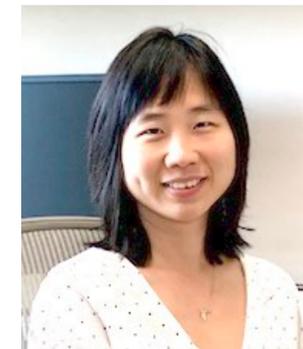


# *Did they answer?*

## Subjective acts and intents in conversational discourse



Elisa Ferracane, Greg Durrett, Junyi Jessy Li, Katrin Erk  
University of Texas at Austin

# Subjective Discourse

- Discourse is often ambiguous
  - SDRT: Asher & Lascarides, 2003
  - R “The way speakers *resolve* these ambiguities leads to an inherent *subjectivity* in interpretation.” -Asher & Paul, 2018
  - C
- PDTB: Webber et al., 2019

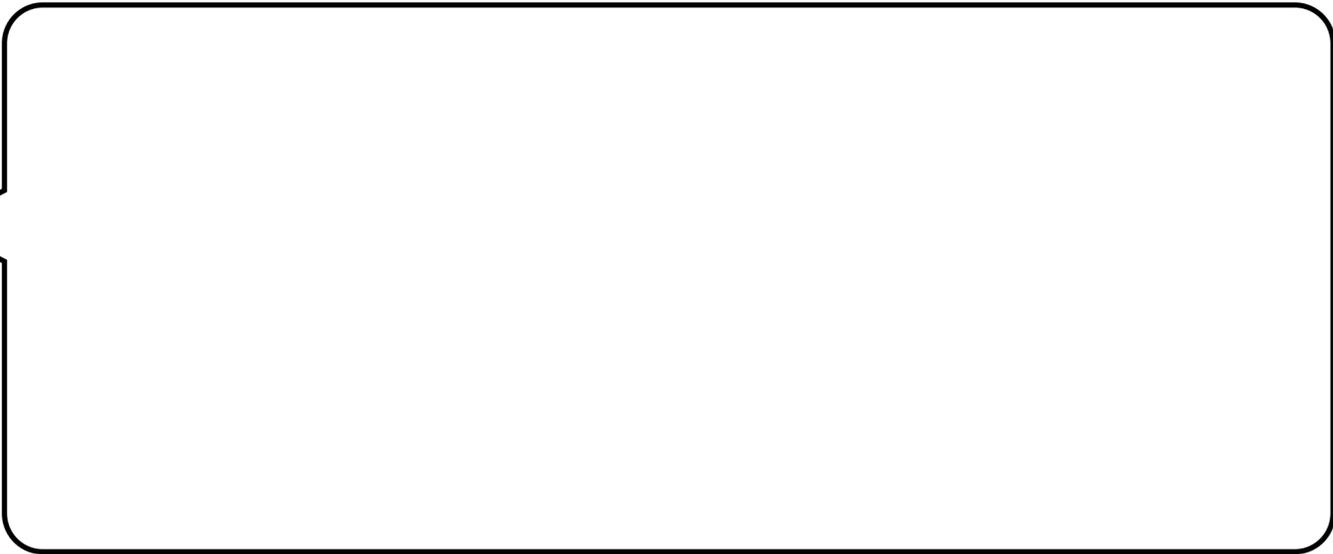
# Subjective Discourse

- 1) Discourse from perspective of *reader* (not writer)
- 2) Reader is *biased*
- 3) *Multiple, valid* labels for a single discourse item

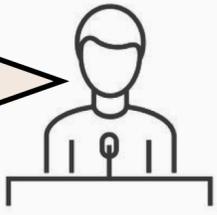


# Subjective Discourse

*Engel*

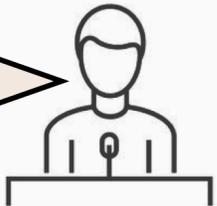


*Zuckerberg*

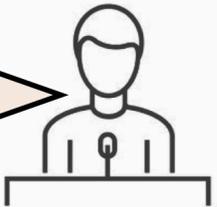


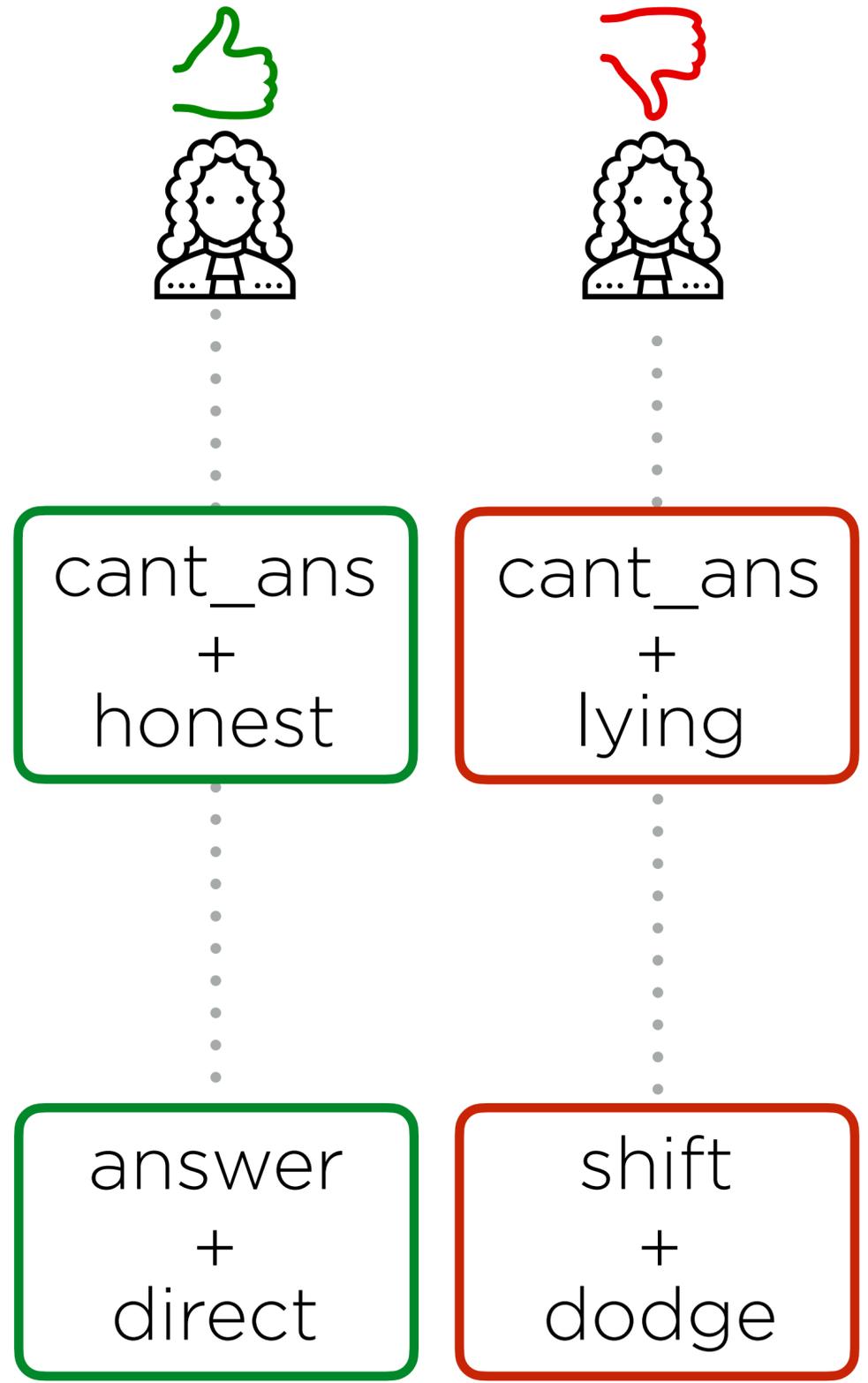
# Subjective Discourse

*Engel*  
 So do you adjust your algorithms to prevent individuals interested in violence from being connected with like-minded individuals?

*Zuckerberg*  
 Sorry. Could you repeat that?

 Do you adjust your algorithms...?

 Congressman, yes. That is certainly an important thing we need to do.



# Subjective Discourse

 Dataset

 Characterization

 Predict all interpretations

# Subjective Discourse

 Dataset

 Characterization

 Predict all interpretations



# Witness testimonials in congressional hearings

- Transcripts are publicly and freely available as far back as 1997
- Scraped and cleaned ~6K hearings from 113th - 116th congresses (2014-2019)

# Annotation

Congressman, yes. That is certainly an important thing that we need to do.

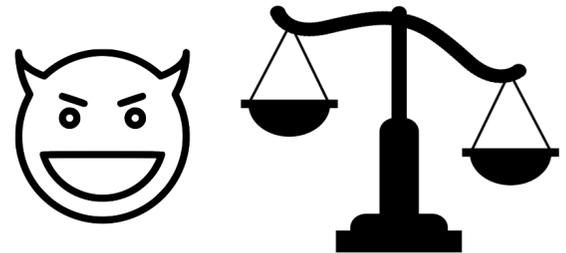
*Zuckerberg*

## Conversation Act



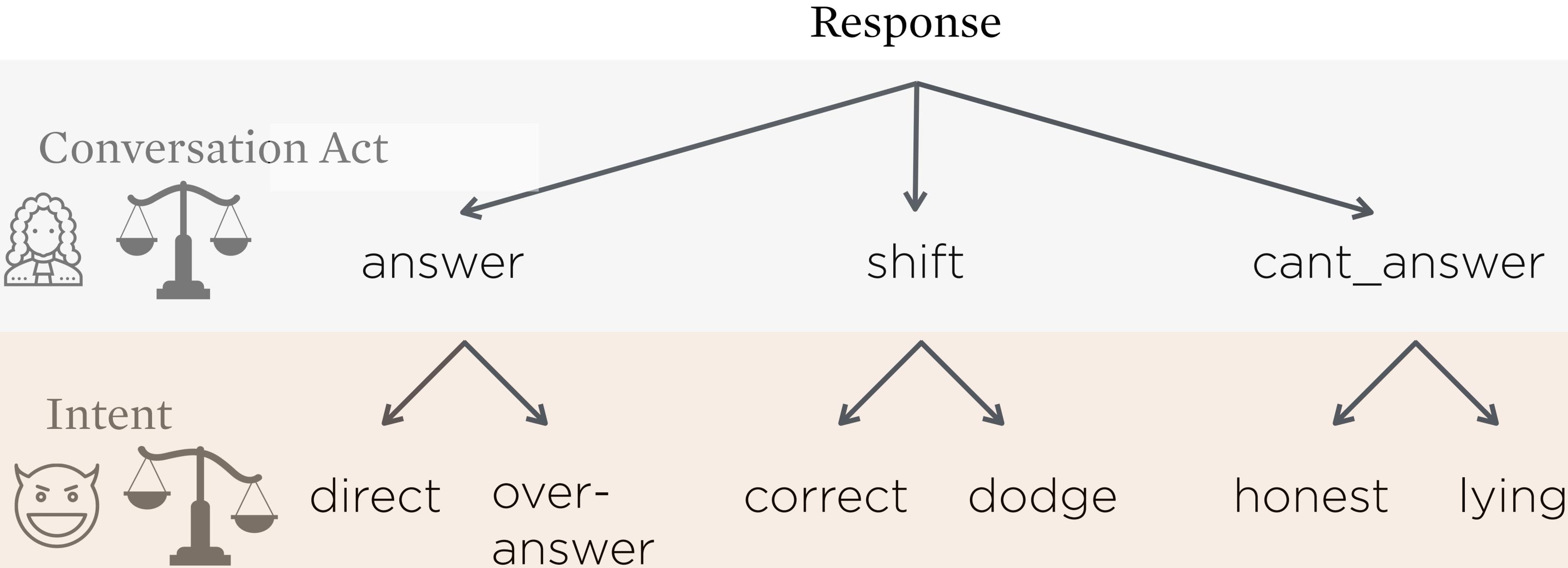
- shift (answer different question)

## Intent

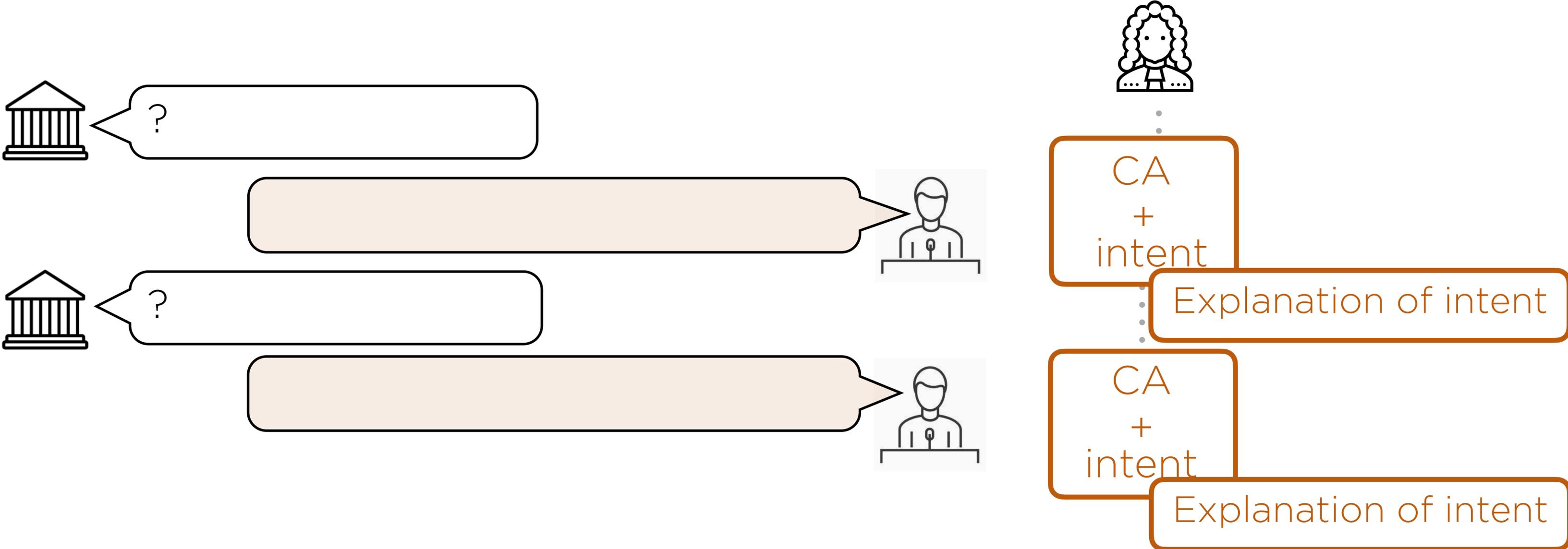


- dodge

# Response Taxonomy

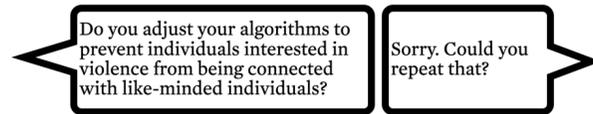


# Subjective Discourse



Sentiment towards witness?  
negative      neutral      positive

## Annotated Dataset



1,000 Question-Response pairs



20 Congressional Hearings



6,205 CA+Intent Labels (3-7 labels/qr)

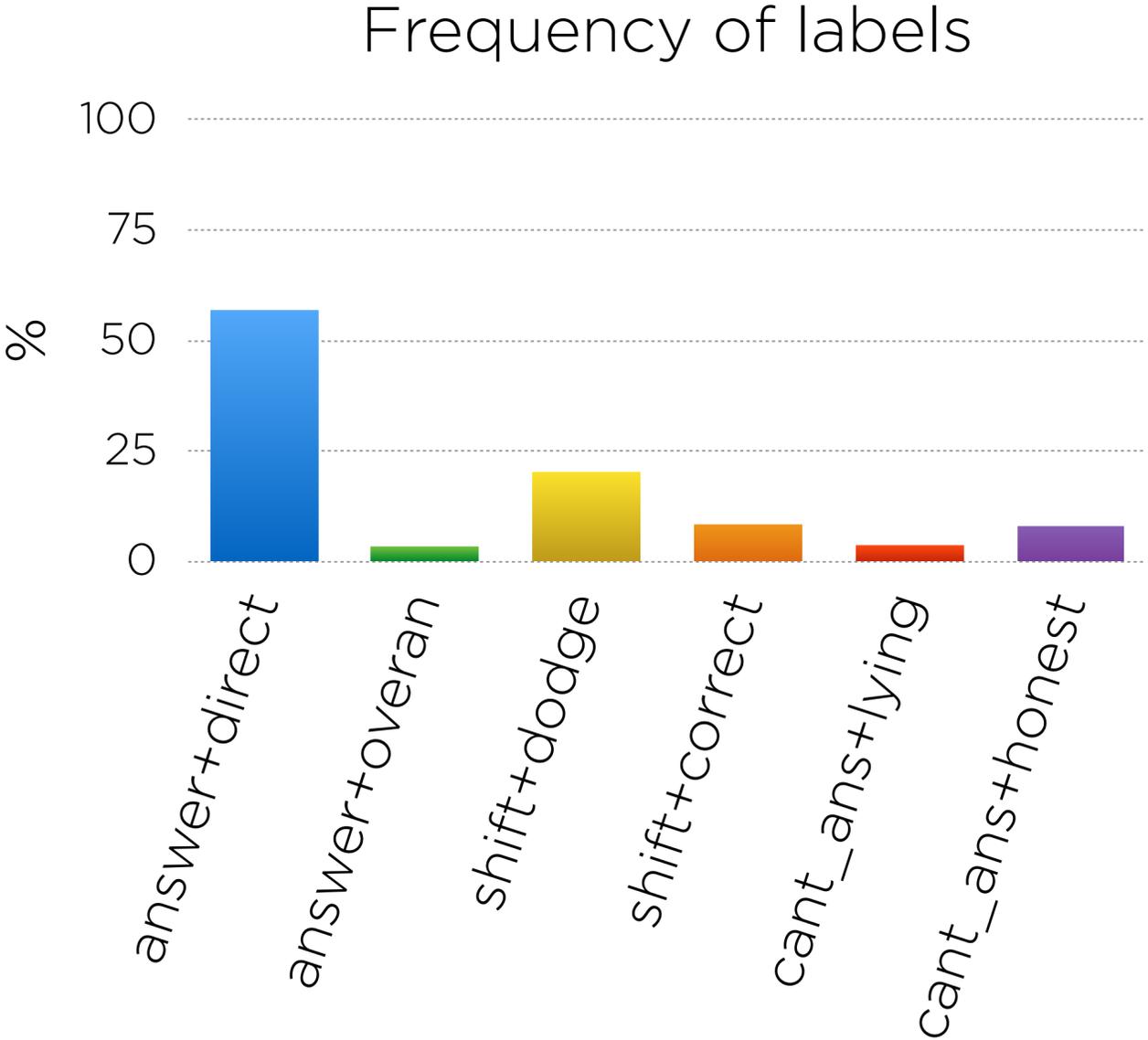
# Subjective Discourse

 Dataset

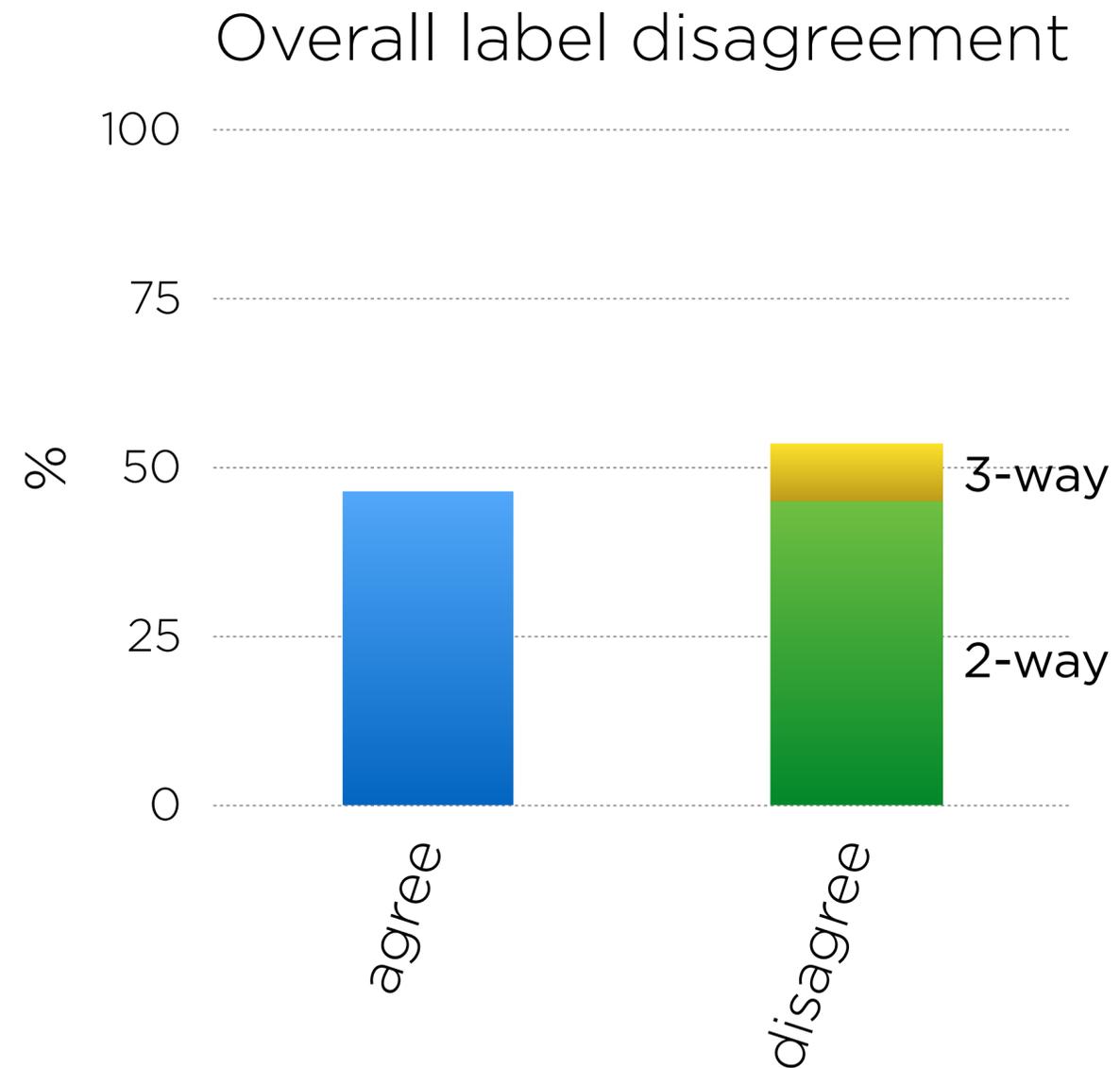
 Characterization

 Predict all interpretations

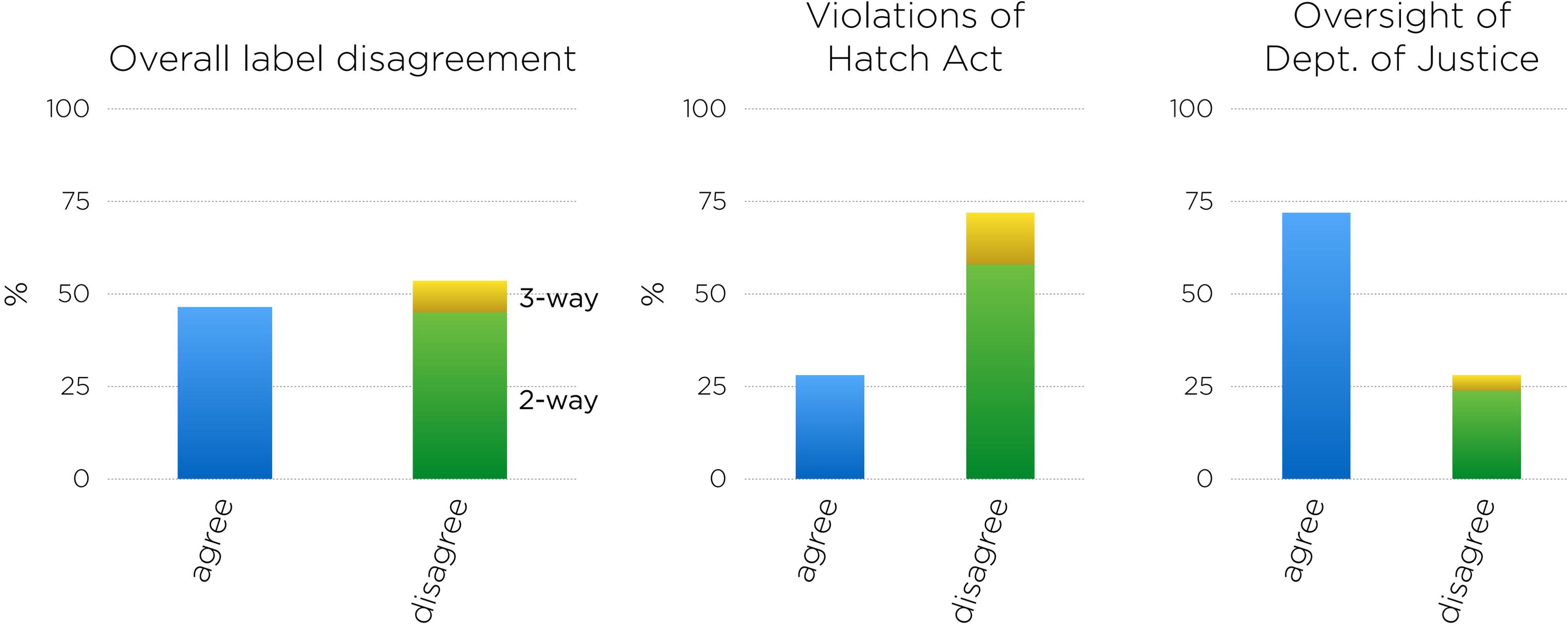
# Label distribution



## Is there disagreement?

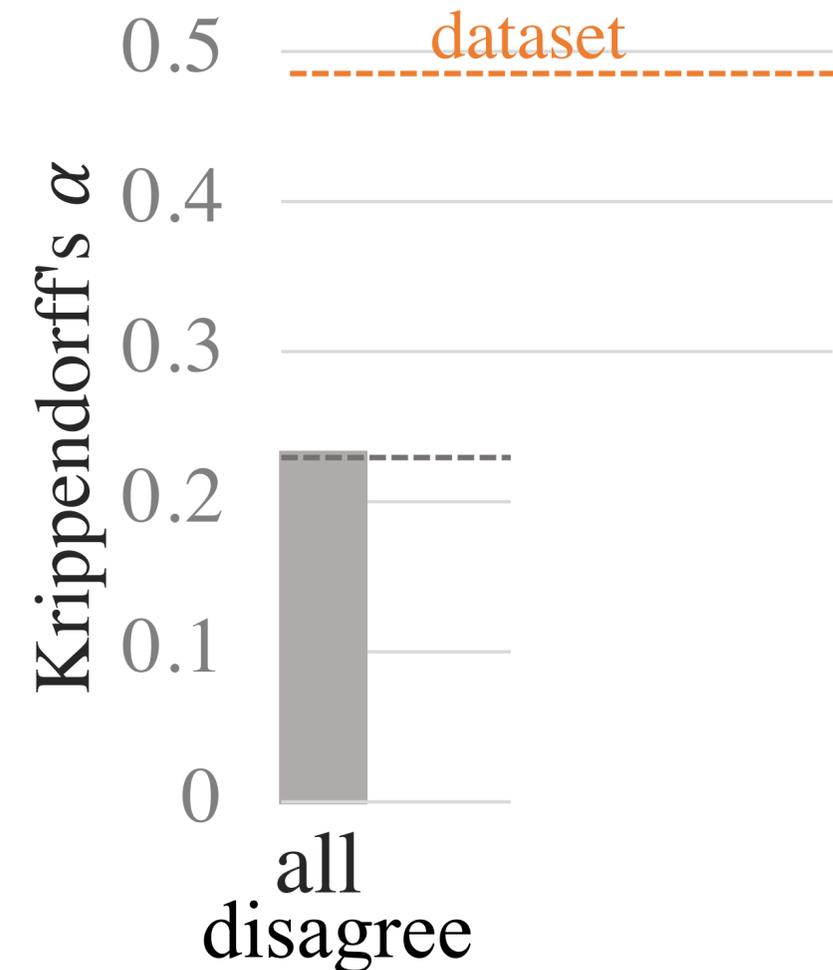


# Is there disagreement?



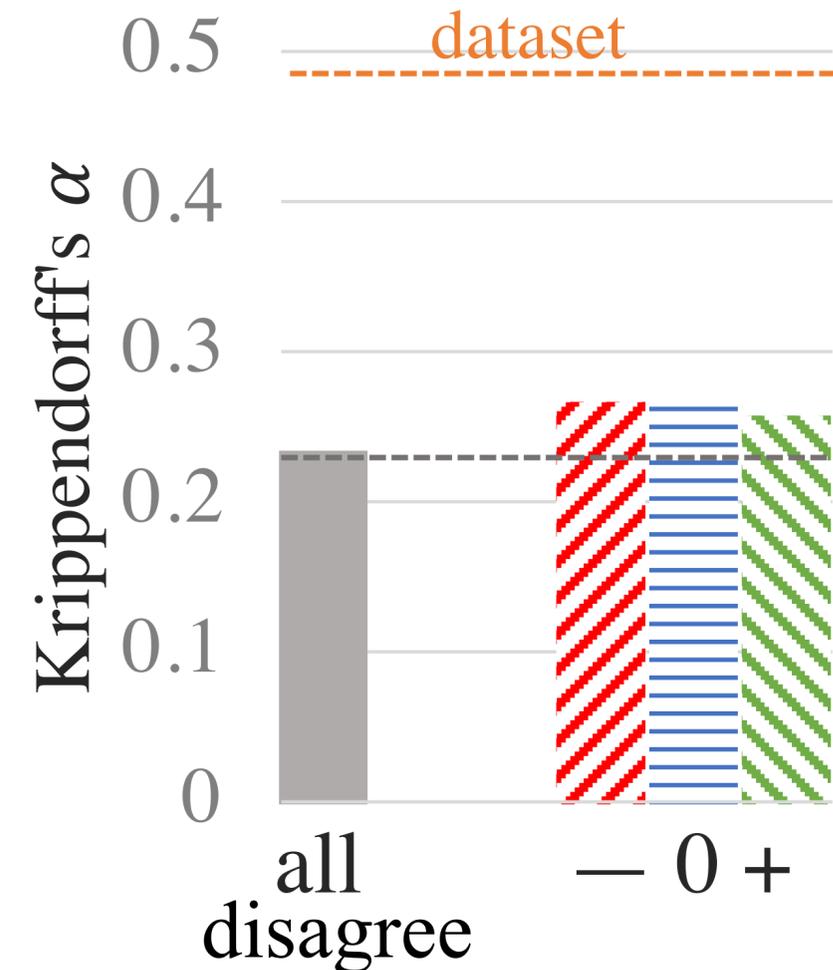
# Is disagreement real or noise?

- IAA Krippendorff's  $\alpha$ : 0.49
- Conversation Act: 0.65
- Intent (binarized): 0.38



# Is disagreement real or noise?

- IAA Krippendorff's  $\alpha$ : 0.49
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- Intent (binarized): 0.38



# Is disagreement real or noise?

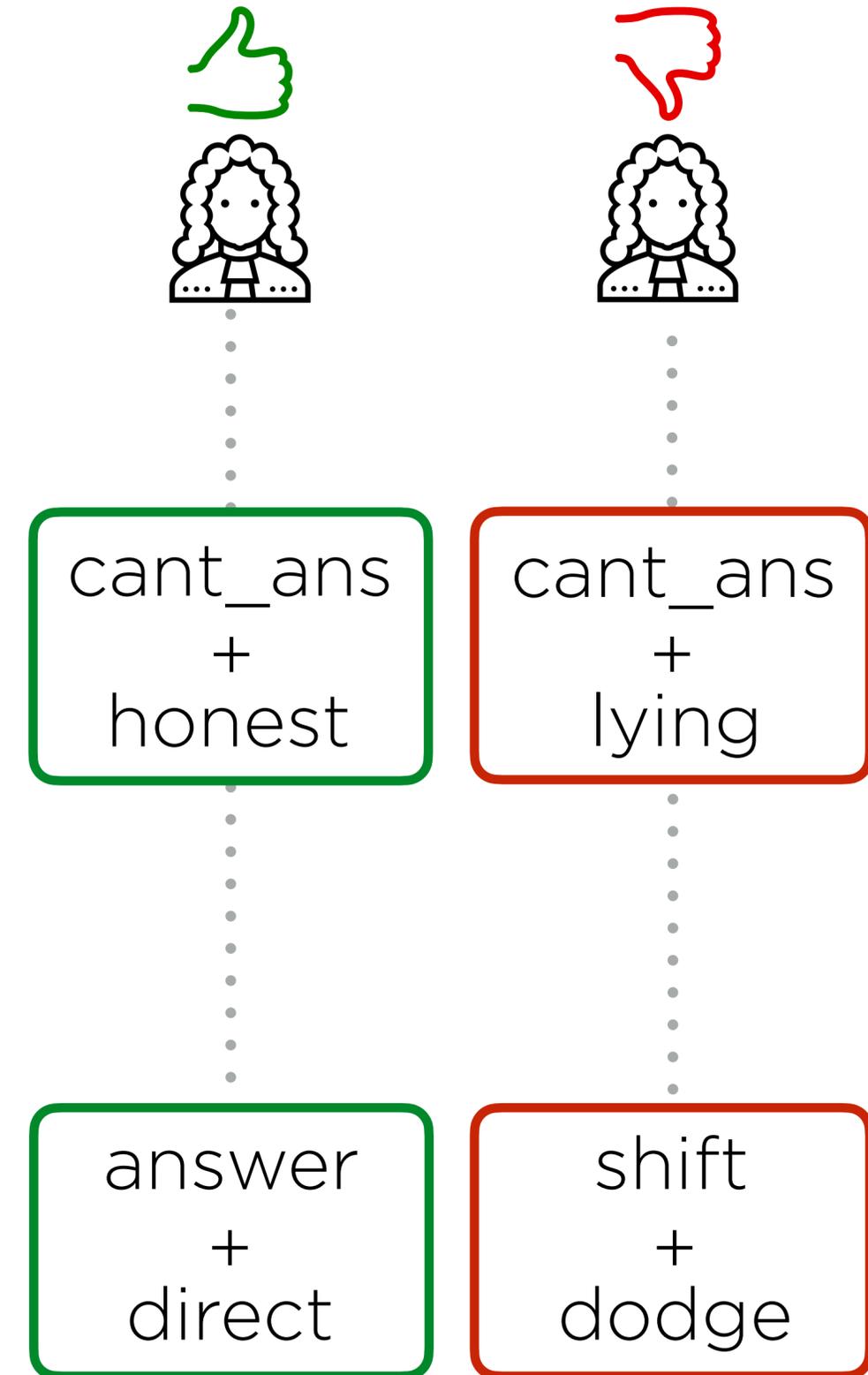
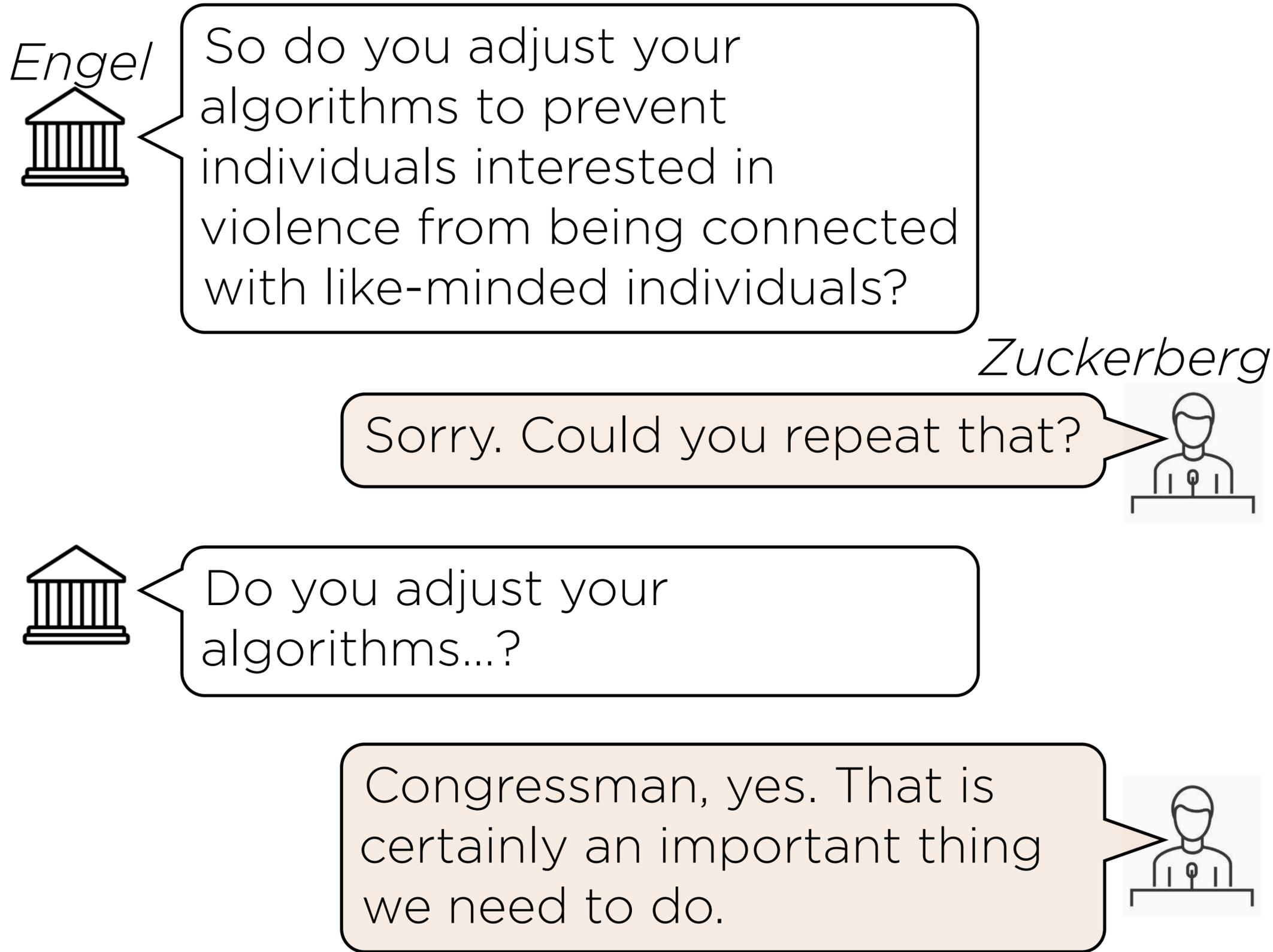
Response Label disagreement			%
ans+direct	vs.	shift+dodge	15.9
shift+correct	vs.	shift+dodge	8.2
cant_ans+honest	vs.	cant_ans+lying	4.9

Personal beliefs: “Bankers are generally evil”

Personal experiences: “I have watched hearings in congress”

**Is annotator sentiment predictive of intent?**

# Subjective Discourse



# Is annotator sentiment predictive of intent?

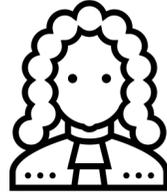
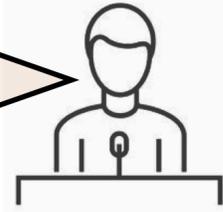
$$\eta(\text{sentiment}, \text{intent}) = 0.34$$

# Subjective Discourse

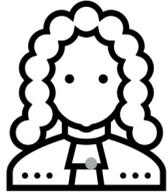


Let's talk about your small business jobs... we had a couple of different definitions for what was a small business. What was yours?

What was my-say that again, sir?



cant\_ans  
+  
honest

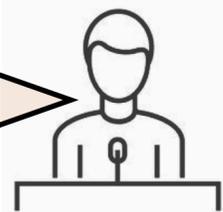


cant\_ans  
+  
honest



And you spoke to their CEO immediately?

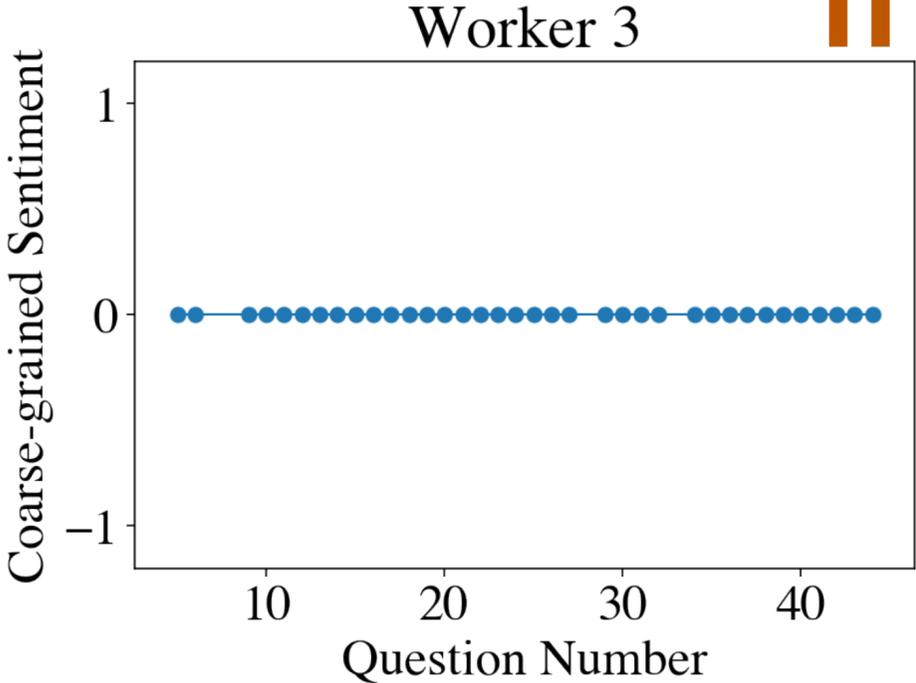
We shut down the app. We demanded-



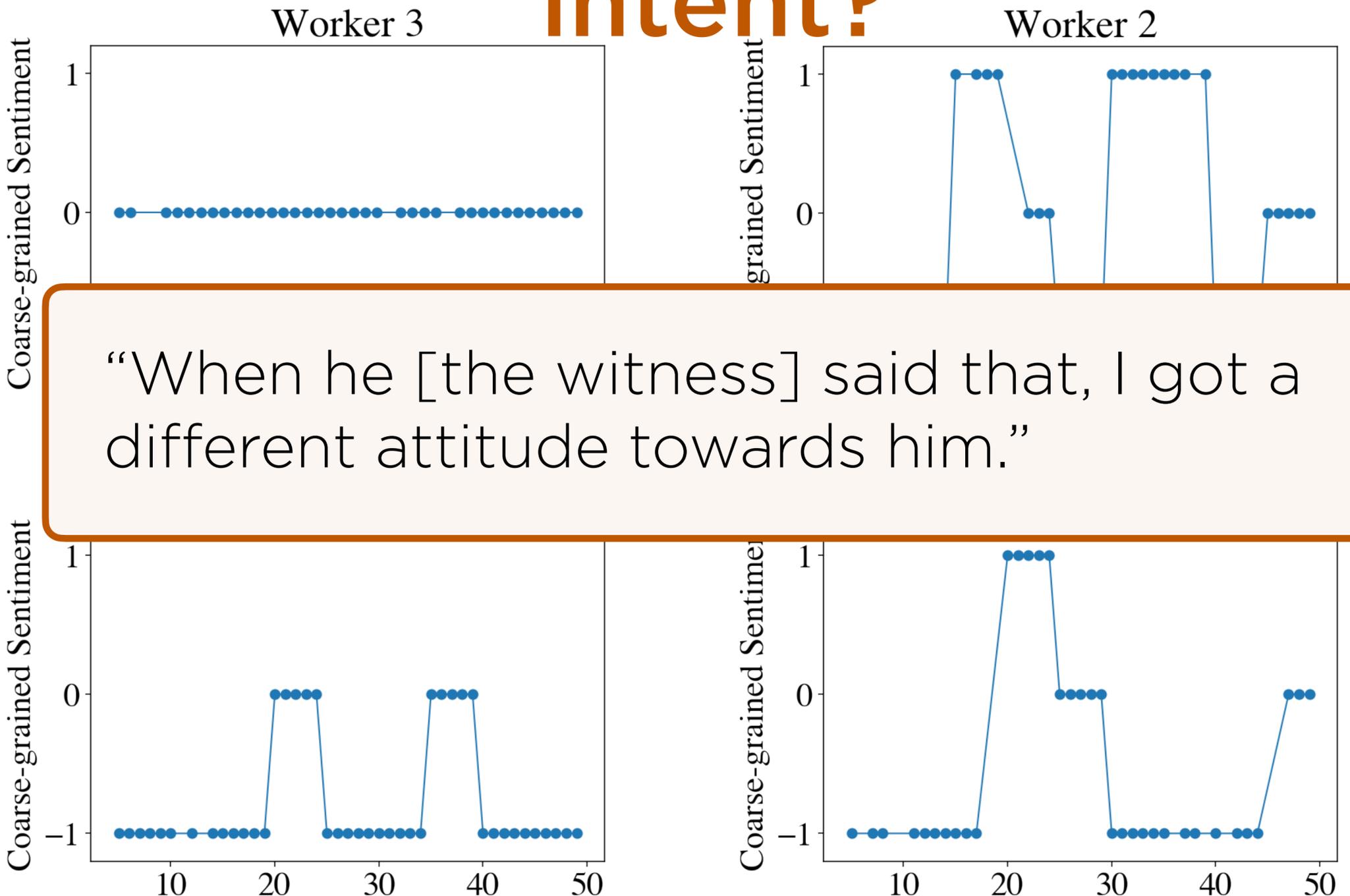
shift  
+  
dodge

shift  
+  
dodge

# Is annotator sentiment predictive of intent?



# Is annotator sentiment predictive of intent?



# Is annotator sentiment predictive of intent?

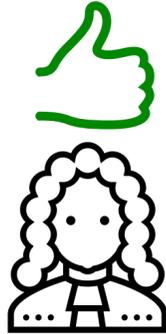
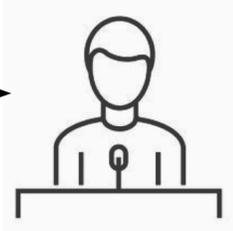
Somewhat...

- Intent is sometimes independent of sentiment
- Sentiment can change over the hearing

# Annotator Explanations

# Subjective Discourse

Congresswoman, it might be useful to clarify what actually happened here. A developer who is a researcher-



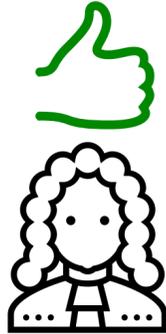
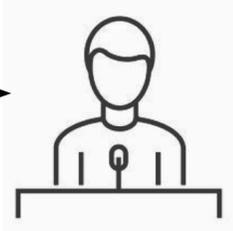
shift  
+  
correct



shift  
+  
dodge

# Subjective Discourse

Congresswoman, it might be useful **to clarify** what actually happened here. A developer who is a researcher-



shift  
+  
correct



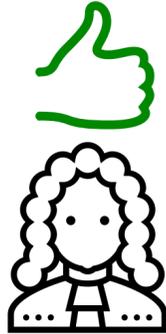
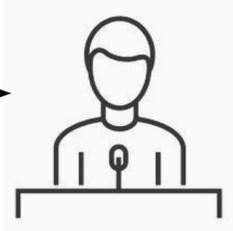
shift  
+  
dodge

Witness wants **to clarify** what happened

Mr. Zuckerberg goes off on a tangent **to “clarify”** the situation.

# Subjective Discourse

Congresswoman, it might be useful **to clarify** what actually happened here. A developer who is a researcher-



shift  
+  
correct



shift  
+  
dodge

Witness **wants to clarify** what happened

Mr. Zuckerberg **goes off on a tangent to “clarify”** the situation.

# Subjective Discourse

 Dataset

 Characterization

 Predict all interpretations

**RQ: What are all the possible interpretations of a response?**

Congressman,  
yes. That is...

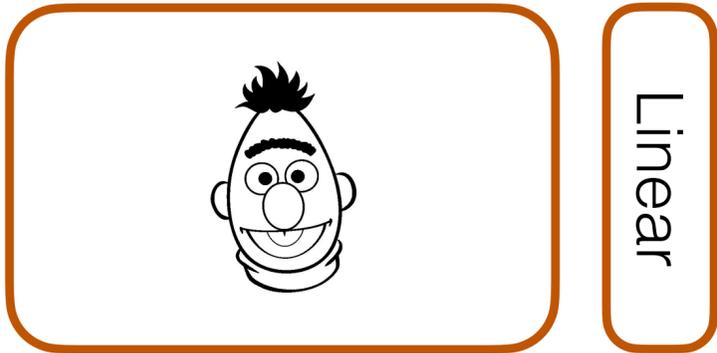
*Zuckerberg*

- shift+dodge
- answer+direct

**Multi-label classification**

# RQ: What are all the possible interpretations of a response?

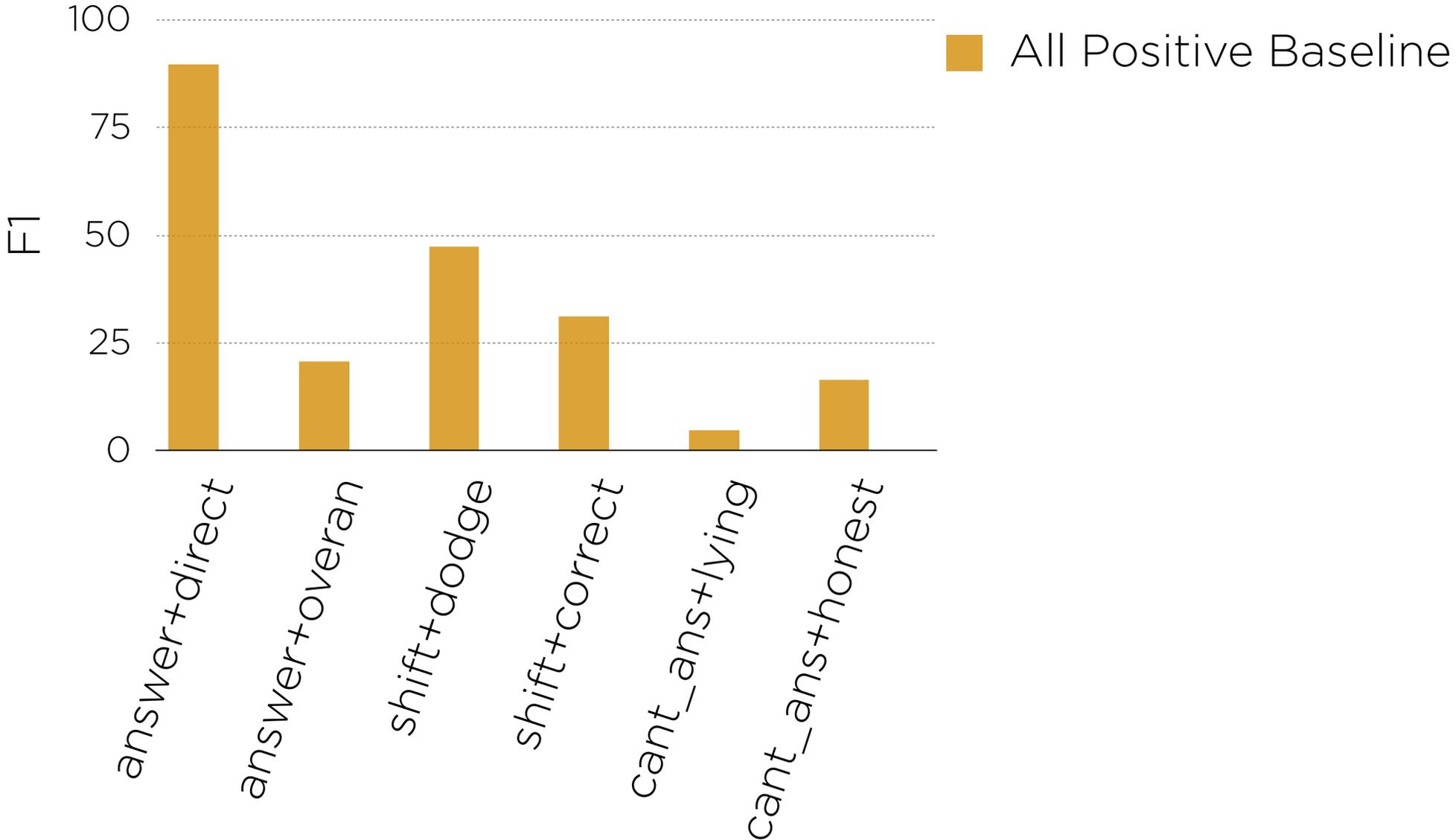
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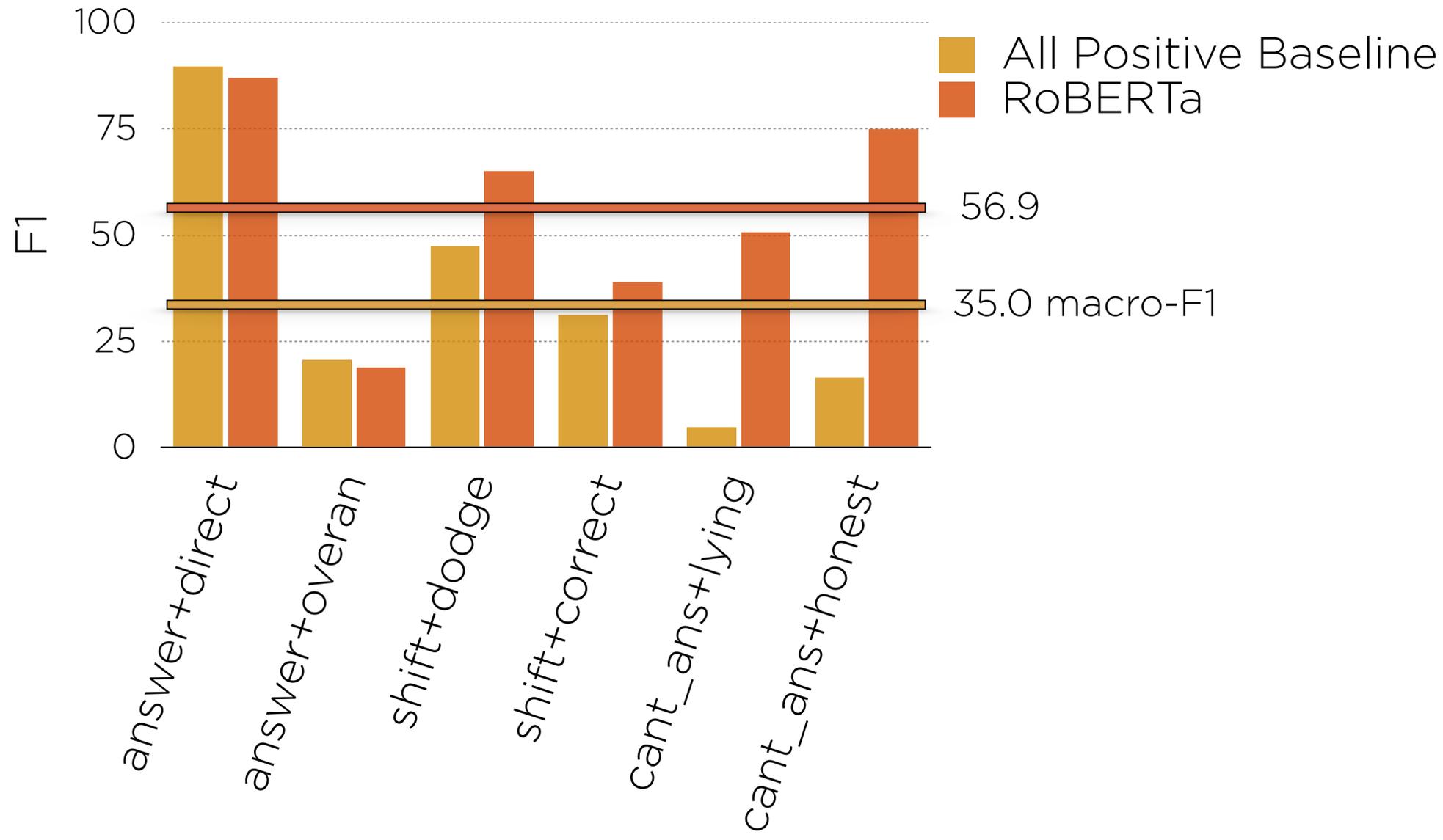
answer+direct  
1 0 1 0 0 0  
shift+dodge

\*binary cross-entropy loss

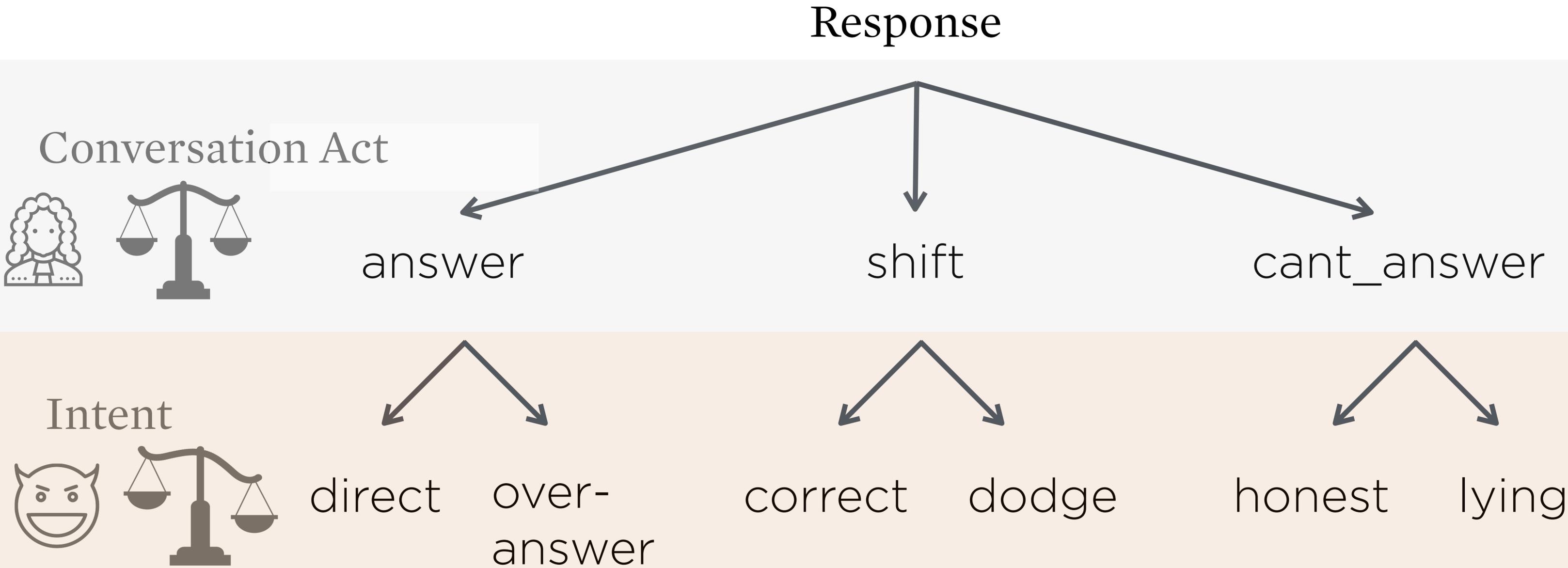
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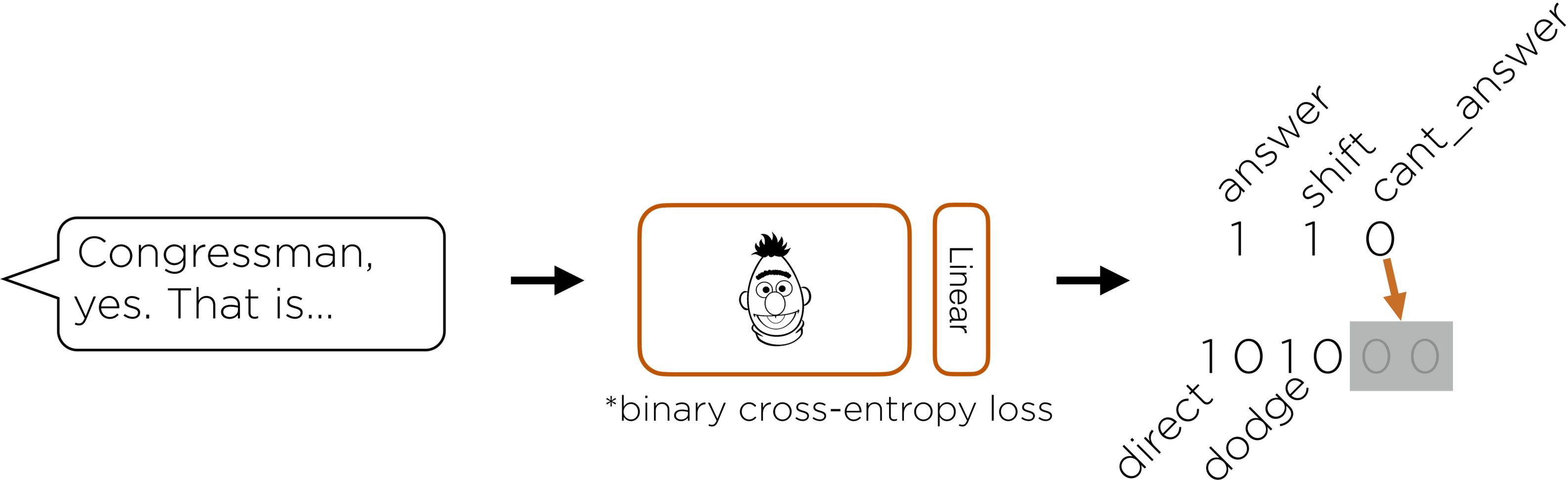
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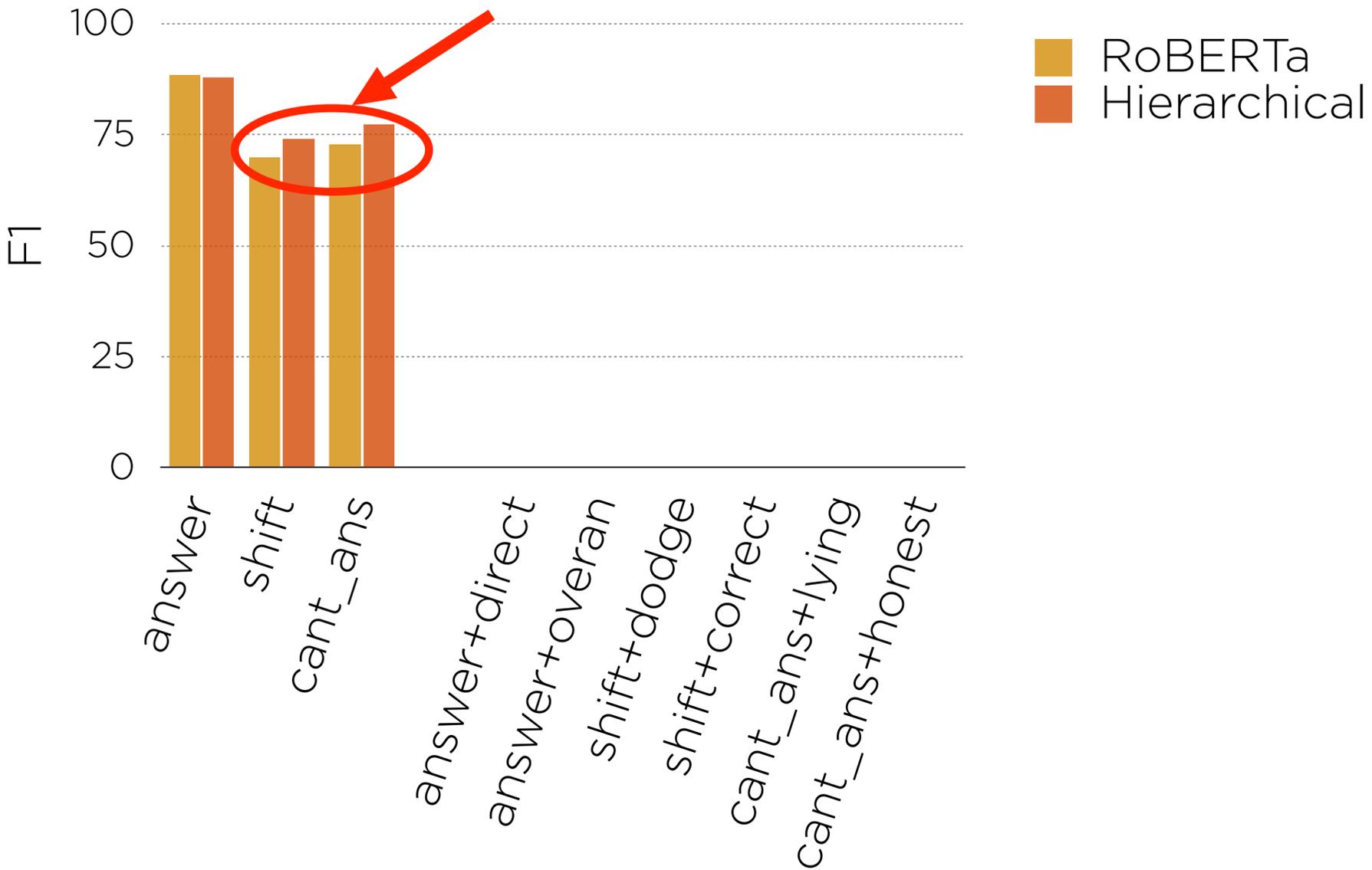
# Response Taxonomy



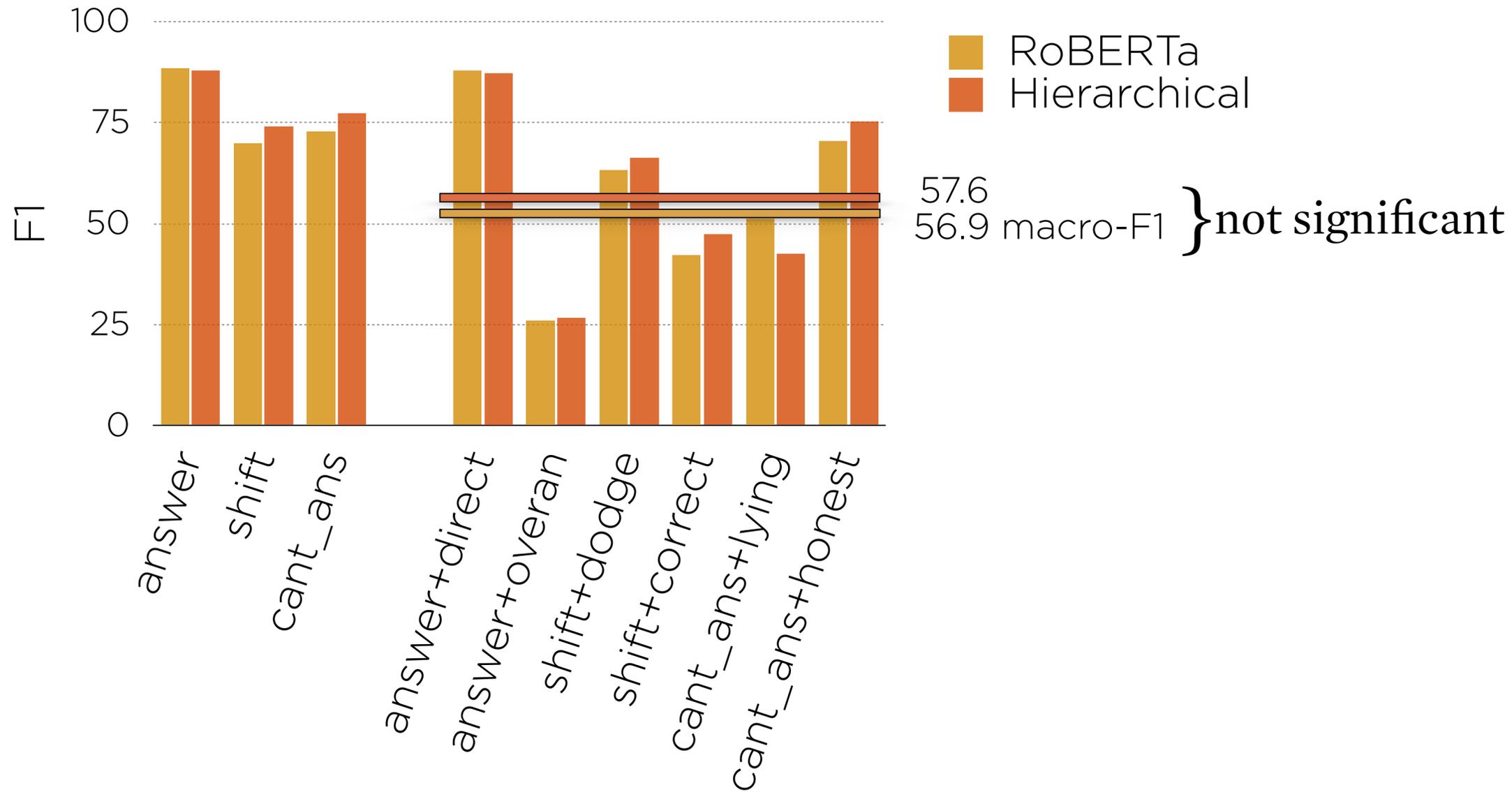
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## RQ: What are all the possible interpretations of a response?

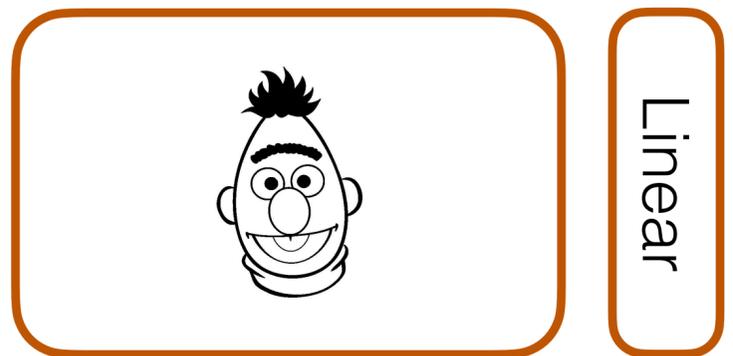


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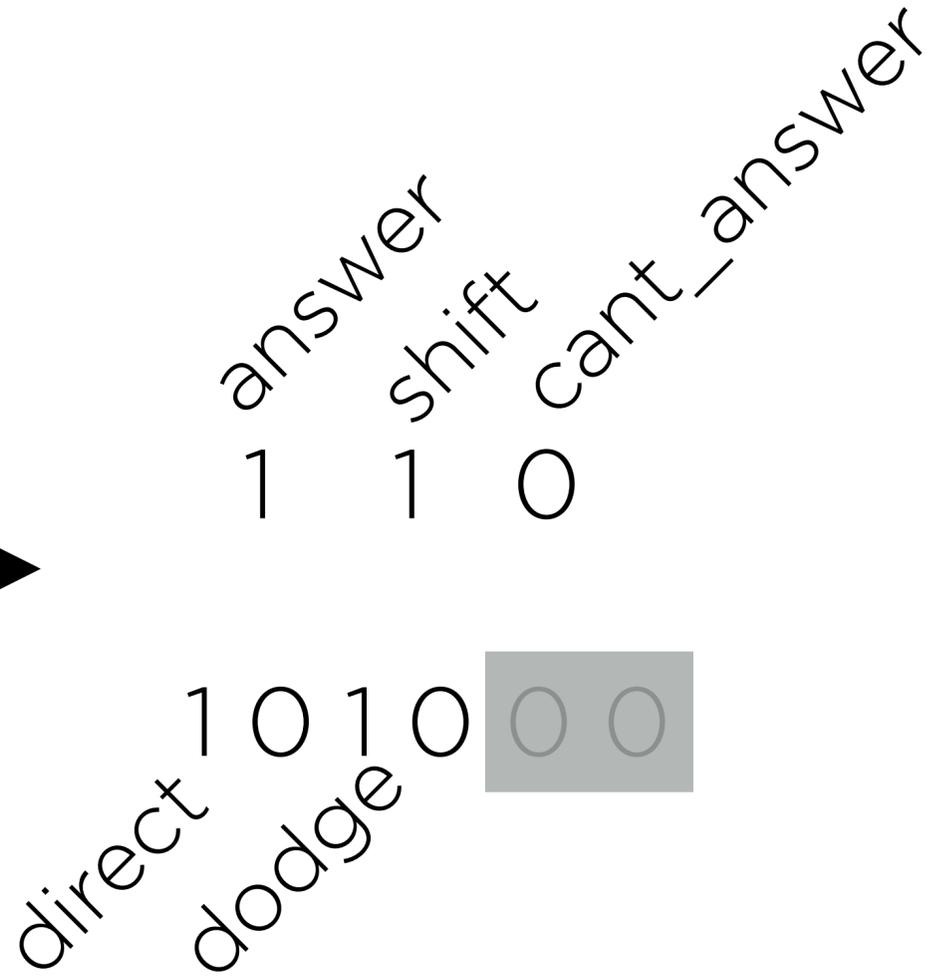


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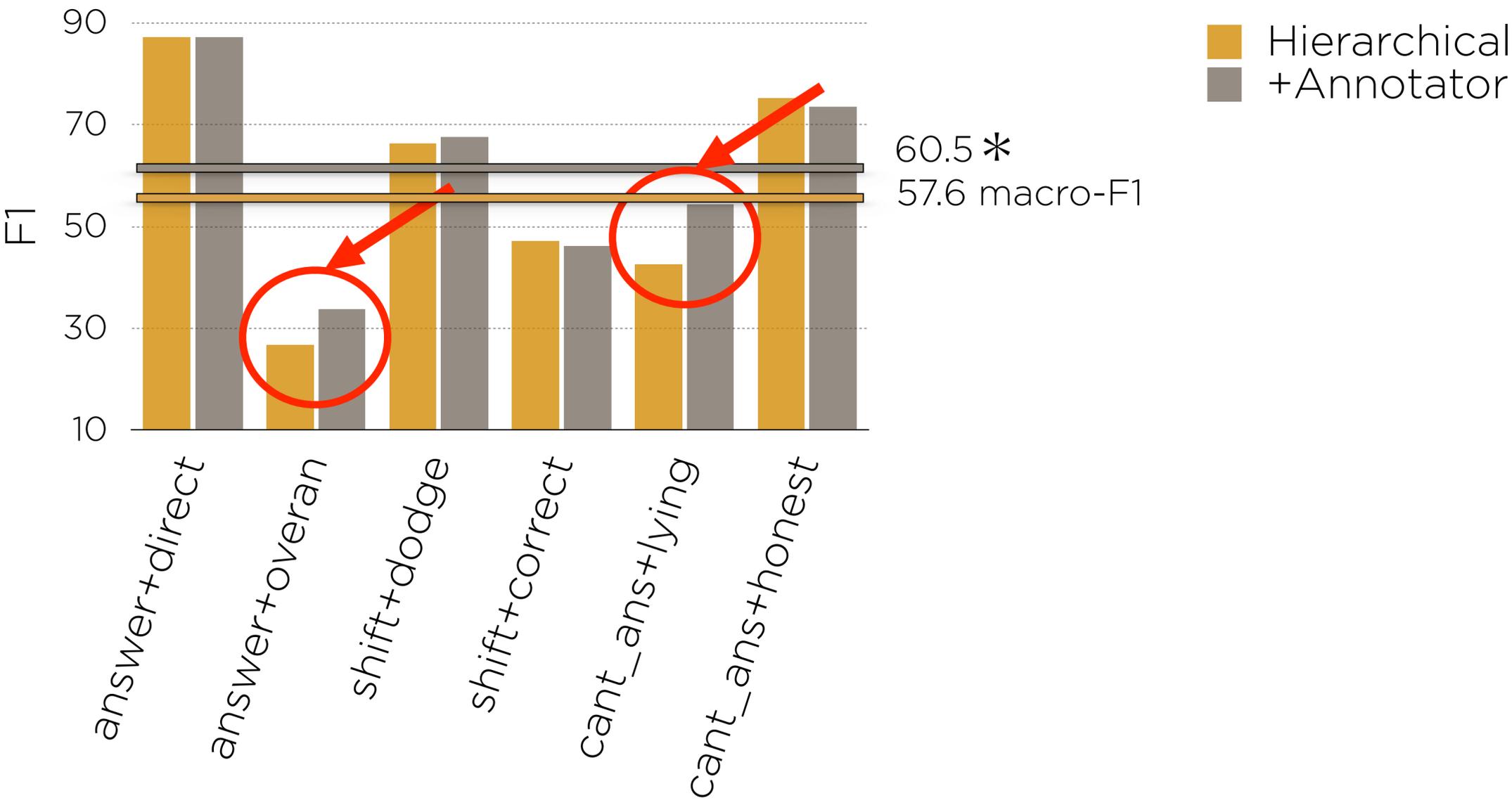
Congressman,  
yes. That is...



\*binary cross-entropy loss



# RQ: What are all the possible interpretations of a response?



# RQ: What are all the possible interpretations of a response?

- Highly contextualized task:
  - Annotator sentiment is important but only part of the story

# Takeaways

- Worthwhile to *consider* and *capture subjectivity* of tasks
- Framework for *identifying, eliciting, and analyzing* subjectivity
- **identify:** taxonomy that separates subjective from objective elements
- **elicit:** annotation tasks with evidence to support subjective elements
- **analyze:** IAA analysis, baseline models to predict interpretations

Data & code: [https://github.com/elisaF/subjective\\_discourse](https://github.com/elisaF/subjective_discourse)

# Subjective Discourse

## Question-Response 5 of 5

**Mr. Engel** : So do you adjust your algorithms to prevent individuals interested in violence or nefarious activities from being connected with other like-minded individuals?

**Mr. Zuckerberg** : Sorry. Could you repeat that?

Show/Hide Next Turn

Please briefly explain all your choices for **Witness Intent**:

**How does the politician pose their question(s)?**  
*includes leading question, controversial assumption or attack?*  yes  no

**How does the witness respond?**

- answers all reasonable questions*
- answers partially or not all questions*
- answers a different question*
- says they don't understand/don't know/can't answer or asks a clarification question*

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- says they don't understand/don't know/can't answer or asks a clarification question*

**Witness intent for saying they can't answer?**

- you believe they're lying*
- you believe they're sincere*

**Witness provides extra info?**

- yes*
  - to sway opinion in their favor*
  - to be helpful or add critical details*
- no*

Show/Hide Next Turn

Please briefly explain all your choices for **Witness Intent**: