Lifetime effect and its mirror image:
a neo-Gricean perspective

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Goal of this talk:
Propose a general way calculating temporal inferences raised by future temporal reference, without making reference to the structural complexity of syntactic tense

Outline:
1. What are lifetime effect and its mirror image
2. Temporal profiles of statives and scalar alternatives
3. The mirror image of lifetime effect as quantity implicatures
4. Conclusion
1. What are lifetime effect and its mirror image?
Lifetime Effect


Individual level predicates (ILPs) with the past temporal reference lead to lifetime effect (LE).

(1) Jack was from America.

The inferences of (1): \( \neg (\text{Jack is from America}) \)

**Jack is dead** (Lifetime Effect)

What follows from LE: \( \neg (\text{Jack will be from America}) \)
No lifetime effect

The past tense of stage level predicates (SLPs) does NOT lead to lifetime effect.

(2) a. Is Jack nervous?
    b. Jack was nervous.

The inferences of (2b): \( \neg \) (Jack is nervous)

#Jack is dead.
#\( \neg \) (Jack will be nervous)
The mirror image of lifetime effect

ILPs with the future temporal reference lead to lifetime effect.

(3) Jack will be from America.

The inference of (3): \( \neg (\text{Jack is from America}) \)

\textbf{Jack is going to be born}

(Lifetime Effect)

What follows from LE: \( \neg (\text{Jack was from America}) \)
**No mirror image of lifetime effect**

SLPs with the future temporal reference lead to lifetime effect.

(4) a. Is Jack nervous?
   b. Jack will be nervous.

The inferences of (4b): \( \neg \) (Jack is nervous)

#Jack is dead.

#\( \neg \) (Jack was nervous)
## SLP-ILP Asymmetry I

<table>
<thead>
<tr>
<th>SLP:</th>
<th>ILP:</th>
</tr>
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<tbody>
<tr>
<td>Is Jack nervous?</td>
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<tr>
<th>Assertion: FUT-φ</th>
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<tbody>
<tr>
<td></td>
<td>\neg \text{PRES-φ} ; # \neg \text{PAST-φ} (# \neg \text{Jack was nervous})</td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>\neg \text{PRES-φ} ; \neg \text{PAST-φ} (\neg \text{Jack was from America})</td>
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## FUT- PAST Symmetry

<table>
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<tr>
<th>ILP: be from America</th>
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<tbody>
<tr>
<td></td>
<td>Jack was from America.</td>
<td>¬PRES-ϕ ; ¬FUT-ϕ (¬Jack will be from America)</td>
<td>Jack will be from America.</td>
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FUT- PAST Asymmetry

Not all ILPs lead lifetime effect?

(5) a. Does Jack know French?
   b. Jack will know French.

The inferences of (5b): \( \neg \text{(Jack knows French)} \)
\( \neg \text{(Jack knew French)} \)
FUT- PAST Asymmetry

Not every ILP leads lifetime effect?

(6) a. Does Jack know French?
   b. Jack knew French.

The inferences of (6b):
\[ \neg (\text{Jack knows French}) \]
\[ \#\neg (\text{Jack will know French}) \]
# FUT- PAST Asymmetry

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<td>Jack will be nervous.</td>
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<td>¬PRES-ϕ ; ¬PAST-ϕ</td>
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**SLP-ILP Asymmetry II**
Puzzles and Why

SLP-ILP Asymmetry I:

*be nervous* \(\text{vs.} \) *be from America*

(without LE) \((\neg \text{PRES-}\phi)\)

(with LE) \((\neg \text{PRES-}\phi)\)

SLP-ILP Asymmetry II:

*will be nervous* \(\text{vs.} \) *will know French*

(#\(\neg \text{PAST-}\phi))

(\(\neg \text{PAST-}\phi))

(\(\neg \text{PRES-}\phi))

(\(\neg \text{PRES-}\phi))
Puzzles and Why

FUT-PAST Symmetry:

was from America \quad vs. \quad will be from America

(¬FUT-ϕ) \quad (¬PAST-ϕ)

(¬PRES-ϕ) \quad (¬PRES-ϕ)

FUT-PAST Asymmetry:

Knew French \quad vs. \quad will know French

(#¬FUT-ϕ) \quad (¬PAST-ϕ)

(¬PRES-ϕ) \quad (¬PRES-ϕ)
The core of the mirror image

Inception Implicatures (II$s$):

When the speaker makes an assertion that a given property will hold in a future time, the hearer infers that the property described does not hold before the future time.
2. Temporal Profiles of Statives and Scalar Alternatives
Temporal Profiles of Statives

Temporal Profile Proposal:

SLP and ILP are (pragmatically) associated with different temporal profiles.
(7) For any tenseless stative clause $\phi$, if $\phi$ is true at moment $m$, there is a moment $m'$ preceding $m$ at which $\phi$ is true and there is a moment $m''$ following $m$ at which $\phi$ is true.

(Altsuler & Schwarzschild 2013: 45)

(8) 

----|-------- $\phi$ --------|----

m'     m     m''
The Temporal Profile of ILPs

(9) For any tenseless stative clause \( \phi \), if \( \phi \) is true at moment \( m \), there is a moment \( m' \) preceding \( m \) at which \( \phi \) is true and there is no moment \( m'' \) following \( m \) at which \( \phi \) is false.

(10) \[ \begin{array}{c|c|c} \hline \text{----|--------} & \phi & \text{-------->}> \\
\hline & m' & m \\
\end{array} \]

- The idea here: ILP is a label for predicates denoting permanent property and SLP a label for predicates denoting temporary property (e.g., Carlson 1977, a.o.).
Scalar Alternatives

Altshuler and Schwarzschild (2013; A&S)

• For stative sentences, PRES and PAST are scalar alternatives.

• A stative PRES-$\emptyset$ is more informative than its PAST-$\emptyset$ alternative.

(11)  a. Scotty is anxious.  $\rightarrow$  Scotty was anxious.

       b. Scotty was anxious.  $\not\rightarrow$  Scotty is anxious.
Altshuler and Schwarzshild (2013)

Cessation Implicatures
The utterance of a past tensed sentence implicates that no state of the kind described currently holds.

(12) a. Scotty was anxious
    b. ~> Scotty is not anxious anymore.

The temporal profile of a stative PRES-ϕ

```
----|-------- ϕ -------|----
m’   t*=UT  m”
```
PRES-\(\phi\) and Its Scalar Alternatives

Scalar Proposal:

- A stative PRES-\(\phi\) has not only PAST-\(\phi\) (assuming with A&S 2013) but also FUT-\(\phi\) as its scalar alternatives.

- A stative PRES-\(\phi\) is more informative than its FUT-\(\phi\) alternative.

Crucially, FUT-\(\phi\) and PAST-\(\phi\) by themselves are NOT scalar alternatives to each other.
PRES-ϕ and Its Scalar Alternatives

• The idea here: a stative PRES-ϕ is true not only at the utterance time (t*) but also at some moment m’ in the past (i.e., preceding t*) and some moment m” in the future (i.e., following t*).

(13)  

In a sense, FUT-ϕ stands as a mirror image of PAST-ϕ in being a scalar alternative to PRES-ϕ, via the temporal property of stativity (A&S 2013).
Interim Summary

Temporal Profile Proposal:

(8) SLPs

(10) ILPs
Interim Summary

Scalar Proposal:

• A stative **PRES-ϕ** has not only **PAST-ϕ** (assuming with A&S 2013) but also **FUT-ϕ** as its scalar alternatives.

• A stative **PRES-ϕ** is **more informative** than its **FUT-ϕ** alternative.

(13) ----|------- φ -------|----
   m’      t*      m’’
3. The mirror image of lifetime effect as Quantity Implicatures
SLP-ILP Asymmetry II

<table>
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<tr>
<th>SLP:</th>
<th>ILP:</th>
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<tr>
<td>Is Jack nervous?</td>
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<td>FUT-φ</td>
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<tr>
<td></td>
<td>¬PRES-φ ; #¬PAST-φ</td>
<td>¬PRES-φ ; ¬PAST-φ</td>
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A neo-Gricean reasoning

• Since a stative PRES-ϕ is more informative than its FUT-ϕ alternative (Scalar Proposal), and the speaker chose to utter FUT-ϕ (i.e., she could have uttered PRES-ϕ but she didn’t):

✓ An assertion of FUT-ϕ (with SLP/ ILP) thus triggers the inference ¬PRES-ϕ.

• In this sense, inception implicatures stand as a mirror image of cessation implicatures (A&S 2013).
SLP/ILP and $\neg \text{PRES-}\phi$

(14)  a. Is Jack nervous?
     b. Jack will be nervous.

(15)  a. Does Jack know French?
     b. Jack will know French.

Implicatures of (14) & (15) in question: $\neg \text{PRES-}\phi$
# SLP-ILP Asymmetry II

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**Assertion:**

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**Temporal Inferences:**

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<th>¬PRES-φ ; #¬PAST-φ</th>
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FUT-ϕ with SLP

• An assertion of FUT-ϕ with SLP does *NOT* trigger an inference ¬PAST-ϕ because:

✓ The interval of FUT-ϕ with SLP is *NOT* properly included in that of PAST-ϕ with SLP, according to Temporal Profile Proposal.
FUT-\(\phi\) with SLP

(16)  
  a. FUT-\(\phi\) with SLP: Jack will be nervous.
  
  b. PAST-\(\phi\) with SLP: Jack was nervous.

(17)  
  \(t^* = \) utterance time

| PAST-\(\phi\) with SLP | --- | t* \\
| m’ Past situation time | m’’ | t*--- | FUT-\(\phi\) with SLP

m_1 \text{ Future situation time} m_2

- The interval of FUT-\(\phi\) is \textbf{NOT properly included} in the interval of PAST-\(\phi\).
FUT-\(\phi\) with ILP

• An assertion of FUT-\(\phi\) with ILP further triggers an inference \(\neg \text{PAST-}\phi\) because:

✓ The interval of FUT-\(\phi\) with ILP is properly included in that of PAST-\(\phi\) with ILP, according to Temporal Profile Proposal.
**FUT-ϕ with ILP**

(18)  
  a. **FUT-ϕ with ILP**: Jack will know French.  
  b. **PAST-ϕ with ILP**: Jack knew French.

(19)  
  \[ t^* = \text{utterance time} \]

\[ \begin{align*}  
\text{PAST-ϕ with ILP} & \quad ---- t^* \quad \text{--------------------------} \quad >> \quad \text{m}' \\
\text{FUT-ϕ with ILP} & \quad ---- | \quad \text{Future situation time time t} \\
\text{m}_1 & \quad \text{Future situation time time t} 
\end{align*} \]

- The interval of FUT-ϕ is **properly included** in the interval of PAST-ϕ.
### FUT- PAST Asymmetry

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Deriving FUT- PAST Asymmetry

• An assertion of FUT-\(\phi\) with ILP triggers an inference \(\neg\text{PAST-}\phi\);

• However, an assertion of PAST- \(\phi\) with ILP does NOT trigger an inference \(\neg\text{FUT-}\phi\):

✓ Because the interval of FUT-\(\phi\) with ILP is properly included in that of PAST-\(\phi\) with ILP, according to Temporal Profile Proposal, as we have seen in (18) and (19).
FUT-ϕ with ILP

(18)  a. FUT-ϕ with ILP: Jack will know French.
       b. PAST-ϕ with ILP: Jack knew French.

(19)  t* = utterance time

| PAST-ϕ with ILP  ----t*-------------------->>
m’

   t*---| FUT-ϕ with ILP  ---->>
       m₁ Future situation time t

• The interval of FUT-ϕ is properly included in the interval of PAST-ϕ.
The Inference $\neg$PRES-$\phi$

- Since a stative PRES-$\phi$ is more informative not only than its PAST-$\phi$ alternative (see A&S 2013) but also than its FUT-$\phi$ alternative (Scalar Proposal):

  ✓ An assertion of PAST-$\phi$ triggers an inference $\neg$PRES-$\phi$, namely, Cessation Implicatures in A&S (2013).

  ✓ An assertion of FUT-$\phi$ triggers an inference $\neg$PRES-$\phi$, namely, inception implicatures.
Interim Summary

SLP-ILP Asymmetry I:

be nervous vs. be from America
(without LE) vs. (with LE)
(¬PRES-ϕ) vs. (¬PRES-ϕ)

SLP-ILP Asymmetry II:

will be nervous vs. will know French
(#¬PAST-ϕ) vs. (¬PAST-ϕ)
(¬PRES-ϕ) vs. (¬PRES-ϕ)
Interim Summary

FUT-PAST Symmetry:

was from America vs. will be from America

\((\neg \text{FUT-}\phi)\) \hspace{1cm} \((\neg \text{PAST-}\phi)\)

\((\neg \text{PRES-}\phi)\) \hspace{1cm} \((\neg \text{PRES-}\phi)\)

FUT-PAST Asymmetry:

Knew French vs. will know French

\((\#\neg \text{FUT-}\phi)\) \hspace{1cm} \((\neg \text{PAST-}\phi)\)

\((\neg \text{PRES-}\phi)\) \hspace{1cm} \((\neg \text{PRES-}\phi)\)
## FUT-PAST Symmetry

<table>
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<tr>
<th>ILP: be-from-America (be an American)</th>
<th>Temporal Inferences</th>
<th>Lifetime Effect</th>
</tr>
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<tbody>
<tr>
<td><strong>PAST-ϕ:</strong></td>
<td>( \neg \text{PRES-ϕ} ) (Cessation Implicatures)</td>
<td>John is dead.</td>
</tr>
<tr>
<td>John was from America.</td>
<td>( \neg \text{FUT-ϕ} )</td>
<td></td>
</tr>
<tr>
<td><strong>FUT-ϕ:</strong></td>
<td>( \neg \text{PRES-ϕ} ) (Inception Implicatures)</td>
<td>John is going to be born.</td>
</tr>
<tr>
<td>John will be from America.</td>
<td>( \neg \text{PAST-ϕ} )</td>
<td></td>
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4. Conclusion
Conclusion

• Inception Implicatures reveal two asymmetries:

✓ **SLP-ILP Asymmetry II** *(be nervous vs. know French)*
  FUT-\(\phi\) with ILP triggers not only \(\neg\)PRES-\(\phi\) but also \(\neg\)PAST-\(\phi\). In contrast, FUT-\(\phi\) with SLP only triggers \(\neg\)PRES-\(\phi\).

✓ **FUT-PAST Asymmetry**: PAST-\(\phi\) with ILP does not trigger the inference \(\neg\) FUT-\(\phi\).
Summary of proposal

• The two asymmetries can be derived, without reference to the complexity of syntactic tense, by:

✓ Temporal Profile Proposal: SLP and ILP are (pragmatically) associated with different temporal profiles.

✓ Scalar Proposal: A stative PRES-ϕ asymmetrically entails its scalar alternatives PAST-ϕ and FUT-ϕ.

✓ A neo-Gricean reasoning of quantity implicatures
Thank You!
References


Further Factors

Different temporal contexts of question under discussions (QUDs: PRES, PAST, FUT) and inception implicatures as relevance implicatures;

The heterogeneity of ILPs: be dead vs. be alive; be middle-aged; be young vs. be old;

Eventives & the role of aspect/ reference time:

a. Is John singing?

b. John will sing tomorrow