

- (5) a. $\llbracket \text{PAST} \rrbracket^c = \lambda P_{\langle i,t \rangle}. \exists t [t < \{\text{time}(c)\} \ \& \ P(t) = 1]$
 b. $\llbracket \text{PRES} \rrbracket^c = \lambda P_{\langle i,t \rangle}. \exists t [\text{time}(c) \in t \ \& \ P(t) = 1]$

Tenses being existential quantifiers, if the predicate has a presupposition about time intervals, it existentially projects (Beaver 2001, Chemla 2009, Sudo 2012, 2014), e.g.:

- (6) a. $\llbracket (1a) \rrbracket^c \neq \#$ iff $\exists t [t < \{\text{time}(c)\} \ \& \ \mathbf{alive}(j)(t) = 1]$
 b. $\llbracket (1b) \rrbracket^c \neq \#$ iff $\exists t [\text{time}(c) \in t \ \& \ \mathbf{alive}(j)(t) = 1]$

We claim that the presupposition of (1a) is weaker than the presupposition of (1b). Specifically, Following Altschuler & Schwarzschild's (2012) analysis of stative predicates we assume that **alive** never holds for a single moment alone, i.e. for any moment m_2 , if $\mathbf{alive}(j)(\{m_2\}) = 1$, then there is m_1 such that $m_1 < m_2$ and $\mathbf{alive}(j)(\{m_1\})$ (this does not imply that John was alive at every past moment, because there are uncountably many moments). Suppose now that $\llbracket (1b) \rrbracket^c \neq \#$. Because John is alive at $\{\text{time}(c)\}$, there is a past moment m such that $\mathbf{alive}(j)(\{m\}) = 1$, from which it follows that $\llbracket (1a) \rrbracket^c \neq \#$. On the other hand, when $\llbracket (1a) \rrbracket^c \neq \#$, it might not be the case that $\llbracket (1b) \rrbracket^c \neq \#$, depending on whether John is alive now.

Given this asymmetry in the presupposition, the presuppositionally strengthened version of (1a) becomes infelicitous in contexts where the presupposition of (1b) is satisfied. Conversely, (1a) is only felicitous in contexts where the presupposition of its alternative (1b) is not satisfied, i.e. it is not commonly known that John is still alive, $\neg \text{CK}(\exists t [\text{time}(c) \in t \ \& \ \mathbf{alive}(j)(t) = 1])$. We follow Chemla (2008) in assuming that it can be pragmatically strengthened to $\text{CK}(\neg \exists t [\text{time}(c) \in t \ \& \ \mathbf{alive}(j)(t) = 1])$. This is the LEs of (1a). A nice prediction of this analysis is that LEs survive in presupposition projection contexts, which is borne out (data omitted here).

This analysis also predicts that (2a) should also exhibit LEs. This is not a problem, because the mechanism of assertive strengthening (4b) could be used instead, in which case, (2a) would presuppose that John is alive now and asserts that John is not ill anymore. So our account predicts that the sentence is ambiguous, and LEs do not consistently follow. For (1a), on the other hand, (4b) would generate the presupposition that John is alive and the additional assertion that he is not British anymore. When one's nationality is assumed to be constant, this would be trivially false, and the other reading with LEs generated with (4a) is prominent. When no such assumption is made, the strengthened assertion can be used, as in (3).

Finally, (1b) and (2b) have no scalar inferences, as both strengthening mechanisms are vacuous for them due to the lack of stronger alternatives (but one of them still applies by assumption).

Domain restriction: It is known that LEs fail to arise in some contexts where a particular past time is salient, e.g. (7) from Musan (1995: 19).

- (7) On that day, I was introduced to Gregory and Eva-Lotta. Gregory was from America.

To accommodate such examples, we assume that $\exists t$ in (5) has a domain restriction (Kusumoto 1999, Altschuler & Schwarzschild 2012, Thomas 2012), and the restriction stays constant across alternatives. If the domain excludes the current time, then the presupposition of the present tense counterpart becomes trivially false, trivially blocking LEs.

Selected References: Magri (2009) *A Theory Individual-Level Predicates Based on Blind Mandatory Implicatures*. Musan (1995) *On the Temporal Interpretation of Noun Phrases*. Musan

(1997) Tense, predicates, and lifetime effects. *NALS*, 5. Ms. Thomas (2012) *Temporal Implicatures*. Spector & Sudo (2016) Presupposed Ignorance and Exhaustification. Ms.