Accounting for parallels between inverse marking and the PCC

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Introduction

- The Person-Case Constraint (PCC) is a type of person hierarchy effect that holds between objects in a ditransitive
- It has been observed that the PCC shows similarities with another type of person hierarchy effect – inverse marking (Bianchi 2006; Stegovec 2017; Zubizarreta and Pancheva 2017; Hammerly 2020, a.o.)
- There has been debate in the literature about whether these two hierarchy effects should be modeled in a unified manner, with some concluding that they should not (Anagnostopoulou 2005; Lochbihler 2007)

➤ I demonstrate that all four widely-recognized varieties of the PCC are paralleled in systems of inverse marking

➤ These parallels strengthen the argument in favor of a unified treatment

A preview of the analysis

- I offer an extension of Deal's (2021) interaction and satisfaction model of the PCC to inverse marking
- I argue that the empirical difference between the phenomena reflect two key structural differences:
  - The height of an agreement probe
  - The repair strategies available

➤ Variation in these two parameters predicts two additional types of hierarchy systems, both of which are attested

The PCC

- The PCC restricts combinations of objects in ditransitives

Strong PCC in Greek (Anagnostopoulou 2005:202)

(1) Tha su ton stilune
FUT 2SG.GEN.CL 3SG.M.ACC.CL send.3PL
'They will send him to you.'

(2) * Tha tu se stilune
FUT 3SG.M.GEN.CL 2SG.ACC.CL send.3PL
'They will send you to him.'

- While the PCC has sometimes been associated only with combinations of pronominal clitics and/or agreement markers, other forms of realizing person also show PCC effects (Ormazabal and Romero 2007; Deal 2021, a.o.)

Crosslinguistic variation in the PCC

- There are four widely recognized varieties of the PCC: strong, weak, strictly descending (ultrastrong), and me-first

Varieties of the PCC

IO	DO	Strong	Weak	Strictly descending	Me-first
1	3	✓	✓	✓	✓
1	2	*	✓	✓	✓
2	3	✓	✓	✓	✓
2	1	*	✓	*	*
3	1	*	*	*	*
3	2	*	*	*	✓
Example:		Greek	Catalan	Classical Arabic	Romanian

Inverse marking

- Inverse markers are morphemes that appear with certain person combinations of subject and (primary) object
- We can think of inverse systems as restricting person combinations of subject and object
- Within the literature on inverse marking, four types of person combinations are generally recognized
    - Direct: Subject is a speech act participant (SAP), object is third person
    - Inverse: Subject is third person, object is SAP
    - Local: Subject and object are SAPs
    - Non-local: Subject and object are third person
- There is crosslinguistic variation in which configurations involve inverse marking
- I will demonstrate that patterns that parallel all four varieties of the PCC are attested in inverse systems

Potosino Huastec

- Potosino Huastec (Mayan; Mexico) shows ergative alignment in verbal person marking
- Transitive verbs appear with one person marker that indexes the argument that is highest on the hierarchy 1>2>3
- With certain combinations of subject and object, the inverse marker /t(V)-/ appears as well (Zavala 1994, 2007)

Huastec direct and inverse configurations (Zavala 1994:59, 71)

(3) Ø**-a** pijch-iy an burro Ø**-u** pijch-iy
3.ABS-2SG.ERG feed-TT DEF donkey 3.ABS-1SG.ERG feed-TT
'Did you feed the donkey? I fed him.'

(4) ani yab Ø che'-nek u aamu **ti**-k**-in**
and NEG 3.ABS come-PRF 1SG.ERG boss INV-DEP-1SG.ABS
pijch-iy
feed-TT
'My boss has not come to feed me.'

Potosino Huastec

Huastec local configurations (Zavala 2007:277)

(5) ne'etz beel **t-u** tolm-iy
FUT anyway INV-1SG.ERG help-TT
'I am going to help you.'

(6) xoo' **t-in** bal-iy al an kw'atzib
now INV-1SG.ABS take.in-TT LOC DEF nixcón
'Now you put me inside the nixcón (cooked corn).'

- The inverse marker appears in all inverse and local configurations
- The object must be third person or else inverse marking is used
- This pattern parallels the strong PCC where the direct object must be third person

Picurís

- Picurís (Tanoan; USA) has three relevant sets of verbal person markers
  - Set I: Objects and intransitive subjects
  - Set IIA: Transitive subjects when both arguments are animate
  - Portmanteaux used in local configurations
- Transitive verbs appear with one person marker that indexes SAP arguments if present
- With certain combinations of subject and object, the inverse marker *-mia* appears as well (Klaiman 1993)

Picurís direct and inverse configurations (Klaiman 1993:357)

(7) Sənene **ti-**mọn-'ạn
man 1SG.IIA-see-PST
'I saw the man.'

(8) **Ta-**mọn**-mia**-'ạn sənene-pa
1SG.I-see-INV-PST man-OBL
'The man saw me.'

Picurís

Picurís local configurations (Klaiman 1993:358)

(9) (Nạ) **’ạ-**mọn-’ạn
(I) 1>2-see-PST
‘I saw you.’

(10) (’ẹ) **may-**mọn-’ạn
(you) 2>1-see-PST
‘You saw me.’

- The inverse marker appears only in inverse configurations
- If there is a third person, the object must be third person or else inverse marking is used
- This pattern parallels the weak PCC where, if there is a third person, the direct object must be third person

Ja'a Kumiai

- Ja'a Kumiai (Yuman; Mexico) allows the person of the subject and the object to be indexed on the verb
- With certain combinations of subject and object, the inverse marker *ʔ-* appears as well (Caballero and Cheng 2020)

Kumiai direct and inverse configurations (Caballero and Cheng 2020:37)

(11) **m**-iɲ
2-give
'You give it to him/her.'

(12) **m-ʔ**-iɲ
2-INV-give
'S/he gives it to you.'

Ja'a Kumiai

Kumiai local configurations (Caballero and Cheng 2020:37)

(13) **ɲ**-iɲ
1>2-give
'I give it to you.'

(14) **ɲ-m-ʔ**-iɲ
1.OBJ-2-INV-give
'You give it to me.'

- The inverse marker appears in inverse and 2→1 configurations
- The subject must outrank the object on the hierarchy 1>2>3 or else inverse marking is used
- This pattern parallels the strictly descending PCC where the indirect object must outrank the direct object on the hierarchy 1>2>3

Nez Perce

- Nez Perce allows both subject and object to be indexed on the verb by a series of prefixes and suffixes
- A *-m* suffix known as the cislocative (Rude 1985:49) may also appear on the verb
  - This marker has a spatial function indicating movement toward the speaker
  - This marker has an addition function as part of the verbal agreement system
- In its agreement function, the cislocative resembles an inverse marker (Deal 2015b)

Nez Perce

- There is variation across doculects in the inverse use of cislocative, and I focus here on the variety documented by Asa Bowen Smith, reported in Hale (1846)

Nez Perce direct and inverse configurations (Hale 1846:558)

(15) im a {a-k-sa**-m** / a-ki-sa} ip-na
2SG 2SG.CL 3.OBJ-see-IPFV-CIS / 3.OBJ-see-IPFV 3SG-ACC
'thou seest him' (direction towards / direction from)

(16) ip-nim a {ha-k-sa**-m** / ha-ki-sa} im-ana
3SG-ERG 2SG.CL 3.SBJ-see-IPFV-CIS / 3.SBJ-see-IPFV 2SG-ACC
'he sees thee' (direction towards / direction from)

(17) ip-nim ha-k-sa**-m** in-a
3SG-ERG 3.SBJ-see-IPFV-INV 1SG-ACC
'he sees me'
(categorized as direction towards, no direction from form attested)

Nez Perce

Nez Perce local configurations (Hale 1846:558)

(18) in a haki-sa im-ana
1SG 2SG.CL see-IPFV 2SG-ACC
'I see thee'
(categorized as direction from, no direction towards form attested)

(19) im a hak-sa**-m** in-a
2SG 2SG.CL see-IPFV-INV 1SG-ACC
'thou seest me'
(categorized as direction towards, no direction from form attested)

- The inverse appears in 3→1 and 2→1 configurations
- If there is a first person, it must be the subject or else inverse marking is used
- This pattern parallels the me-first PCC where, if there is a first person, it must be the indirect object

Varieties of inverse marking

- All four varieties of the PCC are paralleled in varieties of inverse marking

Varieties of inverse marking and the PCC

IO/S	DO/O	Strong	Weak	Strictly descending	Me-first
1	3	✓	✓	✓	✓
1	2	*/INV	✓	✓	✓
2	3	✓	✓	✓	✓
2	1	*/INV	✓	*/INV	*/INV
3	1	*/INV	*/INV	*/INV	*/INV
3	2	*/INV	*/INV	*/INV	✓
PCC Example:		Greek	Catalan	Classical Arabic	Romanian
Inverse Example:		Huastec	Picurís	Kumiai	Nez Perce

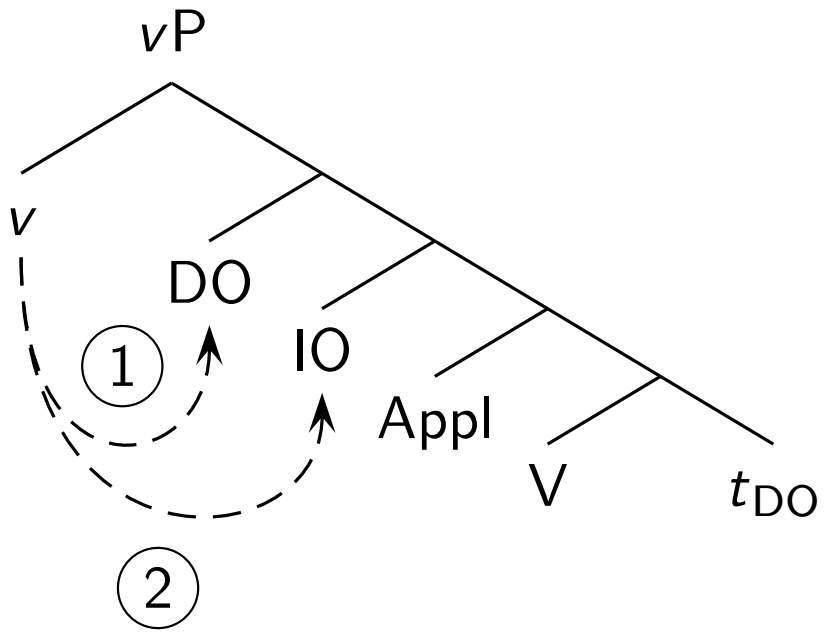
- These parallels motivate a unified treatment of the two phenomena

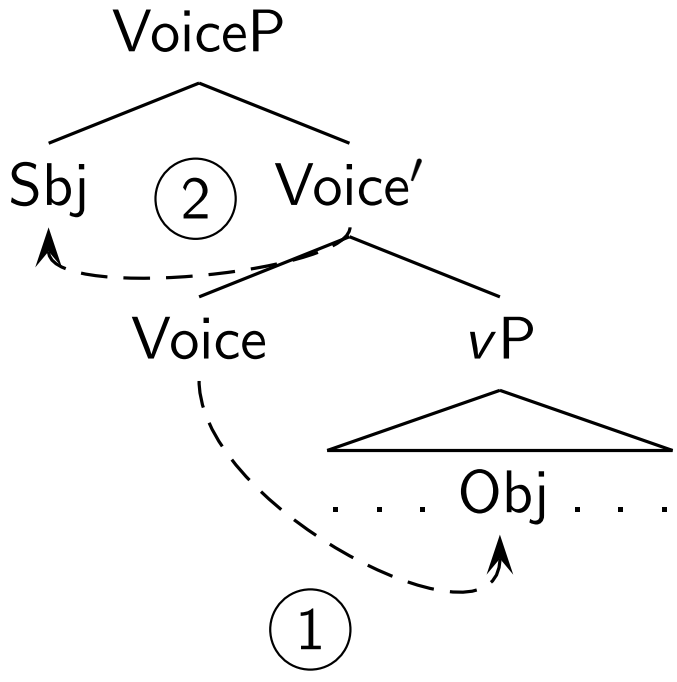
Differences in probe height

- Syntactic treatments of hierarchy effects have often assumed that these restrictions arise when a single probe agrees (or fails to agree) with multiple goals
  - For the PCC, these goals are the direct and indirect object
  - For inverse systems, these goals are the subject and (primary) object
- I argue that by varying the height of the probe, we can capture the difference in the arguments involved in the PCC vs. inverse marking
  - For the PCC, I assume that the probe is located on v
  - For inverse systems, I assume that the probe is located higher on Voice

The structures

- I assume that the PCC involves a probe on *v* in a structure where the DO has moved above the IO (Deal 2021)
  - *v* first agrees with the DO and then with the IO
- I assume that inverse marking involves a probe on Voice between the subject and object
  - Voice first agrees with the object and then with the subject





Differences in repair strategy

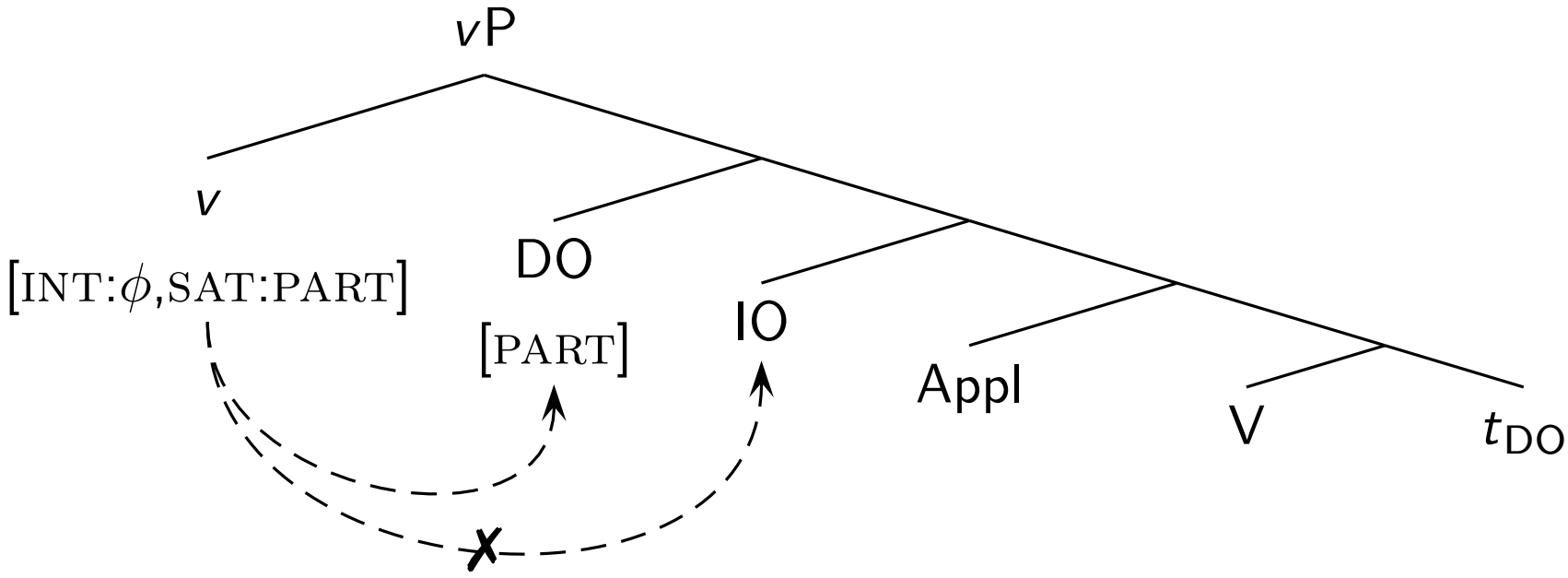
- The PCC is often discussed in terms of grammaticality
  - Some combinations of direct and indirect object person marking are grammatical
  - Other combinations are ungrammatical
- Inverse marking is often discussed in terms of providing additional information about the grammatical function of arguments
  - Lack of inverse marking indicates a match in alignment between the person hierarchy and the grammatical relations hierarchy
  - Inverse marking indicates a mismatch
- I propose that both of these systems involve restrictions on certain combinations of person and that what differs is the repair strategies used
  - For the PCC, multiple repairs are attested (tonic pronoun, PP structure, etc.)
  - I argue that inverse marking itself is a repair strategy that involves the addition of a probe (Béjar and Rezac 2009)

Interaction and satisfaction

- I will adopt Deal's (2021) account of the PCC and offer an extension to inverse marking
- Deal's account is couched within an interaction and satisfaction model of Agree (Deal 2015a)
- Under this model, probes can be specified with two types of conditions
  - Interaction conditions specify the features that probes can copy
  - Satisfaction conditions specify the features that will cause probes to halt
- Following Deal (2021), I will represent these conditions on a probe as [$\textsc{int}$:ϕ,$\textsc{sat}$:ϕ]
- Separate interaction and satisfaction conditions allow a probe to interact with goals even if they will not satisfy it

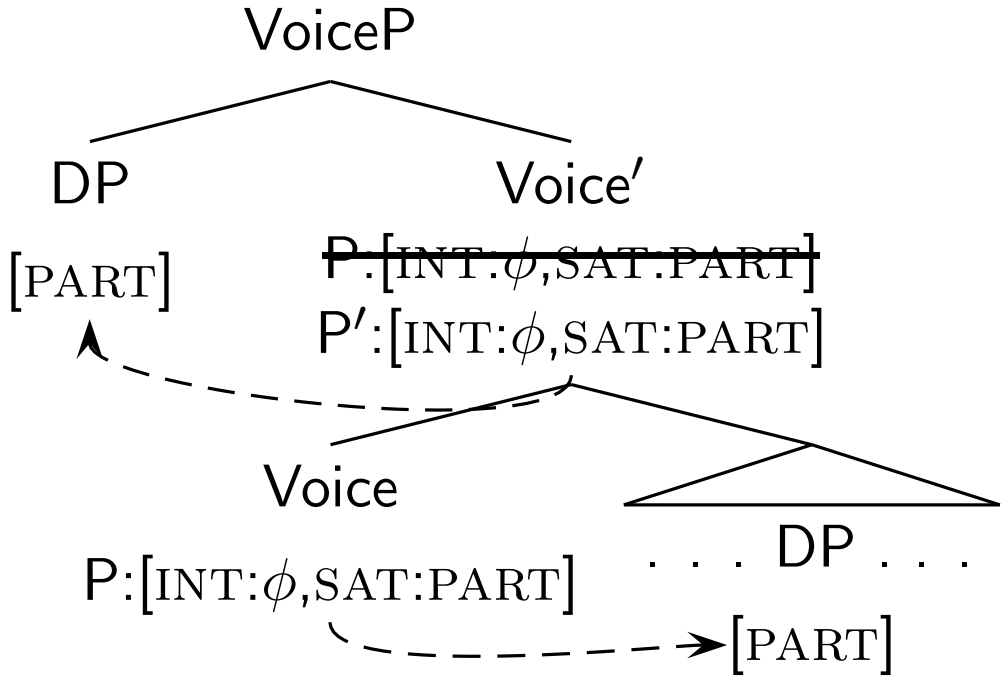
The strong PCC

- Deal (2021) assumes that the strong PCC involves a probe with the features [INT:ϕ,SAT:PART]
- If the probe encounters a SAP DO it will be satisfied and unable to agree with the IO
- The lack of agreement with the IO will result in an inability to generate a structure with two clitics or two agreement markers



"Strong" inverse marking

- I assume the same probe specifications for inverse systems with the strong pattern: [INTϕ,SAT:PART]
- If the probe encounters a SAP object, it will be satisfied
- When Voice reprojects, a probe will be added if the original probe is unable to agree with the subject
- Following Béjar and Rezac (2009), the inverse marker is a morphological indication of this added probe



Weak hierarchy patterns

- To capture weak patterns, I assume, following Deal (2021), an insatiable probe: [INT:ϕ,SAT:-]
- Additionally, the feature [PART] interacts dynamically
  - If the probe encounters a goal with the feature [PART]$^{\uparrow}$, it copies the feature into its interaction condition
  - On future cycles of Agree, the probe will be limited to interaction only with the feature [PART] and features that geometrically entail it
- If the first goal that the probe encounters is a SAP, the second goal must be a SAP for the probe to interact with it
  - In PCC languages, if the IO is third person, a form with two agreeing objects will not be generated
  - In inverse languages, a probe will need to be added to agree with a third person subject

Accounting for four varieties of hierarchy effects

- Deal's (2021) interaction and satisfaction account of the PCC is able to capture all four varieties
- The same probe specifications and dynamically interacting features can be used to model the parallel varieties of inverse marking

Modeling PCC and inverse varieties

Variety	Probe specifications	Dynamic interaction
Strong	[INT:ϕ,SAT:PART]	
Weak	[INT:ϕ,SAT:-]	[PART]$^{\uparrow}$
Strictly Descending	[INT:ϕ,SAT:SPKR]	[PART]$^{\uparrow}$
Me-first	[INT:ϕ,SAT:SPKR]	

- Competitor accounts (Béjar and Rezac 2009; Coon and Keine 2020, a.o.) struggle to capture all four varieties of hierarchy effects in a way that can be straightforwardly applied to inverse marking systems

Typological predictions

- Under the account pursued here, PCC systems and inverse marking systems differ in two ways
  - The height of the probe
  - The availability of an added probe as a repair
- These two factors are logically separable, predicting two additional types of systems
  - A language with a higher probe but no added probe repair
  - A language with a lower probe and an added probe repair
- Both kinds of systems predicted by this account are attested

Tupinambá monotransitive person restrictions

- In Tupinambá (Tupí-Guaraní; Brazil) the verb agrees with both subject and object when the subject outranks the object on the hierarchy 1>2>3
- When the object outranks the subject, only object agreement appears

Tupinambá monotransitives (Jensen 1990:121-122)

(20) a-i-kutúk
1SG-3-pierce
'I pierced him/her/it/them'

(21) syé r-epyák
1SG LK-see
'(he/she/it/they/you) saw me'

- This pattern can be captured by assuming a probe on Voice and no added probe repair

Shapsug Adyghe inverse marking in ditransitives

- In Shapsug Adyghe, there is a reverse strictly descending PCC (Driemel et al. 2020)
- When the IO outranks the DO, the cislocative q^w- appears
- Driemel et al. argue that the cislocative functions as an inverse marker in these contexts

Shapsug Adyghe ditransitives (Driemel et al. 2020:186)

(22) Sine-m se wo sə-wə-rə-tə.
Sine-OBL 1SG 2SG 1SG-2SG-3SG-give
'Sine gives me to you.'

(23) Sine-m wo se wə-**q$^{\mathbf{w}}$**-sə-rə-tə.
Sine-OBL 2SG 1SG 2SG-CIS-1SG-3SG-give
'Sine gives you to me.'

- This pattern can be captured by assuming a probe on v with an added probe repair

Four types of hierarchy effects

- The decoupling of probe height and repair strategy predicts four different types of heirarchy effects
- All four predicted types of systems are attested

Typology of hierarchy effects

		Added probe repair?	
		Yes	No
Probe	*v*	Adyghe	Classical Arabic
	Voice	Kumiai	Tupinambá

Conclusion

- I have demonstrated that all four widely recognized varieties of the PCC have parallels in systems of inverse marking
- I have argued that an interaction and satisfaction account of the PCC, following Deal (2021), is able to be extended straightforwardly to model inverse systems
- Under the analysis offered here, PCC systems and inverse systems differ only in:
  - The height of the probe
  - The availability of an added probe as a repair strategy
- Decoupling these two parameters predicts the attested four-way typology of hierarchy effects

Anagnostopoulou, Elena. 2005. Strong and weak person restrictions: A feature checking analysis. In *Clitic and affix combinations*, ed. Lorie Heggie and Francisco Ordóñez, volume 74 of *Linguistics Today*, 199–235. Amsterdam: John Benjamins.

Béjar, Susana, and Milan Rezac. 2009. Cyclic Agree. *Linguistic Inquiry* 40:35–73.

Bianchi, Valentina. 2006. On the syntax of personal arguments. *Lingua* 116:2023–2067.

Caballero, Gabriela, and Qi Cheng. 2020. Person marking in Ja'a Kumiai (Yuman). *Amerindia* 42:23–47.

Coon, Jessica, and Stefan Keine. 2020. Feature gluttony. To appear, *Linguistic Inquiry*.

Deal, Amy Rose. 2015a. Interaction and satisfaction in ϕ-agreement. In *NELS 45: Proceedings of the Forty-Fifth Annual Meeting of the North East Linguistic Society*, ed. Thuy Bui and Deniz Özyıldız, volume 1, 179–192. Amherst, MA: Graduate Linguistics Students Association.

Deal, Amy Rose. 2015b. A note on Nez Perce verb agreement, with sample paradigms. In *Papers for ICSNL 50: The Fiftieth International Conference on Salish and Neighbouring Languages*, ed. Natalie Weber, Erin Guntly, Zoe Lam, and Sihwei Chen, volume 40 of *University of British Columbia Working Papers in Linguistics*, 389–413. Vancouver: UBCWPL.

Deal, Amy Rose. 2021. Interaction, satisfaction, and the PCC. Ms., University of California, Berkeley.

Driemel, Imke, Ahmet Bilal Özdemir, and Marie-Luise Popp. 2020. A repair for PCC and inverse contexts in Adyghe. In *NELS 50: Proceedings of the Fiftieth Annual Meeting of the North East Linguistic Society*, ed. Mariam Asatryan, Yixiao Song, and Ayana Whitmal, volume 1, 183–196. Amherst, MA: Graduate Linguistics Students Association.

Hale, Horatio. 1846. *Ethnography and philology*, volume 6 of *United States Exploring Expedition. During the years 1838, 1839, 1840, 1841, 1842. Under the command of Charles Wilkes*. Philadelphia: Lea & Blanchard.

Hammerly, Christopher. 2020. Person-based prominence in Ojibwe. Doctoral Dissertation, University of Massachusetts Amherst.

Jensen, Cheryl. 1990. Cross-referencing changes in some Tupí-Guaraní languages. In *Amazonian linguistics: Studies in lowland South American languages*, ed. Doris L. Payne, 117–158. Austin: University of Texas Press.

Klaiman, M. H. 1993. The relationship of inverse voice and head-marking in Arizona Tewa and other Tanoan languages. *Studies in Language* 17:343–370.

Lochbihler, Bethany. 2007. The inverse system in Ojibwe: A comparison with the Person-Case constraint. In *Proceedings of the 2007 Annual Conference of the Canadian Linguistic Association*, ed. Milica Radišić, 1–15. Canadian Linguistic Association.

Ormazabal, Javier, and Juan Romero. 2007. The Object Agreement Constraint. *Natural Language & Linguistic Theory* 25:315–347.

Rude, Noel Emerson. 1985. Studies in Nez Perce grammar and discourse. Doctoral Dissertation, University of Oregon.

Stegovec, Adrian. 2017. Between *you* and *me*: Two crosslinguistic generalizations on person restrictions. In *Proceedings of the 34th West Coast Conference on Formal Linguistics*, ed. Aaron Kaplan, Abby Kaplan, Miranda K. McCarvel, and Edward J. Rubin, 498–508. Somerville, MA: Cascadilla Proceedings Project.

Zavala, Roberto. 1994. Inverse alignment in Huastec. *Función* 15/16:27–81.

Zavala, Roberto. 2007. Inversion and obviation in Mesoamerica. In *Endangered languages*, ed. Peter K. Austin and Andrew Simpson, volume 14 of *Linguistische Berichte Sonderheft*, 267–305. Hamburg: Helmut Buske Verlag.

Zubizarreta, Maria Luisa, and Roumyana Pancheva. 2017. A formal characterization of person-based alignment: The case of Paraguayan Guaraní. *Natural Language & Linguistic Theory* 35:1161–1204.