

THE SEARCH FOR TRUTH: APPOSITIVES WEIGH IN

SALT, May 17 2019

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AND IS NORTH OF SAN DIEGO.

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It is debated whether appositives, as canonically expressing **not-at-issue content**, contribute their semantic truth conditions to their containing sentence.

RESEARCH QUESTIONS

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Hypothesis: Judgments of truth and falsity are affected by **clausal type** such that participants will be more willing to discard false appositives than false conjunctions in evaluations of truth.

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Hypothesis: Judgments of truth and falsity are affected by the **relevance** of information to conversational goals, such that information relevant to resolving a QuD will be prioritized over irrelevant information in truth evaluations.

Preview of Findings:

Clausal type: No

Clausal type did not affect truth judgments: Appositive and conjunction clauses were treated the same for truth judgments.

Relevance: Yes

- Relevance of clausal information affected truth judgments: Relevant clauses mattered more than irrelevant clauses.
- Results suggest that goal-oriented reasoning can cause participants to weigh different parts of a sentence unequally in evaluations of sentential truth.

Preview of Conclusions:

- Truth judgments are modulated by domain-general or top-down processes such as reasoning about conversational goals.
- Unless we want to bake this behavior into our semantic truth-conditions, truth judgments of this nature do not (necessarily) reflect semantic truth.
- Experimental judgments of truth as they are currently gathered are not a good guide to theoretical semantic predictions of truth.

APPPOSITIVES: WHAT ARE THEY?

Conventional implicatures or not-at-issue content (Potts 2005/2012, Amaral et al. 2007, Nouwen 2007, Harris & Potts 2009, Simons et al. 2011, Tonhauser 2012, Koev 2013, AnderBois et al. 2014, a.o.)

- No semantic dependencies from matrix clause
 - i) No sailor who tied her bowline properly failed her test.
 - ii) *No sailor, who tied her bowline properly, failed her test
- Project beyond negation, propositional attitude verbs:
 - iii) Mary thinks that SUPs, which are the segways of the ocean, are cool.
- Generally **do not contain information relevant** to a Question under Discussion (QuD) (Ginzburg 1996, Roberts 1996/2012)
 - iv) Q: Which boat did the fisherman wreck?
A: The fisherman, who was overworked, wrecked the trawler.

APPPOSITIVES: WHAT ARE THEY?

Do appositives contribute their truth-conditions to their containing sentence? Two camps:

No: Appositives compose **semantically independently** from their containing matrix clause, and do not contribute their truth-conditions to their containing sentence (Bach 1999, Potts 2005/2012).

Yes: Appositives are **semantically conjoined** to their matrix clause and contribute a truth value similar to a conjoined clause.

(AnderBois et al. 2010, Murray 2010, Syrett & Koev 2015).

EXPERIMENT 1: DESIGN

Participants read sentences describing shapes on the screen and judged whether the sentences were True or False.



What can you tell me about the shapes?

The square, which is blue, is next to the orange triangle.

1. True.
2. False.

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EXPERIMENT 1: DESIGN

$2 \times 2 \times 2$:

EXPERIMENT 1: DESIGN

2 x 2 x 2:



Appositive The square, which is blue, is next to the orange triangle.

Conjunction The square is blue and is next to the orange triangle.

EXPERIMENT 1: DESIGN

$2 \times 2 \times 2$:



Appositive: True, False

Conjunction: True, False

The **square**, which is **blue**, is next to the orange triangle.

The **square** is **blue** and is next to the orange triangle.

EXPERIMENT 1: DESIGN

2 x 2 x 2:



Appositive: True, False

Conjunction: True, False

Matrix Clause / 2nd Conjunction: True, False

The square, which is blue, is next to the orange triangle.

The square is blue and is next to the orange triangle.

EXPERIMENT 1: DESIGN

$2 \times 2 \times 2$:

Appositive: True, False

Conjunction: True, False

Matrix/2nd Conj: True, False

80 items, 160 fillers

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80 items, 160 fillers

48 Participants on MTurk

EXPERIMENT 1: DESIGN

8 conditions per item:

Appositive/1st Conj.	Matrix/2nd Conj.	Truth Value
False	False	False
False	True	?
True	False	?
True	True	True

EXPERIMENT 1: PROCEDURE



What can you tell me about the shapes?

The square is pink and is next to the orange triangle.

1. True.
2. False.

EXPERIMENT 1: PROCEDURE



What can you tell me about the shapes?

The square is pink and is next to the orange triangle.

1. True.
2. False.

EXPERIMENT 1: PROCEDURE



What can you tell me about the shapes?

The square, which is blue, is next to the purple triangle.

1. True.
2. False.

EXPERIMENT 1: PROCEDURE



What can you tell me about the shapes?

The square, which is blue, is next to the purple triangle.

1. True.
2. False.

EXPERIMENT 1: PROCEDURE

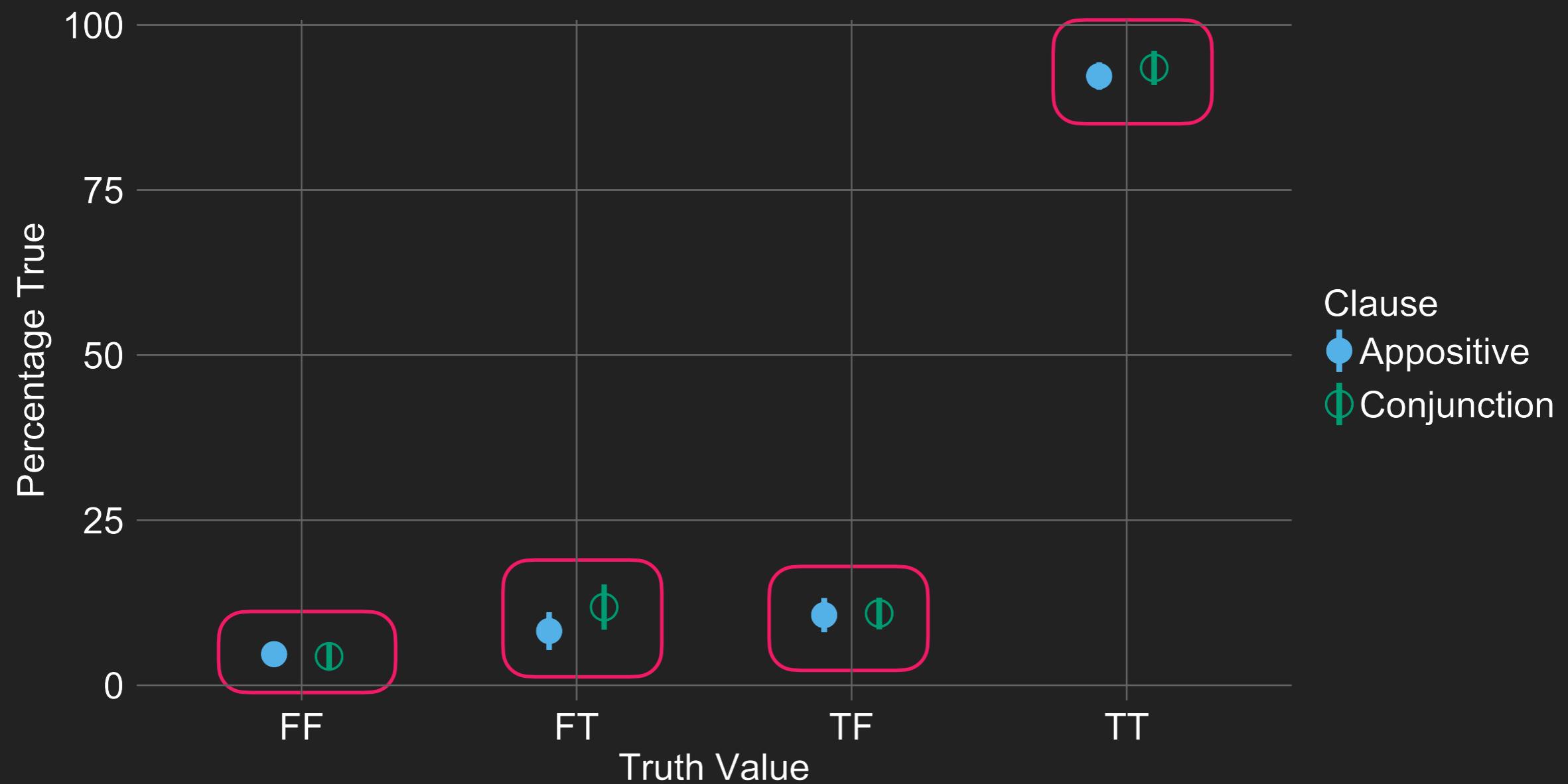


What can you tell me about the shapes?

The square, which is pink, is next to the orange triangle.

1. True. ?
2. False.

EXPERIMENT 1: RESULTS



Main effects of appositive/1st conj & matrix/second conj; interaction of appositive/1st conj & matrix/2nd conj,
all $p < .001$. No effect of clause type. N=48.

EXPERIMENT 1

Main Findings from Experiment 1:

- ▶ Participants treated appositives and conjunctions the same, responding in a truth-table manner consistent with conjunctions.
- ▶ Expected under an account in which appositives contribute a truth-value to their containing sentence.
- ▶ Replicated one of Syrett & Koev's (2015) main findings, but with a slightly different design.
- ▶ One explanation for these findings is that the judgments are an artifact of the particular task.

EXPERIMENT 1

Recall that appositives canonically do not contribute to the QuD:

Q: Which boat did the fisherman wreck?

A: The fisherman, who was overworked, wrecked the trawler.

General QuD in Exp 1: What can you tell me about the shapes?

- ▶ Both clauses could be construed as containing relevant information.
- ▶ General QuD may have encouraged participants to consider appositive content.

EXPERIMENT 2

Specific QuD in Exp 2: What color is the square?

- ▶ QuD targets only matrix clause/2nd conj. in experimental items
- ▶ Only matrix clause/2nd conj. will have information construed as relevant to answering the QuD.
- ▶ Hypothesis: Specific QuD will encourage participants to discard appositive content.

EXPERIMENT 2: DESIGN

$2 \times 2 \times 2$:

Appositive

Conjunction

EXPERIMENT 2: DESIGN

$2 \times 2 \times 2$:



Appositive: True, False

Conjunction: True, False

The square, which is blue, is next to the orange triangle.

The square is blue and is next to the orange triangle.

EXPERIMENT 2: DESIGN

2 x 2 x 2:



Appositive: True, False

Conjunction: True, False

Matrix/2nd Conj: True, False

The square, which is blue, is next to the orange triangle.

The square is blue and is next to the orange triangle.

EXPERIMENT 2: DESIGN

$2 \times 2 \times 2$:

Appositive: True, False

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80 items, 160 fillers

48 Participants on MTurk

EXPERIMENT 2: PROCEDURE



What color is the square?

The square, which is next to the pink triangle, is blue.

1. True.
2. False.

EXPERIMENT 2: PROCEDURE

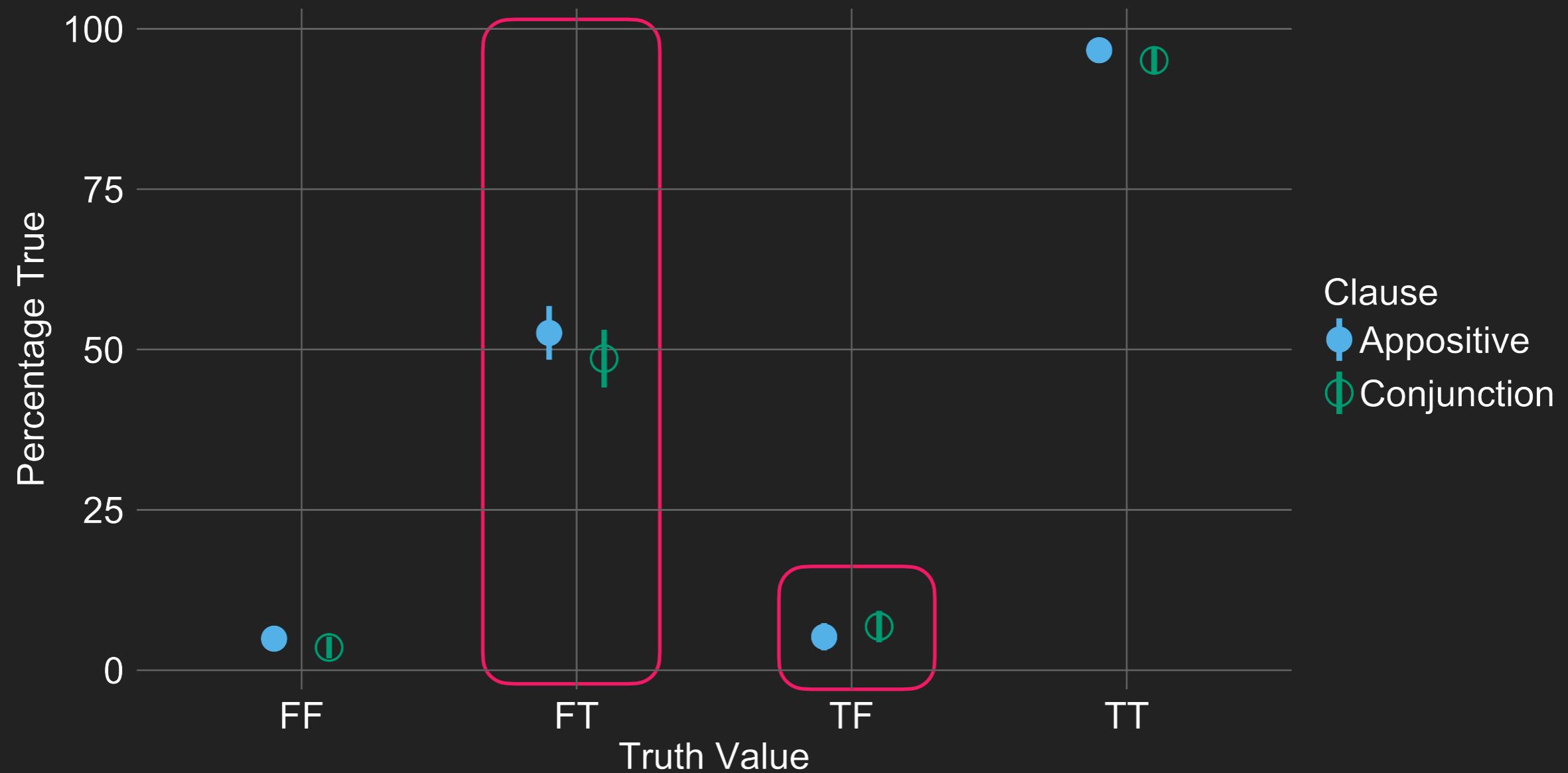


What color is the square?

The square, which is next to the pink triangle, **is blue**.

1. True.
2. False.

EXPERIMENT 2: RESULTS



Main effects of appositive/1st conj & matrix/second conj;
interaction of appositive/1st conj & matrix/2nd conj, all $p < .001$. N=48.

EXPERIMENT 2: RESULTS

We saw that the crucial truth value, False True, was judged True about 50% of the time for **both** conjunctions and appositives.

Irrelevant Appositive/1st Conj	Relevant Matrix/2nd Conj	Truth Judgment
False	False	~0% True
False	True	50% True
True	False	~0% True
True	True	~100% True

EXPERIMENT 2: RESULTS

We saw that the crucial truth value, False True, was judged True about 50% of the time for **both** conjunctions and appositives.

Irrelevant	Relevant	Truth
Appositive/1st Conj	Matrix/2nd Conj	Judgment
False	False	~0% True
False	True	50% True
True	False	~0% True
True	True	~100% True

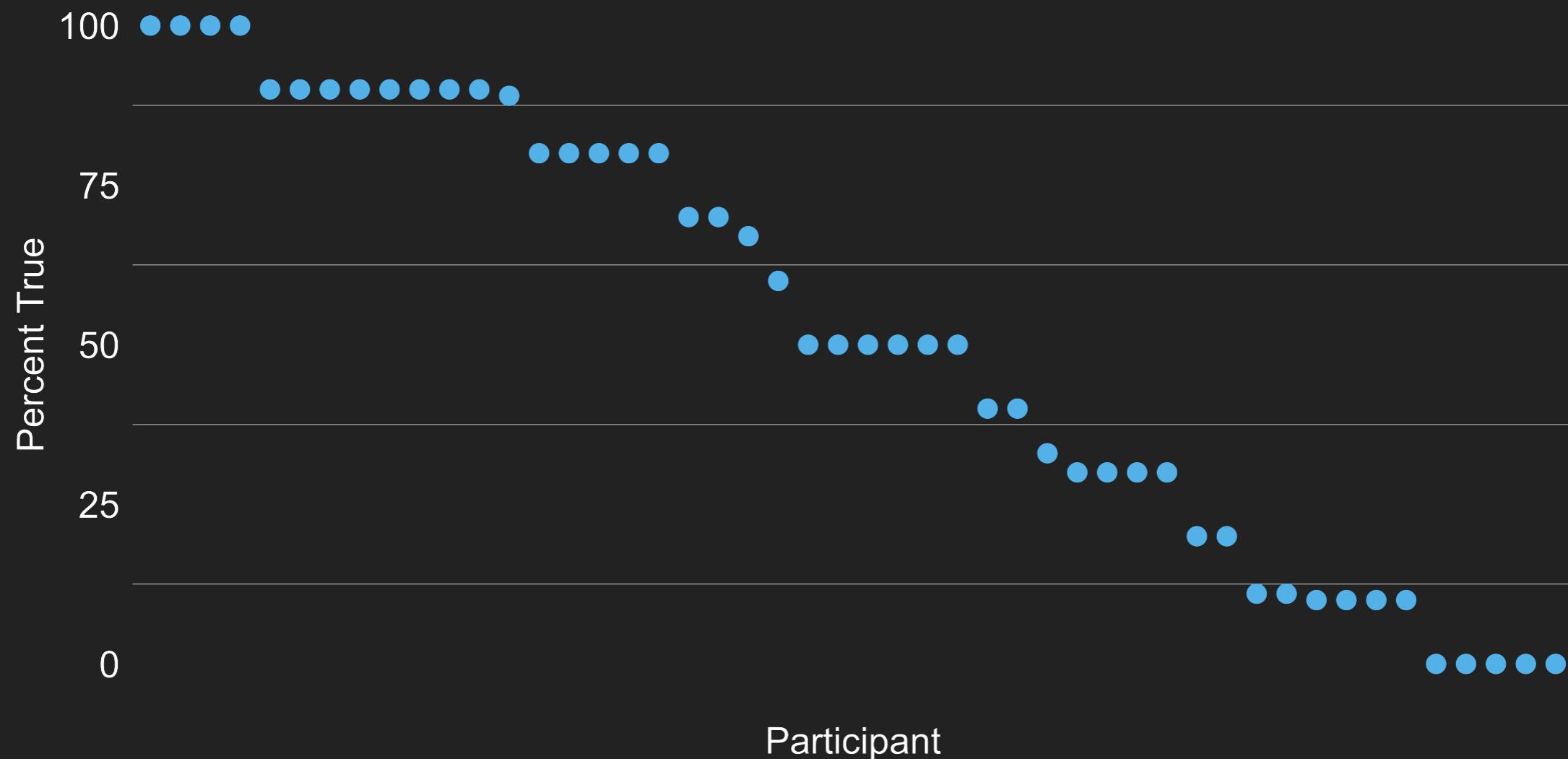
Were individuals responding true on 50% of trials, or did different participants follow different response strategies?

EXPERIMENT 2: RESULTS

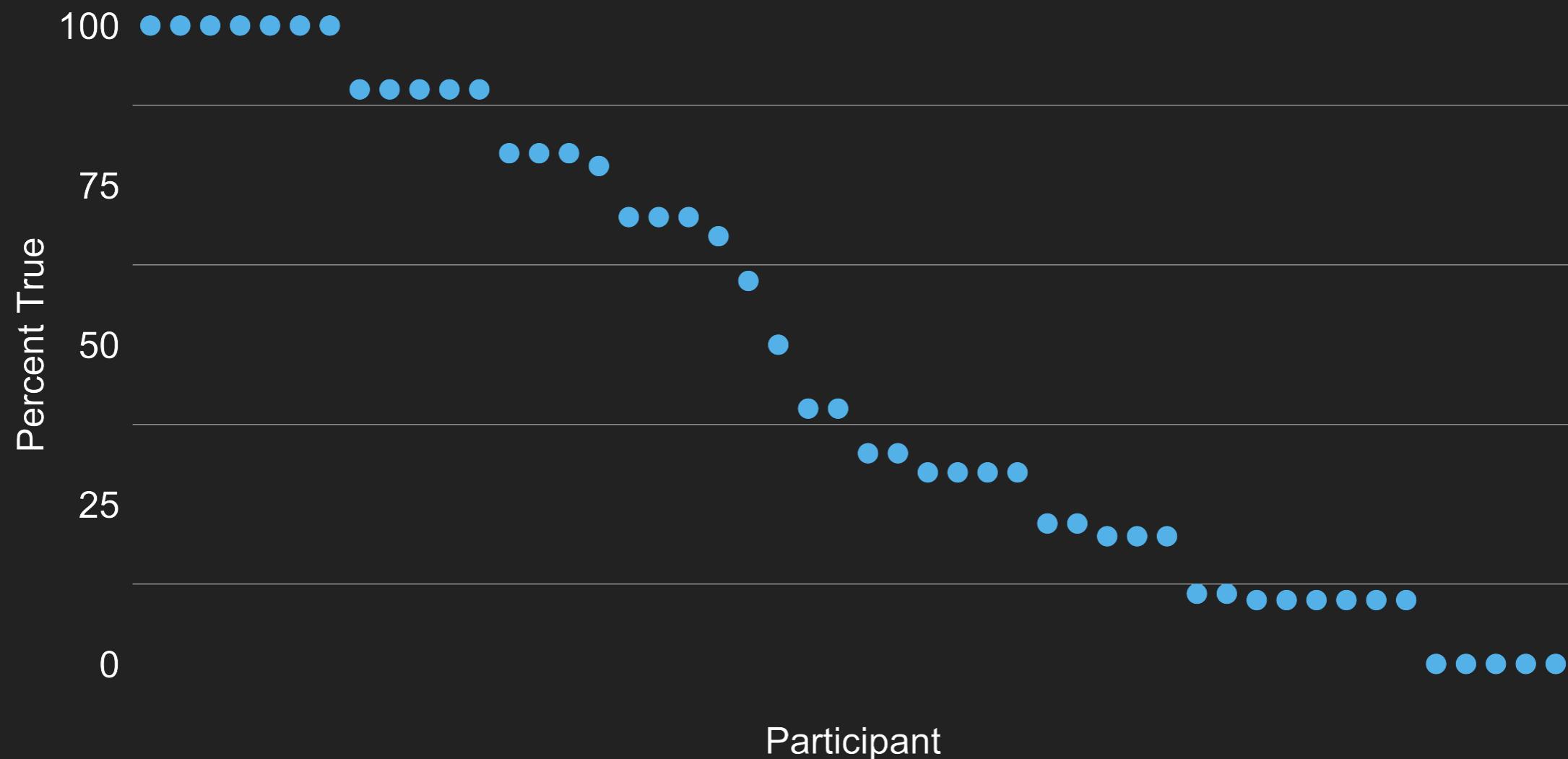
Participants fell on a cline between two behaviors:

- **Truth Evaluators:** Ignored relevance to a QuD, judged truth based on strict consideration of clausal truth.
- **Relevance Evaluators:** Content relevant to the QuD was prioritized over content that was not.

EXPERIMENT 2: RESULTS



EXPERIMENT 2: RESULTS



Percent of items judged true for conjunction clauses:
For False (First Clause) True (Second Clause) Condition

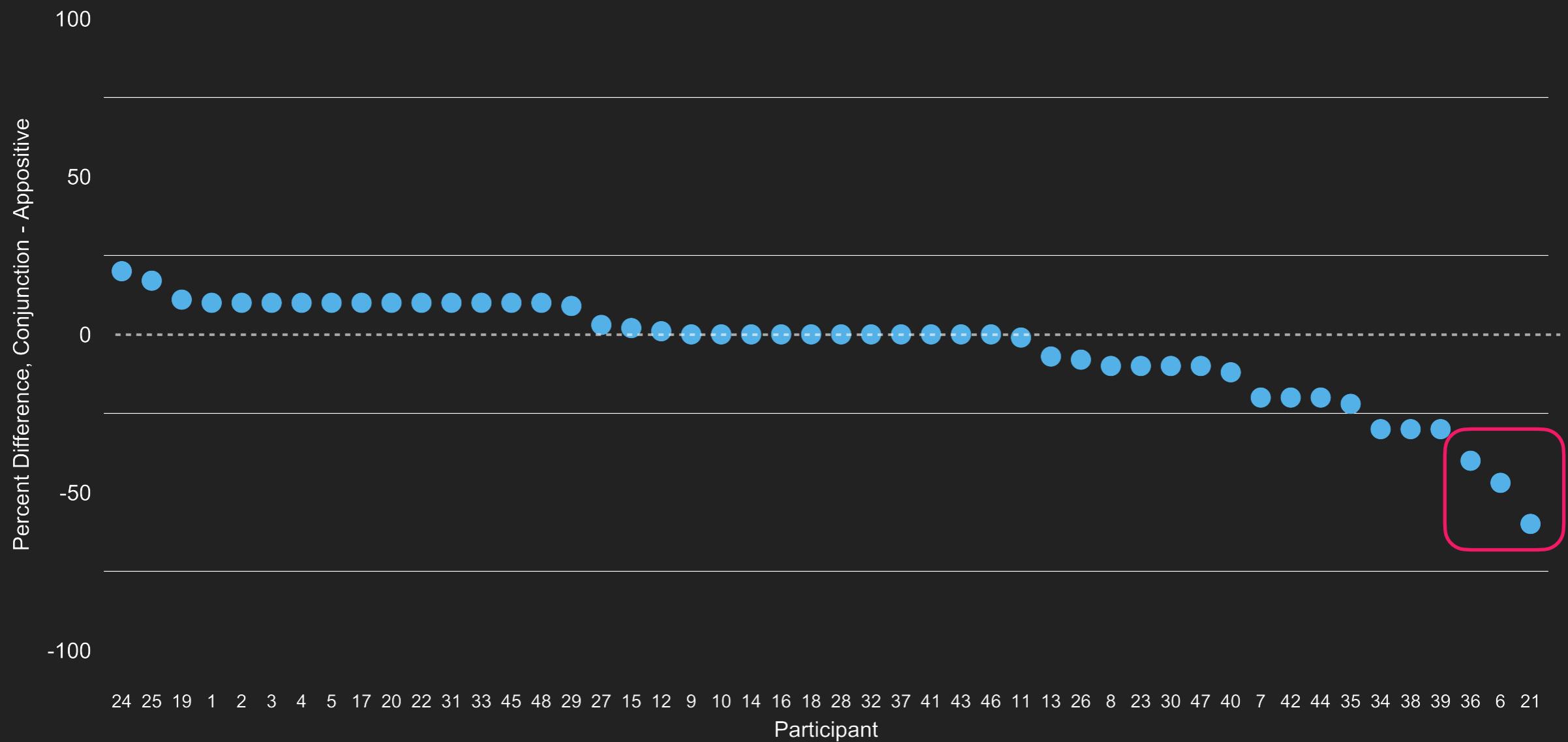
EXPERIMENT 2: RESULTS

Participants fell on a cline between two behaviors:

- **Truth Evaluators:** Ignored relevance to a QuD, judged truth based on strict consideration of clausal truth.
- **Relevance Evaluators:** Content relevant to the QuD was prioritized over content that was not.

Individual participants also maintained a single strategy across clause types, responding 'true' at the same rate across Appositive and Conjunction conditions.

EXPERIMENT 2: RESULTS



Participants were consistent in strategy
across Appositive and Conjunction clauses
(in the False (first clause) True (second clause) condition)

EXPERIMENT 2

Conclusion from Experiment 2:

Participants showed individual differences in their sensitivity to clausal relevance, but were consistent between clause types.

Could results be due to participants selectively allocating attention to relevant portions of the sentences?

If participants who responded True in Experiment 2 did so because they were not fully reading the first clause, then we predict that participants responding True will perform worse on a verbatim memory recognition test than participants responding False.

EXPERIMENT 3

Verbatim Memory Recognition Task

- Participants report whether they read about a particular shape in the previous experiment sentence.

EXPERIMENT 3: PROCEDURE



What color is the square?

The square, which is next to the orange triangle, is pink.

1. True.
2. False.

EXPERIMENT 3: PROCEDURE

Did the sentence mention an orange triangle?

1. Yes
2. No

EXPERIMENT 3: PROCEDURE

Did the sentence mention an orange triangle?

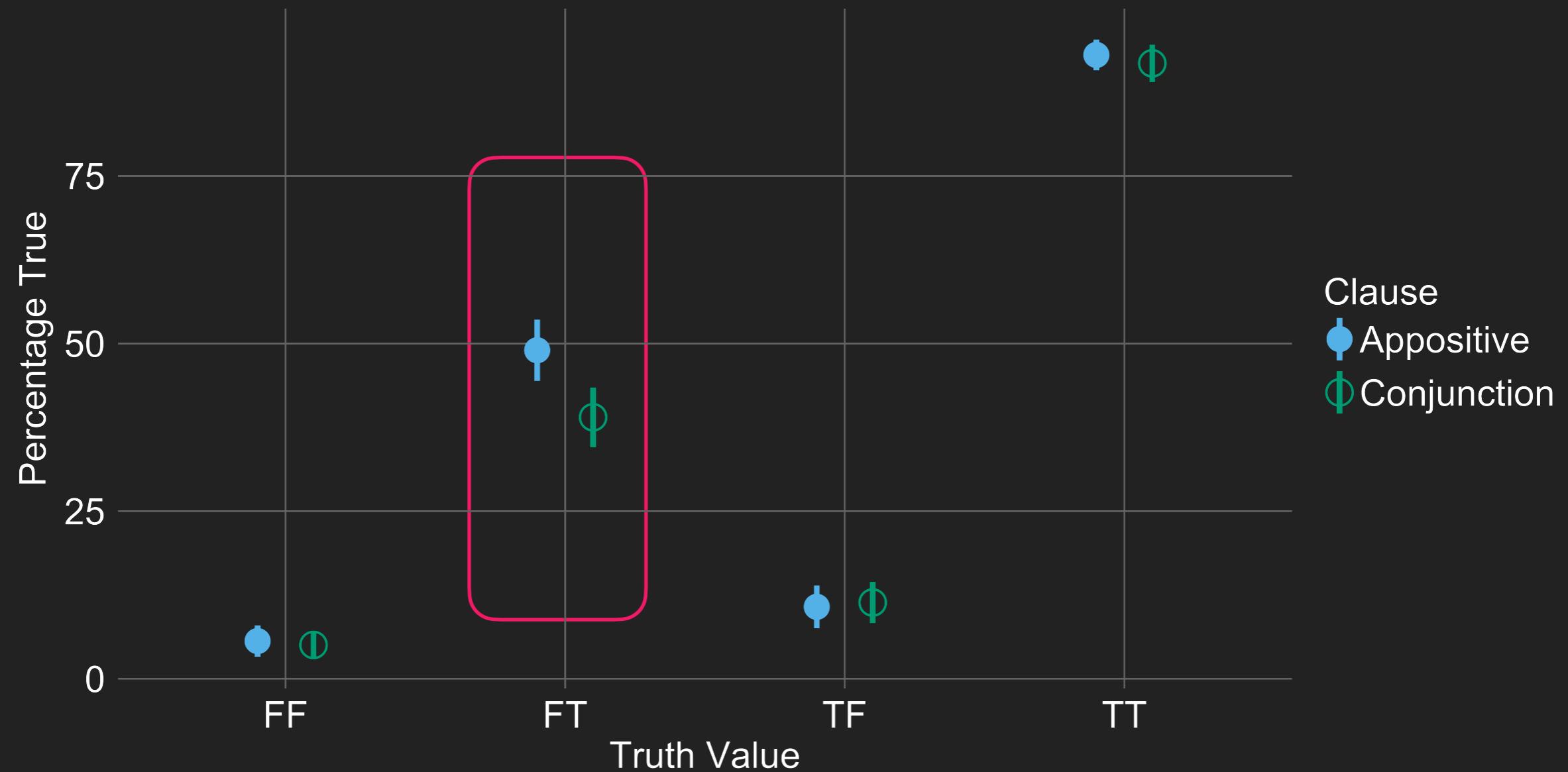
1. Yes
2. No

EXPERIMENT 3

Verbatim Memory Recognition Task

- Participants report whether they read about a particular shape in the previous experiment sentence.
- Participants could not respond based only on the pictures; correct No responses asked about a shape that was pictured but not mentioned.
- Each participant saw questions on 1/4 of the items and on 40 fillers.
- Half of the questions had correct answer Yes, and half had correct answer No.

EXPERIMENT 3: RESULTS



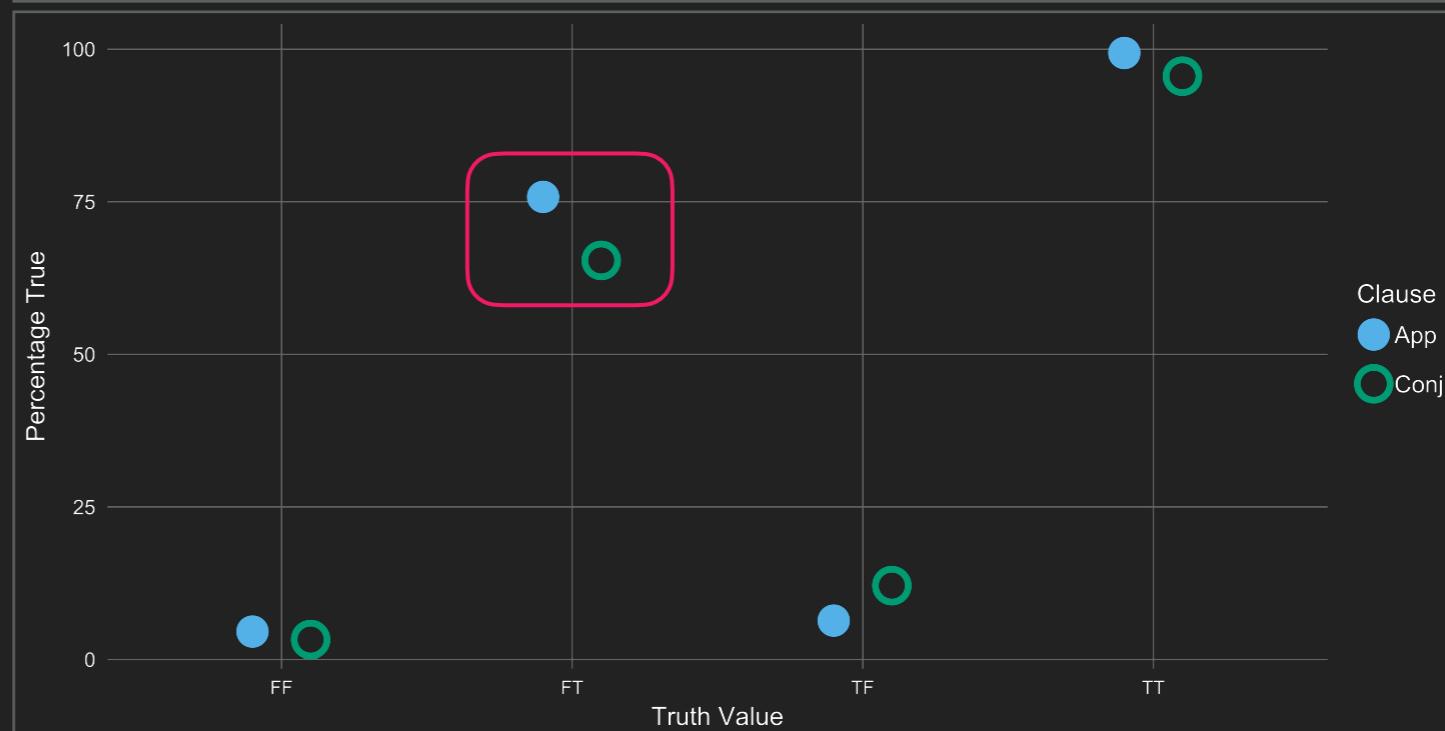
Main effects of appositive/1st conj & matrix/2nd conj; both $p < .001$. N=48.

EXPERIMENT 3: PARTICIPANTS BY CORRECT

Top 16 participants by
correct on verbatim
memory recognition
questions

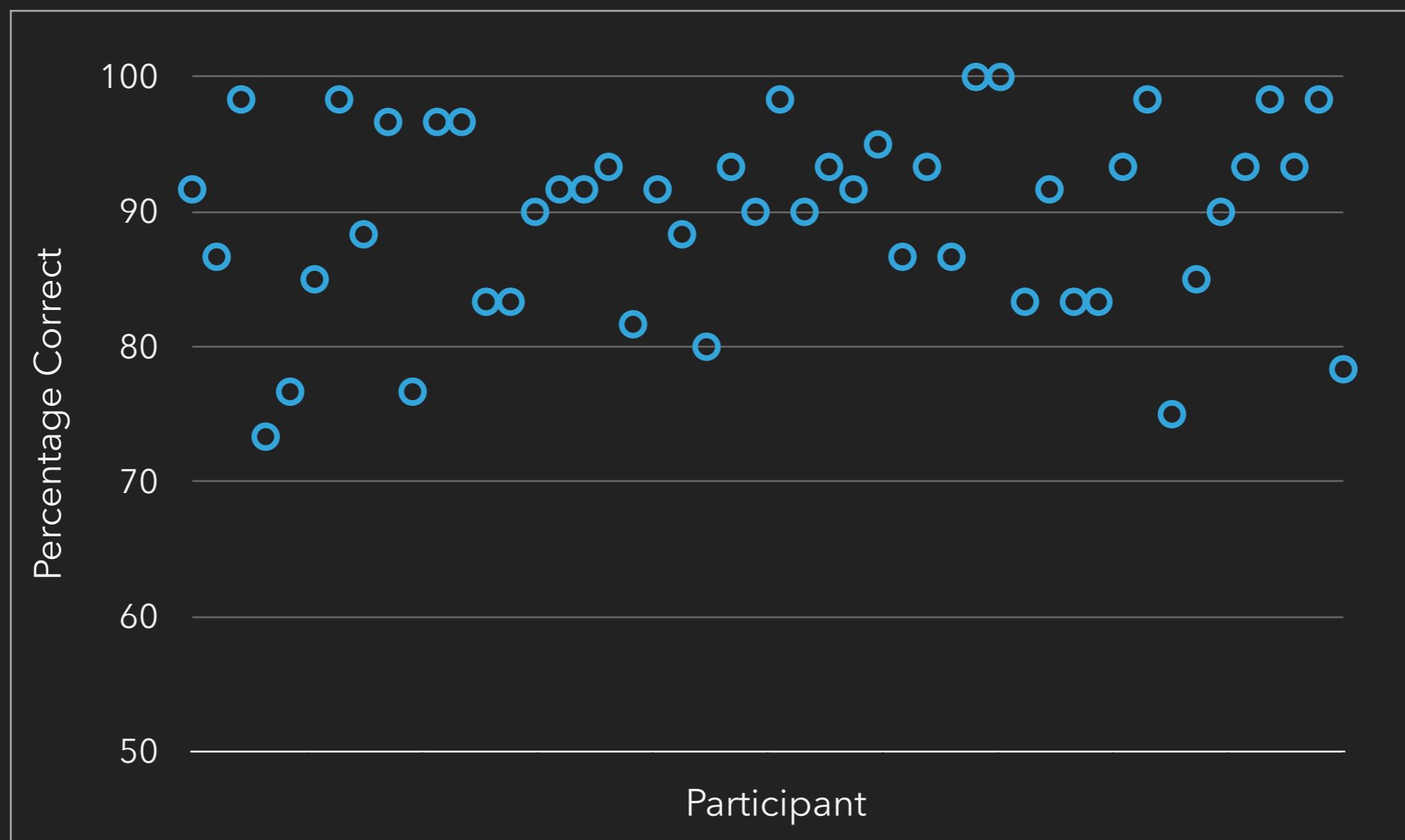


Bottom 16 participants
by correct on verbatim
memory recognition
questions



EXPERIMENT 3: PERFORMANCE ON V.M. QUESTIONS

High overall accuracy on verbatim memory recognition task suggests that it is unlikely that results in Experiments 2 and 3 are due to lack of attention.



CONCLUSION

Recall our initial hypotheses: Judgments of truth and falsity will be affected by **clausal type** and by the **relevance** of propositional information to conversational goals.

What did we find?

- ▶ **Judgments of truth and falsity were not affected by clausal type:** participants were not more willing to discard false appositives than false conjunctions in truth evaluations.
- ▶ **Judgments of truth and falsity were affected by the relevance of information to conversational goals:** information relevant to resolving a QuD was prioritized over irrelevant information in evaluations of truth.

CONCLUSION

Even conjunctions – whose semantic truth-conditional contributions are not under debate – could be pushed around in experimental settings.

Do we want to let go of our basic beliefs about the truth conditional contributions of conjunctions? Probably not.

Therefore...

CONCLUSION

- ▶ We should take seriously claims that experimental investigations of truth can tell us something about language.
- ▶ But, **we should be cautious in how we argue from experimental results to theoretical implications.**

CONCLUSION

What are these types of experimental investigations of truth telling us about language?

- ▶ No strict mapping from speaker evaluations of truth to semantic truth.
- ▶ When people in a particular situation are willing to apply the predicate 'true' to a sentence.
- ▶ Insight into how judgments of truth can be modulated by top-down, goal-driven behavior (see also von Fintel (2004), Abrusán & Szendrői (2013), i.a. for arguments about pragmatic influences such as verifiability on truth-value judgments for presuppositions).

CONCLUSION

What can we conclude about appositives?

Appositives are relevant to the truth judgment of their containing sentence at the level of the discourse.

What the relevance of this result is to semantic theory is an open question.

THANK YOU!

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FINAL APPOSITIVES



Medial Appositives:

QuD: What color is the square?

The square, which is next to the orange triangle, is blue.

The square is next to the orange triangle and is blue.

Final Appositives:

QuD 1: What shape is next to the triangle?

The blue square is next to the triangle, which is orange.

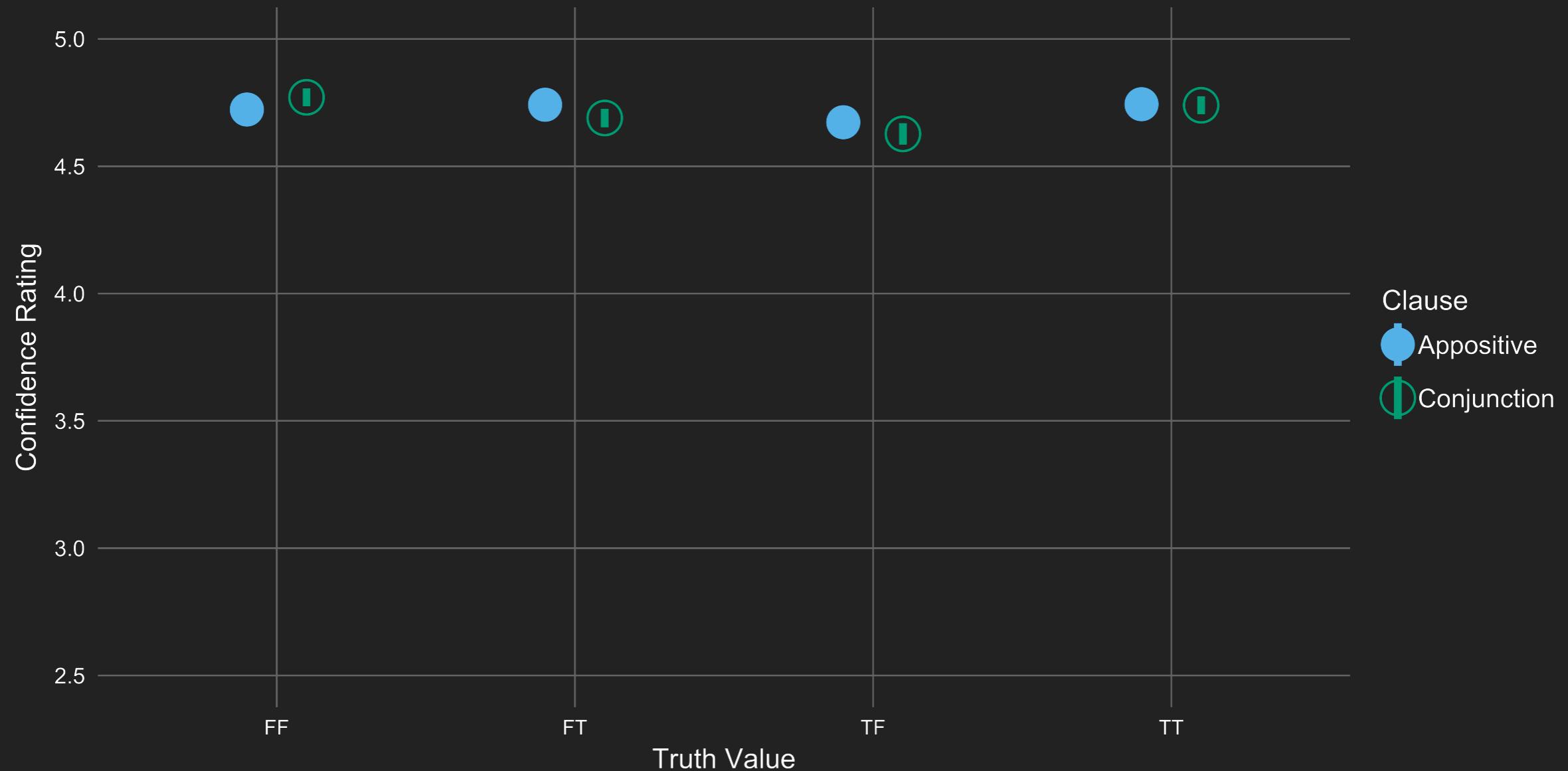
The blue square is next to the triangle and the triangle is orange.

QuD 2: What is the shape on the left?

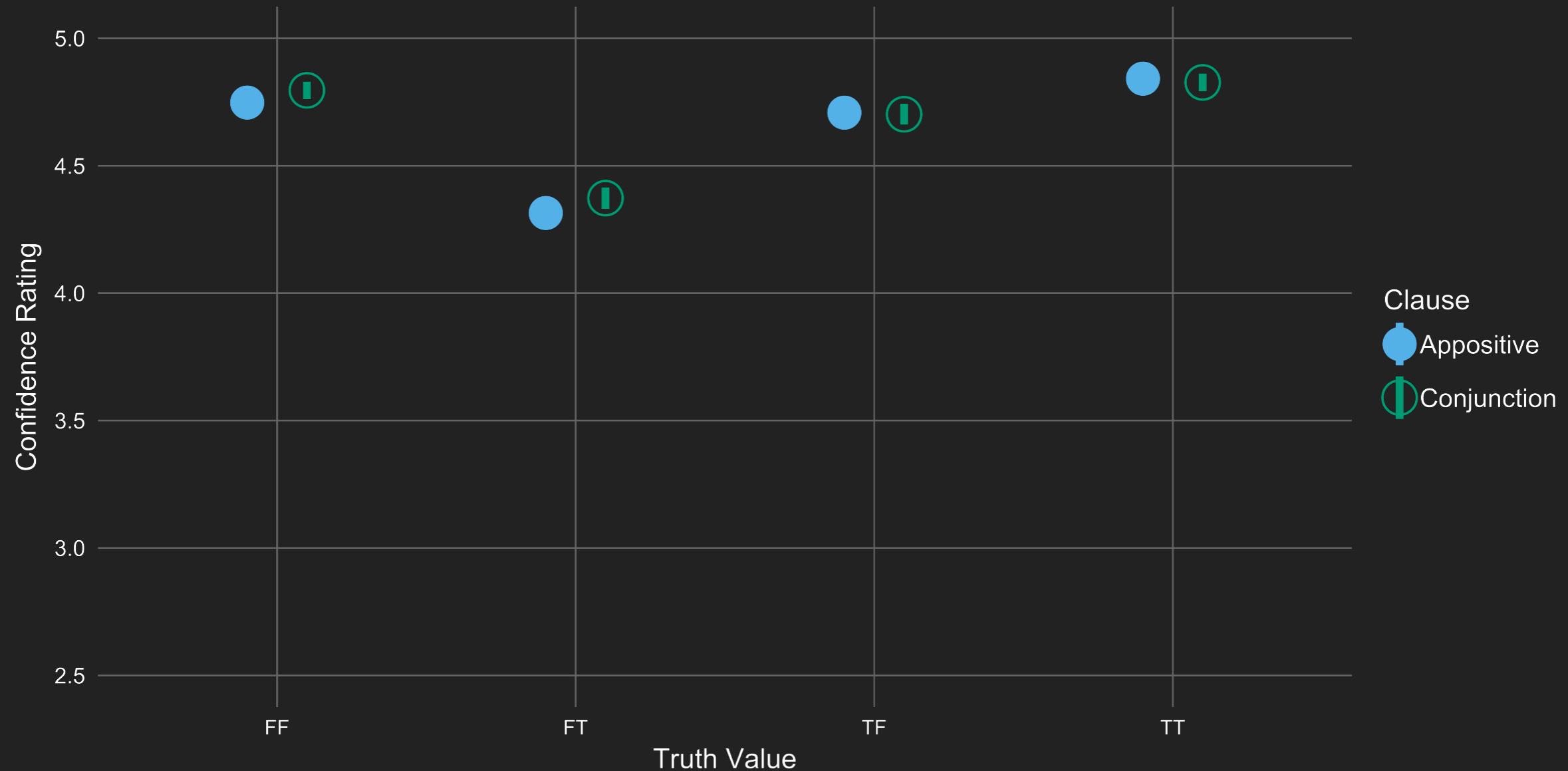
The shape on the left is a blue square, which is next to the orange triangle.

The shape on the left is a blue square and it is next to the orange triangle.

EXPERIMENT 1: CONFIDENCE RATINGS

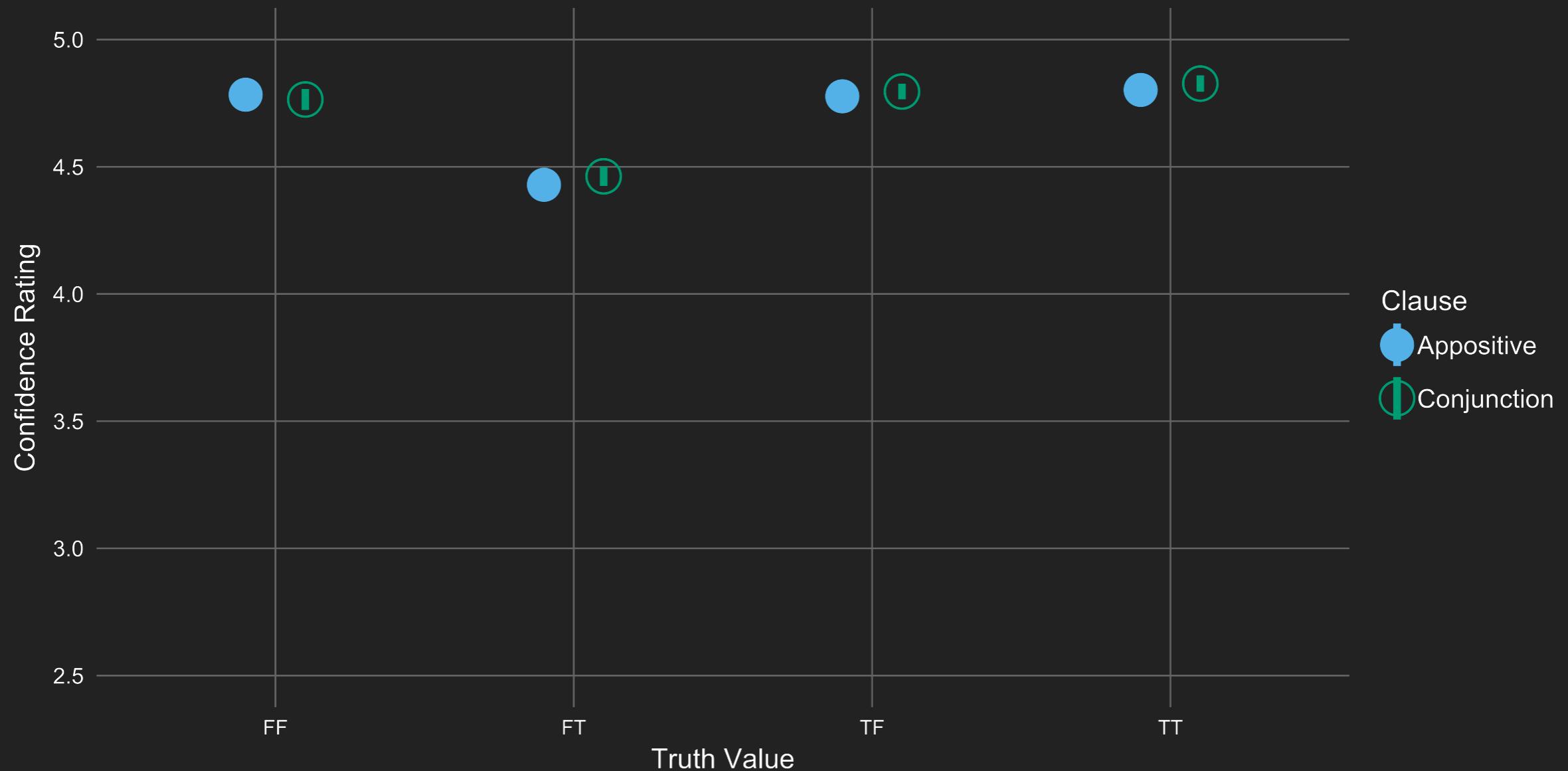


EXPERIMENT 2: CONFIDENCE RATINGS



By participant: 44=3.9m; 17=5m. No correlation between FT ratings and clausal response strategies.

EXPERIMENT 3: CONFIDENCE RATINGS



EXPERIMENT 3

Should we conclude that people who answer True are simply not paying attention?

