Chapter 2

The causal-noncausal alternation in the Northern Tungusic languages of Russia

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Languages differ widely in the way they code causal-noncausal alternations, in which a verb event is either presented as happening by itself (the noncausal event) or as being instigated by an external causer (the causal event). Some languages, such as English, tend not to make a morphological distinction; rather, the same form of certain verbs can express both a causal and a noncausal event, depending on the context. Other languages, such as Romanian or Russian, have a strong tendency to mark the noncausal event morphologically, while yet others, such as Turkish, tend to code the causal event with morphological means (Haspelmath 1993).

We here investigate the causal-noncausal alternation in Even, Negidal, and Evenki, three Northern Tungusic languages spoken in the Russian Federation, in a cross-linguistic perspective. In these languages, morphological means for decreasing and increasing valency predominate, although equipollence – in which both forms are morphologically marked without one being derivable from the other – is a salient strategy for verbs of destruction. Although we find broadly comparable coding patterns in these and other Tungusic languages that are similar to what is found in other languages of Northern Asia, there are numerous intriguing differences at a fine-grained level.

Keywords: Northern Asia, valence, causative, anticausative, equipollence, form-to-frequency correspondence, Tungusic

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1 Introduction

The alternation between a causal and a noncausal (sometimes more specifically called inchoative) form that certain verbs can undergo has drawn a lot of scientific attention, both from a formal perspective – with a focus on only one or two languages, mainly English – and from a typological perspective based on cross-linguistic comparison (see, among many others, Haspelmath 1993; Nichols et al. 2004; Comrie 2006; Schäfer 2009; Koontz-Garboden 2009; Haspelmath et al. 2014; Levin 2015). The verbs involved in this kind of alternation form pairs

> which express the same basic situation […] and differ only in that the causative verb meaning includes an agent participant who causes the situation, whereas the inchoative verb meaning excludes a causing agent and presents the situation as occurring spontaneously. (Haspelmath 1993: 90)

Intriguingly, not all verbs undergo this alternation: while 'break' does, 'cut' does not (cf. Schäfer 2009: 653). Furthermore, languages differ greatly in the way they code causal-noncausal alternations (e.g. Haspelmath 1993; Nichols et al. 2004). Thus, some languages, such as English, tend not to make a morphological distinction; rather, the same form of some verbs[1] can express both a causal and a noncausal event, depending on the context, e.g., English *break* or *melt*. Other languages have a strong tendency to mark the noncausal event morphologically, as seen by Romanian *se sparge* : *sparge* and Russian *lomat'sja* : *lomat'* 'break' and Romanian *se topi* : *topi* and Russian *plavit'sja* : *plavit'* 'melt'. Here and throughout the paper the first verb of each pair is the noncausal member (i.e. an intransitive verb) and the second is the causal member (i.e. a transitive verb). A third type of languages, such as Turkish, tends to code the causal event with morphological means,[2] as shown by the translation equivalents of 'melt' and 'fill': *eri-* : *erit-* and *dol-* : *doldur-*, respectively (Haspelmath et al. 2014: Appendices). When it is the noncausal member of the pair that is derived morphologically from the causal member, such as Negidal *ʧaptʧaβ-* : *ʧaptʧa-* 'break', we will use the term *anticausative coding*. In contrast, when it is the causal member of the pair that is morphologically derived, as in the Negidal pair *un-* : *uniβkan-* 'melt', we will use the term *causative coding*.

[1] These are mainly patient-preserving labile verbs denoting a change of state, verbs of motion, and some psych verbs (Zúñiga & Kittilä 2019: 181–182).

[2] That this is just a tendency and not an obligatory rule is shown by the fact that for 'break' Turkish marks the noncausal event morphologically: *kırıl-* : *kır-* (Haspelmath et al. 2014: Appendix A7).

Non-morphological strategies found to express the causal-noncausal alternation are: 1) syntactic (or: periphrastic) causativization, such as *cause to die* in English (which falls outside the scope of this article); 2) ambitransitivity, as is common in English, where so-called labile verbs can express both the causal and the noncausal event, as illustrated above with 'break' and 'melt'; 3) suppletion (also called lexical causativization, Zúñiga & Kittilä 2019: 25), where different roots are used to express the two events, such as English *die* vs. *kill*; and 4) equipollence, where the causal-noncausal alternation is formally marked, but neither form can be analysed as being derived from the other. This can be illustrated with the Negidal pair *ɟəgdə-* : *ɟəgdi-* 'burn', where the stem ending in *-ə* is intransitive and that ending in *-i* is transitive, and where the bare root *ɟəgd-* does not exist.

These differences in coding have been explained by the so-called degree of spontaneity of the verb event, that is, to what extent an external causer is involved in the event:

> [E]vents that are placed on the spontaneous extreme of the scale would be those that can be perceived as internally caused. The occurrence of an external cause in these events is very unlikely. The externally caused events would correspond to a wider portion of the scale of spontaneous occurrence, including not just the events on the non-spontaneous extreme of the scale, but also those in the middle of the scale. (Samardžić & Merlo 2012: 4)

A different approach holds that form-frequency correspondences might account for the coding preferences (Haspelmath et al. 2014): where the noncausal member of a pair occurs more frequently, it will be the causal member that is coded overtly; conversely, if the causal member is used more often, it will be the noncausal member that is marked. In a further development, Haspelmath links the notion of degree of spontaneity to the form-frequency correspondence:

> Meanings higher on the spontaneity scale tend to require longer (and more analytic) causative markers because it is less common (and hence less expected) that one uses them in a causal context, so the speaker needs to make a greater coding effort to signal the causal meaning to the hearer. Conversely, meanings lower on the scale tend to have anticausative markers because it is less common and less expected to find them in a noncausal context, so speakers need to expend coding energy to signal the noncausal meaning. (2016: 57)

An additional perspective concerning the actual use of causal vs. noncausal verbs in discourse takes pragmatic considerations into account, with the causal

member of a pair being considered more informative in the description of events that involve an external causer (Levin 2015: 77–78 reporting on Hovav 2014). Thus, speakers are assumed to choose a particular member of a causal-noncausal pair "based on their intentions, their perspective on the situation being described, and the discourse context" (Levin 2015: 78).

The preferred means of coding the alternation has been shown to be relatively stable over time, at least in some European languages (e.g. Comrie 2006: 314–317; Plank & Lahiri 2015: 45). Nichols (2018), however, argues that in certain contact situations causative coding functions as an "attractor", that is, languages change their profile towards more causative coding. She explains this with causative coding being more iconic: the added semantic content (an agent who causes the event) is expressed by an added element in the verb form; furthermore, causatives can fairly straightforwardly grammaticalize out of phrases with the verb 'make'. Finally, Creissels (to appear) points out that semantic changes can affect the coding of particular verb pairs. For example, in several sub-Saharan African languages, the pair 'go out/put out (a fire)' exhibits a cross-linguistically rare suppletive strategy. This can be explained by the fact that it has lexicalized out of 'die/kill', and in doing so has maintained the suppletive coding strategy found for 'die/kill'.

In this article, we describe the strategies used by the three Northern Tungusic languages spoken in the Russian Federation, namely Even, Evenki, and Negidal, from both a discourse frequency and functional perspective, and discuss them in the light of cross-linguistic studies and comparative data from other languages spoken in Eurasia. We base our study on a twenty-verb meaning list proposed by Creissels (2018) specifically to investigate causal-noncausal alternations (1).

(1) boil; break; burn; close; run out/use up; dry; fall/drop; get wet/(make) wet; go out/extinguish; increase; melt; move (here: go/bring); open; rise/raise; split; spoil; spread; stop (of humans); turn over; twist

As can be seen, most of the verbs in the list involve an inanimate S/O-argument upon which an animate A-argument can act in the causal state of affairs. In this, the list differs from those used in many of the preceding studies of the causal-noncausal alternation, such as Haspelmath (1993) or Nichols et al. (2004), which included verbs with both inanimate and animate undergoer, or Nichols (2018), which focusses on nine verb pairs with animate undergoer. The impact that the choice of verb meanings has on the results of the study will be addressed in §4.

The remainder of the paper is structured as follows: In the next section we briefly introduce the three languages on which this article is based and describe

our data sources. In §3 we describe the strategies these languages employ to code the causal-noncausal alternation, and in §4 we discuss the differences in frequency and function of these strategies among the three languages. In §5 we discuss the Northern Tungusic data from a genealogical and cross-linguistic perspective, and in §6 we investigate to what extent the form-to-frequency hypothesis set up by Haspelmath et al. holds for Even and Negidal. We end the paper with brief conclusions in §7.

2 The languages and data

Although there is as yet no consensus on the internal branching of the Tungusic family tree (compare, for example, the classifications in Atknine 1997 and Janhunen 2012), all classifications agree that Even, Evenki and Negidal belong to one branch, which we here label with the traditional term "Northern Tungusic''. Within this unit, Evenki and Negidal are more closely related to each other than either is to Even.

Even and Evenki are spoken by small communities scattered over a vast area of Siberia, from the Yenisey in the west to the Sea of Okhotsk in the east and from the Taimyr Peninsula in the north to northern China in the south. Evens and Evenks traditionally practised highly nomadic hunting and reindeer herding, with concomitant dispersal of the individual communities, resulting in a high degree of dialectal fragmentation. For Even, we use both published dictionaries representing the so-called standard, and a text corpus comprising data from mainly two dialects:[3] Lamunkhin Even spoken in the village of Sebjan-Küöl in central Yakutia and Bystraja Even spoken in central Kamchatka. The total Even corpus comprises largely monologues, especially autobiographical narratives and some folklore, but also includes a few conversations. Sixty-six speakers (44 women and 22 men) of varying proficiency and aged 11 to 78 years at the time of recording contributed to the corpus, which numbers approximately 90,000 words. For Evenki, we base our study on published dictionaries; these represent largely the southern dialects that form the basis of the so-called standard language (cf. Table 1).

Negidal used to be spoken by a very small population of traditional fishermen and hunters settled along the lower reaches of the Amgun' river (a tributary of the Amur), and used to comprise two dialects (Myl'nikova & Cincius 1931; Khasanova & Pevnov 2003). Nowadays, however, the Lower Negidal dialect is already extinct, and the Upper dialect is spoken with varying proficiency by only

[3]The corpus also includes a few texts collected from three speakers of the Tompo dialect. We were unfortunately unable to treat the individual dialects separately due to lack of data.

five elderly women (Pakendorf & Aralova 2018).[4] Our study is based on three types of sources for Negidal (cf. Table 1): 1) We elicited the list of 20 verb meanings with two speakers (one fluent, one less so), and 2) we used the Negidal-Russian dictionary appended in Cincius (1982) to find lexemes that the speakers hadn't been able to remember. 3) We searched for the verb meanings in a corpus of transcribed, translated, and glossed oral recordings of the Upper dialect (Pakendorf & Aralova 2017) numbering approximately 60,000 words at time of writing and comprising fairy tales, everyday stories, descriptions and procedural texts as well as some conversations. These recordings represent nine different speakers, eight women and one man, of whom four women cannot be considered fluent anymore. Five of the women are a mother and her four daughters, and the recordings provided by the mother (now deceased; see footnote 4) and her oldest still living daughter make up the bulk of the corpus. Table 1 summarizes the data sources used for this investigation as well as the abbreviations used in the text to reference the languages.

Table 1: Data sources

Even (Evn)	Negidal (Neg)	Evenki (Evk)
Cincius & Rišes (1952)	List of 20 verbs elicited with 2 speakers	Boldyrev (1994)
Verified with Robbek & Robbek (2005)	Verified and completed using Cincius (1982)	Verified with Boldyrev (2000) and Myreeva (2004)
Dialectal corpora of oral narratives (c. 90k words)	Corpus of oral narratives (Pakendorf & Aralova 2017; c. 60k words)	

[4]Note that Pakendorf & Aralova (2018) list seven speakers; however, one of them (speaker 1 in their Table 1) passed away in April 2019, and another (speaker 5) passed away in February 2020.

3 Strategies of coding the causal-noncausal alternation and further valency changes in Even, Negidal, and Evenki

The most frequent strategy found in the Northern Tungusic languages to code the causal-noncausal alternation is morphological marking, with equipollence being fairly common as well (especially in the domain of verbs of destruction, see below); in contrast, we found only few verb meanings in Negidal and Evenki where an ambitransitive pair coexists with at least one pair showing morphological derivation; see (2a, b) for a Negidal example.

(2) a. Negidal (Pakendorf & Aralova 2017: GIK_bear: 32–33)
taduk məjgaː-ja-n itɕe-kte ni=lə
then think-NFUT-3SG see-HORT.SG who=FOC
huki-sin-e-n=də *ɟaɟa-ŋi-n ti:*
turn.around-TAM1-NFUT-3SG=ADD bear-POSS-PX.3SG thus
daga-ma-tɕa
near-VR-PST[3SG]
'Then he thinks, let me see who it is. He turns around, and the bear [lit. his uncle] has [already] come close like this.' /
'Потом думает, давай посмотрю, кто это. Поворачивается, а дядя (=медведь) уже вот подошел.'

b. Negidal (Pakendorf & Aralova 2017: GIK_shuka: 13)
əsi=gdə odin odi-l-la-n ogda-βa-βun
now=CONTR wind blow-INCH-NFUT-3SG boat-ACC-PX.1PL.EX
huki-sin-e-n
turn.around-TAM1-NFUT-3SG
'… suddenly the wind blew and turned the boat around.' /
'… вдруг ветер подул, лодку повернул.'

Although we did not find any suppletive pairs among the 20 verb meanings that form the basis of the study, 'die' and 'kill' are expressed suppletively in all three languages. While Negidal and Evenki share the same forms (*bu-* 'die' vs. *βaː-* 'kill'), Even has distinct items (Lamunkhin *koke-*, Bystraja *ɲoːme-* 'die' vs. *maː-* 'kill' for both dialects, see (3) for an illustration).

(3) Lamunkhin Even (AAS_elk_17)
… kapkan-du hǫr-ʧa tǫ:ki himbi:r […] ti:la-nikan
… trap.R-DAT get.caught-PST.PTCP elk PTL.Y get.thin-SIM.CVB
koke-ɟi-n *go:-mi nǫŋan pektere:-niken* ***ma:-ri-n***
die-FUT-3SG say-COND.CVB 3SG shoot-SIM.CVB kill-PST-3SG
'… because an elk that has gotten caught in a trap […] will starve and die anyway, he shot and killed (it).' /
'… потому что попавший на капкан лось все равно […] умрет, отощав, он убил, застрелив из ружья.'

Verbs of destruction in the Northern Tungusic languages make notable use of equipollence to distinguish valency (transitive vs. intransitive) and Aktionsart (semelfactive vs. iterative), with different consonantal endings coding the distinct meanings (Table 2). This is most systematic in Even, where four different endings are found, while in Negidal the distinction between iterative and semelfactive transitives has largely been lost, although the distinction in Aktionsart has been retained for the intransitive forms. In Evenki, the system appears to be at most vestigial, judging from the lack of mention in descriptions (Konstantinova 1964; Nedjalkov 1997; Bulatova & Grenoble 1999; Boldyrev 2007). The forms we provide in Table 2 are extracted from examples in Myreeva (2004) and Boldyrev (2007), and we indicate our uncertainty about our analysis with the added question marks. The suffix *-rgA*, for example, is described by Nedjalkov (1997: 228) as being a general anticausative morpheme, albeit one that is mostly used with verbs of destruction or change of state. In Negidal, the cognate form *-dgA* functions as a general anticausative as well, but with verbs of destruction it gets a specifically semelfactive reading. In this language, the ending *-nA* occurs very rarely, with *-l* generally expressing both iterative and semelfactive transitive events. Examples (4a–d) show the full system for the Negidal verb *kalta-* 'split, halve', one of the few for which a separate transitive-iterative form exists. Note that the root *kalta-* does not exist by itself.

Table 2: Consonantal endings of verbs of destruction and their meanings

	transitive			intransitive		
	Even	Negidal	Evenki	Even	Negidal	Evenki
iterative	-k	(-nA)	?-gA	-m	-m	?-m
semelfactive	-t	-l	?-li ~ -t, (-nA)	-r	-dgA	?-rgA

(4) a. Negidal (Pakendorf & Aralova 2017: DIN_preparing_hide: 29)
ti:_ɲekomi ***kaltal-la*** *noŋan-ma-n*
therefore split[TR.SMLF]-NFUT[3PL] 3SG-ACC-PX.3SG
kaltal-la
split[TR.SMLF]-NFUT[3PL]
'That is why they cut it (the hide) in half.' /
'Поэтому (шкуру) разрезают на половину.'

b. Negidal (Pakendorf & Aralova 2017: TIN_stingy_man: 69)
gə osi=gdə noŋan-ma-n halka-l-ʧa:
DP NOW=CONTR 3SG-ACC-PX.3SG to.hammer-INCH-PST[3SG]
moŋi-l-ʧa: dajama-βa-n ələ ***kaltana:-ja-n***
hit-INCH-PST[3SG] back-ACC-PX.3SG nearly split[TR.ITER]-NFUT-3SG
'… he immediately started to beat and hit him, he nearly split his back.' /
'... он стал бить, колотить его палкой, спину чуть ему не переломил.'

c. Negidal (Pakendorf & Aralova 2017: TIN_monokan: 66)
kaltadga-ja-n *tik-kə-n ŋa:ləβki oje-la-n*
split[INTR.SMLF]-NFUT-3SG fall-NFUT-3SG wolf top-LOC-PX.3SG
'It split and fell on top of the wolf.' /
'Треснула и упала на волка.'

d. Negidal (field data, 04.08.17)
est' takie mo:-l kotorye ma:n-tin ***kaltam-ma***
exist.R such.R tree-PL which.R self-PX.3PL split[INTR.ITER]-NFUT[3PL]
'There are such trees which split by themselves in several places' /
'Есть такие деревья, которые сами по себе раскалываются в нескольких местах.'

Table 3 shows the major morphological means by which the Northern Tungusic languages code valency changes, including the causal-noncausal alternation. As can be readily seen, in all three languages both transitive and detransitive derivation is achieved with a polysemous suffix comprising a labial (cf. Nedjalkov 2013: 12; Pakendorf & Aralova 2020: 299; see 5–7); this appears to have been strengthened with the erstwhile diminutive suffix *-kAn* to form the causative suffix *-βkAn* (cf. Li & Whaley 2012).

The labial (anti)causativizing suffix plays a role in the causal-noncausal alternation, since it can express both causative coding (5a, b) and anticausative coding (6a, b). It also functions as a general marker of valency change, such as deriving

Table 3: Major valency changing morphemes in Northern Tungusic

	Even	Negidal	Evenki
(Anti)causativizing	-β/-u	-β	-β
Adversative-passive	-β/-u	[-β]	[-β/-mu]
Medio-passive	-p/-b	-p	-p/-β
Causative	-βkAn	-βkAn	-βkAn

passives (7a, b). In order to cover all these functions in one gloss, Pevnov (2007: 215) calls it "ambivalent voice" in his analysis of this suffix. However, it should be noted that not all the functions are equally productive (Nedjalkov 1993).

(5) a. Lamunkhin Even (Krivoshapkina_AX_1930s_055)
upeː-ɲɟe hiβkeŋkeːn tar tɕajnika-n
grandmother-AUG.DEF silently DIST teapot.R-PX.3SG
huje-l-tɕe-le-n *tɕaj-u oŋke-tɕe-l-tɕe*
boil-INCH-PST.PTCP-LOC-3SG tea.R-ACC pour-TAM2-INCH-PST[3SG]
'When the teapot started to boil, grandmother quietly started to pour tea.' /
'Бабушка тихонько, когда вскипел чайник, начала разливать чай.'

b. Lamunkhin Even (Krivoshapkina_Marta_bear_003)
aːŋŋa-riɟur tɕaj-u igin
stop.for.night-ANT.CVB.PL tea.R-ACC etc.Y
huj-u-t-tɕe-le-t
boil-VAL-TAM2-PST.PTCP-LOC-1PL
'When we had spent the night, when we were making tea, …' /
'Переночевав, когда мы вскипятили чай, …'

(6) a. Bystraja Even (Egorova_RM_Arishal_127)
aha meːn-ken ***man-u-waːt-ta-n***
aha REFL-DIM.INT finish-VAL-GNR-NFUT-3SG
'Mhm, it disappears by itself.' /
'Ага, сам исчезает.'

b. Bystraja Even (Tylkanova_Lidija_Gavrilevna_2_054)
olra-β=da ***man-ra***
fish-ACC=ADD finish-NFUT[3PL]
'They finished the fish (i.e. they exterminated the fish)!' /
'Рыбу закончили!'

(7) a. Negidal (Pakendorf & Aralova 2017: DIN_game: 31)
ta-duk ge: hutə-βa-n ***ɟep-pa-n***
DIST-ABL second offspring-ACC-PX.3SG eat-NFUT-3SG
'… then he [the devil] eats the second child …' /
'потом второго ребенка съедает …'

b. Negidal (Pakendorf & Aralova 2017: DIN_Emeksikan: 380)
amban-du ***ɟepu-β-ʧa*** *bi-ɟa-n*
devil-DAT eat-VAL-PST.PTCP be-FUT-3SG
'… probably he has been eaten by the devil, ….' /
'наверно, амбан его съел (наверно, он амбаном съеден), …'

Although the polysemy covering both valency-increasing and -decreasing functions might at first glance seem counter-intuitive, it is cross-linguistically not uncommon, being attested in several languages of East Asia, such as Mongolian, Japanese, and Korean (Kazama 2004: 83–84; Zúñiga & Kittilä 2019: 226); it is also a common phenomenon in the Tungusic languages (Benzing 1955: 122; Sunik 1962: 123–130). Recent studies have shown that the development is likely to have taken place from the causative to the passive function (Li & Whaley 2012; Jang & Payne 2014; Nedjalkov 2014).

The adversative-passive is a construction that "… creates an additional argument – just as the causative does" (Palmer 1994: 131). Furthermore, in contrast to standard passives, the subject is not the promoted direct object of the active transitive verb, but is "… an entity affected by the situation, possibly not being its participant" (Kazenin 2001: 906). This can be seen in the Even example (8a, b), where (8a) shows that the addressee of the bivalent intransitive verb of speech *tore-* 'speak' is marked with dative case (which might alternate with allative or be left unexpressed); in contrast, in the adversative construction (8b) the addressee is promoted to the subject position (as seen in the verbal subject agreement).

(8) a. Lamunkhin Even (beseda_1626)
ebe-di-t ***tore-ɟi-p*** *nọŋan-du-n*
Even-ADJR-INS speak-FUT-1PL 3SG-DAT-PX.3SG
'We'll speak in Even to him.' /
'Ему по-эвенски будем говорить.'

b. Lamunkhin Even (AEK_childhood_091)
tọbọr goːn-teken emie ***tore-β-gere-re-m*** *tar*
this say-MULT.CVB also.Y speak-ADVRS-HAB-NFUT-1SG that
ahi-du
woman-DAT
'… and again that woman would scold me/says bad things at me.' /
'… опять эта женщина на меня говорит.'

The adversative-passive is a productive category in Even (cf. Malchukov 1995: 21–26), but in Evenki (Nedjalkov 1997: 220–222) and Negidal (9a–b) it is restricted to environment verbs. As pointed out by Nedjalkov (2013: 3), in Evenki the adversative-passive construction "obligatorily include[s] an animate patient, i.e. the person who is subject to a certain atmospheric phenomenon considered as adversative to this person", "while the base verbs do not contain any 'animate' semantic roles in their predicate frames".

(9) a. Negidal (Pakendorf & Aralova 2017: GIK_2tatarskoe: 28)
bu o-ŋati-βun ŋənə-jə uže
1PL.EX NEG-DEONT-1PL.EX go-NEG.CVB already.R
dəlbə-ŋati-n
fall(night)-DEONT-3SG
'We're not going, it's already getting night.' /
'… мы не поедем, уже наступит ночь.'

b. Negidal (Pakendorf & Aralova 2017: GIK_kljukva: 45)
noŋan goje-βa aː-ʧa-n noŋan ɟali-n bit
3SG distance-ACC sleep-PST-3SG 3SG because.of-PX.3SG 1PL.IN
dəlbə-β-ʧa-lti
fall(night)-ADVRS-PST-1PL.IN
'She slept for a long time, because of her we were caught by the night.' /
'Она долго спала, из-за неё нас застала ночь.'

The medio-passive derivation results in constructions in which no agent is implied (compare 10b with 10a). In Even and Negidal this is marked by a labial stop rather than the labial fricative or glide used in the (anti)causitivizing and (adversative-)passive function, but in Evenki *-p* and *-β* are used interchangeably, e.g. *ula-* 'make wet, moisten' : *ula-β* ~ *ula-p-* 'become wet' (Nedjalkov 2013: 13).

(10) a. Bystraja Even (RME_Arishal_042)
ɲan urke-β ***aŋa-ri-βun***
and door-ACC open-PST-1PL.EX
'And we opened the door.' /
'И вот дверь открыли.'

b. Bystraja Even (RME_Arishal_20)
iami urke ***aŋa-p-ta-n***
PTL door open-MED-NFUT-3SG
'… suddenly the door opened.' /
'… вдруг дверь открылась.'

Finally, the causative marker *-βkAn* derives causatives from both intransitives (in which the causee is marked by the accusative case, as illustrated in (11b) where the morpheme appears as the allomorph *-ukeŋ-*) and transitives, with variation between dative- and accusative-marking for the causee (cf. Nedjalkov 2013: 11; Pevnov 2007: 207; Pakendorf & Aralova 2020: 302).

(11) a. Lamunkhin Even (AXK_1930s_125)
edu tuŋŋan nimeːr bi-niken ***tegetɕ-tɕe-l***
here five neighbor be-SIM.CVB live-PST-PL
'… here they lived as five families..' /
'… здесь жили они в пять семей.'

b. Lamunkhin Even (KKK_history_012)
ebe-sel-bu tɕele-βu-tnen omen tor-du ***tegetɕ-ukeŋ-gel***
Even-PL-ACC all-ACC-PX.3PL one earth-DAT live-CAUS-HORT.PL
goːn-tɕe-l
say-PST-PL
'Let's make the Evens all live in one place …, they said.' /
'Давайте всех эвенов заставим жить на одном месте …'

When both the (anti)causitivizing suffix *-β* and the causative *-βkAn* can be used to encode transitivization, the difference in meaning is one of direct vs. indirect causation, as illustrated by the following examples from Negidal (12a–c). Here, the underived verb *ŋənə-* (12a) expresses an animate agent moving of his own volition, while the derived verb *ŋənə-β-* (12b) means to make something go by exerting direct, physical force, i.e. by carrying it, while *ŋənə-βkan-* (12c) means to cause someone to go by exerting only indirect pressure, i.e. by requesting or commanding them to go.

(12) a. Negidal (Pakendorf & Aralova 2017: GIK_2sluchaj: 23)
man-si ***ŋənə-kəl*** *ɟul-la* *bi* *amar-gida-du-s*
self-PX.2SG go-IMP.SG front-LOC 1SG behind-SIDE-DAT-PX.2SG
ŋənə-ɟa-β
go-FUT-1SG
'Go first yourself, I will go behind you.' /
'Сам иди впереди, я сзади буду идти. '

b. Negidal (Pakendorf & Aralova 2017: DIN_crow: 92)
taj *konɟe-βa* *hena-la:-ja-n*
DIST birchbark.box-ACC carry.on.back-SMLF-NFUT-3SG
ɟo-tki-j ***ŋənə-β-βə-n***
house-ALL-PRFL.SG go-VAL-NFUT-3SG
'He hoisted the box on his back and brought it home.' /
'Взял этот короб и понёс домой.'

c. Negidal (Pakendorf & Aralova 2017: APN_DIN_memories: 235)
nuŋan *əmə-dgi-je-n* *munə(-βə)* ***ŋənə-βkan-a***
3SG come-REP-NFUT-3SG 1PL.EX-ACC go-CAUS-NFUT[3PL]
kamenka-la
place.name-LOC
'He comes back and they send us to Kamenka.' /
'Он возвращается, и нас отправляют на Каменку.'

These data confirm Levshina's (2016) cross-linguistic observation that the morphological marking of indirect causation (here: *-βkan*) is longer than that of direct causation (here: *-β*; cf. Haiman 1983: 784–788).

Thus, to summarize this section, the Northern Tungusic languages predominantly use morphological means to mark causal-noncausal alternations, although equipollence is common in particular with verbs of destruction. Ambitransitivity and suppletion are rare, and the latter does not occur among the 20 verb pairs which form the basis of the next section, namely the investigation of the patterns of use of the different strategies.

4 Patterns of causal-noncausal alternation among the 20 verb pairs

Table 4 summarizes the different coding patterns found in the three languages for each of the verb pairs; for the actual forms see the Appendices A–C.[5] In the table,

[5]The data files are also downloadable in .csv format from: http://doi.org/10.5281/zenodo.3911606.

nC stands for "noncausal", C stands for "causal", and the mathematical operator indicates the direction of derivation: nC > C "causal is derived from noncausal" (causative coding); nC < C "noncausal is derived from causal" (anticausative coding); nC ≈ C "noncausal and causal are equipollent"; nC = C "noncausal and causal are expressed by the same item" (i.e. the verb is labile). As mentioned in the preceding section, we did not find any suppletive verbs among the 20 meanings.

Following the methodology of previous studies (Haspelmath 1993, Comrie 2006), in those cases where we found synonymous pairs with different coding, we included them all in the dataset. However, we excluded verbs with very narrow meanings, such as Negidal *botɕo(-β)-* 'dry out', which refers only to hides that dry out excessively during preparation and then become unworkable. The number of synonyms and different coding patterns can be quite large (for instance, 'burn' in Evenki has four different coding patterns), because we tried to cover the dialectal variation and were rather inclusive in our choice. In these cases, we counted the coding patterns proportionally to their number (e.g. each pattern for 'break' in Even counts as 0.5 and each pattern for 'burn' in Evenki as 0.25; cf. the Appendices A–C).

It should be noted that our choice of meaning was partly determined by the Negidal elicitation, with which we started our data collection. For instance, since the speakers were unable to give a translation equivalent of 'move' (of an inanimate object), we changed this meaning to 'move (of an animate object)', i.e. 'go'. Furthermore, we attempted to include only ''basic'' meanings and excluded stems where the derivation seemed to provide additional semantic content. We thus excluded forms such as Negidal *ŋənəβkan-* 'make someone go' as the causative counterpart for *ŋən-* 'move (go)', since the causative suffix *-βkAn* adds a meaning of indirect causation, as explained above (12c). We also excluded Evn *tikuken-* ~ Neg *tikeβkan-* ~ Evk *tikiβkəːn-* 'make fall, drop intentionally, unload', since this carries a meaning of voluntary, intentional action that is absent from 'fall/drop'.

Given the close relationship of the languages included here, it is not surprising that the patterns we find are overall quite similar, with 15 out of the 20 verb pairs showing the same coding pattern for at least one synonym in all three languages. In contrast, what is notable is that we do find differences in the patterns based on such a small sample of verbs. For instance, for the verb pair 'fall/drop', Negidal uses equipollence to code the causal-noncausal alternation (*tik-* : *tibgu-*[6]), whereas Even and Evenki use causative coding (Evn *tik-* : *tikəβ-*, Evk

[6]Note that while *tik-* : *tibgu-* is synchronically equipollent, diachronically it is likely to be a causative derivation followed by metathesis: *tibgu-* < *tigbu- < *tikbu- < *tiki-bu- (Aleksander M. Pevnov p.c., 28.06.2020).

Table 4: Coding patterns in causal-noncausal verb pairs

Verb meaning	Even	Negidal	Evenki
boil	nC > C	nC > C	nC > C
break	nC < C nC ≈ C	nC < C nC ≈ C	nC < C
burn	nC > C	nC ≈ C	nC ≈ C nC > C nC = C nC < C
close	nC < C nC ≈ C	nC < C	nC < C
run out/use up	nC < C	nC < C	nC < C
dry	nC ≈ C	nC ≈ C	nC ≈ C
fall/drop	nC > C	nC ≈ C	nC > C nC ≈ C
get wet/make wet	nC < C	nC < C	nC < C
go out/put out	nC > C	nC > C (corpus) nC = C (elicit.)	nC < C
increase	nC < C	nC < C	nC < C
melt	nC > C	nC > C	nC > C
move (go)	nC > C	nC > C	nC > C
open	nC < C	nC < C	nC < C
rise/raise	nC < C nC > C	nC = C nC > C	nC < C nC > C
split	nC ≈ C	nC ≈ C nC > C	nC ≈ C
spoil	nC < C nC > C	nC < C nC ≈ C	nC ≈ C
spread	nC < C	nC < C	nC < C
stop (of humans)	nC > C	nC > C	nC > C
turn over (around)	nC ≈ C nC > C	nC = C nC < C	nC > C nC < C
bend (twist)	nC < C	nC < C	nC < C

tik- : *tikiβ-*). Furthermore, all three languages derive an indirect causative with the causative suffix *-βkAn*, e.g. Negidal *tikeβkanas* 'you made me fall'. In addition to the pan-Tungusic root *tik-* (Sunik 1962: 87), Evenki has an equipollent non-cognate pair *buru-* : *buriː-*. In the case of 'go out/put out (a fire)', Even and Negidal[7] have causative coding (Evn *hiːβ-* ~ Neg *siβ-* : Evn *hiːβi-*/*hiːβuken-* ~ Neg *siβi-*) in contrast to the noncausative coding found in Evenki (*siːβ-* : *siː-*). It appears as if Evenki speakers reanalyzed the root-final *-β* of the noncausal form as the (anti)causativizing morpheme and from this derived the causal form by dropping the labial. For 'rise/raise', Even and Evenki have a verb pair showing anticausative coding (Evn *ugərəb-* : *ugər-* and Evk *ugiːriβ-* : *ugiːr-*, respectively) where the Negidal cognate is labile (*ugi-*); in addition, all three languages have a synonymous pair with causative coding, but here only the Negidal and Evenki forms are cognate (Neg and Evk *tukti-* : *tuktiβ-* vs. Evn *ojʧi-* : *ojʧiβkan-*).

Some further pattern differences we find with respect to specific verbs in the dataset are:

- The verb meaning is expressed by different lexemes, which nevertheless show the same coding pattern, e.g. 'spread', which shows consistently anticausative coding: *girkəb-* : *girkə-* in Even, *gildeβ-* : *gilde-* in Negidal, *səktəβ-* : *səktə-* in Evenki.
- Differences in coding pattern correlate with differences in lexeme form, e.g. 'burn', which is coded causatively in Even: *dur-* : *duruken-*, but which is expressed by the equipollent pair *ɟəgdə-* : *ɟəgdi-* in both Negidal and Evenki; in addition, Evenki has three more synonyms, none of which are cognate to the Even or Negidal form, and each of which shows a different coding pattern (Appendix C).
- The lexemes are cognate, but the coding patterns differ, e.g. 'fall/drop' and 'go out/put out (of fire)' discussed above, or 'spoil', which in Even shows causative coding: *mun-* : *munuken-*, but which is expressed by the equipollent pair *munu-* : *muniː-* in Evenki.

In Table 5 we summarize the frequency of the different coding patterns for the three languages. While in Even anticausative and causative coding occur with approximately equal frequency, in Negidal and Evenki anticausative coding predominates over causative coding. This is particularly pronounced for Evenki, where anticausative coding is nearly twice as frequent as causative coding.

[7]For the Negidal pair 'go out/put out', we included two coding patterns in the dataset: one is found in the corpus and the other was obtained during elicitation.

Table 5: Frequency of different causal-noncausal relations in the Northern Tungusic languages (over 20 verb pairs)

Relation	Even	Negidal	Evenki
nC > C	8.5	5.5	5.75
nC < C	8	8.5	10.25
nC ≈ C	3.5	4.5	3.75
nC = C	–	1.5	0.25

These results offer some counterevidence to the findings of Nichols et al. (2004: 180), who state that "[f]rom eastern North America across the Bering Strait and through Siberia there is a large region marked by a strong preference for augmentation [i.e. causative coding]". These differences in results are likely to be due to the different verb meanings included in the studies: as mentioned in the Introduction, Nichols et al. (2004) based their investigation on 18 verb pairs, of which nine have an animate undergoer such as 'laugh' or 'sit', and only nine have an inanimate undergoer and therefore partly overlap with the verb meanings included here.

The impact of the verb meanings on the coding patterns can be further seen from data on Even and Evenki presented in a recent follow-up study by Nichols (2018). This is based on only the nine verb meanings with animate undergoers from the original dataset: 'laugh : make laugh/amuse', 'die : kill', 'sit : seat/make sit', 'eat : feed/give food', 'learn/know : teach', 'see : show', be/become angry : anger', 'fear : frighten', and 'hide'. In this study, 63% of the nine Evenki verbs show causative coding vs. 50% of the Even verbs (Nichols 2018: Table 6). In our study with its mostly inanimate verbs, approximately 34% (11/32) of all Evenki verb pairs (i.e. counting over all synonyms) and about 38% (12/32) of all Even verb pairs show causative coding. When counting how many of the 20 verb meanings included in our study can be expressed with a causative derivation (irrespective of whether there are synonymous pairs using a different coding strategy), we find 40% (8/20) verb meanings with causative coding in Evenki and 50% (10/20) in Even. Not only are the overall proportions of causative coding generally lower in our study than those reported by Nichols (with the sole exception being the proportion of verb meanings in Even), but the pattern is the opposite: in our data, Evenki makes less use of causativization than Even, while Nichols finds that it makes more use.

To summarize this section, the preferred strategies of the Northern Tungusic languages to code the causal-noncausal alternation are anticausativization and

causativization, with a relatively high frequency of equipollence. Even though the languages are very closely related and the list of verb meanings is quite small, there are still noteworthy differences between them. However, the results of such studies depend considerably on the verb meanings they are based on as well as on the data bases used. For instance, the Evenki dictionaries are much more extensive than the Negidal dictionary and include many dialectal forms. In the following section, we compare the coding patterns found in Even, Evenki, and Negidal to their Tungusic relatives as well as to other Eurasian languages.

5 Northern Tungusic causal-noncausal alternations in a genealogical and cross-linguistic perspective

5.1 Cognates across Tungusic languages

In the preceding section we already mentioned that in some cases cognate verbs show different coding patterns across the three Northern Tungusic languages. Some further interesting patterns emerge when comparing Even, Negidal, and Evenki with other Tungusic languages, namely Nanai, Udihe, and Manchu, the data for which come from the World Atlas of Transitivity Pairs (2014) with verification by specialists of these languages (see §5.2 for further details on this dataset). For instance, the equipollent final vowel change of noncausal *-o/-ə* : *-i* (as found in Negidal and Evenki *ɟəgdə-* : *ɟəgdi-* 'burn' and *olgo-* : *olgi-* 'dry') is also found for the Nanai cognates *ɟəgdə-* : *ɟəgɟi-* and *holgo-* : *holgi(ʧi)-* and for the putative Udihe cognate *ogo-* : *wagi-* 'dry'. Although this alternation is synchronically equipollent, etymologically it traces back to a causativizing pattern with the Tungusic causative **-gi* (Benzing 1955: 122; Sunik 1962: 93). However, Udihe has regularized the causal form of 'burn' to *ɟəgdə-βənə*, and Manchu has regularized the causal form of 'dry' to *olho-bu*, with both languages deriving the causal form with their regular causative suffix. Udihe also derives the causal form of 'turn (around, over)' from the base root (*kumtə-* : *kumtə-βənə-*), while Negidal and Evenki treat the base root as causal and derive the noncausal form (*kumtəβ-* : *kumtə-*).

Furthermore, some cases of semantic shift appear to have taken place. For example, the Nanai word *dasip-* : *dasi-* means both 'close' and 'cover', while the Northern Tungusic cognate Evn *dasab-* ~ Neg, Evk *dasiβ-* : Evn, Neg, Evk *das-* means only 'cover', with a separate root (Evn *homab-* ~ Neg *samuβ-* ~ Evk *soːmiβ-* : Evn *hom-* ~ Neg *sam-* ~ Evk *soːm-*) meaning 'close'. Likewise, the Nanai word for 'break' *kaltalip-* : *kalta-* is cognate to the equipollent root *kalta-* (Evn, Neg) ~

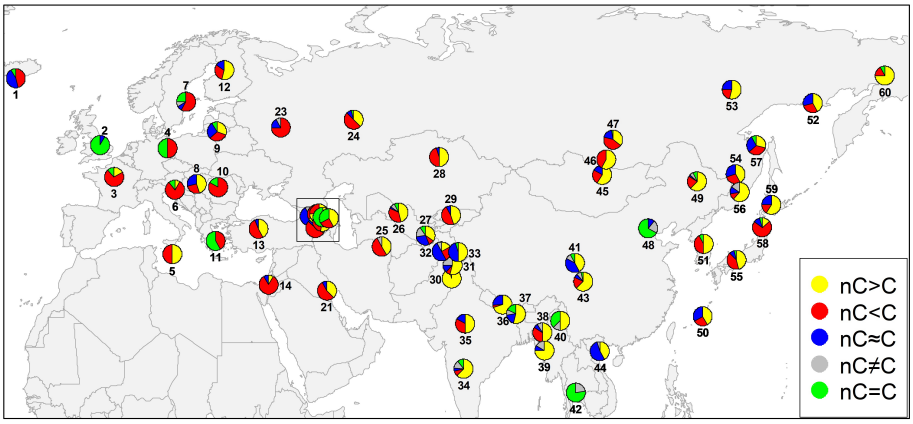
kakta- (Udihe) 'split'. It is unclear whether this is a semantic shift from 'split' to 'break' in Nanai, or whether it is an artefact of data collection (since 'break' and 'split' are very close in meaning).

5.2 Causal-noncausal alternations across Eurasia

For a cross-linguistic comparison of the Northern Tungusic causal-noncausal alternation we also used data from the World Atlas of Transitivity Pairs (2014). This Atlas contains information on coding patterns for 31 verb meanings based on Haspelmath (1993: 104). Thirteen verb meanings overlapped between our list of meanings (1) and that of Haspelmath (1993). However, we decided to exclude the meaning 'put out/go out', since we noticed that for the Even WATP dataset the collected meaning was 'exit' and not 'extinguish'. Since other contributors to the WATP may also have misunderstood the targeted meaning, we opted to exclude this from the dataset in order to ensure that we are indeed comparing the same meanings across languages. We thus used only twelve verb meanings per language for our cross-linguistic comparison: *boil*, *break*, *burn*, *close*, *dry*, *melt*, *open*, *rise/raise*, *split*, *spread*, *stop*, *turn over*. We included 60 languages of Eurasia in our comparison, as listed in the legend to Figure 1. For each of them we counted the number of coding patterns in the same manner as shown in Table 5 for Even, Negidal and Evenki. It is important to mention that coding decisions might have had an impact on the counts. For example, in Evenki we analyze the verb pair *ula-p-* 'get wet' and *ula:-* 'make wet' as having anticausative derivation with morphonological vowel shortening in the root of the derived noncausal verb. But for Nanai we followed the decision of the WATP contributor Kazama, who coded the relation between *kaltaa-* 'break (intr.)' and *kaltali-* 'break (tr.)' as equipollent, since there is the pair *xətu-ə-* : *xətu-li-* 'split', where the final vowel in the intransitive verb is clearly a separate vowel, not length. This suggests that 'break (intr.)' might also be analysed as *kalta-a-*, with the noncausal form in these equipollent pairs being marked by a mid-low vowel and the causal form being marked by *-li*. The resulting frequency table was plotted on the map in Figure 1 in the form of pie charts reflecting the proportions of the different coding patterns in each language.

The coordinates for the languages were obtained mostly from Glottolog (Hammarström et al. 2019), with a few exceptions, such as Domaaki and Burushaski, which had completely overlapping pie charts and were plotted next to each other. For Even we chose the location of Ola, which is the place where Standard Even is spoken, even though our data come predominantly from the Lamunkhin and Bystraja dialects, and not the standard variety. We chose Ola since it is midway

between the locations where the Lamunkhin and Bystraja dialects are spoken and it is also frequently used in typological maps to represent the location of Even as a whole.



1 ICELANDIC	13 TURKISH	25 TURKMEN	37 MECHE	49 MANCHU
2 ENGLISH	14 HEBREW	26 UZBEK	38 TIDDIM CHIN	50 SHURI OKINAWAN
3 FRENCH	15 GEORGIAN	27 TAJIK	39 BURMESE	51 KOREAN
4 GERMAN	16 ARMENIAN	28 KAZAKH	40 JINGHPAW	52 EVEN
5 MALTESE	17 BATSBI	29 KYRGYZ	41 AMDO-TIBETAN	53 SAKHA
6 SLOVENE	18 TZEZ	30 PUNJABI	42 THAI	54 NANAI
7 SWEDISH	19 AZERBAIJANI	31 KASHMIRI	43 RGYALRONG	55 JAPANESE
8 HUNGARIAN	20 AVAR	32 DOMAAKI	44 VIETNAMESE	56 UDIHE
9 LITHUANIAN	21 ARABIC	33 BURUSHASKI	45 MONGOLIAN	57 NEGIDAL
10 ROMANIAN	22 LEZGIAN	34 MARATHI	46 KHAKAS	58 KITA AKITA JAPANESE
11 GREEK	23 RUSSIAN	35 HINDI-URDU	47 EVENKI	59 AINU
12 FINNISH	24 UDMURT	36 NEPALI	48 MANDARIN	60 KORYAK

Figure 1: Causal-noncausal alternations in Eurasia; created with R (2020), based on data in WATP (2014)

In Figure 1 the Northern Tungusic languages are labeled with 47 (Evenki), 52 (Even) and 57 (Negidal). In general, they do not stand out in this picture, since they show the most common coding patterns – causativization and anticausativization as well as equipollence – roughly in the same proportion, with Negidal additionally having a small proportion of ambitransitive verbs (for the meanings 'rise/raise' and 'turn over'). Nanai (labelled as 54) matches this distribution as well, whereas Udihe (56) and Manchu (49) show a stronger preference for causativization. With respect to the other languages of the region, the Tungusic languages seem to be rather typical in their marking of causal-noncausal relations: a similar pattern is found in Sakha (53), Mongolian (45), Ainu (59) and the Shuri dialect of Okinawan (50).

The Tungusic languages show a degree of homogeneity of marking the causal-noncausal alternation that is intermediate between that found within the Japonic languages and that found in the Turkic family. In the former, Shuri Okinawan (50), Standard Japanese (55), and the Kita-Akita dialect of Japanese (58) show widely differing proportions of the three major coding patterns, while in the latter, languages as geographically distant as Turkish, Azerbaijani, Central Asian Turkic, and Khakas all show an overall very similar pattern of roughly equal proportions of anticausative and causative coding, with equipollence being very rare. Interestingly, Sakha (Yakut) (53) shows a considerably higher proportion of equipollent coding than its Turkic relatives, a feature that might be due to contact with Tungusic languages.

In general, as seen in Figure 1, while causativization is a feature of Asia as a whole, being quite common in South Asia as well as in some languages of China, it gradually decreases from East to West: indeed, in Europe the only languages with a high proportion of causative strategies are non-Indo-European (Finnish, Hungarian, Maltese, Turkish, some languages of the Caucasus, and Udmurt). Furthermore, as pointed out by Nichols et al. (2004: 180), causativization extends beyond the Bering Strait into North America:

> Northern Asia and North America, and to some extent also Central America-Mexico, favor augmentation [i.e. causativization] (and to a lesser extent double derivation [i.e. equipollence]) and disfavor reduction [i.e. anticausativization], ambitransitivity, and auxiliary change.

To summarize this section, the Northern Tungusic languages show quite similar coding strategies to their Tungusic relatives. Some of the patterns are clearly old in the Tungusic family, such as the final vowel alternation in equipollent stems, which goes back to an erstwhile causative pattern, while individual innovation can be shown to have played a role as well, such as the regular causative derivation of formerly equipollent stems in Udihe or Manchu. The Northern Tungusic languages also do not stand out in areal perspective, making use of the most common strategies. To what extent these preferred patterns of coding might be explained by the form-to-frequency hypothesis will be addressed in the next section.

6 The form-frequency correspondence in Even and Negidal

As mentioned in the Introduction, in their paper Haspelmath et al. (2014) focus on the frequency-based motivation for the causal-noncausal alternation. Using large corpora of seven languages they test several predictions. Following their approach, we use data from our Even and Negidal corpora to test the form-to-frequency prediction, which states that unmarked forms are more frequent. This is formulated by Haspelmath et al. (2014: 597) as follows:

> In each language, in a causative verb pair, the causal member will be rarer than the noncausal member, while in an anticausative verb pair, the causal member will be more frequent than the noncausal member.

In our count we did not consider the frequencies of labile verbs (one pair for 'rise/raise' and one pair for 'turn over' in Negidal, both synonymous with morphologically marked pairs), nor did we consider equipollent verbs, as neither of these types is informative for this hypothesis. In Even, the meaning 'rise/raise' is expressed with two synonymous verb pairs with opposite coding (see Appendix A), but in our corpus we find only one of these verbs with both causal and noncausal members (*ojʧi-* 'rise' vs. *ojʧiβkan-* 'raise'). For this reason, we included only the causative coding in our count (see Appendix D). The verb meaning 'spoil' was not found in either the Even or the Negidal corpus.

There are ten verb meanings in both Even and Negidal that clearly confirm the form-to-frequency prediction and only four and three, respectively, that do not. If we include those verb pairs where the difference in frequency is very small (only 1–2), so that we cannot say with certainty that one of the forms is truly more frequent than the other (see the cases in the table where "yes" is in brackets), the number of verb pairs confirming the form-to-frequency prediction rises to 12 in both languages. Our data thus do provide some support for the cross-linguistic tendency proposed by Haspelmath et al. (2014).

Haspelmath et al. (2014) suggest that the cross-linguistic tendency for deriving the less frequently used form might in individual languages be overridden by that language's "macro-type", i.e a potentially strong preference for causative or anticausative coding (as exemplified by Romanian, which has a distinct preference for anticausative coding and more verb pairs that disconfirm than confirm the prediction, Haspelmath et al. 2014: 599). In order to abstract away from such language-specific particularities they examine the frequencies

of (non)causal uses independently from their coding. They test whether the proportion of noncausal verb uses correlates with the causative prominence scale proposed by Haspelmath (1993). The causative prominence scale ranks the verb meanings included in the study from the most causative-prominent to the most anticausative-prominent and reflects which verb meanings tend to be coded as causatives, and which tend to be coded as anticausatives, across the 21 languages included in Haspelmath's study. Haspelmath et al. (2014) show that the ratio of noncausal uses over all occurrences of a particular verb meaning correlates significantly with the rank of a particular verb on the causative prominence scale: the verb meanings with the least causative prominence (i.e. those where the causal form is the basic form and it is the noncausal form which is derived) tend to have the least noncausal uses in the analysed corpora.

Since we lacked data for all of the verb meanings included by Haspelmath et al. (2014), we did not replicate their test for Even and Negidal; rather, we followed the modified approach proposed by Seifart et al. (2019), who reduce the list of verb meanings to six with different levels of causative prominence cross-linguistically: high (*boil*, *dry*), mid (*turn*, *burn*) and low (*break*, *open*). They modify the causative prominence scale by using data from WATP and by including some data from previous studies (Haspelmath 1993; Nichols et al. 2004) as well as data from their own oral corpora of 14 understudied languages from South America and Papunesia. The results of Seifart et al. (2019) are quite consistent with those of Haspelmath et al. (2014), notwithstanding the fact that they use a modified causative-prominence scale, fewer verb meanings, and much smaller corpora. Both studies confirm that for the verb meanings with lower causative prominence the corpus frequency of the noncausal event is lower, and vice versa, that when the causative prominence is high, the frequency of the noncausal event is higher.

We test whether this tendency holds for the data in the Even and Negidal corpora by plotting the ratio of the noncausal uses over the total number of uses for each verb onto the typological causative prominence scale taken from Seifart et al.'s (2019) study. The results are visualized in Figures 2 and 3. It should be noted that this analysis can only be taken as indicative of tendencies of use in these languages, since it is based on rather few datapoints.

Even and Negidal show different results. In Even, the frequency of use of noncausal verb meanings does not increase with increasing rank on the typological causative prominence scale, while in Negidal it does. The difference between the two patterns is caused by two verbs with mid and high causative prominence: 'burn' and 'dry'. It is remarkable how differently 'burn' and 'dry' are used in the corpora of these closely related languages. In the Negidal corpus, the ratio of

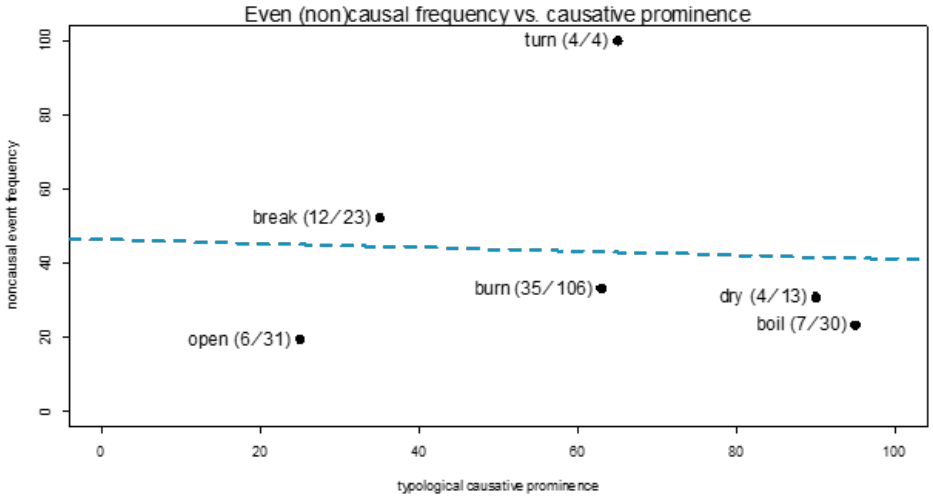


Figure 2: Noncausal uses of six verbs in Even. For each verb the number of the noncausal uses over the total number of uses is shown in brackets; created with R (2020)

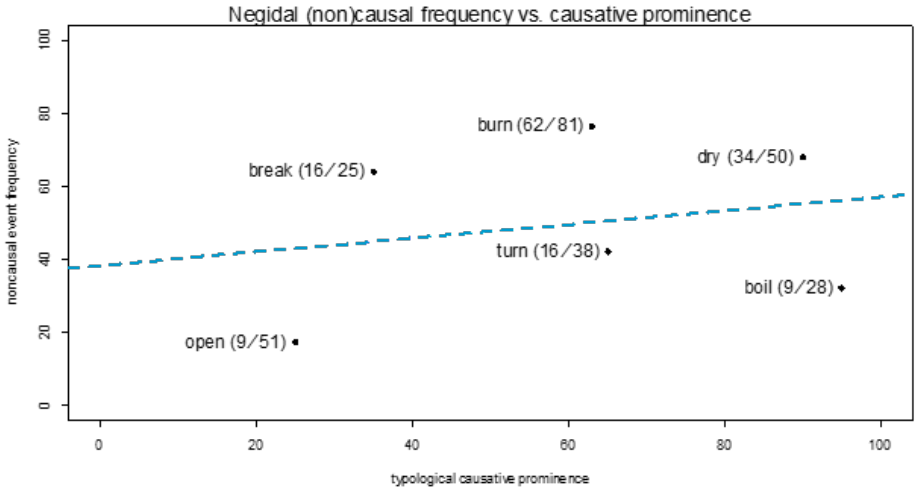


Figure 3: Noncausal uses of six verbs in Negidal. For each verb the number of the noncausal uses over the total number of uses is shown in brackets; created with R (2020)

noncausal usage is 77% for 'burn' (62/81) and 68% for 'dry' (34/50). In the Even corpus, in contrast, only 33% (35/106) of the occurrences of 'burn' have a noncausal meaning[8] and there are only about 30% (4/13) of noncausal uses of 'dry'. However, it should be noted that the Even dialects show opposite patterns for 'burn': in the Lamunkhin dialect only ~14% (8/56) of the occurrences of 'burn' are noncausal, whereas in the Bystraja dialect ~64% (27/42) of the occurrences of this verb are noncausal. Thus it is the Lamunkhin dialect of Even that patterns very differently from both its sister dialect and Negidal. This underlines the high degree of lect-specificity of these patterns of usage.[9]

Another observation concerns 'boil', a meaning with high causative prominence: in contrast to what is expected on typological grounds, this verb meaning has a rather low ratio of noncausal usage in both the Even and the Negidal corpora (23% and 32%, respectively[10]), and this is the only verb which disconfirms the form-to-frequency prediction in both Even and Negidal (see Appendix D). However, this low frequency of noncausal 'boil' is not exceptional cross-linguistically: in several languages of Seifart et al.'s (2019) sample noncausal 'boil' occurs with zero or low frequency as well. One can speculate why this pattern emerges for 'boil' in several languages spoken in vastly different geographical regions, but not for other verbs with high causative prominence, such as 'dry' or 'freeze'. Whereas freezing and drying can occur spontaneously in natural environments, completely spontaneous boiling is found only in thermal springs or in a volcano crater. Instead, for most boiling events there must be a human who initiates the process by putting a pot with water on a fire. Thus, purely spontaneous boiling is an infrequent event. However, there is a time lapse between the causal event (putting the pot on the fire) and the noncausal event (the water boiling), so that the actual boiling event might be conceptualized as spontaneous and be expressed with a noncausal base form. But in some languages, it seems, people tend to talk more about the causal event because that in general has to precede the noncausal, spontaneous boiling. In addition, in Negidal the verb 'boil' appears to be lexicalizing to generalized 'cook' – which is of course a causal event and thus adds more causal uses.

[8]Notably, 'burn' in Even is also one of the few verbs in Appendix D which does not confirm the form-to-frequency prediction.

[9]All the frequency differences we discuss here are significant: Negidal vs. Even 'burn': $\chi^2 = 33.119$, $p < 0.00001$; Negidal vs. Even 'dry': $\chi^2 = 4.5207$, $p = 0.03$ (also for Fisher's exact test, $p = 0.02$); Lamunkhin vs. Bystraja 'burn': $\chi^2 = 24.001$, $p < 0.00001$. However, one should keep in mind that usage patterns depend to a large extent on the topic of the text as well as speaker idiosyncracies, and it is possible that the numbers would change if one were to include a wider range of texts and more speakers.

[10]These values do not differ significantly: $\chi^2 = 0.20807$, $p = 0.6483$.

To summarize this section, the causal-noncausal alternations in Negidal and Even confirm the form-to-frequency hypothesis formulated by Haspelmath et al. (2014: 597): most verbs in our sample support the tendency that the derived member of a pair is rarer and the basic one is more frequent. However, some verbs which do not support this hypothesis turn out to be crucial for another prediction, namely that verbs which are higher on the causative prominence scale tend to have a higher ratio of noncausal usage, irrespective of their language-specific coding. The Negidal data support this tendency, whereas the Even data rather contradict it. In both Even and Negidal, as in some languages of South America and Papunesia, the alternation pattern for 'boil' deviates from the expected one: this verb has a high rank on the causative prominence scale, but shows a low ratio of noncausal usage. This might be due to the characteristics of the boiling event, which generally needs to be initiated by a human causer, but which manifests itself only after a considerable amount of time.

7 Conclusions

To summarize, the Northern Tungusic languages have a strong preference for morphological marking of the causal-noncausal alternation, with equipollence being a particularly salient strategy for verbs of destruction in Even and Negidal. Ambitransitivity and suppletion, in contrast, are very rare. This observation fits well with the fact that these languages are morphologically rich and express all manner of derivations with a variety of morphemes.

At a broad level the causal-noncausal alternation is fairly stable across languages, as shown by the similarity of the coding patterns found in the Tungusic and especially the Turkic languages. This stability also emerges in the general Asian preference for causativization. However, at a fine-grained level many language-specific particularities emerge, as seen in the different patterns found for cognate verbs in the Tungusic languages, or in the widely different strategies preferred by the Japonic lects included in the WATP dataset.

Lastly, it should be noted that comparative work on the causal-noncausal alternation is rendered quite difficult due to the big impact that the choice of verb meanings and coding decisions can have; the cross-linguistic comparison discussed here should therefore be taken with a grain of salt. For instance, the comparison of our data with those of Nichols (2018) has shown that the choice of verb meanings included in the study can have a notable impact on the preferred coding patterns determined for individual languages. Furthermore, it is not clear whether different studies always collected the same translation equivalents for

all verb meanings, as seen by the fact that in our study we used 'move (animate being)', i.e. 'go' rather than 'move (inanimate object)', or that Kazama obtained the translation equivalent of 'go.out (exit)' instead of 'go.out (extinguish)'. In addition, coding decisions can also play a big role in the resulting overall pattern frequencies. Nevertheless, we hope that the overview of causal-noncausal alternations in Northern Tungusic languages presented here can add some valuable observations about these understudied varieties to the areal and cross-linguistic research on this interesting feature.

Abbreviations

Even, Evenki, and Negidal are abbreviated as Evn, Evk, and Neg, respectively. Russian and Sakha (Yakut) copies are indicated with R and Y. Grammatical abbreviations used in the glosses are:

1, 2, 3	person
ABL	ablative
ACC	accusative
ADD	additive
ADJR	adjectivizer
ADVRS	adversative
ALL	allative
ANT	anterior
AUG	augmentative
CAUS	causative
COND	conditional
CONTR	contrastive
CVB	converb
DAT	dative
DEF	definite
DEONT	deontic future
DIM	diminutive
DIST	distal (demonstrative)
DP	discourse particle
EX	exclusive
FOC	focus
FUT	future
GNR	generic
HAB	habitual
HORT	hortative
IMP	imperative
IN	inclusive
INCH	inchoative
INS	instrumental
INT	intensive
INTR	intransitive
ITER	iterative
LOC	locative
MED	medio-passive
MULT	multiplicative
NEG	negative
NFUT	non-future
PL	plural
POSS	marker of non-canonical possession
PRFL	reflexive-possessive
PST	past
PTCP	participle
PTL	(unspecified) particle
PX	possessive suffix
REFL	reflexive
REP	refactive (repetitive)
SG	singular

SIM	simultaneous	TR	transitive
SMLF	semelfactive	VAL	valency-changing suffix
TAM	(unspecified) TAM-marker (1 and 2 identify two different morphemes)	VR	verbalizer

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Appendix A Causal-noncausal verb pairs in Even

In the following tables, transitivity is abbreviated as "TR" (+: transitive, –: intransitive) and the coding pattern as "Coding".

Verb meaning				
English	Russian	TR	Even verb	Coding
boil	кипеть	–	huj	nC > C
	кипятить	+	huju:, hujuken	
break	(с)ломаться	–	hajubna, butar	nC < C
	(с)ломать	+	haju:, but	
	(с)ломаться	–	kabar, hokar, kaβar, koŋdar	nC ≈ C
	(с)ломать	+	kabal, hokak, kaβak, koŋdak	
burn	гореть	–	dur	nC > C
	сжечь	+	duru:, duruken	
close	закрыться	–	homab	nC < C
	закрыть	+	hom	
	закрыться	–	nipkəb	nC < C
	закрыть	+	nipkə	
	закрыться	–	nipku	nC ≈ C
	закрыть	+	nipkə	
run out/ use up	израсходоваться	–	manu:	nC < C
	израсходовать	+	man	
dry	сушиться (сохнуть)	–	olga	nC ≈ C
	сушить	+	olgi	
fall/ drop	падать	–	tik	nC > C
	уронить	+	tikəβ[a]	

[a] It should be noted that we do not find the form *tikəβ-* in our Even corpus, where we find only *tikuken-*, derived with the causative suffix *-βkAn*. The Even dictionaries don't let us determine whether *tikəβ-* indeed has only the basic meaning 'drop', but we assume so, since *tikuken-* adds specific semantics of a voluntary, intentional action.

Verb meaning				
English	Russian	TR	Even verb	Coding
get wet/make wet, soak	промокнуть	–	ulab	nC < C
	замочить	+	ul	
go out/put out	погаснуть	–	hiːβ	nC > C
	потушить	+	hiːβiː, hiβuːken[a]	
increase	прибавиться	–	haːβu	nC < C
	прибавить	+	haːβ	
melt	растаять	–	un, nen	nC > C
	растопить	+	umke, nemkat	
move (go)	идти	–	ŋən, hor/ur	nC > C
	везти	+	ŋənuː, horu/uru	
open	открыться	–	aːŋaːb	nC < C
	открыть	+	aːŋaː	
rise (ascend)/ raise (carry up)	подниматься	–	ugərəb	nC < C
	поднять	+	ugər	
	подниматься	–	ojʧi	nC > C
	поднять	+	ojʧiβkan	
split	расколоться	–	kaltar	nC ≈ C
	расколоть	+	kaltiː, kaltal	
spoil	испортиться	–	hojib, haːjuːb	nC < C
	испортить	+	hoj, haːjuː	
	испортиться	–	mun	nC > C
	испортить	+	munuken	
spread	расстилаться	–	girkəb	nC < C
	расстилать	+	girkə	

[a]Note that we cannot be fully certain that the form *hiβuːken-* does not add any additional semantic component, since we do not find this in our Even corpus, and the dictionaries do not let us determine the precise meaning.

Verb meaning				
English	Russian	TR	Even verb	Coding
stop (of humans)	остановиться	–	il	nC > C
	остановить	+	ilu:kan	
turn over (around)	повернуться, перевернуться	–	hukəlbəŋʧi	nC ≈ C
	повернуть, перевернуть	+	hukəsən	
	повернуться, перевернуться	–	kumərkin	nC > C
	повернуть, перевернуть	+	kumərkimke:n	
bend (twist)	скрутиться (согнуться)	–	utɕib	nC < C
	скрутить (согнуть)	+	ut	

Appendix B Causal-noncausal verb pairs in Negidal

Verb meaning				
English	Russian	TR	Negidal verb	Coding
boil	кипеть	–	huj	nC > C
	кипятить	+	hujuβ	
break	(с)ломаться	–	tɕaptɕaβ	nC < C
	(с)ломать	+	tɕaptɕa	
	(с)ломаться	–	tonŋodgə, tonŋam, kilgədgə, kilgam, boktadga, boktam	nC ≈ C
	(с)ломать	+	tonŋol, kilgəl, boktal, boktana:	
burn	гореть	–	ɟəgdə	nC ≈ C
	сжечь	+	ɟəgdi	
close	закрыться	–	samuβ	nC < C
	закрыть	+	sam	
run out/ use up	израсходоваться	–	manaβ	nC < C
	израсходовать	+	mana	

Verb meaning				
English	Russian	TR	Negidal verb	Coding
dry	сушиться (сохнуть)	–	olgo	nC ≈ C
	сушить	+	olgi	
fall/ drop	падать	–	tik	nC ≈ C
	уронить	+	tibgu	
get wet/make wet, soak	промокнуть	–	olap	nC < C
	замочить	+	ola	
go out/ put out	погаснуть	–	si:β (corpus)	nC > C
	потушить	+	siβi/siβu (corpus)	
	погаснуть	–	siβ (elicitation)	nC = C
	потушить	+	siβ (elicitation)	
increase	прибавиться	–	haβup	nC < C
	прибавить	+	haβ	
melt	растаять	–	un	nC > C
	растопить	+	uniβkan	
move (go)	идти	–	ŋənə	nC > C
	везти	+	ŋənəβ	
open	открыться	–	niβ, a:ŋaβ	nC < C
	открыть	+	ni:, a:ŋa	
rise (ascend) / raise (carry up)	подниматься	–	ugi	nC = C
	поднять	+	ugi	
	подниматься	–	tukti	nC > C
	поднять	+	tuktiβ	
split	расколоться	–	dəlpədgə, dəlpam, kaltadga, kaltam	nC ≈ C
	расколоть	+	dəlpəl, kaltana:, kaltal	
	расколоться	–	dəlpədgə	nC > C
	расколоть	+	dəlpədgəβkan	

Verb meaning				
English	Russian	TR	Negidal verb	Coding
spoil	испортиться	–	hajiβ / hajip	nC < C
	испортить	+	haji	
	испортиться	–	hajiβ / hajip	nC ≈ C
	испортить	+	haju	
spread	расстилаться	–	gildeβ	nC < C
	расстилать	+	gilde	
stop (of humans)	остановиться	–	el	nC > C
	остановить	+	eleβkan	
turn over (around)	повернуться, перевернуться	–	kumtəβ, kumtədgə	nC < C
	повернуть, перевернуть	+	kumtə	
	повернуться, перевернуться	–	hukil	nC = C
	повернуть, перевернуть	+	hukil	
bend (twist)	скрутиться (согнуться)	–	otɕeβ	nC < C
	скрутить (согнуть)	+	ot	

Appendix C Causal-noncausal verb pairs in Evenki

Verb meaning				
English	Russian	TR	Evenki verb	Coding
boil	кипеть	–	huju	nC > C
	кипятить	+	hujuβ	
break	(с)ломаться	–	kapurga, suktɕarga	nC < C
	(с)ломать	+	kapu, suktɕa	
burn	гореть	–	ɟegdə	nC ≈ C
	сжечь	+	ɟegdiː	
	гореть	–	ilaβ	nC < C
	сжечь	+	ila	
	гореть	–	lurgi	nC = C
	сжечь	+	lurgiː	
	гореть	–	badara	nC > C
	сжечь	+	badaran	
close	закрыться	–	soːmiβ	nC < C
	закрыть	+	soːm	
run out / use up	израсходоваться	–	manaβ	nC < C
	израсходовать	+	mana	
dry	сушиться (сохнуть)	–	olgo	nC ≈ C
	сушить	+	olgi	
fall / drop	падать	–	tik	nC > C
	уронить	+	tikiβ	
	падать	–	buru	nC ≈ C
	уронить	+	buriː	
get wet / make wet, soak	промокнуть	–	ulap	nC < C
	замочить	+	ulaː	
go out / put out	погаснуть	–	siːβ	nC < C
	потушить	+	siː	
increase	прибавиться	–	haːβuβ	nC < C
	прибавить	+	haːβ	

Verb meaning				
English	Russian	TR	Evenki verb	Coding
melt	растаять	–	uːn , ʧuːm	nC > C
	растопить	+	uːnŋiː, ʧuːmŋiː	
move (go)	идти	–	suru, ŋənə	nC > C
	везти	+	suruβ, ŋənəβ	
open	открыться	–	niːβ, aːŋaːβ	nC < C
	открыть	+	niː, aːŋaː	
rise (ascend) / raise (carry up)	подниматься	–	ugiːriβ	nC < C
	поднять	+	ugiːr	
	подниматься	–	tukti	nC > C
	поднять	+	tuktiβ	
split	расколоться	–	dəlpərgə	nC ≈ C
	расколоть	+	dəlpəliː	
spoil	испортиться	–	munu	nC ≈ C
	испортить	+	muniː	
spread	расстилаться	–	səktəβ	nC < C
	расстилать	+	səktə	
stop (of humans)	остановиться	–	il, tuːriːn	nC > C
	остановить	+	iliβkaːn, turinmu, tuːriːn-mukəːn	
turn over (around)	повернуться, перевернуться	–	horol	nC > C
	повернуть, перевернуть	+	horoliβkaːn	
	повернуться, перевернуться	–	kumtəβ	nC < C
	повернуть, перевернуть	+	kumtə	
bend (twist)	скрутиться (согнуться)	–	uʧiːβ, mataβ	nC < C
	скрутить (согнуть)	+	uʧiː, mata	

Appendix D Corpus frequencies and coding patterns

Corpus frequencies and coding patterns for 20 verbs (beginning with the 12 that overlap with Haspelmath et al. 2014); conf.: confirmed, freq.: frequency, equi.: equipollent, antiC: anticausative, caus: causative.

	Even		Negidal		Hypothesis conf.?	
meaning	freq.	coding	freq.	coding	Even	Negidal
split.intr	4	equi	1	equi	n/a	n/a
split.tr	5		4			
close.intr	4	equi	0	antiC	n/a	yes
close.tr	22		8			
break.intr	7	equi	16	equi	n/a	n/a
break.tr	7		9			
open.intr	6	antiC	9	antiC	yes	yes
open.tr	25		43			
rise	52	caus	71	caus	yes	yes
raise	1		11			
burn.intr	35	caus	62	equi	no	n/a
burn.tr	71		19			
turn.intr	4	caus	7	antiC	yes	no
turn.tr	0		1			
stop.intr	6	caus	5	caus	yes	yes
stop.tr	0		0			
melt.intr	4	caus	4	caus	yes	yes
melt.tr	0		1			
go.out	9	caus	8	caus	yes	yes
put.out	2		6			
dry.intr	4	equi	34	equi	n/a	n/a
dry.tr	9		16			
boil.intr	7	caus	9	caus	no	no
boil.tr	23		19			

	Even		Negidal		Hypothesis conf.?	
meaning	freq.	coding	freq.	coding	Even	Negidal
run.out	25	antiC	22	antiC	no	no
use.up	10		11			
fall	118	caus	95	caus	yes	yes
drop	0		3			
get.wet	12	antiC	11	antiC	no	yes
make.wet	7		31			
increase.intr	0	antiC	0	antiC	yes	(yes)
increase.tr	9		1			
move(go)	886	caus	886	caus	yes	yes
make.move	147		107			
spoil.intr	2	caus			(yes)	
spoil.tr	0					
spread.intr	1	antiC	0	antiC	yes	(yes)
spread.tr	5		2			
bend.intr	2	antiC	1	antiC	(yes)	yes
bend.tr	3		9			
Total YES					10 (12)	10 (12)
Total NO					4	3

References

Atknine, Victor. 1997. The Evenki language from the Yenisei to Sakhalin. *Senri Ethnological Studies* 44. 109–121.

Benzing, Johannes. 1955. *Die tungusischen Sprachen: Versuch einer vergleichenden Grammatik* (Akademie der Wissenschaften und der Literatur. Abhandlungen der Geistes- und Sozialwissenschaftlichen Klasse 11). Wiesbaden: Akademie der Wissenschaften und der Literatur.

Boldyrev, Boris V. 1994. *Russko-evenkijskij slovar' [Russian-Evenki dictionary]*. Novosibirsk: Nauka.

Boldyrev, Boris V. 2000. *Evenkijsko-russkij slovar' [Evenki-Russian dictionary]*. 2 vols. Novosibirsk: Izdatel'stvo SO RAN, filial "GEO".

Boldyrev, Boris V. 2007. *Morfologija evenkijskogo jazyka [The morphology of Evenki]*. Novosibirsk: Nauka.

Bulatova, Nadezhda & Lenore Grenoble. 1999. *Evenki*. Munich: Lincom Europa.

Cincius, Vera I. 1982. *Negidal'skij jazyk: Issledovanija i materialy. [Negidal: Analysis and materials]*. Leningrad: Nauka.

Cincius, Vera I. & Ljubov' D. Rišes. 1952. *Russko-evenskij slovar' [Russian-Even dictionary]*. Moscow: Gosudarstvennoe izdatel'stvo inostrannyx i nacional'nyx slovarej.

Comrie, Bernard. 2006. Transitivity pairs, markedness, and diachronic stability. *Linguistics* 44(2). 303–318.

Creissels, Denis. 2018. *The noncausal / causal alternation*. Talk presented at the research unit Dynamique Du Langage, Lyon (France) within the seminar series "Atelier morphosyntaxe" on 26 Janunary 2018.

Creissels, Denis. to appear. The noncausal/causal alternation and the limits of ambitransitivity in a sample of sub-Saharan languages. *Linguistique et langues africaines*.

Haiman, John. 1983. Iconic and economic motivation. *Language* 59(4). 781–819.

Hammarström, Harald, Robert Forkel & Martin Haspelmath. 2019. *Glottolog 4.0*. Jena: Max Planck Institute for the Science of Human History. (Available at http://glottolog.org, Accessed 2019.10.04.)

Haspelmath, Martin. 1993. More on the typology of inchoative/causative verb alternations. In Bernard Comrie & Maria Polinsky (eds.), *Causatives and transitivity* (Studies in Language Companion Series 23), 87–120. Amsterdam: John Benjamins Publishing Company.

Haspelmath, Martin. 2016. Universals of causative and anticausative verb formation and the spontaneity scale. *Lingua Posnaniensis* 58(2). 33–63.

Haspelmath, Martin, Andreea Calude, Michael Spagnol, Heiko Narrog & Elif Bamyaci. 2014. Coding causal–noncausal verb alternations: A form–frequency correspondence explanation. *Journal of Linguistics* 50(3). 587–625.

Hovav, Malka Rappaport. 2014. Lexical content and context: The causative alternation in English revisited. *Lingua* 141. 8–29.

Jang, Taeho & Thomas E. Payne. 2014. Conspiring motivations for causative and passive isomorphism: Data from Xibe. In Pirkko Suihkonen & Lindsay Whaley (eds.), *On diversity and complexity of languages spoken in Europe and North and Central Asia* (Studies in Language Companion 164), 91–108. Amsterdam: John Benjamins Publishing Company.

Janhunen, Juha. 2012. The expansion of Tungusic as an ethnic and linguistic process. In Andrej Malchukov & Lindsay Whaley (eds.), *Recent advances in Tungusic linguistics* (Turcologica 89), 5–16. Wiesbaden: Harrassowitz.

Kazama, Shinjiro. 2004. On the causative forms in Tungus languages. In Carsten Naeher (ed.), *Proceedings of the First International Conference on Manchu-Tungus studies*, vol. 2, 73–92. Wiesbaden: Harrassowitz.

Kazenin, Konstantin I. 2001. The passive voice. In Martin Haspelmath, Ekkehard König, Wulf Oesterreicher & Wolfgang Raible (eds.), *Language typology and language universals: An international handbook*, vol. 2 (Handbooks of Linguistics and Communication Science (HSK) 20), 899–916. Berlin: De Gruyter Mouton.

Khasanova, Marina & Alexander M. Pevnov. 2003. *Myths and tales of the Negidals* (ELPR Publication Series A2-024). Osaka: Nakanishi.

Konstantinova, Olga A. 1964. *Evenkijskij jazyk: Fonetika. morfologija. [Evenki: Phonetics. Morphology]*. Moscow: Nauka.

Koontz-Garboden, Andrew. 2009. Anticausativization. *Natural Language & Linguistic Theory* 27(1). 77–138.

Levin, Beth. 2015. Semantics and pragmatics of argument alternations. *Annual Review of Linguistics* 1(1). 63–83.

Levshina, Natalia. 2016. Finding the best fit for direct and indirect causation: A typological study. *Lingua Posnaniensis* 58(2). 65–82.

Li, Fengxiang & Lindsay Whaley. 2012. The grammaticization cycle of causatives in Oroqen dialects. In Andrej L. Malchukov & Lindsay Whaley (eds.), *Recent advances in Tungusic linguistics* (Turcologica), 165–180. Wiesbaden: Harrassowitz.

Malchukov, Andrei L. 1995. *Even* (Languages of the World/ Materials 12). München: Lincom Europa.

Myl'nikova, Klavdija M. & Vera I. Cincius. 1931. Materialy po issledovaniju negidal'skogo jazyka [Materials for the study of Negidal]. *Tungusskij sbornik* 1. 107–218.

Myreeva, Anna N. 2004. *Evenkijsko-russkij slovar' [Evenki-Russian dictionary]*. Novosibirsk: Nauka.

Nedjalkov, Igor. 1997. *Evenki* (Descriptive Grammars). London: Routledge.

Nedjalkov, Igor. 2013. *Verb valency classes in Evenki in the comparative perspective.* Available at https : / / www . eva . mpg . de / lingua / conference / 2013 _ valency _ classes / pdf / NedjalkovValency . pdf (Accessed 2019.09.25) (Unpublished manuscript.)

Nedjalkov, Igor' V. 1993. Causative-passive polysemy of the Manchu-Tungusic -bu/-v(u). *Linguistica antverpiensia* 27. 193–202.

Nedjalkov, Igor' V. 2014. Grammatikalizacija passiva i dekauzativa v tungusomančžurskix jazykax [Grammaticalization of passive and decausative in

Tungus-Manchu languages]. *Acta Linguistica Petropolitana. Transactions of the Institute for Linguistic Studies* 10(3). 473–494.
Nichols, Johanna. 2018. Non-linguistic conditions for causativization as a linguistic attractor. *Frontiers in Psychology* 8. 2356.
Nichols, Johanna, David A. Peterson & Jonathan Barnes. 2004. Transitivizing and detransitivizing languages. *Linguistic Typology* 8(2). 149–211.
Pakendorf, Brigitte & Natalia Aralova. 2017. *Documentation of Negidal, a nearly extinct northern Tungusic language of the Lower Amur.* Endangered Languages Archive. Available at http://hdl.handle.net/2196/b644db81-725c-4031-935c-f33c763df152. (Accessed 2019.10.08.)
Pakendorf, Brigitte & Natalia Aralova. 2018. The endangered state of Negidal: A field report. *Language Documentation and Conservation* 12. 1–14.
Pakendorf, Brigitte & Natalia Aralova. 2020. Even and the Northern Tungusic languages. In Martine Robbeets & Alexander Savelyev (eds.), *The Oxford guide to the Transeurasian languages*, 288–304. Oxford: Oxford University Press.
Palmer, Frank R. 1994. *Grammatical roles and relations* (Cambridge Textbooks in Linguistics). Cambridge: Cambridge University Press.
Pevnov, Aleksandr M. 2007. Glagol'noe osnovoizmenenie v negidal'skom jazyke [Verbal base formation in Negidal]. *Acta Linguistica Petropolitana* 3(3). 191–244.
Plank, Frans & Aditi Lahiri. 2015. Macroscopic and microscopic typology: Basic valence orientation, more pertinacious than meets the naked eye. *Linguistic Typology* 19(1). 1–54.
R Core Team. 2020. *R: A language and environment for statistical computing.* R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.
Robbek, Vasiliy A. & Maria E. Robbek. 2005. *Evensko-russkij slovar' [Even-Russian dictionary].* Leningrad: Nauka.
Samardžić, Tanja & Paola Merlo. 2012. The meaning of lexical causatives in cross-linguistic variation. *Linguistic Issues in Language Technology* 7(12). 1–14.
Schäfer, Florian. 2009. The causative alternation. *Language and Linguistics Compass* 3(2). 641–681.
Seifart, Frank, Stefan Schnell, Maria Bardají i Farré, Christian Döhler, Sonja Gipper, Katja Hannß, Katharina Haude, Birgit Hellwig, Anna Margetts, Sonja Riesberg, Harriet Sheppard, Nick Thieberger, Claudia Wegener, Catharina Williams van Klinken & Nikolaus P. Himmelmann. 2019. *Typological causative prominence and causal verb text frequencies: Refinements based on language documentation corpora.* Talk presented at the 13th Conference of the Association for Linguistic Typology, 2019.09.04-06, Pavia.

Sunik, O.P. 1962. *Glagol v tunguso-man'čžurskix jazykax. [The verb in the Tungus-Manchu languages]*. Moscow: Izdatel'stvo Akademii nauk SSSR.

The World Atlas of Transitivity Pairs. 2014. Tokyo: National Institute for Japanese Language and Linguistics. Available at http://verbpairmap.ninjal.ac.jp. (Accessed 2019.09.27).

Zúñiga, Fernando & Seppo Kittilä. 2019. *Grammatical voice* (Cambridge Textbooks in Linguistics). Cambridge, New York: Cambridge University Press.