

Sequence of tense and double access*

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1.0 Present and past tense in simple sentences

In (1), the past tense morphemes in both English and Russian locate Ivan's state of knowing Dina (as current) at a time interval prior to the utterance time (UT).

- (1) a. Ivan knew (PST) Dina.
b. Ivan zn-al Din-u.
Ivan know.IPF-PST.3s Dina-ACC
“Ivan knew Dina.”

In (2), the present tense morphemes in both English and Russian locate Ivan's state of knowing at a time interval that includes the UT.

- (2) a. Ivan knows (PRS) Dina.
b. Ivan zna-et Din-u.
Ivan know.IPF-PRS.3s Dina-ACC
“Ivan knows Dina.”

- (1) and (2) exemplify *indexical tense construals*, since they involve a form of temporal reference that is directly related to the speech act analogous to pronouns (Partee 1973).

2.0 Present and past tenses in embedded contexts

2.1 English data

In (3b), the past tense morpheme in the matrix clause locates Ivan's event of reporting at a time prior to UT. The past tense in the embedded clause locates the leaving event to a time prior to Ivan's event of reporting.

- (3) a. Ivan said (PST): “Dina left (PST).” (direct report)
b. Ivan said (PST) that Dina left (PST). (indirect report)

In (4c), the past tense morpheme in the matrix clause locates Ivan's event of reporting at a time prior to UT. The past tense in the embedded clause locates Dina's state of being sick to: (a) a time interval prior to the Ivan's event of reporting or (b) a time interval that includes Ivan's event of reporting.

- (4) a. Ivan said (PST): “Dina was sick.” (direct report)
 b. Ivan said (PST): “Dina is sick.” (direct report)
 c. Ivan said (PST) that Dina was (PST) sick. (indirect report)

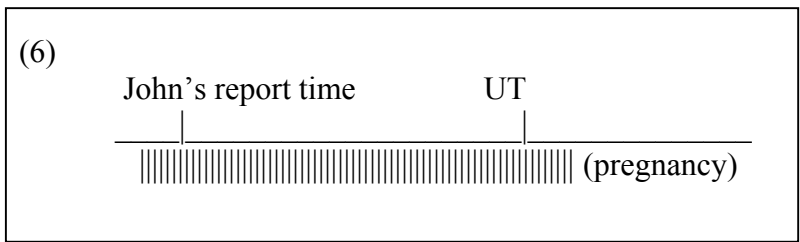
Summary

- In (3b), the embedded predicate is eventive and only a **past shifted reading** is available (reporting (3a)).
- In (4c), the embedded predicate is stative; (4) is ambiguous between a **past shifted reading** (reporting (4a)) and a **simultaneous reading** (reporting (4b)).
- It is usually assumed that there are two distinct tense construals for the past tense in the embedded clause, rather than one reading which fails to order the time in the embedded clause in relation to the main clause event-time.
- These two readings exemplify a **dependent tense construal** (contra the indexical tense construal in (1) and (2)).
- The simultaneous reading in (4c) exemplifies **Sequence of Tense (SOT)**:
Sequence of Tense: when a past tense in indirect discourse corresponds to a present tense in direct quotation.

Double Access¹

In (5), the pregnancy state must overlap both the UT and the time of John’s saying (see (6)).

- (5) John said (PST) ten days ago that Mary is (PRS) pregnant.



As illustrated in (7), the complement is not required to be actually true at the reporting time or the UT.

¹ As far as I know, the first discussion of double access sentences such as (5) is found in Smith (1978). See Enç (1987), Abusch (1988, 1991, 1997), Ogihara (1995), Schlenker (2004), etc. for further discussion.

(7) John said two weeks ago that Mary is pregnant but actually she has just been overeating for the last three months and developed a big belly. (Abusch 1997)

- (5) is infelicitous if Mary's symptoms (e.g. her big belly) do not persist at the UT.² In this context (8) would be uttered:

(8) John said (PST) ten days ago that Mary was (PST) pregnant.

In (9), there is no forward shifted reading on which Mary's pregnancy follows John's learning time.

(9) #John learned (PST) ten years ago that Mary is (PRS) pregnant.

2.2.1 Russian Data

In (10b), the past tense morpheme in the matrix clause locates Ivan's event of reporting at a time prior to the UT. The past tense in the embedded clause locates Dina's state of being sick to a time interval that precedes Ivan's event of reporting.

- (10) a. Ivan skaz-al: "Dina bol-el-a."
Ivan said.PFV-PST.3s Dina sick.IPF-PST.3S-FEM
Ivan said: "Dina was sick."
- b. Ivan skaz-al, čto Dina bol-el-a.
Ivan said.PFV-PST.3s that Dina sick.IPF-PST.3S-FEM
Ivan said that Dina had been sick.

In (11b), the past tense morpheme in the matrix clause locates Ivan's event of reporting at a time prior to the UT. The imperfective embedded clause can evoke either a process or a habit of swimming. Accordingly, the present tense either (i) locates the process of Dina swimming (as ongoing) at a time interval that includes Ivan's event of reporting or (ii)

² Note that the embedded present tense is quite restricted in its distribution when it is embedded under an attitude/speech verb in the past tense. As illustrated in (i), the matrix verb must be eventive; otherwise, the sentence is odd because it implies that the attitude holder is no longer alive or has changed his/her mind (see (ii)). Moreover, if the embedded predicate is eventive, then the habitual reading is salient rather than the double access reading (see (iii)). Thanks to Maria Bittner and Ernie Lepore for helpful discussions.

- (i) a. John realized/concluded/heard that Mary is pregnant.
b. # John believed/thought/knew that Mary is pregnant.
- (ii) a. Yesterday, Maya was arrested while protesting against Bush. She believed/thought that the current president is (#was) awful, but then changed her mind.
b. Yesterday, Maya died while protesting against Bush. She believed/thought/knew that the current president is (#was) awful.
- (iii) Maya heard from Ricardo that Bill runs the marathon/hikes in the Sierras.

locates Dina's habit of swimming (as current) at time intervals prior, during and after Ivan's event of reporting.

- (11) a. Ivan skaz-al: "Dina plav-a-et"
Ivan said.PFV-PST.3s Dina swim.IPF-PRS.3s
Ivan said: "Dina swims/is swimming"
- b. Ivan skaz-al, što Dina plav-a-et
Ivan said.PFV-PST.3s that Dina swim.IPF-PRS.3s
Ivan said that Dina was swimming/swims.

Summary

- There is no SOT in (10b). In order to report Ivan's saying "Dina is sick", the present tense must be used in the embedded clause (Comrie 1986).
- Based on this fact, Russian (all other Slavic languages, Hebrew, Japanese, etc...) have been called "Non-SOT languages."

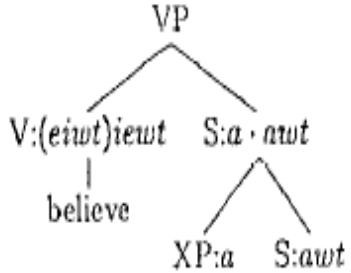
Optional Double Access in Russian

In Russian, the time of the complement does not have to include the UT, though it must include the time of the agent's thought, belief, etc.

- (12) Kolja u-zn-al, što Maša žd-et rebenka
Kolya PFV-know-PST.3s that Masha expect.IMP-PRES.3s baby
"Kolya learned that Masha was expecting a baby."
- (13) Cerez 6 mesjacev ona rod-il-a devočku, kotoroj sečas dva goda
in 6 months she give.birth.PFV-PAST.3s-FEM girl who now two years
"In 6 months she gave birth to a girl, who is now two years old." (Kondrashova 1998)
- In (12) only the simultaneous reading is possible, i.e. the state of expecting a baby can extend to the future relative to the matrix predicate's time, **but it does not have to include the utterance time.**
 - It follows from (13) that the state of Masha's pregnancy lasted 6 months after the event of Kolja's learning about this (two and a half years before the UT), **but it is no longer true at the UT that Masha is pregnant with the same baby.**
- (14) Tri goda nazad, Kolja skaz-al, što Maša žd-et rebenka
Three years ago Kolya said.PFV-PST.3s that Masha expect.IMP-PRES.3s baby
"Three years ago, Kolya said that Masha was expecting a baby."

3.0 Abusch's account of sequence of tense and double access in English

3.1 *De re* reports about times



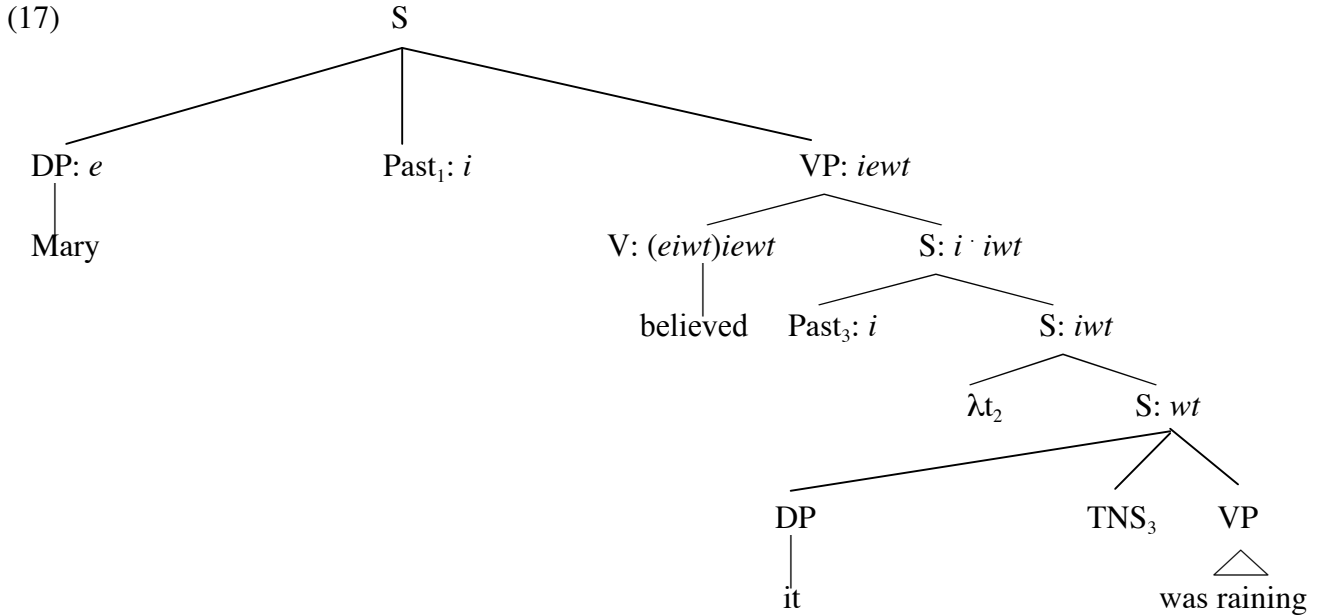
- Types: e (individual), w (world), t (truth value), i (time interval)
- The XP is scoped out of the complement clause and interpreted *de re*—the *res* it denotes can be of any type a
- The sister of the XP denotes an (atemporal) property of type a objects—type awt .
- When combined, they denote a pair of an object of type a and a property of type awt (structured proposition).
- In order for the structured proposition to combine with the function denoted by *believe* Abusch assumes the following:
 - (i) *believe* denotes a relation to a ‘centered proposition’—type $eiwt$ (*property*, in the terminology of Lewis 1979)
 - (ii) the object denoted the XP does not contribute to this centered proposition
 - (iii) the centered proposition is build out of (i) the property denoted by the complement of type awt and (ii) an acquaintance relation of type $aeiwt$, which relates the object taking the place of the scoped out element (type a) to the self, the now, and the world $\langle x_{self}, t_{now}, w \rangle$. (i) and (ii) are combined according to the recipe in (15).

$$(15) \quad \lambda x_{self} \lambda t_{now} \lambda w the(\lambda y [R(y)(x)(t)(w)])(\lambda y [P(y)(w)])$$

- Suppose Mary believes the centered proposition (15). Then in every centered world $\langle x, t, w \rangle$ compatible with her belief, there is a unique object a such that (i) x_{self} at t_{now} in w is related to a by the acquaintance relation R , and (ii) a has the property P in w .
- By abstracting the variable x , t and w , we obtain a centered proposition of type $eiwt$.
- The combination of the centered proposition and the attitude verb yields a function of type $iewt$.
- This function combines with the matrix tense (type i) and with the subject (type e) to yield a proposition (type wt).

(16) Mary Past₂ believed that it Past₂ was raining.

- (16) reports a past *de re* belief of Mary's concerning a certain time *t* (the time of that past belief state) such that in every world compatible with that belief, it is rining at *t*.



(18) Acquaintance relation
 $\lambda t \lambda x_{self} \lambda t_{now} \lambda w: [t = t_{now}]$

- The acquaintance relation is the identity with the now of the believer.

(19) The property contributed the *res* abstractor
 $\lambda t \lambda w [\text{rain}(t)(w)]$

(20) Believed centered proposition
 $\lambda x_{self} \lambda t_{now} \lambda w \text{ the}(\lambda t [t = t_{now}])(\lambda t [\text{rain}(t)(w)]) =$
 $\lambda x_{self} \lambda t_{now} \lambda w [\text{rain}(t_{now})(w)]$

- The condition on the centered worlds $\langle \lambda x_{self}, \lambda t_{now}, w \rangle$ is that in all of Mary's belief worlds, it is raining at her now.

3.2 Forward shifting and the Upper Limit Constraint

“The now of an epistemic alternative is an upper limit for the denotation of tenses. Given the now of a belief alternative is equated with the local evaluation time of the complement of *believe*, we can restate this by saying that the local evaluation time is an upper limit for the denotation of tenses.” (Abusch 1997: 25).

(21) Last Monday Mary Past₂ believed that it Past₃ was raining on Tuesday₃.

(22) $R_1: \lambda t \lambda x_{self} \lambda t_{now} \lambda w: [t < t_{now}]$

- The acquaintance relation is temporal precedence with the *now* of the believer.

(23) $R_2: \lambda t \lambda x_{self} \lambda t_{now} \lambda w: [t_{now} < t]$

- The acquaintance relation is the prospective relation with the *now* of the believer.

(24) $P: \lambda t \lambda w[\text{rain}(t)(w)]$

(25) Believed centered proposition with R_1

$$\lambda x_{self} \lambda t_{now} \lambda w \text{ the}(\lambda t[t < t_{now}])(\lambda t[\text{rain}(t)(w)]) =$$

$$\lambda x_{self} \lambda t_{now} \lambda w[\text{rain}(t < t_{now})(w)]$$

- The condition on the centered worlds $\langle \lambda x_{self}, \lambda t_{now}, w \rangle$ is that in all of Mary's belief worlds, it is raining before her *now*.

(26) Believed centered proposition with R_2

$$\lambda x_{self} \lambda t_{now} \lambda w \text{ the}(\lambda t[t_{now} < t])(\lambda t[\text{rain}(t)(w)]) =$$

$$\lambda x_{self} \lambda t_{now} \lambda w[\text{rain}(t_{now} < t)(w)]$$

Need the Upper Limit Constraint to rule this out.

- The condition on the centered worlds $\langle \lambda x_{self}, \lambda t_{now}, w \rangle$ is that in all of Mary's belief worlds, it is raining after her *now*.

3.3 Deriving Double Access

(27) Mechanism of transmitted temporal relations and temporal constraints

Abusch (1997) argues that all tenses are associated with a set of temporal relations. The past tense requires that at least one of the relations be temporal precedence, while the present tense requires that none of the relations allow precedence. Moreover, intensional verbs like *say* transmit the relation of their own tense down to the embedded tense, which thus has access to more than one temporal relation.

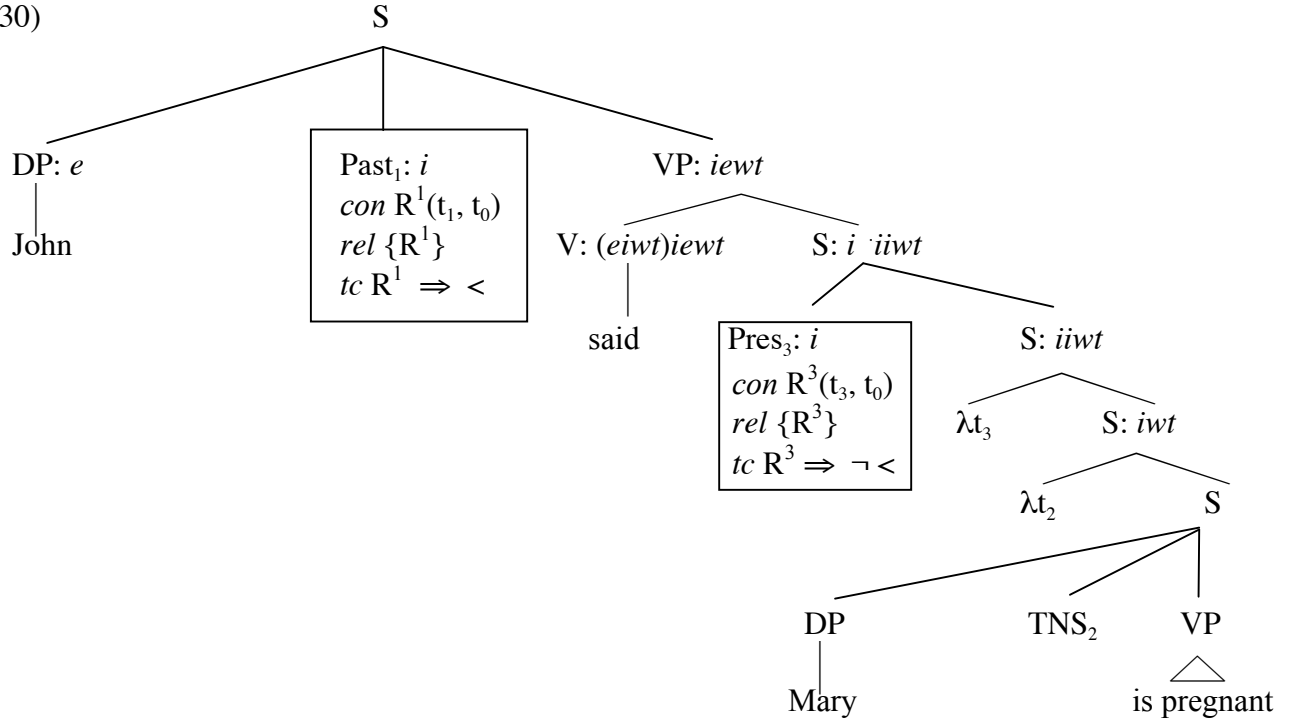
(28) New recipe for construction a believed centered proposition

$$\lambda x_{self} \lambda t_{now} \lambda w \text{ the} (\lambda y[R(y)(x)(t)(w)])(\lambda y[P(y)(t_{now})(w)])$$

- The variable t_{now} is plugged into the argument position created by the evaluation time abstractor.
- With *res* of an arbitrary type a , the *res* abstractor now has the type $aiwt$ instead of awt .

(29) John Past₁ heard that Mary Pres₃ is pregnant.

(30)

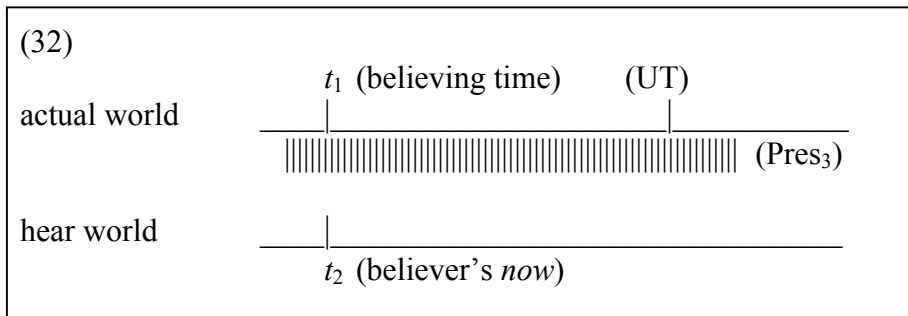
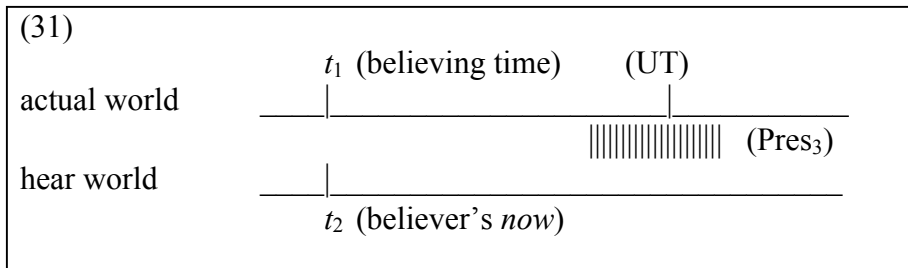


- The Past₁ is unembedded and it therefore has access only to the local relation of R^1 . As indicated in the specification *con* under Past₁, R^1 relates the believing time t_1 (determined by the tense index) to the local evaluation time t_0 , i.e. the UT.
- Past₁ has the requirement that at least one of the relations specified under *rel* is temporal precedence. Since there is only one option, R^1 must be temporal precedence.
- The formula $R^1(t_1, t_0)$ correctly states the information that the believing time precedes the UT.

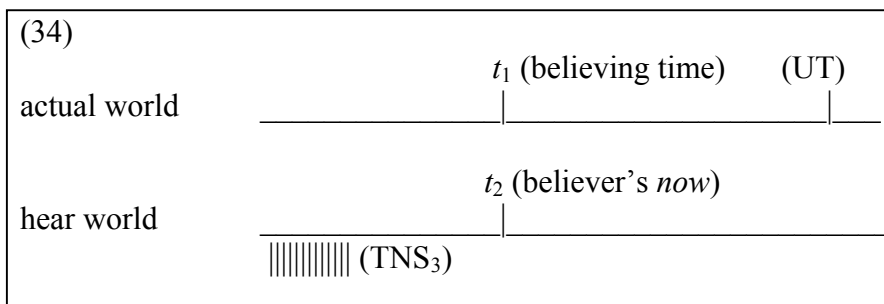
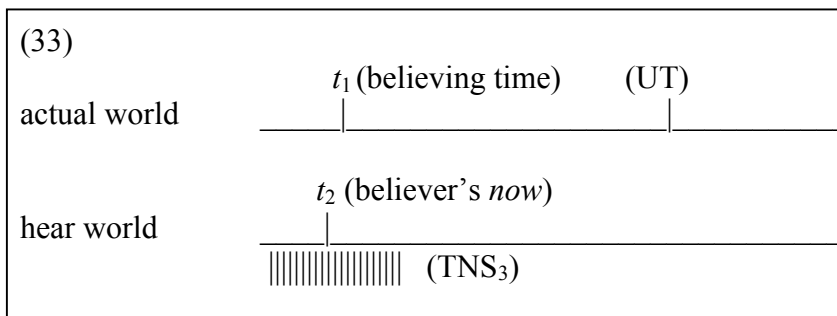
- Pres₃ is interpreted *de re* and is scoped out, leaving behind a trace TNS₃
- As a result, the local evaluation time of Pres₃ is the UT instead of the embedded evaluation time (the believer's *now*)
- In the formula $R^3(t_3, t_0)$ under *con*, the first argument is the variable determined by the tense index, and the second argument is the local evaluation time.
- The tense node Pres₃ is not in the complement clause and it therefore has access only to the local relation of R^3 (i.e. Pres₃ is not c-commanded by the evaluation time abstractor)
- Pres₃ has the requirement that none of the relations allow precedence. The only option, R^3 , can thus be either temporal overlap or prospect.
- Given the Upper Limit Constraint, R^3 must be temporal overlap.
- The formula $R^3(t_3, t_0)$ correctly states that the pregnancy time overlaps the UT.

Unresolved Issue

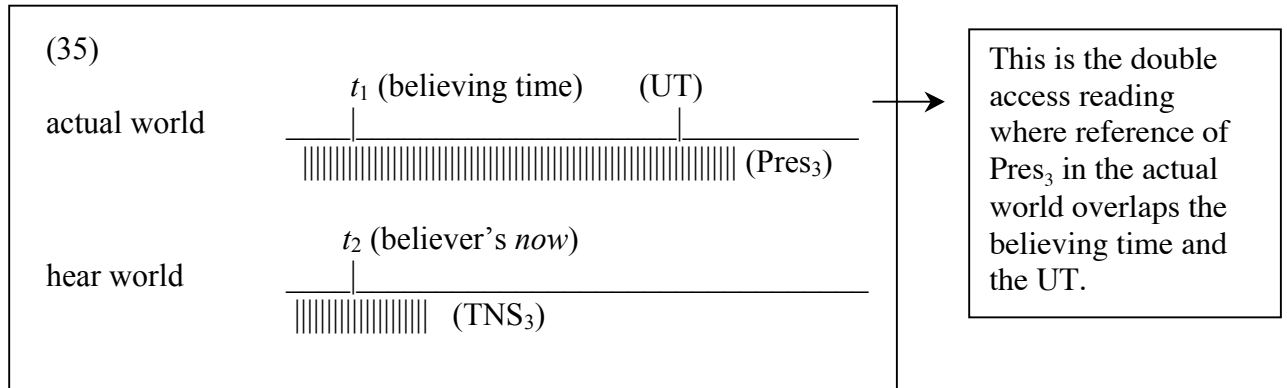
- (30) does not derive that Pres₃ overlaps the believing time, i.e. both (31) and (32) are consistent with (30).



- The trace TNS₃ is a free variable and therefore bare of temporal properties, i.e. its relation to its local evaluation time is unspecified.
- However, since TNS₃ is a tense node, it is subject to the Upper Limit Constraint, which prevents TNS₃ from referring to a time later than its local evaluation time t_2 . So the reference of TNS₃ might either overlap or precede t_2 (see (33)-(34)).



- There are four possible combinations for the reference of Pres₃ and TNS₃
- The counterpart relation invoked by *de re* construal requires that the actual world and the belief worlds be temporally isomorphic (The believing time t_1 is a counterpart of the believer's now t_2 and Pres₃ is a counterpart of TNS₃).



(36) Acquaintance relation

$\lambda t_{now} \lambda x_{self} \lambda t \lambda w [t$ is a maximal interval overlapping t_{now} at which Mary has a big belly in $w]$

(37) The property contributed the *res* abstractor³

$\lambda t_3 \lambda t_2 \lambda w [Mary$ is pregnant in w at $t_3]$

(38) Believed centered proposition

$\lambda x_{self} \lambda t_{now} \lambda w the (\lambda t [t$ is a maximal interval overlapping t_{now} at which Mary has a big belly in $w]) (\lambda t [Mary$ is pregnant at t in $w])$

- The condition on the centered worlds $\langle \lambda x_{self}, \lambda t_{now}, w \rangle$ is that Mary should be pregnant at the maximal interval overlapping t_{now} at which Mary has her symptom.

Summary of the theory

	Past-under-past	Present-under-past	Remarks
De re scoping	simultaneous; past shifted	double access	embedded tense is scoped out; subject to constraints associated with the acquaintance presupposition of <i>de re</i> .
Feature transmission	simultaneous; past shifted		embedded tense remains <i>in situ</i> ; subject to constraints associated with transmitted temporal relations.

³ As in noted in Abusch (1997: 46), the evaluation time abstractor λt_2 appears vacuous in (37). Abusch writes: "...in the tense node TNS₂ in the logical form there is actually a covert reference to the evaluation time, because the upper limit constraint [UCL] refers to local evaluation time. So in a more complete representation which included the presupposition introduced by the UCL, the abstraction would not be vacuous."

4.0 Problem for Abusch: Violating an island constraint

(39) Some woman said that every man is in love with her.

- (39) does not have a reading where *every man* takes widest scope: for every man x , there is some woman y such that x said that y is love with x .
- *Every man* cannot take widest scope because it violates an island constraint (i.e. the complement clause is an island from which a DP cannot escape).
- As noted in Schlenker (2004), elements in Abusch’s theory can freely move out of the complement clause if they interpreted *de re*, thereby violating an island constraint.

5.0 Schlenker’s generalizations about the Russian present tense

“...Russian behaves just like English when a clause is embedded under the verb ‘happen’ [or any other non-attitude/speech verb]. From the present perspective, this is entirely predicted on the assumption that the Russian present tense is a shiftable indexical. Being an indexical, it must take as argument a context variable. But ‘happen’, which is not an attitude verb, fails to introduce a context variable, and therefore the Russian present tense cannot be shifted when it appears under such a verb.”

(40) a. Ivan skaz-al, čto Lev bol-e-et.
Ivan said.PFV-PST.3s that Lev ail.IPF-PRS.3s
Ivan said that Lev was sick. (simultaneous)

b. Ivan skaz-al, čto Lev bol-el.
Ivan said.PFV-PST.3s that Lev ail.IPF-PST.3s
Ivan said that Lev had been sick. (past-shifted)

(41) a. *Casto slučj-al-o-s’, čto Lev bol-e-et.
often happen.IPF-PST-REFL that Lev ail.IPF-PRS.3s
‘It often happened that Lev is sick.’ (ungrammatical)

b. Casto slučj-al-o-s’, čto Lev bol-el.
often happen.IPF-PST-REFL that Lev ail.IPF-PST.3s
‘It often happened that Lev was sick.’ (simultaneous)

Russian Lexicon: Universal (B_U) + Russian-specific (B_R)	
(B_U)	sick $\rightarrow \lambda t\lambda w\lambda x. \text{ sick}(x, t, w)$
	say $\rightarrow \lambda t\lambda w\lambda C\lambda x. [\forall c \in \text{say}(x, t, w): C(c)]$
	know $\rightarrow \lambda t\lambda w\lambda C\lambda x. [\forall c \in \text{know}(x, t, w): C(c)]$

(B_R) Schlenker’s syntax

$1s \sim > c^*_A$	$PST_c \sim > c_T$	$PRS_t \sim > c^*_T$	$IND_c \sim > c_W$
$[[c^*_A]]^{c^*,g}$	$[[c_T]]^{c^*,g}$	$[[c^*_T]]^{c^*,g}$	$[[c_W]]^{c^*,g}$
$= \underline{c}^*_A$	$= g(c)_T$	$= \underline{c}^*_T$	$= g(c)_W$

(42) Upper Limit Constraint

“...I stipulate that a presupposition failure occurs if a time description denotes an interval which is entirely after the denotation of the time coordinate of the closest c-commanding context” (Schlenker 2004).

Examples

(40a') Ivan_x say-PST_t-IND λc[Lev_x' be.PRS_c-IND_c sick]

(40a'') ∀c(c ∈ say (ivan, t {t < c*_T}, c*_w) → sick(lev, c_T, c_{w})) (Schlenker 2004)}

- (40a) is true iff for every context \underline{c} compatible with what *Ivan* \underline{c}^* -said at the \underline{c}^* -past time $g(t)$ in the world of \underline{c}^* , *Lev* is “ \underline{c} -sick” at the time of \underline{c} in the world of \underline{c}
- (40a) is # iff *Lev*'s “ \underline{c} -sickness” at the time of \underline{c} in the world of \underline{c} is entirely after *Ivan*'s \underline{c}^* -saying at the \underline{c}^* -past time $g(t)$

(40b') Ivan_x say-PST_t-IND λc[Lev_x' be.PST_{t'}-IND_c sick]

(40b'') ∀c(c ∈ say (ivan, t {t < c*_T}, c*_w) → sick(lev, t' {t' < c_T}, c_{w}))}

- (40b) is true iff for every context \underline{c} compatible with what *Ivan* \underline{c}^* -said at the \underline{c}^* -past time $g(t)$ in the world of \underline{c}^* , *Lev* is “ \underline{c} -sick” at the at the \underline{c} -past time $g(t')$ in the world of \underline{c}
- (40b) is # iff *Lev*'s “ \underline{c} -sickness” at the \underline{c} -past time $g(t')$ in the world of \underline{c} is entirely after *Ivan*'s \underline{c}^* -saying at the \underline{c}^* -past time $g(t)$

6.0 An extension of Abusch (1997): Relative tenses in Russian

6.1 Assumptions

(43) Universal

All temporal arguments are supplied with a relation variable relating their index to local evaluation time, as determined at LF. For the past tense, the constraint is that at least one of the relations must be the temporal precedence relation. For present tense, the constraint is that none of the relations allow precedence.

(44) Two Way Parameter

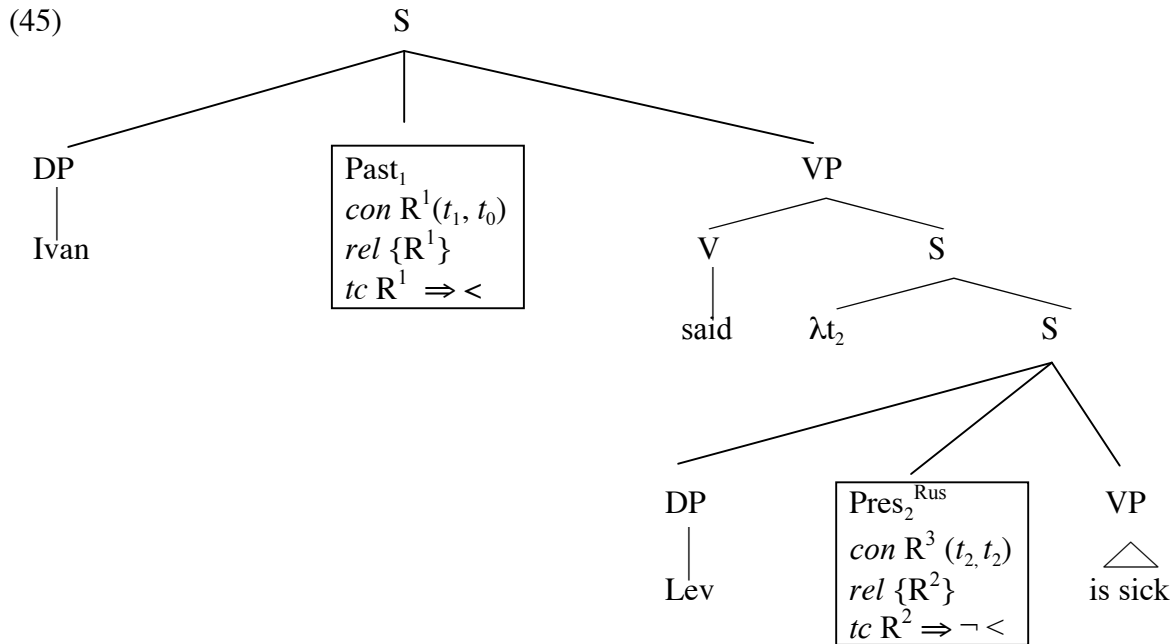
- SOT languages: Mechanism of transmitted temporal relations.
- Non-SOT languages: No mechanism of transmitted temporal relations.

- In a language without SOT both matrix and embedded tenses are only associated with their own relations, which relate them to their respective local evaluation time.

6.2 Present under Past in Russian

(40a) Ivan skaz-al, čto Lev bol-e-et
Ivan said.PFV-PST.3s that Lev ail.IPF-PRS.3s
Ivan said that Lev was sick.

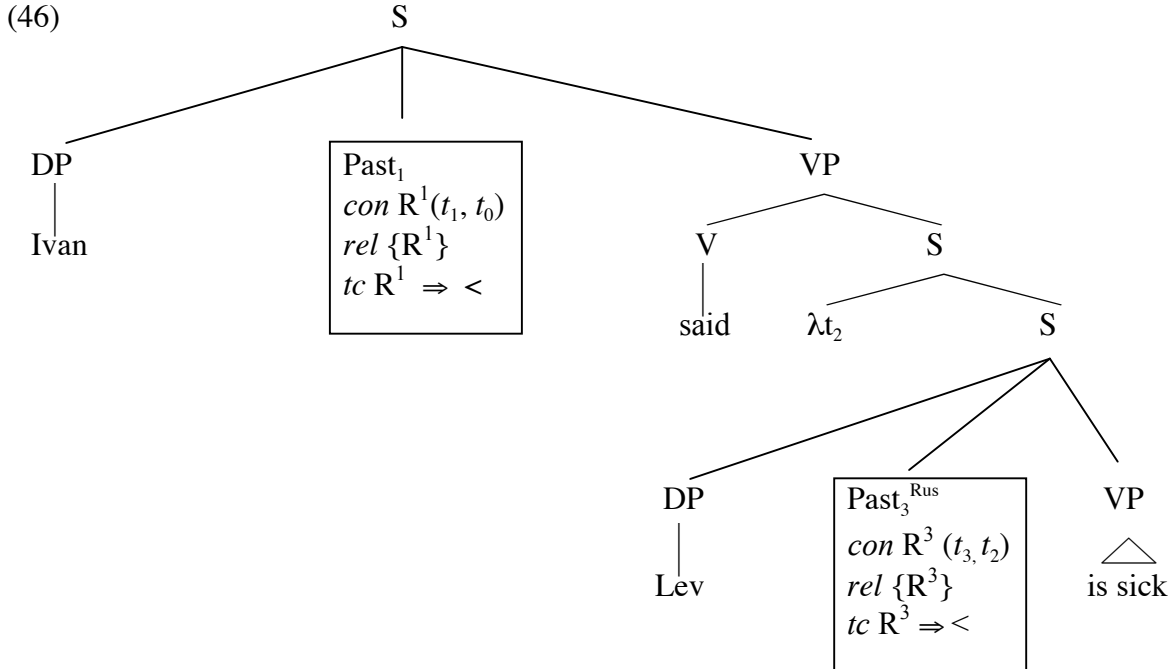
(simultaneous)



- The Past₁ is unembedded and it therefore has access only to the local relation R^1 . As indicated in the specification *con* under Past₁, R^1 relates the reporting time to the local evaluation time (the UT).
- Past₁ has the requirement that at least one of the relations specified under *rel* is temporal precedence. Since there is only one option, R^1 is temporal precedence.
- The formula $R^1(t_1, t_0)$ correctly states that the reporting time precedes the UT.
- As indicated in the specification *con* under Pres₂^{Rus}, R^2 relates the time of the sickness t_2 (determined by the tense index) to the local evaluation time t_2 (the reporter's *now*).
- **Pres₂^{Rus} does not have access to R^1 , given the parameter in (44b).**
- Pres₂^{Rus} has the requirement that none of the relations allow precedence. The only option, R^2 , can thus be either temporal overlap or prospect.
- Given the Upper Limit Constraint, R^2 must be temporal overlap.
- The formula $R^2(t_2, t_2)$ correctly states that Lev's sickness is at the reporter's now.

6.3 Past under Past in Russian

- (40b) Ivan skaz-al, čto Lev bol-el.
 Ivan said.PFV-PST.3s that Lev ail.IPF-PST.3s
 Ivan said that Lev had been sick. (past-shifted)



- The $Past_1$ is unembedded and it therefore has access only to the local relation of R^1 . As indicated in the specification con under $Past_1$, R^1 relates the reporting time to the local evaluation time (the UT).
- $Past_1$ has the requirement that at least one of the relations specified under rel is temporal precedence. Since there is only one option, R^1 is temporal precedence.
- The formula $R^1(t_1, t_0)$ correctly states that the reporting time precedes the UT.

- As indicated in the specification con under $Past_3^{Rus}$, R^3 relates the time of the sickness to the local evaluation time (the reporter's *now*).
- **$Past_3^{Rus}$ does not have access to R^1 , given the parameter in (44b).**
- $Past_3^{Rus}$ has the requirement that at least one of the relations specified under rel is temporal precedence. Since there is only one option, R^3 is temporal precedence.
- The formula $R^3(t_3, t_2)$ correctly states that Lev's sickness is prior to the Ivan's *now*.

7.0 Prediction: simultaneous readings in past-under-past

The parametric theory proposed in the previous section predicts that a simultaneous reading should be possible in past-under-past constructions given an appropriate acquaintance relation. This prediction goes against the generally held view in the literature that such readings are unavailable in non-SOT languages (see Kondrashova 1998, Schlenker 2003 on Russian, Ogiyara 1998, Kusumoto 1999 on Japanese, Sharvit 2002 on Hebrew, etc.). However, these claims are based on an aspectually limited sample of sentences out of context.

The speaker wants to describe Lev as being a bad friend to Ivan one month ago. In (47), Ivan was, in fact, sick, and in (48), Ivan was not sick, but Lev thought that he was.

- (47) Lev zn-al, čto Ivan byl bolen, no emu ne zvon-il.
 Lev know.IPF-PST.3s that Ivan be.PST sick.3s but him.ACC not call.PFV-PST.3s
 “Lev knew that Ivan was sick but didn’t call him.”
- (48) Lev дума-l, čto Ivan byl ser’ezno bolen, no emu ne zvon-il
 Lev think.IPF-PST.3s that Ivan be.PST seriously ail.3s but him.ACC not call.PFV-PST.3s
 “Lev thought that Ivan was seriously ill but didn’t call him.”
- The fact that (47) has the simultaneous reading is not surprising. For example, Ogihara (1999) and Sharvit (2002) note that in Japanese and Hebrew respectively, simultaneous readings are available in past-under-past constructions if the matrix verb is factive.⁴
 - The fact that (48) has a simultaneous reading (see also (49) and (50)), however, goes unexplained on these theories. This reading is predicted on the parametric theory given the *de re* scoping mechanism in Abusch (1997).
- (49) Tanaka-wa Taroo-ga juubyoo dat-ta to omot-te-i-ta
 Tanaka-TOP Taroo-NOM serious.illness be-PST COMP think-GER-be-PST
 ga, denwa-sinaka-ta.
 NOM telephone-NEG-PAST
 “Tanaka thought that Taro was seriously ill but didn’t call him.” (Japanese)
- (50) Lev xashav she Ivan haya xole meod ax lo hitkasher elav.
 Lev think.PST.3s that Ivan be.PST ill very but not call.PST to.him
 “Lev thought that Ivan was seriously ill but didn’t call him.” (Hebrew)

More examples

The speaker recounts a time when Lev took her to a sporting event. Being ignorant about how score is kept, the speaker relied on Lev (a die-hard sports fan) to tell her whether or not the home team was winning.

- (51) Lev ščit-al, čto naši proigr-yv-al-i.
 Lev consider-IPF-PST.3s that ours lost-IPF-PST-3p
 “Lev thought that our side was losing.”

⁴ Ogihara proposes that the factive verb complement clause is an NP of the form “the fact that S” and could be scoped out on a par with regular NPs (see also Nakamura (1994)).

The speaker recounts a time when he watched a sporting event with a bunch of friends, who are all ignorant about how score is kept.

- (52) Ja govor-il vsem, čto naši proigr-yv-al-i.
 I tell-IPF-PST.1s everyone that ours lost-IPF-PST-3p
 “I told everyone that our side was losing.”

(53) Lev was interested in whether or not water would pour out of the bucket if he tilted it a bit.

- a. Lev vid-el, čto voda po-li-l-a-s' iz vedra
 Lev see-IPF-PST.3s that water PFV-pour-PST-FEM-REFLX from bucket
 “Lev saw that the water began to pour from the bucket.”
- b. Lev u-vid-el, čto voda li-l-a-s' iz vedra
 Lev PFV-see-PST.3s that water pour-IPF-PST-FEM-REFLX from bucket
 “Lev noticed that the water poured from the bucket.”
- c. Lev u-vid-el, čto voda po-li-l-a-s' iz vedra
 Lev PFV-see-PST.3s that water PFV-pour-PST-FEM-REFLX from bucket
 “Lev noticed that the water began to pour from the bucket.”
 (Altshuler 2004)

(54) Lev was interested whether or not the hole in the bucket was big enough for the water to completely pour out of the bucket

- a. Lev vid-el, čto voda vy-li-l-a-s' iz vedra
 Lev see-IPF-PST.3s that water PFV-pour-PST-FEM-REFLX from bucket
 “Lev saw that the water poured out (completely) from the bucket.”
- b. Lev u-vid-el, čto voda vy-li-l-a-s' iz vedra
 Lev see-IPF-PST.3s that water PFV-pour-PST-FEM-REFLX from bucket
 “Lev noticed that the water poured out (completely) from the bucket.”
 (Altshuler 2004)

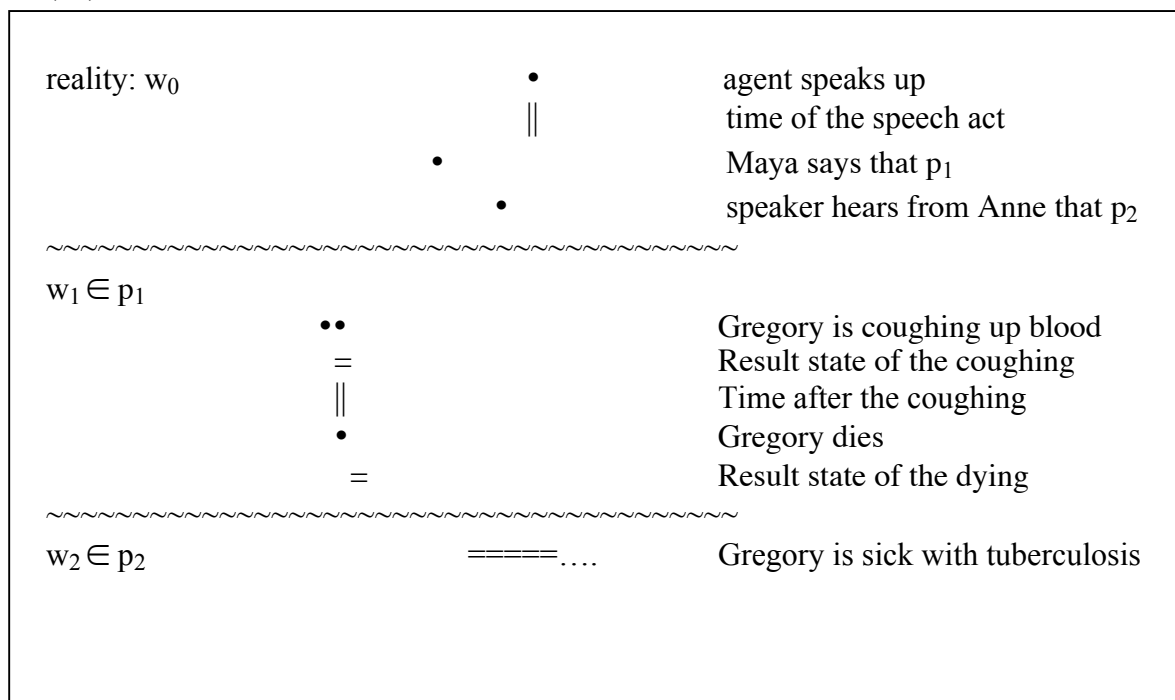
	Past-under-past _{SOT}	Past-under-past _{non-SOT}	Present-under-past _{SOT}	Present-under-past _{non-SOT}
De re scoping	simultaneous; past shifted	simultaneous; past shifted	double access	double access
Feature passing	simultaneous; past shifted	past shifted		simultaneous

8.0 Lifetime effects?

8.1 English data

- (55) a. Maya said that Gregory was coughing up blood.
 b. I realized that Gregory is sick with tuberculosis.
 c. I heard from Anne that Gregory is sick with tuberculosis.
- (56) a. Maya said that Gregory was coughing up blood, and then died.
 b. #I realized (heard from Anne) that Gregory is sick with tuberculosis.
 c. #I heard from Anne that Gregory is sick with tuberculosis.

(57)



- For (56b) to be felicitous, a past-shifted reading is required. This can only be achieved with the past tense (see (58)).

- (58) a. Maya said that Gregory was coughing up blood, and then died.
 b. I realized that Gregory was/had been sick with tuberculosis.

8.2 Russian data

(59)

- a. Ivan skaz-al, čto Vova dolgo i sil'no kašl-jal skrov'ju, i umir.
 Ivan said.PFV-PST.3s that Vova long and hard cough.IPF-PST.3s with.blood and died
 "Ivan said that Vova was coughing up blood profusely for a long time, and then died."

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