

EXPERIMENTAL COGNITIVE DECISION THEORY

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Goals and theory

Goal: investigate the role of different “cognitive utilities” in human reasoning. In particular, see whether 1) people can discriminate between “truth” and “closeness to the truth” (truthlikeness) and 2) their assessments of closeness to the truth respect those predicted by a “minimal” theory of truthlikeness.¹

Example: (see the 😊 picture on the right) “The face is smiling” and “The face is smiling and has open eyes” are both true, but the latter is more informative and hence closer than the former to the whole truth.

Theoretical predictions for comparisons between pairs of true (*t*) and/or false (*f*) statements varying in information content:¹

	Statements	Treatments	
		Truth	Truthlikeness
<i>t vs tt</i>	True True & True	Same	True & True
<i>t vs f</i>	True False	True	True
<i>t vs tf</i>	True True & False	True	True
<i>f vs ft</i>	False False & True	Same	False & True
<i>f vs ff</i>	False False & False	Same	False

¹Cevolani, Crupi, and Festa (2011). “Verisimilitude and Belief Change for Conjunctive Theories”, *Erkenntnis* 75 (2): 183–202.

Main results: participants i) distinguished between truth and truthlikeness (Figure 1); ii) correctly assessed true/false statements (Figure 2, left) with the interesting exception of case *t vs tt*; iii) assessed truthlikeness quite in line with theoretical predictions (Figure 2, right); iv) were consistent across the three scenarios.

Results

Figure 1. Percentage of truth-based answers by treatment:

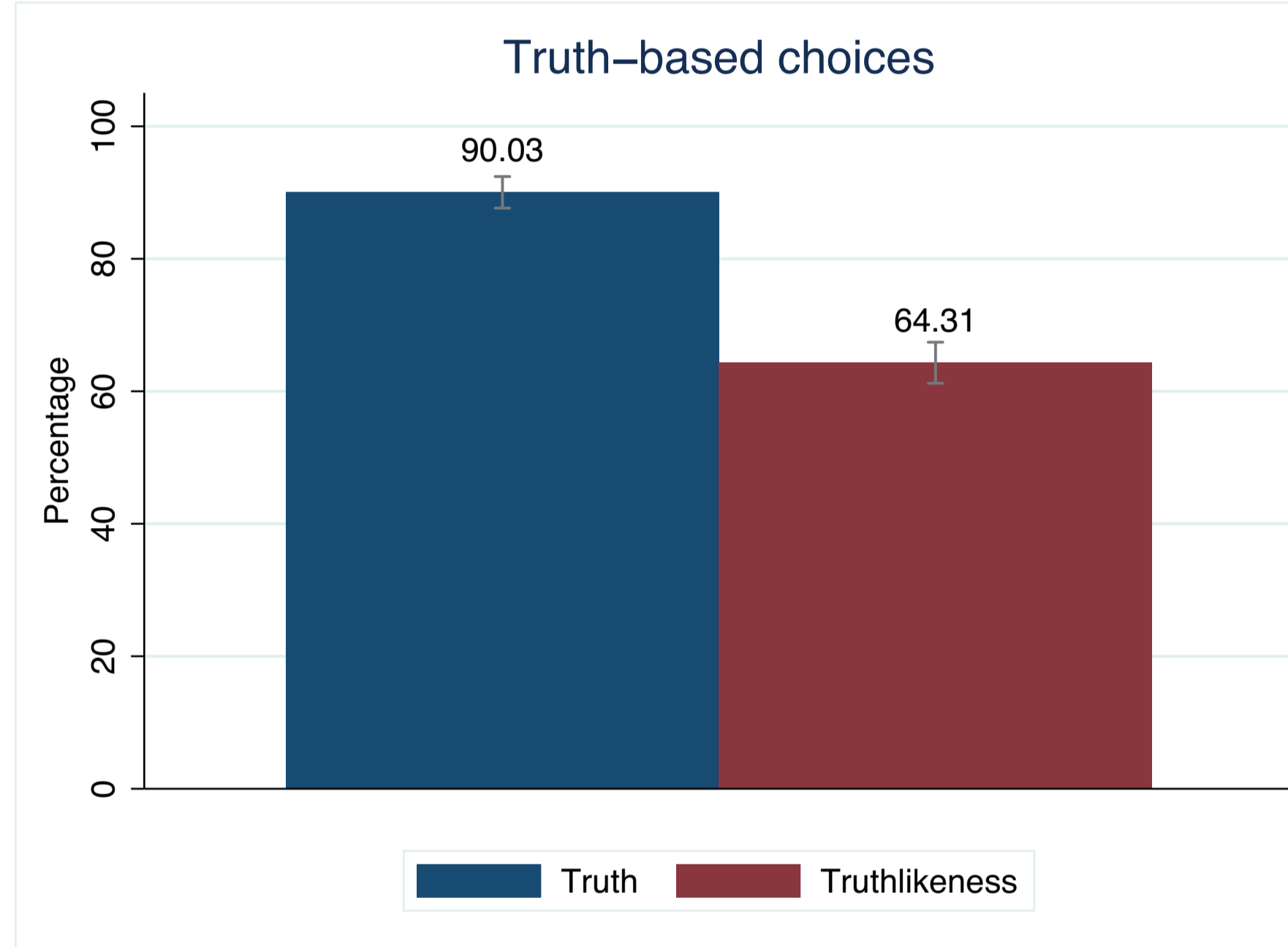
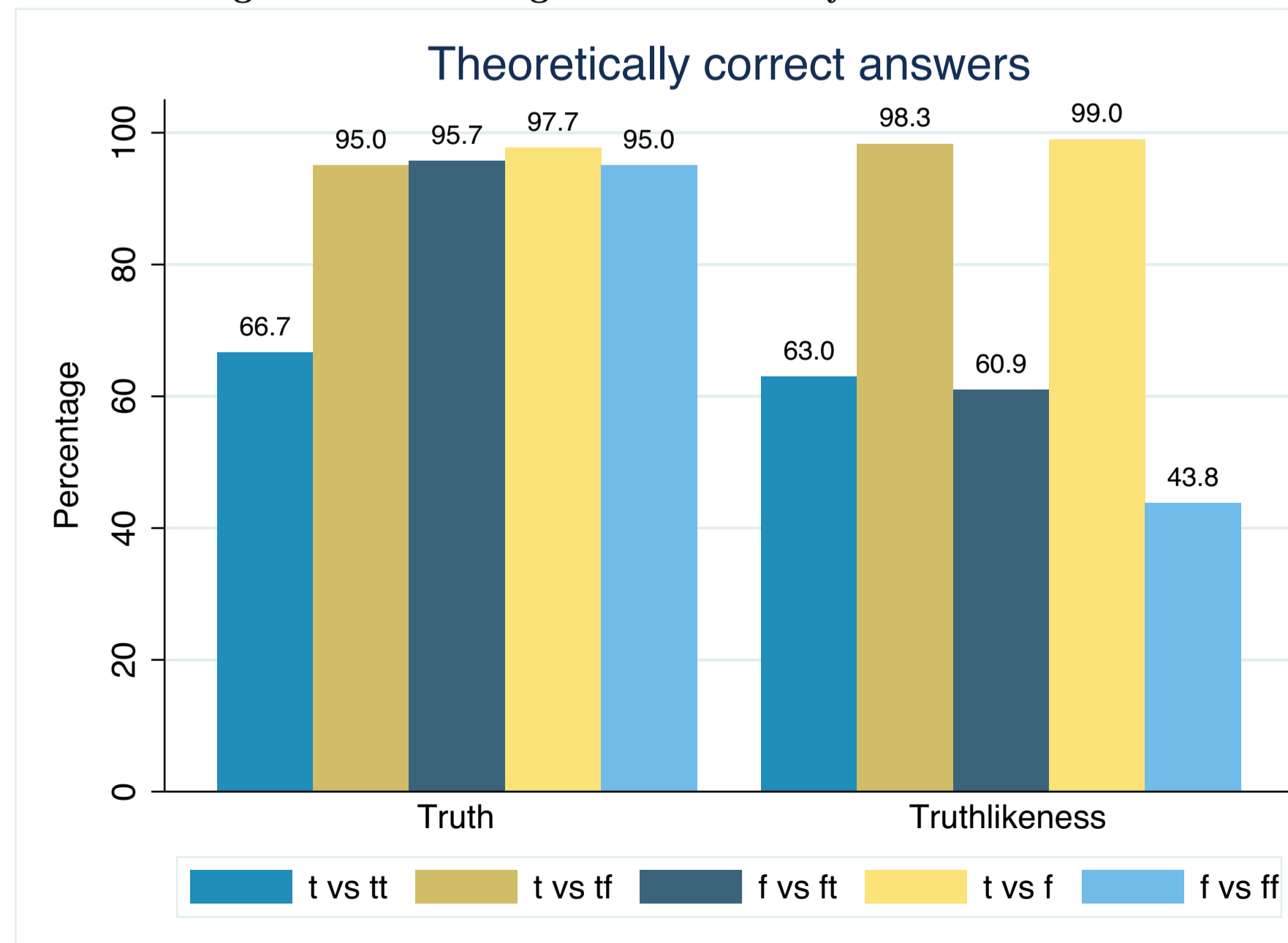


Figure 2. Percentage of theoretically correct answers:

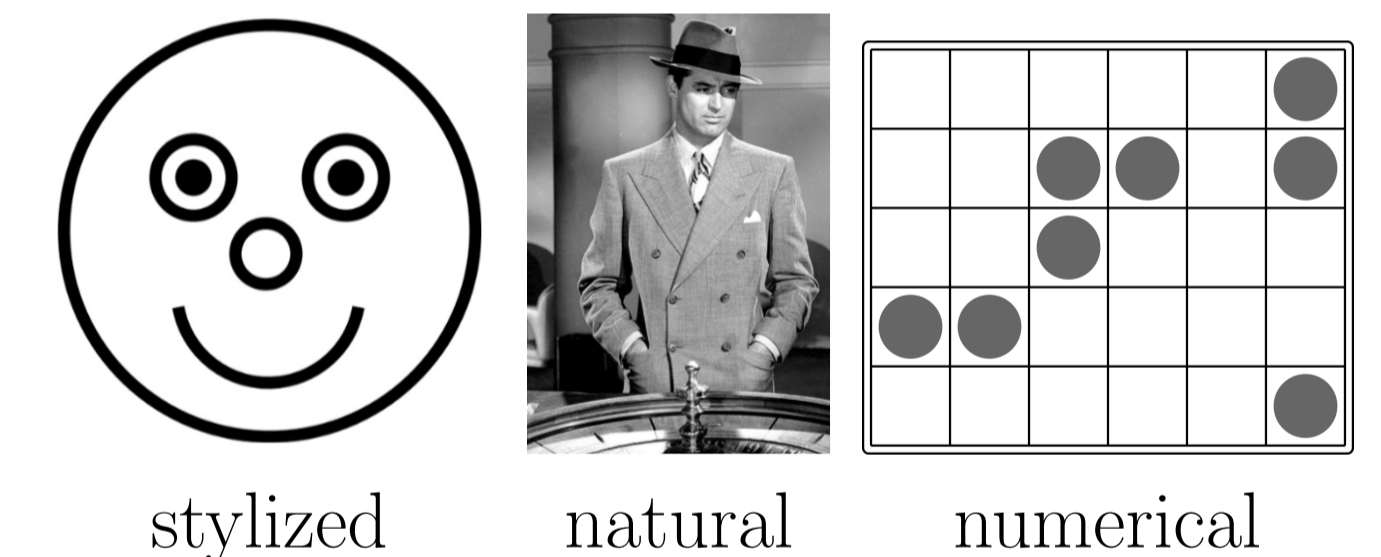


Experimental design

Experiment: pre-registered, online, incentivized experiment (average: 0.25GBP/2:30min) on Prolific; 200 participants; software implemented in oTree.

Task: participants observed 3 pictures (randomized order) and evaluated $3 \times 5 = 15$ pairs of statements providing true/false information on the subject of each picture.

Stimuli (pictures)/scenarios:



Conditions: (between subject design)

- Truth condition** (control): “For each pair of statements, choose the one that is true [...]; if both of them are true, or none of them is true, choose “Both the same””
- Truthlikeness condition** (treatment): “For each pair of statements, choose the one that is closer to the truth [...]; if both of them are equally close to the truth, choose “Both the same””

Participants:

	N	Mean Age	Females
Truth condition	99	30	67%
Truthlikeness condition	101	29	50%
Total	200	29.39	59%