

***De Re* Attitudes, Tense, and ‘Double Access’ Readings**

As background to both Ogihara & Sharvit (2012) and Altshuler & Schwarzschild (2013), I’d like to review Abusch’s (1997) analysis of embedded present tense in English...

- In order to do this, however, I must first review some general assumptions about the semantics of so-called *de re* readings of attitude ascriptions.

1. On the Semantics of *De Re* Readings

(1) Apparent Ambiguity of Attitude Ascriptions with Embedded DPs

- a. Sentence: Dave believes my son is a jerk.
- b. Verifying Scenarios:
- (i) Dave is a co-worker of mine. He’s never met my son, but he knows me (of course). He thinks I’m a jerk, and knows that I have a son. He naturally assumes that my son must be a jerk too.
 - (ii) Dave lives in our neighborhood. He doesn’t know which neighborhood kids belong to which families, but he’s otherwise familiar with all the neighborhood kids. He’s seen my son do jerky things on a number of occasions, and so has concluded that he is a jerk.
- c. Possible Analysis: Semantic Ambiguity:
- (i) *De Dicto Reading*:
 $\forall w' \in \text{Dox-Alt}(\text{Dave}, w)$: my son in w' is a jerk in w'
 - In all of Dave’s doxastic alternatives w' , the individual who is my son in w' (whoever that is) is a jerk in w'
 - <Validated by scenario (1bi), but not by (1bii)>
 - (ii) *De Re Reading*:
 $\forall w' \in \text{Dox-Alt}(\text{Dave}, w)$: my son in w is a jerk in w'
 - In all of Dave’s doxastic alternatives w' , the individual who is my son in w (my actual son) is a jerk in w'
 - <Validated by scenario (1bii), but not by (1bi)>
- d. LFs Generating These Truth-Conditions:
- (i) [Dave [believes [λw [[my son] [is a jerk] ...]]]]
 - (ii) [[my son] [1 [Dave [believes [λw [t_1 is a jerk] ...]]]]]

(2) **Problem for The Scope-Based Analysis: *De Re* Readings with Names**

- a. Sentence: Dave believes Bill is a jerk.
- b. A Verifying Scenario:
Dave has heard of our co-worker Bill, **but doesn't know what he's like**. However, one day *unbeknownst to Dave* he bumped into Bill in an elevator. Bill made some wiseass remark, which lead Dave to think 'that guy is a jerk'.
- c. The Puzzle: What kind of truth-conditions and LF should we assign to (2a) to get it to be true in scenario (2b)?

- The scenario in (2b) seems akin to the '*de re*' scenario in (1bii)...
- But, we assume that names are rigid designators, whose extension doesn't vary from world to world (and let's not question that, either)

$$[[\text{Bill}]]^w = \text{Bill}$$

- **Therefore, scoping the name *Bill* outside of the embedded clause won't have any effect on the truth-conditions of the sentence.**

d. Possible LFs for (2a) and the Truth-Conditions:

- (i) [Dave [believes [λw [[Bill] [is a jerk] ...]]]]
○ $\forall w' \in \text{Dox-Alt}(\text{Dave}, w)$: **Bill** is a jerk in w'
- (ii) [[Bill] [1 [Dave [believes [λw [t_1 is a jerk] ...]]]]]
○ $\forall w' \in \text{Dox-Alt}(\text{Dave}, w)$: **Bill** is a jerk in w'

(3) **Making The Problem Even Worse, Part 1**

- a. A Continuation of Scenario (2b):
...Later on that day, Dave bumped into Bill again outside in the snow. Bill was wearing a ski mask, and so Bill couldn't see his face. Bill complimented Dave's jacket, which lead Dave to think 'that guy is nice'.
- b. Sentence: Dave believes Bill is nice
- c. Semantic Judgment:
In the more complex scenario (2b)-(3a), we can construe *both* sentences (2a) and (3b) as being true

(4) **Making the Problem Even Worse, Part 2**

a. The Puzzle:

- As shown in (2d), the only truth-conditions we can derive for sentence (3b) are those in (4b)...
- However, the only way that the truth-conditions in (2d) and (4b) can both be true is if the set of Dave's doxastic alternatives is *empty*.
 - That is, we can only get (2d)-(4b) to both be true if Dave is holding inconsistent, irrational beliefs...
 - **But, intuitively, it feels as if Dave *doesn't* have irrational beliefs in scenario (2b)-(3a)... He's just misinformed...**

b. Truth-Conditions Predicted for (3b): $\forall w' \in \text{Dox-Alt}(\text{Dave}, w)$: **Bill is nice in w'**

(5) **The Problem, Concisely Stated:**

- Our semantic theory needs to be augmented so that both (2a) and (3b) can be true in scenario (2b)-(3a).
- This semantics should also capture our sense that Dave is 'faultless' in this situation, and is not irrationally holding contradictory beliefs.

1.1 **Some Intuitions Towards a Solution**

(6) **Opening Observation 1**

We don't fault Dave for believing both that 'Bill is a jerk' and 'Bill is nice', *because Dave doesn't know that both those people that he encountered were Bill!*

- That is, the propositions Dave actually thinks to himself are 'that guy on the elevator is a jerk', and 'that guy out in the snow is nice.'
- These beliefs are consistent, because *Dave thinks those are two different people*.
- That is, restricted to Dave's belief worlds, the following two intensions yield different entities:

- (i) $[\lambda w : \text{the guy Dave saw on the elevator in } w]$
- (ii) $[\lambda w : \text{the guy Dave saw out in the snow in } w]$

(7) **Opening Observation 2**

The following seem to be apt paraphrases the *de re* readings in question:

a. Paraphrases of the *De Re* Readings

- (i) Dave believes *of Bill* that he is a jerk.
- (ii) Dave believes *of Bill* that he is nice.

b. The Idea This Suggests

- The syntactic form of these paraphrases suggests that ‘believes’ in English can also function as a *three*-place relation
- **Maybe it continues to be a three-place relation in sentences like (2a)-(3b)!**
- **Maybe sentences like (2a)-(3b) have an LF structure where ‘Bill’ is the object of the three-place ‘believe’ in our paraphrases!**

c. The Proposal

Sentences (2a)-(3b) can have the following (sort of) structures at LF:

- (i) *De Re LF of (2a)*: [Dave [believes Bill₁ [he₁ is a jerk]]]
- (ii) *De Re LF of (3b)*: [Dave [believes Bill₁ [he₁ is nice]]]

d. The Hope:

We might be able to rig things up so that LFs in (7c) are logically compatible...

(8) **Further Developing the LF**

a. Key Question: But, what is the meaning of the three-place *believes* in (7a)?

b. Paraphrasing the Paraphrases:

- (i) Dave ascribes to Bill **the property of being a jerk.**
- (ii) Dave ascribes to Bill **the property of being nice.**

c. Further Refinement of the LF: ‘Three place’ *believes* is a relation between:

- (i) An entity (the attitude holder)
- (ii) Another entity (the object – or *res* – of the attitude)
- (iii) **A property**

d. The *De Re* LFs:

- (i) *De Re LF of (2a)*: [Dave [[believes Bill₁] [λw [1 [t₁ is a jerk] ...]]]]
- (ii) *De Re LF of (3b)*: [Dave [[believes Bill₁] [λw [1 [t₁ is nice] ...]]]]

OK... but what does it mean for an entity to 'ascribe a property' to some other entity?...

(9) **Ascribing Mutually Incompatible Properties**

a. Question

So what's 'going on' when Dave ascribes to Bill the property of being nice/a jerk?

b. One Possible Answer

- Dave 'encounters' this entity, Bill.
- Via this encounter, Dave bears a particular relation to Bill.
 - *The relation 'x saw y in the elevator'*
 - *The relation 'x saw y outside in the snow'*
- This relation provides Dave a means – a concept/description – for mentally representing the object he encountered (e.g. Bill)
 - *The x such that I/Dave saw x in the elevator*
 - *The x such that I/Dave saw x outside in the snow*
- So, when Dave 'ascribes' a property Q to Bill, the following takes place, logically speaking:
 - Via Dave's 'encounter' with Bill, he ends up with a concept/property P he can use to identify Bill.
 - Dave's doxastic alternatives are updated so that in every world w' :
The object that has that property P in w' ...
also has that property Q in w' .

(10) **Illustration 1**

Here's what happens when Dave ascribes to Bill the property of 'being a jerk'.

- a. Dave encounters Bill in the elevator.
- b. Consequently, Dave can use the following property to identify Bill:
'I (Dave) saw y in the elevator (on such and such a date and time)'
- b. This property provides Dave with a means for mentally representing Bill:
The x such that I (Dave) saw x in the elevator (on such a date/time)
- d. Dave's beliefs are updated so that the following holds in every belief world w' :
The x that I (Dave) saw x in the elevator in w' is a jerk in w' .

(11) **Illustration 2**

Here's what happens when Dave ascribes to Bill the property of 'being nice'.

- a. Dave encounters Bill out in the snow.
- b. Consequently, Dave can use the following property to identify Bill:
I (Dave) saw y out in the snow (on such and such a date and time)'
- c. This property provides Dave with a means for mentally representing Bill:
The x such that I (Dave) saw x out in the snow (on such a date/time)
- d. Dave's beliefs are updated so that the following holds in every belief world w' :
The x that I (Dave) saw x out in the snow in w' is nice in w' .

(12) **Key Observation**

Under this way of modeling 'property ascription', an entity (Dave) can rationally ascribe two mutually incompatible properties to the same object (Bill).

- In doing so, Dave places the following two constraints on his belief worlds w' :
 - (i) *The x that I/Dave saw x in the elevator in w' is a jerk in w'*
 - (ii) *The x that I/Dave saw x out in the snow in w' is nice in w'*
- Clearly, these two conditions can hold of a single belief world, and so Dave does not irrationally hold mutually inconsistent beliefs.
- *But*, the rationality of these beliefs crucially rests on the following fact:
Dave does not know that in the actual world w_0 the following are the same entity:
 - (iii) *The x that I/Dave saw x in the elevator in w_0*
 - (iv) *The x that I/Dave saw x out in the snow in w_0*

(13) **Goals Achieved**

- We've spelled out what it means for an entity to 'ascribe' a property to another entity
- We've done it in a way that allows entities to rationally 'ascribe' mutually incompatible properties to the same entity.

Now, let's tie this in with our T-conditions for the targeted 'de re' readings!...

1.2 Building the Proposed Solution

(14) Expanded Paraphrases of the *De Re* Readings

- a. De Re Reading of Sentence (2a):
There is a property P that Bill bears uniquely (*Dave saw y in the elevator*),
and in all of Dave's doxastic alternatives w' , the following holds:
the unique x such that P(x) in w' **is a jerk** in w'
- b. De Re Reading of Sentence (3b):
There is a property P that Bill bears uniquely (*Dave saw y out in the snow*),
and in all of Dave's doxastic alternatives w' , the following holds:
the unique x such that P(x) in w' **is nice** in w'

(15) More Formal Representation of the Expanded Paraphrases

- a. De Re Reading of Sentence (2a):
 $\exists P \ \& \ \text{Bill} = \text{the } x \text{ such that } P(w)(x) \ \&$
 $\forall w' \in \text{Dox-Alt}(\text{Dave}, w): \text{the } x \text{ such that } P(w')(x) \text{ **is a jerk** in } w'$
- b. De Re Reading of Sentence (3b):
 $\exists P \ \& \ \text{Bill} = \text{the } x \text{ such that } P(w)(x) \ \&$
 $\forall w' \in \text{Dox-Alt}(\text{Dave}, w): \text{the } x \text{ such that } P(w')(x) \text{ **is nice** in } w'$

But, how do we derive the truth-conditions in (15) from LFs for (2a) and (3b)??

(16) Step 1: A New Semantics for '*Believes*'

Let's suppose that *believes* is lexically ambiguous, and that there is a ternary version of the verb with the following semantics...

$[[\text{believes}_{\text{DR}}]]^w.g =$

$[\lambda x_e :$ *the 'object of belief' (res)*
 $[\lambda Q_{\langle s, \langle et \rangle \rangle} :$ *the property*
 $[\lambda y_e :$ *the attitude holder*
 $\exists P \ \& \ x = \text{the } z \text{ such that } P(w)(z) \ \&$
 $\forall w' \in \text{Dox-Alt}(y, w):$
 $Q(w')(\text{the } z \text{ such that } P(w')(z)) = T]]]]$

The lexical entry in (16) will fit in well with the LFs in (8d)...

...But, how do we derive those LFs syntactically from the SS for (2a)/(3b)?

(17) **Step 2: The Introduction of ‘Res-Movement’**

a. Step One: Normal DP Movement

A DP from within the clause undergoes normal movement to a position just below the ‘world-lambda’ for the clause.

[Dave [believes [λw [Bill [1 [t_1 is a jerk] ...]]]]]


b. Step Two: Crazy ‘Res-Movement’

The moved DP then undergoes ‘res movement’ to a position sister to the V

- **Unlike normal movement, this ‘res movement’ does not leave a trace, and does not create a lambda abstractor.**¹

[Dave [[believes Bill] [λw [1 [t_1 is a jerk] ...]]]]


• Important Note:

There are several ways of replacing this ‘res-movement’ with more reasonable mechanisms (Percus & Sauerland 2003), but it’s a ‘good enough’ stop-gap for now...

(18) **Mission Accomplished!**

The sentences in (2a)/(3b) can get mapped to the LFs in (18ai)-(18bi), which for reasons already discussed are mutually compatible, and true in scenario (2b)-(3a).

a. (i) LF of (2a): [Dave [[believes Bill₁] [λw [1 [t_1 is a jerk] ...]]]]

(ii) Predicted Truth-Conditions:

$\exists P$ & Bill = the z such that $P(w)(z)$ &

$\forall w' \in \text{Dox-Alt}(\text{Dave}, w)$: the z such that $P(w')(z)$ is a **jerk** in w'

b. (i) LF of (3b): [Dave [[believes Bill₁] [λw [1 [t_1 is nice] ...]]]]

(ii) Predicted Truth-Conditions:

$\exists P$ & Bill = the z such that $P(w)(z)$ &

$\forall w' \in \text{Dox-Alt}(\text{Dave}, w)$: the z such that $P(w')(z)$ is **nice** in w'

¹ Syntactically informed readers might also note that this is movement to a theta-position, and is also an instance of ‘improper movement’ (i.e., A-to-A'-to-A). Also note that this ‘res-movement’ is not clause-bound, unlike QR.

2. The Semantics of Embedded Present Tense in English

We've already discussed quite a bit sentences like (19a), where both a complement clause and a matrix clause are past tense...

- But, what about sentences like (19b), where the matrix clause is *past* and the complement clause is *present*.

(19) Tensed Complements to Attitude Verbs in English

- Past-Under-Past: Dave **said** that George **was** president.
- Present-Under-Past: Dave **said** that George **is** president.

WARNING:

The material you are about to encounter is some of the most difficult in the semantics on tense, indeed some of the most difficult stuff in the entire field of semantics...

- It's definitely the hardest stuff that we're going to do in this seminar...
- On a positive note, *it's all downhill from here ;)*

(20) **Observation 1**

Unlike (19a), if what Dave said in (19b) was true (when he said it), then George must be president *now*.

- Scenario Validating (19b):
When we saw him **a month ago**, Crazy Uncle Dave said "The current president is George Bush (and it will be George Bush until 2016)."
- Scenario Not Validating (19b):
When we saw him **in 2009**, Crazy Uncle Dave said "The current president is George Bush (and it will be George Bush until 2012)."

(21) **Observation 2**

Like (19a), if what Dave said in (19b) was true (when he said it), then George must be president *at the time Dave spoke*.

- Scenario Validating (19b): (Same as in (20a))
- Scenario Not Validating (19b):
When we saw him **in 2009**, Crazy Uncle Dave said "The current president is Barack Obama, but it will be George Bush again in 2012-2016!"

2.2 Towards an Analysis of ‘Double Access’: English Present as an Indexical

(31) **Key Idea:** What if [Pres] in English were an indexical!

- $[[\text{Pres}_i]]^{w,t,g,c}$ is defined only if $g(i) \supseteq c(\text{time})$
- If defined, then $[[\text{Pres}_i]]^{w,t,g,c} = g(i)$

(32) **First Result: No Problem for Matrix Present**

Thanks to the crucial convention in (28), the semantics in (31) doesn’t make any new predictions for matrix present!

(33) **Second Result: Problem for Embedded Present**

a. Sentence: Dave **said** that George **is** president.

b. LF:
[Dave [1 [Past₂ [t₁ say [λw [λt [George [3 [Pres₄ [t₃ be president] ...]

c. Predicted Truth-Conditions of (33b):

- $[[(33b)]]^{w,t,g,c}$ is only defined if $g(2) < t$ and $g(4) \supseteq c(\text{time}) (= t)$
- If defined, $[[(33b)]]^{w,t,g,c} = T$ iff
 $\forall \langle w', t' \rangle \in \text{Say-Alt}(\text{Dave}, w, g(2)) . \text{George is president in } w' \text{ at } g(4)$

d. The Problem: Vacuous Quantification in the Embedded Clause

- In the LF in (33b), there is **vacuous quantification** over the embedded evaluation time.

$$[[[\lambda w [\lambda t [\text{George} [3 [\text{Pres}_4 [t_3 \text{ be president}] \dots]]]]]]]^{w,t,g,c} =$$

$$[\lambda w' : [\lambda t' : \text{George is president in } w' \text{ at } g(4)]]$$

- This leads the truth-conditions in (33c) to **vacuously quantify** over the time t’ of the ‘say alternative’

If we suppose that the grammar militates against vacuous quantification...

*Then sentence (33a) **couldn't** have the LF in (33b)...*

*... So what LF **could** sentence (33a) have?...*

(38) **Second Key Observation: Overlapping with Matrix Utterance Time**

- a. Observation in (20):
If what Dave said in (36a) – the content of his attitude – was true (when he said it), then George must be president *now*.
- b. Deriving the Observation:
Assume that the truth-conditions in (36c) hold...
- (i) *The content of Dave’s attitude, according to (36c):*

$$[\lambda w' : [\lambda t' [\text{George is president in } w' \text{ at the time } z \text{ such that } P(w')(t')(z)]]]$$
- (ii) *Evaluation of This Proposition at $\langle w, g(2) \rangle$*

$$[\lambda w' : [\lambda t' : [\text{George is president in } w' \text{ at the time } z \text{ such that } P(w')(t')(z)]](w)(g(2)) = T \quad \textit{iff}$$

$$\text{George is president in } w \text{ at the time } z \text{ such that } P(w)(g(2))(z) \quad \textit{iff}$$

$$\text{George is president in } w \text{ at } g(4) \quad \textit{therefore}$$

$$\text{George is president in } w \text{ at } t \text{ (since } g(4) \supseteq c(\text{time}) (= t))$$

(39) **Problem! No Overlapping with Doxastic Alternative Time (Yet)**

- a. Observation in (21):
If what Dave said in (36a) was true (when he said it), then George must be president *at the time Dave spoke*.
- b. Scenario Not Validating (36a):
When we saw him **in 2009**, Crazy Uncle Dave said “The current president is Barack Obama, but it will be George Bush again in 2012-2016!”
- c. Problem: Scenario (39b) Validates (36c)
- (i) Let $g(4)$ and $g(2)$ be as before...
- (ii) But, now let P be:

$$[\lambda w' : [\lambda t' : [\lambda t'' : t'' \text{ is the interval of time covering the US presidential administration } \textit{that follows the one} \text{ going on in } w' \text{ at } t']]]]$$
- (iii) Give the above, in scenario (39b), $g(4) =$ the time z such that $P(w)(g(2))$.
- (iv) Given what Dave says in (39b), in all of his ‘say alternatives’ $\langle w', t' \rangle$, George Bush is president in w' **at the time covering the US presidential administration that follows the one going on in w' at t'** .
...and so, George is president in w' **at the time z such that $P(w')(t')(z)$**

2.4 Completing the Picture with the Upper Limit Constraint (Abusch 1997)

(40) The Upper Limit Constraint (Abusch 1997)

The denotation of a T-node – *even one that is merely a trace* – **cannot** be later than the evaluation time of the T-node.

a. Formalization (Following Heim 1994):

Every T-node, no matter what the features, has the following presupposition (in addition to whatever the tense-features on the T-node add):

$[[T_i]]^w, t, g, c$ is only defined if $\neg(g(i) > t)$

b. Immediate Consequence: Future is not a (Pronominal) Tense:

The Upper Limit Constraint (ULC) rules out the possibility of tense heads like:

$[[Fut_i]]^w, t, g, c$ is only defined if $g(i) > t \dots$

(41) Some Additional Adjustments to Our ‘Temporal De Re’ Syntax and Semantics

a. New LF for Temporal *De Re* Reading

In addition to ‘ λw ’ and the regular lambda over the trace of the moved tense, *we will now also bring back the operator ‘ λt ’* (which binds the evaluation time)

[Dave [1 [Past₂ [t₁ [[say Pres₄] [λw [λt [4 [George [3 [t₄ [t₃ be president] ...]

b. New Semantics for Temporal *De Re* Reading

Under this syntax, the complement of *say* is of type $\langle s, \langle i, \langle i, t \rangle \rangle \rangle$.

Therefore, we’re going to need to slightly adjust our semantics in (35):

$[[say_{temp-dr}]]^w, t, g, c =$

[$\lambda t'_i$: *the ‘object of belief’ (temporal res)*

[$\lambda Q_{\langle s, \langle i, \langle i, t \rangle \rangle} :$ *the property (of times)*

[$\lambda y_e :$ *the attitude holder*

[$\lambda t''_i :$ *the predication time argument*

$\exists P \ \& \ t' =$ the time z such that $P(w)(t'')(z) \ \&$

$\forall \langle w', t''' \rangle \in \text{Say-Alt}(y, w, t'') :$

$Q(w')(t''')(the \ z \ \text{such that } P(w')(t''')(z) = T \]]]]$

The changes above in (41) are not easy to motivate independently...

... However, they combine with the ULC in (40) to give us the facts in (21)/(39)...

(43) **General Summary of What Just Happened**

Thanks to the ULC – and the minor adjustments in (41) – a ‘temporal *de re*’ reading requires that the concept ‘P’ – which the attitude-holder uses to represent the ‘temporal *res*’ to themselves – *NOT* be a ‘forward looking’ concept....

- That is, P cannot be a property that holds of times only in the *future* of the time at which the attitude holds...

Consequently, under a ‘temporal *de re*’ reading, the attitude holder cannot be entertaining a ‘future directed’ attitude...

- They cannot be talking about times that *they* conceive of as existing in *their* future...
- They can only be talking about things that are currently going on (or have already happened in the past...)

Finally, when combined with our earlier result in (38), we see how this gets us (maybe) the key characteristics of the ‘double access’ reading of sentences like (19b)...

(44) **A Key Insight of Abusch (1997):**

Temporal *de re* + the Upper Limit Constraint = DOUBLE ACCESS!!!

(45) **The Upper Limit Constraint Beyond Double Access Readings**

a. Sentence: Dave said that George was president.

b. A New LF (Permitted by Our Theory):

[Dave [1 [Past₂ [t₁ [[say **Past₄**] [λw [λt [4 [George [3 [t₄ [t₃ be president] ...]

c. Predicted Truth-Conditions:

[[(45b)]]^{w,t,g,c} is defined only if $g(2) < t$ and $g(4) < t$
If defined, then [[(45b)]]^{w,t,g,c} = T *iff*

$\exists P$ & $g(4)$ = the time z such that $P(w)(g(2))(z)$ & $\forall \langle w', t' \rangle \in \text{Say-Alt}(\text{Dave}, w, g(2)) :$
[$\lambda t'' : \neg (t'' > t')$. George is president in w' at t''] (the z such that $P(w')(t')(z) = T$

- Again, these truth-conditions require that P is *not* a ‘future-looking’ concept (it can’t apply at t' only to times *in the future* of t')

(46) **First Key Observation**

P can be a concept that applies to times *surrounding* t'

- a. *P* could equal the following temporal concept:

$[\lambda w' : [\lambda t' : [\lambda t'' : t'']]]$ is the interval of time covering the entire US presidential administration going on in w' at t']]

- b. Scenario Validating the Truth-Conditions in (45c):

We saw Dave in 2003. He told us then “George Bush is the current president.”

- Let $g(2)$ be the time that Dave spoke (in 2003)
- Let $g(4)$ be the time of the first Bush administration (1/29/2001 – 1/28/2005)
- Let *P* be as in (46a)
- **The presuppositions introduced by ‘Past₂’, ‘Past₄’ and ‘ t_4 ’ are all satisfied!**
- Also, $g(4) =$ the time z such that $P(w)(g(2))(z)$
- Finally, in all Dave’s ‘say-alternatives’ $\langle w', t' \rangle$:
George Bush is president in w' **at the time z such that $P(w')(t')(z)$**
(i.e., he’s president at the time of the currently on-going administration)

- c. Conclusion: Temporal *de re* is *another* way to generate simultaneous readings!

(47) **Second Key Observation**

P can be a concept that applies to times *preceding* t'

- a. *P* could equal the following temporal concept:

$[\lambda w' : [\lambda t' : [\lambda t'' : t'']]]$ is the interval of time covering the US presidential administration *that precedes the one* going on in w' at t']]

- b. Scenario Validating the Truth-Conditions in (45c):

We saw Dave in 2005. He told us “George Bush was president last year (too)”

- Let $g(2)$ and $g(4)$ be as before. Let *P* be as in (47a).
- Again, everybody’s presuppositions are satisfied.
- Again, $g(4) =$ the z such that $P(w)(g(2))(z)$
- Again, in all Dave’s ‘say-alternatives’ $\langle w', t' \rangle$:
George Bush is president in w' at the time z such that $P(w')(t')(z)$

- c. Conclusion: Temporal *de re* is *another* way of generating back-shifted readings!

(48) **Third Key Observation**

P *cannot* be a concept that applies to times following t' (see (42)-(43))

a. P could *not* equal the following temporal concept (as we've already seen):

[$\lambda w'$: [$\lambda t'$: [$\lambda t''$: t'' is the interval of time covering the US presidential administration *that follows the one* going on in w' at t']]]

b. Scenario Not Validating the Truth-Conditions in (45c):

We saw Dave in 1999. He told us then, "George Bush is gonna be the next president".

- We *could* let g(2) be the time that Dave spoke to us (in 1999)
- We *could* again let g(4) be the time of the first Bush administration (1/29/2001 – 1/28/2005)
- **This would satisfy the presuppositions of 'Past₂' and 'Past₄'**
- But the ULC requires the property P – *which Dave uses to represent the time g(4) to himself* – to *not* be a 'future directed' concept.
- But in scenario (48b), the way that Dave represents g(4) to himself is 'the time of the next presidential administration'
(or whatever... the point is that is that for Dave, it's not the time that he sees as being 'now')
- In fact, it seems there is no property P that's going to pick out g(4) at time g(2), and which also covers times concurrent or preceding g(2).
- **In as much as we can't find a property P that will do the job of making the truth-conditions in (45c) true in scenario (48b)...**
 - We predict that *they won't hold in scenario (48b)*

c. Conclusion: The ULC seems to correctly rule out the possibility of 'Later than Matrix' readings of past tense complements to attitude verbs!

(49) **A Potential Problem (Klecha 2013)³**

For the verb *hope*, some speakers do allow a kind of 'later than matrix reading'.

a. Mary hoped (then) that she got pregnant soon.

³ <http://www.peterklecha.com/work/klecha.nels43.pdf>