Lifetime Effects as Presuppositional Scalar Strengthening

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SUMMARY

Past stative predicates give rise to **Lifetime Effects** or **cessation implicatures**. Previous studies ([1–4]) explain Lifetime Effects in terms of suspending cessation implicatures contradicting contextual assumptions. We propose that the two scalar inferences are due to different mechanisms of scalar strengthening.

Temporal Inferences

Past stative predicates give rise to additional inferences.

(1) John was from London.
 $\rightsquigarrow$ *John is dead* **Lifetime Effect**

(2) John was hungry.
 $\rightsquigarrow$ *John is no longer hungry* **cessation implicature**

Present stative predicates do not give rise to inferences.

(3) a. John is from London. b. John is hungry.

Generalization

Past stative predicates that describe permanent properties ($\approx$ individual-level predicates) give rise to Lifetime Effects.

Past stative predicates that describe non-permanent properties ($\approx$ stage-level) give rise to cessation implicatures.

Lifetime Effects project like presuppositions.

(4) a. John was not from London.
 b. Was John from London?
 c. If John was from London, he lived in Bloomsbury.

Cessation implicatures behave like scalar implicatures in projective contexts.

(5) a. John was not hungry.
 b. Was John hungry?
 c. If John was hungry, he was grumpy.

With a salient past time interval, Lifetime Effects don't arise.

(6) On that day, I was introduced to Gregory and Eva-Lotta. Gregory was from America. ([1],p.19)

Scalar Strengthening

We assume two mechanisms of scalar strengthening ([5]).

Presuppositional Scalar Strengthening: Strengthen the presupposition with the negations of the presuppositions of presuppositionally non-weaker alternatives (cf. Maximize Presupposition).

$$[\![\mathbb{P}(\phi)]\!]_P = [\![\phi]\!]_P \wedge \forall \psi \in \mathit{Alt}(\phi)[[\![\phi]\!]_P \not\subseteq [\![\psi]\!]_P \rightarrow \neg[\![\psi]\!]_P]$$
$$[\![\mathbb{P}(\phi)]\!]_A = [\![\phi]\!]_A$$

Assertive Scalar Strengthening: Strengthen the assertion with the negations of Strawson non-weaker alternatives. The presuppositions of the negated alternatives are inherited (cf. Exh/$\mathcal{O}$).

$$[\![\mathbb{A}(\phi)]\!]_P = [\![\phi]\!]_P \wedge \forall \psi \in \mathit{Alt}(\phi)[\phi \nRightarrow_S \psi \rightarrow [\![\psi]\!]_P]$$
$$[\![\mathbb{A}(\phi)]\!]_A = [\![\phi]\!]_A \wedge \forall \psi \in \mathit{Alt}(\phi)[\phi \nRightarrow_S \psi \rightarrow \neg[\![\psi]\!]_A]$$

($\phi \nRightarrow_S \psi$ iff whenever $[\![\phi]\!]_P$ and $[\![\psi]\!]_P$ are true, $[\![\phi]\!]_A \rightarrow [\![\psi]\!]_A$)

A scalar item must contribute to scalar strengthening via $\mathbb{P}$ or $\mathbb{A}$, and non-trivial strengthening is preferred.

For (7), $\mathbb{A}$ leads to no strengthening, so $\mathbb{P}$ is preferred.

(7) $\mathbb{P}$(Andrew is unaware that **some** of them are drunk)
 a. $[\![(7)]\!]_P$ = some but not all of them are drunk.
 b. $[\![(7)]\!]_A$ = Andrew does not know that some of them are drunk.

On the other hand, (8) is ambiguous:

(8) $\mathbb{P}$(Andrew is aware that **some** of them are drunk)
 a. $[\![(8)]\!]_P$ = some but not all of them are drunk.
 b. $[\![(8)]\!]_A$ = Andrew knows that some of them are drunk.

(9) $\mathbb{A}$(Andrew is aware that **some** of them are drunk)
 a. $[\![(9)]\!]_P$ = (some and) all of them are drunk.
 b. $[\![(9)]\!]_A$ = Andrew knows that some of them are drunk, but does not know that all of them are.

Analysis

Assumptions

1. Existential theory of tense ([4,6])
$$[\![(2)]\!]_A = \exists t[t \prec \{\, \mathit{time}(c) \,\} \wedge \text{hungry}(\text{john}, t)]$$
$$[\![(3b)]\!]_A = \exists t[\mathit{time}(c) \in t \wedge \text{hungry}(\text{john}, t)]$$
2. Stative predicates presuppose that the subject is alive or exists while they hold ([1,2,4]).
3. Presuppositions existentially project out.
$$[\![(2)]\!]_P = \exists t[t \prec \{\, \mathit{time}(c) \,\} \wedge \text{alive}(\text{john}, t)]$$
$$[\![(3b)]\!]_P = \exists t[\mathit{time}(c) \in t \wedge \text{alive}(\text{john}, t)]$$
4. Stative predicates never hold for a single moment ([9]): If $S(a, \{\, m \,\})$, then $S(a, \{\, m' \,\})$ for some $m' \prec m$. There are assumed to be uncountably many moments.

$\mathbb{P}$(1) presupposes that John is dead now.

$$[\![(1)]\!]_P = \exists t[t \prec \{\, \mathit{time}(c) \,\} \wedge \text{alive}(\text{john}, t)]$$
$$[\![(3a)]\!]_P = \exists t[\mathit{time}(c) \in t \wedge \text{alive}(\text{john}, t)]$$

$\mathbb{A}$(1) would presuppose that John is alive now, and have a cessation implicature that John is no longer from London.

$\mathbb{A}$(2) accounts for the cessation implicature. $\mathbb{P}$(2) is allowed, unless John is known to be alive.

(3) have no scalar inference, because of Assumption 4. $[\![(3b)]\!]_P$ entails $[\![(2)]\!]_P$, and $[\![(3b)]\!]_A$ Strawson-entails $[\![(2)]\!]_A$.

Domain restriction accounts for (6), e.g. C is a contextually relevant time interval such that $\mathit{time}(c) \notin C$.

$$[\![\mathbb{P}(\text{Gregory was from America})]\!]_P =$$
$$\exists t \subseteq C\, [t \prec \{\, \mathit{time}(c) \,\} \wedge \text{alive}(\text{gregory}, t)]$$
$$\wedge \neg \exists t \subseteq C\, [\mathit{time}(c) \in t \wedge \text{alive}(\text{gregory}, t)]$$

Comparison with previous studies:

- [1,2] fail to account for projection of Lifetime Effects, (4).
- [3,4] do not explain Lifetime Effects in ignorance contexts.

(10) I don't know whether John is still alive, but #he was from London.

They also fail to predict Lifetime Effects of (11).

(11) John was 35 years old and from London.

References: [1] Musan (1995) *On the Temporal Interpretation of Noun Phrases.* Ph.D. diss. [2] Musan (1997) Tense, predicates, and Lifetime Effects. *NALS*, 5. [3] Magri (2009) A theory of individual-level predicates based on blind mandatory implicatures. *NALS*, 17. [4] Thomas (2012) *Temporal Implicatures.* Ph.D. diss. [5] Spector & Sudo (to appear) Presupposed ignorance and exhaustification: How presuppositions and scalar implicatures interact. *L&P*. [6] Kusumoto (1999) *Tense in embedded context.* Ph.D. diss. [7] Altshuler & Schwarzschild (2012) Moment of change, cessation implicatures and simultaneous readings. *SuB17*.