Inception implicatures in a tenseless language: the case of Chinese

Yi-Hsun Chen, Rutgers University
yh.chen13 (at) rutgers.edu

The 16th Texas Linguistic Society conference,
February 19-20, 2016
Goal of this talk:
Propose a general way calculating inception implicatures, without making reference to the structural complexity of syntactic tense

Outline:
1. What are inception implicatures
2. The semantic tense of Chinese bare sentences
3. Temporal profiles of statives and scalar alternatives
4. Inception implicatures as quantity implicatures
5. Conclusion
1. What are Inception Implicatures?
What are Inception Implicatures?

Inception Implicatures (IIs):

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.
Stage-Level Predicates (SLP)

(1) a. Speaker A: Zilu *hen-mang ma?*  
Zilu *very-busy Q*  
‘Is Zilu busy?’

b. Speaker B: Zilu *(mingtien) hui* *hen-mang.*  
Zilu tomorrow will *very-busy*  
‘Zilu will be busy (tomorrow).’

Implicatures of (1b): ¬(Zilu is busy);  
#¬(Zilu was busy)
Individual-Level Predicates (ILP)

(2) a. Speaker A: Zilu  dong fawen  ma?
   Zilu  know  French  Q
   ‘Does Zilu know French?’

b. Speaker B: Zilu (you-yi-tien)  hui dong  fawen de.
   Zilu (one-day)  will know French  SFP
   ‘Zilu will know French (one day).’

Implicatures of (2b): \( \neg (\text{Zilu knows French}) \);  
\( \neg (\text{Zilu knew French}) \)
Individual-Level Predicates (ILP)

a. Speaker A: Zilu dong fawen ma?
   Zilu know French Q
   ‘Does Zilu know French?’

c. Speaker B: Zilu yiqian dong fawen.
   Zilu before/formerly know French
   ‘Zilu knew French (before/formerly).’

Implicatures of (2c): \(\neg(Zilu\ \text{knows}
\text{French})\);
\#\(\neg(Zilu\ \text{will}\ \text{know}
\text{French})\)
## SLP-ILP Asymmetry

<table>
<thead>
<tr>
<th></th>
<th>SLP:</th>
<th>ILP:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assertion:</strong></td>
<td>FUT-ϕ</td>
<td></td>
</tr>
<tr>
<td><strong>SLP:</strong></td>
<td>Is Zilu busy?</td>
<td>Does Zilu know French?</td>
</tr>
<tr>
<td><strong>Temporal Inferences:</strong></td>
<td>¬PRES-ϕ ; #¬PAST-ϕ (Zilu was not busy)</td>
<td>¬PRES-ϕ ; ¬PAST-ϕ (Zilu didn’t know French)</td>
</tr>
</tbody>
</table>
# FUT- PAST Asymmetry

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Zilu knew French (before/ formerly).</td>
<td>Zilu will know French (one day).</td>
<td></td>
</tr>
</tbody>
</table>

**Temporal Inferences:**
- \( \neg \text{PRES-} \phi \); \#\( \neg \text{FUT-} \phi \) (#Zilu will not know French)
- \( \neg \text{PRES-} \phi \); \( \neg \text{PAST-} \phi \) (Zilu didn’t know French)
2. The Semantic Tense of Chinese Bare Sentences
Chinese Bare Sentences I

Lin (2003, 2006)

- Mandarin allows bare sentences (i.e., sentences without any aspectual markers or temporal adverbs).

(3) a. **Zhangsan hen mang.**
   Zhangsan very busy
   ‘Zhangsan is very busy.’

b. **Zhangsan dapo yi-ge huaping.**
   Zhangsan break one-CL vase
   ‘Zhangsan broke a vase.’

   Lin (2006:3)

• Briefly, **perfective** (bounded) event descriptions obtain a **past** interpretation by default (see also Smith & Erbaugh 2005).

(4) Perfective Aspect  (Lin 2010: 314)

$$= \lambda P_{<i,t>} \lambda t_{\text{top}} \lambda t^* \exists t \left[ t \subseteq t_{\text{top}} \land P(t) \land t_{\text{top}} < t^* \right]$$
• **Imperfective** (unbounded) event descriptions obtain a present interpretation by default.

(5) Imperfective Aspect (IMPF)

\[ = \lambda P_{<i,t>} \lambda_{t_{\text{top}}} \exists t [t_{\text{top}} \subseteq t \land P(t)] \]

• IMPF requires that the topic time of a sentence be included within the situation/ event time (e.g., Klein 1994, Kratzer 1998, a.o.).
Statives: SLP

• What’s relevant to us is both SLP and ILP are statives. They obtain a present interpretation by default.

(6) SLP
   a. Zilu *hen *mang.
      Zilu very busy
      ‘Zilu is (very) busy.’
   b. $\lambda t_{top} \exists t [t_{top} \subseteq t \land \text{be-busy’ (t, Zilu’)}]$
Statives: ILP

(7) ILP

a. Zilu dong fawen.
   Zilu know French
   ‘Zilu knows French.’

b. $\lambda t_{\text{top}} \exists t \left[ t_{\text{top}} \subseteq t \land \text{know-French} (t, \text{Zilu}') \right]$
Hui ‘will/would’ and FUT-φ

- For simplicity, I assume with Lin (2006) that future marker *hui* ‘will/would’ in Chinese locates the topic time (introduced by IMPF) after the utterance time.

\[(8) \quad [[[hui]]] = \lambda P_{<i,t} \lambda t \lambda t_0 [P(t) \land t_0 < t]\]

\[(9) \quad \begin{align*}
\text{a. Zilu hui hen mang.} \\
\text{Zilu will very busy} \\
\text{‘Zilu will be busy.’}
\end{align*}\]

\[(9) \quad \begin{align*}
\text{b. } \lambda t_{\text{top}} \exists t \ [t_{\text{top}} \subseteq t \land t^* < t_{\text{top}} \land \text{be-busy’}(t, \text{Zilu’})]
\end{align*}\]
3. Temporal Profiles of Statives and Scalar Alternatives
Temporal Profiles of Statives

• Recall that one asymmetry on inception implicatures is between SLP and ILP.

• So far, SLP and ILP are *not* distinguishable in their temporal interpretations, given that both are statives.

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

<table>
<thead>
<tr>
<th>SLP:</th>
<th>ILP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is Zilu busy?</td>
<td>Does Zilu know French?</td>
</tr>
</tbody>
</table>

**Assertion:** FUT-\(\phi\)

**Temporal Inferences:**

SLP:
- \(\neg\text{PRES-}\phi\);
- \(#\neg\text{PAST-}\phi\)
- (#Zilu was not busy)

ILP:
- \(\neg\text{PRES-}\phi\);
- \(\neg\text{PAST-}\phi\)
- (Zilu didn’t know French)
The Temporal Profile of SLPs

(10) 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)

(11) 

```
---|-------- $\phi$ --------|---
  m'    m    m''
```
The Temporal Profile of ILPs

(12) 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.

(13) \[ \begin{array}{ccc}
\text{----} & \text{-------} & \phi & \text{-------} & \text{>>} \\
\text{m'} & \text{m} \\
\end{array} \]

• 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-∅ is more informative than its PAST-∅ alternative.

(14)  a. Scotty is anxious.  →  Scotty was anxious.
      b. Scotty was anxious.  ↠  Scotty is anxious.
Altshuler and Schwarzschild (2013)

Cessation Implicatures

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

(15)  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*).

(16) ----|--------- φ ---------|----
        m’        t*        m”

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).
4. Inception Implicatures as Quantity Implicatures
# SLP-ILP Asymmetry

<table>
<thead>
<tr>
<th>SLP:</th>
<th>ILP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is Zilu busy?</td>
<td>Does Zilu know French?</td>
</tr>
</tbody>
</table>

**Assertion:** FUT-φ

**Temporal Inferences:**

- SLP: \( \neg \text{PRES-} \phi \); \( \# \neg \text{PAST-} \phi \) (#Zilu was not busy)
- ILP: \( \neg \text{PRES-} \phi \); \( \neg \text{PAST-} \phi \) (Zilu didn’t know French)
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 ¬PRES-ϕ

(17) Zilu (mingtien) hui hen-mang.
Zilu tomorrow will very-busy
‘Zilu will be busy (tomorrow).’

(18) Zilu (you-yi-tien) hui dong fawen de.
Zilu (one-day) will know French SFP
‘Zilu will know French (one day).’

Implicatures of (17) & (18) in question: ¬PRES-ϕ
## SLP-ILP Asymmetry

<table>
<thead>
<tr>
<th>SLP:</th>
<th>ILP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is Zilu busy?</td>
<td>Does Zilu know French?</td>
</tr>
</tbody>
</table>

**Assertion:** FUT-ϕ

**Temporal Inferences:**

<table>
<thead>
<tr>
<th>SLP:</th>
<th>ILP:</th>
</tr>
</thead>
<tbody>
<tr>
<td>¬PRES-ϕ ;</td>
<td>¬PRES-ϕ ;</td>
</tr>
<tr>
<td>#¬PAST-ϕ</td>
<td>¬PAST-ϕ</td>
</tr>
<tr>
<td>(#Zilu was not busy)</td>
<td>(Zilu didn’t know French)</td>
</tr>
</tbody>
</table>
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.
(19)  a. \textbf{FUT-φ} with SLP \hspace{1em} (t^* = utterance time)

\[ \lambda t_{top} \exists t \left[ t_{top} \subseteq t \land t^* < t_{top} \land \text{be-busy'}(t, \text{Zilu'}) \right] \]

b. \textbf{PAST-φ} with SLP

\[ \lambda t_{top} \exists t \left[ t_{top} \subseteq t \land t_{top} < t^* \land \text{be-busy'}(t, \text{Zilu'}) \right] \]

(20)

<table>
<thead>
<tr>
<th>\textbf{PAST-φ} with SLP \hspace{1em}</th>
<th>--- t^*</th>
</tr>
</thead>
</table>

m’ Past situation time \hspace{1em} m” t^*--- | \textbf{FUT-φ} with SLP \hspace{1em} | m_1 Future situation time m_2

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

- An assertion of FUT-ϕ with ILP further triggers an inference ¬PAST-ϕ because:

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

(21) a. FUT-\(\phi\) with ILP
\[\lambda t_{top} \exists t \left[ t_{top} \subseteq t \land t^* < t_{top} \land \text{know-French'}(t, \text{Zilu'}) \right] \]
b. PAST-\(\phi\) with ILP
\[\lambda t_{top} \exists t \left[ t_{top} \subseteq t \land t_{top} < t^* \land \text{know-French'}(t, \text{Zilu'}) \right] \]

(22)

| PAST-\(\phi\) with ILP | -----t*------------------------->>>
m’

\[t^*---| \text{FUT-\(\phi\) with ILP} ---->>>

m_1 \text{ Future situation time} \ t

• The interval of FUT-\(\phi\) is \textbf{properly included} in the interval of PAST-\(\phi\).
# FUT- PAST Asymmetry

<table>
<thead>
<tr>
<th>ILP: Does Zilu know French?</th>
<th>Assertion: PAST-(\phi)</th>
<th>Assertion: FUT-(\phi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zilu knew French (before/ formerly).</td>
<td>Zilu will know French (one day).</td>
<td></td>
</tr>
<tr>
<td>Temporal Inferences:</td>
<td>Temporal Inferences:</td>
<td></td>
</tr>
<tr>
<td>(\neg)PRES-(\phi); #(\neg)FUT-(\phi) (#Zilu will not know French)</td>
<td>(\neg)PRES-(\phi); (\neg)PAST-(\phi) (Zilu didn’t know French)</td>
<td></td>
</tr>
</tbody>
</table>
Deriving FUT- PAST Asymmetry

• An assertion of FUT-ϕ with ILP triggers an inference ¬PAST-ϕ;
• However, an assertion of PAST- ϕ with ILP does NOT trigger an inference ¬FUT- ϕ:

✓ Because the interval of FUT-ϕ with ILP is properly included in that of PAST-ϕ with ILP, according to Temporal Profile Proposal, as we have seen in (21) and (22).
FUT-\( \phi \) with ILP

(21)  a. FUT-\( \phi \) with ILP
\[ \lambda t_{\text{top}} \exists t \ [t_{\text{top}} \subseteq t \land t^* < t_{\text{top}} \land \text{know-French'}(t, \text{Zilu'})] \]

b. PAST-\( \phi \) with ILP
\[ \lambda t_{\text{top}} \exists t \ [t_{\text{top}} \subseteq t \land t_{\text{top}} < t^* \land \text{know-French'}(t, \text{Zilu'})] \]

(22)
| PAST-\( \phi \) with ILP ----\( t^* \)-------------------------------\> \> \\
\[ m' \quad t^* ---- \quad \text{FUT-}\( \phi \) \text{ with ILP} ---- \> \> \\
\[ m_1 \quad \text{Future situation time } t \]

• The interval of FUT-\( \phi \) is \textbf{properly included} in the interval of PAST-\( \phi \).
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.
# Lifetime Effect and Its Mirror Image

<table>
<thead>
<tr>
<th>ILP: be-an-Indian (be-from-India)</th>
<th>Temporal Inferences</th>
<th>Lifetime Effect (Musan 1997)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAST-ϕ:</strong></td>
<td>( \neg \text{PRES-ϕ} )</td>
<td>John is dead.</td>
</tr>
<tr>
<td>John was an Indian.</td>
<td>(Cessation Implicatures)</td>
<td></td>
</tr>
<tr>
<td>John was from India.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FUT-ϕ:</strong></td>
<td>( \neg \text{PRES-ϕ} )</td>
<td>John is going to be born.</td>
</tr>
<tr>
<td>John will be an Indian.</td>
<td>(Inception Implicatures)</td>
<td></td>
</tr>
<tr>
<td>John will be from India.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. Conclusion
Conclusion

• Inception Implicatures reveal two asymmetries:

✓ **SLP-ILP Asymmetry:** FUT-φ with ILP triggers not only ¬PRES-φ but also ¬PAST-φ. In contrast, FUT-φ with SLP only triggers ¬PRES-φ.

✓ **FUT-PAST Asymmetry:** PAST-φ with ILP does **not** trigger the inference ¬FUT-φ.
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:
   a. Is John singing?
   b. John will sing tomorrow
QUDs and Relevance Implicatures

**QUD = PAST**

(23) a. **SLP:** Was John busy?
    b. **ILP:** Did John know French?

**QUD = FUT**

(24) a. **SLP:** Will John be busy?
    b. **ILP:** Will John know French?

(25) a. John will be busy. (to 23a & 24a)
    b. John will know French. (to 23b & 24b)