features are agreed with, the difference being that the proposal here assumes probes on distinct heads.

exemplified in the example below for Maniwaki (Oxford 2015)[19]: (44) shows an example for 2π and 3π intransitive; (45a) shows the same marker from (44a)[20], but then in a transitive clause with 3π; finally (44b) is a PPA marker since none of the markers in (44) show up.

(44) a. niba:-ye:gw
sleep-2.PL
'you sleep'

b. niba:-j
sleep-3.SG
'he sleeps'

(45) a. wabam-∅-e:gw
see-2.PL
'you.PL see mee'

b. wabam-in-a:k
see-T.S.-3>2
'He sees you.PL

(Oxford 2015, p.37-38)

This means that it is not possible to correlate PPA with person markedness. If we would still mantain the correlation that 1/2π is derived via agreeing with marked features, it means an additional assumption is needed to account for person markedness in languages such as Maniwaki. Therefore, I assume that there is no difference in which person features are agreed with and that person markedness follows from independent factors, possible in the morphology as alluded to in the discussion on De'Kwana in 2.2.

In conclusion, analyses that assume multiple probing run into problems analyzing data presented here. The insights from Georgi that person features need to be marked for where they come from and the idea presented by Woolford that PPA arises in small parts of the verbal paradigm require a morphological analysis which is the starting point for the proposal in this paper. However, my proposal does not rely on making a correlation between person markedness and the existence of PPA, but rather treats PPA as a special case of CA.

6 Conlcusion

This paper started out by showing that PPA is formed in the morphology and not in the syntax. As such, I have shown that languages with PPA in their paradigm are syntactically no different from languages with two agreement markers. More specifically, I have argued that languages with predicates that have agreement for multiple arguments have underlyingly two agreement heads that can be masked in the morphology via contextual allomorphy (following Bobaljik 2000, Trommer 2007). Moreover, I have shown that person portmanteaux cannot only be analyzed as CA, it also correlates with properties generally assumed to follow from a CA analysis. That is, I have shown that there is a locality and directionality restriction for PPA.

[19]Examples are simplified and only show the verb stem and the agreement marking, and sometimes the theme sign (TS), following (Oxford 2015, p.37)

[20]/y/ is inserted before vowels.

As a conclusion, this means that there is no true PPA marker, since it is a more opaque allomorph. This also implies that languages with PPA are no different from languages with two agreement markers. Allomorphy is found in many parts of the grammar and as such is an available operation. The only prerequisite for allomorphy to arise is two heads being local enough. In this case it means that the only prerequisite for PPA to arise is that the agreement probes are in the same domain. This means that PPA can tell us something about locality domains for morphological operations. Moreover, even though PPA is accounted for via a general morphological operation, it tells us something about the cross-linguistic variation of agreement and it shows that agreement can be on different syntactic heads along the clausal spine. Finally, this makes not only our understanding of complex agreement systems easier, since they are all syntactically comparable, it also means that learning a language with a complex agreement system plus PPA is no more difficult than learning any other language with multiple agreement markers.

Appendix

The following appendix includes paradigms from each of the languages discussed in the paper. The grey cells indicate PPA markers.

Algonquian: Maniwaki

S	O		
1SG		ni-	
1PL		ni-	-min
2SG		gi-	
2PL		gi	-mw
21		gi-	-min
3SG			-w
3PL			-wag
1SG	>2SG	gi-	
	>2p	gi-	-imw
	>3	ni-	
1PL	>2	gi-	-imin
	>3	ni-	-na:n
2SG	>1SG	gi-	
	>3	gi-	
2PL	>1SG	gi-	-mw
	>3	gi-	-wa:
2	>1p	gi-	-min
21	>3	gi-	-na:n
3	>1SG	ni-	
	>1PL	ni-	-na:n
	>2SG	gi-	
	>2PL		-wa:
	>21	gi-	-na:n
3SG	>3‘	o-	(-n)
3PL	>3‘	o-	-wa:(-n)
3‘	>3SG	o-	(-n)
	>3PL	o-	wa: (-n)

(a) independent paradigm

S	O	
1SG		-ya:n
2SG		-yan
1PL		-ya:ng
21		-yangw
2PL		-ye:gw
3SG		-j
3PL		-wa:j
1SG	>2SG	-a:n
	>2PL	-agogw
	>3	-ag
1PL	>2	-a:ng
	>3	-angij
2SG	>1SG	-yan
	>3	-aj
2PL	>1SG	-ye:gw
	>3	-e:gw
2	>1PL	-ya:ng
21	>3	-angw
3	>1SG	-j
	>1p	-g
	>2SG	-yaminj
	>2p	-a:k
	>21	-angw
3SG	>3’	-j
3PL	>3’	-wa:j
3’	>3SG	-j
	>3PL	wa: j

(b) conjunct paradigm

Table 8: Maniwaki (Oxford 2015, Jones 1977)

Chuckotko-Kamchatkan: Chukchi

π	#	SG		PL	
1	R	t–	–ɣʔek	mət–	–mək
	IR	m–	–ɣʔek	mən–	–mək
2	R	Ø	–ɣʔi	Ø	–tək
	IR	q-	–ɣi	q-	–tək
3	R	Ø	–ɣʔi	Ø	–ɣʔet
	IR	n	–ɣʔen	n–	–net

Table 9: Chukchi intransitive verb agreement (Bobaljik 1998:29)

ea	ia	1SG		1PL		2SG		2PL	
1SG	R		—		—	t–	–ɣət	t–	–tək
	IR		—		—	m–	–ɣət	m–	–tək
1PL	R		—		—	mət–	–ɣət	mət–	–tək
	IR		—		—	mən–	–ɣət	mən–	–tək
2SG	R	Ø	–ɣəm	Ø	–mək		—		—
	IR	q–	–ɣəm	q–	–mək		—		—
2PL	R	Ø	–ɣəm	Ø	–mək		—		—
	IR	q–	–ɣəm	q–	–mək		—		—
3SG	R	ne–	–ɣəm	ne–	–mək	ne–	–ɣət	ne–	–tək
	IR	əʔn–	–ɣəm	əʔn–	–mək	əʔn–	–ɣət	əʔn–	–tək
3PL	R	ne–	–ɣəm	ne–	–mək	ne–	–ɣət	ne–	–tək
	IR	əʔn–	–ɣəm	əʔn–	–mək	əʔn–	–ɣət	əʔn–	–tək

Table 10: Chukchi transitive verb agreement: 1π/2π objects(Bobaljik 1998:29)

ea	ia	3SG		3PL	
1SG	R	t–	(ɣʔe)n	t–	–(ni)net
	IR	m–	(ɣʔe)n	m–	–(ni)net
1PL	R	mət–	(ɣʔe)n	mət–	–(ni)net
	IR	mən–	(ɣʔe)n	mən–	–(ni)net
2SG	R	Ø	(ɣʔe)n	Ø	–(ni)net
	IR	q–	(ɣʔe)n	q–	–(ni)net
2PL	R	Ø	–tkə	Ø	–tkə
	IR	q–	–tkə	q–	–tkə
3SG	R	Ø	–nin	Ø	–nin
	IR	Ø	–nin	Ø	–nin
3PL	R	ne–	–nin	ne–	–(ni)net
	IR	əʔn–	–nin	əʔn–	–(ni)net

Table 11: Chukchi transitive verb agreement: 3π objects(Bobaljik 1998:29)

Chuckotko-Kamchatkan: Itelmen

π	#	SG		PL	
1	R	t–	–kičen	nt–	–kiče?n
	IR	m–	–kičen	mən–	–kiče?n
2	R	Ø	–č	Ø	–sx
	IR	q-	–xč	q-	–sx
3	R	Ø	–n	Ø	–?n
	IR	xɐn	–n	xɐn	–?n

Table 12: Itelmen intransitive verb agreement (Bobaljik 2000:7)

ea	ia	1SG		1PL		2SG		2PL	
1SG	R		—		—	t–	–[γ]in	t–	–sxen
	IR		—		—	m–	–[γ]in	m–	–sxen
1PL	R		—		—	nt–	–[γ]in	nt–	–sxen
	IR		—		—	mən–	–[γ]in	mən–	–sxen
2SG	R	Ø	–βum	Ø	–βu?m		—		—
	IR	q–	–βum	q–	–βu?m		—		—
2PL	R	Ø	–βum	Ø	–βu?m		—		—
	IR	q–	–βum	q–	–βu?m		—		—
3SG	R	Ø	–βum	Ø	–βu?m	Ø	–[γ]in	Ø	–sxen
	IR	xɐn–	–βum	xɐn–	–βu?m	xɐn–	–[γ]in	xɐn–	–sxen
3PL	R	n–	–βum	n–	–βu?m	n–	–[γ]in	n–	–sxen
	IR	xɐn–	–βum	xɐn–	–βu?m	xɐn–	–[γ]in	xɐn–	–sxen

Table 13: Itelmen transitive verb agreement: 1π/2π objects(Bobaljik 2000:7)

ea	ia	3SG		3PL	
1SG	R	t–	–čen	t–	–če?n
	IR	m–	–čen	m–	–če?n
1PL	R	nt–	–čen	nt–	–če?n
	IR	mən–	–čen	mən–	–če?n
2SG	R	Ø	–(i)n	Ø	–(i)?n
	IR	q–	–x(č)	q–	–(x)i?n
2PL	R	Ø	–sx	Ø	–sx?n
	IR	q–	–sx	q–	–sxi?n
3SG	R	Ø	–nen	Ø	–ne?n
	IR	xɐn–	–nen	xɐn–	–ne?n
3PL	R	n–	–nen	n–	–ne?n
	IR	xɐn–	–nen	xɐn–	–ne?n

Table 14: Itelmen transitive verb agreement: 3π objects(Bobaljik 2000:7)

Carib: De'Kwana

Carib: Hixkaryana

π	EA	IA
1	w-	∅ (y-)
12	k-	k(ɨ)-
13	(nña:)n-	(nña:) ∅
2	m-	ə(d)-
3	n-	

(a) Intransitives

EA IA	1	12	13	2	3
1	–	–	–	mən-	w-
12	–	–	–	–	k-
13	–	–	–	nña:mən-	nña:n-
2	kə-	–	nña:kə-	–	kə/m-
3	∅	k-	nña:∅	ə(d)-	n-/∅

(b) Transitives

Table 15: De'Kwana (Hall 1984, 1988:151/287/327)

S	
1	kɨ-
12	tɨ-
13	nɨ-
2	mɨ-, o-, ow-
3	nɨ-

(a) Intransitives

S O	1	1+2	2	3
1			kɨ	ɨ-
1+2				tɨ-
1+3			o-	nɨ-
2	mɨ-			mɨ-
3	ro-	nɨ	o-	nɨ- (-O), y- (+O)

(b) Transitives

Table 16: Hixkaryana (Derbyshire 1985)

Penutian: Nez Perce

S	O				
	no OBJ	1/2SG	1/2PL	3SG	3PL
1/2SG	-	-	nees	‘e	‘enees
1/2PL	pe	pe	penees	‘epe	‘epenees
3SG	hi	hi	hinees	pee	hinees
3PL	hipe	hipe	hipenees	hipe	hipenees

Table 17: Nez Perce agreement (Deal 2015)

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