Discontinuous past: a semantic account[1]

Petr KUSLIY — *Georg August University of Göttingen*
Ekaterina VOSTRIKOVA — *Georg August University of Göttingen*

Abstract. In some languages, past tense markers give rise to nearly uncancellable cessation inferences - a phenomenon known as 'discontinuous past' (DP). In their original discussion of this phenomenon, (Plungian and van der Auwera, 2006) proposed a semantic account of DP-effects, arguing that certain past markers encode the meaning "past and not present". They further suggested that in languages with optional past tense, the ('idle') past marker exhibits this property. More recently, the semantic approach has faced criticism. (Cable, 2017) showed that Tlingit, an optional past tense language exhibiting DP-effects, allows cessation inferences to be cancelled in certain cases (through a statement of ignorance). This finding contradicts the predictions of the semantic account. As a result, an alternative pragmatic explanation has gained traction (Cable, 2017; Bochnak, 2016; Bochnak and Martinović, 2019). Building on original fieldwork on Tundra Nenets, we present arguments against the pragmatic approach and propose a novel semantic account in which DP-effects arise not from the meaning of Past itself, but from the application of Exh to past tense sentences. We argue that our account not only captures the contrasts observed by (Cable, 2017) in Tlingit but also explains the cross-linguistic variation in DP-effects across optional past languages, which we attribute to differences in the obligatoriness of Exh.

Keywords: optional past, cessation inferences, discontinuous past, fieldwork, Tundra Nenets.

1. The phenomenon of Discontinous Past

It is well-known that when a past stative sentence is used in an out-of-the-blue context, it gives rise to a so-called cessation inference. For example, an utterance of (1a) in response to a question like *How is John doing?* allows the hearer to infer not only its literal meaning but also (1b).

(1) a. John was sick.
b. Inference: John is no longer sick.

This inference is easily cancelable in English if (1a) is followed by a refutation statement, as illustrated in (2):

(2) John was sick. In fact, he is still sick.

Such observations led many theorists to classify inferences like (1)b as implicatures (Musan,

[1]This paper is based on original fieldwork conducted in the Nenets Autonomous Region, Russia. First and foremost, we express our heartfelt gratitude to our consultants for generously sharing their language with us: Matrjona Ivanovna Taleeva, Albert Grigorjevich Ardeev, Serafima Petrovna Durkina, Olga Ivanovna Varnicina, and Praskovja Ivanovna Vyuchejskaya. We also thank Hedde Zeijlstra, Seth Cable, Clemens Mayr, the participants of the semantics colloq of the University of Göttingen, the members of the Semantics & Pragmatics group at ZAS for their helpful comments and suggestions. All errors are our own. Vostrikova's contribution is partially based on the research that was funded by DFG (grant 457168471). The current contribution of Vostrikova is funded by the European Union, ERC grant UNPAG 101142366.

1995, 1997; Magri, 2009, 2011; Thomas, 2012, 2014; Altshuler and Schwarzschild, 2013).

However, there are languages where cessation inferences also occur, but the cancelation is impossible, i.e. an attempt to utter an analogue of (2) leads to infelicity. One example of such a language is Tlingit (Na-Dene; Alaska British Columbia, Yukon)[2]. (Cable, 2017) provides examples in (3) and (4), where, unlike in English, cessation inferences cannot be canceled by a direct refutation statement:

(3) Tle yá ts'ootaat dágáawé táa.yin Joe. #Ch'a yeisú
then this morning indeed IMP.3SG.sleep.PAST Joe. just still
tá.
IMPF.3SG.sleep.NONFUT
'This morning, Joe was indeed sleeping. He's still sleeping now.'

(4) Yá ts'ootaat ch'a kuk'éi.yin. #Ch'a yeisú
this morning just IMPF.GOOD.weather.PAST. just still
kuwak'éi.
IMPF.good.weather.NONFUT
'This morning, the weather was nice. It's still nice now.'

The past tense exhibiting this property has been labeled 'Discontinuous past' because it appears to encode discontinuity in its semantics, responsible for the uncancellability of the cessation inference. It has been claimed that all langauges that have Discontinous past also have another property: the past tense marker in these languages is optional (Plungian and van der Auwera, 2006; Cable, 2017).

2. Languages with optional past tense

Optional past languages also lack a dedicated present tense. Instead, they distinguish between nonfuture tense (which is morphologically unmarked and is understood to occur in bare clauses) and past tense. This is illustrated by the following two examples from Tlingit, where a past-oriented when-clause is compatible with past marking but does not require it[3]. Thus, bare (non-past-marked) clauses can also describe past events:

(5) Dziyáak Joe xwasateení, du yaagú alyéix.
earlier Joe 3O.PFV.1SGS.SEE.SUB his boat 3O.IMPF.3SG.build.NONFUT
'When I saw Joe earlier, he was building his boat.'

(6) Dziyáak Joe xwasateení, du yaagú alyéix.in.
earlier Joe 3O.PFV.1SGS.see.SUB his boat 3O.IMPF.3SG.build.PAST
'When I saw Joe earlier, he was building his boat.'

(Cable, 2017) reports that the same 'bare' marking is used in statements about ongoing eventualities occurring at the utterance time:

(7) Ch'a yeisú kuwak'éi.
just still IMPF.GOOD.weather.NONFUT

[2]Another example of a language that was reported to exhibit similar effects is Tohono O'odham (Copley, 2005).
[3]There is variation among optional past languages regarding whether bare stative matrix clauses can describe past events. However, bare eventive clauses always describe past eventualities (cf. Bochnak et al. 2019).

'The weather is still good now.'

3. The challenge posed by optional past languages

The absence of the present tense in optional past languages poses a challenge for the widely accepted approach to the derivation of cessation inferences. For example, (Altshuler and Schwarzschild, 2013) discuss cessation inferences in English as quantity implicatures, deriving them through pragmatic reasoning. They adopt a quantificational semantics for the present and past tenses (illustrated in (8a) and (8b)) and the so-called *Open Interval Hypothesis*, which applies to states and is formulated in (9):

(8) a. $[\![\textit{John was sick}]\!]^{g,t_0}$= T iff $\exists t[t < t_0 \wedge$ John is sick at $t]$
b. $[\![\textit{John is sick}]\!]^{g,t_0}$= T iff $\exists t[t = t_0 \wedge$ John is sick at $t]$

(9) ***The Open Interval Hypothesis*** (Altshuler and Schwarzschild, 2013):
The run-time of a state is an open interval. For any state s, which obtains at an interval t, there is an interval t' such that $t' < t$ and s obtains at t'.

Under these assumptions, a stative sentence in the present tense is stronger than its past-tense counterpart. The truth of sentence (8b) (which states that there is a present moment when John is sick) entails the truth of sentence (8a) (which states that there is at least one past moment when John was sick), but not vice versa. Consequently, the cessation inference arising when the past-tense variant is uttered can be understood as a standard quantity implicature, akin to scalar implicatures: the use of a weaker alternative signals that the speaker is not in a position to assert the stronger alternative. This suggests that the speaker either does not believe that the stronger alternative is true or lacks evidence to assert it.

Optional past languages lack the present tense. As illustrated above, bare clauses (assumed to contain the nonfuture tense) can truthfully describe both ongoing and past states and eventualities. Consequently, a nonfuture stative alternative is not stronger than the original past-tense sentence. This means that the assertion of a past-tense stative sentence cannot trigger a cessation inference through the reasoning described above.

To illustrate, under the quantificational approach, the semantics of the nonfuture tense alternative would be as shown in (10). This interpretation is strictly weaker than the original past-tense sentence in (8a) and cannot be negated consistently with it. Yet, since cessation inferences still arise, there must be an alternative explanation for them.

(10) $[\![\textit{Nonfuture John be sick}]\!]^{g,t_0}$= T iff $\exists t[t \leq t_0 \wedge$ John is sick at $t]$

4. Two approaches to Discontinuous Past

Two approaches have been proposed to account for the Discontinuous Past: the semantic and the pragmatic approach.

According to the semantic approach, discontinuity is encoded in the denotation of discontinuous past markers (Plungian and van der Auwera, 2006; Leer, 1991; Copley, 2005). (Plungian and van der Auwera, 2006: 323) describe these markers as denoting "situations of limited duration, which are claimed not to extend up to the moment of speech"[4]. Thus, the semantic theory

[4]If the verbal predicate is perfective, discontinuity suggests "the non-existence of a consequent state at the moment

posits the existence of languages where the past tense includes an additional feature encoding cessation. Consequently, the semantic approach to Discontinuous Past can be viewed as suggesting that the past tense is not uniform across languages and that Universal Grammar allows for variations in the features that T-heads can bear (cf. Cable 2017: 636).

Cable (2017) offers two key arguments against the semantic approach.

Argument 1: The semantic approach does not account for the crosslinguistic link between the optionality of the past tense marker and discontinuous past effects: why do we not find 'discontinuous' past markers in languages of other types?

Argument 2: while a cessation inference triggered by the past tense in languages like Tlingit cannot be refuted by a continuation directly contradicting that inference, (Cable, 2017) observes that such an inference disappears in the presence of an ignorance statement about the current state of affairs. His examples provided in (11) and (12) illustrate this:

(11) Yeisù dziyáak táayin. Hél xwasakú ch'a yeisú shákdé
still earlier IMPF.3SG.sleep.PAST. NEG 3O.PFV.1SG.know just still DUB
tá.
IMPF.3SG.sleep.NONFUT
'Well, he was sleeping earlier. I don't know if he is still sleeping.'

(12) Ha, áa yeíteeyín. Tlél xwasakú ch'a yeisú áa
EXCLM there.at IMPF.3SGS.BE.PAST. NEG 3O.PFV.1SGS.know just still there.at
yeíteeyí.
IMPF.3SGS.be.sub.NONFUT
'Well, he was there. I don't know if he's still there.'

These facts contradict a semantic account that encodes cessation into the meaning of the past tense marker.

As an alternative, (Cable, 2017) develops a new pragmatic account of cessation inferences in Tlingit. Unlike English, Tlingit lacks the present tense, so cessation inferences cannot be derived through standard Gricean reasoning outlined above. In his proposal, (Cable, 2017) adopts pronominal semantics for tense, according to which the interpretation of *Nonfut* can be used to describe present and past eventualities. More importantly, *Nonfut* can refer to time intervals spreading *from* a certain past time *up to* the present moment.

(13) a. $[\![Past_i]\!]^{g,t_0} = g(i)$, defined only if $g(i) < t_0$
b. $[\![Nonfut_i]\!]^{g,t_0} = g(i)$, defined only if $\neg g(i) > t_0$

Building on this, Cable (2017) introduces a post-semantic rule comparing the 'assertability' of competing sentence forms. This rule provided in (14) is framed as a general pragmatic principle akin to Heim's (1991) *Maximize Presupposition*.

(14) ***Include UT inside the TT, whenever possible***
If the speaker can assert a sentence where the Topic Time (TT) contains the Utterance Time (UT), then they must assert that sentence.

of speech"(Plungian and van der Auwera, 2006: 324).

Given the semantics of *Nonfut* in (13)b, sentences containing it are not required to make reference to the utterance time. However, according to the principle in (14), the preferred interpretation of *Nonfut* is one that extends to the utterance time - provided this is compatible with the speaker's knowledge.

Under Cable's (2017) pragmatic approach, the cessation inference of a past-marked sentence in a language like Tlingit is derived as follows:

- The speaker used a past-tense stative whose T-node denotes a past time t'.
- The nonfuture alternative could, in principle, extend up to the utterance time.
- Given the pragmatic principle in (14), the fact that the speaker did not use the nonfuture alternative suggests it is not assertable in the context.
- Therefore, the speaker either knows that the state does not extend to the present or lacks knowledge about whether it does.

The pragmatic account thus proposes an explanation of the connection between the optionality of the past tense and the obligatoriness of cessation inferences. Given that pragmatic reasoning is universal, this explanation should apply in any language. Moreover, for languages where the nonfuture and the past tenses exhibit the same semantic properties as in Tlingit, the prediction is that cessation inferences should be just like those that are observed in Tlingit.

5. Tundra Nenets as a challenge for the pragmatic approach

In this section, we present new data from Tundra Nenets, a Uralic Samoyedic language spoken in the Far North of Russia. Like Tlingit, Tundra Nenets is an optional past tense language, where both past-marked and bare clauses (containing the nonfuture tense) can refer to past eventualities. However, unlike Tlingit, cessation inferences in Tundra Nenets are easily cancelable, aligning with English-type cessation inferences.

5.1. Temporal marking and resulting interpretations in Tundra Nenets

The optional past tense marker in Tundra Nenets is s'. As in Tlingit, past eventualities can be described using either past-marked or bare clauses[5]. In the presence of a past-marked adverbial, the past-tense morphology is not obligatory:

(15) Vera xardaxanda tjet^{h} časxana to.
Vera house.to four hours.at come.PFV.NONFUT
'Vera came home at 4.'

(16) Vera xardaxanda tjet^{h} časxana to.s'.
Vera house.to four hours.at come.PFV.PAST
'Vera came home at 4.'

[5]Native speakers show variation on this issue. One of our five consultants rejects sentences like (17) and (19), where a bare clause with a stative predicate describes a past eventuality. However, all speakers accept sentences like (15), where a bare clause with a perfective verb refers to a past event. The descriptive literature is also divided: (Nikolaeva, 2014) and state that bare imperfectives can refer to past intervals only in narrative texts (see also Tatevosov 2016), whereas (Tereshchenko, 1947) reports that they can do so more generally.

(17) Čas puna Vanja xony.
hour ago Vanja sleep.IMPF.NONFUT
'An hour ago, Vanja was sleeping.'

(18) Čas puna Vanja xony.s'.
hour ago Vanja sleep.IMPF.PAST
'An hour ago, Vanja was sleeping.'

(19) Njebjan.da to.va.^{h} mal'ŋgana, Olga urok.da sjertabi.
mother.her come.AN.GEN when Olga lesson.her do.IMPF.NONFUT
'When her mother came, Olga was doing her homework.'

(20) Njebjan.da to.va.^{h} mal'ŋgana, Olga urok.da sjertabi.s'.
mother.her come.AN.GEN when Olga lesson.her do.IMPF.PAST
'When her mother came, Olga was doing her homework.'

In the absence of a past-oriented adverbial, bare matrix clauses can be interpreted as either present or past. For bare perfective clauses, only the past interpretation is possible (as illustrated in (21)).

(21) Vanja to.
Vanja come.PFV.NONFUT
'Vanja came.'

Bare imperfective clauses tend to favor a present tense interpretation, particularly in out-of-the-blue contexts:

(22) Vanja xony.
Vanja sleep.IMPF.NONFUT
Suggested interpretation: 'Vanja is sleeping.'

(23) Olga urok.da sjertabi.
Olga lesson.her do.IMPF.NONFUT
Suggested interpretation: 'Olga is doing her homework.'

To get the past interpretation, a past-oriented adverbial has to be used or some other material in the sentence should signal that we are talking about a past time.

(24) Maša tjuku kniga.m^{h} tolabi, tjeda^{h} pyda xony.
Masha this book.ACC read.IMPF.NONFUT, now she sleep.IMPF.NONFUT
'Masha was reading this book, she is sleeping now.'

(25) Vanja xony, tjeda^{h} pyda manzara pjada.
Vanja sleep.IMPF.PAST, now he work.INF started.PRF.NONFUT
'Vanja was sleeping, now he began to work.'

5.2. No Discontinuous Past effects in Tundra Nenets

As in English, cessation inferences arise in Tundra Nenets with past imperfectives in out-of-the-blue contexts, but they are cancelable both through direct refutation and ignorance statements:

Cessation inference arising in a past imperfective:

(26) Vanja xony.s'.
Vanja sleep.IMPF.PAST
'Vanja was sleeping.'
$\rightsquigarrow$ Vanja is not sleeping anymore.

Cessation inference canceled by a direct refutation:

(27) (Čas puna^{h}) Vanja xony.s', pyda tamna xony.
(hour ago) Vanja sleep.IMPF.PAST, he still sleep.IMPF.NONFUT
'(An hour ago,) Vanja was sleeping, and he is still sleeping.'

(28) (Xuv^{h} numda) sava.s', tjeda^{h} tamna sava.
(morning weather) good.IMPF.PAST, now still good.NONFUT
'The weather was good (in the morning), now it is still good.'

Cessation inference canceled by a statement of ignorance:

(29) (Čas puna^{h}) Vanja xony.s'. Tjeda^{h} man' xonju.va.m.da jexjera.dm^{h}.
(hour ago) Vanja sleep.IMPF.PAST now I sleep.AN.ACC.3SG not-know.1sg
'(An hour ago,) Vanja was sleeping. I don't know if he is sleeping now.'

(30) (Xuv^{h} numda) sava.s'. Tjeda^{h} man' xurka ŋe.va.m.da
(morning weather) good.IMPF.PAST. Now I which be.AN.ACC.3SG
jexjera.dm^{h}.
not-know.1sg
'The weather was good (in the morning). I don't know what it is like now.'

Tundra Nenets thus poses a challenge for the pragmatic account of cessation inferences in optional past languages. While the past tense in Tundra Nenets behaves similarly to Tlingit, the ability to suspend cessation inferences through direct refutation is unexpected under the pragmatic approach. Interestingly, Tundra Nenets is not the first language described in the literature that has an optional past tense without exhibiting discontinuous past effects. Other research on optional past languages, such as Washo and Wolof (Bochnak, 2016; Bochnak and Martinović, 2019), has also demonstrated that cessation inferences in these languages are easily defeasible. An alternative explanation is therefore required.

6. The proposal

We propose that a parameter is responsible for the derivation of cessation inferences, which can be toggled on and off to account for the crosslinguistic variation in the obligatoriness the cessation inference in optional past languages. This parameter is the Exh operator, widely used in other empirical domains such as scalar implicatures, the distribution of NPIs and PPIs, restrictions on embedded wh-questions, and other phenomena.

We rely on the pronominal semantics of tense, as illustrated in (31), though similar results can be obtained under a quantificational semantics framework, with a pronominal element responsible for domain restriction.

(31) a. $[\![Past_i]\!]^{g,t_0} = g(i)$, defined only if $g(i) < t_0$

b. $[\![Nonfut_i]\!]^{g,t_0} = g(i)$, defined only if $\neg g(i) > t_0$

The LF we propose for the Tlingit example sentence in (27) (repeated below as (32)) is shown in (33). In this structure, the constituent containing the past tense is c-commanded by Exh, with the past tense marked for focus.

(32) Tle yá ts'ootaat dágáawé táa.yin Joe. #Ch'a yeisú
then this morning indeed IMP.3SG.sleep.PAST Joe. just still
tá.
IMPF.3SG.sleep.NONFUT
'This morning, Joe was indeed sleeping. He's still sleeping now.'

(33) [Exh_{ALT} [$\text{Past}_{1\text{F}}$ Joe be sleeping]]

Given these assumptions, alternatives are generated by substituting the item marked for focus. Specifically, the alternatives arise by changing the index and the feature of the tense, as shown in (34). As a result, each alternative makes a statement about a different time interval.

(34) $\{\text{Past}_1$ Joe be sleeping, Past_2 Joe be sleeping, Past_3 Joe be sleeping,
Nonfut_4 Joe be sleeping, Nonfut_5 Joe be sleeping, $\dots\}$

We use the standard denotation for Exh, where this operator asserts its prejacent and negates the alternatives—propositions derived from the sentences in (34) —that are not entailed by it (Chierchia, 2013).

(35) $[\![Exh_{ALT}\ \phi]\!]^{g,t,w}$= T iff $\lambda w'.[\![\phi]\!]^{g,t,w'}(w)$=$T \wedge \forall q[q \in \text{ALT} \wedge \lambda w'.[\![\phi]\!]^{g,t,w'} \not\subseteq q \rightarrow q(w)$=$F]$

The alternatives where the temporal interval selected by an alternative pronoun falls within the interval picked by the original one are entailed and cannot be negated without contradicting the assertion of the prejacent. The other alternatives, however, are negated. Consequently, the resulting interpretation, as shown in (36), is that Joe was sleeping during the past interval selected by g(1), but for all other past or present intervals, it is not true that Joe was sleeping during that time.

How does this derive the cessation inference? The hearer does not know the exact interval chosen by g(1), but she is aware that among the alternative intervals, there are some picked by pronouns that have a nonfuture feature, with their indices mapped to a moment overlapping with the current time. Negating these alternatives leads to the inference that the state does not hold at the present moment.

(36) $[\![(33)]\!]^{g,t_0,w_0} = T$ iff Joe was sleeping_{w_0} at $g(1) \wedge \forall t'[t' \not\subseteq g(1) \rightarrow \neg$Joe is sleeping_{w_0} at $t']$
$[\![(33)]\!]^{g,t_0,w_0}$ is defined only if $g(1) < t_0$

It is important to note that the alternatives negated by Exh in this case are not logically stronger than the original; they are logically independent (see also (Thomas, 2012) for the idea that cessation inferences arise from negating logically independent alternatives). This is similar to how alternatives are formed for *only* in *Only he came*, where *only* negates the alternatives created by changing the index and feature of the pronoun *he*, resulting in the meaning 'no one other than Joe came' (assuming that *he* refers to Joe).

Given that our proposal separates the past tense from the computation of the cessation infer-

ence syntactically, we expect that other operators can intervene between them. To explain the compatibility of a past-marked sentence with the statement of ignorance, as shown in (11) (repeated below as (37)), we propose, following much of the literature (Kratzer and Shimoyama, 2002; Alonso-Ovalle and Menéndez-Benito, 2010; Meyer, 2013; Nicolae, 2017; Crnič, 2021; Buccola and Haida, 2019), that a silent universal epistemic modal expressing the speaker's certainty can be merged into the structure. Merging this modal between Exh and the past-marked sentence derives the ignorance inference.

(37) Yeisù dziyáak táayin. Hél xwasakú ch'a yeisú shákdé
still earlier IMPF.3SG.sleep.PAST. NEG 3O.PFV.1SG.know just still DUB
tá.
IMPF.3SG.sleep.NONFUT
'Well, he was sleeping earlier. I don't know if he is still sleeping.'

Thus, we propose that the first sentence in (37) has an LF as shown in (38), where K represents the silent modal.

(38) [Exh_{ALT} [K [$\text{Past}_{1\text{F}}$ Joe be sleeping]]]

Given this, the alternatives will also include a K operator, as shown below.

(39) $\{[K[\text{Past}_1 \text{ Joe be sleeping}]], \ldots, [K[\text{Nonfut}_5 \text{ Joe be sleeping}]], \ldots\}$

The overall predicted truth conditions of the sentence are as shown in (40) and can be paraphrased as follows: I am certain that Joe was sleeping during the past time interval g(1), but I am not certain that he was sleeping during other past intervals or that he is sleeping now. Thus, with these assumptions, we capture the compatibility of the past-marked sentence in Tlingit with the statement of ignorance regarding the current state.

(40) a. $[\![(38)]\!]^{g,t_0,w_0} = T$ iff $\forall w[R(w_0,w) \rightarrow$ Joe was sleeping w at $g(1) \wedge$
$\forall t'[t' \not\subseteq g(1) \rightarrow \exists w'[R(w_0,w') \wedge \neg$ Joe is sleeping w' at $t']]]$

b. $[\![(38)]\!]^{g,t_0}$ is defined only if $g(1) < t_0$

We propose this as a general mechanism available in optional past languages for deriving cessation inferences, suggesting that this mechanism also applies to Tundra Nenets. We argue that the crosslinguistic variation among different optional past languages regarding the obligatoriness of these inferences is explained by the parameter of the obligatoriness of Exh. While Exh must mandatorily c-command the past tense in Tlingit, this is optional in Nenets.

7. Is there a link between optional past marking and discontinuous past?

Our approach, unlike the pragmatic approach of (Cable, 2017), does not connect the DP effects with the optionality of past marking. Therefore, we predict that such effects could also be found in languages that do not exhibit optional past. Preliminary evidence supports this prediction. Specifically, such effects are observed in Korean, which is a mandatory past language.

As a first step, we demonstrate that in Korean, past time reference requires the presence of past time marking. Korean lacks a nonfuture tense and has a standard present tense that is incompatible with past-oriented adverbials. As shown in (41), *yesterday* requires the past tense.

(41) a. *Ecey Con.i Aphu.ta.
Yesterday John.NM sick.PRES.DEC
Intended:‘Yesterday John was sick.’
b. Ecey Con.i Apha.ass.ta.
Yesterday John.NM sick.PAST.DEC
‘Yesterday John was sick.’

There are two types of past marking in Korean: the standard past marking shown in (42a) and the so-called double past, which morphologically consists of two past markers, as illustrated in (42b) (Kim, 1975; Lee, 2019). Both types of past marking trigger cessation inferences in out-of-the-blue contexts[6].

(42) a. Co.nun keki iss.ess.ta.
Jo.TOP there exist.PAST.DEC
‘Jo was there.’
⇝ Jo is not there now.
b. Co.nun keki iss.ess.ess.ta.
Jo.TOP there exist.PAST.PAST.DEC
‘Jo was there.’
⇝ Jo is not there now.

The full range of properties of the double past is not yet fully understood in the literature, but it is known to trigger discontinuous effects (Plungian and van der Auwera, 2006; Lee, 2019). This is illustrated by the contrast between (43a) and (43b): while the single past marking remains compatible with a preceding sentence that contradicts the cessation inference, the double past is not. This demonstrates that, as in Tlingit, the cessation inference contributed by the double past in Korean is not cancellable.

(43) a. Co.nun keki iss.ess.ta. Kunye.nun acik.to keki iss.ta
Jo.TOP there exist.PAST.DEC she.TOP still.even there exist.DEC
‘Jo was there. She is still there.’
b. Co.nun keki iss.ess.ess.ta. #Kunye.nun acik.to keki iss.ta
Jo.TOP there exist.PAST.PAST.DEC. she.TOP still.even there exist.DEC
Intended:‘Jo was there. She is still there.’

Fully parallel to Tlingit, the cessation inference can be modally suspended, as illustrated in (44). Here we observe that the cessation inference triggered by the double past is compatible with a statement expressing a lack of knowledge about the current state.

(44) Co.nun keki iss.ess.ess.ta. Kunye.ka acik.to keki
Jo.TOP there exist.PAST.PAST.DEC.she.NM still.even there exist.COMP
iss.nunci molu.keyss.ta
not.know.DEC
‘Jo was there. I don’t know if she is still there.’

We propose that these facts in Korean are explained in the same way as in Tlingit: the double past requires the presence of Exh, which derives the mandatory cessation inference; a silent

[6]We thank Jeonghee Myeong for the Korean data.

universal modal can optionally occur below Exh deriving ignorance about the current state.

Thus, Korean provides preliminary evidence that the discontinuous past is not crosslinguistically linked to optional past. This serves as an additional argument against the pragmatic theory that connects the optionality of past marking with the discontinuous past, as these effects are also found in languages with a standard present tense.

8. Why is there no blocking of past-oriented uses of nonfuture by maximize presupposition?

The approach we have taken here to the semantics of nonfuture tense raises a natural question: Given that, under the pronominal approach, the presupposition of the past tense is logically stronger than that of the nonfuture tense, why do we not observe mandatory strengthening of the nonfuture tense to the present (Sauerland, 2002; Bochnak, 2016)? The lexical entries for the two tenses that we have assumed so far are repeated below for convenience.

(45) a. $[\![Past_i]\!]^{g,t_0} = g(i)$, defined only if $g(i) < t_0$
b. $[\![Nonfut_i]\!]^{g,t_0} = g(i)$, defined only if $\neg g(i) > t_0$

Such strengthening should be expected based on the principle of Maximize Presupposition, which requires the use of an expression with a stronger presupposition if that presupposition is satisfied in the context (Heim, 1991; Percus, 2006; Schlenker, 2012). The workings of this principle in natural languages have been observed independently of the phenomenon of tense. An illustration of this phenomenon is provided in (46): in English, the indefinite article cannot be used when it is known that exactly one individual satisfies the description—in other words, when the conditions for using the definite article are met.

(46) #A weight of our tent is under 4 lbs. (Heim, 1991)

Based on this semantics in (45) and Maximize Presupposition, we expect that the nonfuture tense cannot be used when it is known that the time interval picked by the temporal pronoun is in the past. Essentially, the nonfuture tense should exhibit properties equivalent to the English present tense (Sauerland, 2002).

Bochnak (2016), addressing a similar issue in Washo, argues that the past and nonfuture tenses do not compete due to syntactic differences. The past is syntactically complex (see (47a)), while the nonfuture lacks a tense feature (see (47b)), as future orientation is treated as modal. Forms that differ in syntactic complexity, under this account, are exempt from Maximize Presupposition-based competition.

(47) a. The structure of the past tense: [[Past] [t_n]]
b. The structure of the nonfuture tense [t_n]

While this may be a possibility for Washo, we propose that Tundra Nenets offers a different answer to the question of why the past does not block the nonfuture tense in past time scenarios.

There is evidence that the nonfuture tense is not unrestricted by any tense feature In Nenets;it is limited to scenarios where the event or state is not located too far in the past.

This is illustrated by the contrast between (48a) and (48b): while the nonfuture tense (as well as the past tense) is compatible with the adverbial *last year*, the past marking cannot be omitted

with adverbials that reference a time further removed from now, such as *three years ago*.

(48) a. Xajuvy poxona Vanja ŋano.m^{h} tjemda / tjemda.s'.
Last year Vanja boat.ACC buy.PRF.NONFUT / buy.PRF.PAST
'Last year, Vanja bought a boat.'

b. Njaxar^{q} po^{h} puna^{h} Vanja ŋano.m^{h} #tjemda / tjemda.s'.
Three years ago Vanja boat.ACC #buy.PRF.NONFUT / buy.PRF.PAST
'Three years ago, Vanja bought a boat.'

What is considered 'distant enough' is contextually determined. This is illustrated in (49): while (49a) shows that the nonfuture tense is perfectly acceptable with the past-oriented adverbial *just* (thus, the past marking is optional), it is not compatible with the adverbial *a long time ago*, even if it refers to a time within the same day as the current moment: a past marking must be used in this case.

(49) a. Vera tandaja to / to.s'.
Vera just comePRF.NONFUT / come.PRF.PAST
'Vera just came home.'

b. Context: The father hasn't seen his son since school. He asks the mother, 'Where is Vanja?' The mother responds:
Vanja ŋana^{h} xarda.xana #to / to.s'.
Vanja long-ago home.to #come.PRF.NONFUT / come.PRF.PAST
'Vanja came home a long time ago.'

Given these facts, we propose the following modification to the semantics of the nonfuture tense in Tundra Nenets. Under this semantics, the past tense, as defined in (45a), does not have a stronger presupposition than the nonfuture tense; instead, the two presuppositions are logically independent. Thus, with this semantics, we do not expect any competition between them based on Maximize Presupposition. While we do not know if similar facts are observed in other languages with optional past, it is possible that this holds for other languages with a similar temporal setup[7].

(50) $[\![Nonfut_i]\!]^{g,t_0,c} = g(i)$, defined only if $g(i)'s$ distance from t_0 does not exceed θ_c, where θ_c is a threshold determined in the context.

The blocking via Maximize Presupposition is not expected; however, competition between the nonfuture tense and the past tense is still possible. We argue that this competition accounts for some of the effects observed in Tundra Nenets.

As mentioned above, in the absence of any adverbial or other material signaling that we are talking about a past state, nonfuture tense with imperfectives gets a present tense interpretation, as shown in (22), (23). We propose that this interpretation arises as an implicature. We suggest

[7]Cable (2017: 650 (fn 11)) discusses an example that could serve as preliminary evidence for this pattern in Tlingit. The example, translated into English as *I lived in Juneau*, features past marking referring to a distant past (the 1950s). Cable observes that, in this context, the past tense does not trigger a cessation inference, which contrasts with the general pattern in Tlingit, where cessation inferences are typically mandatory. One possible explanation is that, in this case, there is no competition with the nonfuture tense, as the nonfuture tense is restricted to recent intervals. However, further empirical research is needed to determine whether this account holds for Tlingit. Cable (2017) proposes an alternative explanation for the absence of a cessation inference in this case.

that (51) represents a possible LF for (22), where the focus is placed only on the tense feature.

(51) [Exh_{ALT} [[Nontut_{F} t_1] Vanja be sleeping]]]

We need a slight adjustment to the semantics of the nonfuture tense: it consists of a syntactic feature and a time variable (Cable, 2013: 233). The feature denotes a function that takes a temporal interval (provided by the temporal pronoun in (51)), introduces the presupposition that this interval is not too far removed from the evaluation time, and returns the same time interval. Similar modifications are needed in the semantics of *Past*.

(52) $[\![\textit{Nonfut}]\!]^{g,t_0,c} = \lambda t : t'$*s* distance from t_0 does not exceed θ_c. t

Accordingly, the alternatives for Exh are computed by substituting the tense feature while keeping the index on the tense pronoun unchanged. The only alternative proposition distinct from the prejacent is derived from the sentence in (53a).

(53) a. [[Past t_1] Vanja be sleeping]
b. $\lambda w.[\![\textit{(53a)}]\!]^{g,w,t_0,c} = \lambda w.$Vanja was $\text{sleeping}_{\text{w}}$ at g(1), defined only if g(1) $< t_0$

To derive the inference, we adopt a version of Exh that treats presuppositions on a par with asserted content and negates the conjunction of the assertion and the presupposition of the alternative (Chierchia, 2013; Spector, 2014; Spector and Sudo, 2017).

The resulting interpretation of the sentence is shown in (54). The strikethrough disjunct contradicts the first conjunct and, therefore, does not contribute to the overall interpretation. As a result, we derive the inference that the temporal interval picked by g(1) does not lie in the past relative to the evaluation time. This captures the empirically observed inference that the state is current, as contributed by the nonfuture tense in out-of-the-blue contexts in Nenets.

(54) $[\![\textit{(51)}]\!]^{g,w_0,t_0,c} = T$ iff Vanja is $\text{sleeping}_{\text{w}_0}$ at g(1) $\wedge$ (~~$\neg$Vanja is $\text{sleeping}_{\text{w}_0}$ at g(1)~~ $\vee$ g(1)$\not<$ t_0)
$[\![\textit{(51)}]\!]^{g,w_0,t_0,c}$ is defined only if g(1)'s distance from t_0 does not exceed θ_c.

The use of the past tense in out-of-the-blue contexts in Tundra Nenets triggers the inference that the eventuality is temporally located in the distant past (see (Tereshchenko, 1947: 187) and (Nikolaeva, 2014: 81), along with the examples discussed there). However, this inference is not hardwired into the semantics of the past tense, as was shown in (49a): the past tense is compatible with *just*.

We propose that this inference is derived via competition with the nonfuture tense in a parallel manner. Specifically, we suggest that (55) can have an LF shown in (56a). Accordingly, (56b) presents the alternative sentence, and (56c) the resulting interpretation of the whole sentence.

(55) Vera to.s'.
Vera come.PFV.PAST
'Vera came.'

(56) a. [Exh_{ALT} [[Past_{F} t_1] Vera came]]]
b. [[Nonfut t_1] Vera came]
c. $\lambda w.[\![\textit{(56b)}]\!]^{g,w,t_0,c} = \lambda w.$Vera came_{w} at g(1), defined only if g(1)'s distance from t_0 does not exceed θ_c.

The overall predicted meaning is as shown in (57): this correctly captures the inference that the temporal interval of Vera's arrival is in a contextually distant past.

(57) $[\![(56a)]\!]^{g,w_0,t_0,c} = T$ iff Vera came_{w_0} at g(1) $\wedge$ g(1)'s distance from t_0 exceeds θ_c; is defined only if g(1)$< t_0$

Thus, Tundra Nenets provides its own answer to the descriptive paradox formulated by (Plungian and van der Auwera, 2006): why do 'idle' past markers exist? The general question here is: why should optional past markers exist at all if they are optional and do not seem to contribute to semantics? Plungian and van der Auwera (2006) suggest that, in at least some optional past languages, this paradox is resolved by assigning those markers the function of discontinuous past. However, as we have shown here, this is not the case in Tundra Nenets. Instead, the presuppositions introduced by the nonfuture and past tenses allow for the derivation of inferences similar to those introduced by the present tense in languages that have one (such as English or Russian), as well as inferences similar to those introduced by remote past marking in languages that have this distinction, such as Gĩkũyũ (Cable, 2013)[8].

9. Open issues

9.1. The role of adverbials

We conclude this paper by highlighting an open problem concerning obligatory cessation inferences in optional past languages. We propose only a preliminary account of this problem leaving a more detailed exploration for future research.

(Cable, 2017: 640) observes that in Tlingit, examples like (6), which contains the past tense and is translated as *When I saw Joe earlier, he was builiding a boat*, give rise to an obligatory cessation inference despite the presence of a past-oriented adverbial that restricts the Topic Time to a past interval. This constitutes another point of divergence between Tlingit and English and presents a further challenge: we would expect a past-oriented adverbial to be incompatible with a tense denotation that implies overlap with the utterance time. Alternatives with such tense denotations should not contribute to the overall semantics and, consequently, the cessation inference should not arise (cf. (54) above). Yet, this is not what we observe. This is a problem both for pragmatic accounts and for the analysis we proposed here.

One potential way of addressing this problem is to suggest that in Tlingit, adverbials are somehow not included in the alternative sentences and, therefore, do not contribute to their semantics. One way of achieving this result is to assume that an adverbial forms a constituent with tense, as shown in (58a). Then, the substitution of (58a) with (58b) is allowed in the computation of the alternatives, as it is structurally simpler (see (Katzir, 2007; Fox and Katzir, 2011)).

(58) a. $[\text{Past}_1$ when I saw him$]_F$
b. $[\text{Nonfuture}_1]$

Alternatively, the contribution of adverbials could be different in Tlingit. Here, we consider the possibility that the inability of a past Topic Time (TT) to block the cessation inference may stem from the capacity of tense in optional past languages to directly saturate the Event Time

[8]While our discussion of cessation inferences suggested that similar results could be attained with existential semantics for tense, given a contextual domain restriction, the considerations in this section support pronominal semantics, as the inferences cannot be derived under the alternative existential approach.

(ET) argument. Under a traditional Kleinian perspective (Klein, 1994), tense cannot provide the ET argument: ET is introduced by Viewpoint Aspect, which relates it to the TT. On this view, tense can only saturate the TT argument. An alternative perspective, in which tense is abe to saturate the ET argument, assumes that Viewpoint Aspect introduces an unsaturated ET argument position in addition to the unsaturated TT argument position. Under the Kleinian analysis, an AspP like *[IMPF Joe be building]* is a predicate of Topic Times (type $\langle i,t\rangle$) with the Event Time represented as a definite $\tau(e)$:

(59) $[\![$ *[IMPF Joe be building a boat]* $]\!]^{g,w,t_0,c} = \lambda t'.\exists e(\text{JBB}(e) \wedge t' \subseteq \tau(e))$

According to our proposal, the Event Time is an argument that remains available for further modification or saturation just like the Topic Time argument. Consequently, the same AspP is an expression of type $\langle i,\langle i,t\rangle\rangle$:

(60) $[\![$ *[IMPF Joe be building a boat]* $]\!]^{g,w,t_0,c} = \lambda t''.\lambda t'.\exists e(\text{JBB}(e) \wedge \tau(e) = t' \wedge t'' \subseteq t')$

In (60), the outer time argument is the TT argument and the inner time argument is the ET argument. The TT argument can be modified by the adverbial *when I saw him* and subsequently be existentially closed by an Existential Closure (EC) operator, for which we propose the semantics given in (61). When this happens, the result is an AspP (a predicate of Event Times) that further composes with tense.

(61) $[\![EC]\!] = \lambda R_{\langle i,\langle i,t\rangle\rangle}.\lambda t.\exists t'(R(t')(t))$

With these assumptions, example (5), which differs from (6) only in its use of the nonfuture tense, receives the following analysis:

(62) a. LF: [Nonfut$_1$ [EC [[when I saw him] Joe be building a boat]]]
b. $[\![(62a)]\!]^{g,w,t_0,c}$ = T iff $\exists t''\exists e(\text{JBB}(e) \wedge \tau(e) = g(1) \wedge t'' \subseteq g(1) \wedge \text{W-I-S-H}(t''))$
c. $[\![(62a)]\!]^{g,w,t_0,c}$ is defined only if $\neg g(1) > t_0$

Under this perspective a bare clause can describe an ongoing eventuality with a topic time modified by a past-oriented adverbial. Suppose $t_0 \subseteq g(1)$. According to (62), the ET is $g(1)$. The TT is modified by the adverbial *when I saw him* and is also included in $g(1)$ (as is required by the standard semantics for the Imperfective Aspect).

The past-marked clause in (6) receives the analysis in (63). Here, $g(2)$ is a past interval representing the Event Time. As before, Exh ensures that all alternatives not entailed by its prejacent are negated. This accounts for the cessation inference.

(63) a. LF: [Exh [Past$_2$ [EC [[when I saw him] Joe be builiding a boat]]]
b. $[\![(63a)]\!]^{g,w,t_0,c}$ = T iff $\exists t''\exists e(\text{JBB}(e) \wedge \tau(e) = g(2) \wedge t'' \subseteq g(2) \wedge \text{W-I-S-H}(t'')) \wedge$
$\forall t'[t' \not\subseteq g(2) \rightarrow \neg\exists t''\exists e(\text{JBB}(e) \wedge \tau(e) = t' \wedge t'' \subseteq t' \wedge \text{W-I-S-H}(t''))]$
c. $[\![(63a)]\!]^{g,w,t_0,c}$ is defined only if $g(2) < t_0$

These ideas are preliminary, and further theoretical and empirical research is needed to understand how adverbials interact with tense in Tlingit.

9.2. The role of aspect

As shown by Cable (2017), in Tlingit, cessation inferences are also triggered by past marking on perfective verbs. In such cases, the cessation inference applies to the resulting state. How-

ever, we were unable to replicate these results in Tundra Nenets. In fact, whether a perfective verb is marked for past or not, it contributes an inference that the resulting state still holds at the utterance time. This is illustrated in (64a), where a continuation suggesting that the doctors are no longer present is incompatible with the use of the perfective verb 'to come' in the first sentence. Instead, in such a context, an imperfective verb—whether marked for past or not—must be used, as shown in (64b).

(64) a. Skoroj pomošč to / to.s'. #Vrač.^{q}
Emergency help come.PFV.NONFUT / come.PFV.PAST. #Doctor.PL
ukol.m^{h} serta.c', tjakaxad xaja.c'.
injection.ACC make.PFV.PL.PAST, after leave.PFV.PL.PAST.
Intended: 'The ambulance had come. The doctors gave an injection and left.'

b. Skoroj pomošč turna / turnas'. Vrač.^{q}
Emergency help come.IMPF.NONFUT / come.IMPF.PAST. doctor.PL
ukol.m^{h} serta.c', tjakaxad xaja.c'.
injection.ACC makePFV.PL.PAST, after leave.PFV.PL.PAST.
'The ambulance had come. The doctors gave an injection and left.'

The construction in (64b) seems to align with Russian 'derived secondary (factual) imperfectives', which have a similar structure, license the same effects, and have been extensively discussed in the literature (see Grønn 2003, Altshuler 2014: Section 2.1.2 and references therein). We leave this difference between Tlingit and Nenets for future research.

10. Conclusions

Cessation inferences are typically assumed to arise from competition with the present tense. This paper examines how cessation inferences can be derived in languages that lack a designated present tense—specifically, optional past languages such as Tundra Nenets. Existing pragmatic accounts have linked Discontinuous Past effects—where cessation inferences are almost uncancellable in some languages, such as Tlingit—with the optionality of the past tense. We contribute to this discussion by empirically describing Tundra Nenets, an optional past language that does not exhibit Discontinuous Past effects. In this language, cessation inferences are easily cancellable, raising the question of what accounts for this variation across optional past languages. We propose that cessation inferences in optional past languages arise from the application of Exh to past-tense sentences, where Exh negates logically independent alternatives. Our account explains the crosslinguistic variation in Discontinuous Past effects among optional past languages in terms of the obligatoriness parameter of Exh, providing a semantic explanation for Discontinuous Past. We also challenge the assumed link between Discontinuous Past effects and the optionality of the past tense by presenting data from Korean, a mandatory past language that nonetheless exhibits this property.

We also address the descriptive paradox raised by Plungian and van der Auwera (2006), which questions why languages have optional past markers at all, given their apparent redundancy. We observe that in Tundra Nenets, the nonfuture tense is restricted to contextually recent temporal intervals. The competition between nonfuture and past tenses in this language allows for the derivation of additional inferences, making the past tense not redundant.

References

Alonso-Ovalle, L. and P. Menéndez-Benito (2010). Modal indefinites. *Natural Language Semantics 18*(1), 1–31.

Alonso-Ovalle, L., P. Menéndez-Benito, and F. Schwarz (2011). Maximize presupposition and two types of definite competitors. In S. Lima, K. Mullin, and B. Smith (Eds.), *Proceedings of NELS 39*, Volume 1, Amherst, pp. 29–40. GLSA.

Altshuler, D. (2014). A typology of partitive aspectual operators. *Natural Language & Linguistic Theory 32*, 735–775.

Altshuler, D. and R. Schwarzschild (2013). Moment of change, cessation implicatures and simultaneous readings. In E. Chemla, V. Homer, and G. Winterstein (Eds.), *Proceedings of Sinn und Bedeutung 17*, Volume 17, pp. 45–62.

Bochnak, M. R. (2016). Past time reference in a language with optional tense. *Linguistics and Philosophy 39*, 247–294.

Bochnak, M. R., V. Hohaus, and A. Mucha (2019). Variation in tense and aspect, and the temporal interpretation of complement clauses. *Journal of Semantics 36*, 407–452.

Bochnak, M. R. and M. Martinović (2019). Optional past tense in wolof. In S. Lotven, S. Bongiovanni, P. Weirich, R. Botne, and S. G. Obeng (Eds.), *African Linguistics Across the Disciplines: Selected Papers from the 48th Annual Conference on African Linguistics*, pp. 187–202. Language Science Press.

Buccola, B. and A. Haida (2019). Obligatory irrelevance and the computation of ignorance inferences. *Journal of Semantics 36*(4), 583–616.

Cable, S. (2013). Beyond the past, present, and future: towards the semantics of 'graded tense' in Gĩkũyũ. *Natural Language Semantics 21*, 219–276.

Cable, S. (2017). The implicatures of optional past tense in tlingit and the implications for 'discontinuous past'. *Natural Language and Linguistic Theory 35*, 635–681.

Chierchia, G. (2013). *Logic in Grammar: Polarity, Free Choice, and Intervention*. Oxford: Oxford University Press.

Copley, B. (2005). O'odham cem: When the actual world isn't inertial. In M. Becker and A. McKenzie (Eds.), *Semantics of Underrepresented Languages in the Americas (SULA) 3*, pp. 17–34. Graduate Linguistics Student Association, Amherst.

Crnič, L. (2021). Exceptives and exhaustification. In R. Autry, G. de la Cruz, L. A. I. Figueroa, K. Mihajlovic, T. Ni, R. Smith, and H. Harley (Eds.), *Proceedings of the 39th West Coast Conference on Formal Linguistics*, Somerville, MA, pp. 102–112. Cascadilla Proceedings Project.

Fox, D. and R. Katzir (2011). On the characterization of alternatives. *Natural Language Semantics 19*, 87–107.

Grønn, A. (2003). *The semantics and pragmatics of the Russian factual imperfective*. University of Oslo dissertation.

Heim, I. (1991). Artikel und definitheit. *Semantik*, 487–535.

Katzir, R. (2007). Structurally-defined alternatives. *Linguistics and Philosophy 30*, 669–690.

Kim, N.-K. (1975). The double past in korean. *Foundations of Language 12*, 529–536.

Klein, W. (1994). *Time in language*. London: Routledge.

Kratzer, A. and J. Shimoyama (2002). Indeterminate pronouns: The view from japanese. In Y. Otsu (Ed.), *Proceedings of the 3rd Tokyo Conference on Psycholinguistics*, Tokyo, pp. 1–25. Hituzi Syobo.

Lee, E. (2019). *Korean Syntax and Semantics*. Cambridge University Press.

Leer, J. (1991). *The schetic categories of the Tlingit verb*. Ph. D. thesis, University of Chicago.

Magri, G. (2009). *A Theory of Individual-Level Predicates Based on Blind Mandatory Implicatures*. Ph. D. thesis, MIT.

Magri, G. (2011). Another argument for embedded scalar implicatures based on oddness in downward entailing environments. *Semantics & Pragmatics 4*(6), 1–51.

Matthewson, L. (2006). Temporal semantics in a superficially tenseless language. *Linguistics and Philosophy 29*, 673–713.

Meyer, M.-C. (2013). *Ignorance and Grammar*. Ph. D. thesis, MIT.

Musan, R. (1995). *On the temporal interpretation of noun phrases*. Ph. D. thesis, MIT.

Musan, R. (1997). Tense, predicates, and lifetime effects. *Natural Language Semantics 5*(3), 271–301.

Nicolae, A. C. (2017). Deriving the positive polarity behavior of plain disjunction. *Semantics & Pragmatics 10*, 1–24.

Nikolaeva, I. (2014). *A grammar of Tundra Nenets*, Volume 65. Walter de Gruyter GmbH & Co KG.

Percus, O. (2006). Anti-presuppositions. In A. Ueyama (Ed.), *Theoretical and Empirical Studies of Reference and Anaphora: Toward the Establishment of Generative Grammar as an Empirical Science*, pp. 52–73. Washington, DC: Japan Society for the Promotion of Science. Report of the Grant-in-Aid for Scientific Research (B), Project No. 15320052.

Plungian, V. A. and J. van der Auwera (2006). Towards a typology of discontinuous past marking. *Sprachtypologie und Universalienforschung (STUF) 59*, 317–349.

Sauerland, U. (2002). The present tense is vacuous. *Snippets 6*, 12–13.

Schlenker, P. (2012). Maximize presupposition and gricean reasoning. *Natural Language Semantics 20*, 391–429.

Spector, B. (2014). Global positive polarity items and obligatory exhaustivity. *Semantics & Pragmatics 7*, 1–61.

Spector, B. and Y. Sudo (2017). Presupposed ignorance and exhaustification: How scalar implicatures and presuppositions interact. *Linguistics and Philosophy 40*(5), 473–517.

Tatevosov, S. (2016). Structure and interpretation of tundra nenets verbs: eventuality types and conjugation classes. *Voprosy Jazykoznanija 3*, 81–114.

Tereshchenko, N. M. (1947). *Ocherk grammatiki neneckogo (jurako-samoedskogo) jazyka [A study in the grammar of the Nenets (Yurak Samoyedic) language]*. Uchpedgiz, Leningrad.

Thomas, G. (2012). *Temporal Implicatures*. Ph. D. thesis, MIT.

Thomas, G. (2014). Nominal tense and temporal implicatures: evidence from mbyá. *Natural Language Semantics 22*, 357–412.