### Reverse weak PCC in Washo\*

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### 1. Introduction

In Washo (isolate/Hokan, USA), verbs always mark the person feature of the subject, but object marking is more complex. While overt objects are never marked, covert objects are obligatorily marked where possible, which is only with certain subject-object combinations. The generalization we find is that participant (first/second person) objects are marked regardless of the person of the subject (1–2), while third person object marking is only allowed if the subject is also third person (3–4).

(1)	PART>PART
	lem-í:gi-yi
	<b>2/1-</b> see-IND
	'You see me.'

(2) 3>PART ?l-í:gi-yi 3/1-see-IND 'S/he sees me.'

(4) PART>3
m-í:gi-yi
2-see-IND
'You see it.'

We claim that the Washo pattern illustrates a reverse, weak Person-Case Constraint (PCC) effect (\*PART>3). To account for this effect, we adopt Deal's (2015, 2021) Interaction and Satisfaction framework with dynamic interaction, in which a single probe agrees with the subject and the object from a higher position, giving rise to the reverse flavor. We also argue

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<sup>&</sup>lt;sup>1</sup>Washo glosses: DEP: dependent mood; IND: independent mood; PRO: pronoun; Q: question. A prefixed number on verbs indicates agreement with the subject; a prefix of the form m/n indicates subject/object agreement in transitives. The orthography used is adapted from Jacobsen 1964; symbols deviating from the IPA in this paper are  $\delta$  [ʃ] and  $\delta$  [ʃ]; stress is indicated by an acute accent.

that covert object marking in Washo is pronoun incorporation, which is licensed only by interaction with the probe.

Zooming out, we show that the Washo data are a counterexample to Stegovec's 2019, 2020 generalization that reverse PCC effects only occur alongside canonical (i.e. non-reverse) PCC effects, as Washo specifically bans PART>3, but not 3>PART. In addition, we draw a comparison with Aleut. This language differs from Washo in that, in certain configurations, the object is higher than the subject (Yuan 2018), and as predicted by our high-probe account, the PCC effects are canonical rather than reverse.

The outline of this paper is as follows. Section 2 motivates Washo object marking as pronoun incorporation. Section 3 offers an analysis of PCC effects in Washo object marking, and Section 4 extends the analysis to Aleut object marking. Finally, Section 5 raises the issue of object marking in Washo ditransitives, and Section 6 concludes.

# 2. Washo object marking as pronoun incorporation

Washo (Washoe, Wá:šiw) is a highly endangered Hokan/isolate language spoken around Lake Tahoe in California and Nevada. Washo is SOV with pro-drop and agglutinative verb morphology. Uncited data in this paper come from Emily Hanink's fieldwork.

In Washo, a verbal prefix encodes the person of both subject and object (Jacobsen 1964, 1977), as in (5). We omit for now the prefixes used in combinations of participant subject with third person object, as they are the topic of the next section. The leftmost form in each cell is a preconsonantal allomorph and the rightmost one is prevocalic. The superscripted e vowel in prefixes such as  $mil^e$ - and  $g^e$ - has either a so-called *coloring* or harmony effect, as described in Jacobsen 1964:278–302.<sup>2</sup>

(5) Transitive subject & object marking

$\Omega \mid \Omega$	1		2
$\mid O \downarrow S \rightarrow$	1		3
Overt	di-/le-	?um-/m-	Ø-/?-
1 covert		le?um-/lem-	1 <sup>e</sup> -/?1-
2 covert	mi-/mil <sup>e</sup> -		m <sup>e</sup> -/?m-
3 covert	TBA	TBA	g <sup>e</sup> -/k'-

*Intransitive subject marking* 

	J	U
1	2	3
di-/l <sup>e</sup> -	?um-/m-	Ø-/?-

[Pre-C/Pre-V allomorphs]

The generalization revealed in (5) is that there is no object marking with overt objects, such that the transitive prefix is identical to the corresponding intransitive subject prefix:<sup>3</sup>

(6) Intransitive PART

m-élšim-i

2-sleep-IND

'You're sleeping.'

(7) Intransitive 3
Ø-yá:li?-i
3-stand-IND
'S/he's standing.'

<sup>&</sup>lt;sup>2</sup>Briefly, in a prevocalic prefix such as  $mil^e$ -, <sup>e</sup> does not surface, but it affects the quality of the following vowel, so that underlying nonhigh back vowels surface as a and others as e. In a preconsonantal prefix such as  $g^e$ -, <sup>e</sup> surfaces as a when the following vowel is nonhigh back, and as e otherwise.

<sup>&</sup>lt;sup>3</sup>Douros (2019) analyzes a slightly different paradigm based on Jacobsen 1964 that we haven't replicated.

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(8) PART>PART (overt)
lé: wádiŋ **m-**í:gi-he:š-i
1.PRO right.now **2-**see-Q-IND
'Do you see me right now?'

(9) 3>PART (overt) súku? lé: Ø-gí:t'i?-i dog 1.PRO **3-**bite-IND 'A dog bit me.'

(10) 3>3 (overt)
Adele díme? Ø-sú:bi?-i
Adele water 3-bring-IND
'Adele brought the water.'

On the other hand, covert objects trigger obligatory verbal marking, so that the transitive prefix in this case is not the same as the corresponding intransitive prefix:

(11) PART>PART (covert) (12)
lem-i:gi-he:š-i
2/1-see-Q-IND
'Do you see me?'

(12) 3>PART (covert) suku? l<sup>e</sup>-gi:t'i?-i (>legí:t'i?i) dog 3/1-bite-IND 'The dog bit me.' (Jacobsen 1996:28)

(13) 3>3 (covert)
Adele **g**<sup>e</sup>-su:bi?-i (>gasú:bi?i)
Adele **3/3-**bring-IND
'Adele brought it.'

We propose that object marking in Washo is pronoun incorporation, such that the transitive prefix is formed from the accusative pronoun attached to the left of the subject agreement prefix. That is, so-called 'covert' objects are really incorporated pronouns (clitics). So-called 'overt' objects on the other hand are unincorporated, and therefore do not surface as object marking (i.e., Washo lacks clitic doubling). We will keep referring to this distinction as overt vs. covert for terminological consistency, even though it does not directly reflect our analysis of this alternation.

The decomposition of transitive prefixes as incorporated pronouns and subject agreement is transparent in PART>PART (except in preconsonantal 1/2, where there is a  $\varnothing$  allomorph of first person subject agreement):<sup>4</sup>

(14)		Acc pronoun	+	Sbj agreement	=	Transiti	ve prefix
	2>1	lé:	+	m	=	lem	(preV)
		lé:	+	?um	=	le?um	(preC)
	1>2	mí:	+	$1^e$	=	$mil^e$	(preV)
		mí:	+	di	=	mi	(preC)

This decomposition is however less transparent with prefixes indexing a third person subject, which are shown in the following table:

<sup>&</sup>lt;sup>4</sup>Due to regular phonology, the pronoun vowels are only long and stressed in independent forms. See Jacobsen 1964:309, 312–313.

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(15)		Acc pronoun	+	Sbj agreement	=	Transitive prefix	
	3>1	lé:	+	?	=	?1	(preV)
	3 > 2	mí:	+	?	=	?m	(preV)
	3>3	gé:	+	?	=	k'	(preV)
	3>1	lé:	+	Ø	=	$1^e$	(preC)
	3 > 2	mí:	+	Ø	=	$m^e$	(preC)
	3>3	gé:	+	Ø	=	$g^e$	(preC)

However, this decomposition does explain several things.<sup>5</sup> First, it explains the fact that the lateral/nasal/velar component of the transitive prefixes is the same as in the accusative pronoun. Second, that in the prevocalic 3>PART transitive prefix, the glottal stop is the same as subject agreement. The resulting sonorant+? sequence is converted to ?+sonorant by regular phonotactics (Jacobsen 1964:117). Similarly, the expected underlying g+? sequence in the prevocalic 3>3 transitive prefix surfaces as k' by regular phonotactics. While a decompositional analysis therefore seems to be justified, we must leave a detailed account for future work.

## 3. PCC effects in object marking

Turning now to the missing parts of the agreement paradigm (cp. (5)), (16) gives the paradigm with all cells now filled in.

(16) Transitive subject & object marking

$O\downarrow S\rightarrow$	1	2	3
Overt	di-/l <sup>e</sup> -	?um-/m-	Ø-/?-
1 covert		le?um-/lem-	1 <sup>e</sup> -/?1-
2 covert	mi-/mil <sup>e</sup> -		m <sup>e</sup> -/?m-
3 covert	di-/l <sup>e</sup> -	?um-/m-	g <sup>e</sup> -/k'-

Intransitive subject marking

1	2	3
di-/l <sup>e</sup> -	?um-/m-	Ø-/?-

[Pre-C/Pre-V allomorphs]

What the greyed cells in (16) crucially show is that there is no overt incorporated object in PART>3, as shown also in the examples in (17)–(18):

(17) 1>3 (covert) (18) 2>3 (covert)

a. **di-**dámal-i **1-**hear-IND 'I hear it.'

b.  $\mathbf{l}^e$ -i?iw-i (>lé?wi) **1**-eat-IND 'I'm eating it.' a. **?um-**dámal-i **2-**hear-IND 'You hear it.'

b. **m-**i?iw-i (>mí?wi) **2-**eat-IND
'You're eating it.'

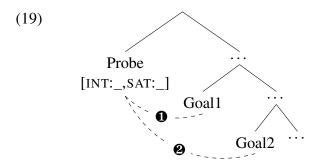
If these forms had an incorporated pronoun, the expected forms for the prefixes should have a velar component (cf.  $g^e$ -/k'- in 3>3) and would be \*ge(di)-/\* $gel^e$ - for 1>3 and

<sup>&</sup>lt;sup>5</sup>Our analysis here is inspired by Jacobsen's (1977) diachronic account.

\*ge?um-/\*gem- for 2>3. What we find instead is that the prefixes are identical to the corresponding intransitive prefixes, that is, they only encode subject person.

We take this to be a reverse weak PCC effect, as all person combinations are allowed with the exception of \*PART>3: If the subject is participant, the object cannot be third. The effect here is weak because PART>PART is allowed (cf. weak PCC in Catalan varieties, \*3>PART; Bonet 1991). Following Stegovec 2019, 2020, we refer to this as a *reverse* effect, because the person restriction is on the higher argument.

To account for these data, we adopt the account of PCC effects in Deal's (2015, 2021) Satisfaction/Interaction framework. In this framework, a single probe can access more than one goal, interacting first with the closest one:

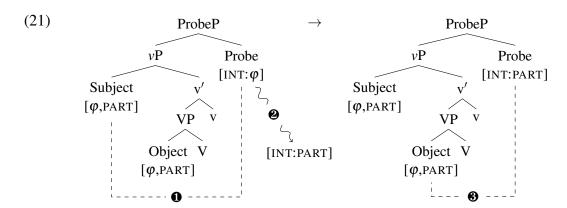


Probing is regulated by two different properties of the probe itself. The probe's *interaction* condition (INT) specifies a feature that a goal must have for a probe to interact with it. Its *satisfaction* condition (SAT) specifies which feature set will cause it to stop probing. Crucially, the interaction and satisfaction conditions need not be the same. In Deal's analysis, the PCC is then a side effect of specific interaction and satisfaction conditions on the probe, which may lead to unlicensed nominals in certain configurations. Weak PCC in particular is the result of a special type of interaction specification: a *dynamic interaction* condition, in which  $\varphi$ -features copied from the first goal determine what can be probed further (see Deal 2021). (We set the satisfaction condition aside for now, but we return to its role in Washo ditransitives in Section 5.)

In our analysis, it is crucial that the probe is *higher* than all arguments. We remain agnostic about the precise locus of the probe, but possible candidates are T or Mood (on Washo clause structure, see Peachey 2006 and Bochnak and Hanink 2021).

Like Deal, we assume that participants are  $[\varphi, PART]$ , while third person is just  $[\varphi]$  (Harley and Ritter 2002). In Washo, we propose that the probe starts with a general interaction condition  $(\varphi)$ . If the closest goal (subject) is PART, this becomes the new interaction condition. As a consequence, if the subject is PART, the object must also be PART to interact with the probe. The derivation of a sentence with participant subject and object such as (20) is shown in (21).

(20) PART>PART (covert)
lem-í:gi-he:š-i
2/1-see-Q-IND
'Do you see me?'



We assume that incorporating object pronouns must be licensed by Agree, following much work on object clitics (i.a. Béjar and Rezac 2003, Preminger 2014, Deal 2021).<sup>6</sup> In (21), the object interacts with the probe and can therefore incorporate, yielding object marking (20). Note however that the object need not be of the incorporating kind and can remain independent, as in (22).

(22) PART>PART (overt)
lé: wádiŋ m-í:gi-hé:š-i
1.PRO right.now 2-see-Q-IND
'Do you see me right now?'

The probe in this case also interacts with the object, but this yields no overt effect due to the absence of incorporation.

Turning to the crucial PART>3 configurations, dynamic interaction explains the weak PCC effect in contexts such as (23) and (24), which lack object marking – even if the object is covert. This is because the probe can only interact with PART goals after interaction with a PART subject, as its interaction condition has been updated to that feature specification. As shown in (25), the probe cannot interact with the object, and the object therefore cannot incorporate (23).

(23) PART>3 (covert) (24) PART>3 (overt)

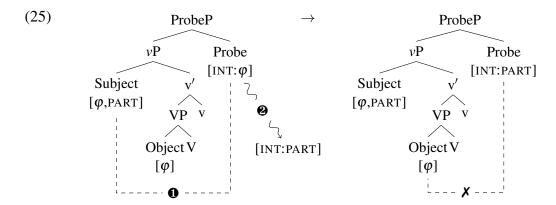
m-í:gi-yi dé?ek-he:š m-í:gi-yi

2-see-IND

'You see it.' rock-Q 2-see-IND

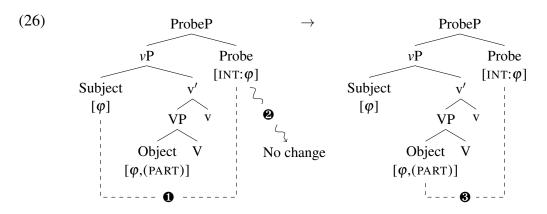
'Did you see the rock?' Washo Archive

<sup>&</sup>lt;sup>6</sup>We remain agnostic as to what exactly object pronoun incorporation is in Washo, other than being licensed by Agree in the manner discussed here. In particular, it's not clear to us whether incorporation involves movement targeting the Agree probe, or simply postsyntactic leaning on V.



Specifically, we assume that the lack of third person object marking in PART>3 contexts is a deletion repair. The idea is that if the object is of the incorporating kind, it *must* be interacted with. In (25), the probe cannot interact with the object, and Washo's repair strategy is pronoun deletion (cf. the use of locative *hi* in place of the dative in PCC contexts in Catalan, analyzed as feature-deletion repair in Bonet 1991:209–213). This explains why the weak PCC manifests in Washo as a lack of object marking in PART>3 configurations.

In all monotransitive configurations with a third person subject, dynamic interaction is vacuous. This is because the subject is  $[\varphi]$  and the probe's initial interaction condition is  $[INT:\varphi]$  to begin with. For this reason, copying the subject's  $\varphi$ -feature does not change the probe's INT, which remains  $[INT:\varphi]$  (26). This has the result that incorporation of all objects, regardless of their person feature, is licensed, as shown in (27) and (29).



- (27) 3>PART (covert) (28) 3>PART (overt) súku?  $I^e$ -gí:t'i?-i (>legí:t'i?i) súku? lé: Ø-gí:t'i?-i dog 3/1-bite-IND dog 1.PRO 3-bite-IND 'The dog bit me.'
- (29) 3>3 (covert) (30) 3>3 (overt) Adele  $g^e$ -su:bi?-i (>gasú:bi?i) Adele díme? Ø-sú:bi?-i Adele 3/3-bring-IND Adele water 3-bring-IND 'Adele brought it.' 'Adele brought the water.'

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Summarizing, the reverse PCC effect in Washo is the result of the fact that the probe encounters the subject before the object. A prediction following from this is that, if the order of these arguments is reversed, then any PCC effect should be canonical. In the next section, we turn to a language for which this prediction is born out: Aleut (=Unangam Tunuu; Eskimo-Aleut, USA/Russia).

# 4. PCC effects in Aleut object marking

In Aleut, as in Washo, subject features are always marked on the verb, but only *covert* objects (i.e., weak pronouns) trigger marking on the verb, in the form of a portmanteau suffix that indexes the person and number features of both the subject and the object (31). Covert objects also trigger ergative (so-called 'relative' in the literature) on the subject. Overt objects do not, and the subject is then absolutive (32).<sup>7</sup> (Data from Bergsland and Dirks 1981:32; glosses ours.)<sup>8</sup>

(31) Covert object
Piitra-m kidu-ku-**u.**Peter-ERG help-PRES-**3**SG/**3**SG
'Peter is helping her/him.'

(32) Overt object
Piitra-x Ivaana-x kidu-ku-x.
Peter-ABS John-ABS help-PRES-**3**SG
'Peter is helping John.'

Yuan (2018, 2021) proposes that dropped objects move *above* subjects in Aleut (cf. Boyle 2000, Merchant 2011, Woolford 2018, in which the covert object moves to a position below the subject). From its high position, the covert object triggers verbal marking, as well as ergative case on the subject, analyzed as low dependent case (i.a. Marantz 1991, Baker 2015) in the Eskimo-Aleut family by Yuan.

Crucially, only third person objects may be covert and trigger verbal marking. Participant objects do not and must be overt, regardless of the subject's  $\varphi$ -features; accordingly, the subject is not ergative in these configurations (data from Bergsland 1997:344):

(33) 1>2 (34) 3>1

txin kidu-ku-q. Tayaĝu-x̂ ting kidu-ku-x̂.

you.ABS help-PRES-1SG man-ABS me.ABS help-PRES-3SG
'I am helping you.' 'The man is helping me.'

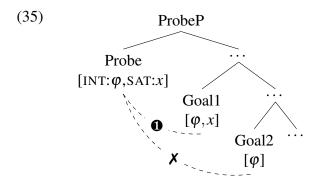
Following Merchant (2011:194, fn. 4) and Woolford (2018:124–125), we propose that this is a PCC effect. Unlike what we see in Washo, this pattern is a canonical (i.e., non-reverse), strong PCC effect. The effect is *strong* because the object cannot be a participant, regardless of subject  $\varphi$ -features (PART>PART is not allowed, cf. strong PCC in e.g., Basque; see Laka 1993). The effect is canonical because the person restriction is on the object, not the subject.

<sup>&</sup>lt;sup>7</sup>Nominals other than the clause-mate object can also trigger these effects when covert.

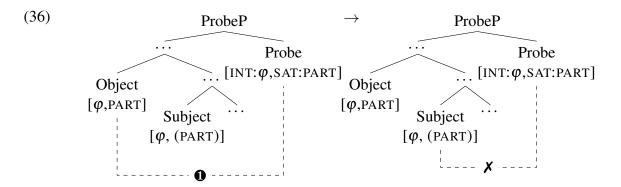
<sup>&</sup>lt;sup>8</sup>Aleut glosses: ABS: absolutive; ERG: ergative; PRES: present; SG: singular. We use the same convention as in Washo to indicate subject/object agreement (see footnote 1). We follow the orthographic conventions of cited sources. Symbols deviating from the IPA are  $\hat{x}$  [ $\chi$ ] and  $\hat{g}$  [ $\mu$ ].

As argued in the previous section, the subject>object configuration leads to reverse PCC in Washo. We argue here that the object>subject configuration in Aleut conversely leads to canonical (non-reverse) PCC.

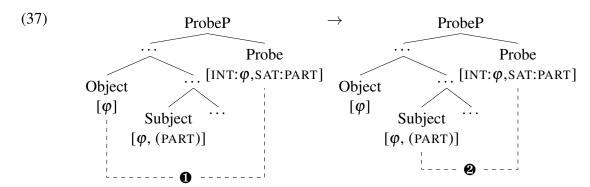
In Deal's (2021) framework, strong PCC effects come about from satisfaction conditions on probes which cause them to stop probing. Recall that a single probe can access more than one goal, interacting first with the closest one. Probing stops when a goal meets the satisfaction (SAT) condition. Lower potential goals cannot be interacted with, even if they meet the interaction condition. This is schematized in (35): The probe is satisfied by the feature x on the higher goal, and therefore halts probing, even if the lower goal's  $\varphi$ -feature is compatible with the probe's interaction specification.



Within this framework, we can understand the PCC pattern in Aleut if the satisfaction condition is [SAT:PART], such that probing stops at the highest participant goal (on the other hand, the interaction condition is  $\varphi$ , and is not dynamic). This has the result that probing first finds the object, and stops if it's participant (36). In this case, the subject is not licensed. We assume that Aleut lacks a repair for this eventuality, and only an overt object can be used.



If the object is third person, probing does not stop and the subject is licensed:



To summarize, Aleut differs from Washo in that objects move to a position above the subject, rather than below it. This has the result that the probe encounters the object first, leading to a canonical PCC effect driven by the person specification of the object, not the subject as in Washo.

# 5. Adding a satisfaction condition to Washo

We now return to the role of a satisfaction condition in Washo, which becomes necessary to account for the object-indexing pattern in ditransitives. In Washo ditransitives, the indirect object triggers object marking, but the direct object never does. (38) offers a baseline in which both objects are overt; in this case, there is (unsurprisingly) no object marking.

- (38) da?mó?mo? bašá? t'é:liwhu **?-**íšɨl-i woman book man **3**-give-IND 'The woman gave the man the book.'
- (39) demonstrates that object marking is triggered in case the indirect object is covert.
- (39) mé:hu **k'-**íšil-a? boy **3/3**-give-IND 'The boy gave it to him.'

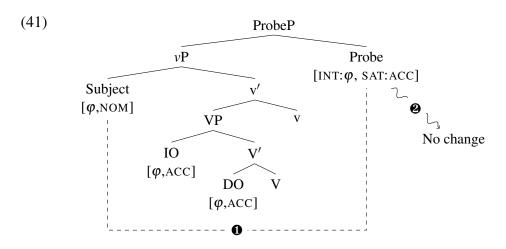
Jacobsen n.d.:2

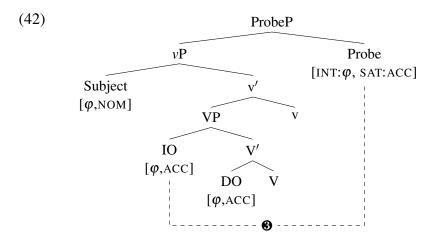
- (40) shows that object marking is however not triggered by a covert *direct* object.
- (40) t'é:liwhu mé:hu **?-**íšɨl-a? man boy **3-**give-DEP 'The man gave it to the boy.'

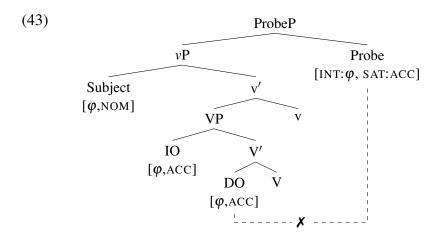
Jacobsen n.d.:2

Descriptively, what these examples show is that the probe stops after interacting with the higher object. To account for this, we propose that the satisfaction condition in Washo is [SAT:ACC], such that probing stops at the highest accusative goal. Subjects are nominative, while indirect and direct objects are not. This case distinction is visible in third person pronouns, which alternate between nominative *gi*: and accusative *ge*:.

In ditransitives, probing then stops at the indirect object, and it is the indirect object rather than the direct object that triggers object marking. As shown in what follows, indirect object pronoun incorporation is licensed while direct object pronoun incorporation is not, and the direct object is therefore deleted.







### 6. Conclusion

We have offered in this paper an account of PCC effects between subjects and objects in Washo and Aleut, implemented in Deal's (2021) analysis of similar effects in ditransitives. We have argued that Washo and Aleut illustrate expected variation: weak and reverse in Washo vs. strong and canonical in Aleut. We have shown how these differences fall out from the relative position of subject and object in both languages. Importantly, the Interaction/Satisfaction framework of Deal 2015, 2021 makes sense of these properties. First, it explains why the PCC effect is reverse in Washo but non-reverse in Aleut, in light of the independent evidence that the object moves over the subject in Aleut, but not in Washo. Given a high position for the probe, the correlation between the directionality of the PCC effect and the position of the object is exactly as predicted by the framework. This is not the case for other syntax-based analyses of the PCC, such as Anagnostopoulou 2003, Béjar and Rezac 2003, Nevins 2007, Coon and Keine 2020, and Stegovec 2020. In all of these, a subject>object configuration should correlate with a canonical PCC effect and an object>subject configuration with a reverse PCC effect, which is the opposite of what we find in the two languages investigated here.

Second, the satisfaction condition makes sense of the fact that only one object incorporates in Washo ditransitives. Specifically, a case-based satisfaction condition correctly predicts that only the highest internal argument can interact with the probe.

Another result of this work is establishing Washo as a counterexample to Stegovec's (2020) reverse PCC generalization as formulated in (44).

(44) The reverse PCC generalization (Stegovec 2020:303)

The reverse PCC is possible in a language iff the language also has a canonical PCC counterpart.

For Stegovec, reverse PCC is always the result of scrambling, and it is the unscrambled argument configuration that gives rise to canonical PCC effects. In order to account for Washo, this account would have to stipulate obligatory scrambling of the object over the subject in Washo, a claim for which there is no independent evidence.

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<sup>&</sup>lt;sup>9</sup>Driemel et al. (2020) claim that West Circassian (Adyghe) ditransitive and benefactive constructions are also a counterexample, in that they only display a reverse PCC effect. However, their claim is based on the assumption that the absolutive direct object is lower than the indirect object, which ignores the strong evidence for a high position of all absolutive arguments in this language given in Ershova 2019, 2021.

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