The Truth-Value Judgment Task

Based on the slides by Takuya Goro (UMD)
Semantics, meaning, interpretation, or what?

- When you know what a sentence means, you know what the world would have to be like for the sentence to be true.

- To know the meaning of a sentence = to know its truth-conditions.
Truth values

- Declarative sentences have a truth value (True or False)

- Knowledge about truth-conditions + relevant knowledge about the world = you can judge whether a sentence is true or false.

- *Norbert speaks English*: True.
**Acquisition of semantics**

- Given a sentence, what kinds of truth-conditions do children assign to it?
- Do children obey linguistic constraints when computing truth-conditions?
- Can children correctly compute truth-conditions of sentences that involve semantically-interacting logical words?
Troll and Robocop are competitors in a jumping contest.
An ambiguous sentence

“Troll said that he was the best jumper”

I am the best Jumper! (he = Troll)

Robocop is the best Jumper! (he = Robocop)
An unambiguous sentence

“He said that the troll was the best jumper”

The troll is the best Jumper!
(he = Robocop)

I am the best Jumper!
(he = the troll!!)
Effects of Principle C

- *Troll said that he was the best jumper.*
  he = Troll *or* he = Robocop

- *He said that the troll was the best jumper.*
  he ≠ Troll, he = Robocop

Principle C: *Troll is c-commanded by*
  *he => Troll & he cannot corefer*
Do kids know Principle C?

He said that Troll was the best jumper.

If children have Principle C, then...
the sentence cannot mean “Troll said “I am the best jumper!””

If children lack Principle C, then...
the sentence can mean “Troll said “I am the best jumper!””
How can children’s knowledge of Principle C be tested?

- We make children judge the truth value of a sentence.

**Situation:**
The troll said “I am the best jumper!”: True
Robocop said “Troll is the best jumper”: False

**Test sentence to judge:**
*He said that Troll was the best jumper*

**Target constraint:**
Condition C, which blocks he=Troll interpretation
Truth-value judgment task

- Crain & Thornton 1999, Gordon 1998
- One experimenter acts out a story in front of the subject, using toys and props.

- At the end of the story, Kermit the Frog (manipulated by another experimenter) presents a test sentence to the subject

- The subject is asked to tell if Kermit was right or wrong
The Jumping Competition

The characters and the set-up are introduced to the child and the puppet
The Prize for the Best Jumper

The judge, Robocop, introduces the prize: colored pasta!
The Contestants Get Ready at the Start

Robocop: Line up everyone! Get ready to jump over these three obstacles.
The First Contestant: Cookie Monster

Robocop: You go first, Cookie Monster.
Cookie Monster: OK, here I go. I made the log! Oh no, I crashed into the barrels… Now let me try the benches….
The Second Contestant: The Troll

The troll clears the course successfully

Robocop: Your turn next, Troll.
Troll: OK, I’m a good jumper. This should be easy for me. Over the log I go! Yeah! Now the barrels. All right! Now the benches. Good, I didn’t knock anything over.
The Final Competitor

Grover clears the obstacles cleanly, in record time

Robocop: OK, Grover. Your turn.
Grover: I’m a good jumper. Watch me! See how easily I could jump over the log? Now I’ll jump over the barrels and benches. Great. I didn’t smash into anything, and I was really fast.
Robocop: Line up, guys! I’m ready to judge the competition. Let’s see who wins the colored pasta.
Cookie Monster’s Performance is Judged

Robocop: Cookie Monster, I’m afraid you aren’t the winner. You crashed into the barrels. I think you’ve been eating too many cookies. Lose some weight, and you will be a better jumper.
The Troll’s Performance is Judged

Possible Outcome: The troll could be the best jumper. At this point, it is plausible that the assertion is true.

Robocop: Troll, you jumped very well. You didn’t crash into anything. You could be the winner. But let me judge Grover before I decide...
Grover’s Performance is Judged

The **actual outcome** unfolds

Robocop: Grover, your jumps were very good. You didn’t knock anything over, and you were very fast. I think you win the prize. Great job, Grover!
The Troll Contest the Judge’s Decision

Troll: It’s not fair, Robocop! I think I should get the prize. I think I was the best jumper. I’m going to take some colored pasta for myself.
The props are placed alongside the characters, to provide a **reminder** of the events that took place.
Kermit’s Lead-in: That was a story about a jumping contest. Robocop was the judge, and there was Cookie Monster, and Grover, and the Troll. I know one thing that happened. He said that Troll was the best jumper.
Kermit: He said that the Troll was the best jumper.

Child: No!
Kermit: I didn’t say the right thing? What really happened?
OK, so what happened?

He said that Troll was the best jumper.

If he = Troll, the sentence is **TRUE**, because 1 indeed took place.

If he = Robocop, the sentence is **FALSE**, because 2 never happened and instead 3 took place.

1. I am the best Jumper!
2. Troll is the best Jumper!
3. Grover is the best Jumper!
Truth Value Judgment Task

RULE 1: conclusions are made on the basis of children’s negative judgment (No-o-ooooo!!)

- The reading that is ungrammatical for adults due to a grammatical constraint (e.g. Principle C) must be made TRUE by the story.
- The reading that is grammatical for adults must be made FALSE by the story.
Truth Value Judgment Task

RULE 2: Plausible Denial

- The story must provide the child with enough reasons to reject the FALSE grammatical reading
- He said that Troll was the best jumper. (grammatical reading: he = Robocop)
- Robocop said that Troll was the best jumper
- \(\Rightarrow\) No! Robocop said Grover was the best jumper!