

**INCORPORATION AS A GRAMMATICALIZATION PATHWAY:  
CHUKCHI INCORPORATING MORPHOLOGY IN AREAL  
PERSPECTIVE**

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*Abstract*

In addition to canonical noun incorporation, Chukchi exhibits other kinds of incorporating morphology that are consistent with polysynthesis but have seldom been considered as part of a unified morphological phenomenon. This paper examines different patterns of incorporation in Chukchi across time and asks: what are the useful loci of variation for typological comparison, how do these distinct patterns emerge diachronically, and how do these features spread in contact? I consider the existing documentation of Chukchi from the early 20<sup>th</sup> century through the present, including modern data which exhibits some novel patterns. Consistent with previous investigations of Chukchi in contact (Bogoras, 1922; de Reuse, 1994; Pupynina and Aralova, 2021), I demonstrate that the effects Chukchi has had on other languages is greater than the reverse: many morphological phenomena in Chukchi are internally-motivated and emerge from speakers' reliance on incorporation as a discourse strategy. Specifically, I provide a unified analysis of incorporation across the

nominal and verbal domains, valency-changing derivational morphology, and inflectional morphology built on the morpheme *-in(e)*, which I argue functions as a generic underspecified noun in the language. In the realm of language contact, I propose a cline to model patterns in the borrowing of derivational phenomena like incorporation, and present shared patterns in Chukchi, Central Siberian Yupik, and Even which support this cline. Finally, I examine data from Chukchi as it is spoken today and argue that the historical linguistic ecology of northeastern Siberia has made it possible for incorporation to remain highly productive even with significant shift to Russian.

### Keywords

Chukchi (Chukotko-Kamchatkan), Yupik (Inuit-Yupik), Even (Tungusic), Yukaghir, incorporation, nominalization, language shift, Siberia

### Abbreviations

A – transitive subject agreement; S – intransitive subject agreement; O – object agreement; ACQUIS – acquisitive; ADD – additive; ASP – aspectual marker; ASS – associative; AT – attributive; AUG – augmentative; DEICT – deictic; HAB – habitual; INESS – inessive; INTS – intensifier; INV – inverse; ITER – iterative; PERL – perlocative; PROPR – proprietive; QUAL – quality; RELAT – relational; REST – restrictive; SEQ – sequential; VBLZ – verbalizer

### 1 Introduction: What is incorporation?

Among the languages of northeastern Siberia, the Chukotkan languages are particularly well-known in both typological/functionalist and formal/generative approaches to syntax thanks to their incorporating morphology. These languages—of which Chukchi is the largest and best-studied member—display a canonical kind of noun incorporation that is extremely syntactically consistent as well as highly productive, and therefore serves as a useful prototype for what the phenomenon of “incorporation” looks like in its most uncomplicated form. In Chukchi (as well as the closely-related Koryak, Alutor, and Kerek), any transitive verb can incorporate its direct object, producing a syntactic reconfiguration of the clause either by detransitivizing the verb, or else rearranging the argument structure of the verb by raising an oblique argument to the grammatical position vacated by the incorporated object noun.



accusative; the verbal prefix agrees in person and number with the subject and the verbal suffix agrees in person/number with the object (for combinations of a 3sg subject and a 3sg object, the suffix takes a special form that redundantly encodes the subject in addition to the expected object agreement). In (1b), the object argument has been incorporated as part of the verb and the clause is detransitivized: the inflectional pattern is that of an intransitive clause, with the subject marked with absolutive case, and both agreement slots indexing the subject. In (1c), we see incorporation without detransitivization; instead, incorporation vacates the direct object position, which can now be filled by an oblique argument that is “promoted” to the direct object grammatical role (in this case, the beneficiary of the action, which is why this kind of valency-rearranging pattern is often referred to as *beneficiary raising*).

Examples of the kind in (1) are attested across all existing documentation of Chukchi at different points in time: direct object incorporation is undoubtedly a robust pattern in the language, although sources disagree as to its frequency and productivity.

This specific construction—where a direct object is incorporated by the verb—has also served as the basis of considerable theorizing in syntactic theory and typology, and features prominently in discussions of how to best delimit the overall phenomenon of “noun incorporation.” This debate is explored in detail in Olthof (2020), which presents several prominent accounts of incorporation and outlines how they variably categorize incorporating phenomena; that is, morphological patterns that ultimately appear to involve the combining of discrete lexical elements in a single grammatical word. Competing accounts of incorporation generally agree that a crucial property of the phenomenon is that the incorporated element is a stem (Olthof, 2020: 134); however, the literature shows substantial variation in terms of which combinations of stems “count” as true incorporation (as opposed to a different yet related phenomenon). These disagreements typically fall into separate theoretical camps; one fundamental distinction is whether the incorporated element continues to be actively manipulated by the syntax of the language or whether it is simply a derivational morpheme that provides additional information about the head of the incorporative complex (and is therefore relegated to the lexicon, i.e., the morphological module). While the discussion of incorporation is often centered on this difference, the competing theoretical accounts also contend with the following loci of variation in distinct ways:

- The size of the incorporated element (stems or something larger, such as inflected words, phrases, and clauses)

- Semantic properties of the incorporated element (nouns vs. non-nouns; differences in the semantic role of the noun)
- The nature of the element that is hosting the incorporated material (verbs vs. nouns, verb stems vs. suffixal verbs/denominal verbs)
- Degree of phonological integration into the grammatical word; e.g., true incorporation vs. pseudo-incorporation, as in Oceanic languages such as Niuean (Massam, 2001; 2009)
- Compounding vs. incorporation with syntactic (or discourse) motivation

Virtually all accounts of incorporation agree that the constructions in (1b-c) count as examples of noun incorporation: a verb stem productively incorporates the stem form of its direct object (with the optional promotion of an oblique argument to the grammatical position vacated by the direct object). Accounts begin to diverge where the size of the incorporated element is concerned: whether it must be a stem (as is argued by some of the most well-known accounts, such as Mithun, 1984: 847 and Baker, 1988: 71–72) or can be something larger, such as an inflected word or even a phrase (Sadock, 1980; Barrie and Mathieu, 2016; Olthof, 2020). The literature—particularly the formalist syntactic literature—has also tended to treat the incorporation of core argument nouns as a distinct syntactic process, while the incorporation of other verbs and oblique nouns (namely, those that are analyzed as syntactic adjuncts) is regarded as a separate phenomenon (Baker, 1988; 1996). These types of distinctions are neutralized in lexicalist accounts of incorporation, which analyze the unique meanings that result from specific N-V pairs as lexically-specified (and somewhat idiosyncratic), regardless of whether the incorporated N can be understood as a semantic theme/undergoer (Mithun, 1984; Rosen, 1989; Spencer, 1995).

Accounts also disagree with respect to the type of element that counts as “hosting” incorporation, such as whether it can be a derivational suffix or must be a stem. Chukchi exhibits incorporation both by stems (nouns and verbs) and derivational suffixes; other languages, such as the Inuit-Yupik languages, only display the latter. Baker’s (1988; 1996) account is particularly restrictive in this regard: nominal structures that exhibit incorporating morphology as well as verbal morphology that is not strictly stem-like and cannot “be used independently” (Baker, 1996: 19), such as suffixal verbs, light verbs, and denominal verbs, are excluded from consideration. This has the rather unfortunate consequence of defining languages such as Inuit-Yupik as not having noun incorporation (even though incorporation is in fact obligatory with suffixal verbs), and therefore foregoing some of the obvious parallels in word-formation strategies and

grammatical structure with languages like Chukchi, which Baker does treat as polysynthetic with “real” incorporation. This type of approach can be compared to syntactic accounts which do bring together denominal verbs and more canonical stem-stem incorporation (Haugen, 2007), as well as lexicalist accounts that acknowledge the functional similarity and diachronic relatedness between these phenomena (Mithun, 1997).

Nevertheless, although Baker’s (1988; 1996) account of incorporation is extremely careful to allow only for the incorporation of properly governed (i.e., c-commanded) elements such as syntactic complements, it provides a unified, syntactic explanation of grammatical function changing morphology in the verbal domain, including causatives, applicatives, passives, and antipassives. In this way, this analysis suggests a shared, underlying motivation in a language for both noun incorporation phenomena as well as verbal derivation. Baker’s analysis does, however, further distinguish between active incorporation with syntactic involvement—the kind that involves head-movement—and N-V compounding, which is purported to take place in the lexicon. The distinction between compounding and syntactic incorporation is also famously made by Mithun (1984; 1986)—these are her Types I and II, respectively—however this distinction is functional in nature; Mithun argues that all noun incorporation is ultimately lexical.

Although many of these details are best left to be hashed out in the theoretical syntactic arena<sup>3</sup>, they are nevertheless important to consider in a typology of incorporation phenomena, especially in a language like Chukchi, which evidences distinct incorporating constructions that are relevant for all of these debates. The goal of the present paper is not to adjudicate among these definitions, but rather to consider all Chukchi incorporating phenomena—regardless of whether they occur in the verbal or nominal domain and regardless of whether the incorporee and its host are “stem-like”—as a unified typological feature of the language. These phenomena—namely, noun incorporation by verbs, phrasal incorporation, incorporation into nominals, and denominal verbs—have a tendency to co-occur in the same languages at a frequency that cannot be assumed to be coincidental (Sapir, 1911; Carlson, 1990; Mithun, 1997; Olthof, 2020). As I argue below, they can also all be seen as having their diachronic origins in the same process of word-formation in the Chukotkan languages.

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<sup>3</sup> Olthof (2020) clearly lays out the stakes for the different proposals, and offers yet another option using the framework of Functional Discourse Grammar, which groups together incorporated elements of different parts of speech (nouns, adjectives, verbs) as well as different sizes (stems, inflected nouns, clauses).

Given its typological uniqueness in the northeastern Siberian context, Chukchi has also figured prominently in research on the Siberian linguistic area, particularly in long-distance contact explanations for (poly)synthetic features found in the languages of Siberia and North America (Fortescue and Vajda, 2022). Taking all of Chukchi's incorporation and incorporation-adjacent phenomena together, this paper asks: To what extent are these distinctive morphological properties ones that can be influenced by contact with other languages or, conversely, phenomena that can be taken up by those other languages as a result of this contact?

To answer this question, I consider data from Chukchi and the languages that have historically had the greatest degree of contact with Chukchi (prior to initial Russian contact in the 17<sup>th</sup> century): the Siberian Yupik languages (Central Siberian Yupik and Naukanski) and dialects of Even spoken in Chukotka and northern Kamchatka (where they have also been in contact with the related Chukotkan language, Koryak). I further consider the variation and resemblances in the data from these languages against the backdrop of present-day language shift, which is the unfortunate reality for all autochthonous languages of northeastern Siberia and the Russian Far East. In order to assess the historical relations between these languages, it is necessary to also identify (and exclude) both contact influences due to Russian and changes stemming from the shift context in general (Kantarovich, 2020).

The paper is organized as follows: in section 2, I present a typology of incorporation in Chukchi based on the different criteria discussed above. In section 3, I show that these incorporating patterns are part of a unified phenomenon in the Chukotkan languages that is most developed in Chukchi, in which the morphological combining of stems can be seen as a distinctly powerful word-formation process used in a variety of both derivational and inflectional processes in the nominal and verbal domains. In section 4, I discuss these processes in areal context: I show how Chukchi has likely influenced the emergence of incorporating phenomena in certain northern varieties of Even and how suffixal incorporation, which is found in Chukchi, Even, and Siberian Yupik, may indeed be an areal feature of northeastern Siberia. Still, I argue against a general contact-based explanation for Chukchi's own diverse incorporating morphology, which is entirely consistent with the typological profile of Chukchi as a highly synthetic incorporating language. However, I contend that the continued maintenance of incorporation in Chukchi—including the recent emergence of more productive incorporating constructions—is evidence for the immunizing effect of contact with other (poly)synthetic languages in staving off a loss of synthesis that is otherwise expected in language shift (Trudgill, 2011; 2017).

## 2 Towards a typology of incorporation phenomena in Chukchi

The focus in Chukchi on canonical syntactic incorporation of the kind in example (1) has perhaps contributed to the lack of a complete account of incorporation in the language, which shows variation across the available documentation. In particular, sources disagree as to the productivity of incorporation—whether all lexical nouns can be freely combined with all lexical verbs (provided the resulting meaning is viable)—as well as the effects on the valency of the incorporating verb (whether the verb is necessarily detransitivized, or whether transitive valency is preserved). Frustratingly, these differences do not map linearly across time—the earliest available description of Chukchi, Bogoras' (1922) grammar, seems to suggest that noun incorporation was a fairly marginal phenomenon (Bogoras, 1922: 830), limited mainly to cases of object incorporation where the incorporated noun is a prototypical object for that verb, such as 'to reindeer-slaughter'. Dunn's (1999) grammar, despite being the first source to outline the discourse motivations behind incorporation, contains surprisingly few naturalistic examples of verbal incorporation, limited mainly to incorporation of the direct object. My own fieldwork with Chukchi speakers in 2018-2019 confirms Dunn's impressions that verbal incorporation is rarely used in naturalistic conditions even by highly proficient speakers, although Vinyar's (2018) work on the Amguema variety of Chukchi demonstrates that verbal incorporation of nouns of all types remains a highly productive process about which speakers have strong intuitions, even if it is infrequent outside of direct elicitation. Mid-20<sup>th</sup> century sources (namely, Skorik, 1961/1977) are perhaps the most significant outliers since they emphasize the availability of incorporation of as many as three distinct stems into a verb; however, Skorik does note that in practice it is most typical to encounter only one incorporated stem (Skorik, 1961: 99–100).

Ultimately, these differences are unlikely to point to change over time during the documentary period or to regional variation: most of the explicit documentation of incorporation in Chukchi has been of the eastern dialects, which occupy the largest geographic area (Pupynina, 2018), and documentation of the western and southern dialects has not noted any significant differences in incorporation patterns. Instead, these divergent observations about frequency and productivity likely stem from differences in the nature of the documentation and the goals of each description: there is clear evidence from all of these sources that Chukchi makes use of highly productive incorporating morphology in the nominal and verbal domain. The theoretical accounts (Baker, 1988; 1996; Spencer, 1995; Vinyar, 2023) similarly agree on the basic descriptive facts, but differ in how to account for them within the synchronic grammar of the language.



For our purposes, I treat as incorporation all those phenomena in Chukchi that involve the morphological concatenation of multiple lexical stems where one is understood to head the other, whether it is an active, synchronic process or the diachronic remnant of this process. Thus, I do not distinguish between the following examples of incorporation of a noun by a verb, where (2a) is a lexicalized compound with a somewhat idiomatic meaning, but (2b) is a syntactic process where the incorporated noun ('head') remains available for syntactic operations such as external possession (by 'youth'):

- (2) a. *o<sup>?</sup>racek*      *ətri*      *ŋinqej*  
youth.ABS.SG    3pl.ABS      boy.ABS.SG  
*nə-qepl-uwicwet-qinet*  
HAB-**ball**-play-3pl  
'The youth together with the boy play a ball game (=play with a ball).'
- b. *ʔaacek...*      *etənw-a*      *∅-lewtə-r<sup>?</sup>ejim-nin*  
youth.ABS.SG    master-ERG    3sgA-**head**-drill-3sgA.3sgO  
'The master drilled the youth's head.' (Polinskaja and Nedjalkov 1987: 254)

Instead, I classify incorporation phenomena according to three types on the basis of the incorporating element (the head of the construction): (i) incorporation by a verb stem, (ii) incorporation by a noun stem, and (iii) incorporation by bound morphology (the diachronic remnants of a stem). The incorporation of multiple elements—including phrasal and clausal incorporation with syntactic interdependencies—is possible in all three types.

### 2.1 Incorporation by a verb stem

We have already seen several examples of incorporation of a noun by a verb stem, the most well-studied kind of incorporation in Chukchi. Chukchi verbs can also incorporate adverbs and other verbs, which are understood to qualify the event expressed by the head verb. In general, a noun that is incorporated by a transitive verb is understood to be the theme or undergoer of that verb (i.e., the grammatical direct object); a noun incorporated by an intransitive verb can serve as the instrument, location, or goal of the verb, or else qualifies the manner in which the verb occurs

(Skorik, 1961: 100–102)<sup>4</sup> Example (3) gives several examples of N-Intr\_V incorporation, with different interpretations of the semantic role of N:

- (3) a. *tə-ŋej-ejmewə-rkən*  
 1sgS-**mountain**-draw.closer-PROG.1sgS  
 ‘I am nearing the mountain.’ (Incorporee is the goal; Skorik, 1961: 101)
- b. *tə-ralko-waŋe-rkən*  
 1sgS-**canopy**-sew-PROG.1sgS  
 ‘I am sewing in the canopy (i.e., the interior part of the jaranga).’  
 (Incorporee is location; Skorik, 1961: 101)
- c. *nə-keg-tegiliŋə-tku-qinet*  
 HAB-**palm**-grope-ITER-3pl  
 ‘(He) gropes about with the palm.’ (Incorporee is the instrument;  
 Bogoras, 1922: 832)
- d. *tə-kejŋə-eʔjŋe-rkən*  
 1sgS-**bear**-scream-PROG.1sgS  
 ‘I am screaming like a bear.’ (Incorporee is the manner in which  
 the verb occurs; Skorik, 1961: 101)

Generally, in cases where there are multiple incorporated noun stems, the additional nouns are interpreted as attributively modifying the noun closest to the verb in the incorporative complex, which is interpreted as an argument of the verb (an object, instrument, location, etc.). Such examples illustrate the ability of the verb to host material larger than a noun stem, i.e., complex noun phrases:

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<sup>4</sup> The literature on Chukchi noun incorporation has also paid special attention to subject incorporation, in which the subject argument of an intransitive verb can be incorporated, yielding a subjectless “zero-valency” verb (Polinsky, 1990; Dunn, 1999). This pattern generally applies to descriptions of weather and other natural events, e.g., ‘it snow-melted’ and ‘it sun-set’.

- (4) Ø-*caj-koka-kagərgajpə-nə-təmŋ-ek-wʻe*<sup>5</sup>  
 3sgS-tea-pot-lid-CAUS-become.lost-CAUS-3sgS  
 ‘He lost the lid from the pot for tea.’ (Lit. ‘He lost the tea-pot-lid.’)  
 (Vinyar, 2018: 2)

It is also possible to encounter the incorporation of both a noun and adverbial modifiers of the verb (termed “multiple incorporation” by Spencer, 1995):

- (5) a. *tə-jaa-racwəŋ-melgar-marawə-rkən*  
 1sgS-from.afar-compete-gun-fight-PROG.1sgS  
 ‘I am fighting competitively using a gun from a distance.’  
 (Skorik, 1961: 102)

- b. *əŋko mət-mec-qora-gərke-platko-mək*  
 then 1plS-almost-reindeer-hunt-finish-1plS  
 ‘Then we almost finished hunting reindeer.’ (Skorik, 1948: 83)

In (5a), each of the incorporated elements in bold can be interpreted as independently modifying the head verb *marawə-k* ‘fight-INF’ (=‘I am fighting using a gun, competitively, from a distance’)—the incorporated noun is understood as the instrument of the verb. In (5b), however, the verb *platku-k* ‘finish-INF’ appears to have incorporated a verb phrase (‘hunt reindeer’) rather than individual lexical elements. That is, (5b) is structurally distinct from (5a), where each stem is interpreted as a distinct modifier of the verb.

- (6) Available interpretations of the incorporation constructions in (5)  
 a. [from.afar-[compete-[gun-fight]]]  
 ✓ ‘I am fighting with a gun, competitively, from a distance.’

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<sup>5</sup> This example contains several apparent violations of Chukchi phonological rules, which may be surprising to readers well-versed in existing descriptions of the language. There is an apparent harmony violation in the causative circumfix *nə- -ek*, which is expected to have dominant harmony: *nə- -ak*. Additionally, the expected allomorph of the causative prefix is *n-* at morpheme boundaries, without schwa epenthesis. Both of these phonological patterns appear to be in flux among modern speakers: my data also contain examples of vowel harmony mismatches and unexpected schwa epenthesis.

- b. [almost-[[reindeer-hunt]-finish]]  
 ✓ ‘We almost finished reindeer-hunting.  
 \* ‘We almost finishing hunting using reindeer/accompanied  
 by reindeer.’

## 2.2 Incorporation by a noun stem

Nominal incorporation has received comparatively less attention in Chukchi and the other Chukotkan languages than verbal incorporation, but it is also a highly productive phenomenon. Nominal stems in Chukchi can incorporate verbs, adjectives, quantifiers, demonstratives, and other nouns, which are understood to function as modifiers of the incorporating noun (Skorik, 1961: 99–100; Dunn, 1999: 167–171). The following are several simple examples with one incorporated stem (from Skorik, 1961: 100, where examples of incorporation with a nominal host are generically given in the associative case):

- (6) a. *ga-kətepa-nalgə-ma*  
 ASS-sheep-skin-ASS  
 ‘with a sheep skin’ (incorporation of another noun)
- b. *ga-kəkwan-maj’ola-ma*  
 ASS-wilt-onion-ASS  
 ‘with wilted onion’ (incorporation of the verb *kəkwatak* ‘to wilt, to dry’)
- c. *ga-janra-qama-ma*  
 ASS-separate-dish-ASS  
 ‘with a separate dish’ (incorporation of an adjective)

As with verbal incorporation, it is possible to incorporate several stems simultaneously (the following example illustrates the incorporation of a quantifier, two adjectives, and a modifier noun):

- (7) *ga-t’ar-tor-majŋə-wəkʷə-rəpa-ma*  
 ASS-how.many-new-big-stone-hammer-ASS  
 ‘with how many new big stone hammers?’ (Skorik, 1961: 100)

Any noun (regardless of its grammatical role in a sentence) can incorporate modifiers; in fact, non-absolute-marked nominals obligatorily incorporate their modifiers, as all free-standing modifiers in a

sentence are interpreted as modifying the absolutive argument (Dunn, 1999: 168).

Nouns that have incorporated a verb can have a participial interpretation and can also stand alone in place of a finite clause. Note that nominal incorporation of a verb, like derived participle formation (see section 2.3), is an ergative phenomenon: the head noun is always interpreted as the absolutive argument of the incorporated verb. In order to incorporate a transitive verb stem, it must first be detransitivized by means of the antipassive (8b) or the incorporation of another noun (8c), understood to be the object of the incorporated verb:

- (8) a. *kətgəntat-ŋawəcqat*  
**run-woman.ABS.SG**  
 ‘The woman who is running/The woman is running.’
- b. *ena-nqametwaw-ŋawəcqat*  
**ANTIP-feed-woman.ABS.SG**  
 ‘The woman who is feeding/The woman is feeding.’
- c. *kelinŋiwet-keli-ŋinqej kelitkuneŋə-te*  
**letter-write-boy.ABS.SG pencil-INS**  
 ‘The boy who is letter-writing using a pencil/The boy is writing letters with a pencil.’

As with verbs, nominal incorporation can involve the incorporation of stems with syntactic interdependencies (i.e., the incorporation of syntactic phrases), as in (8c), where the incorporated material is a verb phrase ‘write letters’. This also includes the incorporation of personal pronouns:

- (9) *ənəg-r<sup>2</sup>et-jekwe ləgen mət-kawra-mək ŋan*  
**3sg-road-PERL really 1plS-go.in.circle-1plS DEICT**  
*neməqeŋ ŋan*  
**Also DEICT**

‘We too went in a circle following his tracks.’ (Dunn 1999: 170)

Internally-complex examples like (8c) are not attested in the literature, although I was able to freely elicit them in my own fieldwork. I also found that it is possible for the noun to further incorporate the oblique arguments of the incorporated verb:

- (10) *kawkaw-para-enarkele-tko-ηawecqat*  
 bread-butter-spread-ITER-woman.ABS.SG  
 ‘The woman who is butter-spreading on bread/The woman is spreading butter on bread.’

### 2.3 Incorporation by affixal morphology

In this section I consider affixal incorporating morphology, which structurally parallels the incorporation by stems we have already seen in sections 2.1 and 2.2 and represents the grammaticalization of these patterns.

#### 2.3.1 Denominal verbs and other verbalizations

Chukchi evidences many examples of denominal verbs (also called suffixal verbs or lexical affixes), in which certain verbs obligatorily incorporate a patient or undergoer argument—i.e., they are bound forms. Such verbs frequently originate from N-V incorporation (Carlson, 1990: 78–81) via grammaticalization (Gerds, 2003), even if they no longer bear an obvious phonological similarity to a corresponding verbal stem. As they are grammaticalized, these bound forms also undergo semantic broadening and take on more generic meanings that allow them to combine with a wide range of patient nouns, often behaving more like light verbs in a language (Johns, 2007; Vinyar, 2019). Kurebito (2001) provides a catalogue of these verbal suffixes in Chukchi, repeated below in (11) (where appropriate, I have simplified the translations to better represent the abstract meanings associated with these affixes).

(11)	AFFIX	EXAMPLE
a.	<i>te-...-η/ta-...-η</i> ‘make’	<i>te-k’eli-η</i> ‘make a hat’
b.	<i>-u/-o</i> ‘consume’	<i>caj-o-</i> ‘drink tea’
c.	<i>-ηatt</i> ‘catch’	<i>meməl-ηatt-</i> ‘catch a seal’
d.	<i>-gili/-gele</i> ‘search for’	<i>əlwe-gili-</i> ‘search for wild deer’
e.	<i>-gərki/-gərke</i> ‘gather’	<i>uun’e-gərki-</i> ‘gather berries’
f.	<i>-nne/-nna</i> ‘get’	<i>wala-nna-</i> ‘get a knife’
g.	<i>-təwa</i> ‘take off (clothing)’	<i>wesog-təwa-</i> ‘take off earmuffs’
h.	<i>-tw</i> ‘remove’	<i>lewta-tw-</i> ‘cut off a head’
i.	<i>-ture/-tore</i> ‘to come loose’	<i>kattel-ture-</i> ‘braids come untied’
j.	<i>-ntet/-ntat</i> ‘to undo’	<i>mumkələ-ntet</i> ‘lose a button’
k.	<i>-ηeta/-nta</i> ‘to go do (with)’	<i>memlə-nta</i> ‘go do something with water’ (=‘go get water’)

Aside from the fact that these are affixes that obligatorily incorporate a noun stem, their behavior is otherwise syntactically identical to incorporation by verb stems. Their valency can be intransitive (12a) or transitive if an oblique argument is promoted to the role of grammatical object (e.g., possessor or beneficiary raising) (12b):

- (12) a. *tə-p<sup>2</sup>oŋ-gərke-g<sup>2</sup>ak*  
 1sgS-mushroom-gather-1sgS  
 ‘I gathered mushrooms.’ (Intransitive clause) (Kurebito, 2001: 70)
- b. *ne-lewtə-twə-net*                      *ənnə-t*  
 3plA-head-remove-3plO      fish-ABS.PL  
 ‘They cut off the heads of the fish.’ (Transitive clause with possessor raising of ‘fish’) (Kurebito, 2001: 73)

(12b) illustrates the syntactic productivity that is emblematic of Chukchi direct object incorporation: the incorporated noun remains accessible to further syntactic operations (in this case, possession by ‘fish’). From this example, we can see that Chukchi suffixal verbs pattern exactly like verb stems in this regard; thus, this is truly a *grammaticalized* pattern rather than a lexicalized one. These suffixal verbs are distinct from N-V compounds in languages such as English, where further syntactic modification is not possible. The final example of verbal incorporating morphology in Chukchi is the generic verbalizer *-et/-at*, which, when suffixed to a noun, refers to the action that is prototypically done with that noun, as in the following sentence:

- (13) *nəwəcqet-e*                      *n-ena-palg-at-qen*                      *kawkaw*  
 woman-ERG                      HAB-INV-butter-VBLZ-3sg      bread.ABS.SG  
 ‘The woman butters the bread.’

### 2.3.2 Derived nominal participles

Chukchi also contains a class of nominal participles derived from verbs, which behave much like the examples of incorporation by noun stems we examined in section 2.2. There are two nominalizing affixes: *-l<sup>2</sup>*, which creates an active participle, and *-jo*, which creates a passive participle. Like incorporation by a noun stem, the active participle *-l<sup>2</sup>* only combines with intransitive verb stems—that is, a transitive verb must first be detransitized via the antipassive *ine-* or *-tku*, or through the incorporation of a noun stem:

- (14) a. *gətgə-n-lʰoŋ-atə-lʰən*                      *apajhən*  
**lake-CAUS-show-CAUS-PTCP-ABS.SG**      grandfather.ABS.SG  
*ŋinqaj-etə*  
 boy-DAT  
 ‘The grandfather is one who lake-shows to the boy.’
- b. *ine-n-lʰuŋ-etə-lʰən*                      *apajhən*  
 ANTIP-CAUS-**show**-CAUS-PTCP-ABS.SG      grandfather.ABS.SG  
*gətg-a*      *ŋinqaj-etə*  
 lake-INS      boy-DAT  
 ‘The grandfather is one who shows the lake to the boy.’
- c. *gətgən*              *rə-lʰoŋ-at-jo-∅*                      *apajh-a*  
 lake.ABS.SG      CAUS-**show**-CAUS-PASS.PTCP-ABS.SG      grandfather-INS  
*ŋinqaj-etə*  
 boy-DAT  
 ‘The lake is what is shown by the grandfather to the boy.’
- d. *gətgə-n-lʰoŋ-at-jo-∅*                      *ŋinqej*  
 lake-CAUS-**show**-CAUS-PASS.PART-ABS.SG      boy.ABS.SG  
*apajh-a*  
 grandfather-INS  
 ‘The boy is the one who is lake-shown by the grandfather.’

As we can see from these examples, like lexical noun stems, participles are able to host incorporation extremely productively, and can also serve as a device for speakers to manipulate the argument structure of a clause and focus different nominal arguments. Like verb stems and noun stems, participles are also able to host multiple incorporation. We find this not only in active participles like (14a), where it is well-attested in descriptions of Chukchi and is, in fact, grammatically required for the formation of an active participle of a transitive verb, but also in passive participles like (14d), where we encounter the raising of ‘boy’, the beneficiary argument, to the position of grammatical object.



It is also worth noting that the nominalizing affix *-l'* has functions beyond the formation of active participles: like noun stems, it can also host nominal and adjectival stems which are used to ascribe characteristics to a generic noun. Consider the following examples of tongue-twisters (Dunn, 1999: 234; literal translations are my own):

- (15) a. *gəmo*                                    *ŋər<sup>o</sup>-w<sup>are</sup>-keŋu-neŋe-l'<sup>igəm</sup>*  
 1SG.ABS                                        three-fork-stick-tool-NMLZ-1sg  
 'I have a three-pointed walking stick.' (Lit. 'I am one with a three-pronged stick tool.')
- b. *qaa-jŋ-ən*                                    *ŋacgə-kemce-rp<sup>o</sup>-cormə-jaal-kena-l'<sup>-ən</sup>*  
 reindeer-AUG-ABS.SG    left-curly-fur-edge-rear-RELAT-NMLZ-ABS.SG  
 'big reindeer with the leftside curly back fringe' (Lit. 'The big reindeer is one who has curly fur along its left side at the rear.')

#### 2.4 Lexical vs. syntactic incorporating phenomena

So far, we have considered incorporating phenomena in Chukchi on the basis of the material that hosts the incorporation: lexical verb and noun stems, suffixal/denominal verbs, and verbalizing and nominalizing derivational morphology. All of these morphemes have the ability to productively and iteratively host a variety of lexical stems. In many instances of incorporation, the relations between the host and the incorporatee are lexical-semantic ones rather than purely grammatical ones—in cases of adverbial and adjectival incorporation, the incorporated stems straightforwardly qualify the nature of an event expressed by an incorporating verb or modify an incorporating noun.

Additionally, in some cases of N-V incorporation, the combining of the two stems results in a non-compositional, lexicalized meaning, where it is sensible to analyze the result as a compound that is likely stored wholesale in the lexicon. (Indeed, it is this kind of semantic arbitrariness that has been argued to serve as evidence for a lexical, rather than a syntactic, analysis of incorporation in general.) There are many such examples in Chukchi; they often involve the incorporation of core nominal vocabulary such as *qora/qaa*- 'reindeer', *(ja)ra*- 'house', and body parts:

- (16) a. *jara-twa-k*                                    'to live' (lit. 'home-COP-INF')
- b. *pənnə-twa-k*                                    'to despair' (lit. 'sorrow-COP-INF')
- c. *lewtə-ture-k*                                    'to recover from a hangover'  
 (lit. 'head-come.loose-INF')

- d. *qora-gənretə-k* ‘to shepherd reindeer’  
(lit. ‘reindeer-guard-INF’)

Similarly, uses of the verbalizer *-et/-at* are probably always lexicalized, since they are not fully productive (in my corpus, for example, *-et/-at* occurs only with food nouns). Dunn (1999: 223) argues that the (semantically redundant) presence of the *-et/-at* verbalizer alongside certain N-V compounds is further evidence of their lexicalization, as with *qora-nmə-k* ‘reindeer-slaughter-INF’ in the following example:

- (17) *taŋ-amənan*    *Cəkwaŋaqaj*    *ga-qora-nm-at-len*  
INTS-alone    Cəkwaŋaqaj    PRF-reindeer-kill-VBLZ-3sg  
‘Cəkwaŋaqaj all by himself slaughtered reindeer.’  
(Dunn 1999: 222)

Dunn encountered other similar lexicalized N-V compounds involving ‘reindeer’ that were redundantly marked with the verbalizer morpheme: *qora-nt-aa-* ‘reindeer-pasture-VBLZ’, *qora-penr-at-* ‘reindeer-pursue-VBLZ’, and *qora-gt-at-* ‘reindeer-go.to-VBLZ’ (Dunn 1999: 235–236). It is conceivable that this verbalizing morpheme also has its origins in an incorporation construction: Fortescue (2005: 403–404) reconstructs a verbalizer *\*-æt-* in Proto-Chukotko-Kamchatkan and notes the detransitivizing Itelmen morpheme *-ʔ-* as a possible cognate. The *\*-æt-* verbalizer is often also used in the formation of causatives/applicatives in the Chukotkan languages, which together with the Itelmen facts could point to a shared valency-manipulating function in Proto-CK that has developed differently in Chukotkan vs. Kamchatkan.

The diachronic origins of lexicalized incorporation are fairly obvious and stem from the discourse pragmatic conditions in which verbal incorporation is typically used: to de-emphasize or background arguments, especially direct objects which would otherwise receive absolutive case (which is understood to indicate the topic argument and therefore has a privileged position in the discourse, see Dunn, 1999: 222). Object arguments such as ‘reindeer’ are rarely the topic of the discourse since activities involving reindeer are numerous and central to the traditional lifeways of the Chukchi—it is far more informative to emphasize who is doing the activity (by incorporating the object argument, and thereby allowing for the agent argument to be marked with the absolutive rather than ergative case) or for whom the activity is being done (through incorporation of the object along with raising of the beneficiary argument). The frequency of incorporation of low-agency low-topicality arguments such as ‘reindeer’, ‘house’, body parts, and food terminology explains why these nouns were most likely to become part of lexicalized N-V compounds.

The pragmatic motivations for verbal incorporation also account for the nature of the grammaticalized denominal verbs in Chukchi: verbs such as ‘consume’, ‘gather’, ‘seek’, ‘catch/hunt’, ‘loosen/undo’, and ‘make’ are likely to be used in the discussion of everyday activities, where the agent, beneficiary, or possessor (that is, the type) of the object argument is far more topical than the object itself, which is likely to be a prototypical argument for that verb (e.g., ‘seal-catch’, ‘meat-consume’, ‘berry-gather’, ‘harness-loosen’, ‘house-make’). Thus, these denominal verbs initially belonged to a class of verbs that were disproportionately likely to incorporate their patient arguments, such that this incorporation became grammaticalized as an obligatory process. Vinyar (2023: 58–60), following Bogoras (1922) and Fortescue (2005), provides some suggestions as to existing verbal stems (and their reconstructed forms in Proto-Chukotkan and Proto-Chukotko-Kamchatkan) that could have plausibly evolved into suffixal denominal verbs:

- (18) a. *-gərki* ‘drag out; collect’ < C *gərki-* ‘rip, collect’, < PC \**γəðki-* ‘rip; collect; find’ (Fortescue, 2005: 87)
- b. *-gili* ‘gather’ < C *gici-* ‘gather’, < PC \**γili-* ‘seek’ (Fortescue, 2005: 84)
- c. *-təwe/-twə* ‘take off (clothes)’ < C *cəwi-* ‘cut’, < PC \**-təwə-* ‘remove’ (Fortescue, 2005: 424)
- d. *-u* ‘consume’ < C *ru-* ‘eat’ < PCK \**-u-* ‘consume; acquire’ (Fortescue 2005: 188; 424), PCK \**nu-* (Bogoras, 1922)
- e. *-ηəta* ‘go do with, go after’ < C *ηəta-* ‘go (to the coastal Chukchi) for (provisions)’ < PCK(?) \**ηəta-/ηəta* ‘go after’ (Fortescue, 2005: 203)
- f. *-nye* ‘get’ < C *təje-* ‘grow’ < PCK(?) \**təjə-* ‘grow’ (Fortescue, 2005: 299)
- g. *-ηətt* ‘catch, hunt for’ < PC \**-ηərtə-* ‘catch, hunt’ (or PC \**ηəta-*) (Fortescue, 2005: 419; note however that Fortescue does not list a Chukchi cognate for this reconstruction)

There is some evidence that these patterns are truly the results of verb-stem grammaticalization, from present-day variation in Chukchi and apparent change-in-progress. Vinyar (2023: 58) suggests that the verb stem from which this suffixal verb originated may be a dialectal variant; indeed, in my corpus, *gərki-* ‘collect’ functions as a typical transitive verb stem that can optionally (i.e., need not obligatorily) incorporate its object argument. The following minimal pair is attested in my data:

- (18’)
- |    |                          |                 |                           |
|----|--------------------------|-----------------|---------------------------|
| a. | <i>n-ine-gərki-qinet</i> | <i>ŋinqej-e</i> | <i>uun<sup>2</sup>ə-t</i> |
|    | HAB-INV-collect-3pl      | boy-ERG         | berry-ABS.PL              |
- ‘The boy collects the berries.’ (Simple transitive: incorporation not obligatory)
- 
- |    |                                     |               |
|----|-------------------------------------|---------------|
| b. | <i>n-uun<sup>2</sup>ə-gərki-qin</i> | <i>ŋinqej</i> |
|    | HAB- <b>berry</b> -collect-3sg      | boy.ABS.SG    |
- ‘The boy collects berries.’ (Object incorporation)

This suggests that the verb stem *gərki-* is only in the process of being grammaticalized as a denominal verb, and that the process is not complete across all dialects of Chukchi.

As I discuss in section 4, pragmatic motivations also explain why these frequent collocations are the ones that appear to have been most likely to be borrowed by neighboring languages. Our examples of lexicalized incorporation in Chukchi and in other Indigenous languages of northeastern Siberia almost universally take the form of N-V (or another lexicalized derived verb); we find very few areal patterns of incorporation by noun stems, which in Chukchi is further constrained by grammatical factors rather than predominantly discourse motivations.

The preceding sections (2.1-2.3) have also shown examples of the incorporation of material with internal syntactic complexity, such as noun phrases and verb phrases. Such examples, particularly the incorporation of verb phrases by nominal hosts, eschew a purely lexical explanation: they are maximally productive and lack the arbitrariness associated with derivational morphology. These incorporation patterns are thus better analyzed as simply one option for the realization of Chukchi syntax: through the rigidly-ordered prefixation of stems, rather than the analytic alternative of free-standing case-marked nominals.

If we understand the incorporating phenomena enumerated above to be a fully-productive syntactic process with a morphological realization, it is not surprising that incorporation lends itself to morphologization and grammaticalization, in which lexical material is reanalyzed as functional.

In section 3, I demonstrate how incorporation has served as a language-internal source in Chukchi for the innovation of new derivational and inflectional morphology.

### 3 Incorporation as a grammaticalization pathway in Chukchi

The lexicalist vs. formalist debate that has dominated the analysis of incorporation has had the unfortunate consequence of downplaying the relationship between so-called lexical compounds and synchronic incorporation phenomena that are assumed to be actively generated by the syntax. In the Chukotkan languages, there is clear evidence that the ability to productively incorporate stems at the synchronic level has diachronically produced not only transparently-related derivational phenomena (such as the lexicalized compounds and denominal verbs discussed in section 2.4) but also other valency-changing morphology and certain patterns of verbal inflection.

#### 3.1 Valency-changing derivational morphemes

The capacity for noun incorporation to serve as a pathway for the grammaticalization of functional morphology is explored in some depth by Mithun (1984), who argues that there is a cline of evolution of noun incorporation [NI], evidenced by an implicational hierarchy among the types of NI that she identifies (where the most grammaticalized type, Type IV, implies the existence of Types III-I in that language; Type III implies Types II and I, and so forth). The pathway suggests that incorporation first begins as a kind of lexical compounding where a noun stem and verb stem combine to form a transitive verb denoting a “name-worthy, unitary activity” where the noun no longer has a syntactic role (Mithun 1984: 874). Type II allows for an N-V compound to be re-transitivized if an oblique argument is promoted to the role of syntactic object (as in possessor and beneficiary raising). In Type III, NI occurs freely for discourse reasons in order to background nouns that are not salient or newsworthy (without necessarily involving the promotion of an oblique argument), and finally, Type IV features the incorporation of a generic noun that acts as a classifier that qualifies the verb, but where there is also an external nominal argument that is co-referent with the classifier (Mithun 1984: 874). The following example illustrates Type IV NI in Mohawk (Iroquoian):

- (19) *Shakoti-ya't-í:sak-s ne ronú:kwe*  
3pl-BODY-look-PROG the M.PL.person  
'They were looking for the men.' (Mithun, 1984: 864)

In (19), the incorporated classifier *ya't-* 'body' qualifies that what is being sought is something physical and is co-referent with 'men'. It can also be

interpreted as a standard case of Type II incorporation of the noun ‘body’ with raising of the possessor ‘men’, which would instead give rise to the reading ‘They were looking for the men’s bodies’. Mithun argues that the continued availability of both readings provides a clue as to how the classifier meaning may have emerged (through the reanalysis of the Type II pattern).

Although Type IV classifier incorporation of the kind Mithun describes has not been documented in Chukchi, there are instead several valency-changing constructions that are structurally identical to verbal incorporation, and can be analyzed as even further along Mithun’s evolutionary path.

The derivational antipassive in Chukchi functions exactly the same way as the incorporation of a direct object by a transitive verb: it can either detransitivize the verb (with the optional expression of the patient argument as an oblique argument) or rearrange the verb’s arguments while preserving transitive valency by swapping the object and oblique arguments’ grammatical roles (akin to possessor/beneficiary raising in incorporation). The following example contrasts these antipassive functions with object incorporation (examples adapted from Polinskaja and Nedjalkov, 1987: 240):

- (20) a. *ətləg-e mətqəmət (kawkaw-ək)*  
 father-ERG butter.ABS.SG bread-LOC  
*Ø-kili-nin*  
 3sgA-spread.on-3sgA.3sgO  
 ‘The father spreads the butter on the bread.’ (Simple transitive, no valency-changers)
- b. *ətləg-ən mətq-e (kawkaw-ək)*  
 father- butter-INST bread-LOC  
 ABS.SG  
*Ø-ena-rkele-gʼe*  
 3sgS-ANTIP-spread.on-3sgS  
 ‘The father spreads butter on the bread.’ (Intransitive formed by antipassivization)

- c. *ətləg-ən*            (*kawkaw-ək*)     $\emptyset$ -*mətqə-rkele-gʔe*  
 father-ABS.SG    bread-LOC    3sgS-**butter**-spread.on-3sgS  
 ‘The father butter-spreads on the bread.’ (Intransitive formed  
 by incorporation)
- d. *ətləg-e*            *mətq-e*            *kawkaw*  
 father-ERG    butter-INST    bread.ABS.SG  
 $\emptyset$ -*ena-rkele-nen*  
 3sgA-ANTIP-spread.on-3sgA.3sgO  
 ‘The father spreads the bread with butter.’ (Transitivity  
 maintained with antipassive morphology, object and oblique  
 arguments rearranged—beneficiary raising)
- e. *ətləg-e*            *kawkaw*             $\emptyset$ -*mətqə-rkele-nen*  
 father-ERG    bread.ABS.SG    3sgA-**butter**-spread.on-3sgA.3sgO  
 ‘The father butter-spreads the bread.’ (Transitivity  
 maintained with incorporation, with oblique argument  
 promotion to spot vacated by the incorporated object—  
 beneficiary raising)

If we compare (20b) with (20c), on the one hand, and (20d) with (20e), on the other, we can see that the core argument encoding in the clause (via case marking and verbal agreement) is identical in these pairs, regardless of whether the incorporated element is a noun stem or the antipassive morpheme *ine-/ena-*. Both pairs of constructions are also functionally similar. The antipassive in (20b) serves to deindividuate the original object argument ‘butter’ by demoting it to an instrumental-marked argument (=‘the father spreads some non-specific butter on the bread’), just as the incorporation of ‘butter’ backgrounds it and de-emphasizes it in the discourse. Similarly, the use of the antipassive in (20d) has the effect of promoting the original locative argument, ‘bread’, to the role of grammatical object, just as the incorporation of ‘butter’ does in (20e). Thus, we can analyze the antipassive marker as an incorporated abstract dummy argument that is co-referent with an optional, low-salience, low-specificity oblique argument (rather than with an object argument like in classificatory noun incorporation). Such a dummy argument could have been innovated in the Chukotkan languages (all of which make use of the *ine-/ena-* antipassive) as a strategy for de-emphasizing canonical patient arguments for discourse reasons, either when they are not known (and

therefore cannot simply be incorporated) or to allow for signaling a contrast between an “associated” set of referents by equating them structurally (with the same oblique marking) (Polinskaja and Nedjalkov, 1987: 247):

- (21) a. *a-nan*      *kupren*      *Ø-rätwan-nen*  
 3sg-ERG      net.ABS.SG      3sgA-set-3sgA.3sgO  
 ‘He set the net.’
- b. *atlon*      *kupre-te*      *Ø-ena-ntawat-g’e*  
 3sg.ABS      net-INS      3sgS-ANTIP-set-3sgS  
 ‘He set a net.’
- c. *atlon*      *kupre-te*      *Ø-ena-ntawat-g’e*,      *wanewan*  
 3sg.ABS      net-INS      3sgS-ANTIP-set-3sgS      NEG  
*gingiŋ-e*  
 throw.basket-INS  
 ‘He set a net, not a throw-basket.’

According to Polinskaja and Nedjalkov, Chukchi speakers generally prefer (21b) due to the low individuation of ‘net’ when the verb is antipassivized, which allows for expressing a contrast like in (21c), where two similar (but, crucially, non-specific) items are compared.

Thus, we can imagine a scenario where an abstract argument (akin to a placeholder) was innovated for use in incorporation constructions in exactly these discourse conditions: to facilitate the simultaneous discussion of multiple nominal arguments that a speaker wishes to de-emphasize within the broader discourse (as in (21c), where the agent NP is highlighted with antipassivization), perhaps as a more economical alternative to the use of two separate instances of verbal incorporation.

Additional evidence that constructions with *ine-* have an implicit underspecified argument comes from its use in transitive finite verbal agreement marking, where it is often analyzed as an inverse agreement marker due to the argument combinations with which it occurs (Comrie, 1980; Dunn, 1999):



(22) Instances of inverse agreement marking in Chukchi active tenses

a. *ine-* inverse:

2sg A, 2pl A, 3sg A > 1sg O

b. *-tku* inverse:

2sg A, 2pl A > 1pl O

c. *ne-* inverse:

3sg A > 1pl O, 2sg O, 2pl O

3pl A > 1sg O, 1pl O, 2sg O, 2pl O, 3sg O, 3pl O

We can see that the inverse marking surfaces in cases where the object outranks the subject along the following hierarchy, which is largely organized according to animacy:

(23) 1 > 2 > 3sg > 3pl

Another feature of the argument combinations in (22a,b) is that the inverse marking coincides with the de-transitivization of verbal agreement: the expected agreement with the transitive object is neutralized, and instead suffixal agreement is with the subject using the class of *intransitive* subject agreement markers. For this reason, these inverse agreement patterns have been referred to as the “spurious antipassive” (Halle and Hale, 1997): the agreement morphology is that of an intransitive verb agreeing with the subject argument, as if the object argument has been neutralized as in the antipassive. Like *ine-*, *-tku* also has an antipassive function in Chukchi (and is also polysemous with an iterative reading)<sup>6</sup>; thus, it is clear that in the Chukotkan languages, antipassive morphology has been reanalyzed as part of transitive agreement, likely in response to a tendency in discourse to avoid the use of transitive clauses in discussing events where the speaker him/herself is the patient of the verb. Further evidence that the antipassive has a grammaticalized, distinct function as an agreement marker comes from present-day patterns of retention in Chukchi and Koryak: *ine-* tends to be preserved in agreement patterns even as its use as an antipassive is declining (Bobaljik, 2019).

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<sup>6</sup>The antipassive use of *-tku* is a relatively recent innovation in Chukchi; in the other Chukotko-Kamchatkan languages, it only has an iterative meaning and has not been adopted into the transitive agreement paradigms. Spurious antipassivization does not occur with 1pl arguments in the other Chukotkan languages; Fortescue (2003) reconstructs it in PC only in the combinations found in (22a).

The following examples illustrate the structural correspondence between an active transitive clause with a 3sg subject/1sg object and an antipassive with an oblique-marked 1sg patient, the sort of context that would have facilitated the reanalysis. (24c) illustrates transitive agreement with a 1sg object where this neutralization has not taken place (but see Comrie, 1980 for evidence that the 3rd person transitive subject prefix *ne-* is actually a reanalyzed passive construction).

- (24) a.  $\emptyset$ -*ine-l'u-g'i* (gəm-nan) (gət/ətlon)  
 2/3sgS-ANTIP-see-2/3sgS 1sg-INS 2sg.ABS/3sg.ABS  
 'You/he/she sees someone or something.'
- b.  $\emptyset$ -*ine-l'u-g'i* (gə-nan/ə-nan) (gəm)  
 2/3sgA-INV-see-2/3sgA 2sg-ERG/3sg-ERG 1sg.ABS  
 'You/he/she sees me.'
- c. *ne-l'u-gəm* (ər-gənan) (gəm)  
 3sgA-see-1sgO 3pl-ERG 1sg.ABS  
 'They see me.'

Disambiguation between (24a) and (24b) occurs only with pronouns, which are typically only used when the grammatical roles of the arguments are not obvious from the discourse context. Thus, the ambiguity of the patient argument in (24a) allowed for the antipassivized verb to be reanalyzed as a transitive verb with an underspecified object argument, which came to be used by speakers to avoid self-reference when they are the patient of a transitive verb.

The analysis of *ine-* as a kind of incorporated noun is also implied by Baker (1988). Although his account is not explicitly concerned with the diachrony of incorporation and other functional morphology, a movement-based analysis of the antipassive—which is structurally parallel to noun incorporation—is entirely compatible with the above proposal. If we assume that Baker is correct that other types of valency-alternations in Chukchi (and similar languages) are generated through the incorporation of verbs (to produce causatives; Baker, 1988: 147–154) and the incorporation of prepositions (to produce applicatives; Baker, 1988: 229–233) these may serve as further examples of the results of the grammaticalization of stem incorporation, not just in Chukchi but cross-linguistically. For example, Baker argues that causatives are formed through the incorporation of a *make*-like verb. In languages with analytic causatives, such as English, causatives are realized as control constructions: the controlling verb is

*make*, and it takes the caused action as one of its arguments (25a). In languages with synthetic causatives, such as Chichewa (Bantu) (25b) and Chukchi (25c), a *make*-like verb is incorporated by another verb that indicates the caused action.

- (25) a. The goat made me break my mother's favorite vase.  
(Baker, 1988: 147)
- b. *mtsikana*            *anau-gw-ets-a*            *mtsuko*  
girl                    AGR-fall-made-ASP    waterpot  
'The girl made the waterpot fall.' (Trithart 1977; cited by  
Baker 1988: 148)
- c. *apajŋ-a*                     $\emptyset$ -*rə-lʰuŋ-e(t)-nin*  
grandfather-ERG    3sgA-CAUS-see-VBLZ-3sgA.3sgO  
*gətgən ŋenqaj-etə*  
lake.ABS.SG boy-DAT  
'The grandfather made the boy see the lake (=showed the  
boy the lake).'

There is some evidence that the incorporation and subsequent grammaticalization of a verb stem serves as the origin for the Chukchi causative. As we can see in (25c), the causative is typically expressed as the circumfix *rə- -et/-ew*<sup>7</sup>, although the second half of the circumfix (which is identical to the verbalizing morpheme we have already discussed in Section 2.3.1) is not always present and the causative meaning is conveyed by the prefix. The original source of this prefix is somewhat unclear, and the literal verb 'make' in Chukchi appears to itself be derivationally complex and decompose into the causative prefix + *-twi* 'become' (*rə-tci-* 'make, lit. 'cause to become'). Fortescue (2005: 206; 406–407) reconstructs the causative as \**ǰən-* in Proto-Chukotko-Kamchatkan, suggesting that this is a rather old morpheme in the family. There may be a more direct link, however, to the Proto-CK verb stem \**ǰəntə-* 'have (as)' (Chukchi *rət-*) (Fortescue, 2005: 71–72), which has unambiguously causative meanings in Koryak (*ǰət-* 'have (as), make (s.o.) into') and Kerek (*intə-* 'have (as)'; *intə-lraat-* 'make (intens.)').

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<sup>7</sup> *-et/-ew* are lexically-conditioned allomorphs that alternately show up with different verb stems.

Thus, we can see that there is a further advantage to the analysis of incorporation as a productive, synchronic process of clause formation which can also serve as a pathway for the grammaticalization of verbal derivational morphology—it has the advantage of uniting the diachronic observations of functionalist-lexicalist accounts and the synchronic instantiation of incorporation across these many functions in formalist syntactic accounts.

### 3.2 Stative verbal inflection

In this section, we turn to another instance of reanalysis and grammaticalization of an incorporation-based construction as functional morphology—in this case, producing inflectional morphology and therefore representing a further step along the cline of grammaticalization. Specifically, we will examine the two stative “tenses” in Chukchi, the perfect and the habitual, which derive from nominalizations via the *-in(e)-* suffix, which I argue to be the same *ine-* morpheme we have already seen functioning as an underspecified incorporated object/antipassive marker.

The two stative tenses in Chukchi have roughly the same inflectional patterns, with slight differences in the morphology that reflect their distinct (yet related) origins. Unlike the so-called active verbal inflections in Chukchi, which have two slots for agreement with the subject and object, the stative tenses have only a suffix agreement slot, which only ever encodes one argument regardless of the transitivity of the verb. The agreement patterns for the perfect and habitual are given below:

(26) Agreement suffixes in stative paradigms (Dunn, 1999: 191)

	sg	pl	
1 <sup>st</sup>	<i>-igəm, -jgəm</i> <sup>8</sup>	<i>-muri</i>	
2 <sup>nd</sup>	<i>-igət, -jgət</i>	<i>-turi</i>	
3 <sup>rd</sup>	<i>-lin</i>	<i>-linet</i>	perfect
	<i>-qin</i>	<i>-qinet</i>	habitual

The perfect is formed with the prefix *ge-* and the appropriate agreement suffix; the habitual is formed with the prefix *nə-* and the appropriate agreement suffix (note that the forms of the 3rd person agreement suffixes differ between the perfect and habitual). With intransitive verbs, the suffix slot straightforwardly agrees with the sole argument, the subject (S). With transitive verbs, agreement depends on the particular combination of subject and object arguments. When agreement is with the object (O), the

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<sup>8</sup> Forms beginning with the vowel *i* are used with consonant-final stems; forms beginning with *j* are used with vowel-final stems.

appropriate agreement suffix from (26) is used. However, in argument combinations where agreement is with the subject of the transitive verb (A), an inverse (“spurious antipassive”) morpheme also shows up, although as we can see below, this marker has a distinctly different distribution from the active inflections and shows up in many direct argument combinations, particularly in the habitual. The patterns of cross-reference to subject vs. object differ between the habitual and perfect paradigms (also reflecting their distinct etymologies). These patterns are illustrated in the two tables below, based on those given in Dunn (1999: 192). Although the other Chukotkan languages have similar stative-like inflectional paradigms, their transitive inflections appear to differ from Chukchi’s in their patterns of cross-reference and the distribution of the “spurious antipassive,” which is mostly absent (see Žukova, 1972 on Koryak and Volodin, 2000 on *ine-* across the Chukotkan languages).

The treatment of *ge-* as a perfect tense and *nə-* as a habitual does not express the full range of functionality of this morphology, only its behavior when it occurs with verb stems. The inflections above can additionally apply to nouns and adjectives as well, and are best understood as kinds of nominalizations akin to incorporation by a noun stem (section 2.2) and participles formed on *-lʔ* (section 2.3.2), which can also incorporate a variety of lexical stems.

**Table 1. Argument cross-referencing in the perfect with transitive verbs**

	1sgO	1plO	2sgO	2plO	3sgO	3plO		
1sgA	–	–	Suffix cross-references O					
1plA	–	–						
2sgA	Suffix cross-references A (ANTIP marker used)						–	–
2plA							–	–
3sgA								
3plA								

**Table 2. Argument cross-referencing in the habitual with transitive verbs**

	1sgO	1plO	2sgO	2plO	3sgO	3plO		
1sgA	–	–	Suffix cross-references A (ANTIP marker used)					
1plA	–	–						
2sgA	Suffix cross-references A (ANTIP marker used)						–	–
2plA							–	–
3sgA	Suffix cross-references O							
3plA								

Both Dunn (1999: 191) and Bogoras (1922: 707) note that these forms appear nominal; where Dunn only remarks that they probably derive from nominal morphology, for Bogoras they are synchronically nominal. In general, Bogoras’ description of Chukchi notes far more instances of predicate nominals being used instead of finite verbs, and he includes these two paradigms as a part of that tendency. For example, he reports that speakers display a preference for saying ‘The reindeer are the ones whom I killed’, instead of ‘I kill the reindeer’ (Bogoras 1922: 684; 758). The abundant use of nominal participles (additionally, with extremely productive incorporation) is also consistent with my data from 2018-2019. The predicative use of nominal participles is also attested by Skorik (1961: 345–386) and Sokolov (1986). Here again, Dunn’s description appears as somewhat of an outlier, which is again likely to be an artifact of differences in data collection (Dunn based his analysis on naturalistic discourse rather than direct elicitation of specific phenomena) or speaker preference. The consistent attestation of these patterns confirms that elaborate nominalizations are a robust feature of Chukchi morphosyntax.

To understand the grammaticalization of the perfect and habitual inflections, it is necessary to situate them in the broader context of *in(e)*-based morphology in Chukchi. The 3<sup>rd</sup> person agreement markers in the perfect and habitual can be decomposed into multi-morphemic forms containing *-in(e)-*, which on its own acts as a possessive 3rd person marker. This morpheme appears to be fairly old in Chukotko-Kamchatkan and has historically performed a number of functions. Fortescue (2005: 409) reconstructs a possessive Proto-CK form *\*inæ-* ‘pertaining to’; Wdzenczny (2011: 61–72) provides a discussion of the behavior of *\*inæ* morphology across the Chukotko-Kamchatkan languages, where she also reconstructs a possessive (genitive) meaning for the Proto-CK form.

In Chukchi, *-in(e)-* is used in the following derivational morphology. It can occur on its own or with the plural marker *-t*; note also that when it is followed by another suffix, the vowel *e* is inserted:

- (27) a. *-in (ine-t, pl.)*                      possessor; also indicates ‘the type or material of an object’
- b. *-k-in (-k-ine-t, pl.)*                      relational marker; ‘of or relating to’
- c. *-l-in (-l-ine-t, pl.)*                      ‘measure of a quality’
- d. *ge- -l-in (ge- -l-ine-t, pl.)*                      with verbs, indicates the attainment (possession) of a state; with nouns, indicates possession
- e. *nə- -q-in (nə- -q-ine-t, pl.)*                      ‘one who is in a condition (conveyed by the stem)’

It has also been grammaticalized as 3rd person suffixal agreement marking in the active tenses:

- (28) a. *-n (< -in)*                      3sg S/O agreement suffix; in transitive inflection used only with non-3sg A; in intransitive inflection, used only in intentional/conditional moods
- b. *-n-in (< -in(e) + -in)*                      3sg A>3sg O portmanteau agreement suffix
- c. *-(ne)-t (< in(e)-t)*                      3pl S/O agreement suffix, in transitive inflection used only with non-3sg A
- d. *-n-ine-t (< in(e) + ine-t)*                      3sg A>3pl O portmanteau agreement suffix

These functions are broadly representative of the Chukotkan languages (and to a lesser degree, of Itelmen, where a reflex of this possessive marker also shows up in 3<sup>rd</sup> person object agreement (also portmanteau morphemes: *-nen* for 3A > 3sg O and *-neʔn* for 3A > 3pl O, see Volodin 1978).

There is considerable evidence that the forms in (27) are indeed synchronically nominal, although they are more commonly interpreted as finite verbs in the modern language. Bogoras (1922: 707) describes forms

ending in *-in* in Chukchi as “semi-nominal”: they are interpreted as having a participial (or relative clause-like) reading and, even more tellingly, can receive nominal inflection (case marking) and nominal derivational morphology (diminutivization). Although Bogoras (1922: 707) reports that nominal inflection of forms ending in *-qin* are rare, they are attested:

- (29) a. *nə-pkir-muri*  
 HAB-come-1pl  
 ‘We are those who come’ (Bogoras 1922: 759; note the nominalized reading)
- b. *nə-teŋ-qine-te*  
 HAB-good-3sg-INS  
 ‘With/using one that is good’ (Instrumental case inflection)
- c. *nə-mel-qine-te*<sup>9</sup>  
 HAB-fiery(?) -3sg-ERG  
 ‘(An action is done by) the one who is fiery/alight’ (Ergative case inflection)
- d. *nə-mel-qine-k*  
 HAB-fiery(?) -3sg-LOC  
 ‘On/by the one who is fiery/alight’ (Locative case inflection)

While these forms may be rare, further *derivation* of these constructions is well-attested up until the present day, even among shifting speakers:

- (30) *umqə-qej*                      *nə-ppəlu-qine-qej*  
 polar.bear-DIM.ABS.SG      HAB-small-3sg-DIM.ABS.SG  
*Ø-kəjek-wʔi*  
 3sgS-wake.up-3sgS  
 ‘The little polar bear who was tiny woke up.’

Bogoras also notes the occurrence of inflection of other *-in(e)*- based forms, for example the possessor *-in* and the perfect/possessive *ge- -lin*:

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<sup>9</sup> Bogoras’ transcription system can be difficult to decode; in examples (29c,d) Bogoras did not provide a translation of the full form, so I have given my best guess as to the identity and definition of the stem.



- (31) a. *gəmn-ine-te*  
 1sg-POSS-INS  
 ‘with mine’ (Bogoras 1922: 710)
- b. *ga-qaalen*  
 PRF-reindeer-3sg  
 ‘he who has reindeer’ (Bogoras 1922: 712)
- c. *ga-pelajgəm*  
 PRF-leave-1sg  
 ‘I who have left’ (Bogoras 1922: 712)
- d. *em-tenŋi-l(in)-a*      *Ø-nike-i*  
 REST-laugh-QUAL-ERG    3sgS-do.something-3sgS  
 ‘The jokester (=laughing one) teased him (=did something specific from the context).’ (Bogoras 1922: 707)

Given these facts, *-in(e)-* seems to operate as a multi-purpose, maximally unmarked (i.e., 3sg) noun that, like a lexical noun stem, can incorporate a semantically-diverse set of other stems. Thus, its phonological resemblance to the antipassive marker *ine-* from Section 3.1 is unlikely to be coincidental: it is exactly this featurally unmarked nominal that became used as a generic incorporated noun in the antipassive construction.

Understanding *-in(e)-* as a kind of generic incorporated noun once again helps shed light on Chukchi agreement patterns, in this case, the use of the “antipassive” in the stative inflections in a more expanded set of argument combinations than in the active inflections. In the active inflections, *-ine-* functions as a kind of inverse marker, or at least it shows up only in inverse contexts. This holds true for the perfect, but in the habitual, *-ine-* is more akin to an anti-inverse, showing up mainly in direct cases. These patterns stem from the underlyingly nominal nature of the perfect and the habitual: like other nominal participles, they are absolutely aligned and by default agree with the absolutive argument. In order to suppress agreement with O in transitives, the underspecified *ine-* is incorporated to allow for agreement with A, just as in nominal participles. The differences in where antipassivization is used in the two paradigms—perfect vs. habitual—stems from the different senses of the tenses and their different origins. The perfect, which is derived from a possessive construction, prioritizes agreement with the object, even where it is low-agency as in the 3rd person. However, the habitual, which expresses an ongoing state of action in

transitives, is oriented towards prioritizing speech act participants and suppresses lower-agency arguments.

### 3.3 Summary

In Section 3, I have shown how several morphological phenomena in the Chukotkan languages are the results of the reanalysis and grammaticalization of incorporation: valency-changing derivational morphology and verbal inflection. These phenomena have in common their basis in stem-incorporation: the antipassive in Chukchi is transparently related to verbal incorporation of nouns, and the stative paradigms derive from participles akin to nominal incorporation of verb and adjectival stems. These constructions also involve several instances of the grammaticalization of the form *-in(e)-*, which I have argued is a low-markedness abstract nominal. It can host stem incorporation like a full-fledged nominal stem (which is what we find in the constructions that became the stative verbal inflections) and can also be incorporated by other morphemes, giving rise to the *ine-* antipassive and, in turn, inverse morphology in the active tenses and transitive morphology in the stative tenses.

It is important to note that all of these constructions derive seamlessly from the robust tendency for incorporation in Chukchi (and the other Chukotkan languages). In the following section, I assess where these patterns fit within the broader linguistic ecology of northeastern Siberia.

## 4 Chukchi incorporating phenomena in areal context

### 4.1 The question of a Siberian linguistic area and morphosyntactic evidence of contact

In considering whether incorporation is an areal phenomenon in northeastern Siberia, it is tempting to consider the synthetic nature of the Indigenous languages of the region as a whole and take the typological profile of these languages to be a contact feature in and of itself. The question of a linguistic area comprising the Siberian region was initially explored by Anderson (2006), who identified both phonological and morphosyntactic features that seem to be shared by unrelated languages of Siberia. Anderson delimits the Siberian geographic area as extending from the Ural Mountains in the west to the Pacific Ocean in the east, with Russia's southern political border with Kazakhstan, Mongolia, and China serving as the southern boundary. This area therefore includes western and southern languages of Siberia (e.g., Samoyedic, Ob-Ugric, Yeniseic, Southern Tungusic) which are not of immediate relevance for the northeastern part of this region that is the focus of the present volume. The boundaries that define our regional focus are outlined in the introduction (Matić, this volume). For the purposes of the present discussion about

contact involving the Chukotko-Kamchatkan languages, the relevant geographic areas include Chukotka to the far northeast, Kamchatka, and the eastern boundaries of the Sakha Republic, especially in the Lower Kolyma area (although an established Chukchi presence in this region is relatively recent, dating to the 1870s; see Pupynina and Aralova 2021). Still, the nature of the proposed macro-Siberian features in the morphosyntactic domain is worth considering in the context of the potential areality of incorporation (and related derivational morphology).

As with most linguistic areas, the purported morphosyntactic features of Siberia take the form of shared patterns, without a sharing of the corresponding phonological material. These include: the presence or absence of certain case syncretisms, the presence of certain verbal derivational categories, and strategies of clausal subordination. Anderson (2006) proposes the following morphosyntactic macro-areal features in Siberia:

- Shared patterns in the differentiation of certain cases (presence of a prolocative case, distinct forms for expressing dative vs. allative relations, distinct forms for expressing comitative vs. instrumental relations)
- Encoding of certain concepts through verbal derivational morphology (presence of a reciprocal voice morpheme, presence of a desiderative morpheme)
- Clausal subordination through a case-marked element (such as a nominalized verb form, a bare stem, a partially-inflected verb stem, or a finite verb)

To these we can also add non-canonical uses of verbs of saying, which are discussed in detail in Matic' and Pakendorf (2013). The distribution of these patterns (and whether they represent areal or inherited features) is quite complicated, and Matic' and Pakendorf reach the conclusion that the spread of individual features should be considered within micro-areas—there is no real evidence that non-canonical SAY (or even individual functions of non-canonical SAY) should be treated as a pan-Siberian feature, as opposed to one shared by Mongolic and South Siberian Turkic, which are languages which have had particularly heavy contact and may independently have features in common due to being typologically “Altaic.”

That specific features tend to cluster in micro-areas (and particular language families) rather than the Siberian macro-area can also be said of the distributions of the features in Table 3, although a thorough assessment of these patterns is beyond the scope of this paper. As with non-canonical SAY, it is also difficult to discern whether the wide distributions of these

features are due to contact, as opposed to these languages' typological morphosyntactic configurations. Languages of the northeast, particularly the Chukotkan and Yupik languages, serve as the exceptions to many attempts to identify areal linguistic phenomena. In general, these languages (Chukotko-Kamchatkan, Yupik, and to a lesser degree, the Yukaghiric languages) are outliers among the more Altaic-like, dependent-marking languages of the rest of Siberia, in making use of comparatively more elaborate verbal (head-marking) morphology, although they do have dependent-marking morphology (case) as well. This, in and of itself, is a possible effect of long-standing contact with primarily dependent-marking languages, since dependent-marking tends to be absent in polysynthetic languages cross-linguistically (Baker 1996).

In general, however, of the features identified by Anderson (2006) are not typologically-marked phenomena, and it is not clear what to make of the *existence* of particular categories of morphology in neighboring languages, when the realization of that morphology is highly variable. In considering the distinction between the comitative and the instrumental as an example, we should note that a differentiation between these two is far and away the most frequent pattern cross-linguistically: differentiation is reported for 213 languages, compared to 76 which do not maintain a distinction (see Stolz et al., 2013 and the corresponding WALS map for Feature 52A). The Siberian languages also differ in the ways that they mark this distinction. For example, in most of Tungusic, Mongolic, and Turkic, both cases are expressed through distinct suffixes, while in Chukchi, the comitative is a circumfix (*ge-* *-(t)e*) that appears to be built on the instrumental suffix (*-(t)e*). There is an additional accompaniment case, an associative case used to express part-whole relationships (*ga-* *-ma*). Although these are generally analyzed as grammatical cases in the literature on Chukchi (Skorik, 1961; Dunn, 1999), they appear to more closely resemble the nominalizing morphology in predicate possession (*ga-qaa-more* 'POSS-reindeer-1pl, we who have reindeer') and the perfect tense (*ga-pela-more* 'PRF-leave-1pl, we who have left') that we examined in section 3.2 above. Thus, whether these patterns represent a "shared" phenomenon is somewhat dubious: as is argued by Tuite (1999) (for the Caucasus) and Kantarovich (2019) (about Chukotkan-Yupik contact) on the subject of ergativity, we must be careful in attributing the emergence of certain grammatical categories (with markedly different morphological and syntactic realizations in the different languages involved) to unilateral contact explanations, especially when these categories are cross-linguistically well-attested.

The same difficulties hold when considering the areality of incorporation. As I discuss in the following section, incorporating

phenomena are largely also limited to the northeastern region, and there is minimal evidence of the spread of incorporation as a shared grammatical pattern, even between Chukotkan and Yupik—where incorporation is attested, it occurs in polysynthetic languages with an independently-apparent tendency towards head-marking. We do, however, encounter resemblant patterns of specific tokens of incorporation, which may have an areal explanation.

Despite the limited evidence for the spread of specific morphosyntactic features of the Chukotkan languages, they figure prominently in macro-areal proposals about Siberia, precisely because they are typological outliers. Another more radical proposal about the intensity and depth of linguistic relationships in Siberia has long been advocated by Michael Fortescue (1998; 2020), who claims that there is an ancient “mesh” or “stock” that the western and eastern Siberian languages descend from. His “Uralo-Siberian Hypothesis” is laid out alongside another proposal for long-range linguistic relationships, Edward Vajda’s “Dene-Yeniseian Hypothesis,” in Fortescue and Vajda (2022), where he updates the hypothesis to exclude the Chukotko-Kamchatkan languages, grouping them instead as part of a different stock that also includes Nivkh (Fortescue and Vajda, 2022: 152–154). Like the Chukotkan languages, Nivkh displays noun incorporation, possessor raising, pronominal prefixes/suffixes, free word order, and a number of other similar morphological phenomena (Fortescue and Vajda, 2022: 152), but none that cluster together in unexpected ways in another highly synthetic agglutinating language. There is limited evidence of any meaningful contact between Nivkh and any of the Chukotkan languages—the Nivkhs have historically lived in the lower Amur region and on Sakhalin, and have been in contact with speakers of Tungusic languages and Ainu (Forsyth, 1992: 206–211). Fortescue’s hypothesis is predicated on a time-depth that significantly predates written history and would require the macro-families to which these languages belong to have been in contact, or else to descend from a common ancestor (e.g., Proto-CK-Nivkh). Given the time depths involved such a link is extremely difficult to prove one way or the other; thus, for the present discussion, I set aside this hypothesis and focus on the well-established contacts among languages to the north of the region.

#### **4.2 Chukchi-driven contact in northeastern Siberia**

The history of language contact in northeastern Siberia is covered by others in this volume (see especially Matic, this volume). In assessing the influence of Chukchi on other languages (and vice-versa), it is necessary to understand the relative position of Chukchi in the sociopolitical and economic ecology of this region prior to Russian contact. The Chukchi were the most economically successful population in Chukotka for at least two

hundred years (Vakhtin, 1998: 164), and the Chukchi language functioned as a *lingua franca* in the region from the 18<sup>th</sup> century until the beginning of shift to Russian in the 20<sup>th</sup> century. There is evidence that Chukchi was a prestige language, serving as a *lingua franca* even among members of different Yupik tribes (such as between Central Siberian Yupik and Naukanski speakers). Chukchi was also the basis of several pidgins in northeastern Siberia (de Reuse 1994); in general, sources suggest that the Chukchi happily accepted the errors of their interlocutors when conversing with them (de Reuse, 1988: 493), and preferred to use a simplified version of the language with members of other ethnic groups (this is likely the language that became the basis of the *lingua franca*).

At the same time, the Chukchi assimilated members of other ethnic groups, particularly Chuvan Yukaghirs, groups of Evens in Chukotka and Kamchatka, and other Chukotkan communities, through conquest and intermarriage (Forsyth, 1992: 81). While the nomadic reindeer-herding Chukchi dominated Chukotka, there was also a smaller group of sedentary Chukchi living along the Bering Sea coast in proximity to Yupik groups since at least the 17<sup>th</sup> century (de Reuse, 1994: 296), although initial contact between these groups seems to have been superficial as the Chukchi continued to displace the Yupiks to the northeast, and intermarriage was uncommon until the beginning of the 20<sup>th</sup> century (de Reuse, 1994: 299).

Thus, in considering the potential diffusion of incorporation phenomena in this region, it is necessary to distinguish between several contact ecologies and, in turn, several possibilities for the instantiation of contact-induced change. The first contact ecology is what Thomason and Kaufman (1988) would call language maintenance, ranging from casual contact (with limited bilingualism and thus mainly lexical borrowing) to more intensive contact (with more bilingualism, sustained over a longer period of time, and therefore allowing for the possibility of some structural borrowing). Language maintenance typifies the economic dealings between the Chukchi and other ethnic groups; given Chukchi's political dominance and the higher prestige of the language, we certainly expect the borrowing of Chukchi linguistic material (i.e., MAT borrowing; Sakel, 2007) by the other languages, and among regular users of the Chukchi *lingua franca* we can expect the borrowing of some linguistic patterns and grammatical structures as well (i.e., PAT borrowing). This holds true for communities that were in contact with Chukchi, but not to the extent we might expect given the relative political dominance of the Chukchi. The exception to this is Yupik, which displays many instances of the borrowing of non-core vocabulary and grammatical particles from Chukchi (de Reuse 1994). Even and Yukaghir display limited borrowing from Chukchi in both the purely lexical and grammatical domains; Pupynina (2009) notes only a

handful of lexical borrowings in Even in addition to the borrowing of negation (double-marking with a particle *ač* and suffix *-la*, likely modeled on the Chukchi circumfix *e- -ke*). We also expect borrowing of lexical items by the Chukchi, particularly of non-basic vocabulary specific to the contact contexts. Indeed, this is exactly what we find most extensively in Chukchi-Yupik contact, but less so in contact involving the other languages. This may be explained by the tendency of the Chukchi to assimilate members of these groups (in which case, we would expect changes particular to the shift ecology described below, which are also minimal). In the case of Yukaghir contact in Chukotka, we are, of course, limited in our ability to identify contact effects from borrowing because the relevant Yukaghir language, Chuvan Yukaghir, is no longer spoken and was never well-described. Nevertheless, the Lower Kolyma dialect of Chukchi, whose speakers have been in sustained contact with Tundra Yukaghir, Even, and Sakha since the 1870s, remains fairly conservative in this regard as well (Pupynina, 2018). There are similarly few reported influences from Chukchi on Tundra Yukaghir. A possible explanation for the limited borrowing in these contexts is the Chukchi preference for using a simplified jargon in communicating with outsiders and reserving Chukchi for in-group communication, which might mean that in all but the most intense contact settings, contact would have been with the morphologically simplified jargon rather than Chukchi proper.

The second contact ecology is language shift; up until the mid-20<sup>th</sup> century, by and large, this shift would have been by speakers of Even and Chuvan Yukaghir, as well as the other Chukotkan languages, to Chukchi. There is compelling linguistic evidence for substrate effects from the other Chukotkan languages on Chukchi phonology and morphophonology, particularly in the development of the Chukchi women's variety, which has its roots in the assimilation of women from southern Chukotkan groups into Chukchi communities, sometimes by force (Dunn, 1999; 2000). Less has been said of any potential morphosyntactic substrate effects, since morphosyntactic variation in Chukchi is generally regarded as minimal, but this position is not conclusive and studies of different Chukchi dialects are still ongoing. As we have already seen, there is less documented evidence of substrate effects from the non-Chukotkan languages in contact with Chukchi, namely, Even, Yukaghir, and Yupik.<sup>10</sup>

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<sup>10</sup> It should be noted that a Yupik substrate has been claimed in Chukotkan to motivate the development of ergativity (Fortescue, 1997). An alternative explanation for the emergence of ergativity in Chukotkan is offered by Kantarovich (2019), focusing on social reasons why a Yupik substrate is unlikely at the necessary time depth. An alternative account of Chukchi-Yupik

Finally, we must also consider the more recent shift setting that has emerged throughout Siberia. Following the mid-20<sup>th</sup> century, all of the minority Indigenous languages of the northeast have been losing ground to Russian, including Chukchi.

Bearing these facts about the nature of Chukchi in contact, we turn now to predictions about the types of changes we might expect to find in the languages in question, particularly as they relate to incorporation. There are several well-known clines of borrowability which posit tendencies in the outcomes of language contact (Matras, 2007; 2011; Gardani, 2008). In general, lexical items with specific content (i.e., stems) are borrowed more easily than functional/grammatical morphology, while nominal lexical items and morphology tending to be borrowed more easily than those in the verbal domain. Backus and Verschik (2012) further suggest that *matter* is more easily borrowed the more specific the meaning of a lexical item, and the more isolable it is. Within the domain of functional borrowing, they argue that it is easier to adopt patterns of morphology rather than morphological material, which tends to be bound and is therefore more difficult for non-native speakers to successfully isolate as a borrowable item. Thus, our expectation around the adoption of incorporation is that the adoption of incorporation patterns (especially those that are compatible with the adopting language's structure) will be more frequent than the copying of abstract verbalizing morphology, while the borrowing of specific lexical compounds (with highly salient meanings) will be the most frequent. Finally, grammatical reconfiguration due to contact is expected to be the most difficult, and requires the greatest duration and intensity of contact. Thus, we expect roughly the following cline of borrowable/adoptability of Chukchi incorporation patterns by other languages:

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contact, however, suggests that there was considerable shift by Yupiks to Chukchi following a decline in the whaling economy of the Bering Sea (Artjunov et al. 1982: 153–157), and therefore Yupik substrate effects are not precluded by socio-historical facts. If this is the case, however, the absence of more considerable Yupik substrate effects on Chukchi (on the coastal varieties specifically) is even more puzzling.



(32)	Borrowing of highly specific incorporation compounds (with lexical material)	>	borrowing of frequent incorporation construction patterns (without lexical material)	>	Borrowing of abstract verbalizing affixes	>	grammatica l borrowing of incorporati on as a productive word- formation strategy
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In considering the reverse scenario—the effects of contact on Chukchi—we expect the greatest degree of borrowability between the sedentary maritime Chukchi and Yupiks, given that they have had sustained contact over an extensive period of time, without Yupik giving way entirely to Chukchi.

The patterns with respect to the distribution of incorporation phenomena roughly follow this cline: there is indeed more evidence in favor of the diffusion of frequent incorporation *patterns* rather than derivational morphological material. Perhaps surprisingly, however, the direct borrowing of highly specific Chukchi lexical compounds (the first part of this cline) is also limited, though it accords with general patterns in contact-induced change involving Chukchi. In the incorporation case, this can perhaps be explained by the specific vocabulary involved in common incorporation collocations: it tends to involve core vocabulary and vocabulary for common everyday occurrences, which itself is unlikely to be borrowed. However, the relatively low number of matter loans has also been observed in other studies of Siberian language contact (Pupynina and Aralova, 2021) and may be a product of the uniquely multilingual context of the region (Vinyar, 2023).

As expected, the fourth category is the least attested; in fact, there is no evidence that any language has developed productive incorporation due to contact; the two languages that display such incorporation—Chukchi and Yupik—evidence incorporation phenomena at the level of their respective proto-languages (Proto-Chukotkan and Proto-Aleut-Inuit-Yupik), such that these incorporating tendencies of these languages predate significant contact. Their incorporating morphology is also typologically distinct: there is no evidence, for example, that the Inuit-Yupik languages have ever had canonical noun incorporation by verb stems. Inuit-Yupik verbs belong either to the class of verbs that incorporate their objects or instruments obligatorily (denominal/suffixal verbs or verbal postbases) or else they do not productively incorporate a nominal argument.

The following sections assess specific examples of shared (or at least resemblant) incorporation phenomena in Chukchi and neighboring languages. Section 4.3 discusses several straightforward cases of the borrowing of incorporation compounds and denominal verbal suffixes between Chukchi and Yupik, including both the wholesale borrowing of material and the adoption of similar patterns. Section 4.4 examines the areality of denominal verbs in the Siberian region more broadly. Section 4.5 considers incorporation-like patterns in Tungusic, Yukaghir, and Yupik that do not directly mirror those in Chukchi, but may point to shared tendencies in information structure and discourse-motivated uses of nominalizations in Siberia. Finally, section 4.6 examines the status of incorporating morphology in Chukchi as its speakers shift to Russian.

#### 4.3 Borrowing of suffixal (denominal) verbs in Chukchi-Yupik contact

The greatest degree of overt similarity between specific incorporation constructions is observed between Chukchi and Yupik, in which the languages have borrowed both material and patterns from one another within the domain of verbal incorporation. In addition to the conduciveness of the sustained contact between them, the sharing of these patterns is facilitated by the typological closeness of the two languages, which are both polysynthetic and both independently display highly productive incorporation phenomena. (33) gives a relatively recent borrowing from Chukchi into Central Siberian Yupik (de Reuse 1994: 353; cited in Fortescue and Vajda 2022: 149):

- (33) a. Chukchi  
*nəmə-twa-*  
home-COP  
'live; reside'
- b. Central Siberian Yupik  
*nemetwə-*  
stay.home  
'stay at home or in one place'

Another example features the borrowing of compound consisting of a noun plus the verbalizer *-et* (de Reuse 1994: 351), which is borrowed as part of a new verb stem in Yupik:

- (34) a. Chukchi  
*kənt-et-*  
 success-VBLZ  
 ‘to be successful’ (from the noun stem *kəntagərgən* ‘success’)
- b. Central Siberian Yupik  
*kentate-*  
 be.successful  
 ‘be successful’

Several Chukchi speakers in Anadyr also make use of what appears to be an innovative kind of adposition-based incorporation, which finds a parallel in the Inuit-Yupik languages but is not attested in descriptions of Chukchi, and thus may represent a recent borrowing. Three speakers independently produced the following kind of verbalization, in which the postposition<sup>11</sup> *-cəku* ‘into (INESS)’ incorporates a location argument, with the meaning ‘to go into N’:

- (35) a. *qəmek*                      *Ø-mimlə-cəku-gʔi*  
 nearly                              3sgS-water-INESS-3sgS  
 ‘He nearly ended up in the water.’
- b. *lejwineŋ*                      *g-eʔl-cəku-lin*  
 vehicle.ABS.SG                  PRF-snow-INESS-3sg  
 ‘The vehicle was inside a snow pile.’

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<sup>11</sup> There are a variety of ways to analyze the locational morphology in these examples, e.g., as postpositions or as adverbial suffixes. Both of these possibilities are compatible with an analysis where the locational suffix heads the construction and obligatorily incorporates a noun. There are no instances in my corpus of the Chukchi inessive marker being used in denominal verbs without a prefixed location noun (e.g., to mean something like ‘he went in’). Unlike the Kalaallisut example, which can be interpreted as an instance of the incorporation of a case-inflected form (*Nuum-mi* ‘Nuuk-LOC’, incorporated by a copula), the Chukchi inessive is not a true case, since it can combine with other locative morphology as in *qora-cəko-jpə* ‘reindeer-INESS-ABL’ (Dunn, 1999: 99). Thus, these examples do not pose a challenge to the observation that Chukchi does not incorporate inflected nominals (Olthof, 2020).

- c. *Nuummiippunga*  
*Nuuk-mi-i-ppunga*  
 Nuuk-LOC-COP-1sgS  
 ‘I am in Nuuk’ (comparative example from Kalaallisut (Inuit),  
 from my own fieldwork)

Other parallels in denominal verb constructions between the two languages are assessed in the following section.

#### 4.4 Denominal verbs as a possible areal feature of northeastern Siberia

A possible areal explanation for the distribution of denominal verbs is proffered by Vinyar (2019; 2023), who examines the distribution of such constructions across 74 languages representing 14 language families in Eurasia and North America. He identifies a statistically-significant concentration of these verbs in the Siberian linguistic area, clustering in 4 languages: Chukchi, Central Siberian Yupik (CSY), Even, and Nganasan. The denominal verbs in these languages also tend to cluster around the same semantic categories, illustrated by the following table (based on Vinyar 2023: 110). It is the existence of these distinct semantic categories that provides compelling evidence that these are not merely generic verbalizing morphemes: they retain the lexical content of the stems they are likely derived from, in referring to specific events and actions.

**Table 3. Recurring semantic categories of denominal (affixal) verbs in Siberian languages**

	‘use’	‘hunt’	‘gather’	‘smell’	‘play’
CSY	✓	✓	✓	✓	✓
Chukchi	✓	✓	✓		
Even	✓	✓	✓	✓	✓
Nganasan	✓	✓		✓	✓

In addition to these categories, denominal verbs of consumption are also well attested in northeastern Siberian languages: Chukchi *-u*, Even *-tl*, and Central Siberian Yupik *-tugh*.

The most abundant examples of affixal verbs are found in Yupik, followed by Chukchi. (36) gives additional examples of the verbs with overlapping meanings in the two languages. With the exception of *-nge* and *-nett/-nye*, which could plausibly be matter borrowings, the phonological resemblance between these verbs is limited. If these represent an areal phenomenon shared by the two languages, it is most likely a case of pattern borrowing. Most of the denominal verbs found in Chukchi are also attested

in the other Chukotkan language and could, of course, be an innovation dating to Proto-Chukotkan; however, we must also allow for the possibility that they are a borrowing into Chukchi from Yupik that spread to the other Chukotkan languages via continued contact among them.

(36)	Central Siberian Yupik <sup>12</sup>	Chukchi	
a.	<i>-siigh; -tagħ</i>	<i>-gərki</i>	‘gather N’
b.	<i>-niigh; -qu</i>	<i>-gili</i>	‘hunt for N’
c.	<i>-nge; -agh; -kagħte</i>	<i>-ɲett; -nɲe</i>	‘get/catch N’
d.	<i>-li; -i</i>	<i>ta- -ɲ</i>	‘make N’
e.	<i>-tugh</i>	<i>-u</i>	‘consume N’
f.	<i>-igh</i>	<i>-tw</i>	‘remove N’

Another fact about the use of these denominal verbs in both languages that may point to shared development at some point is that the denominal verbs are in complementary distribution with the corresponding verbal stems: in the Inuit-Yupik languages, only denominal verbs incorporate their arguments, while in Chukchi, verb stems do not incorporate their arguments whenever there exists a denominal verb with a corresponding meaning. Thus, we have the following parallel distribution in the two language families:

(37)	Inuit-Yupik (Greenlandic)		
a.	<i>qimmi-p</i>	<i>saaneq</i>	<i>neri-vaa</i>
	dog-REL	bone.ABS.SG	eat-IND.3sg>3sg
	‘The dog is eating the bone.’ (Non-incorporating verb stem)		
b.	<i>qimmeq</i>	<i>saani-tor-poq</i>	
	dog.ABS.SG	bone-consume-IND.3sg	
	‘The dog is eating a bone.’ (Incorporating denominal verb)		

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<sup>12</sup> Yupik examples were obtained from the online St. Lawrence Island Central Siberian Yupik dictionary, which is hosted at [http://computational.linguistics.illinois.edu/yupik/index\\_dictionary\\_transducer.html](http://computational.linguistics.illinois.edu/yupik/index_dictionary_transducer.html).



were part of frequent N-V compounds in one or more languages, which either facilitated their innovation in neighboring languages promoted their sustained use.

In addition to these verb types, there are other resemblant verbalization patterns in Even and Chukchi that are suggestive of contact influence (from Chukchi on Even). For example, in Chukchi it is most idiomatic to express ‘to fish’ with a denominal verb construction, ‘rod-use’:

- (39) *qlawel*            *n-aʔnel-o-qen*  
 man.ABS.SG    HAB-fishing.rod-use-3sg  
 ‘The man rod-uses (=rod-fishes).’

A similar construction is used by speakers of several Even dialects (in Bilibino and Berezovka); this type of construction (40a) stands in contrast to the more standard analytic construction offered by other speakers (40b) (Lenore Grenoble, p.c.):

- (40) a. *bej*            *čeŋeči-d-de-n*  
 man.NOM    **rod**-IPFV-PRS-3SG  
 ‘The man rod-fishes (lit. the man rods).’
- b. *bej*            *čeŋeč-ič*    *olra-β*    *hepken-dej*  
 man.NOM    **rod**-INS    fish-ACC    catch-CVB.PURP  
*manru-ri-n*  
 try-PST-3SG  
 ‘The man tried to catch a fish with a fishing rod.’

The unexpectedness of the direct verbalization of a noun in Even as in (38b) is stronger evidence for contact influence; such examples are limited in Even and are unlikely to have been independently innovated.

#### 4.5 Similarities in discourse and information structure in northeastern Siberian languages

The final potential shared pattern we will consider concerns not the distribution of specific incorporating material or patterns, but rather certain recurrent tendencies in information structure in the Siberian languages. The first is one we have already discussed in section 3.2: the preference for the use of predicate nominals and other kinds of nominalizations in place of finite verb forms. A very similar pattern to the one recorded by Bogoras for Chukchi (the use of a nominal such as ‘we are the ones who kill the reindeer’ instead of ‘we kill the reindeer’) is found in Tundra Yukaghir:

- (41) *qaduŋudəŋ u:-nu-j köde ɲol-k?*  
 whither go-IPFV-PTCP person be-INTER.2SG  
 ‘You are a person who goes where? (Literal meaning)’ (Matić  
 and Nikolaeva, 2014)

We can see additional evidence of a tendency towards the nominalizing of verb forms in the possible pan-Siberian morphosyntactic phenomenon identified by Anderson (2006): the widespread use of case-marked nominals of various kinds for subordination across virtually all of the language of Siberia (for our purposes, notably in Chukotko-Kamchatkan, Tungusic, and Yukaghiric).

Thus, the Chukotkan patterns of elaborate incorporation in the nominal domain (which were also grammaticalized as stative tenses) may have actually emerged from a general Siberian tendency to overuse nominalizations.

Relatedly, the Chukotkan languages are not the only ones to make use of incorporation-like patterns where the incorporated argument continues to be available for further modification by the syntax. In several other northeastern Siberian languages, there are limited contexts where nouns are incorporated by privative, acquisitive, and proprietive denominal morphology (Nikolaeva and Spencer 2020):

- (42) Tundra Yukaghir
- a. *ma:rqə-n la:mə-ń-ɲi*  
 one-AT dog-PROPR-INTR.3PL  
 ‘They had one dog.’ (Maslova, 2003: 70)
- b. *ma:rqə-n la:mə-r-ɲi*  
 one-AT dog-ACQUIS-INTR.3PL  
 ‘They acquired one dog.’ (Dejan Matić, p.c.)
- (43) a. Evenki  
*oro-či-l-du asa-l-du*  
 reindeer-PROPR-PL-DAT woman-PL-DAT  
 ‘to the women having a reindeer’ (Nikolaeva, 2008)



b. Berezovka Even

*adi=da*                      *hute-lke:n*                      *asi*  
 how.many=ADD      **child**-PROPR                      woman

‘a woman with a couple of children’ (Dejan Matić, p.c.)

As we can see from these examples, the bolded incorporated noun (referred to as the base noun by Nikolaeva and Spencer) continues to be accessible to syntactic processes. A similar phenomenon is found in the Inuit-Yupik languages, where an incorporated noun is modified by an adjective marked with the instrumental case:

- (44) *Minik*                      *moderniusu-mik*                      *inissia-qar-poq*  
 Minik                      modern-INS.SG                      flat-have-3sg  
 ‘Minik has a modern flat.’ (West Greenlandic; Kahn and Valijärvi, 2021: 125)

These constructions strongly resemble Chukchi patterns of possessor raising, where a remaining argument (in this case, marked by the absolutive case) is understood to be the possessor of the incorporated noun (in certain uses, qualifying the kind of the incorporated noun). Whether this is a truly “shared” pattern is difficult to say; it is attested in several Tungusic languages (Northern and Southern Tungusic), not just those in contact with the Chukotkan languages, and in both surviving Yukaghiric languages. They may be independently motivated by the tendency towards the exuberant use of case (and other nominal) morphology that is attested across the Siberian languages, which itself may simply be a typological, internally-motivated phenomenon among the different languages. Still, these constructions have in common the qualification of an incorporated (possessed) noun via an external case-marked adjective or noun stem, a pattern that is not cross-linguistically well-attested as the preferred strategy for possessee modification and would have been unlikely to develop on its own in so many unrelated but geographically adjacent languages. It is highly plausible, therefore, that there is some underlying influence from pan-Siberian discursive tendencies.

#### 4.6 The robustness of Chukchi incorporation in language shift

Finally, in assessing the status of incorporating phenomena in the northeastern Siberian areal context, it is necessary to also consider the modern ecology, which is one of rapid shift to Russian. So far, we have considered shift as it produces changes in the target language—the dominant language to which speakers are shifting. The corollary of this situation—the changes that are produced in the language speakers are shifting *from*—is a relatively understudied dimension of the shift ecology.

There is good reason to assume that the changes in either language will differ, as they occur via different mechanisms (interference from the L1 in acquiring the target language vs. interference and attrition in the L1 as a speaker becomes more dominant in their L2). Changes produced in a language being shifted from may not adhere to the cross-linguistic tendencies we observe in other cases of language contact. For example, in her study of the copying of derivational morphology from Sakha into Lamunkhin Even, Pakendorf (2015) observes a greater number of copies of abstract verbal morphology (including inflectional morphology) than nominal morphology. While this appears to pose an exception to cross-linguistic tendencies in borrowing, it is not unexpected in a scenario where many of the Even speakers are actually Sakha-dominant. There is also evidence that the particular contact language (the target language) does not condition the linguistic results of shift, as opposed to disruptions in acquisition and maintenance that are common to all shifting languages (Kantarovich 2020).

Studies of noun incorporation in advanced language shift have generally shown that there is a reduction in the productive use of derivational morphology (Mithun 1984; 1989; Vakhtin and Gruzdeva 2017), specifically among younger speakers who have been more likely to grow up with disrupted acquisition of their minority language and limited opportunities to use it. Mithun (1984) proposed that the loss of noun incorporation would proceed in the reverse direction of the implicational hierarchy, terminating with Class I NI, intransitive lexical compounds. This prediction is largely borne out in Chukchi (Kantarovich 2020; 2022), with the youngest group of Chukchi speakers surveyed using verbal derivational morphology such as incorporation and valency-changing operations the least frequently as well as the least productively. Still, there are several exceptions to the general expectation of derivational reduction that can be observed in modern Chukchi, particularly in the domain of incorporation.

While we may predict that incorporation would be susceptible to loss due to the absence of productive incorporation in Russian (and to the general loss of derivational productivity that has been reported in language shift), there is evidence that Chukchi incorporation was and has continued to be quite robust among bilingual speakers. Skorik (1961: 98) notes a number of newly-coined examples of nominal and verbal incorporation, featuring the incorporation of (and by) Russian stems and demonstrating that incorporation was still quite productive at this time (Russian stems are bolded):

- (45) a. *geroj-warat-eta* 'to a heroic people (lit. **hero-people-DAT**)'

- b. *ŋawæckat-brigada-ta* ‘with a female brigade (lit. woman-**brigade**-INS)’
- c. *majŋə-doxodə-lʔ-ən* ‘having a large income (lit. large-**income**-PTCP-ABS.SG)’
- d. *rʔaqaraw-smolenskə-rʔet-jekwe* ‘along the historic Smolensk road (lit. historic-**Smolensk**-road-PERL)’
- e. *kerosinə-tke-k* ‘to smell of kerosine (lit. **kerosine**-smell-INF)’
- f. *ənnə-ŋəttə-artelʔ* fish-hunting artel (=an association of craftsmen in the Soviet period), lit. fish-catch-**artel**’

The productive incorporation of Russian vocabulary continues to the present day and is well-attested in my corpus:

- (46) a. *armija-plətko-k*      *ge-migciret-igəm*      *celgə-ra-k*  
 army-finish-CVB.SEQ    PRF-work-1sg      red-house-LOC  
 ‘After finishing my army service I worked at the “Red Jaranga” program.’
- b. *t-ra-pensija-pere-gʔa*  
 1sgS-FUT-pension-receive-1sgS  
 ‘I will retire (lit. pension-receive).’

There is also evidence that speakers continue to innovate new, productive incorporating morphology in Chukchi. We have already seen examples of this: VP-incorporation by noun stem participles (10) and preposition-based incorporation (35), which is used by conservative older speakers and attriting speakers alike. One possible explanation for the exceptional preservation of incorporating morphology in Chukchi is the fact that it is situated in a linguistic area with other highly synthetic languages, which make use of verbalizing morphology that is extremely similar to productive incorporation (like denominal verbs); perhaps the continued contact with these languages has shored up incorporating phenomena in Chukchi where other polysynthetic features have given ground to analytic morphology (Kantarovich, 2020). Another possibility, however, is that we should not necessarily expect unilateral loss of

morphological productivity in shift; further studies of variation in shift will help us develop a more-nuanced typology of shift-induced change.

## 5 Conclusion

Chukchi, along with the rest of the Chukotkan languages, displays a range of stem-combining morphology that can straightforwardly be analyzed as incorporation, broadly construed. These phenomena include incorporation by verb stems and incorporation by noun stems, as well as the structurally similar phenomena of denominal verbs (and the generic verbalizer *-et*) and nominal participle formation. These affixal forms combine with stems in exactly the same way as their stem counterparts: (i) denominal verbs select for the same types of stems as incorporating verb stems and produce the same changes to verbal valency (valency reduction or rearrangement); (ii) the derived participles formed on *-lʲ/-jo* in Chukchi show the same grammatical constraints (and absolutive alignment) as participles formed through incorporation by nominal stems.

There are several advantages to this unified treatment of stem-combining and other kinds of derivational processes: understanding these phenomena as synchronically parallel allows us to recognize the clear diachronic link among them, while bridging certain elements of lexicalist and formalist approaches to (noun) incorporation. We have seen how incorporation by stems as well as affixes can serve as pathways for the grammaticalization of two kinds of verbal morphology: valency-changing operations (via the incorporation of an underspecified noun or a generic causativizing verb) and inflectional morphology (the stative inflectional paradigms, based on nominal participles, and the agreement-suppressing incorporation of the same underspecified noun, which is motivated by different conditions in the active vs. stative paradigms that are most easily explained thanks to their distinct diachronic sources).

From these findings, it is also apparent that incorporation phenomena have historically been extremely robust in Chukchi, and a contact-based explanation is not needed to motivate them: morphological (and argument structural) manipulation through incorporation is an inherent component of how Chukotkan grammar is organized and is unlikely to have emerged due to contact. However, the robustness of these patterns across time has led to the uptake of incorporation-like derivational morphology in neighboring languages of northeastern Siberia, particularly Even. Meanwhile, contact with other synthetic (agglutinating) and polysynthetic languages has likely had the effect of bolstering incorporation in the Chukotkan languages, even as intense contact with and shift to Russian would anticipate their loss. Chukchi in particular appears to pose an exception to the types of generalizations that have been made about languages in shift, where we anticipate a reduction in morphological

productivity of the language being shifted from. While some modern speakers of Chukchi avoid synthetic constructions in favor of analytic alternatives and display a lower degree of productivity of derivational morphology, other speakers evidence even *more* productive use of derivational morphology than has previously been described, particularly in the domain of incorporation. Thus, diachronic-comparative research of this kind, where the languages in question have been giving ground to a dominant, majority language for decades, would also benefit from a better typology of changes in language shift in order to adjudicate among shared historical changes vs. the shared effects of shift.

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