

Accommodation of Rising and Falling Intonation in American English

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Background

Variation in inquisitive and assertive interpretations of rises and falls mainly follows variation in ending FO

Unclear whether the contours closest to chance are AMBIGUOUS or if there are DISTINCT other interpretations

If we give people a third "Other" choice, will this help resolve uncertainty between interpretations in the data?

Task



Asking Telling

F J Other

Other

Space

If participant says "Other" then the contour is played again at the end of the experiment

Participants give a free text response about their "Other" interpretation

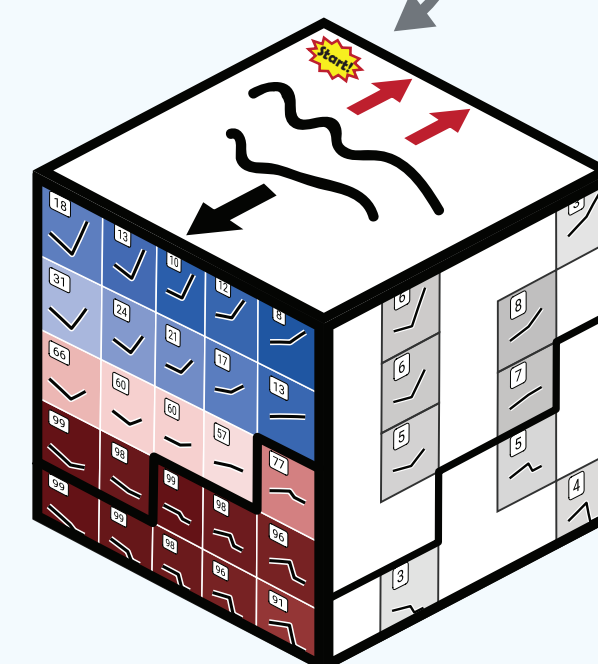
Explore the Data

To see our results from prior experiments, and across tasks, check out the supplementary cubes

First find where to start



The black arrow points to the dataset being described, and the red arrows show how to get to the next dataset



Continua vary accentual pitch (horizontal) and ending pitch (vertical)



Heatmaps show the numerical % Telling vs Asking or % Other vs Non-Other responses

Qualitative Responses

Participants' free text responses hint at three possible sources of variation in interpretation and task behavior

Additional Nuance

The speaker sounds like they are being obvious/ clear-cut like the other person should already know.

The speaker sounds like he's conveying a telling action with an uninteresting tone.

that is an odd one, it sounded to me like he is telling me but doubting what he is saying

Disbelief

Metalinguistic Uncertainty

Sounds like a statement with a tinge of question

I think this person is asking, but the tone is close enough that it might be telling, also.

not sure, something in between asking and telling

In the inflection on GREENview is odd, sounds a little questioning but ends like a statement.

Distinct Functions

I responded "other" as it sounds more like the inflection comes from the speaker listing off things.

telling as part of a list of where people are from

telling, but with an emphasis on where Molly's from, as a correction.

This just sounds like an acknowledgement, like someone stated that Ryan was in greenview, and they re-stated it as a way of saying they understood.

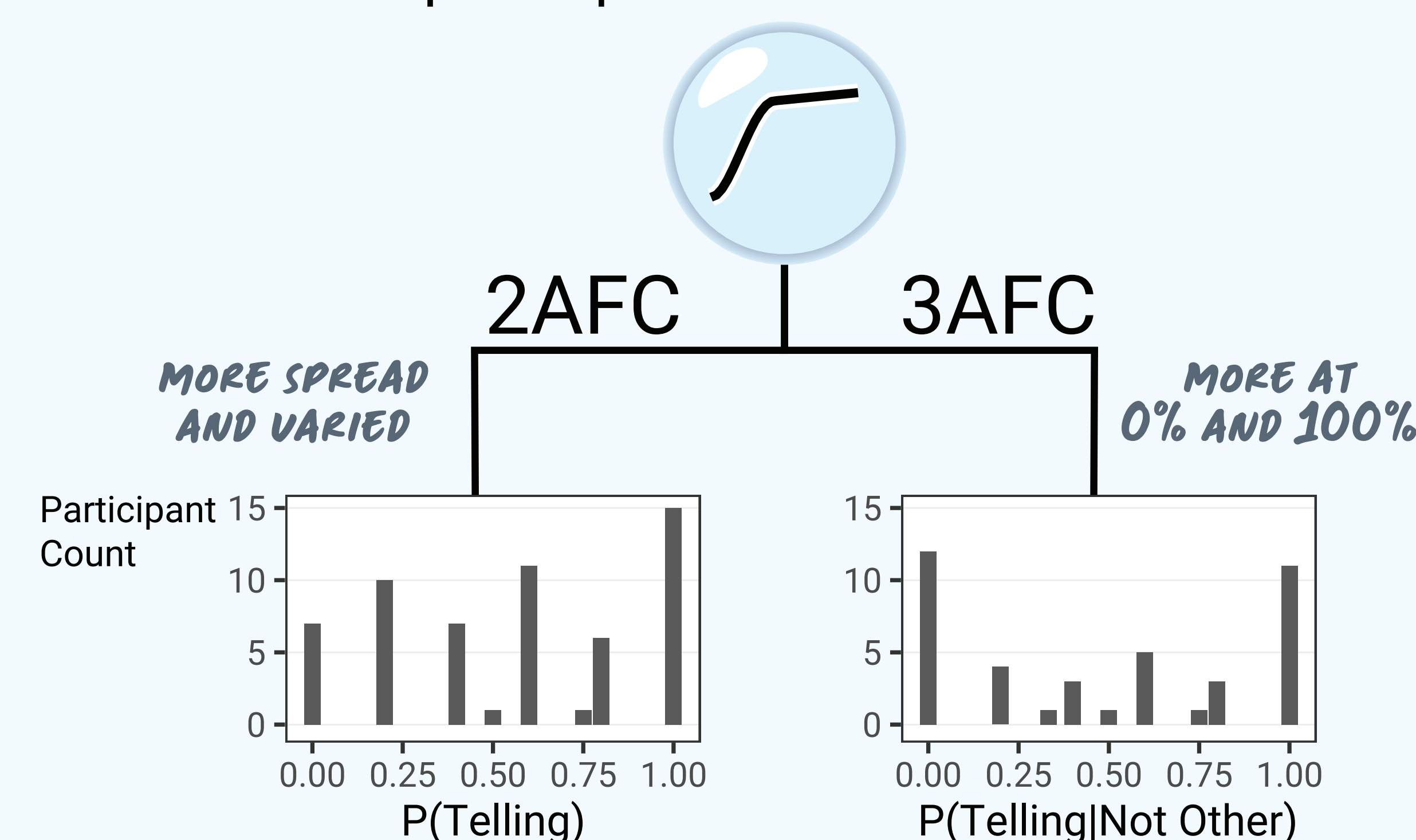
Asking in confirmation to being told

Quantitative Results

Interpretation of Asking vs Telling still varies primarily based on ending pitch rather than accentual pitch

People only rarely use the Other response: they seem to readily accommodate steps as Asking or Telling

Some steps remain close to 50% in the aggregate, but distribution of participant's behavior seems different

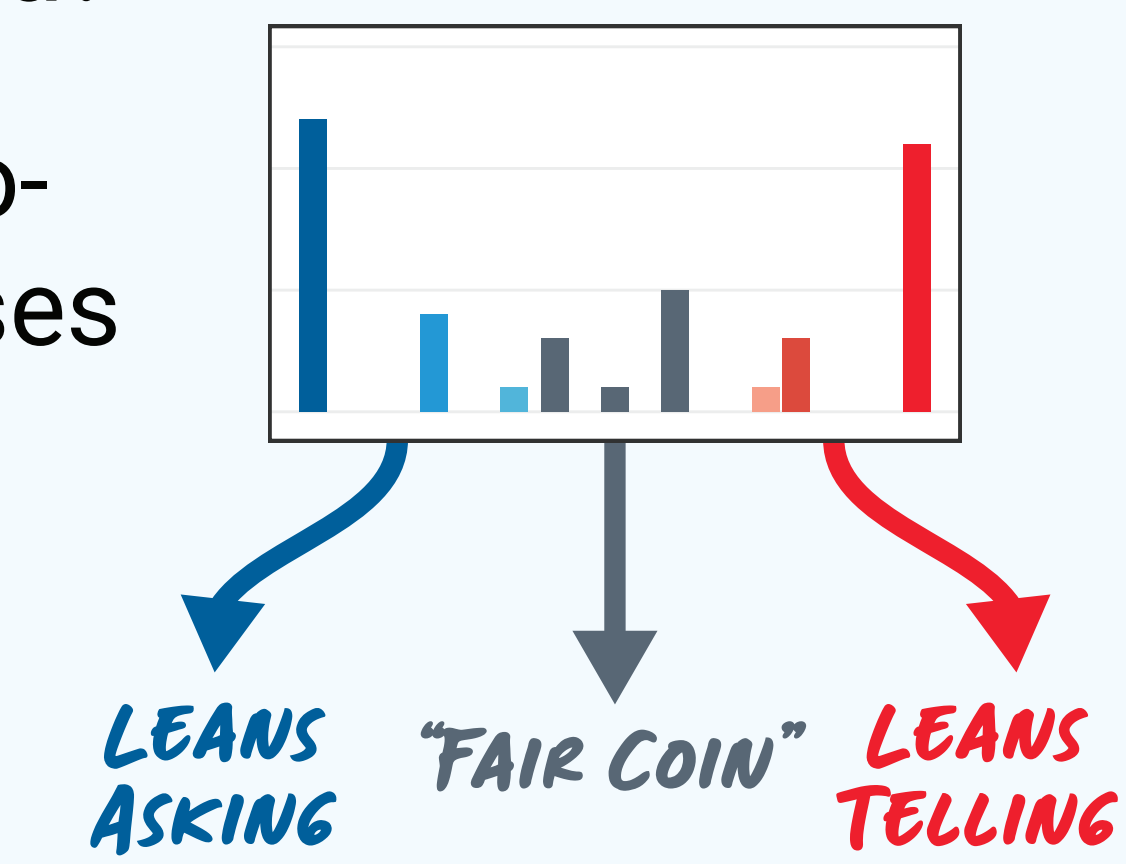


Modeling Approach

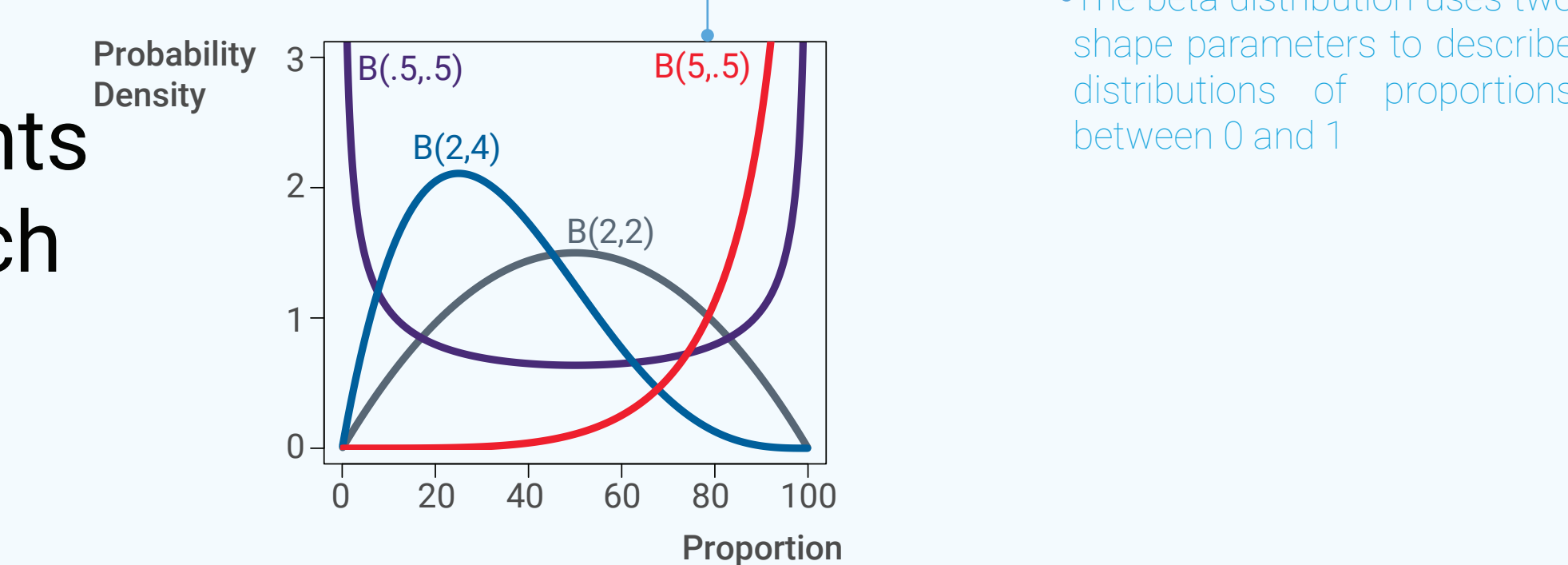
How can we model the observation that participants seem more consistent across repetitions of the more ambiguous steps of the continua?

People may lean more or less towards Asking or Telling responses

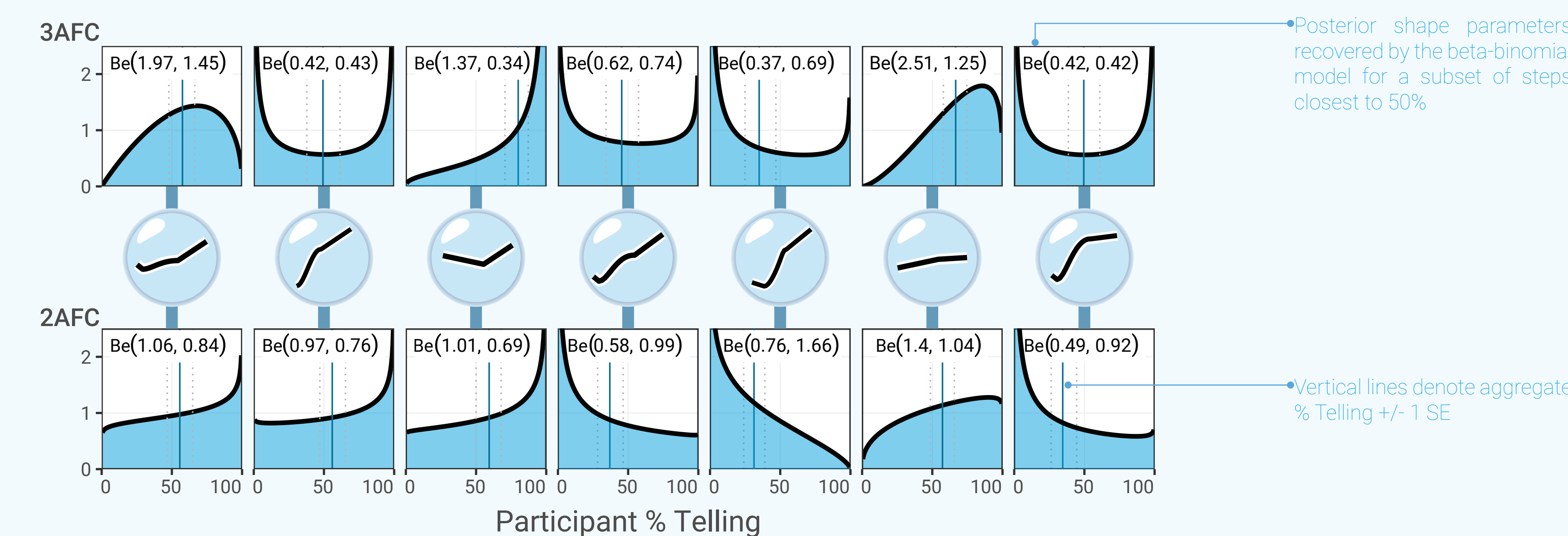
A participant's behavior can be thought of like a weighted coin



The distributions of these weights can have different shapes, which resembles a beta distribution



Using a beta-binomial model, we can learn the shapes of the weight distributions from the binary choices



Conclusions

Participants report different sources of disagreement and uncertainty in free text responses

The beta-binomial model can be used to describe how response behavior changes across tasks

Future work with this approach should aim for less steps and more repetitions, with additional extensions to account for continuum endpoint behavior

Ordered beta regression with participant-level proportions may be an alternative (see Kubinec 2022)