Lecture 11

LCD 306: Semantics & Pragmatics

C.N. Serrano Madsen II
Queens College
CUNY

Thursday 19 March 2015

Outline

Table of Contents

Table of Contents

Research Proposal

- Due today!
- Do not start testing until I email go ahead by Saturday morning

Research Proposal: Grading

APA Formatting	5
Running header	
Title page	
Citations (in-text and in works cited)	
Appendices (if used)	
Font, formatting, margins, etc	
Academic English Grammar and Spelling	5
Solid command of Academic English grammar	
Appropriate use of punctuation	
Correct spelling	
Appropriate use of vocabulary	
Correct Pitch for Audience	
Timeline	10
Sufficiently detailed	
Division of Responsibilities	10
All task assigned	
Methodology	60
Experiment replicating	
Discussion of phenomenon	
Details of original experiment	
Details of replication experiment	
Differences highlighted	
Examples	
Instrument	10
Scale or measurement	
All materials for instrument	
Total	100

Table of Contents

Poster Websites

colinpurrington.com/tips/poster-design

HOME PROJECTS TIPS PHOTO GALLERIES ABOUT/CONTACT

EXECUTIVE SUMMARY

This site has futile projects that amuse me, geeky tips, and posts about photography and science.

Search

PROJECTS

- Charles Darwin Has A Posse
- Evolution tattoos
- Portable Charles Darwin
- Prescription for antibiotics
- Preventing plagiarism
- Textbook disclaimers
- We need transparency of school vaccination rates
- Yams versus sweet potatoes

TIPS

- Adding photo creds to talk slides
- Designing conference posters
- Getting rid of camel crickets
- Giving a research talk
- Maintaining a lab notebook
- Protecting gardens from squirrels
- Requesting a recommendation
- Weaseling into a research lab
- Writing up experiments

RECENT POSTS

Designing conference posters

A one-sentence overview of the poster concept

A large-format poster is a big piece of paper (or wall-mounted monitor) that can communicate your research at a conference, and is composed of a short title, an introduction to your burning question, an overview of your novel approach, your amazing results in graphical form, some insightful discussion of aforementioned results, a listing of previously published articles that are important to your research, and some brief acknowledgement of the tremendous assistance and financial support conned from others — if all text is kept to a minimum, a person could fully read your poster in under 5 minutes (really).

Why a poster? • Motivational advice • Choosing software • Poster templates • Section content • DOs and DON'Ts • Adding pieces of flair • Presenting the poster • Useful internet sites • Useful literature • Printing the poster • Organizing a session • Using this page • Feedback

If you're lazy and really don't want to read this long-winded page, click on the image below for the one-page summary — it's crammed full of tips and tricks. Just try to keep your poster to 800 words or less.

Title, formatted in sentence case (*Not Title Case and NOT ALL CAPS*), that hints at an interesting

EN 12:44 PM 3/19/2015

Poster Websites

colinpurrington.com/tips/poster-design

- Getting rid of camel crickets
- Giving a research talk
- Maintaining a lab notebook
- Protecting gardens from squirrels
- Requesting a recommendation
- Weaseling into a research lab
- Writing up experiments

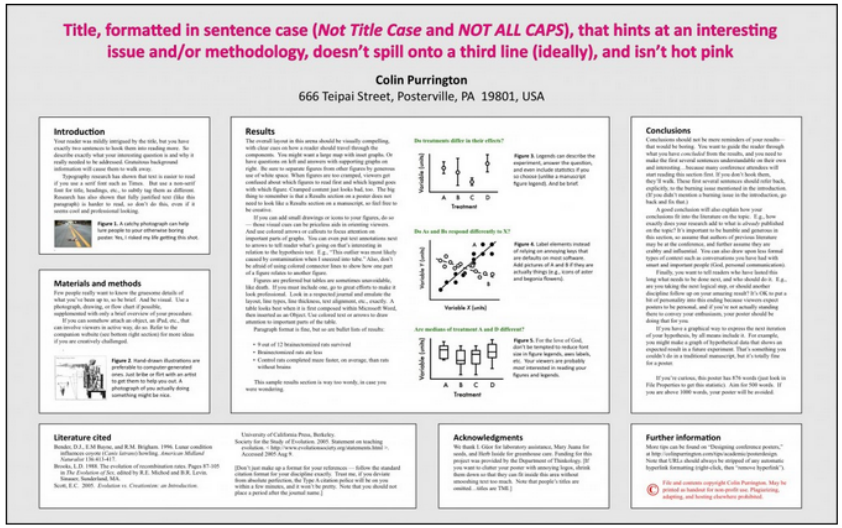
RECENT POSTS

- Vaccinating kids against sugary drink addiction
- Cold garden
- Consortium for Plant Biotechnology Research has finally stopped plagiarizing me
- Is your school ready for measles?
- Stickers for Darwin fans
- Survival of the fittest
- Boxes of bling for scientific posters
- Charles Darwin Has A Posse in Arabic
- Selfies with Darwin
- Charles Darwin Has A Posse stickers

GRATUITOUS PHOTO OF ME

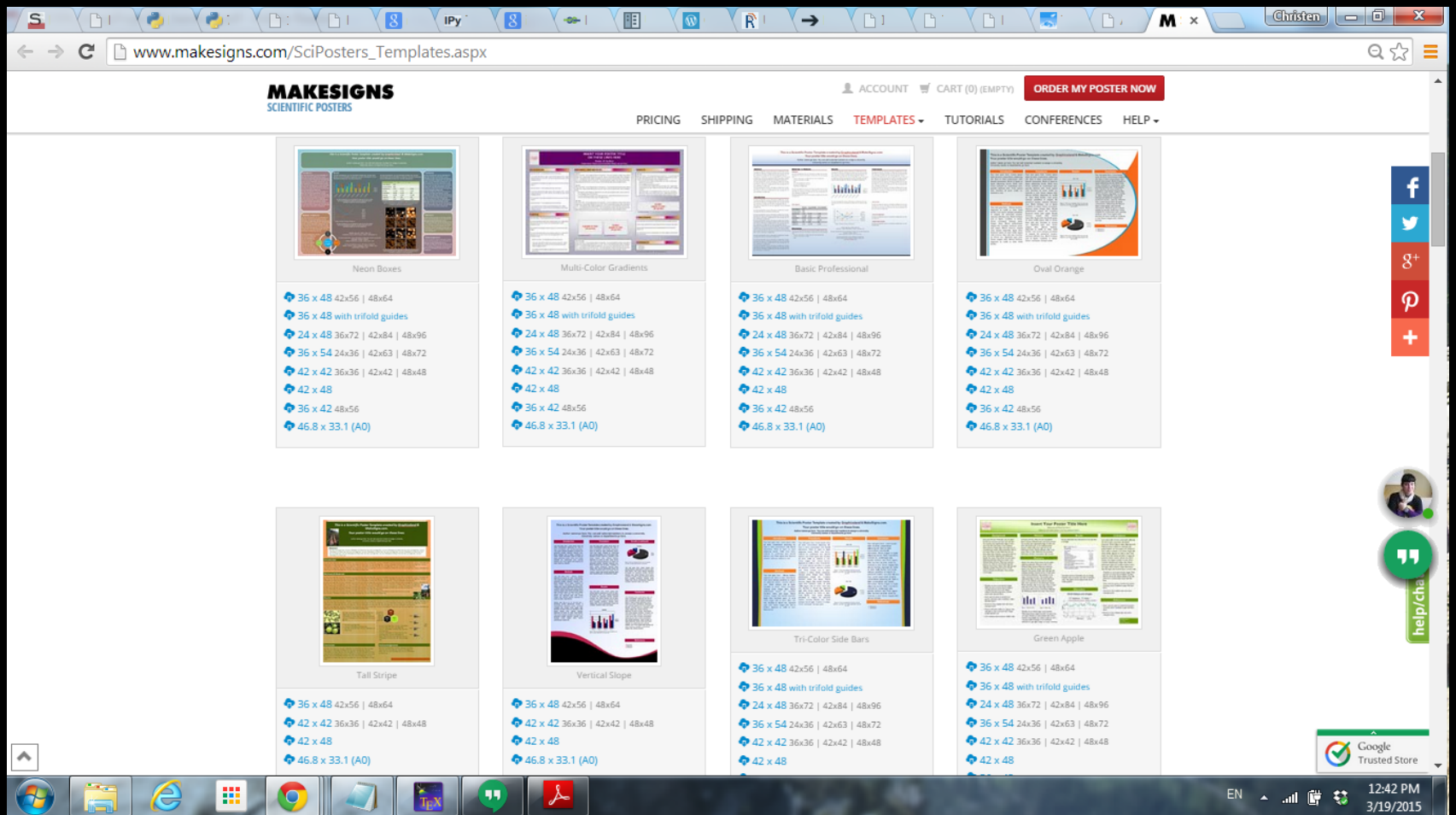
DON'Ts • Adding pieces of flair • Presenting the poster • Useful internet sites • Useful literature • Printing the poster • Organizing a session • Using this page • Feedback

If you're lazy and really don't want to read this long-winded page, click on the image below for the one-page summary — it's crammed full of tips and tricks. Just try to keep your poster to 800 words or less.



By the way, if you're a teacher, please feel free to print the above poster on a poster printer (here's a PDF). Then you can display it on a wall for students to examine *before* they start designing their own. Ideally, also print a full-size copy of "Pigs in space: effect of zero gravity and *ad libitum* feeding on weight gain in *Cavia*

Poster Websites

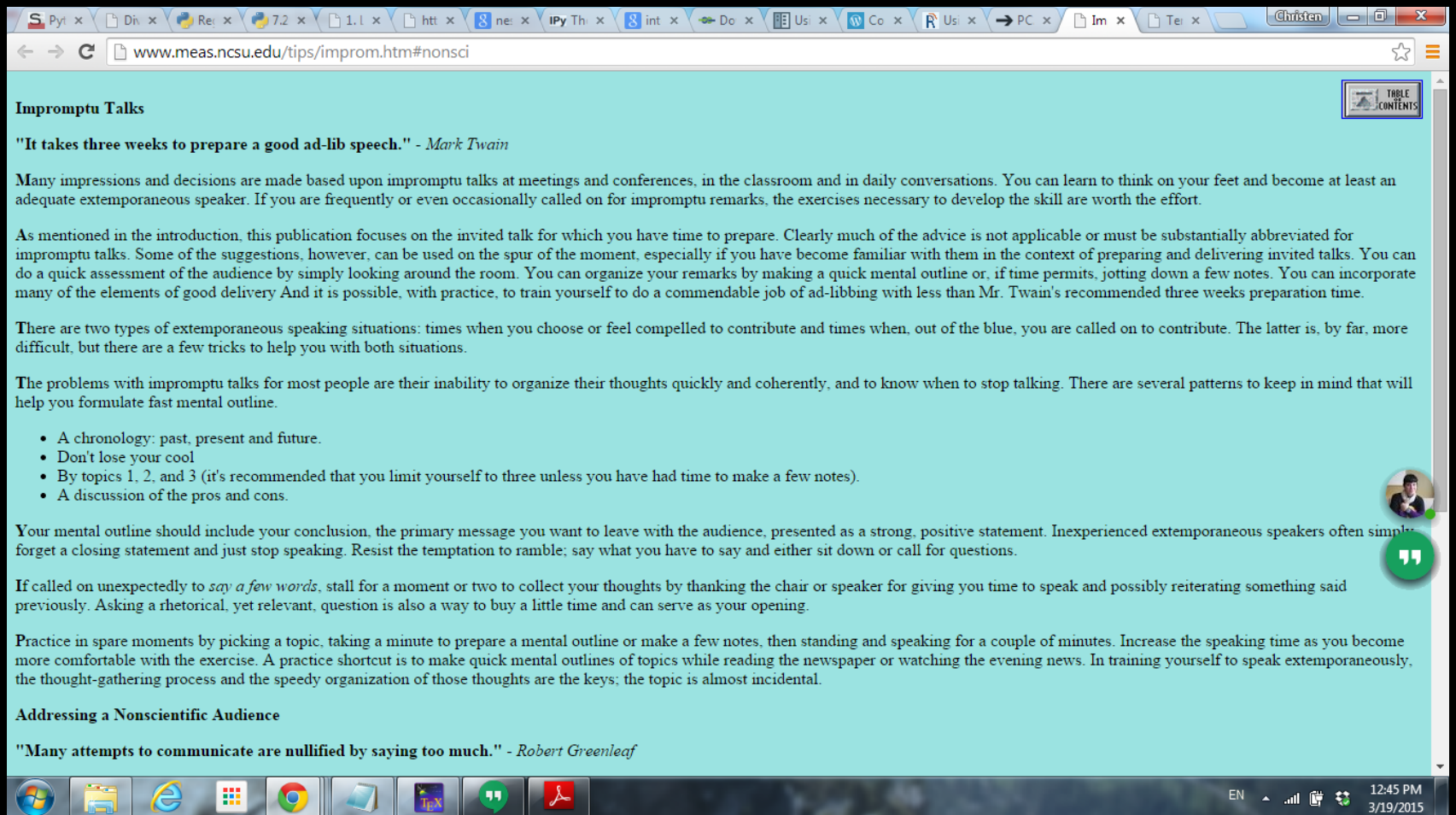


Poster Websites

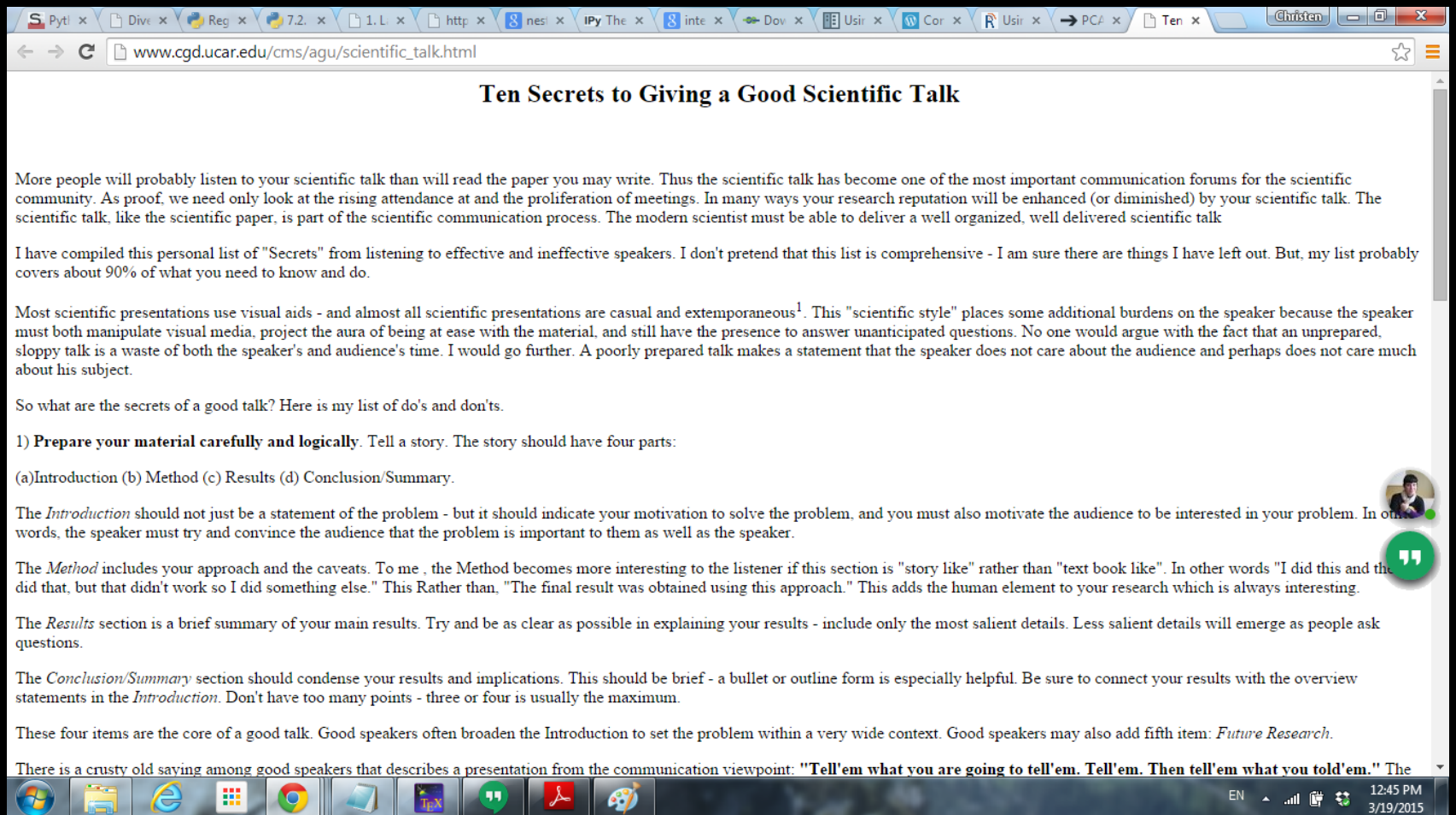
Poster Websites

Table of Contents

Speech Websites



Speech Websites



www.cgd.ucar.edu/cms/agu/scientific_talk.html

Ten Secrets to Giving a Good Scientific Talk

More people will probably listen to your scientific talk than will read the paper you may write. Thus the scientific talk has become one of the most important communication forums for the scientific community. As proof, we need only look at the rising attendance at and the proliferation of meetings. In many ways your research reputation will be enhanced (or diminished) by your scientific talk. The scientific talk, like the scientific paper, is part of the scientific communication process. The modern scientist must be able to deliver a well organized, well delivered scientific talk

I have compiled this personal list of "Secrets" from listening to effective and ineffective speakers. I don't pretend that this list is comprehensive - I am sure there are things I have left out. But, my list probably covers about 90% of what you need to know and do.

Most scientific presentations use visual aids - and almost all scientific presentations are casual and extemporaneous[1]. This "scientific style" places some additional burdens on the speaker because the speaker must both manipulate visual media, project the aura of being at ease with the material, and still have the presence to answer unanticipated questions. No one would argue with the fact that an unprepared, sloppy talk is a waste of both the speaker's and audience's time. I would go further. A poorly prepared talk makes a statement that the speaker does not care about the audience and perhaps does not care much about his subject.

So what are the secrets of a good talk? Here is my list of do's and don'ts.

1) **Prepare your material carefully and logically**. Tell a story. The story should have four parts:

(a)Introduction (b) Method (c) Results (d) Conclusion/Summary.

The *Introduction* should not just be a statement of the problem - but it should indicate your motivation to solve the problem, and you must also motivate the audience to be interested in your problem. In other words, the speaker must try and convince the audience that the problem is important to them as well as the speaker.

The *Method* includes your approach and the caveats. To me , the Method becomes more interesting to the listener if this section is "story like" rather than "text book like". In other words "I did this and then did that, but that didn't work so I did something else." This Rather than, "The final result was obtained using this approach." This adds the human element to your research which is always interesting.

The *Results* section is a brief summary of your main results. Try and be as clear as possible in explaining your results - include only the most salient details. Less salient details will emerge as people ask questions.

The *Conclusion/Summary* section should condense your results and implications. This should be brief - a bullet or outline form is especially helpful. Be sure to connect your results with the overview statements in the *Introduction*. Don't have too many points - three or four is usually the maximum.

These four items are the core of a good talk. Good speakers often broaden the Introduction to set the problem within a very wide context. Good speakers may also add fifth item: *Future Research*.

There is a crusty old saying among good speakers that describes a presentation from the communication viewpoint: **"Tell'em what you are going to tell'em. Tell'em. Then tell'em what you told'em."** The

Table of Contents

Big Picture

Why are we learning...

- Set theory?
- Set theoretic notation?
- Propositional logic?
- Truth tables?

Big Picture

- To better understand meaning in propositions and words
- Entailment
- Quantifiers
- Pragmatics. . .

Big Picture

We are laying the groundwork to discuss the big picture. To get there, we will cover...

- Predicate logic (more abstractions)

Building Blocks

- This requires learning/memorizing the tools we will use
- There is a lot of abstraction

Realworld Grounding

Why truth tables? With your group, brainstorm

- All logical possibilities
- Demonstrating real world intuitions
- The complex is just a lot of simple, basic parts

Realworld Grounding

Why truth tables?

- The complex is just a lot of simple, basic parts
- We define fundamental axioms and use those to understand the more complex

Table of Contents

Meaning Relations

- Chapter 4 uses the terms:
  - Paraphrase
  - Contradiction
  - Implication
- We will use the terms
  - Equivalence
  - Contradiction
  - Entailment

Table of Contents

Logical Connectives

- Need to memorize the theorems
- Additionally the truth tables

Logical Connectives

- And: $\wedge$
  - $[[\phi \wedge \psi]] = 1$ iff $[[\phi]] = [[\psi]] = 1$
- Or: $\vee$
  - $[[\phi \vee \psi]] = 1$ iff $[[\phi]] = 1$ or $[[\psi]] = 1$
- Exclusive Or: $\oplus$

Logical Connectives

- Entailment, Conditional: $\rightarrow$
  - $[[\phi \rightarrow \psi]] = 1$ iff $[[\phi]] = 0$ or $[[\psi]] = 1$
- Mutual entailment, biconditional: $\leftrightarrow$
  - $[[\phi \leftrightarrow \psi]] = 1$ iff $[[\phi]] = [[\psi]]$
- Brackets: ( )

Table of Contents

Conjunction

A conjunction of two propositional expressions is True iff the two propositional expressions are individually True

- $[[\phi \wedge \psi]] = 1$ iff $[[\phi]] = [[\psi]] = 1$

Truth Values

- For the statements:
  - r: "It is raining outside"
  - c: "It is cold"
  - $r \wedge c$: "It is raining outside and it is cold"

Truth Values

r	c	$r \wedge c$
1	1	1
1	0	0
0	1	0
0	0	0

Conjunction

Are the two expressions equivalent?

- $[[\phi \wedge \psi]]$
- $[[\psi \wedge \phi]]$

Conjunction

Are the two expressions equivalent?

- “I woke up and left the house”
- “I left the house and woke up”

Table of Contents

Disjunction

A disjunction of two propositional expressions is True iff at least one of the two expressions is individually True

- $[[\phi \vee \psi]] = 1$ iff $[[\phi]] = 1$ or $[[\psi]] = 1$

Truth Values

- For the statements:
  - r: "It is raining outside"
  - c: "It is cold"
  - $r \vee c$: "It is raining outside or it is cold"

Truth Values

r	c	$r \vee c$
1	1	1
1	0	1
0	1	1
0	0	0

Assignment No. 7

Exercise 2.23

Draw a truth table for the statements:

1. 'John is home and Mary is happy'
2. 'John is home or Mary is happy'

Truth Values

- For the statements:
  - r: "It is raining outside"
  - c: "It is cold"
  - $r \oplus c$: "Either it is raining outside or it is cold"

Truth Values

r	c	$r \oplus c$
1	1	0
1	0	1
0	1	1
0	0	0

Assignment No. 7

Exercise 2.20

Draw a truth table for the statement: ‘either she passed the exam or she did not pass the exam’

Table of Contents

Conditional

A ‘conditional’ consisting of two propositional expressions is True iff the antecedent expression is False or the consequent expression is True

- $[[\phi \rightarrow \psi]] = 1$ iff $[[\phi]] = 0$ or $[[\psi]] = 1$

Truth Values

- For the statements:
  - k: "Karen went to the party"
  - g: "Gita went to the party"
  - $k \rightarrow g$: "If Karen went to the party, then Gita went to the party"

Truth Values

k	g	$k \rightarrow g$
1	1	1
1	0	0
0	1	1
0	0	1

Entailment

Does the first statement entail the second?

1. Xochitl cooked an egg
2. Xochitl boiled an egg

Entailment

Does the first statement entail the second?

1. Ofra boiled an egg
2. Ofra cooked an egg

Entailment

Does the first statement entail the second?

1. Julio saw a boy
2. Julio saw a person

Entailment

Does the first statement entail the second?

1. Sameer ate something
2. Sameer ate all the cookies
   something

Table of Contents

Biconditional

A 'biconditional' consisting of two propositional expressions is True iff the antecedent expression and the consequent expression both have the same truth value.

- $[[\phi \leftrightarrow \psi]] = 1$ iff $[[\phi]] = [[\psi]]$

Truth Values

- For the statements:
  - s: "Sarah went to the party"
  - d: "Dani went to the party"
  - $k \leftrightarrow d$: "Sarah went to the party if and only if Dani went to the party"

Truth Values

s	d	$s \leftrightarrow d$
1	1	1
1	0	0
0	1	0
0	0	1

Entailment

Does the first statement entail the second and vice versa?

1. Football is forbidden
2. Sports is forbidden

Entailment

Does the first statement entail the second and vice versa?

1. Some countries have no coastlines
2. Not all countries have a coastline

Entailment

Does the first statement entail the second and vice versa?

1. The archduke was assassinated by the Serbian
2. The archduke is dead

Table of Contents

Table of Contents

Scope

Every logical connective has scope.

- Think of scope as domain that the connective operates over
- What is being operated on

Scope

- We can clarify domain using brackets
- Scope interactions can lead to ambiguity

Types of Scope

Given two interpretations of some logical operator (e.g. $\neg\phi \wedge \psi$), we can say refer to them as having:

- Wide scope
- Narrow scope

Types of Scope

Wide scope

- Operates over the larger grouping
- e.g. $\phi \wedge \psi$ are negated

Types of Scope

Narrow scope

- Operates over only the smallest unit
- e.g. Only ϕ is negated

Scope Practice

What is the scope of negation in the two wff (well-formed formulae?

- $\neg(\phi \wedge \psi) \rightarrow \rho$
- $\neg((\phi \wedge \psi) \rightarrow \rho)$

Scope Practice

What is the scope of the connectives?

- $\phi \wedge \psi$
- $\phi \vee \psi \wedge \neg\phi \rightarrow \psi$
- $(\phi \vee \psi) \wedge (\neg\phi \rightarrow \psi)$
- $\neg\phi \vee \neg\phi$

Scope Practice

What is the scope of the connectives?

- $\neg(\phi \vee \neg\phi)$
- $\phi \rightarrow \phi \wedge \psi$
- $\phi \rightarrow (\phi \wedge \psi)$

Scope Practice

What is the scope of the connectives?

- $\neg\phi \rightarrow \psi \rightarrow \psi \rightarrow \rho \wedge \neg\phi \rightarrow \rho$
- $\neg(((\phi \rightarrow \psi) \rightarrow (\psi \rightarrow \rho)) \wedge \neg(\phi \rightarrow \rho))$

Main Connective

The main connective is the connective that has the widest scope. This tells us the type of connective we are dealing with (i.e. a negation, a conjunction, a disjunction, a conditional, or a biconditional)

Main Connective

Identify the main connective for the following expressions.

- $\phi \rightarrow (\phi \wedge \psi)$
  - conditional
- $\phi \wedge \neg\phi$
  - conjunction

Main Connective

Identify the main connective for the following expressions.

- $\phi \vee \neg\phi$
  - disjunction
- $\neg(\phi \vee \neg\phi)$
  - negation

Main Connective

Identify the main connective for the following expressions.

- $\phi \rightarrow (\psi \rightarrow \phi)$
  - conditional
- $(\phi \wedge \psi) \leftrightarrow (\psi \wedge \phi)$
  - biconditional

Main Connective

Identify the main connective for the following expressions.

- $((\phi \to \psi) \to (\psi \to \rho)) \to (\phi \to \rho)$
  - conditional

Main Connective

Identify the main connective for the following expressions.

- $\neg(((\phi \to \psi) \to (\psi \to \rho)) \wedge \neg(\phi \to \rho))$
  - negation

Main Connective

Identify the main connective for the following expressions.

- $(\phi \to \psi) \vee (\psi \to \phi)$
  - disjunction

Scope

- "It is not raining and cold"
  - $\neg + r + \wedge + c$
  - $\neg r \wedge c$
  - $\neg(r \wedge c)$

Scope

r	$\neg r$	c	$\neg r \wedge c$
1	0	1	0
1	0	0	0
0	1	1	1
0	1	0	0

Scope

r	c	$r \wedge c$	$\neg(r \wedge c)$
1	1	1	0
1	0	0	1
0	1	0	1
0	0	0	1

Assignment No. 7

Exercise 2.11

The statement ‘John paid Mary and Mary paid Bill or John paid Bill’ has at least two meanings. What two of the meanings? How could they be distinguished in English by inserting a strategically placed ‘either’?

Assignment No. 7

Exercise 2.11

$jm \wedge mb \vee jb$

- $(jm \wedge mb) \vee jb$
- $jm \wedge (mb \vee jb)$

Assignment No. 7

Exercise 2.11

$jm \wedge mb \vee jb$

- $(jm \wedge mb) \vee jb$:
- 'Either John paid Mary and Mary paid Bill of John paid Bill'

Assignment No. 7

Exercise 2.11

$jm \wedge mb \vee jb$

- $jm \wedge (mb \vee jb)$
- 'John paid Mary and either Mary paid Bill or John paid Bill'

Assignment No. 7

Exercise 2.13

Draw the truth tables for the following expressions and verify their truth conditions are different.

1. $(p \wedge q) \vee r$
2. $p \wedge (q \vee r)$

Assignment No. 7

Exercise 2.13

1. $(p \wedge q) \vee r$
2. $p \wedge (q \vee r)$

These statements can be the result of different readings of an expression:

$p \wedge q \vee r$

Assignment No. 7

Exercise 2.9

Draw truth tables for the following sentences (assume 'inclusive or'):

1. 'either the boat capsized or John fell in'

Assignment No. 7

Exercise 2.9

Draw truth tables for the following sentences (assume 'inclusive or'):

1. 'either the Angels won and the Dodgers tied or the Giants lost'

Assignment No. 7

Exercise 2.9

Draw truth tables for the following sentences (assume 'inclusive or'):

1. 'Pooh will have honey and either he will have maple syrup or he will have clotted cream'

Assignment No. 7

Exercise 2.16

1. 'it is not the case that both p and q are true'
2. Check in the truth table that either p or q is false when the proposition above is true.

Assignment No. 7

Exercise 2.16

1. 'it is not the case that either p or q is true'
2. Check in the truth table that both p and q are false when the proposition above is true.

Essentially the same sentence

- Either John is home, or he left his lights on.
- $p \vee q$
- If John is not home, then he left his lights on.
- $\neg p \rightarrow q$

Essentially the same sentence

Now you can simply negate p again in both formulae, without affecting their equivalence:

- $\neg p \vee q$
- $p \rightarrow q$

We want to check the truth of the conditional when p is false

Essentially the same sentence

To do that, we can rely on the disjunction in, because the two formulae are equivalent:

- if p is false, then $\neg p$ is true,

Essentially the same sentence

- and if $\neg p$ is true, then the whole disjunction is true, simply because one of its disjuncts is true.
- So the falsity of p makes the disjunction true,

Essentially the same sentence

- and since the disjunct is equivalent to the conditional,
- the conditional is also true.

Assignment No. 7

Exercise 2.21

Draw the truth tables for the following pairs of sentences. The following pairs of sentences should all have the same truth conditions.

Assignment No. 7

Exercise 2.21

1. John proposed to Mary and either she hit him or he banged his head.
2. Either John proposed to Mary and she hit him or else John proposed to Mary and he banged

Assignment No. 7

Exercise 2.21

1. John proposed to Mary and either she hit him or he banged his head.
   - $p \wedge (h \oplus b)$

Assignment No. 7

Exercise 2.21

1. Either John proposed to Mary and she hit him or else John proposed to Mary and he banged his head.
   - $(p \wedge h) \oplus (p \wedge b)$

Assignment No. 7

Exercise 2.21

The following pairs of sentences should all have the same truth conditions.

1. $p \wedge (h \oplus b)$
2. $(p \wedge h) \oplus (p \wedge b)$

Assignment No. 7

Exercise 2.21

Draw the truth tables for the following pairs of sentences. The following pairs of sentences should all have the same truth conditions.

Assignment No. 7

Exercise 2.21

1. Either Colonel Mustard did it or it was done in the billiards room and it was done with the candlestick.
2. Either Colonel Mustard did it or it was done in the billiards room

Assignment No. 7

Exercise 2.21

1. Either Colonel Mustard did it or it was done in the billiards room and it was done with the candlestick.
   - $m \oplus b \wedge c$

Assignment No. 7

Exercise 2.21

1. Either Colonel Mustard did it or it was done in the billiards room and (also) either Colonel Mustard did it or it was done with the candlestick.
   - $(m \oplus b) \wedge (m \oplus c)$

Assignment No. 7

Exercise 2.21

Draw the truth tables for the following pairs of sentences. The following pairs of sentences should all have the same truth conditions.

1. $m \oplus b \wedge c$
2. $(m \oplus b) \wedge (m \oplus c)$

“. . . But. . . ”

- How do we treat the word but in the proposition “The food is cheap but good”?

“. . . But. . . ”

- Is this statement equivalent to “The food is cheap and good”?
- We can treat is as the same as the logical connective $\wedge$

Assignment No. 7

Exercise 2.24

Make a truth table for the statement: 'either p or q but not both'. This is often known as 'exclusive *or*' as opposed to 'inclusive *or*'

- $p \vee q \wedge \neg(p \wedge q)$
- $p \oplus q$

Exlusive 'or'

- The real question is, do we have an "exclusive or" in our semantics?
- Draw a truth table for "John spoke to Mary or Sue or Both" using the exclusive and exclusive or.