Simultaneous readings of past-under-past in Russian[1]

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Abstract. This paper examines simultaneous readings of past-under-past in Russian. Based on the pattern of cessation inferences, I argue that these readings can only be derived through a *de re* construal. I demonstrate that the pragmatic competitor for this reading is the double access interpretation of the embedded present tense, which is also derived via a *de re* construal. Under the grammatical approach to implicature calculation, the structure of the competitor provides insight into the structure of the original statement. I propose a straightforward test for identifying languages in which simultaneous readings can only arise through a *de re* construal.

Keywords: tense, cessation implicatures, *de re* construal, simultaneous reading, past-under-past, Russian

1. Introduction

This paper examines sentences in which a past-marked stative verb appears under a past-marked intensional verb, as in (1). In English, such sentences are compatible with two scenarios: the back-shifted one, where the time of loving is strictly before the time of speaking three years ago, as described in (2a), and the simultaneous one, where the time of loving overlaps with the time of saying, as given in (2b).

(1) Three years ago, John said he loved Ann.

(2) a. **The Back-Shifted scenario** : Three years ago, John came to me and said, 'I loved Ann in the past, but now I love someone else.'
b. **The Simultaneous scenario**: Three years ago, John came to me and said, 'I love Ann!'

It is not difficult to see why the sentence is compatible with the first scenario: it contains two past tenses, both of which can contribute to its semantics. Assuming that the sentence has the LF in (3a) and that the local *now* for the embedded past corresponds to the time when John is situated in his saying-alternatives (three years ago), the sentence receives the truth conditions in (3b). It is predicted to be true if and only if there was a past time (three years ago) when John said that there had been a past time when he loved Ann.

(3) a. [PAST Three years ago John say [PAST he loves Ann]]
b. $[\![(3a)]\!]^{g,t_0,w_0}$ = T iff $\exists t[t < t_0 \wedge t \in 3 \text{ years ago} \wedge$
$\forall \langle w', t' \rangle \in \text{Say-Alt}(John, w_0, t) : \exists t''[t'' < t' \wedge \text{John loves Ann at } t'' \text{ in } w']]$

The question is: how is it possible that the sentence is also compatible with the second, simultaneous scenario? Not every language allows for such a reading as readily as English. The debate in the literature centers on whether (1) is truly ambiguous and whether a special mechanism accounts for its compatibility with the simultaneous scenario.

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One side of this debate, which can be called the *semantic approach*, has proposed two mechanisms to explain the availability of the simultaneous reading.

The first mechanism involves the Sequence of Tense (SOT) rule, which posits that the past tense in the embedded clause is not semantically interpreted (Ogihara 1989, Abusch 1997, Kusumoto 1999, among others). There are various implementations of this idea, but the central claim is that, in addition to the LF shown earlier, sentence (1) can also have an alternative LF, as shown in (4). In this structure, the embedded past tense is not interpreted; instead, its past marking is merely a morphological reflex of the higher past tense.

(4) [PAST Three years ago John say [~~PAST~~ he loves Ann]]

Accordingly, the love relation is understood as simultaneous with John's speech time (his local now, i.e., the time when he finds himself in his doxastic alternatives), as shown in (5).

(5) $\exists t[t < t_0 \wedge t \in 3 \text{ years ago} \wedge \forall \langle w', t' \rangle \in \text{Say-Alt}(John, w_0, t) : \text{John loves Ann at } t' \text{ in } w']$

The second mechanism relies on the *de re* interpretation of the embedded past tense (Abusch 1997, Heim 1994, Ogihara 1995a, Sharvit 2018). This approach is more complex, but its key idea is that the embedded past tense is interpreted transparently—i.e., with respect to the matrix *now*. This means that the sentence contains two independent past tenses, allowing for different possible relationships between them: one past time may precede the other, or they may overlap—yielding the simultaneous reading. The attitude verb establishes an isomorphism between two temporal relations: the one that holds between the matrix past and the past from the embedded clause, and the one that holds between the attitude holder's local now and the time of the embedded state.

These two mechanisms are not mutually exclusive; in fact, both have been argued to exist simultaneously in English (Abusch 1997). Accordingly, the incompatibility of past-under-past constructions with the simultaneous reading in some languages is attributed to the absence of one or both of these mechanisms or to additional restrictions on their application.

Another side of the debate, which is called the *pragmatic approach*, denies that sentence (1) exhibits true ambiguity. According to this view, the sentence has only the LF shown in (3a), which results in the truth conditions in (3b). These truth conditions do not require simultaneity, but they also do not block it: the predicted meaning is weak enough to be compatible with both scenarios. Technically, all that is required is that a loving relationship existed at some point in the past relative to the saying time. However, nothing in these truth conditions prevents the love relationship from extending to the local now (the time of saying) and overlapping with it. What, under this approach, accounts for crosslinguistic variation in the compatibility of past-under-past with simultaneous scenarious? The idea is that in some languages, simultaneity is blocked by cessation inference—the inference that the past state does not extend to the local now of the attitude holder.

Cessation inferences are known to be triggered by past marking on a stative verb in matrix clauses (Musan 1995, Thomas 2012, Altshuler and Schwarzschild 2013), as illustrated in (6).

(6) John loved Ann.
$\rightsquigarrow$John does not love Ann now.

There is a consensus in the literature that cessation inferences arise from competition between the past tense and the present tense. Altshuler and Schwarzschild (2013) propose that this inference is a scalar implicature arising from the fact that a statement with the present tense is logically stronger than its past-tense counterpart. They formulate the Open Interval Hypothesis, shown in (7). The core idea is that if John loves Ann now, then it logically follows that there was a moment in the past—however brief—during which John also loved Ann.

(7) ***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'.

Given that cessation inferences are pragmatic, why do we observe crosslinguistic differences in the compatibility of past-under-past with simultaneous scenarios? The answer offered by the pragmatic approach is that whether the cessation inference is computed depends on how the present tense is interpreted in embedded contexts in a given language. The reason this inference does not arise in English is that English does not have a present tense that can be embedded under past. The details will be introduced below, but the key idea is that English lacks a valid competitor, preventing the computation of the cessation inference. In languages where the present tense can be embedded, the cessation inference does arise, rendering the sentence incompatible with the simultaneous scenario.

I contribute to this debate by presenting novel data from Russian—a language that allows the present tense to be embedded, meaning that past-under-past constructions have a valid competitor. The data I provide supports the idea that simultaneity in Russian past-under-past constructions is derived through a special grammatical mechanism: *de re* construal. Moreover, I argue that this is the only mechanism that derives the simultaneous reading in Russian.

I show that past-under-past constructions interpreted simultaneously in Russian trigger an anti-double access effect, meaning that the embedded state is inferred not to extend into the actual present. A similar observation was made for Hebrew by Bar-Lev (2015) and for Farsi by Mirrazi (2022), who also linked it to a *de re* interpretation.

I propose a theoretical explanation for how these inferences are derived, arguing that this effect suggests the pragmatic competitor for these readings is the double access reading of the present tense. Double access readings are typically assumed to arise from a *de re* construal of the present tense. Accordingly, the properties of simultaneous past-under-past readings in Russian can be explained as follows: these readings result from a *de re* construal, with the competitor computed structurally through LF substitution.

This paper proposes a simple and clear test to determine whether the only mechanism for deriving the simultaneous reading is through a *de re* construal. I also discuss some consequences of this observation for the cross-linguistic picture.

2. The puzzle

As established in the previous literature, past-under-past in Russian is compatible with a simultaneous scenario (e.g. Altshuler 2008). An illustrative example of this is given in (8)[2].

[2]There is speaker variation in the accessibility of the simultaneous interpretation in Russian. For many speakers who experience difficulty accessing this reading, inserting *v to vremya* ('at that time') makes the reading acceptable. Similar facts were reported for Hebrew in (Ogihara and Sharvit 2012).

(8) **Context**: 3 years ago, Vanya came to me and said, 'I love Anya!'
Tri goda nazad Vanja skaza.l, čto on ljubi.l Anju.
three years ago Vanya say.PAST that he love.PAST Anya.
'Three years ago, Vanya said that he loved Anya.'

The argument I am building is based on the contrast between (8) and (9). The simultaneous interpretation is not available in (9). The only difference between these cases lies in the temporal adverbial in the matrix clause: *three years ago* versus *yesterday*. This adverbial restricts the time of the saying event. When the saying event occurs too close to the present moment, as in (9), the simultaneous reading becomes unavailable. Intuitively, the issue in (9) is that *love* denotes a long-lasting state. If someone loved another person yesterday, it is implausible that the love would have ended by today—yet this is exactly what the sentence implies.

(9) **Context**: Yesterday, Vanya came to me and said, 'I love Anya!'
#Včera Vanja skaza.l, čto on ljubi.l Anju.
Yesterday Vanya say.PAST that he love.PAST Anya.
Intended: 'Yesterday, Vanya said that he loved Anya.'

If this characterization of the facts is correct, we would expect the simultaneous reading of (9) to become available when the context does not suggest that the love continues into the present. This prediction is confirmed, as (9) is acceptable in the context provided in (10).

(10) **Context**: Vanya is an unreliable guy. The day before yesterday, he told me, 'I love Masha!' Yesterday, he told me, 'I love Anya!'

Thus, the generalization that emerges is as follows.

(11) **The empirical generalization:** Simultaneous readings of past-under-past in Russian trigger the inference that the embedded state does not extend to the actual present (from the perspective of the attitude holder).

It is worth pointing out that the English translation of (9) is perfectly acceptable in the given scenario. This shows that the mechanisms available in the two languages differ.

Another example of this phenomenon can be seen in the contrast between (12) and (13). While the simultaneous interpretation is unavailable in (12), it is easily accessible in the minimally different (13). The key distinction between these cases is that if what Biden said was true at the time he said it, Xi would still be a dictator now. In contrast, Stalin is dead and no longer a dictator. In Russian, the use of the past tense in (12) triggers the inference that the embedded state no longer holds from the perspective of the attitude holder. This would imply that Xi either died or fundamentally changed his ways between yesterday and today.

Again, we do not observe any contrast between the two cases in English: the simultaneous reading is easily accessible in English translations of both sentences.

(12) **Context**: Yesterday Biden said, 'Xi is a dictator!'
#Včera Biden skaza.l, čto Si by.l dictatorom.
Yesterday Biden say.PAST that Xi be.PAST dictator.
Intended: 'Yesterday, Biden said that Xi was a dictator.'

(13) **Context**: In 1933 Mandelshtam said, 'Stalin is a dictator!'

V 1933 godu Mandelštam skaza.l, čto Stalin by.l dictatorom.
In 1933 year Mandelshtam say.PAST that Stalin be.PAST dictator.
'In 1933 Mandelshtam said that Stalin was a dictator.'

I refer to these effects in Russian as the 'anti-double access effect' due to their parallelism with the double access reading of the present tense in English, which will be discussed below.

One important clarification about the nature of these inferences is needed. None of the examples above are factive: they do not imply that what the holder said was true at the time they said it. If factivity were indeed involved, we would potentially have a simple explanation for the observed contrast. To see this, let's focus on the example in (14) from Hebrew, presented by Bar-Lev (2015), which contains this confound. The observation made by Bar-Lev (2015) is parallel to the one discussed here: the sentence is acceptable in the context in (15a), but it is not acceptable in the context given in (15b), where the time of knowing is placed too close to the actual *now*.

(14) Yadati še-Rina hayta be-herayon!
knew.1SG that-Rina was in-pregnancy!
'I knew that Rina was pregnant!'

(15) a. **Context**: Two years ago, I saw Rina with a swollen belly. ✓
b. **Context**: Yesterday, I saw Rina with a swollen belly. #

However, given that the factive verb *know* is used in (14), the unacceptability of it in the context given in (15b) can potentially receive another explanation. It could be due to the principle of Maximize Presupposition (Heim 1991, Percus 2006, Schlenker 2012). According to this principle, the use of an expression is blocked if there is another expression with a stronger presupposition that is satisfied in the context. In this case, the sentence presupposes that there was a past time when Rina was pregnant. Since we do not expect the pregnancy state to change in just one day, using the present tense in the embedded clause would contribute a stronger presupposition — that Rina is pregnant now — which is satisfied in the context. In contrast, we do not expect pregnancy to last for years, which is why in context (15a), the sentence is acceptable. This can account for the contrast we observe.

Crucially, the Russian examples above do not contain a factive propositional verb. More importantly, the inference we get is more subtle than the inference that the state does not hold in the actual world now. Let's consider (16) in the context where it is known that Vanya lied to me. The sentence is still infelicitous, even though it is true in the context that Anya is not pregnant now. What makes it infelicitous is the inference that if what Vanya said was true at the time he said it, it has to be false now. However, there is not enough time between yesterday and today for the status of the embedded state to change, from the perspective of a standard attitude holder.

(16) **Context**: Yesterday Vanya lied to me, 'Anya is pregnant!'
#Včera Vanja skaza.l, čto Anja by.la beremenna.
Yesterday Vanya say.PAST that Anya be.PAST pregnant.
Intended: 'Yesterday, Vanya said that Anja is pregnant.'

3. The Parallelism with the Double Access Reading of the Present Tense

What we observe in Russian is the mirror image of the double access reading of the present tense in English. In English, this is the only reading available for present-under-past (Abusch 1997, Ogihara 1995b). An illustrative example of this is given in (17). This reading requires two things (hence, double access): that the loving relationship holds at John's *now* and that it continues up to the actual present time if what John said was true at the time when he said it. Importantly, double access does not imply factivity; (17) does not mean that John actually loves Ann in the real world. Rather, the meaning is more nuanced: given what he said, from his perspective, the love must extend to the actual present.

Consequently, placing the speaking time too far in the past makes (17) infelicitous, as the second condition cannot be satisfied (no one lives 2000 years).

(17) Yesterday/ #2000 years ago, John said he loves Ann. (Ogihara and Sharvit 2012)

The restriction we observe in (17) is the mirror image of the restriction on the past tense in Russian. In Russian past-under-past constructions, placing the speaking event too close to the actual present blocks simultaneity of the speaking and the embedded state. In English present-under-past, placing the speaking event too far in the past makes the sentence infelicitous.

Starting from the seminal work of Abusch (1997), the double access reading is standardly derived via a *de re* construal. The analysis I propose relates the two phenomena in the following way: the double access reading of the present tense in Russian is the pragmatic competitor for the past-under-past. The pragmatic competitor is derived in the structure by substitution of past for present. The shape of the competitor is evidence about the structure of the original sentence. These ideas are developed in Section 4.

4. The Analysis

4.1. Ingredient 1: *De Re* Readings of the Past Tense

Abusch (1997) proposed that tenses can be interpreted *de re*. Furthermore, she observes that the *de re* construal of past-under-past derives truth conditions that are compatible with both the simultaneous and the back-shifted interpretation.

Applying this analysis to our examples of past-under-past, a past tense undergoes *res*-movement[3] to the position of the sister of the attitude verb, as shown in (18a). This movement is controversial, as it does not obey the standard restrictions on movement: it moves to a non-c-commanding position, does not leave a trace, and does not create an abstraction. Since I am working with quantificational semantics (which is not crucial for the points made in this paper), the past tense moved from the embedded clause then undergoes standard QR movement, leaving a trace and creating an abstraction at LF, as shown in (18c).

(18) a. [PAST [yesterday/3 years ago Vanya [[said PAST][Vanya loves Anya]]]]
b. [PAST [3[PAST yesterday/3 years ago [Vanya [[said t_3][Vanya loves Anya]]]]]]

This analysis requires a special denotation for the intensional verb, shown in (19). This is a function that first composes with the *res* object — the tense moved from the embedded clause

[3]There is a way of implementing this in terms of concept generators (see (Sharvit 2018)), but for simplicity of exposition, I will follow the traditional res-movement approach in this paper.

— then takes the intensionalized predicate of tenses[4], followed by the attitude holder, and finally, it composes with another time argument — the tense of the main clause. It introduces quantification over temporal concepts fitting for the holder (Vanya), establishing an isomorphism between two relationships: the past time of saying and the past time moved from the embedded clause, and the local now of the holder and the time of the embedded state.

(19) $[\lambda t'$: the object of belief (res)
$[\lambda Q_{\langle s,\langle i,t\rangle\rangle}$: the intension of the predicate of times
$[\lambda y_e$: the attitude holder
$[\lambda t''$: the time of saying
$\exists P.\ t' =$ the time z such that $P(w)(t'')(z) \wedge$
$\forall \langle w'', t''' \rangle \in$ Say-Alt$(y, w_0, t'') : Q(w'')($the z such that $P(w'')(t''')(z) = T)$

The predicted truth conditions are given in (20). The sentence is true if and only if there is a temporal relation that holds between the time when Vanya locates himself in his doxastic alternatives and the time of loving, as well as between the past of the main clause and the past tense moved from the embedded clause.

(20) $[\![(18b)]\!]^{g,t_0,w_0} = T$ iff $\exists t[t < t_0 \wedge \exists t'[t' < t_0 \wedge t' \in$ yesterday/3 years ago $\wedge$
$\exists P[t =$ the time z such that $P(w_0)(t')(z) \wedge \forall \langle w'', t'' \rangle \in$ Say-Alt$(Vanya, w, t')$:
Vanya loves Anya at the z such that $P(w'')(t'')(z)]]]$

What are the possible temporal relationships that make the sentence true? Since these are two independent past times interpreted in the main clause (and thus must be in the past relative to the actual matrix *now*), one can precede the other, or they can overlap. The option where the past tense of the embedded clause is in the future relative to the other past is ruled out by the upper limit constraint—the restriction that future-oriented concepts are not allowed. Since this is not directly relevant to this paper, I will not discuss the implementation of this constraint here. The two remaining options are shown in (21): the time moved from the embedded clause temporally precedes the past of the matrix clause as in (21a), or they overlap as in (21b).

(21) a. Possibility 1: $\lambda w.\lambda t.\lambda t'.t'$ is 2 years before t
b. Possibility 2: $\lambda w.\lambda t.\lambda t'.t'$ overlaps t

Let us consider the situation in which the relationship in (21a) makes the sentence true by satisfying the existential quantification over temporal concepts. This means that the state of loving occurs at a time z such that z is two years before Vanya's local present, and the past of the embedded clause is two years before the time of saying. This corresponds to the backshifted reading, which is not the main focus of this work.

Turning to the case that is central to this discussion, the relationship in (21b) makes the sentence true. In this case, the act of loving occurs at a time z such that z overlaps with Vanya's local present, and the past of the embedded clause overlaps with the past time of saying. This captures the simultaneous interpretation.

So far, we have captured the simultaneous interpretation of past-under-past, but we have not yet accounted for the restriction observed in Russian: the sentence allows a simultaneous reading

[4]This argument can be created by a version of Intensional Functional Application that abstracts over both the world and the time parameters of interpretation.

only if the matrix adverbial places the time sufficiently far in the past. I propose that this restriction arises from an implicature, as shown in the next subsection.

4.2. Ingredient 2: The Derivation of the Cessation Inference

Following standard assumptions, I propose that the past tense on a stative verb triggers the cessation inference. I argue that this inference is computed in grammar, much like scalar implicatures, via the application of the Exh operator.

The LF I assume is shown in (22): this is our *de re* LF, with the Exh operator c-commanding the entire sentence. Focus marking is applied to the past tense moved from the embedded clause.

(22) [Exh_{ALT} [PAST_{F} [3[PAST yesterday [Vanya [[said t_3][2 t_2 Vanya loves Anya]]]]]]]

The alternative is computed by substituting the past tense with its focus alternative, the present tense, in the LF (Katzir 2007, Fox and Katzir 2011). The result is shown in (23). This is the only alternative distinct from the prejacent. Exh asserts its prejacent (the meaning of which was discussed in the previous section) and negates the result of the interpretation in (23).

(23) [PRES [3[PAST yesterday [Vanya [[said t_3][2 t_2 Vanya loves Anya]]]]]]

The next section discusses the meaning of (23) in detail. Understanding the positive meaning of (23) will be necessary before we can address the result of its negation.

4.3. Ingredient 3: The Meaning of *De Re* Construal for Present Tense

What we derived in the previous section as the alternative is the *de re* LF for the present tense. The result of interpreting this LF, as shown by (Abusch 1997), is the double access reading of the present tense. The empirical nature of this meaning can be appreciated by examining the English present embedded under past in (24), as this is the only possible interpretation in English. This interpretation requires that Vanya loved Ann at the past time of saying (at Vanya's local now), and in addition, if what he said was true at the time he said it, he still loves Anya now. It is important to remember that this interpretation is not factive: the sentence does not require that he said the truth, only that, given Vanya's concepts, the love continues up to the actual present.

(24) Yesterday/3 years ago/10 years ago, Vanya said he loves Anya.

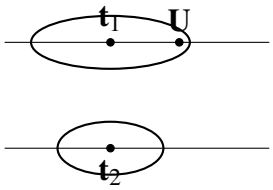
Below, I present how the *de re* interpretation derives this meaning, following essentially (Abusch 1997). The predicted truth conditions of the alternative (given the denotation for the verb *say* introduced above in (19)) are shown in (25). These truth conditions require temporal isomorphism between two relationships: the one that holds between the time of saying and the present time moved from the embedded clause, and the one that holds between the local now of the holder (Vanya) and the time of the embedded state (love).

(25) $\exists t[t \circ t_0 \wedge \exists t'[t' < t_0 \wedge t' \in \text{yesterday} \wedge \exists P[t = \text{the time } z \text{ such that } P(w_0)(t')(z) \wedge$
$\forall \langle w'', t'' \rangle \in \text{Say-Alt}(\mathit{Vanya}, w_0, t') : \text{Vanya loves Anya at the } z \text{ such that } P(w'')(t'')(z)]]]$

The present tense is interpreted in the matrix clause. What are the possible relationships between the actual present and the actual past? There are two options: the present is in the future of the past, or the present tense is an extended period that covers both the past moment and the actual now. The first option is ruled out by the upper limit constraint mentioned above.

Thus, the only possible relationship between the present tense and the past tense is that of overlap. The parallelism between the two temporal relationships is illustrated in (26) (following (Abusch 1997)). Here, t_1 is the past time of speaking (yesterday), t_2 is the time when Vanya finds himself in the say-alternatives (the local now), and U is the utterance time. The ovals represent the extended now in the top picture and the time of loving in the bottom picture.

(26)



One possible relationship that would make the existential quantification over concepts true is given in (27).

(27) $\lambda w.\lambda t.\lambda t''.t''$ covers the period stretching a year in both directions from t in w.

This relationship captures the intuition that the double access reading comes with the inference that if what Vanya said was true at the time he said it, it still has to be true. Let's take the embedded proposition and insert the relationship from (27) in place of the concept (variable P in (25)); this is shown in (28a). Now, let's fill in the time slot with the matrix past (yesterday) and the world slot with the actual world. The result of this is shown in (28b). This forces the conclusion that Vanya loves Anya now, as it states that he loves her over a period stretching one year in both directions from a past time within yesterday. Thus, this analysis captures the intuition that if what Vanya said was true in the actual world at the time he said it, it still has to be true now.

(28) a. $\lambda w.\lambda t.$Vanya loves Anya at the z such that
z covers the period stretching a year in both directions from t at w

b. $\exists t'[t' < t_0 \wedge t' \in$ yesterday $\wedge$ Vanya loves Anya at the z such that
z covers the period stretching a year in both directions from t' at $w_0]$

This is the meaning of our alternative. Recall that the Exh operator negates this alternative. The next subsection will discuss the result of this negation in detail.

4.4. Ingredient 4: The Negation of the Double Access

The meaning of the alternative is the double access reading of the present tense. As discussed above, this reading requires two things: that the loving relationship holds at Vanya's *now*, and that it continues up to the actual present time, assuming what he said was true when he said it.

Accordingly, its negation is equivalent to: either the loving relationship does not hold at Vanya's *now*, or it does not continue up to the actual present time. In other words, if the loving relationship holds at Vanya's *now*, then it does not continue up to the actual present time (from his perspective). Given that the readings of past-under-past we are focusing on are the simultaneous readings, the inference we get is that the love does not continue up to the actual present time. This correctly captures the cessation inference we perceive in the Russian examples.

Formally, the negated alternative is shown in (29). It states that there is no present time and

past tense within yesterday such that there is a temporal concept or relationship that holds both between these tenses and between the time of loving and Vanya's local now.

(29) $\neg\exists t[t \circ t_0 \wedge \exists t'[t' < t_0 \wedge t' \in \text{yesterday} \wedge \exists P[t = \text{the time } z \text{ such that } P(w_0)(t')(z) \wedge$
$\forall\langle w'', t''\rangle \in \text{Say-Alt}(\textit{Vanya}, w_0, t').\text{Vanya loves Anya at the } z \text{ such that } P(w'')(t'')(z)]]]$

This condition can be satisfied, for example, if Vanya never said he loved Anya. However, this would be incompatible with the prejacent, which is our *de re* construal of the past tense. Alternatively, it can be satisfied if Vanya did say it, but his temporal concept was very short. Let's assume the current *now* is 2 p.m. Now, consider a short temporal concept, like the one given in (30). Plugging this concept into the position of P in (29) would not falsify it.

(30) $\lambda w.\lambda t.\lambda t''.t''$ covers the period stretching 12 hours in both directions from t in w.

Let's assume that there is a past time within yesterday such that Vanya said he loved Anya with such concept in mind as shown in (31a). Then, given that this concept is short enough, (29) is compatible with it due to the fact that (31b) holds: there is no time that overlaps with the present time such that it is 12 hours apart from any moment within yesterday.

(31) a. $\exists t'[t' < t_0 \wedge \forall\langle w'', t''\rangle \in \text{Say-Alt}(\textit{Vanya}, w_0, t') : \text{Vanya loves Anya at the } z$
such that z covers the period stretching 12 hours in both directions from t'' in $w'']$
b. $\neg\exists t[t \circ t_0 \wedge \exists t'[t' < t_0 \wedge t' \in \text{yesterday} \wedge t = \text{the time } z \text{ such that}$
z covers the period stretching 12 hours in both directions from t' in $w_0]]$

All longer concepts, however, are ruled out. Consider the concept in (32).

(32) $\lambda w.\lambda t.\lambda t''.t''$ covers the period stretching 1 whole day in both directions from t in w.

This concept falsifies (29) because (33) does not hold: there is a time period overlapping with the current time that is removed from a moment in the past by 24 hours.

(33) $\neg\exists t[t \circ t_0 \wedge \exists t'[t' < t_0 \wedge t' \in \text{yesterday} \wedge t = \text{the time } z \text{ such that}$
z covers the period stretching 1 whole day in both directions from t' in $w_0]]$

Of course, this is also compatible with backshifted concepts such as the one in (34). However, this is of little interest to us at the moment, as we are focusing on the simultaneous reading.

(34) $\lambda w.\lambda t.\lambda t''.t''$ is 2 years before t.

4.5. The Resulting Predicted Truth Conditions

To sum up and put together all the ingredients, we arrive at the final truth conditions for the Russian sentence with *yesterday*, assuming the *de re* LF with Exh (repeated below as (35)).

(35) [Exh_{ALT} [PAST_{F} [3[PAST yesterday [Vanya [[said t_3][2 t_2 Vanya loves Anya]]]]]]]

These conditions are given in (36).

(36) $[\![(35)]\!]^{g,t_0,w_0} = T$ iff $\exists t[t < t_0 \wedge \exists t'[t' < t_0 \wedge t' \in \text{yesterday} \wedge$
$\exists P[t = \text{the time } z \text{ such that } P(w_0)(t')(z) \wedge \forall\langle w', t''\rangle \in \text{Say-Alt}(\textit{Vanya}, w_0, t') :$
Vanya loves Anya at the z such that $P(w')(t'')(z)]]] \wedge$
$\neg\exists t'''[t''' \circ t_0 \wedge \exists t''''[t'''' < t_0 \wedge t'''' \in \text{yesterday} \wedge \exists P[t''' = \text{the time } z \text{ such that } P(w_0)(t'''')(z) \wedge$
$\forall\langle w'', t'''''\rangle \in \text{Say-Alt}(\textit{Vanya}, w_0, t'''') : \text{Vanya loves Anya at the } z \text{ such that } P(w'')(t'''')(z)]]]$

As discussed above, these truth conditions are compatible with the simultaneous interpretation, provided that the context suggests Vanya is unlikely to have a long temporal concept in mind.

I propose that this inference, contributed by Exh, explains why the sentence is infelicitous in a context where standard assumptions are made about the duration of love, but is acceptable in a context where there is reason to assume that Vanya's ideas about the duration of love are non-standard.

The remaining question is why the simultaneous reading is readily available when *three years ago* appears in the main clause, as shown in (8). I propose that in this case, the cessation inference is also computed. However, since it is reasonable to assume that love could last less than three years, no special contextual adjustments are needed.

A similar reasoning applies to the contrast between the dictatorship examples in (12) and (13). Given that it is contextually unexpected for anyone to have a short concept of the duration of a dictatorship, the example with *yesterday* in the matrix clause is infelicitous. The shared assumption is that a dictatorship lasts for the entire lifetime of the dictator. Thus, given that Stalin is no longer alive, (13) is acceptable.

5. Is This Implicature Cancellable?

A key question arises at this point: If the inference that the speaker only has short-term love concepts in (9) (repeated below for convenience in (37)) is a cessation inference contributed by Exh, why can't we simply cancel this inference and make the sentence acceptable in a neutral context, without requiring any special assumptions?

(37) **Context**: Yesterday, Vanya came to me and said, 'I love Anya!'
#Včera Vanja skaza.l, čto on ljubi.l Anju.
Yesterday Vanya say.PAST that he love.PAST Anya.
Intended: 'Yesterday, Vanya said that he loved Anya.'

In other words, why can't the sentence simply have a *de re* LF as shown in (38), where no Exh operator c-commands the past tense moved from the embedded clause?

(38) [PAST [3[PAST yesterday [Vanya [[said t_3][2 t_2 Vanya loves Anya]]]]]]

It is well known that scalar inferences derived by the application of Exh can be cancelled, as illustrated in (39a). Similarly, cessation inferences in matrix clauses can also be cancelled, as shown in (39b).

(39) a. Some students came, in fact all of them came.
b. John was sick, he is still sick.

This suggests that the infelicity of (39) in the standard simultaneous context requires an additional explanation—specifically, why the inference is obligatory. As discussed earlier, the LF in (38) would generate a meaning compatible with the simultaneous interpretation.

As a first step, let us determine whether this inference is obligatory in other instances of the simultaneous reading of past-under-past in Russian.

Let us reexamine (8), repeated below as (40). This example does not necessarily carry the inference that Vanya intended the love to cease after three years or that the love does not persist up to the present moment.

(40) **Context**: 3 years ago, Vanya came to me and said, 'I love Anya!'
Tri goda nazad Vanja skaza.l, čto on ljubi.l Anju.
three years ago Vanya say.PAST that he love.PAST Anya.
'Three years ago, Vanya said that he loved Anya.'

To illustrate this, consider the discourse in (42), which is consistent. To make the choice of the embedded past over the present more natural, the first sentence is modified by adding the adverbial *vpervye* ('for the first time'). The sentence does not imply that Vanya only has concepts of love that do not extend beyond three years. This demonstrates that past-under-past under a simultaneous interpretation in Russian does not necessarily contribute an uncancellable cessation inference.

(41) **Context**: Vanya is a loyal and loving husband. Three years ago, Vanya came to his now-wife Anya and said, 'I love you!' for the first time.
Tri goda nazad Vanja vpervye skaza.l Anje, čto on ljubi.l jejo. On
three years ago Vanya first-time say.PAST Anya.DAT that he love.PAST her. He
i sejčas jejo ljubit.
and now her love.PRES
'Three years ago, Vanya said for the first time that he loved Anya. He still loves her now.'

Adding this adverbial to the example with *yesterday* does not improve its acceptability in a neutral simultaneous context. This is shown in (42).

(42) **Context**: Yesterday, Vanya came to his longtime love interest Anya and said, 'I love you!' for the first time.
#Včera Vanja vpervye skaza.l Anje, čto on ljubi.l jejo.
Yesterday Vanya first-time say.PAST Anya.DAT that he love.PAST her.
Intended: 'Yesterday, Vanya said for the first time that he loved Anya.'

Another way of illustrating the same point is by examining states that we do not expect to necessarily last long, as in the example provided in (43)[5]. The first sentence in (43) does not necessarily imply that the state is over by now or that Vanya only had short-term concepts in mind.

(43) **Context**: When we came yesterday from the theater, Vanya said, 'I have a headace'. Vanya often has headaches that can last for days.
Včera kogda my prišli iz teatra, Vanja skaza.l, čto u nego bolela
Yesterday when we came from theater, Vanya say.PAST that by him hurt.PAST
golova. Ona u nego do six por bolit.
head. It by him until this times hurt
'Yesterday, when we came from the theater, Vanya said he had a headache. He still has it now.'

To explain why the inference is uncancellable in examples with *yesterday* and states associated with a contextual expectation of long duration (like dictatorship or love), but cancellable in other cases (e.g., *have a headache*), I propose drawing parallelism with cases when scalar

[5]I thank Petr Kusliy for this example and the discussion of this point.

implicatures are not cancellable such as the ones shown in (44) (Musan 1995, 1997, Magri 2009, 2011, Thomas 2012). (44a) comes with the inference that John is no longer alive and is not acceptable in the contex where he is alive for this reason. (44b) come with an uncancellable inference that some Italians don't come from a warm country and this is infelicitous because all Italians come from the same country.

(44) a. #John was a linguist.
$\rightsquigarrow$ John is no longer alive.
b. #Some Italians come from a warm country.
$\rightsquigarrow$ Not all Italians come from a warm country.

The generalization proposed in the literature is that an alternative is mandatorily negated if it is contextually equivalent to the original statement (Magri 2009, 2011, Thomas 2012). In (44a), the alternative *John is a linguist* is equivalent to the statement *John was a linguist*, given the context that John is alive when the utterance is made. This forces the implicature to be computed. Similarly, in (44b), the alternative *All Italians come from a warm country* is contextually equivalent to the statement *Some Italians come from a warm country*, given the assumption that all Italians come from the same country.

There are different ways of implementing this idea theoretically. (Magri 2009, 2011, Thomas 2012) develop an approach where Exh is merged at every sentential level, but it does not necessarily negate all the alternatives. In some situations, some or even all alternatives can be pruned. There are additional restrictions on pruning: alternatives that are contextually equivalent to the prejacent of Exh cannot be pruned. Alternatively, one can say that the insertion of Exh is mandatory when there is a contextually salient alternative.

The parallelism with our cases is clear. Let's consider our case with *yesterday* and the embedded state of loving in (37). Let's assume that we are in a context where it is a shared expectation that love lasts at least multiple days after it was announced. This means that if there is a temporal concept for Vanya that puts two moments of past, one of which was yesterday, and also isomorphically relates the time of loving and Vanya's local now, there is a 'longer concept' as well. In this case, the present tense alternative derived from the *de re* construal, thus under the double access interpretation, is contextually equivalent to the original statement. This is because the double access interpretation encodes as part of its meaning that Vanya's temporal concept was long enough to cover both the present moment and the past interval, which is the time of speaking.

The example with *yesterday* and dictatorship as the embedded state has the same configuration. The *de re* construal of past-under-past requires that there is a temporal concept that relates two past moments, and that the same temporal concept also relates the time of the dictatorship and the local now of the speaker. Let's say that this is a concept of simultaneity in (45).

(45) $\lambda w.\lambda t.\lambda t''.t''$is simultaneous with t

Under the standard circumstances, we assume that people believe that dictatorship is a lifelong property. In other words, if a person believes that someone is a dictator for a minute, they believe that they are a dictator for life. Then, if a person has a temporal concept like (45) with regards to dictatorship (the one that makes past-under-past true), they also have a temporal concept in (46).

(46) $\lambda w.\lambda t.\lambda t''.t''$ is the period that includes t and covers the whole life of Xi

Then the alternative statement with the present tense here, taken to be the double access reading of the present tense with the truth conditions shown in (47), would be contextually equivalent to the past-under-past under the *de re* construal.

(47) $\exists t[t \circ t_0 \wedge \exists t'[t' < t_0 \wedge t' \in$ yesterday $\wedge$
$\exists P[t =$ the time z such that $P(w_0)(t')(z) \wedge \forall \langle w'', t'' \rangle \in$ Say-Alt$(Biden, w_0, t')$.
Xi is a dictator at the time z such that $P(w'')(t'')(z)]]]$

The cases where we see the cessation inferences cancellable do not involve such a strong contextual expectation. For example, we saw that the inference is cancellable with the embedded *love* predicate and *three years ago* as the matrix adverbial. This is because we know that love can end within a couple of months or a year; thus, the double access alternative is not contextually equivalent to the original past-under-past, and the inference becomes cancellable. The same applies to the headache example: since it is not expected in the context that a headache lasts for days (even if the context is compatible with this), the double access alternative is not contextually equivalent to the *de re* past-under-past original, and the cessation inference is not mandatory.

6. Can the Present Tense in Russian Have a Double Access Reading?

The analysis developed here assumes that the competitor for the *de re* construal of the past tense in Russian is the *de re* construal of the present tense. However, it is well established that Russian has a relative present tense.

The standard test for the double access reading of the present tense, following (Ogihara and Sharvit 2012), is to use a matrix adverbial that places the speaking time too far in the past. As discussed above, this yields infelicity in English, where present-under-past only receives the double access reading. The corresponding Russian example, however, is perfectly acceptable, as illustrated in (48).

(48) Dve tysjači let nazad Vanja skaza.l, on ljubi.t Anju.
two thousand years ago Vanya say.PAST he love.PRES Anya.
'2000 years ago, Vanya said he loved Anya'.

This example shows that Russian has the so-called *relative present*—a present tense that is relativized to the local evaluation time, as in (49a). Accordingly, (48) receives the LF shown in (49b), where the embedded present tense is interpreted in situ and simply contributes Vanya's local *now* to the overall meaning of the sentence, as shown in (49c)[6].

(49) a. $[\![pres]\!]^{g,t,w} = t$
b. [PAST [2000 years ago Vanya [said [PRES Vanya loves Anya]]]]
c. $[\![(49b)]\!]^{g,t_0,w_0} = T$ iff $\exists t[t < t_0 \wedge t \in$ 2000 years ago $\wedge$
$\forall \langle w', t' \rangle \in$ Say-Alt$(John, w_0, t)$: John loves Ann at t' in w']

[6]This would require a more standard lexical entry for the intensional verb *say* than the one assumed in the discussion of *de re* construals, where it composes with the intension of the embedded clause (taken as an element of type <s<it>>) and the attitude holder only. The required ambiguity of attitude verbs is a general issue with the *res* movement approach to generating *de re* readings. The concept generator approach (Percus and Sauerland 2003) eliminates this unnecessary ambiguity. I am optimistic that extending this treatment to tenses (Sharvit 2018) yields the same results as those presented in this paper.

However, it is a well-established fact that the double access reading is strictly logically stronger than the simple simultaneous reading delivered by the relative present. Double access requires both simultaneity with the time of speaking and that the embedded state continues up to the actual present (from the perspective of the speaker). The relative present, by contrast, only requires simultaneity.

My proposal is that the Russian present tense can receive a double access reading when embedded under past, but this fact is masked by the existence of a strictly weaker plain simultaneous reading. The pattern exhibited by the cessation inferences in past-under-past constructions indicates that a *de re* construal of present-under-past is indeed available.

The reason why the relative present is not a competitor for past-under-past under the simultaneous interpretation is that there is no way to derive the LF in (49b) from the *de re* LF by simply making a substitution in the position corresponding to the past. Under the grammatical approach to implicature calculation, the competition is among structures, not among utterances.

7. Other Approaches Cannot Derive the Russian Pattern

Other approaches fail to account for the pattern we observe in Russian.

One possibility we can rule out is that Russian has an SOT (Sequence of Tense) rule. Previous literature has stated that the status of the SOT rule in Russian is unclear (see, for example, (Tsilia 2021)). If this rule were active in Russian, past-under-past constructions would simply have the LF shown in (50). In that case, we would expect no contrast between examples with the matrix adverbials *three years ago* and *yesterday* when the embedded verb is *love*—just as no such contrast exists in English.

(50) [PAST [yesterday Vanya [said [~~PAST~~ Vanya loves Anya]]]]

The no-special mechanism theory along the lines proposed in (Altshuler and Schwarzschild 2013) also cannot account for this contrast . I will show this my adopting Exh-based approach to the generation of the cessation inference, following the general line in this paper and diverging from the exposition in (Altshuler and Schwarzschild 2013), but nothing hinges on this. This idea assumes that there is no *de re* LF for the past-under-past and past is interperted in the embedded clause, as shown in the LF in (51a). There are two potential position for Exh as shown in (51), but in both cases the alternative is the relative present.

(51) [(Exh_{Alt}) PAST Three years ago/yestersay John say [(Exh_{Alt}) PAST he loves Ann]]

The lower application of Exh results in the truth conditions shown in (52): the sentence is predicted to be true only in a situation where what John said in the past is: 'I loved Ann in the past, but do not love her now.'

(52) $\exists t[t < t_0 \wedge t \in 3 \text{ y.a. / yesterday} \wedge \forall \langle w', t' \rangle \in \text{Say-Alt}(Vanya, w_0, t) :$
$\exists t''[t'' < t' \wedge \text{Vanya loves Ann at } t'' \text{ in } w'] \wedge \neg \text{Vanya loves Anya at } t' \text{ in } w']$

The higher position of Exh generates a weaker meaning in (53): the sentence is predicted to be true iff Vanya said he loved Anya in the past and did not say that his love extended to his local *now*.

(53) $\underline{\exists t[t < t_0 \wedge t \in 3 \text{ y.a. / yesterday} \wedge \forall \langle w', t' \rangle \in \text{Say-Alt}(Vanya, w_0, t) :}$
$\underline{\exists t''[t'' < t' \wedge \text{Vanya loves Ann at } t'' \text{ in } w']]} \wedge$

$\neg\exists t'''[t''' < t_0 \wedge t''' \in 3$ y.a. / yesterday $\wedge\ \forall\langle w'', t''''\rangle \in$ Say-Alt$(Vanya, w_0, t''')$:
$\exists t''''[t'''' < t''' \wedge$ Vanya loves Ann at t'''' in $w'']]$

In any case, this approach cannot predict the contrast between *yesterday* and *three years ago*: in both cases, the cessation inference concerns the embedded state, and it either has to be cancellable in both cases or not cancellable in both cases. Crucially, this is not the pattern we observe in Russian.

The observed contrast in Russian also sheds light on the general mechanisms available for deriving simultaneous readings. In particular, it supports the idea that English, which does not exhibit the same contrast—contrary to (Altshuler and Schwarzschild 2013)—does have SOT. The alternative pragmatic approach assumes that the corresponding sentence with past-under-past in English will have truth conditions that include only the underscored part in (53), without the second part corresponding to the cessation inference, due to the absence of the relative present in English. But if this were the mechanism for deriving the simultaneous reading, it should be available for the Russian *yesterday* example as well—since, as discussed here, cessation inferences are cancellable. The uncancellable nature of the inference under the *de re* construal arises from the fact that the double access alternative is contextually equivalent to the original statement. It remains unclear why, under the LF (regardless of the position of Exh) in (51), the inference is uncancellable, thereby blocking the simultaneous reading in this case.

8. Conclusion

This paper argues that Russian past-under-past can receive a simultaneous reading, and that the only path to this reading is via a *de re* construal. I describe the empirical restrictions on the availability of the simultaneous reading in Russian, which mirror the restrictions on double access readings of present-under-past in English.

My findings support the leading idea in (Altshuler and Schwarzschild 2013) that cessation inferences play a substantive role in deriving the simultaneous readings of past-under-past. However, contra to (Altshuler and Schwarzschild 2013), I have argued that past-under-past in Russian does require a special mechanism to achieve a simultaneous reading, specifically a *de re* mechanism. The evidence for this is the pattern of cessation inferences: the observed inference is that the state does not extend to the actual present if what the holder said was true at the time of utterance. This is directly predicted by the *de re* approach, where the pragmatic competitor is the double access reading of the present tense, which requires both simultaneity and continuation of the state into the actual present from the perspective of the holder. Given that the cessation inference is mandatory in certain cases, I argued that there is no alternative path to simultaneity in Russian. In contrast, in languages like English, where this inference is absent, an alternative mechanism for deriving simultaneity must be available.

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