Notes and reminders

- This is due on Mar 21, by 3:15 pm. No late work will be accepted.
- You must submit your work electronically via Canvas.
- No collaboration of any kind is permitted. You are, though, free to use your notes and any other reference materials you like.
- Please submit questions via Canvas or to the staff address: linguist130a-win1718-staff@lists.stanford.edu. Questions sent to individual instructors probably won’t be answered.

1 Monotonicity [2 points]

Recall that a determiner $D$ is downward monotone on its first argument if $D(A)(B)$ entails $D(X)(B)$ for all $X \subseteq A$, and that $D$ is upward monotone on its first argument if $D(A)(B)$ entails $D(X)(B)$ for all $A \subseteq X$. If neither of these entailments holds, then $D$ is nonmonotone on its first argument. Your task: identify the monotonicity properties of the first argument of \textit{at most four}, as defined here, and give a formal argument for that diagnosis:

\[
\lbrack \textit{at most four} \rbrack = \lbrack A, B \rbrack : |A \cap B| \leq 4
\]

2 Quantifiers and negation [3 points]

Many people have the intuition that \textit{most} is true “above 60% and below 100%”. In our terms, that would lead to the following denotation:

\[
\lbrack \textit{most} \rbrack = \left( \lambda f \left( \lambda g \left( \begin{array}{c}
T \text{ if } 0.6 < \frac{|\{w : f(w) = g(w) = T\}|}{|\{w : f(w) = T\}|} < 1, \text{ else } F
\end{array} \right) \right) \right)
\]

The issue: what happens when such meanings are negated? Your tasks:

i. Substitute the above lambda expression into the following and perform all possible lambda application steps:

\[
\lambda x \left( \left( \lbrack \textit{most} \rbrack \lbrack \textit{Simpsons} \rbrack \right) \left( \lambda y \left( \left( \lbrack \textit{tease} \rbrack (y)(x) \right) \right) \right) \right)
\]

ii. Apply the following negation function to the meaning you obtained above and perform all lambda application steps:

\[
\lambda f \left( \lambda z \left( F \text{ if } f(z) = T, \text{ else } T \right) \right)
\]

iii. Is the function you derived in (ii) true of an entity that teased all of the Simpsons? Your answer here can be a simple “yes” or “no”. You needn’t offer an opinion on whether this outcome is desirable.
3 RSA implicatures

Here is a simple reference game:

<table>
<thead>
<tr>
<th></th>
<th>$r_1$</th>
<th>$r_2$</th>
<th>$r_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘hat’</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>‘glasses’</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>‘mustache’</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

(a) $[]$

<table>
<thead>
<tr>
<th></th>
<th>$r_1$</th>
<th>$r_2$</th>
<th>$r_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘hat’</td>
<td>1/3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘glasses’</td>
<td>1/3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘mustache’</td>
<td>1/3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) $P$

(c) $C$

The basic RSA model can be said to predict that a pragmatic listener will draw a particular conversational implicature given this reference game. Here is the table of conditional probabilities representing that listener (with $\alpha = 1$):

<table>
<thead>
<tr>
<th></th>
<th>$r_1$</th>
<th>$r_2$</th>
<th>$r_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘hat’</td>
<td>0.75</td>
<td>0.25</td>
<td>0</td>
</tr>
<tr>
<td>‘glasses’</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>‘mustache’</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

First, say what that implicature is and how it is manifested in this table of conditional probabilities. Second, what is the effect on this implicature of changing the prior to $P(r_1) = 0.1$ and $P(r_2) = P(r_3) = 0.45$? Provide the pragmatic listener table of conditional probabilities for this scenario and make use of it in giving your answer.

4 Presuppositional determiner

Give a functional denotation for the presuppositional determiner neither as used in Neither parent smokes. Use the meaning for both from the ‘Presupposition’ handout as a model.

5 Presuppositions

Intuitively, it is odd to use every $A$ $B$ where both $A$ $B$ is defined. Use our treatment of every and both to give a Gricean explanation for this intuition. (4–5 sentences, with reference to $[\text{every}]$ and $[\text{both}]$.)
6 Partial functions

The following is a partial function over functions defined over the universe \{\smile, \frown, \updownarrow, \heart\}:

\[
\begin{bmatrix}
\smile & \rightarrow & T \\
\frown & \rightarrow & F \\
\updownarrow & \rightarrow & T \\
\heart & \rightarrow & F
\end{bmatrix}
\rightarrow \smile
\]

\[
\begin{bmatrix}
\smile & \rightarrow & F \\
\frown & \rightarrow & F \\
\updownarrow & \rightarrow & F \\
\heart & \rightarrow & T
\end{bmatrix}
\rightarrow \frown
\]

Give the value of the above function for the following separate inputs:

i. \heart

\[
\begin{bmatrix}
\smile & \rightarrow & T \\
\frown & \rightarrow & F \\
\updownarrow & \rightarrow & F \\
\heart & \rightarrow & T
\end{bmatrix}
\]

ii. \frown

\[
\begin{bmatrix}
\smile & \rightarrow & F \\
\frown & \rightarrow & F \\
\updownarrow & \rightarrow & F \\
\heart & \rightarrow & T
\end{bmatrix}
\]

7 What kind of meaning is this?

The handout ‘Diagnosing different kinds of meaning’ provides a flow-chart for classifying meanings as variously at-issue, conventionally implicated, presupposed, or conversationally implicated. Use that framework to classify meaning \(p\) as expressed in (Z).

(Z) The zoo has few pandas.

\(p = \text{the zoo has some pandas}\)

Section 3 of the handout provides model answers. Your own answer could adopt the same format, and we're looking for a similar level of explanation about the relevant examples.
8 Illocutionary effects

In *Speaking of Crime*, Solan and Tiersma observe that people in police custody often perform the speech act of invoking their right to counsel very indirectly, with utterances like “Maybe I need a lawyer”. Your task: using the properties of illocutionary force given in section 4.2 of the ‘Speech acts’ handout, give two reasons *why* people in custody might behave in this way. (There are a number of sensible reasons that connect with the illocutionary force properties. You can just pick two. We expect each reason to take 2–4 sentences to describe.)

9 Swearing and the FCC

Provide two cogent linguistic or cognitive arguments in favor of the position that swears like the F-word should be subject to different legal restrictions than other kinds of speech. (2–4 sentences per argument; the arguments might not be persuasive to you, but they should make sense!)

10 Extra credit: every and presuppositionality [up to 1 point]

On assignment 5, we gave a Gricean explanation for why it is generally odd for a speaker to say every A B if they know that \([A]\) is not true of any entities. An alternative analysis would be that every actually presupposes that \([A]\) is true of some entities. Your tasks, should you choose to accept them:

i. Formulate this presuppositional \([\text{every}]\) as a partial quantificational determiner meaning (same kind of meaning as, e.g., \([\text{neither}]\)).

ii. Articulate what this analysis predicts about the monotonicity properties of every, and explain why it makes these predictions using a technical argument (same format as in question 1 above).