

Alignment change in Chukotkan: Further exploration of the pathways to ergativity

Jessica Kantarovich
University of Chicago

1 Introduction

The ways in which accusative case marking languages become ergative have been well-explored since Anderson's (1977) paper, which first proposed two possible pathways to ergative case (via passives and possessives). Numerous additional sources of ergative case have been identified across the world's languages. Coghill's (2016) book documents at least six potential pathways for an accusative to ergative alignment shift, and three that have been claimed to produce the reverse change. Coghill also notes numerous cases of cyclic alignment change, where systems shift back and forth between ergative and accusative marking, demonstrating that alignment systems are not fixed and may be constantly evolving. Eastern Aramaic dialects evidence this kind of cyclic change (accusative to ergative to accusative); a similar process is underway in dialects of Inuktitut (Johns 2001).

In contrast to the typical account of alignment change which focuses on reanalyzed constructions, Whitman and Yanagida (2012) adopt an approach where changes from accusative to non-accusative systems (and vice-versa) are the result of changes in how case features are assigned and which part of the structure attracts the syntactic subject. This paper focuses on reanalysis as the mechanism of change and sets aside the question of how the change may be instantiated in speakers' grammars synchronically.¹

The role of language contact in alignment change has also been examined, with a number of proposed shifts being attributed to various degrees of contact-based influence. Mithun (2008: 331-332) claims that contact contributed to the spread of split-S alignment in indigenous North American languages. Coghill (2016: 39, 168-169) argues that alignment changes in Eastern Aramaic (the development of an ergative construction as well as semantically-conditioned alignment) mirror those that occurred in Iranian, and can be partially attributed to contact between the two families, which dates back to at least 500 BC. Any type of system-restructuring contact-induced change is often difficult to demonstrate conclusively—such claims are often based on the degree of similarity between parallel changes that occurred in a pair of unrelated languages. In this paper, I address the various types of evidence we can consult in order to determine whether a particular instance of alignment change should be attributed primarily to contact-induced change.

To further examine the completeness of our current approaches to alignment change, as well as the influence of language contact on ergativity, this paper takes Chukotko-Kamchatkan as a case study. The synchronic and diachronic nature of ergativity in these languages has been the subject of inquiry for several decades. Both branches share a pattern that has been described as a typologically unusual form of split ergativity (Bobaljik 1998): in the

¹It is also not clear that Whitman and Yanagida's approach can be straightforwardly applied to Chukotkan, which has compellingly been demonstrated to have dependent, not inherent, ergative case (Baker & Bobaljik 2017).

verbal agreement system, certain prefixes index agreement with transitive and intransitive subjects (a nominative pattern), and certain suffixes agree with intransitive subjects and transitive objects (an absolutive pattern). The Chukotkan languages also have an ergative case (syncretic with the instrumental case) on external transitive subject NPs.

The Chukotkan case is of particular interest in the study of ergative alignment for several reasons. First, it is exceptional in that there does not appear to be a single reanalysis pathway that can explain the distribution of ergative case, due largely to the complexity of the verbal system. This suggests that the Chukotkan system was the product of several changes, which operated in different domains to produce the seemingly uniform modern system.

The Chukotkan case also sheds light on the role that language contact can play in influencing alignment change. A widely-accepted account of the development of ergativity in Chukotkan is given by Fortescue (1997), who proposes that Chukotkan ergativity is so typologically unusual because the pattern is not internally-motivated and instead arose due to substrate effects from Yupik, which would already have had ergative case at the time of contact. There are indeed some parallels in the development of ergative case in both language families: reanalyzed possessive participles were the basis of ergative case in Inuit-Yupik and served as the first phase in ergative development in Chukotkan. However, several factors make a Yupik contact-based explanation for the Chukotkan pattern unlikely: it is not supported by what little historical information we have about the contact between these languages during the relevant time period, and it does not account for the morphological form of ergative case.

This paper offers an alternative account: that Chukotkan ergative case was reinforced through an entirely language-internal reanalysis of a passive participial construction, formed using the suffix *-jo* in the modern languages. The advantage of this analysis is that it explains the complete syncretism between ergative and instrumental case marking in all Chukotkan noun classes, without stipulating a contact scenario that is difficult to prove.

I also call into question the notion that Chukotkan alignment—and ergativity more broadly—is actually typologically unusual and in need of a unique explanation. In fact, the development of a special agent case fits naturally with the overall tendency to maximize the encoding of animacy-based distinctions throughout Chukotko-Kamchatkan. Nevertheless, the Yupik substrate analysis advanced in Fortescue 1997 has been repeated in other studies of these languages (e.g., Dunn 1999, the most recent grammar of Chukchi), without evaluating whether this proposal makes sense in light of what we know about contact between Yupik speakers and speakers of the major Chukotkan daughter languages (Chukchi and Koryak). The absence of skepticism about a substrate explanation for ergative case is particularly surprising, since ergativity has cross-linguistically been shown to arise and be replaced easily through entirely regular, language-internal reanalysis.²

The following section provides a description of the Chukotko-Kamchatkan ergative patterns that are analyzed in this paper. 3 summarizes the common cross-linguistic pathways

²A reviewer asks how Fortescue's (1998) Uralo-Siberian hypothesis bears on the present discussion. Uralo-Siberian is not purported to be a proto-language in the usual sense, but rather a 'mesh' or stock from which the Uralic, Chukotko-Kamchatkan, and Aleut-Inuit-Yupik languages developed (1998: 18-20). Of the languages that supposedly descended from this mesh, only Chukotkan and Inuit-Yupik display ergative patterning, and Fortescue himself does not suggest that these were inherited from the Uralo-Siberian stock. Thus, I set aside the issue of common inheritance as a potential explanation.

by which ergative case has been known to emerge. 4 focuses on the Chukotkan case study: in 4.1, I outline the earliest source of ergative case in the Chukotkan languages, which involved the reanalysis of a possessive participle; in 4.2 and 4.3, I present Fortescue's (1997) analysis and discuss the linguistic and socio-historical issues with a contact-based proposal; and in 4.4 I provide an alternative explanation. 5 discusses general issues with the treatment of ergativity as a contact feature and 6 concludes.

2 The Chukotko-Kamchatkan languages and ergativity

2.1 The status of the Chukotko-Kamchatkan family

Chukotko-Kamchatkan (CK) refers to a family of languages spoken in the Russian Far East. It includes two main subdivisions: (1) Chukotkan, which comprises four closely related languages (Chukchi, Koryak, Kerek, and Alutor); and (2) Kamchatkan, whose only known member is Itelmen (also called Kamchadal in some sources).

The Chukotkan languages display a wide range of dialectal variation and their status as distinct languages has not always been easy to determine. For present purposes, it is not necessary to establish clear divisions between the languages: the facts about ergative case and agreement marking are representative of all four, and it is likely that they inherited ergative case marking from Chukotkan. Unless otherwise noted, this paper examines data from Chukchi.

2.2 Ergativity in Chukotkan vs. Kamchatkan

This section describes the two phenomena that have been called ergative in Chukotko-Kamchatkan: the ergative case marking on Chukotkan nouns and the system of verbal suffixes that is shared by Chukotkan and Kamchatkan. I argue that the verbal system most likely arose due to pressure to encode animacy distinctions, and that the appearance of ergativity in the agreement suffixes is incidental. In section 4, we will see that Chukotkan nominal marking is a truly ergative process, in the sense that it involved the development of unique agent (A) marking while unifying intransitive subject (S) and direct object (O) marking from the outset.

2.2.1 Ergative case marking in Chukotkan

The Chukotko-Kamchatkan languages are polysynthetic, with extensive affixation on the verb: these affixes include TAM markers, multiple agreement slots, negation, and (for Chukotkan only) incorporated nouns. External noun arguments, including pronouns, are also possible, and do not take the place of the agreement marking on the verb. External NPs may also be freely dropped in discourse, particularly for non-3rd person arguments.

Languages in both branches have a large number of distinct case markers: about 13 in Itelmen and 11 in Chukchi (see Volodin 1976 for Itelmen; Dunn 1994, 1999 for Chukchi). Many of these cases are shared by the two languages, but their marking of core arguments is crucially distinct. In Itelmen, there is neutral marking of subjects and objects, which are

unmarked in the singular and *-ʔn* in the plural.³ Core arguments in Chukchi are marked according to an ergative pattern, with one case form for transitive subjects and a separate form used for both intransitive subjects and direct objects. Unlike Itelmen, Chukchi case marking also differs according to noun classes. A subset of the nominal inflection systems of both languages (the forms relevant for the present discussion) are given in Table 1.

Table 1. Nominal inflection in Chukchi (Dunn 1999) and Itelmen (Volodin 1976).

Case	Chukchi			Itelmen
	<i>Common Nouns</i>	<i>High Animate</i>	<i>Personal Pronouns</i>	
ABS (sg)	-∅/-ŋe/-n	-∅/-n	(1/2/3.SG stem)	-∅
ABS (pl)	-t(i)	-nti	(1/2/3.PL stem)	
ERG/INST (sg)	-e/-te	-ne	-(n)an	-ʔ(INST only)
ERG/INST (pl)	-e/-te	-rək	-gənan	
POSS (sg)	-in	-in	-in	-n/-ʔin
POSS (pl)	-ine-t	-ine-t	-ine-t	
DAT/ALL (sg)	-etə/-gtə	-na	-kagtə	-(an)ke
DAT/ALL (pl)	-etə/-gtə	-rəkə	-kagtə	

Personal pronouns in Chukchi have suppletive stems according to person and number, without any additional marking in the absolutive case. (This is also true of Itelmen.) The appropriate stems are modified by the affixes indicated for the remaining cases. Note also that the possessive form is an instance of dependent-marking and agrees in number with the possessee, not the possessor.⁴

(1) Possessive suffix *-in(e)* in Chukchi (based on examples from Dunn 1994: 52)

- a. *uweqəc-in* *ətłəgə-n*
 husband-POSS.SG father-ABS.SG
 “husband’s father”
- b. *ənqen cal:əget* *gən-in*
 that sister.ABS.SG 2sg-POSS.SG
 “that sister of yours” (Dunn 1999: 149)
- c. *ŋewəcqet-in* *qepəl*
 woman-POSS.SG ball.ABS
 “woman’s ball”

³Itelmen nominal inflection is more agglutinative than that of Chukchi; plurality is indicated through the addition of this *-ʔn* marker for all cases. This marker is affixed directly after the stem and before the case marker. The Itelmen case morphemes in the table do not on their own encode plurality, unlike the corresponding Chukchi markers. Due to phonological processes in Itelmen, the plural marker does not always surface as *-ʔn* and is sometimes apparent only through resulting changes to the stem. See Bogoras 1922: 695, 708-709 and Volodin 1976, ch. 2 for discussion on the formation of plurals in Itelmen.

⁴Dunn (1999) does not analyze the possessive as a case marker but as a derivational affix, since it can combine with other case markers.

- d. *ɲewəccqet-ine-t qepl-ət*
 woman-POSS-PL ball-ABS.PL
 “woman’s balls”

2.2.2 Positional ergativity of verbal suffixes in Chukotko-Kamchatkan

While there is no ergativity in the nominal system of Itelmen, both the Chukotkan and Kamchatkan languages have been described as having split ergativity in the verbal agreement system. Recall that both Chukotkan and Kamchatkan index core arguments on the verb. The ergative split is conditioned by the position of the agreement marker within the verbal complex. There are two slots for agreement: one that is prefixed to the verb (plus any derivational morphology) and one that is suffixed. In intransitive paradigms, both slots index the subject. In transitive paradigms, the prefix slot typically indexes the transitive subject, and the suffix slot indexes the direct object. (This is true of Itelmen with few exceptions; however, as I show below, the Chukotkan case is considerably more complex.)

The resulting system is such that the agreement prefix slot agrees with either A or S (a nominative pattern), and the suffix slot agrees with either S or O (an absolutive pattern). In Chukotkan and Itelmen, there is a single set of nominative prefixes, used for both A and S. However, Itelmen has a separate set of suffixes for S and O, so unlike the prefixes, there are no individual morphemes that have an absolutive function. This is mostly the case for Chukchi as well, although there are some suffixes that are used for both S and O and can be termed absolutive. The two systems are illustrated in Table 2, which summarizes the facts for the active verbal inflections.⁵ (Chukchi also has two stative inflections, a habitual and a perfect, which express agreement differently.) The individual columns represent the agreement affixes for that grammatical role: the S affixes are the complete agreement patterns for intransitive verbs, while transitive verbs take one form from the A and O columns (the appropriate forms corresponding to the person/number of each argument).

Examples of the nominal and verbal paradigms are illustrated in the sentences below.

(2) Itelmen tr. verbs

- a. *kma t-əlčqu-(g)in*
 I 1sg.S/A-see-2sg.O
 “I saw you”
- b. *q-əlčqu-βum kma*
 2S/A(IRR)-see-1sg.O me
 “(you) saw me”

(3) Itelmen intr. verbs (Bobaljik 1998: 23)

- a. *kma t-k’oł-kičen*
 I 1sg.S/A-come-1sg.S
 “I came/arrived.”
- b. *q-k’oł-xč*
 2S/A(IRR)-come-2sg.S
 “(You) come!”

⁵The starred cells in the table represent the object suffixes in the 3rd person in Itelmen, which differ depending on the agent (i.e., they are fusional suffixes that encode both A and O in the clause). There are certain other arguments that do not behave according to the general pattern stated above: for example, 2plA in both languages is indicated using a suffix or both a suffix and a prefix; in these cases, the object suffix does not also occur. I do not elaborate on the full complexity of the agreement patterns in these languages, but instead refer interested readers to Bobaljik (1998) and Volodin (1976) for Itelmen, and Dunn (1999) for Chukchi.

Table 2. Chukchi & Itelmen agreement (adapted from tables in Bobaljik 1998).

		A		S		O	
		Chukchi	Itelmen	Chukchi	Itelmen	Chukchi	Itelmen
1sg	REAL	tə-	t-	tə- -g ^ʔ ek	t- -kičen	-gəm	-βum
	IRREAL	mə-	m-	mə- -g ^ʔ ek	m- -kičen	-gəm	-βum
2sg	REAL	∅-	∅-	∅- -g ^ʔ i	∅- -č	-gət	-gin
	IRREAL	qə-	q-	qə- -gi	q- -xč	-gət	-gin
3sg	REAL	(ne)-	∅-	∅- -g ^ʔ i	∅- -n	-(g ^ʔ e)n, -nin	*
	IRREAL	(^ʔ ə)n-	xən-	nə- -g ^ʔ en	xən- -n	-(g ^ʔ e)n, -nin	*
1pl	REAL	mət-	nt-	mət- -mək	nt- -kičeʔn	-mək	-βuʔm
	IRREAL	mən-	mən-	mən- -mək	mən- -kičeʔn	-mək	-βuʔm
2pl	REAL	∅- -tkə	∅- -sx	∅- -tək	∅- -sx	-tək	-sxen
	IRREAL	qə- -tkə	q- -sx	qə- -tək	q- -sx	-tək	-sxen
3pl	REAL	ne-	n-	-g ^ʔ et	-ʔn	-(ni)net	*
	IRREAL	^ʔ ən-	xən-	n- -net	xən- -ʔn	-(ni)net	*

(4) Chukchi verbs (Comrie 1979, unless otherwise noted)

a. *gəm tə-wiri-g^ʔek*

I.ABS 1sg.S-descend-1sg.S

“I descended”

b. *gəm-nan turi tə-l^ʔu-tək*

I-ERG you.ABS 1sg.A-see-2pl.O

“I saw you (pl.)”

c. *turi wiri-tək*

you.ABS descend-2pl.S

“You (pl.) descended”

d. *luur ^ʔeg-əc-a penrə-nen qora-ŋə*

suddenly wolf-AUG-ERG attack-3sgA.3sgO reindeer-ABS.SG

“Suddenly the big wolf attacked the reindeer” (Comrie 1981: 274)⁶

In (2) and (3), the 1sg pronoun in Itelmen, *kma*, is unmarked in both core grammatical roles. In Chukchi, the unmarked form is used for the object of transitives and the subject of intransitives (*gəm* in (4a), *turi* in (4b-c)), but there is a special case marker for the agent of a transitive verb (*-nan* for the pronoun in (4b)). (4d) gives an example of case marking on full nominals in Chukchi.

Another facet of the Chukotkan agreement system is absent in Kamchatkan: inverse affixes, which operate according to a 1 > 2 > 3sg > 3pl person hierarchy. The full paradigms for the Chukchi transitive aorist and intransitive optative are given in Table 3 (inverse forms are bolded). There are three types of inverse forms, which have separate synchronic behavior

⁶ERG marker *-e* > *-a* and agreement suffix *-nin* > *-nen* with dominant vowel harmony.

and diachronic origins: (1) the prefix *ine-* which is used in place of a subject prefix when there is a 1sg O; (2) the suffix *-tku*, used in addition to an agreement suffix, for cases where there is a 1pl O; and (3) *ne-*, which is used for all cases where there is a 3rd person A (except 3sgA-1sgO, where *ine-* is preferred). We can see that 3sg outranks 3pl in this hierarchy due to the fact that the *ne-* inverse is present when there is a 3pl A acting on a 3sg O, but not in the reverse case. Fortescue 1997 proposes that the *ne-* inverse is derived from an earlier passive **næ*, which was only used with an indefinite 3rd person subject. The *ine-* and *-tku* markers originated from antipassives and are still syncretic with this function.

Table 3. Full agreement paradigm for the Chukchi Transitive Aorist (Realis) and Intransitive Optative (Irrealis) (adapted from Fortescue 1997).

Subj	Intr. Optative	Trans. Aorist					
		1sg O	2sg O	3sg O	1pl O	2pl O	3pl O
1sg	mə- <u>-g^ʔek</u>	–	tə- -gət	tə- <u>-g^ʔen</u>	–	tə- <u>-tək</u>	tə- <u>-net</u>
2sg	qə- -gi	ine- -g ^ʔ i	–	<u>-g^ʔen</u>	-tkug^ʔi	–	<u>-net</u>
3sg	nə- <u>-g^ʔen</u>	ine- -g ^ʔ i	ne- -gət	-nin	ne- <u>-mæk</u>	ne- <u>-tək</u>	-ninet
1pl	mən- <u>-mæk</u>	–	mət- -gət	mət- <u>-g^ʔen</u>	–	mət- <u>-tək</u>	mət- <u>-net</u>
2pl	qə- <u>-(gə)tək</u>	ine- -tək	–	-tkə	-tkutək	–	-tkə
3pl	nə- <u>-net</u>	ne- -gəm	ne- -gət	ne- -g ^ʔ en	ne- <u>-mæk</u>	ne- <u>-tək</u>	ne- <u>-net</u>

Key:

Transitive Subject Prefix
Absolutive Suffix
Inverse

Fortescue (1997) provides a plausible account for how the shared parts of the Chukotko-Kamchatkan agreement system may have developed. He presupposes that, in its earliest phase, the proto-CK verb had one agreement slot (a suffix that agreed with S). As transitive clauses developed, subject prefixes (derived from independent pronouns) were added to the verbal complex and the role of the suffix was repurposed for object agreement. In the aorist, these subject prefixes appear to have only been adopted for the 1sg and 1pl forms (Fortescue 2003: 59); on this basis, he argues that these prefixes were the first to enter the developing system, and the pattern progressed further in other paradigms (compare (5) with the intransitive optative forms in Table 3).

(5) Intransitive aorist forms (Fortescue 1997: 374, 376; Fortescue 2003: 59)

Proto-CK intr. aorist		Chukchi intr. aorist		Itelmen intr. aorist			
1sg	tə- <i>-gəRæk</i>	1pl	mət- <i>-mæk</i>	1sg	t- <i>-k(ičen)</i>	1pl	n- <i>-k(ičen)</i>
2sg	<i>-gəRæ(t)</i>	2pl	<i>-(gə)tək</i>	2sg	<i>-c</i>	2pl	<i>-sx</i>
3sg	<i>-gəRæ(n)</i>	3pl	<i>-gəRæt</i>	3sg	<i>-(g)en</i>	3pl	<i>-(g)e'n</i>

At this point, then, Chukotko-Kamchatkan appears to have already been sensitive to an animacy hierarchy, given the special treatment of 1st person (the most likely to be in an agentive role and the highest in the hierarchy).

Fortescue (1997) goes on to claim that additional material was gradually pulled in from existing parts of the language in order to express transitive relations (at this point, there would have been no case marking on external arguments). For the direct cases in the hierarchy, the object suffix was either directly copied or adapted from the subject suffix (resulting in the existence of the “absolute” suffixes). Antipassive and passive marking was adopted for the expression of inverse relations.

If this account of the development of the verbal system is correct, then Chukotkan is organized around pressure to differentiate between direct and inverse relations: the noteworthy pattern is not the correspondences between S and O suffixes (a result of the early suffixing verbal complex in Chukotko-Kamchatkan), but the use of transitive subject prefixes only in the direct cases, where the subject outranks the object on the hierarchy. Therefore, the verbal system of Chukotko-Kamchatkan did not result directly from ergative processes, but rather from a drive to maintain animacy-based distinctions, which has produced a kind of epiphenomenal ergativity in the suffix slot.

2.3 Summary

It is clear that the two ergative systems in Chukotko-Kamchatkan (case and agreement) did not develop in tandem: while Chukotkan and Kamchatkan mostly inherited their agreement systems from a proto-language, the same cannot be said of their systems of nominal argument marking. There are several possible trajectories that would have resulted in the presence of ergative-absolute case marking in Chukotkan but neutral case marking in Kamchatkan: (i) Proto-CK had a neutral system and ergative case is an innovation in Chukotkan, (ii) Proto-CK had an ergative system and the distinctions were collapsed in Kamchatkan, or (iii) Proto-CK nominal marking was distinct from that of any of the daughter languages, which underwent disparate changes to produce the modern patterns.

(i) and (ii) are the more conservative theories, in that they require the fewest presumed changes in the languages. There is no evidence of ergative case having ever existed in Itelmen, and there is no obvious scenario in Itelmen by which ergative and absolute case marking could have collapsed into one case.⁷ For these reasons, the first scenario is the one assumed by both Fortescue (1997) and this paper.

⁷The neutral case in Itelmen can be reconstructed to the same source as the absolute in the Chukotkan languages (Fortescue 2003: 56). Itelmen also has an instrumental case, *-t*, which corresponds to the instrumental form of one of the classes in Chukotkan. If we assume that the case marking system of Proto-Chukotko-Kamchatkan was closer to the systems of the modern Chukotkan languages, with an instrumental-ergative syncretism, we would need to assume that the agentive interpretation of the ergative/instrumental case was simply lost. It is unclear how the absolute marker would have taken over this function. One way languages lose their ergative case is through the reanalysis of an antipassive, where a transitive subject is already marked with absolute case (Coghill 2016: 26). Fortescue (2005) does reconstruct an antipassive in Itelmen. However, if a change occurred in Itelmen whereby absolute-marked transitive subjects in antipassives were interpreted as nominative, the change would have produced a separate accusative case—that is, whatever oblique case marked the direct object in the antipassive construction. Thus, while we cannot rule out this scenario, it cannot be satisfactorily demonstrated.

3 Cross-linguistic pathways for the development of ergative case marking

Shifts from nominative-accusative to ergative-absolutive case-marking systems are well-attested in the world’s languages. The pathway by which an alignment change progressed is frequently evident in certain synchronic characteristics of a language, such as the presence of ergative splits and case syncretisms. Given the cross-linguistic robustness of these generalizations, we can assess the plausibility of any nominative > ergative change by observing whether the modern languages display the expected patterns. I argue in section 4 that had ergativity in Chukotkan arisen solely via the reanalysis of a possessive participial, we would not see the syncretisms we do in the modern languages.

The development of an ergative-absolutive distinction in case marking on nouns typically proceeds from clausal reanalysis: an obliquely marked noun is interpreted as having a special agent case when there is a change in the interpretation of the verb form. The full list of available types of reanalysis is extensive (see Coghill 2016). Here, I only discuss the three routes that could have played a role in Chukotkan.

Ergative case via a passive construction

In the passive route, if explicit passive marking on a verb becomes opaque and the verb is reanalyzed as an active transitive, then the marking on arguments is also reanalyzed such that the formerly instrumental/oblique argument (the agent) has special marking as a transitive subject. Coghill (2016: 18) schematizes this change in the following way:

- (6) dog.NOM hunter.OBL feed.PASS > hunter.ERG dog.ABS feed.ACT
“The dog is fed by the hunter.” > “The hunter feeds the dog.”

Languages which developed their ergative case in this way often display ergative-instrumental syncretism. Examples include Hittite (for neuter nouns) and Sanskrit (see Dixon 1994: 187-190 for additional discussion and references). These are also the languages which are most likely to have nominal ergative splits, where ergative marking is preferred for agents that are lower on the animacy hierarchy proposed in Silverstein 1976: 1, 2 pronouns > 3 pronouns > proper nouns > common human nouns > non-human animates > inanimate nouns. The reason for the association between ergative marking and inanimate/less animate is that passive voice may have been preferred in cases where these arguments were in an agentive role, e.g., “He was hit by a car” vs. “A car hit him”.

Ergative case via a possessive

The second mechanism for ergative development involves the reanalysis of certain types of possessives. In many languages, expressions of possession become grammaticalized as perfects: one example is English (“I have V-ed”). This process has mostly been observed in Indo-European languages, but also appears to have taken place in Cantonese (Heine & Kuteva 2002: 245).

Some ergatives have developed from a kind of periphrastic possessive, such as Russian *u menja kniga* “I have a book”, lit. “near me there is a book”, in languages which also use

this construction in the formation of their perfects. The context for this ergative pathway, given below, requires a periphrastic possessive and a verbal participle which modifies the possessed entity (Coghill 2016: 20):

- (7) hunter.GEN/DAT (is) dog.NOM
 “The hunter has a dog.”
 hunter.GEN/DAT (is) dog.NOM feed.PTCP > hunter.ERG dog.ABS feed.ACT.PRF
 “The hunter has the dog (who is) fed.” > “The hunter has fed the dog.”

The possessive route requires an additional step that is not needed in the passive route. As we can see in (7), the reinterpretation of the possessor as an agent also requires the reanalysis of the participle as an active verb form. The resulting resemblance between this agentive construction and the existing perfect in the language contributes to the loss of the possessive reading, and the reinterpretation of the DAT/GEN marking on the possessee as object marking.

This pathway serves to explain the asymmetry in tense/aspect-based splits, specifically, why ergative marking tends to show up in perfects. It also explains the genitive-ergative and dative-ergative syncretisms that also appear in languages with such splits.

Ergative case via instrumental + zero-marked subject

Another type of instrumental-based reanalysis that can result in the development of an ergative pattern was initially proposed by Garrett (1990). An instrumental can be analyzed as ergative without any reinterpretation of the verb if there is a zero-marked subject that is analyzed as being absent (Coghill 2016: 24):

- (8) \emptyset (3SG.NOM) purifies it.ACC water.INST > purifies it.ABS water.ERG
 “S/he purifies it with water.” > “Water purifies it.”

Garrett claims this is the pathway by which Hittite as well as the Eastern Highlands family of Papua New Guinea developed ergative marking.

4 The development of ergative case in the Chukotkan languages

4.1 The initial source of ergative case in Chukotkan

The development of ergative case marking in Chukotkan likely proceeded through a series of reanalyses, rather than a single change. Due to the complexity of the Chukotkan verb, there is no individual construction where a reanalysis can account for the universality of ergative case (i.e., the lack of ergative splits).

The initial source of ergative case in Chukotkan is fairly clear: it arose in the transitive perfect for 3rd person objects. Benveniste (1970) first noted a link between the Chukotkan transitive perfect and a type of participle. In Chukchi, the transitive perfect inflection is the same for all 3sg objects (*ge- -lin*) and 3pl objects (*ge- -linet*). For example:

- (9) *ənan ga-pela-len ŋewəcqet*
 he.ERG PRF-leave-3sg.PRF woman.ABS
 “he left the woman” (Fortescue 1997: 384)

This form was originally a nominal passive participle like the following, which was still used by speakers in Bogoras’ time (1922: 758):

- (10) *ga-pela-len* “one who has been left”⁸

Bogoras reports the meaning of the *ge-* *-lin* form as “one who has attained a condition or who has performed an action” (Bogoras 1922: 758). When combined with a noun, *ge-* *-lin* indicates a possessed predicate (Bogoras 1922: 712):

- (11) *ga-gaa-lin* “one who has reindeer” (*qora-* “reindeer”)
g-ekke-lin “one who has sons” (*ekk-* “son”)

This kind of polysemy (between the perfect and a possessive participle) sets up the exact conditions where we expect possessive-based ergativity to arise. However, the process that took place in Chukotkan (which is independently similar to the one that occurred in Inuit-Yupik, as we will see in the following section) is slightly different from the traditional possessive pathway we considered in section 3. There is a link between participle morphology and the marking on the possessed predicate itself. Otherwise, the pathway is the same: a verbal participle is reanalyzed as an active perfect, and oblique marking on the possessor (in this case, the 3sg pronoun) is reanalyzed as ergative. The nominative-marked argument, which is apposed to the participle, is reanalyzed as absolutive. This can be schematized as follows:

- 3sg.OBL (is) reindeer.PTCP
 “He is one who has reindeer.”
 (12) 3sg.OBL (is) leave.PTCP woman.NOM > 3sg.ERG woman.ABS leave.ACT.PRF
 “He has the one who is left, the woman.” > “He has left the woman.”

On its own, this reanalysis only accounts for some of the distribution of ergative case in Chukotkan. The contexts in which this reanalysis would have applied are extremely limited—it would have been restricted to the perfect and constructions with a 3rd person object. Thus, it is likely we would find a perfect-based ergative split in Chukotkan as well as possibly a person-based split, which is not the case.

This reanalysis also does not explain the ergative-instrumental syncretism we find in Chukotkan. Based on languages that have derived their ergative case from reanalyzed possessive participles, we expect the ergative marking to be genitive or dative in origin. The 3sg ergative form in (9), *ənan*, has been argued to derive from either an emphatic particle meaning “oneself”, evident in the modern Koryak form *əna* (Fortescue 1997: 381), or to be a possessive form of the proto-CK 3sg pronoun **ən(no)*, evident in the modern Itelmen form *ənan* “his, her” (Skorik 1961/1977: 286).

As we will see in section 4.3.1, there are reasons to suspect that a possessive origin of the *-nan* case marker is unlikely. However, if we assume for the moment that *ənan* was initially a

⁸*ge-* *-lin* becomes *ga-* *-len* with dominant vowel harmony in Chukchi.

possessive-marked noun, it is still the case that this is an entirely internally-derived pattern, consistent with the typology of ergatives cross-linguistically. At this point in the development of ergative case in Chukotkan, there is no need to propose influence from language contact: the reason Fortescue invokes a potential Yupik substrate is to explain how ergative case became generalized to the other Chukotkan tenses.

4.2 The Yupik substrate proposal

Let us now turn to the Yupik substrate-based proposal for the spread of ergative case in Chukotkan. According to Fortescue’s (1997) analysis, Yupik speakers learning Chukotkan applied their own possessive-derived type of ergative marking to the Chukotkan aorist, extending the reanalysis that was already underway in the perfect.

On the surface, there does appear to be a resemblance between the possessive-participial clause we have examined in the Chukotkan perfect and the one in Inuit-Yupik (IY). Ergativity in the IY languages also resulted from a reanalysis of this construction, and there continues to be a modern link between the ergative clause and possessive constructions (Fortescue 1995).⁹ The relationship between these forms can be seen in the following Greenlandic examples (Fortescue 1995: 62):¹⁰

- (13) *piniartu-p terianniaq taku-a-a*
 hunter-REL fox.ABS see-IND-3sgA.3sgO
 “The hunter saw the fox.”

- (14) *piniartu-p anguta-a*
 hunter-REL father-3sg.SING
 “hunter’s father”

The indicative mood marker in (13) derives from an earlier participle form, such that the original reading of the sentence would have been “The hunter’s seen thing (was) the fox”:

- (15) hunter.GEN (is) father.PTCP
 “the hunter’s father (=the hunter is one who has a father)”
 hunter.GEN (is) fox.NOM see.PTCP > hunter.ERG fox.ABS see.ACT.IND
 “The hunter’s seen thing was the fox.” > “The hunter saw the fox.”

In the IY scenario, the participial possessive form was simply reanalyzed as active (indicative) verbal inflection, and did not produce a perfect-based split. Unlike in Chukotkan, the genitive origin of the ergative case marking is obvious (these functions are syncretic in the modern languages).

According to Fortescue (1997: 384), the structural similarities between the transitive verb in Yupik and the perfect in Chukotkan (i.e., the use of some type of possessive marking

⁹It is assumed in Fortescue (1995) that Aleut-Inuit-Yupik did not start out with ergative nominal inflection, and that both Inuit-Yupik and Aleut have developed systems that are distinct from this original system. For more information on alignment change in Aleut, see Bergsland (1989).

¹⁰In studies of the Inuit-Yupik languages, REL refers to the relative case, which unites the ergative and possessive functions. The 3sg.SING suffix indicates that the possessee is a singular noun with a 3rd person singular possessor.

in the inflection of both) can ultimately explain how Chukotkan ergative case would have been generalized from its restricted context (in the perfect, with 3rd person agents) to the entire linguistic system. Under this account, Yupik speakers generalized their ubiquitous pattern of ergative marking to what was still a split ergative system in Chukotkan.

This spread was aided by the form of the 3sgA > 3sgO aorist in Chukotkan, which marks agreement with the portmanteau suffix *-nin* (from **nin(æ)*) and which phonologically resembles the 3sg object perfect suffix (and participial) form, *-lin* (from **lin(æ)*).

To summarize, the Yupik-based change would have proceeded according to the following trajectory:

1. Yupik speakers correctly recognized the perfect/possessive polysemy of the suffix **lin(æ)*
2. They noted that the 3sg pronominal form *ənan* was also a genitive, which constituted a parallel with their own ergative clause type
3. They misanalyzed the 3 > 3 aorist portmanteau agreement form **nin(æ)* as being possessive like **lin(æ)*
4. They generalized the ergative marking on the agent noun from its restricted context (the perfect) to the aorist, and ultimately to all tenses

4.3 Historical Yupik-Chukotkan contact: Evaluating the likelihood of substrate effects

There is a compelling surface similarity between the ergative clause forms of the two languages in question, as is the case in many proposals of systemic contact-induced change. However, this resemblance alone is not enough to motivate a contact-based explanation. In this section I consider the available sociohistorical evidence and linguistic facts that cast doubt on the existence of a Yupik substrate in Chukotkan.

4.3.1 Linguistic limitations of a possessive reanalysis

The first limitation of the substrate-based analysis is that it does not account for the morphological form of the case marking. While the pronominal ergative marker *-nan* may have a possessive origin, the same cannot be said of the ergative case for nouns (*-te* and *-e* for common nouns, *-ne* and *-rək* for high animate nouns). The substrate analysis also does not account for the syncretism between the ergative and instrumental cases for all nouns, which is commonly indicative of a passive origin.

It is also not clear that the 3sg ergative pronoun *ənan* has a straightforward possessive origin. While the link between ergative and possessive is unambiguous in Yupik, this is not the case in Chukotkan. In modern Chukchi, possessive and ergative marking are entirely distinct: possessive marking on both pronouns and full NPs is done through the suffixation of *-in(e)* (or *-en(e)*, with dominant vowel harmony). The full paradigm is given in Table 4.

Fortescue seems to reconstruct two separate possessive markers, a pronominal form and the suffixal **in(æ)*—if this analysis is correct, it may simply be the case that the modern possessive pronouns in Chukotkan are a more recent innovation. However, it is not clear that

Table 4. Possessive pronouns in Chukchi (Dunn 1999: 150).

	possessed		
	3sg	3pl	
possessor	1sg	gəmn-in	gəmn-ine-t
	1pl	murg-in	murg-ine-t
	2sg	gən-in	gən-ine-t
	2pl	turg-in	turg-ine-t
	3sg	ən-in	ən-ine-t
	3pl	ərg-in/əcc-in	ərg-ine-t/əcc-ine-t

Table 5. Pronouns in Itelmen (Bogoras 1922: 710).

	Personal Pronoun	Possessive Pronoun
1sg	kəmma	kəman
2sg	kəza	kənin
3sg	əna	ənan
1pl	muza	məzgin
2pl	tuza	təzhin
3pl	itχ	tχiʔin

the reconstruction of an additional possessive form **ənæ* is motivated, as it mainly relies on the existence of the Itelmen 3sg possessive pronoun *ənan*. Most of the rest of the possessive pronominal paradigm in Itelmen is likely based on **in(ə)* (see Table 5), which suggests that if an additional possessive form such as **ənæ* can be reconstructed, it would not have been part of a full paradigm. Thus, the link between the Chukchi 3sg ergative and the Itelmen 3sg possessive may be spurious.

4.3.2 Language contact and social dynamics in Chukotka

It is reasonable to assume that there are contact effects in the Chukotkan languages, but they are not necessarily consistent with a distant Yupik substrate. Siberia and the Russian Far East have historically been highly linguistically dense regions, and Chukchi in particular has been in contact with speakers of a diverse group of languages, including Yupik, Yukaghir, and Even (Fortescue 2003, de Reuse 1994, Forsyth 1992). We know that the Chukchis were a particularly resilient population, as they were perhaps the only indigenous population to resist complete submission to Russian colonizers and their demands for tribute in the form of sables and seal skins (Forsyth 1992). It is well-established that the Chukchis were a socially and economically dominant ethnic group in Siberia by the time they made contact with the Russians in the 17th century.

The origins of the Chukotko-Kamchatkan people (and whether they would have formed a cohesive ethnic group that originated in one geographic location) is still debated due

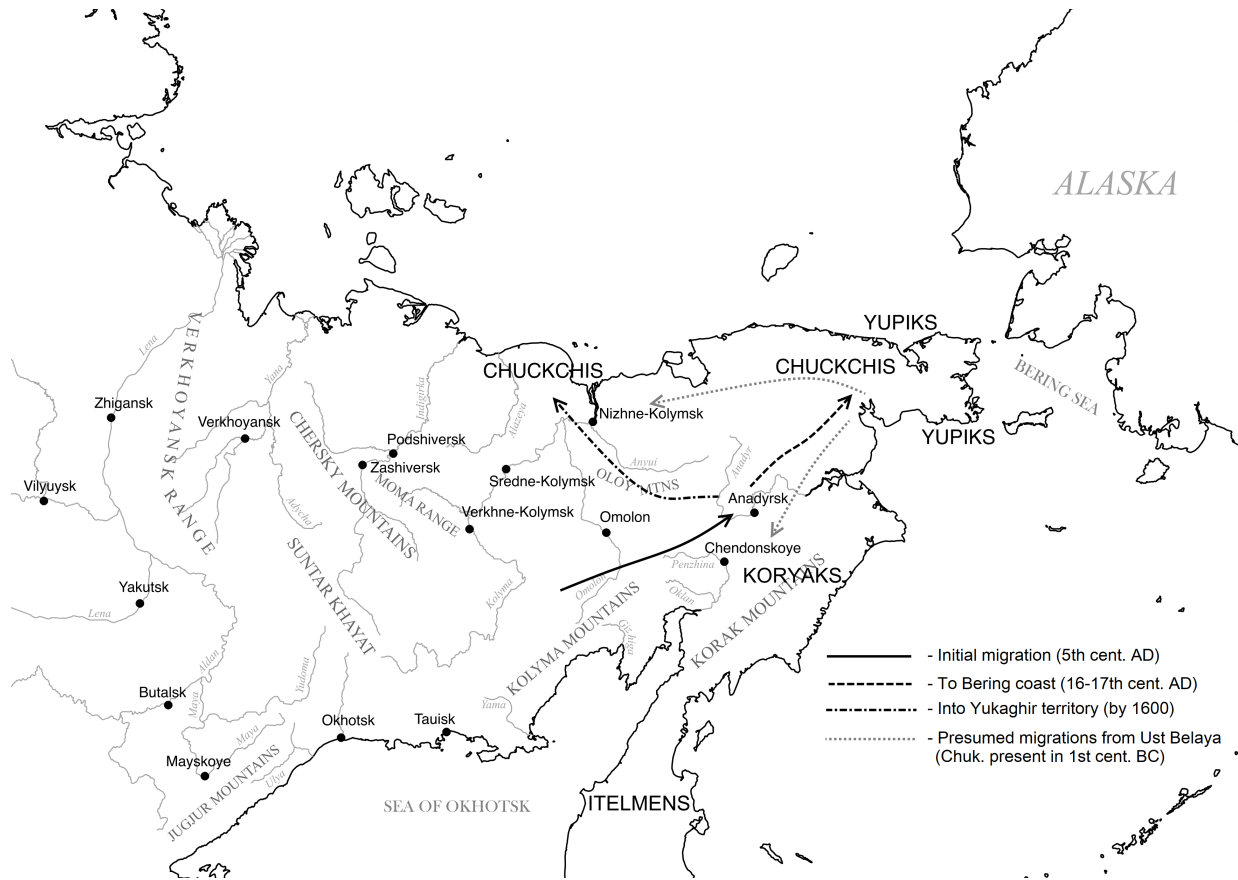


Figure 1. Chukchi and Yupik territory in 1600 AD, with comparative migrations.

to the dearth of archaeological and paleontological remains in the region. The commonly held account among archaeologists places the Chukotko-Kamchatkan homeland near the Sea of Okhotsk (Levin 1963: 210). There is little question of a common origin of the Chukotkans (namely, the Chukchis and the Koryaks), who have had very similar reindeer herding practices and resemble one another both genetically and physiologically. According to de Reuse (1994: 296), the Chukotkans migrated northeast through the tundra from this initial location, and did not arrive in the Anadyr River basin until the 4th or 5th century AD. This is based in part on evidence that the Chukotkans were initially hunters and later adopted the practice of reindeer herding from the more technologically advanced Evens to the west, which led to population growth as well as the need to seek out new pastures (Levin 1963: 206). (The Kamchatkans remained sedentary and are believed to have continued the hunting-based economy of the earlier Chukotko-Kamchatkans, over time spreading further south on the Kamchatka peninsula.)

From the Anadyr River, the Chukotkans spread and diversified: the Koryaks presumably traveled south into Kamchatka, while the Chukchis continued expanding west and northeast toward the coast. By the 17th century, a subset of the Chukchi population had made it to the Bering coast, where they displaced (or potentially absorbed) many of the Yupiks already living there (de Reuse 1994: 296). This spread has linguistic evidence in certain Chukchi

toponyms for villages along the coast, which have clearly been borrowed from Yupik (see Table 6).

Table 6. Yupik Village Names Borrowed into Chukchi (Krupnik & Chlenov 2013).

Yupik	Chukchi
Imtuk	Imtun
Egheghaq	Regian
Ugriileq	Wugrel
Avan	Ivunmon
Qiwaaq	Khyuven
Tasiq	Techin
Ingleghnaq	Ilkegen
Ungaziq	Unil
Napaqutaq	Nepyakhut
Kiginin	Khyignen
Nunak	Nunegnin
Nuvuqaq	Nōōkan
Mamruaghpak	Memerepen

This would suggest a fairly late stage of close Yupik contact, well after substrate effects should have diffused at the Chukotkan stage (and been retained in the daughter languages—Fortescue (1997) places the breakup of Chukotkan at about 1400 years ago).

Fortescue assumes a different timeline for Chukotkan-Yupik contact. Citing Dikov (1979), he claims that the Chukotkans were already present in the Anadyr River valley in the 1st century BC, and may have been part of the Ust-Belaya culture. The two competing accounts of Chukotkan migration and contact with Yupik speakers are outlined in the map in Figure 1. The arrows in black show the migrations assumed in this paper, while the gray arrows represent the expected migrations out of Ust-Belaya under Fortescue’s proposal.

The Ust-Belaya proposal appears to be based largely on claims that the skeletal remains of the Ust-Belayans have traits common to Chukotkans, Yukaghirs, and Yupiks (Dikov 1979: 154). However, other scholars have had different interpretations of the physical traits of these different groups, noting, for example, the significant differences in the appearance of coastal and reindeer Chukchis, which cannot be explained through genetic mixing between an initial Yupik-like coastal population and western tundra peoples (Levin 1963: 193). Overall, the early presence of Chukotkans along the Bering Coast seems to be a niche proposal among archaeologists and historians. It also does not explain the linguistic facts about the modern languages, especially the lack of any Yupik influence on Itelmen.

Unfortunately, we have little information about language use among the different groups the Chukchis encountered and assimilated. However, it is generally assumed that Chukchi was a lingua franca among the indigenous peoples of the region until it was supplanted by Russian during the Soviet era (Vakhtin 1998). Some evidence for this comes from documentation about the whaling economy in the Bering Sea. Chukchi was used for trade and

communication aboard whaling vessels manned by Yupiks, Russians, and Americans (de Reuse 1996). Chukchis generally spoke their own language with their trading partners, and prior to the arrival of the Americans, Yupiks apparently learned Chukchi, but not the other way around. The arrival of American whalers in 1846 changed the linguistic ecology of the Bering Strait area: Yupiks became the middlemen between the Americans and Chukchis, who in turn began learning some Yupik (de Reuse 1994).

Given Chukchi's prominent status, it is probable that many Yupik speakers acquired Chukchi. However, the extent of this acquisition is unclear, as is whether the Yupiks ever completely shifted to the Chukchi language. The social dynamics of the early contact between the Chukchis and the Yupiks do not lend support to a scenario of widespread language shift. There is evidence of multiple armed confrontations between the two groups during between the 12th and 16th centuries as the Chukchis increasingly encroached on Yupik territory, which is not consistent with a scenario in which Yupiks were simply absorbed into the Chukchi population during this era. Moreover, although the Chukchis continued to displace the Yupiks as they moved further to the northeast, intermarriage between the two groups was uncommon until the beginning of the 20th century (de Reuse 1994: 299), well after the time Fortescue's proposed substrate effects should have taken place.

It is also important to note that the Yupiks would have had the closest relations with the so-called maritime Chukchis, with whom they shared territory and vocations. The nomadic tundra Chukchis, who by 1934 still made up 71% of the overall Chukchi population (Forsyth 1992: 297-298), would have had comparatively less contact with the sedentary Yupiks on the coast. Historically, the Chukchis have also vastly outnumbered the Yupiks. These factors complicate the diffusion of Yupik substrate features: it is unlikely that a less populous speaker group, in contact with only a subset of the dominant group, would be able to effect a change at the level of the entire language.

4.3.3 Timing of the substrate effects: Chukotkan vs. Chukchi

The previous section alludes to another significant issue with a substrate explanation for the spread of ergative case in Chukotkan: almost all of the documented contact appears to have taken place between Yupik and Chukchi, not Chukotkan. In other words, there is no evidence of any Yupik-Chukotkan contact prior to the split of Chukotkan into its daughter languages.

In general, sources note the intense structural influence of Chukchi on Yupik (Dunn 1999, de Reuse 1994), often to the exclusion of other Chukotkan languages. Indeed, many of the diverse lexical borrowings present in Yupik (see (16) and (17) below) can be traced to Chukchi alone (de Reuse 1994: 342-343). Chukchi itself also displays some effects of contact with Yupik, while the other Chukotkan languages do not. (In fact, many other proposals for substrate effects in these languages point to Yupik-based changes in Chukchi, but not any of the other Chukotkan languages.) These facts are all suggestive of recent language contact between Yupik and Chukchi, not Yupik and Chukotkan.¹¹

¹¹These facts only fit with a scenario of distant Yupik contact if Chukchi is demonstrably more conservative than the other Chukotkan languages, which have changed so as not to show the effects of Yupik contact anymore, but have retained comprehensive ergative case marking. This is a much more convoluted explanation of the facts than the notion that Chukchi has undergone more recent changes.

4.3.4 Other demonstrable contact-based effects in both languages

Further evidence against a Yupik substrate in Chukotkan comes from the other likely contact-based changes in Yupik and Chukchi, which point to sustained bilingualism among Yupik speakers rather than linguistic shift. For example, Yupik has borrowed a number of Chukchi adverbial expressions and other particles (de Reuse 1994). These changes constituted a typological shift for Yupik, which had previously expressed these functions through verbal affixes and clitics (Comrie 1996).

(16) Chukchi adverbials borrowed into Yupik

Chukchi	Central Siberian Yupik (CSY)	English
<i>wenləgi</i>	<i>wanlegi</i>	“all the same”
<i>rəpet</i>	<i>repall</i>	“even”
<i>lureq</i>	<i>lwuraq</i>	“probably”
<i>enmec</i>	<i>enmis</i>	“already”
<i>ewər</i>	<i>iiwen</i>	“if”
<i>ənraq</i>	<i>enraq</i>	“but”
<i>ecenut</i>	<i>asanut</i>	“only if”

De Reuse (1994) gives an even more extensive catalogue of Chukotkan loans into Yupik. It is apparent that Yupik borrowed extensively from Chukotkan, across a variety of semantic domains. In addition to an enormous range of adverbial expressions and conjunctions, Yupik also adopted interjections and other discourse particles from Chukchi. For example:

(17) Chukchi interjections and discourse particles in Yupik

Chukchi	CSY	English
<i>aʔmən</i>	<i>amen</i>	“but come to think of it”
<i>ew</i>	<i>awi, awii</i>	“is that so?”
<i>əʔmto</i>	<i>emta</i>	“suppose, for a change”
<i>wiin</i>	<i>wini</i>	“aha!”
<i>kako, kokkoj</i>	<i>kaku</i>	“wow!”
<i>wetə</i>	<i>wata</i>	“furthermore”
<i>jəqqəj</i>	<i>yeqay</i>	“let’s do it!” (emphatic)

Many of the other Chukchi borrowings are for flora and fauna, but it is difficult to imagine that these represented new, previously unnamed concepts for the Yupiks, who had been living on the Bering coast for centuries longer than the Chukchis. Examples include *ulghaagh-* “sea lion” (from Ch. *oʔtleq*), *ivisa-* “flounder, halibut” (from Ch. *ewec*), *qughsatku-* “large polar bear” (from Ch. *qʔocatko*), and *tenuupa-* “silver fox” (from Ch. *tənuʔp* “blue fox”). Other content word borrowings represent abstract concepts: *gaymaawi-* “to be engrossed in what one is doing” (from Ch. *gajmawək* “to be carried away”), *kentate-* “to be successful” (from Ch. *kəntetək*), and *sisaawi-* “to guess or surmise” (from Ch. *cicewək*).

Chukchi has also borrowed from Yupik, though tellingly only material such as the toponyms mentioned earlier, and terms for flora and fauna (which would have been new for them), such as *puwreq* “beluga whale” (Dunn 1999). There also appear to be some borrowings specific to the trades that the Chukchis adopted when they made their way to the coast

(de Reuse 1994): *kupren* “net” (from CSY *kuuvragh-*), *menemen* “bait, lure” (from CSY *managh-*), *t²ejut²ej* “salt; sea water” (from CSY *taghyugh-*), etc.

If we consider Thomason and Kaufman’s 1988 model of language contact, the nature of the borrowings in Siberian Yupik is more consistent with a language maintenance scenario involving intensive contact with Chukchi, but not language shift. Language maintenance in intensive contact prototypically features extensive lexical borrowing and at least moderate structural borrowing—arguably the particles borrowed into Yupik, which prompted a restructuring of adverbial clauses, fit this description. (The borrowing of Chukchi particles has also apparently resulted in fewer productive postbases in Central Siberian Yupik compared to the other IY languages—see de Reuse 1994, ch. 6.)

In general, de Reuse presents a very different account of the intensity of contact between Yupik and Chukchi in the 18th and 19th centuries compared to what is presumed by Fortescue. Documentation in the whaling community from this era points to the existence of several trade jargons which are not unlike pidgins. Of particular interest is a Yupik-based jargon with heavy Chukchi lexical influence, likely used by Yupik speakers with Chukchis as well as other IY groups (de Reuse 1994: 329).

Drawing again on Thomason & Kaufman’s model, a contact scenario in which there emerged a Yupik trade jargon heavily influenced by Chukchi is not consistent with a language shift scenario that would have produced Yupik substrate effects. In these communities, it is clear that the Yupik speakers did not have complete access to Chukchi, or else there would have been no need for a Chukchified Yupik jargon to use in trade.

4.3.5 Scope of substrate effects

There are also limited proposals for substrate effects in Chukotkan besides the one already considered here. Substrate effects are unlikely to impact such a narrow part of the grammar, but there is little evidence of other deep structural changes influencing Chukotkan (that is, changes which are shared among the daughter languages). Of course, it is possible that some of these substrate effects have vanished in the Chukotkan languages which were subsequently in contact with languages besides Yupik, but even in Chukchi—which has had intense recent contact with Yupik—there are few features which can be attributed to a substrate.

Most linguists who focus on this linguistic area note that the effects of Chukchi on Yupik have been much greater than the other way around (e.g., Dunn 1999, de Reuse 1994, Volodin 1992). Fortescue’s (1997) paper presents the most extensive arguments for the reverse scenario, that Yupik has had a profound influence on the Chukotkan languages. In addition to his proposal about ergativity, Fortescue also notes that Yupik substrate influence has been claimed for the reduction of Proto-Chukotko-Kamchatkan five-vowel system to a three-vowel system (plus schwa) in Kerek and Alutor (Vdovin 1961: 39). However, Zhukova (1978: 82) dismisses this claim, proposing instead that the vowel reduction was an independent innovation in these languages, as it also occurred in Koryak, where Yupik contact is highly unlikely based on the geographic distribution of the languages.

Fortescue (1997) also proposes that Chukchi failed to develop a dual/plural distinction due to Yupik contact. In Proto-CK, *-t* was a plural morpheme and there was likely no dual. In Koryak, Kerek, and Alutor, which have historically had less contact with Yupik than Chukchi, *-t* developed into a dual and separate plural forms were innovated. Fortescue

argues that in Chukchi, plural *-t* was reinforced by contact with Yupik, which also marks plurality with *-t*. As a result, Chukchi did not undergo the plural to dual change for *-t* like its sister languages (and did not innovate another type of dual, maintaining its two-way number distinction). This may be a plausible explanation of the lack of a dual in Chukchi, but still, it does not point to a deep substrate in Chukotkan.

The overall question of the degree of Chukotkan-Yupik contact is a complicated one, dogged by the limited historical information about the populations prior to the arrival of the Russians in the 17th century. Certainly, there has been intense contact between Chukchi and Yupik in the last 200 years. But by and large the nature of this contact is not the sort expected to produce substrate effects.

Still, it is not possible to rule out more distant contact effects entirely. It may indeed be possible that Yupik contact reinforced the type of ergativity Chukotkan had already independently innovated. The notion of ‘multiple causation’—that a linguistic change can arise from a variety of both internal and external pressures—has been well-established in other languages (see Malkiel 1967, Joseph 2013, De Smet et al. 2015). What is important to observe in Chukotkan is not that contact with Yupik was impossible, but that an early Yupik SUBSTRATE is doubtful and does not by itself account for the scope of ergative case: additional changes must have taken place to account for the spread of ergative case and to explain the ergative-instrumental syncretism.

4.4 A language-internal explanation for the spread of ergative case in Chukotkan

The source of the instrumental-based ergative marking may lie in a passive participial construction that is still used in the Chukotkan languages. (In Chukchi, this form is also interpreted as a straightforward passive.) In addition to the *ge-* *-lin* form we saw earlier, which could combine with both verbs and nouns, Chukchi has two types of participles that are formed on verbs only: (1) those formed with the suffix *-lʰ*, and (2) those formed with the suffix *-jo*.

The participle *-lʰ* is the more productive of the two, as we can see in the following summary (from Dunn 1994: 55):

(18) Chukchi nominal participles

participle type:	suffix:	stem valency:	focus:
active (positive/negative)	<i>-lʰ</i>	intransitive	S
antipassive	<i>-lʰ</i>	antipassivized transitive	S (< A)
passive (negative)	<i>-lʰ</i>	transitive	O
passive (positive)	<i>-jo</i>	transitive	O

More generally, the *-lʰ* participle relativizes on S when the verb is intransitive (or monovalent), and on O when the verb is transitive (or bivalent). The following is a typical example of the active *-lʰ* participle with an intransitive (Dunn 1994: 57):

- (19) [tɛjkawə-lʰ-əjɲ-ən aʰacek-əjɲ-ən] qənvɛr əmə pɛnʰiwet-gʰi
 fight-PTCP-AUG-ABS boy-AUG-ABS finally also get.tired-3sg.S

“[The big boy who was fighting] finally got tired.”

These participles are formed through the suffixation of $-l^p$ or $-jo$ and the appropriate case marker from the class of common nouns ($-\partial n$ for ABS.SG with $-l^p$, but $-\emptyset$ with $-jo$). When the participle is used to refer to a 1st or 2nd person argument, the participle is instead marked with a pronominal suffix, which is equivalent to stative agreement marking. (This pattern is not unique to participles; other nouns, such as demonstratives, can also be marked for non-3rd person.)

(20) Pronominal absolutive suffixes (and stative agreement) (Dunn 1999)

1sg: $-ig\partial m$, $-jg\partial m$ 1pl: $-muri$
 2sg: $-ig\partial t$, $-jg\partial t$ 2pl: $-turi$

There is an interesting asymmetry in the distribution of the two participles. $-l^p$ is only used in the formation of the NEGATIVE passive participle. To form a positive passive participle, speakers must use $-jo$.

Constructions with the jo -type participle are precisely those which may have resulted in the development of instrumental-based ergative case-marking in Chukotkan.

The typical use of the passive participle can be seen in the following example:

(21) $q\partial nver$ [$j\eta a$ - jo - ta] $l^p u$ - nin $n\partial mn\partial m$
 finally carry-PTCP-ERG see-3sgA.3sgO village.ABS
 “Finally [the one who was being carried] saw the village.” (Dunn 1994: 56)

It is also possible to express the agent of the passive participle, using the instrumental case:

(22) $g\partial m$ - nan $g\partial t$ $q\partial np\partial$ [$ket^p o$ - jo - $jg\partial t$]
 1sg-INST 2sg.ABS always remember-PTCP-2sg.ABS
 “I remember you all the time” (“you are [the remembered-one-by-me]”) (Dunn 1994: 56)

The case marking on the 1sg pronoun must be understood as instrumental and not ergative, because the participle is being used predicatively here (requiring only one argument, the 2sg pronoun).

This construction presents a promising link between the ergative and instrumental in Chukchi, as there is an instrumental-marked noun serving as the agent of a passivized verb. There are several possibilities for how an instrumental > ergative reanalysis may have taken place in this context.

The first is that $-jo$ may be a remnant of an earlier, verbal passive that was adopted for the participial function. Given the asymmetry of the participle system, it is likely that $-jo$ has a distinct origin, or that the current participle system represents a merging of multiple historical systems. It seems unlikely that $-jo$ would have been innovated specifically for the positive passive participle function, as it is essentially redundant marking: given that the participles are understood to relativize on O in transitives and S in intransitives, and that negation is expressed through additional marking on the $-l^p$ participle, there is no ambiguity that the introduction of $-jo$ resolves.

In order to evaluate the potential origins of *-jo*, it is necessary to consider the facts about the only available example of Kamchatkan, Itelmen. Was *-jo*, as well as the rest of the participle system, inherited from Proto-Chukotko-Kamchatkan?

Fortescue (2005: 411) suggests that a passive participial **-jo* can in fact be reconstructed to Proto-Chukotko-Kamchatkan, on the basis of the following reflexes in the modern languages:

- (23) Chukchi: *-jo* “passive participle”
 Kerek: *-ju* “passive participle”
 Koryak: *-jo-n* “one to be -ed (in future)”
 Alutor: *-ju* “passive participle”
 Itelmen: the “1st infinitive” (*-s/z* on trans. stems, or *-es* on consonantal stems and *-kas* when combined with conjugation marker *-ki-*)

It is clear that *-jo* is shared among the Chukotkan languages and can at least be reconstructed to Proto-Chukotkan. The Itelmen case is less transparent, in part because of the extensive phonological changes it has undergone compared to Chukotkan. There are other apparent instances of a **j > s* change in the dictionary, so **-jo > -s* is a possible change. However, the behavior of the form in Chukotkan and Kamchatkan differs substantially. There is limited information about nominal participles in Volodin’s (1976) grammar of Itelmen, but the first infinitive does not appear to have a passive function when it is used as a verbal form. The link to the Chukotkan passive participle is most apparent in its use as a nominalizer in certain cases, such as *novat̚e-s* “food” from *novat̚e-* “want to eat” (1976: 284).

Instead, there is another nominalized verb form in Itelmen that is worth considering within this system, the “second infinitive” *-ki-t̚χ* (1976: 289):

- (24) a. *č’amzan’-t̚χ* “person”
 b. *t’i-t̚χ* “guest”
 c. *k’ot̚-ki-t̚χ* “(one who) comes”
 d. *vetat-ki-t̚χ* “(one who) works”

Volodin suggests that the *-t̚χ* marking on these forms is a historical remnant of some type of nominal inflection that is presently only apparent in two nouns, “person” and “guest”. However, this form also seems to function as a nominalizer on verbs. There is also a phonological resemblance between this Itelmen nominal marker, *-t̚χ*, and the main Chukchi nominal participle, *-l̚ʰ*.

If there is a common origin of these two infinitives in Itelmen and the participles in Chukotkan, it may confirm that the full participle system existed in proto-CK. However, the first infinitive in Itelmen does not have the same productive passive usage as Chukotkan *-jo*. Thus, the passive participial use of *-jo* represents either a Chukotkan innovation or a retention from proto-CK that was lost in Itelmen, which could explain why the development of ergative marking was restricted to Chukotkan.

If we assume that *-jo* was originally a simple passive in Chukotkan, then the change proceeds in an uncomplicated fashion via the passive route:

- (25) you.NOM I.INST remember.PASS > I.ERG you.ABS remember.ACT
 “You are remembered by me.” > “I remember you”

This type of change requires us to assume that *-jo* was eventually lost, as it does not appear in any modern Chukchi active verbal paradigm. We must also account for argument marking on the participle. In the case of 1st and 2nd person participles, this is fairly straightforward.

Let us examine the 2sg inflection on the participle in (22), *ket^ʔo-jo-jgət* “you the remembered one”. This suffix, *-jgət*, is already identical to stative verbal agreement. It also closely resembles the verbal agreement suffix for 2sg O, *-gət*, across all active transitive paradigms.

Consider another example:

- (26) *əməl^ʔo-rə-k [rətəjat-jo-more]* *qənvər mət-ekwen-mək*
 all-PL-INST forget-PTCP-1pl.ABS finally 1pl-set.off-1pl.PRF
 “[We-the-forgotten-by-everyone] finally set off” (Dunn 1994: 56)

Similarly, the 1pl marking on the participle is equivalent to stative verbal agreement: 1pl O *-muri* (vowel harmony produces *-more*).

Thus, perhaps this marking was initially true verbal agreement marking that was later reanalyzed as case, when *-jo* became a participial rather than a simple passive. This scenario is potentially supported by the fact that these forms are also understood as simple passives in modern Chukchi.

The second possibility for how the *-jo* participle could have led to the innovation of ergative marking is if a reanalysis much like the one that occurred with the perfect/possessive participle form *ge-* *-lin* took place with the passive *-jo* participle.

In this case, we do not need to stipulate the existence of an earlier simple passive usage of *-jo*, and the change can occur via a slightly different version of the possessive pathway, where the form that becomes ergative is an instrumental rather than a genitive. This scenario may make sense as an analogic change brought on by the passive participle’s structural resemblance to the possessive/perfect construction.

- (27) I.INST you.NOM remember.PTCP > I.ERG you.ABS remember.ACT
 “You are the one remembered by me” > “I remember you”

Unlike in the case of the possessive participial > perfect change that served as the first phase of ergative case development, the form of the passive participle is not identical to an active or stative verb form—again, we must assume that *-jo* was eventually lost. Alternatively, we can posit that the sole lasting result of this reanalysis was the change in case marking, but that there was not necessarily a corresponding change whereby passive marking became active marking. Instead, the resemblance between participle inflection and the existing verbal object agreement suffixes facilitated the reanalysis of the oblique argument as a transitive subject.

A final possibility for how this construction could have been reanalyzed is with an instrumental argument and zero-marked subject. The participle and the instrumental-marked agent could have been reanalyzed as a complete active transitive clause due to the possibility of argument drop in Chukotkan. Therefore in an example like (26), “we-the-forgotten-by-everyone” could have actually been reanalyzed as “everyone forgot us”, with a missing external object NP.

- (28) forgot.1PL.ABS everyone.INS \emptyset (we.ABS) > forgot.1PL.AGR \emptyset (we.ABS) everyone.ERG
 “we-the-forgotten by everyone” > “Everyone forgot us”

Again, this change is possible because of resemblance between the stative agreement suffix for the 1pl object and the 1pl inflection on passive participles.

Finally, following a reanalysis of one of these three types (which would have initially involved 1st and 2nd person objects), the instrumental-ergative syncretism would have been projected onto constructions involving 3rd person objects, which have reduced participle morphology:

- (29) *ətləg-a mət-jo jatjol*
 father-INST kill-PASS.PTCP fox.ABS
 “the fox that was killed by the father” (= “The fox was killed by the father”)¹²

It is difficult to adjudicate between these three pathways, as they all rely on assumptions about *-jo*—that this suffix may have had additional functions that are no longer apparent in the modern languages, and that there are reasons why *-jo* is not present in any active verbal paradigm. Given that Itelmen provides the only non-Chukotkan input for the reconstruction of proto-CK, it is likely that there are many forms whose origins have been obscured by losses or innovations in Itelmen (whose speakers had largely shifted to Russian by the time it was seriously documented).

Nevertheless, there is no other apparent passive (or instrumental) source for the ergative case in Chukotkan. While a possessive participle-based reanalysis is likely responsible for the emergence of ergative case, and may have even been reinforced by Yupik contact, there must have also been a passive-based change to account for the actual form of ergative case.

4.4.1 The role of animacy encoding: Two sources of ergative case?

Discussions of major typological shifts in a language, such as a change in alignment, are often couched in discussions of motivation for the change. Fortescue argues that the motivation for the rise of ergativity in Chukotkan is contact, which is apparent in the typological peculiarity of the overall Chukotkan alignment system.

As I argue in the following section, contact itself must be motivated. It is also not the simplest explanation for why the changes in Chukotkan may have taken place—rather, the development of agent-specific case marking in Chukotkan can simply be seen as the result of the overall tendency of these languages to emphasize animacy distinctions. This tendency is active in all of Chukotko-Kamchatkan, but may have developed further in Chukotkan.

Evidence for this comes from the fact that the pattern of inverse marking is also operating to a lesser extent in Itelmen (Comrie 1980). Recall that the Chukotkan animacy hierarchy is the following:

- (30) 1st person > 2nd person > 3rd person singular > 3rd person plural

In Chukotkan, the inverse associated with a 3rd person A acting on a 1st or 2nd person O (or 3pl A acting on 3sg O) is *ne-*. Comrie argues that this *ne-* inverse is present in the

¹²This example comes from my own fieldwork.

Itelmen verbal paradigm as well. Recall from Table 2 that agreement prefixes in Itelmen align completely for A/S, *except* in the case of 3pl realis, where we find *n-* for the subject of a transitive and \emptyset - for the subject of an intransitive. This *n-* prefix can be analyzed as the *ne-* inverse, operating within a smaller domain of the hierarchy: cases in which there is a 3rd person plural transitive subject (only with the lowest member).

Thus, the manifestation of an animacy hierarchy through inverse morphology can be viewed as a family-wide phenomenon that was already in place before the Chukotkan and Kamchatkan branches went their separate ways.

Understanding why Itelmen *n-* is actually a shared CK inverse marker requires some discussion of how inverse morphology most likely developed in these languages. Chukotko-Kamchatkan inverses have a clear link with valency-changing operators, e.g. passive and antipassive morphology (Fortescue 1997, Comrie 1980). Fortescue claims that the general inverse, *ne-*, derives from an earlier passive in Chukotko-Kamchatkan, which he reconstructs as **næ*. (This form has been lost in Chukotkan, which only expresses passives using the *-jo* participle.) Itelmen, however, does have a passive, which is formed using the *n-* marker Comrie claims is actually an inverse. Passive formation in Itelmen is illustrated in the following examples (Volodin 1992):

- (31) a. *Isx p'eč aŋčp-nen*
 father.ABS son.ABS taught-3sgA.3sgO
 “The father taught the son” (active voice)
- b. *P'eč n-aŋčp-čen isx-enk*
 son.ABS PASS-taught-IMP father-LOC
 “The son was taught by the father” (passive voice)

The link between the other Chukotkan inverses and antipassive morphology is far less ambiguous. Examples (32-33) contain two typical examples of the antipassive in present-day Chukchi (Comrie 1979). (Note that *-tko* is a harmonic variant of *-tku*.)

- (32) a. *kejŋ-e penrə-nen umqə*
 brown.bear-ERG attack-3sgA.3sgO polar.bear.ABS.SG
 “The brown bear attacked the polar bear.” (active voice)
- b. *kejŋ-ən penrə-**tko**-[?]e*
 brown.bear-ABS.SG attack-ANTIP-3sgS
 “The brown bear attacked.” (antipassive voice)
- (33) a. *jemronə-na qərir-ərkən-in ekək*
 Yemron-ERG seek-PROG-3sgA.3sgO son.ABS.SG
 “Yemron is seeking his son.” (active voice)
- b. *jemron ine-lqərir-ərkən akka-gtə*
 Yemron.ABS.SG ANTIP-look-PROG son-DAT
 “Yemron is searching (for his son).” (antipassive voice)

The relationship between these forms and the inverse markers (*ine-* for 1sg O, *-tku* for 1pl O) is obvious, as they are identical in form and behavior (*ine-* is prefixed to the verb and *-tku* is suffixed, just as in inverse agreement).

The relationship between passive/antipassive and inverse morphology seems fairly straightforward. Valency-changing operations are ways of demoting a core argument, which is exactly what the inverse achieves in Chukotkan agreement (it eliminates verbal agreement with an agent, in cases where the agent is outranked by the object of the verb).

Although the passive-derived inverse must be fairly old (it has reflexes in both branches), the antipassive and the related inverse forms are more likely an innovation in the Chukotkan branch. Volodin (1992) notes that Itelmen does presently have an antipassive (formed with the prefix *an-*), but that it is likely to be a more recent borrowing from Koryak or Chukchi.

The idea that some kind of passive must have contributed to the development of ergative case in Chukotkan is also consistent with my claim that the development of alignment patterns in Chukotko-Kamchatkan stems from a primary motivation to maintain animacy distinctions. Recall that animacy/person-based ergative splits tend to coincide with passive-based ergativity. Dixon (1979) and Coghill (2016) both explain this in terms of the likelihood of different arguments' serving as agents. In discourse, speech tends to be oriented around speech-act participants, where the speaker is often the center of discourse, and most likely to be in the agentive role. The second most likely agent is the interlocutor, then 3rd person humans, then individuals distinguished by name, and finally other humans referred to with common nouns and other nouns along a decreasing animacy cline (e.g., animals through inanimate objects) (Dixon 1979: 85). Dixon represents this through a 'potentiality of agency' scale, replicated in Figure 2.

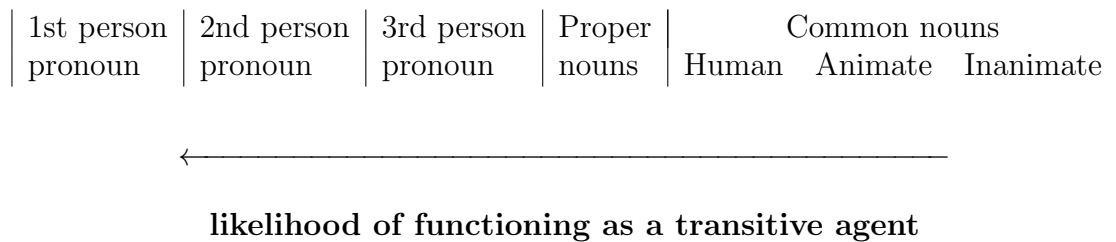


Figure 2. Potentiality of agency scale (Dixon 1979: 85).

While the Chukotkan languages do not manifest a noun-based ergative split in case marking, they do make a distinction between pronominals and all other nouns, since pronouns have an ergative case that is distinct from that of other nouns in the same declension class. (Otherwise, pronominal case marking is identical to that of the class of common nouns.) One way of accounting for the exceptional case marking on ergative pronouns is to posit that the passive reanalysis only involved an instrumental > ergative change on full NPs, which are more likely to be obliquely marked when in an agentive role. Thus, the initial possessive participle reanalysis in Chukotkan may have indeed involved possessive marking on the 3rd person pronoun, as Fortescue (1997) suggests. Under this analysis, non-pronominal arguments derived their ergative case from an instrumental (since it is likelier that passives rather than active verbs would have been used whenever these nouns were in the agentive role), while the possessive-derived *-nan* form was preserved elsewhere (that is, with pronouns, which are more likely to function as transitive agents).¹³

¹³It is interesting to note here that the possessive-based change appears to have applied to those arguments

5 “Ergativity” as a contact feature

The Chukotkan case study illuminates several broader issues in studies of linguistic contact and historical linguistics: what types of features are considered to be transmissible through contact, and what should be considered sufficient evidence for the possibility of contact-induced change.

While it does seem that Proto-Chukotko-Kamchatkan likely exhibited neutral or nominative-accusative alignment to begin with, it is not the case that this is in any way a more natural pattern than the ergative system that ultimately developed in Chukotkan. The assumption that Proto-CK was initially not ergative is consistent with the available reconstructions and some of the other apparent morphosyntactic changes in the languages. However, the reverse scenario, that Proto-CK began as ergative and core case distinctions were collapsed in Kamchatkan, is also possible. There is no sense in which either system is more basic or innate to these languages.

Indeed, alignment changes of the type discussed in this paper—changes in core case marking—are common in the world’s languages, with some languages undergoing multiple alignment shifts over time. Nevertheless, the development of ergative features in a language is often treated as a pattern that must be motivated. The fact that the Chukotko-Kamchatkan system of verbal agreement does not appear to have been ergative to begin with is cited in Fortescue 1997 as a reason why the Chukotkan ergative clause is typologically unmotivated and cannot be accounted for through family-internal changes. However, it is not clear that ergative restructuring of case assignment requires a change to the alignment of the verbal system. Certainly, a split between nominal and verbal alignment is a stable synchronic pattern in languages of the world. There are many attested languages which have ergative alignment for noun marking but a different alignment system for agreement marking on the verb. Some representative examples include Lezgian (neutral verbal marking), Kewa (active verbal marking), and several Trans-New Guinea languages (accusative verbal marking) (see: WALS chapters 98A and 100A and the corresponding maps (Comrie 2013, Siewierska 2013)).

Still, Chukotkan presents a challenge to typological literature that attempts to categorize ergative languages based on the source of their ergativity (e.g., Trask 1979), and to the overall tendency to describe a language’s ergativity as being derived from a single source. But it is not clear that this in and of itself constitutes evidence for contact-based interference. Typological rarity is compelling in discussions of contact for cases where two unrelated languages both share the same typologically unmotivated pattern, and would have been unlikely to separately innovate the pattern. This is not the case with Yupik and Chukotkan. Although there is a resemblance between the structure of the Yupik and Chukotkan transitive clauses, the initial ergative reanalysis in Chukotkan could have easily occurred without pressure from Yupik. The two languages independently innovated their ergative clause structure through

that are actually more likely to function as a possessor—those that are higher on the scale of agency. The changes in Chukotkan give the impression of two possible types of person-based ergative splits. This pattern is probably a coincidence resulting from the limited scope of the instrumental-based change, rather than the result of a possessive-based change that acted exclusively on pronominal arguments, since such a pattern is not borne out cross-linguistically. Still, it is possible that agency potentiality may affect which types of arguments are reanalyzed in all possible avenues for case marking change, and this may be a fruitful area for future work.

the same, typologically common means (reanalysis of a possessive participial), producing systems that are fairly distinct from one another.

It is also worth discussing whether the claims about the typological markedness of Chukotkan are warranted. The literature on Chukchi has focused on the ambiguous nature of the alignment system in the language, pointing to the position-conditioned ergative split in verbal agreement affixes (nominative prefixes, absolutive suffixes) and a number of syntactic criteria which alternately suggest both ergative and accusative alignment. There is one aspect of Chukchi syntax that is obviously organized on an ergative-absolutive basis: the negative passive participle, which can relativize on either S or O, but not A (Comrie 1979):

- (34) a. *[e-tip² ejje-ke-l²-in]* *ŋewəcqet* *ragtə-g²e*
 NEG-sing-NEG-PTCP-ABS.SG woman.ABS.SG go.home-3sg
 “[The woman who was not singing] went home” (“the not-singing woman”)
- b. *igər [a-jo²-kə-l²-etə]* *enm-etə mən-əlqən-mək*
 now NEG-reach-NEG-PTCP-DAT hill-DAT 1pl-go-1pl
 “Now let us go to [the hill which (someone) didn’t reach]” (“the not-reached hill”)

According to other syntactic diagnostics, the language patterns accusatively. The mismatch between morphological and syntactic ergativity is a completely regular pattern in the world’s languages—in fact, it is rare to find languages that are completely ergative (Dixon 1979). Languages are also not always consistent across the multiple ways they encode alignment, such as form and position (Bickel et al. 2013). Thus, even the positional split ergativity of the verb is not typologically unexpected.

Issues such as the typological markedness and borrowability of ergative features are further complicated by the tendency to discuss ergativity as a singular phenomenon in a language, where languages are ergative or not based on certain diagnostics: consider “degrees of ergativity” in Chukchi (Nedjalkov 1979, Comrie 1979), “how ergative is Basque” (Arrieta et al. 1986). In studies of language contact, this has resulted in proposals where ergativity itself is borrowed or treated as an areal feature. This topic is explored in detail by Tuite (1999) for the case of the Caucasus. The Caucasus has been argued to be a Sprachbund on the basis of three criteria—one of these is ergativity, which is present to some extent in all of the indigenous languages. But Tuite notes that these languages are ergative in a variety of ways: verbal cross-reference (Northwest Caucasian), case marking (Northeast Caucasian), or a combination of the two with numerous ergative splits (South Caucasian). All of these patterns are consistent with typological tendencies in ergative marking across all languages and can easily be explained as features that developed independently in the different groups. The presence of ergativity is itself not a borrowable feature; the fact that two languages both have ergative patterns is not necessarily evidence of contact.

Thus, we must be careful not to exoticize ergativity and assume it is a pattern that is more likely to arise via contact than through family-internal change. Contact is sometimes invoked as a diagnosis of exclusion when a linguistic change is difficult to account for via well-attested tendencies; however, contact-based change must always be motivated by the linguistic and sociolinguistic evidence, including at distant time depths. The social circumstances by which

languages come into contact (and the types of linguistic changes that different social settings are likely to produce) have been well-studied in more recent contact scenarios, for which we are more likely to have social and demographic information. Language contact models such as the one proposed by Thomason & Kaufman (1988) provide robust generalizations about the sorts of changes that can be expected from either language in a particular contact situation. Therefore, it is not enough to stipulate contact based on the possibility that two speaker populations overlapped geographically, or even on the fact that they share certain atypical features: it is also necessary to evaluate whether the nature of their social interactions was of the type that is known to produce the change under discussion.

6 Conclusion

This paper has aimed to provide a new analysis of the rise of ergative case marking in Chukotkan and to reevaluate the status of ergative case within the alignment system of the language as a whole. It is not the case, as has been previously argued, that Chukotkan is typologically unusual and has entirely independently-motivated alignment systems in verbal agreement and case marking; while these systems developed separately, they nevertheless developed according to the same tendency to encode animacy relations. This paper has also challenged the prevailing account of the spread of ergative case to non-perfect tenses, arguing that Yupik substrate effects in Chukotkan are unlikely and that an entirely language-internal account (reanalysis of passive participials) is available.

The Chukotkan ergativity case study is illustrative of several broader linguistic issues. First, it challenges certain commonly held assumptions about the nature of ergativity cross-linguistically, and how ergativity arises. While synchronic facts (such as types of ergative splits and case syncretisms) can be used to diagnose a probable reanalysis, we may not wish to assume that a single change can explain an alignment change, or that languages can be categorized on this basis.

Similarly, it is important to recognize that reanalyses that produce alignment change occur in the context of a broader system that may also be undergoing change. Although Chukotkan ergativity arose via several reanalyses, these were not necessarily isolated phases in the language's development: it is possible that subsequent changes were motivated by analogy with the first reanalysis. It is also impossible to entirely rule out the effects of contact with other Siberian languages, which likely did not drive the Chukotkan change but could have reinforced changes already taking place. Therefore it is more appropriate to analyze Chukotkan ergative case as resulting from a variety of system-wide pressures, not simply being a product of reanalysis pathways.

The Chukotkan case study also demonstrates how we can go about rigorously testing claims of contact-induced change. The types of changes that result from linguistic contact have been well-studied in more recent settings, and it is possible to evaluate the likelihood and extent of a contact-based change by referencing tendencies in these established cases. Specifically, it is necessary to consider the typological regularity of such a change, the probability of contact between speakers at the right time in history, the social intensity of the contact, and how other established contact effects fit in with the prototypical changes that are expected of a proposed scenario. Existing proposals that explain ergativity as resulting

from contact should be considered in light of these factors.

Acknowledgments

I am very grateful to Lenore Grenoble and Karlos Arregi, who provided extensive comments on earlier versions of this paper. I have also benefited greatly from discussion with Brian Joseph, who read an earlier draft. I'd also like to thank Victor Friedman for his comments on a presentation of this topic, which influenced its theoretical development, and Rafael Abramovitz, who corrected some of the data and pointed out clarity issues in an earlier analysis. Thanks are also owed to the participants of the conference "Language Contact in the Circumpolar World" in October 2017 in Moscow. Credit for the map used in this paper is owed to Carmen Caswell, the Digital Humanities Research Liaison at the University of Chicago. Finally, I'd like to thank the three anonymous reviewers as well as the editors for their painstaking feedback. My fieldwork on Chukchi was funded by the NSF (BCS #1761551).

Abbreviations

ABS = absolutive

ACC = accusative

ACT = active

AGR = agreement

ALL = allative

ANTIP = antipassive

AUG = augmentative

A/S/O = agreement with transitive subject (A), intransitive subject (S), and direct object (O)

DAT = dative

ERG = ergative

GEN = genitive

IMP = impersonal

IND = indicative

INST = instrumental

IRR = irrealis

LOC = locative

NEG = negation

NOM = nominative

OBL = oblique

PASS = passive

POSS = possessive

PRF = perfect

PROG = progressive

PTCP = participle

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Author's address

Jessica Kantarovich
 Department of Linguistics
 1115 East 58th Street
 Rosenwald Hall, Room #224

Chicago, Illinois 60637
jkantarovich@uchicago.edu