

Human Communication I

Lecture 14

A Logic for “Reading Between the Lines”

Grice's Maxims

What are Grice's Maxims

The philosopher Paul Grice proposed 4 conversational maxims that arise from the pragmatics of natural language. The Gricean or Grice's Maxims are a way to explain the link between utterances and what is understood from them.

Grice's Maxims (a)

The Maxim of Quality

- Try to make your contribution one that is true, specifically:
 - (i) do not say anything you think is false.
 - (ii) do not say anything for which you lack adequate evidence.

The Maxim of Quantity

- Make your contribution as informative as is required for the current purposes of the exchange, and no more.

Grice's Maxims (b)

The Maxim of Relevance

- Make your contributions relevant.

The Maxim of Manner

- Be perspicuous, and specifically:
 - avoid obscurity
 - avoid ambiguity
 - be brief
 - be orderly

Review: Examples (a)

- These examples show us how to “read between the lines”
 - (1) *Max stood up. John greeted him.*

Be orderly: standing up before greeting.
 - They allow us to infer things from what’s *not* said:
 - (2) *A: Can you tell me the time?*

B: The milkman has come

Quality and Quantity: B doesn’t know the exact time, because he doesn’t say it!

Review: Examples (b)

(3) *Alf: Keith supervises 12 students.*

Quality and Quantity: Alf believes Keith supervises *exactly* 12 students, because if he believed that he supervised more, he would have said so.

(Formally, “12” tends to be taken to mean “at least 12” ...)

Conflict (a)

- Clues about meaning from the maxims sometimes conflict with other clues from other information
- Sometimes, the conflicting clue is “hard and fast”, and the information it stems from is certain

Conflict (b)

- Sometimes the conflicting information is like the maxims, in that it also is a rule with exceptions
- Sometimes, the maxims conflict with themselves: e.g., be orderly conflicts with be relevant

Conflict with “Hard and Fast” Rule (a)

- (4) a. *The lone ranger jumped on his horse.*
b. *He rode into the sunset.*

Be Orderly: (4a) is before (4b)

Conflict with “Hard and Fast” Rule (b)

- (5) a. *Before the lone ranger rode into the sunset,*
b. *he jumped on his horse in a reckless fashion.*

Be Orderly: (5b) is before (5a)

“Before”: (5a) is before (5b)

Before wins, because there are no exceptions to **Before a, b** meaning that a is before b, whereas **Be orderly** is just a rule of thumb.

When the Conflicting Information isn't Explicit (a)

(1) a. *Max stood up.*

b. *John greeted him.*

Be Orderly: a is before b.

(6) a. *Max fell.*

b. *John pushed him.*

Be Orderly: a is before b.

Be Relevant: pushing and falling connected somehow...

When the Conflicting Information isn't Explicit (b)

- **World Knowledge:** . . . and most plausible connection is pushing caused the falling.
 - **Be Orderly:** a is before b
 - **World Knowledge** and **Be relevant:** b is before a**WK** and **be relevant** win, in this discourse context.

Discourse Context

The discourse context can change the result

Pushing is **before** falling:

(6) Max fell. John pushed him.

→ Falling is **before** pushing:

(7) John and Max were at the edge of the cliff. Max felt a sharp blow on the back of his neck. He fell.

John pushed him.

Max went over the edge of the cliff.

The Conflicting Information isn't Explicit Again

(8) a. *Max ate a huge meal last night.*

b. *He devoured lots of salmon.*

→ **Be Orderly**: a is before b

→ **WK** and **be relevant**: b is part of a

→ **WK** and **relevance** win again.

– Why?

– How can we model this?

Review: What Syntax Tells Us About Meaning

- TIME is central to (1), (6) and (8).
- TENSE tells us about time.
- Our grammar hasn't encoded how tense affects meaning.

Assumptions About What Syntax Tells Us (a)

We will assume syntax tells us:

1. The bits of meaning our grammar has encoded so far
2. The following things about time:
 - (a) If the sentence is in the past tense: event is prior to time of speech, *Max fell*
 - (b) If the sentence is in the present tense: event is at the time of speech, *Max falls*
 - (c) If the sentence is in the future tense: event is after the time of speech, *Max will fall*

Assumptions About What Syntax Tells Us (b)

3. The textual order of the events described.
4. That events described in juxtaposed sentences must be connected somehow:
 - causal relation; or
 - part/whole relation; or ...

Other knowledge tells us more about meaning.

- The order in which the events occur.

Reasoning with Rules that Have Exceptions

- Rules with exceptions are DEFAULT RULES.
- **Be Orderly** is a default rule.
- Exceptions can stem from:
 - tense of the sentence;
 - connective like before or while
 - world knowledge about causation
 - and more...

The Patterns Of Inference We Need to Model (a)

- *Birds fly* is another rule with exceptions...
- **Defeasible Modus Ponens**

Birds fly

Tweety is a bird

So: Tweety flies

- **Defeat of Defeasible Modus Ponens**

Birds fly

Tweety is a bird

Tweety doesn't fly

So: Tweety doesn't fly

The Patterns Of Inference We Need to Model (b)

- **The Penguin Principle**

All penguins are birds

Birds fly

Penguins don't fly

Tweety is a penguin

So: Tweety doesn't fly

More Patterns of Inference (a)

- **The Nixon Diamond**

Quakers are pacifists

Republicans are not pacifists

Nixon is a Quaker

Nixon is a Republican

So: we conclude nothing about
whether Nixon is a pacifist or not

More Patterns of Inference (b)

- *Birds fly* → *If Tweety is a bird, then **normally** Tweety flies*

Attach a Gricean Maxim as a **Default** rule:

- **Be Orderly**: If the event *e1* is described in a text just before the event *e2* is described, then normally, *e1* occurs before *e2* in the world.

More Default Rules for Extracting Meaning From Text

A Mixture of Relevance and Causal Knowledge:

- **Push Law:** If the event e_1 is described in a text just before the event e_2 , and moreover, e_1 is an x falling event, and e_2 is a y pushing x event, then normally, e_2 caused e_1 .

More Default Rules for Extracting Meaning From Text

Indefeasible Causal Knowledge:

- **Causes Precede Effects:** If e_2 causes e_1 , then (without exception), e_2 precedes e_1 .

Things to Note:

- **Push Law** is quite specific, but it could be generalised.
- The consequents of **Be Orderly** and **Push Law** conflict.
- The *if*-clause of the **Push Law** entails that of **Be Orderly**.

Working Out What a Text Means (a)

(1) a. *Max stood up.*

b. *John greeted him.*

(6) a. *Max fell.*

b. *John pushed him.*

- (1) and (6) have same syntax, and so you can extract similar meaning from this:
 - two events are connected, and happen in the past.

Working Out What a Text Means (b)

- Default rules and reasoning distinguish them.

(1):

- Rules that apply: **Be Orderly**
- Inference Pattern: **Defeasible Modus Ponens**
- Result: the standup up precedes the greeting.

(6):

- Rules that apply: **Be Orderly, Push Law**
- Inference Pattern: **The Penguin Principle**
- Result: the pushing causes/precedes the falling.

Changing Context Can Change Meaning

(7) John and Max were at the edge of the cliff.

Max felt a sharp blow on the back of his neck.

He fell.

John pushed him.

Max went over the edge of the cliff.

- Things in discourse context will make other default rules apply.
- This changes the inference pattern.
- This changes the conclusions.

More Penguins (a)

(8) a. *Max ate a gourmet meal.*

b. *He devoured lots of salmon.*

- **Meal Law:** If an event e_1 is described just before the event e_2 , where e_1 is the event of x eating a meal, and e_2 is the event of x devouring something, then normally:
 - (i) e_2 is part of the event e_1 , and
 - (ii) the devoured item was part of the meal.

More Penguins (b)

- Rules that apply: **Be Orderly, Meal Law.**
- Inference Pattern: **The Penguin Principle.**
- Result:
 - (i) devouring salmon is part of eating the meal.
 - (ii) salmon is part of the meal.

The Penguin Principle means you never ignore clues that are relevant for working out what a text means.

Nixon Diamonds and Odd Texts/Jokes (a)

(9) a. *Max ate a gourmet meal.*

b. *He devoured a rubber tyre.*

- Rubber Tyre: If x is a gourmet meal and y is a rubber tyre, then normally, y is not part of x .
- Rules that apply: **Be Orderly, Meal Law, Rubber Tyre**

Nixon Diamonds and Odd Texts/Jokes (b)

- Inference Pattern: **Irresolvable Conflict/ “Nixon Diamond”**
 - **Result: No conclusions about the connection.**
- This makes the text sound odd, or like a joke.

A “Joke” (a)

(10) *John likes mustard on his thighs, but Bill prefers suntan lotion.*

- Clues for how to interpret thighs:
 - Mustard: favour chicken.
 - Suntan tan lotion: favour human.
 - Both clues are default.
 - They conflict with each other.
- Inference Pattern: **Nixon Diamond.**

Another “Joke” (b)

- Conclusion: Don't know if the thighs are chicken or human.
- Word pun!

Nixon Diamond is the key to jokes!

Bigger Discourse (a)

- So far, we've only looked at connections between sentences that are next to each other.
- But sometimes, a sentence connects with an earlier sentence than the previous one.
- (II) a. *I have several hobbies.*
b. *I collect classic cars.*
c. *My favourite car is a 1968 Alfa Romeo spider.*
d. *I also take Ceroc classes every Wednesday night.*

Bigger Discourse (b)

- (I I d) elaborates hobbies I have (i.e., (I I a)), rather than talk about cars.
- Evidence for this discourse popping:
 - (I I c,d) on its own would sound odd.
 - (I I a,b,d) makes sense.