Homogeneity or implicature

An experimental study of free choice

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Implicatures and their boundaries

- What should we treat as implicatures?

Implicatures and their boundaries

- Plural definites
- Bare plurals
- Neg-raising
- Temporal inferences
- Free choice
- ...

The focus

- Plural definites
- Bare plurals
- Neg-raising
- Temporal inferences
- Free choice
- ...

Today

The question: Is Free choice an implicature?

Today

Experimental project directly addressing this question

Outline

What is free choice?[1]

(1) Angie is allowed to buy the car or the boat.

[1] von Wright 1968, Kamp 1974

What is free choice?[1]

(1) Angie is allowed to buy the car or the boat.
$\rightsquigarrow$ *Angie can choose between the two*

[1] von Wright 1968, Kamp 1974

Disappearing under negation

(2) Angie is not allowed to buy the car or the boat.

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$\not\rightsquigarrow$ *It's not true that Angie can choose between the two*

Disappearing under negation

(2) Angie is not allowed to buy the car or the boat.

$\not\rightsquigarrow$ *It's not true that Angie can choose between the two*

$\rightsquigarrow$ *Angie cannot buy either one*

Two main approaches

1. Implicature based
2. Non-implicature based

The goal

Testing a clear divergent prediction of the two approaches

The main result

A challenge for the implicature approach

Why does it matter?

- Tells us something about theories of free choice

Why does it matter?

- Tells us something about theories of free choice
- Potentially about implicatures as well

Why does it matter?

- Tells us something about theories of free choice
- Potentially about implicatures as well
- Experimentally distinguishes between theories

The rest of today

1. Background

The rest of today

1. Background
2. The two approaches

The rest of today

1. Background
2. The two approaches
3. The divergent prediction

The rest of today

1. Background
2. The two approaches
3. The divergent prediction
4. The experiment

The rest of today

1. Background
2. The two approaches
3. The divergent prediction
4. The experiment
5. Discussion and conclusion

Outline

Outline

Free choice

(3) Angie is allowed to buy the car or the boat.
$\rightsquigarrow$ *Angie can choose between the two*

Under negation

(4) Angie is not allowed to buy the car or the boat.

$\not\rightsquigarrow$ *It's not true that Angie can choose between the two*

$\rightsquigarrow$ *Angie cannot buy either one*

More schematically

(5) $\Diamond(A \vee B)$

More schematically

(5) $\Diamond(A \vee B) \rightsquigarrow \Diamond A \wedge \Diamond B$ FREE CHOICE

More schematically

(5) $\Diamond(A \vee B) \rightsquigarrow \Diamond A \wedge \Diamond B$ FREE CHOICE

(6) $\neg\Diamond(A \vee B) \rightsquigarrow \neg\Diamond A \wedge \neg\Diamond B$

More schematically

(5) $\Diamond(A \vee B) \rightsquigarrow \Diamond A \wedge \Diamond B$ FREE CHOICE

(6) $\neg\Diamond(A \vee B) \rightsquigarrow \neg\Diamond A \wedge \neg\Diamond B$ DUAL PROHIBITION

The empirical puzzle

- How free choice arises in positive contexts

The empirical puzzle

- How free choice arises in positive contexts
- How dual prohibition arises in negative contexts

Two main approaches

1. Implicature based
2. Non-implicature based

Outline

The implicature approach[2]

- Free choice is an implicature

[2] Fox 2007, Klinedinst 2006, Chierchia 2013, Chemla 2010, Franke 2013, Santorio & Romoli 2018, Bar-Lev & Fox 2017 a.o

The implicature approach[2]

- Free choice is an implicature
- Dual prohibition is just part of the literal meaning

[2] Fox 2007, Klinedinst 2006, Chierchia 2013, Chemla 2010, Franke 2013, Santorio & Romoli 2018, Bar-Lev & Fox 2017 a.o

The implicature approach: the gist

(7) $\Diamond(A \vee B) = \Diamond A \vee \Diamond B$ LITERAL MEANING

The implicature approach: the gist

(7) $\Diamond(A \vee B) = \Diamond A \vee \Diamond B$ LITERAL MEANING

(8) $\neg\Diamond(A \vee B) = \neg\Diamond A \wedge \neg\Diamond B$ DUAL PROHIB

The implicature approach: the gist

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(8) $\neg\Diamond(A \vee B) = \neg\Diamond A \wedge \neg\Diamond B$ DUAL PROHIB

(9) $\text{IMP}[\Diamond(A \vee B)] = \Diamond A \wedge \Diamond B$ FREE CHOICE

The implicature approach: the gist

(7) $\Diamond(A \vee B) = \Diamond A \vee \Diamond B$ LITERAL MEANING

(8) $\neg\Diamond(A \vee B) = \neg\Diamond A \wedge \neg\Diamond B$ DUAL PROHIB

(9) $\text{IMP}[\Diamond(A \vee B)] = \Diamond A \wedge \Diamond B$ FREE CHOICE

(10) $*\neg\text{IMP}\Diamond(A \vee B)) = \neg\Diamond A \vee \neg\Diamond B$ NEGATED FREE CHOICE

In sum

- Free choice arises as an implicature
- Dual prohibition is just part of the literal meaning

Outline

Non-implicature accounts[3]

- The implicature approach is not the only option

[3] Aloni 2018, Starr 2016, Willer 2018, Goldstein 2018, Rothschild and Yablo 2018; see also Chemla 2010

Non-implicature accounts[3]

- The implicature approach is not the only option
- Non-implicature accounts of free choice

[3] Aloni 2018, Starr 2016, Willer 2018, Goldstein 2018, Rothschild and Yablo 2018; see also Chemla 2010

Non-implicature accounts[3]

- The implicature approach is not the only option
- Non-implicature accounts of free choice
- A recent account based on homogeneity for concreteness

[3] Aloni 2018, Starr 2016, Willer 2018, Goldstein 2018, Rothschild and Yablo 2018; see also Chemla 2010

The homogeneity approach: the gist[4]

- Free choice is just part of the literal meaning

[4] Goldstein 2018, Rothschild and Yablo 2018

The homogeneity approach: the gist[4]

- Free choice is just part of the literal meaning
- Dual prohibition arises via homogeneity

[4] Goldstein 2018, Rothschild and Yablo 2018

The homogeneity approach: the gist[5]

- Free choice is just part of the literal meaning
- Dual prohibition arises via a homogeneity presupposition

[5] Goldstein 2018, Rothschild and Yablo 2018

The homogeneity approach: the gist

(11) $\Diamond(A \vee B) = \Diamond A \wedge \Diamond B$ FREE CHOICE

The homogeneity approach: the gist

(11) $\Diamond(A \vee B) = \Diamond A \wedge \Diamond B$ FREE CHOICE

(12) $\Diamond A \leftrightarrow \Diamond B$ HOMOGENEITY

The homogeneity approach: the gist

(11) $\Diamond(A \vee B) = \Diamond A \wedge \Diamond B$ FREE CHOICE

(12) $\Diamond A \leftrightarrow \Diamond B$ HOMOGENEITY

(13) $\neg\Diamond(A \vee B) = \neg(\Diamond A \wedge \Diamond B)$ NEGATED FREE CHOICE

The homogeneity approach: the gist

(14) $\Diamond(A \vee B) = \Diamond A \wedge \Diamond B$ FREE CHOICE

(15) $\Diamond A \leftrightarrow \Diamond B$ HOMOGENEITY

(16) $\neg\Diamond(A \vee B) = \neg(\Diamond A \wedge \Diamond B)$ NEGATED FREE CHOICE

The homogeneity approach: the gist

(14) $\Diamond(A \vee B) = \Diamond A \wedge \Diamond B$ FREE CHOICE

(15) $\Diamond A \leftrightarrow \Diamond B$ HOMOGENEITY

(16) $\neg\Diamond(A \vee B) = \neg(\Diamond A \wedge \Diamond B)$ NEGATED FREE CHOICE

(17) $\neg\Diamond A \wedge \neg\Diamond B$ DUAL PROHIB

In sum

- Free choice is just part of the literal meaning
- Dual prohibition arises via the homogeneity presupposition

Outline

The two approaches

- Successfully capture basic pattern and more complex data

The two approaches

- Successfully capture basic pattern and more complex data
- Roughly with similar empirical coverage

A simple divergent prediction[6]

Distinguish between the two given a simple divergent prediction

[6] Kriz 2015, 2017, Tieu et al 2018

Free choice vs dual prohibition

(18) Angie is allowed to buy the car or the boat
$\rightsquigarrow$ *Angie can choose between the two* FREE CHOICE

(19) Angie is not allowed to buy the car or the boat
$\rightsquigarrow$ *Angie cannot buy either one* DUAL PROHIB

The implicature approach

(20) Angie is allowed to buy the car or the boat
$\rightsquigarrow$ *Angie can choose between the two* IMPLICATURE

The implicature approach

(20) Angie is allowed to buy the car or the boat
$\rightsquigarrow$ *Angie can choose between the two* IMPLICATURE

(21) Angie is not allowed to buy the car or the boat
$\rightsquigarrow$ *Angie cannot buy either one* LITERAL MEANING

The homogeneity approach

(22) Angie is allowed to buy the car or the boat
$\rightsquigarrow$ *Angie can choose between the two* LITERAL MEANING

The homogeneity approach

(22) Angie is allowed to buy the car or the boat
$\rightsquigarrow$ *Angie can choose between the two* LITERAL MEANING

(23) Angie is not allowed to buy the car or the boat
$\rightsquigarrow$ *Angie cannot buy either one* (VIA) PRESUPPOSITION

The homogeneity approach

(24) Angie is allowed to buy the car or the boat
$\rightsquigarrow$ *Angie can choose one iff she can choose the other* PRES

(25) Angie is not allowed to buy the car or the boat
$\rightsquigarrow$ *Angie can choose one iff she can choose the other* PRES

Difference in status

Context: Angie is only allowed to buy the boat

(26) Angie is allowed to buy the car or the boat
$\rightsquigarrow$ *Angie can choose between the two* FALSE IMP

Difference in status

Context: Angie is only allowed to buy the boat

(27) Angie is not allowed to buy the car or the boat
$\rightsquigarrow$ *Angie cannot buy either one* FALSE

No difference in status

Context: Angie is only allowed to buy the boat

(28) Angie is allowed to buy the car or the boat
$\rightsquigarrow$ *Angie can choose one iff she can choose the other* PS FAIL

No difference in status

Context: Angie is only allowed to buy the boat

(29) Angie is not allowed to buy the car or the boat
$\rightsquigarrow$ *Angie can choose one iff she can choose the other* PS FAIL

In sum

	IMPLICATURE	HOMOGENEITY
POS	IMPLICATURE VIOLATION	PRESUPPOSITION FAILURE
NEG	FALSITY	PRESUPPOSITION FAILURE

In sum

	IMPLICATURE	HOMOGENEITY
POS	IMPLICATURE VIOLATION	PRESUPPOSITION FAILURE
NEG	FALSITY	PRESUPPOSITION FAILURE

In sum

- Testing these predictions

In sum

- Testing these predictions
- A simple way to distinguish between the two approaches

Outline

The goal

- Testing the divergent predictions above

The goal

A ternary task building on previous work on implicatures, presuppositions, and homogeneity[7]

[7] Kriz & Chemla 2016, Katsos and Bishop 2011, Abrusan and Szendroi 2013

Free choice - FC

(30) Angie is allowed to buy the car or the boat

(31) Angie is not allowed to buy the car or the boat

Simple disjunction - OR

(32) Angie bought the car or the boat

(33) Angie didn't buy the car or the boat

Simple disjunction - OR

(34) Angie bought the car or the boat
$\rightsquigarrow$ *Angie didn't buy both the car and the boat* IMP

Simple disjunction - OR

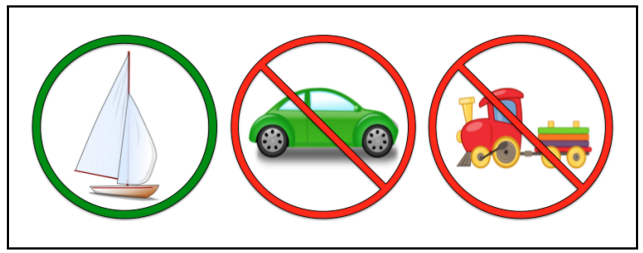
(34) Angie bought the car or the boat
$\rightsquigarrow$ *Angie didn't buy both the car and the boat* IMP

(35) Angie didn't buy the car or the boat
$\rightsquigarrow$ *Angie didn't buy either* LIT MEAN

The design

2*x*2 design with INFERENCE TYPE (FC vs OR; between) and POLARITY (within) as factors

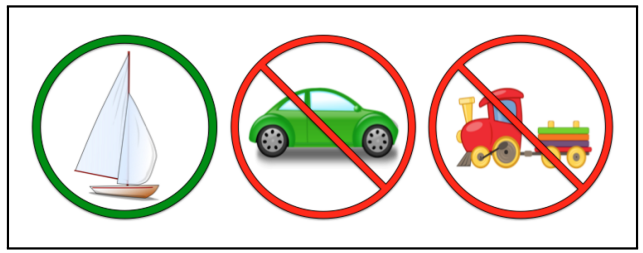
Material[8]



- Contexts with three items

[8] Skordos et al 2019

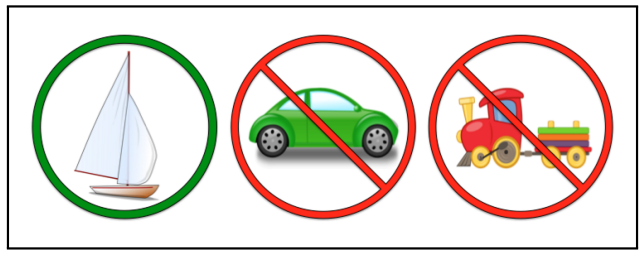
Material[8]



- Contexts with three items
- Representing what a character was allowed/not allowed to buy (FC)

[8] Skordos et al 2019

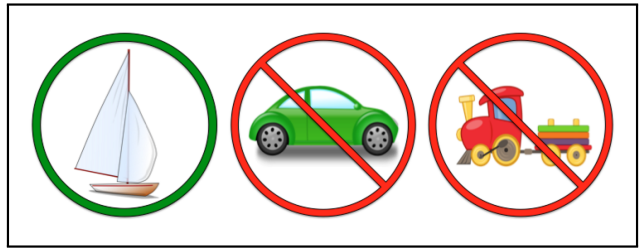
Material[8]



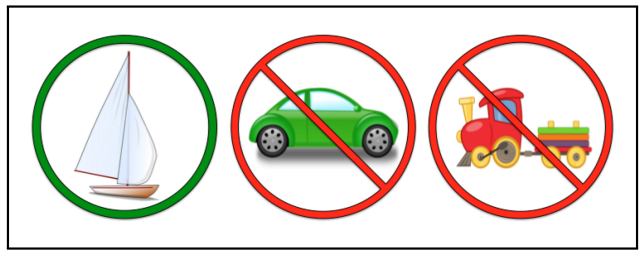
- Contexts with three items
- Representing what a character was allowed/not allowed to buy (FC)
- or what a character bought/didn't buy (OR)

[8] Skordos et al 2019

Material: FC targets

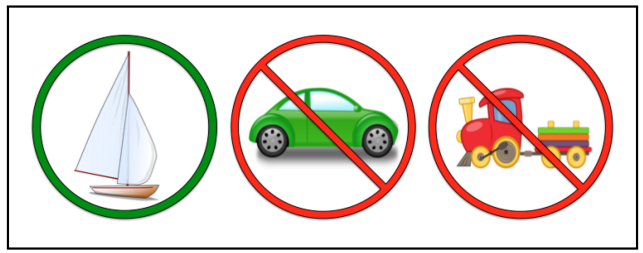


Material: FC targets



(36) Angie is allowed to buy the car or the boat

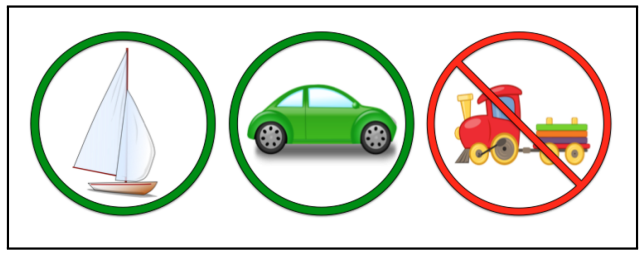
Material: FC targets



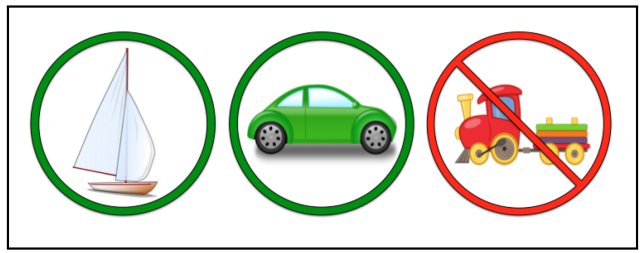
(36) Angie is allowed to buy the car or the boat

(37) Angie is not allowed to buy the car or the boat

Material: OR targets



Material: OR targets



(38) Angie bought the car or the boat

(39) Angie didn't buy the car or the boat

OR targets

(40) Angie bought the car or the boat POSITIVE

(41) Angie didn't buy the car or boat NEGATIVE

Controls

- FC and OR
- Positive and negative
- True and false

Materials

- Each participant saw 8 targets and 8 controls in total

Procedure

- Ternary judgment task with participants evaluating sentences attributed to a puppet against a scenario

Procedure

- Ternary judgment task with participants evaluating sentences attributed to a puppet against a scenario
- The task is to choose a reward among three possible ones

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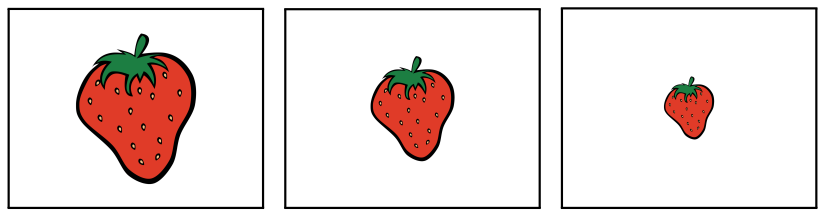
- The task is to choose a reward among three possible ones



Procedure

Prediction mode: the sentences are puppet's guesses about

Procedure

Prediction mode: the sentences are puppet's guesses about

- what a character is allowed/not allowed to buy FC

Procedure

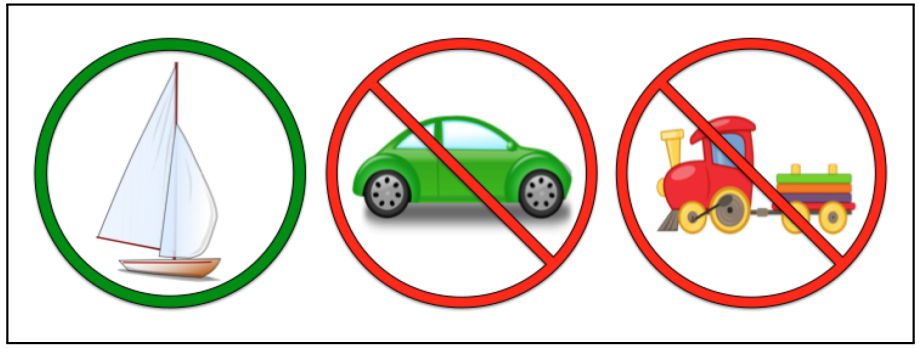
Prediction mode: the sentences are puppet's guesses about

- what a character is allowed/not allowed to buy FC
- what a character bought/didn't buy OR

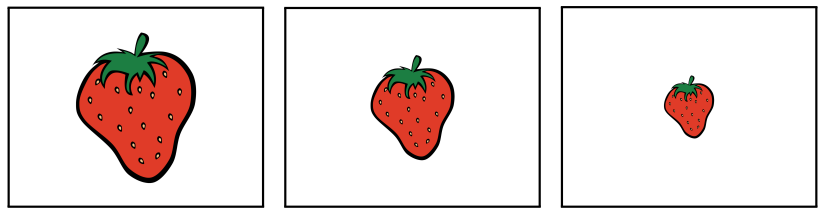
Example FC negative

Angie is not allowed to buy the car or the boat

Example FC negative



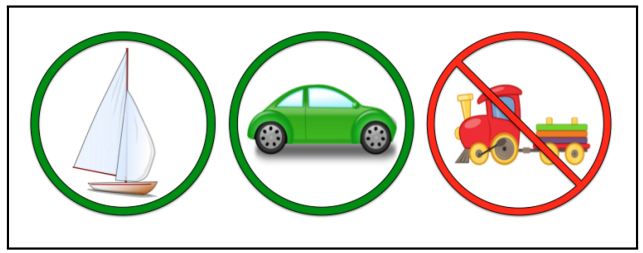
Example FC negative



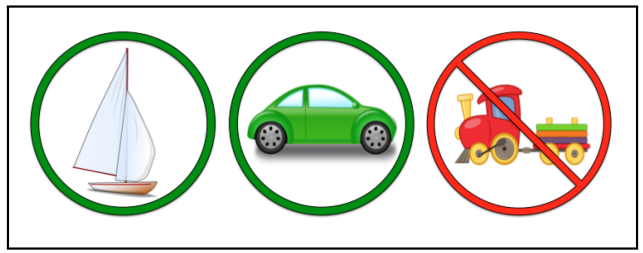
Participants

- 114 participants recruited through AMT, randomly assigned to the two conditions
- 3 excluded for not reporting English as their native language, leaving 111 participants (56 in FC condition, 55 in disjunction condition)

Predictions - OR - both approaches



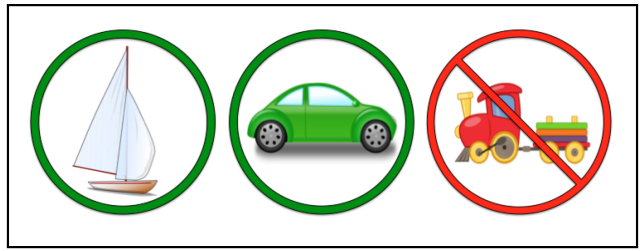
Predictions - OR - both approaches



(42) Angie bought the car or the boat — IMP FALSE

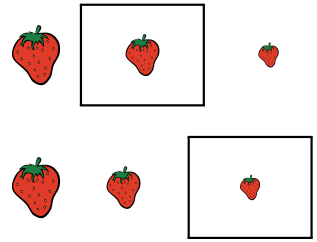
(43) Angie didn't buy the car or the boat — FALSE

Predictions - OR

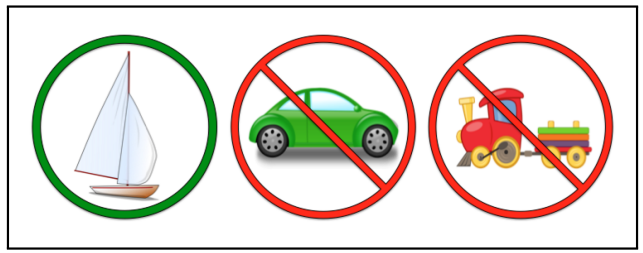


(44) Angie bought the car or the boat

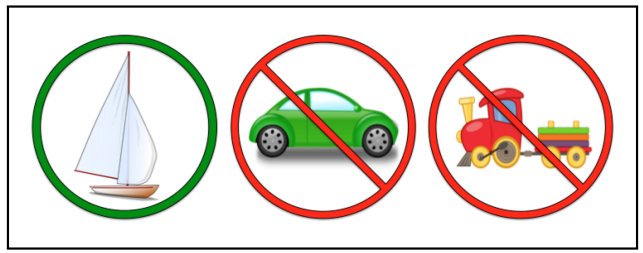
(45) Angie didn't buy the car or the boat



Predictions - FC - implicature approach



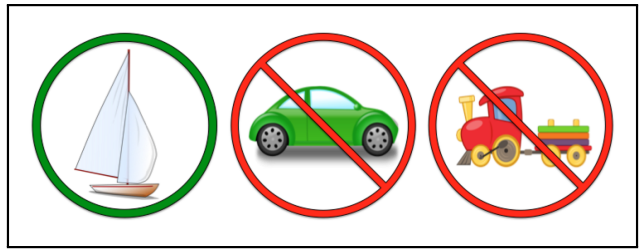
Predictions - FC - implicature approach



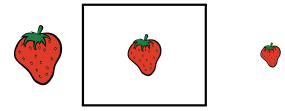
(46) Angie is allowed to buy the car or the boat IMP FALSE

(47) Angie is not allowed to buy the car or the boat FALSE

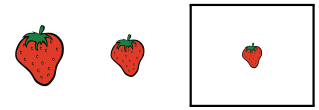
Predictions - FC - implicature approach



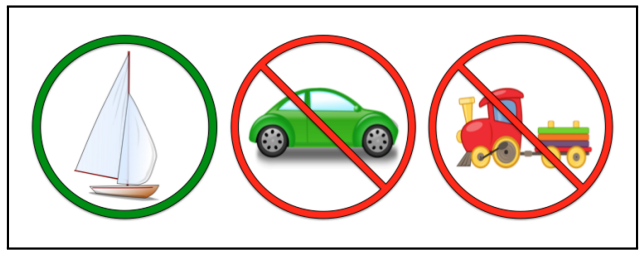
(48) Angie is allowed to buy the car or the boat



(49) Angie isn't allowed to buy the car or the boat



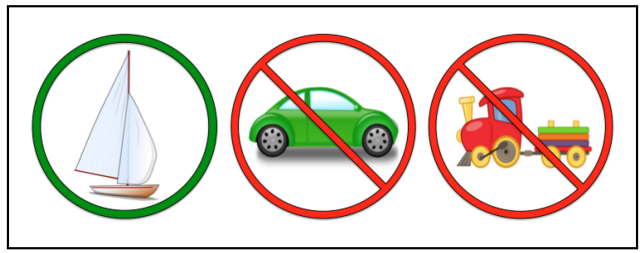
Predictions - FC - homogeneity approach



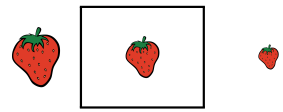
(50) Angie is allowed to buy the car or the boat PS FAIL

(51) Angie is not allowed to buy the car or the boat PS FAIL

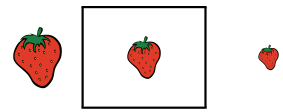
Predictions - FC - homogeneity approach



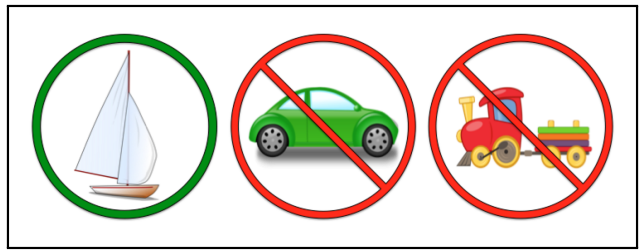
(52) Angie is allowed to buy the car or the boat

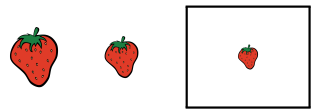


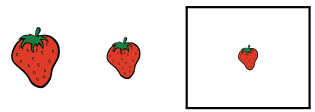
(53) Angie isn't allowed to buy the car or the boat



Predictions - FC - homogeneity approach



(54) Angie is allowed to buy the car or the boat 

(55) Angie isn't allowed to buy the car or the boat 

In sum - Predictions

	OR	FC IMP	FC HOM
POS	IMP VIOLATION	IMP VIOLATION	PS FAIL
NEG	FALSITY	FALSITY	PS FAIL

In sum - Predictions

	OR	FC IMP	FC HOM
POS	IMP VIOLATION	IMP VIOLATION	PS FAIL
NEG	FALSITY	FALSITY	PS FAIL

In sum - Predictions

	OR	FC IMP	FC HOM
POS	IMP VIOLATION	IMP VIOLATION	PS FAIL
NEG	FALSITY	FALSITY	PS FAIL

In sum - Predictions

	OR	FC IMP	FC HOM
POS	IMP VIOLATION	IMP VIOLATION	PS FAIL
NEG	FALSITY	FALSITY	PS FAIL

Predictions - in sum

- An interaction between TYPE OF INFERENCE and POLARITY

Predictions - in sum

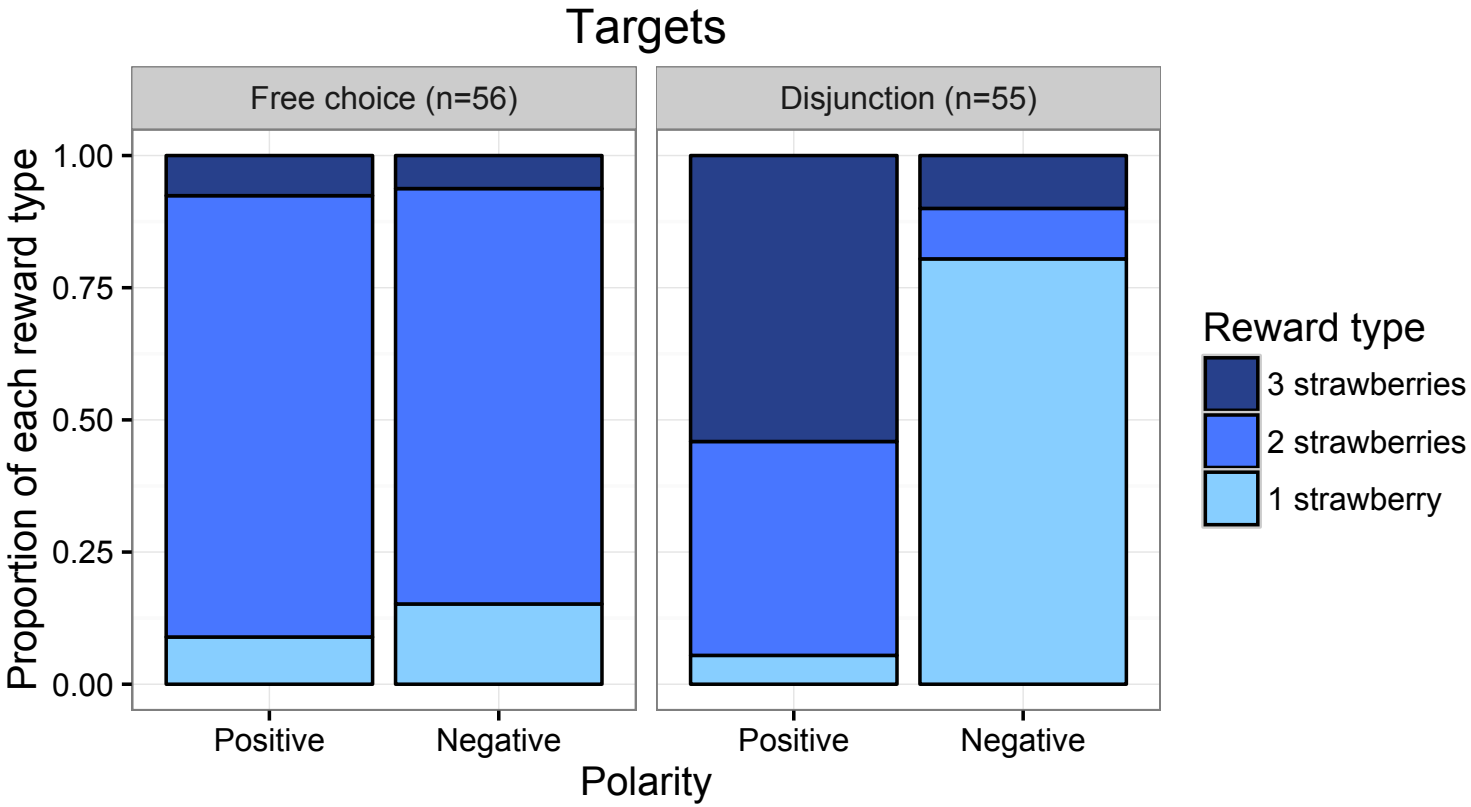
- An interaction between TYPE OF INFERENCE and POLARITY
- Challenging for the implicature approach

Predictions - in sum

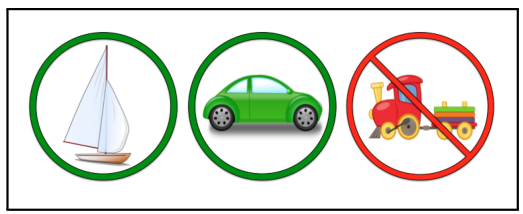
- An interaction between TYPE OF INFERENCE and POLARITY
- Challenging for the implicature approach
- Entirely in line with the homogeneity approach

Outline

Results

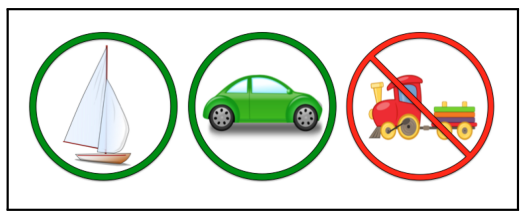

Targets
Free choice (n=56)
Disjunction (n=55)
Proportion of each reward type
1.00
0.75
0.50
0.25
0.00
Positive
Negative
Positive
Negative
Polarity
Reward type
3 strawberries
2 strawberries
1 strawberry

Results



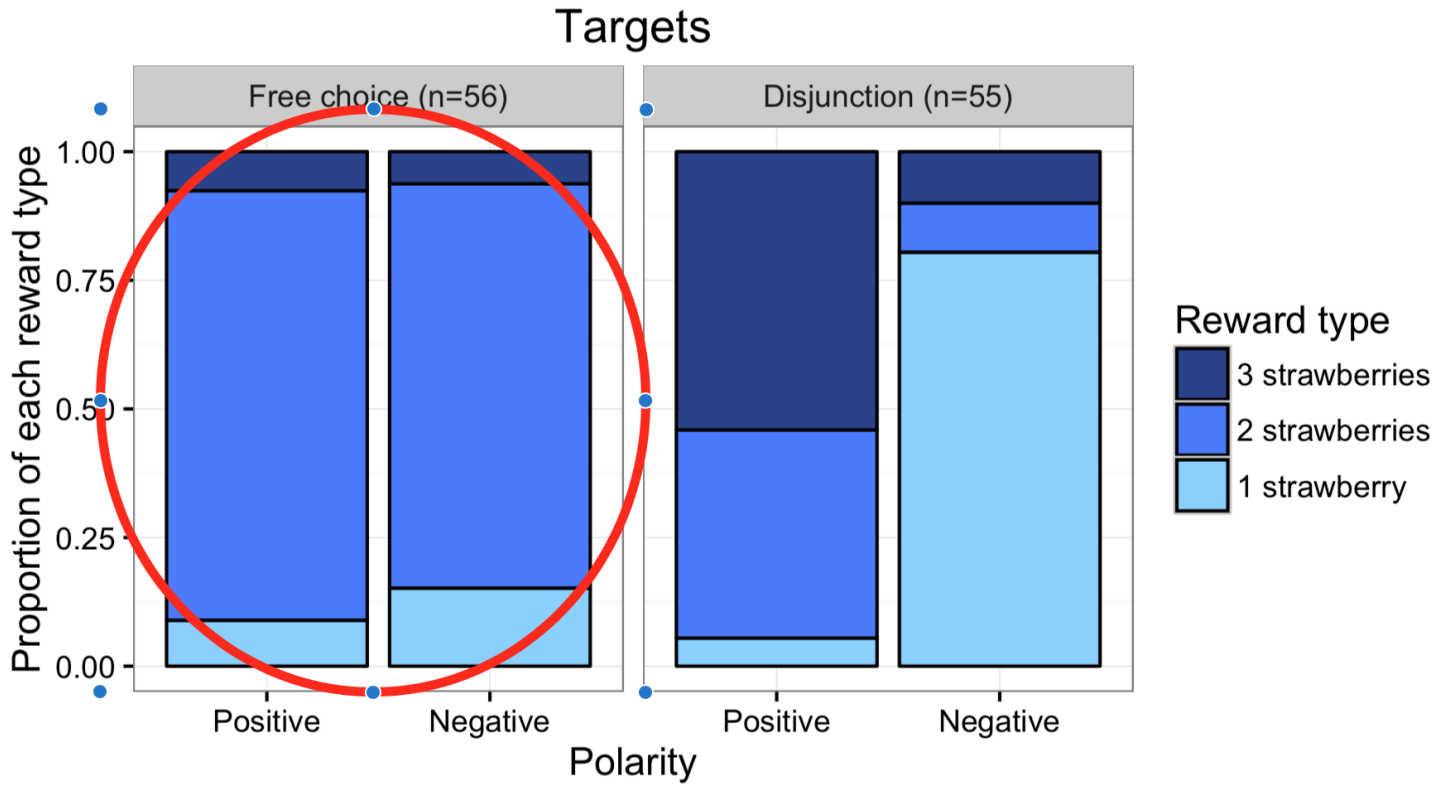
Angie didn't buy the car or the boat

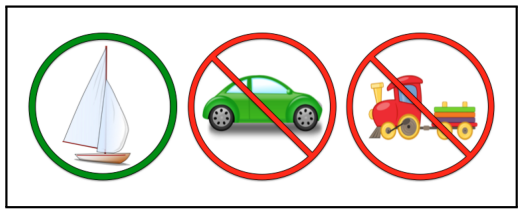
Results



Angie bought the car or the boat

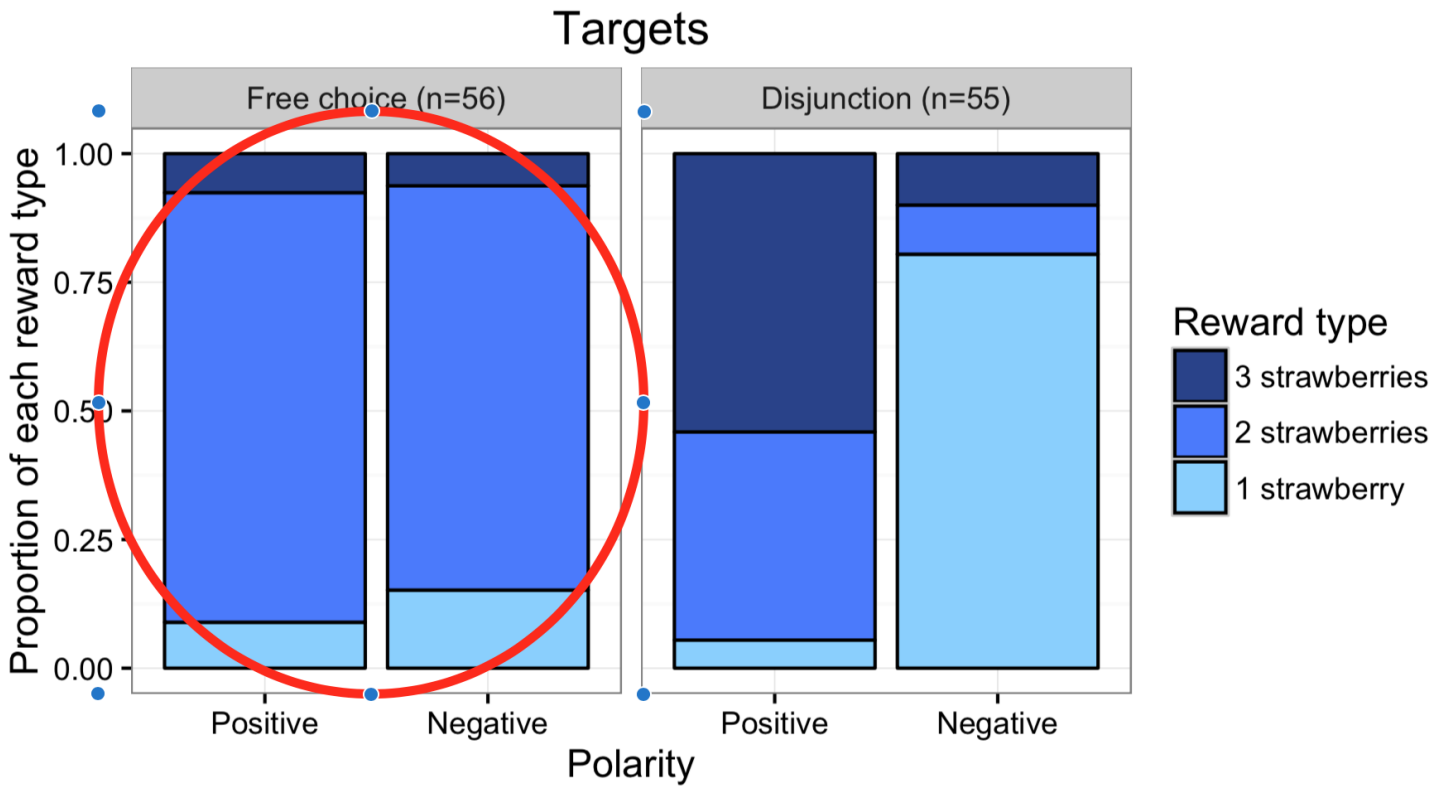
Results

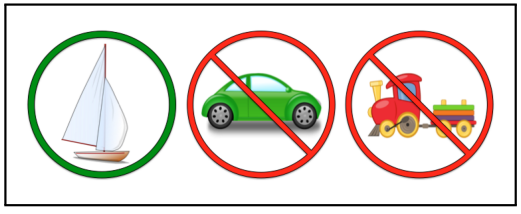




Angie is not allowed to buy the car or the boat

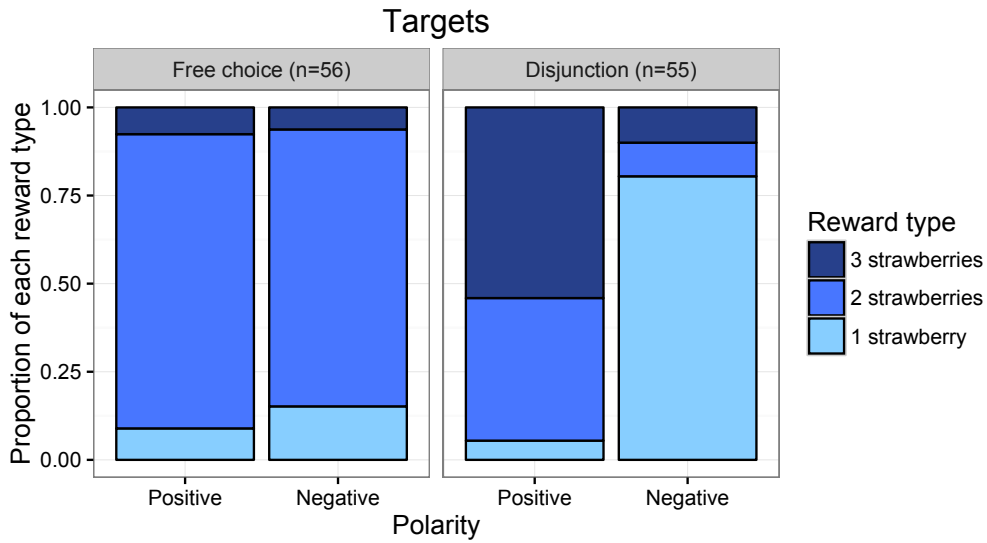
Results





Angie is allowed to buy the car or the boat

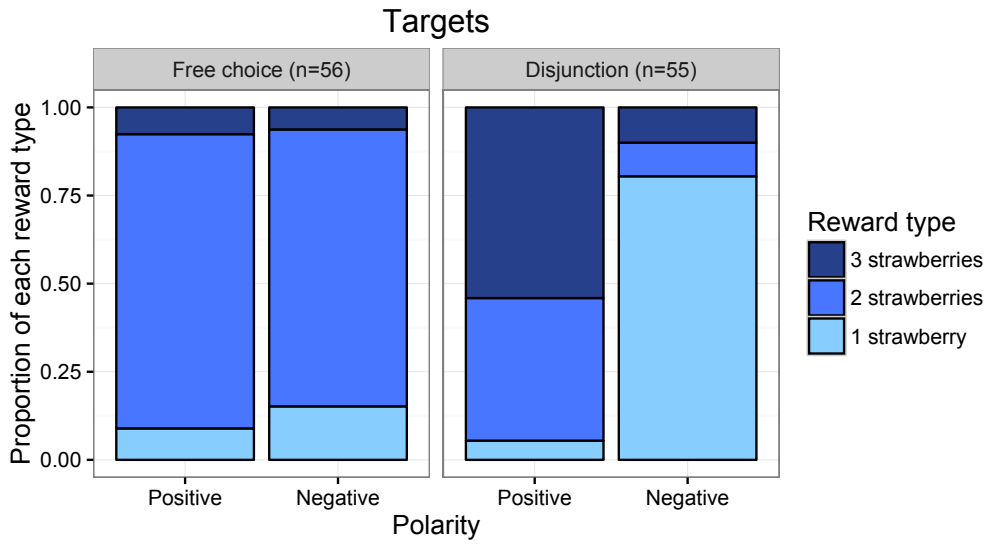
Results[9]



Effect of POLARITY ($\chi^2(1) = 102, p < .001$)
Marginal effect of INFERENCE TYPE ($\chi^2(1) = 3.2, p = .07$)

[9] Mixed effects cumulative link model

Results[10]



Interaction between INFERENCE TYPE and POLARITY
$(\chi^2(1) = 88, p < .001)$

[10] Mixed effects cumulative link model

In sum

- Interaction between type of inference and polarity

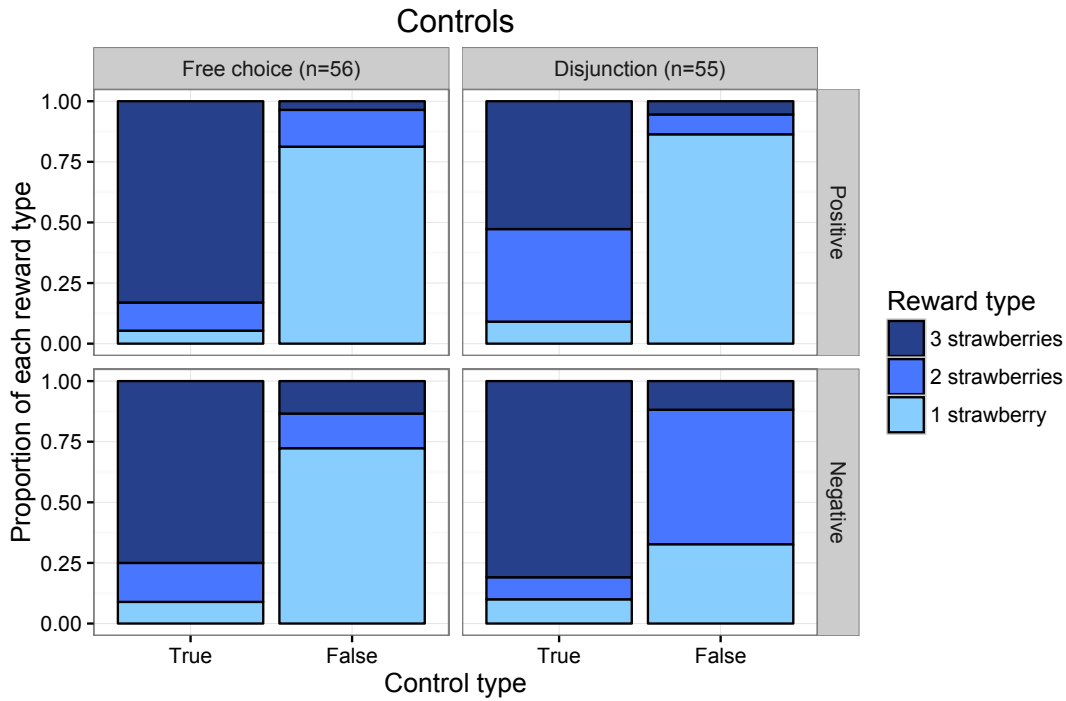
In sum

- Interaction between type of inference and polarity
- Difference between positive and negative with OR

In sum

- Interaction between type of inference and polarity
- Difference between positive and negative with OR
- Symmetric responses for positive and negative with FC

Controls


Controls
Free choice (n=56)
Disjunction (n=55)
Positive
Negative
Proportion of each reward type
1.00
0.75
0.50
0.25
0.00
True
False
Control type
Reward type
3 strawberries
2 strawberries
1 strawberry

Outline

Conclusion

- Experimental work addressing the debate between implicature and non-implicature approaches to free choice

Main result

- Participants' distinguished between falsity and implicature violation

Main result

- Participants' distinguished between falsity and implicature violation
- But assigned intermediate status to both positive and negative FC conditions

Main result

- Interaction inference type and polarity

Main result

- Interaction inference type and polarity
- Challenging for the implicature approach

Main result

- Interaction inference type and polarity
- Challenging for the implicature approach
- Entirely in line with the homogeneity approach

Conclusion

- Either as supporting a non-implicature approach or as a push to refine the implicature one

Conclusion

- Either as supporting a non-implicature approach or as a push to refine the implicature one
- Powerful and simple perspective to address this debate

Conclusion

- Plural definites
- Bare plurals
- Neg-raising
- Temporal inferences
- ...

Thanks!

Moysh Bar-Lev, Milica Denic, Simon Goldstein, Mora Maldonado, Paul Marty, Agata Renans, and Paolo Santorio

Outline

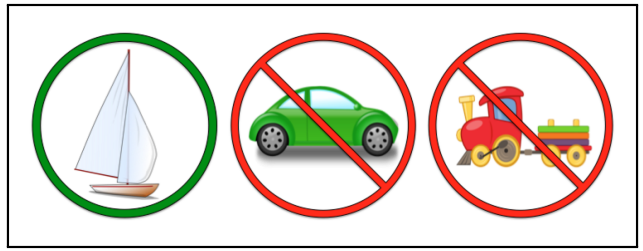
A difference

- OR and FC are analogous in both positive and negative

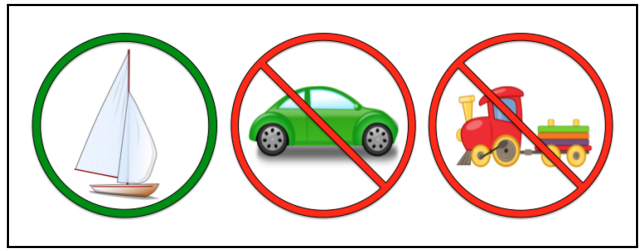
A difference

- OR and FC are analogous in both positive and negative
- The FC negative condition has a true reading with wide scope disjunction

A difference

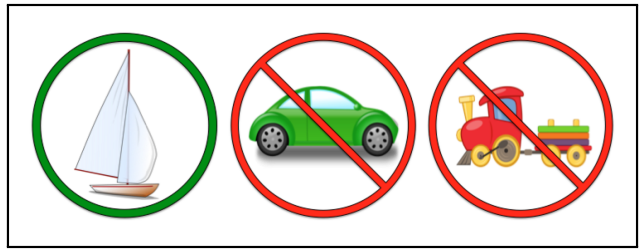


A difference



(56) Angie is not allowed to buy the car or the boat FALSE

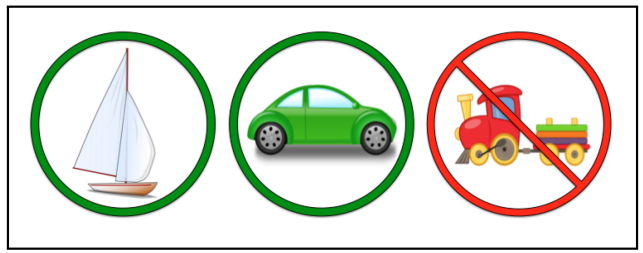
A difference



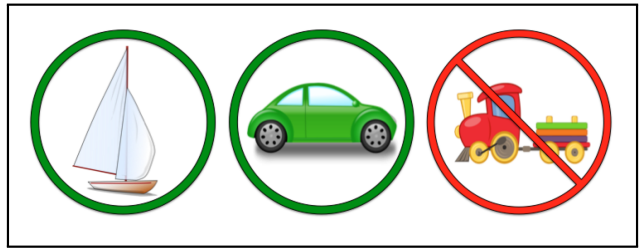
(56) Angie is not allowed to buy the car or the boat FALSE

(57) Either Angie is not allowed to buy the car or she is not allowed to buy the boat TRUE

A difference

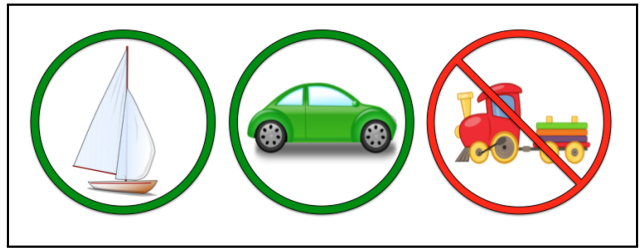


A difference



(58) Angie didn't buy the car or the boat FALSE

A difference

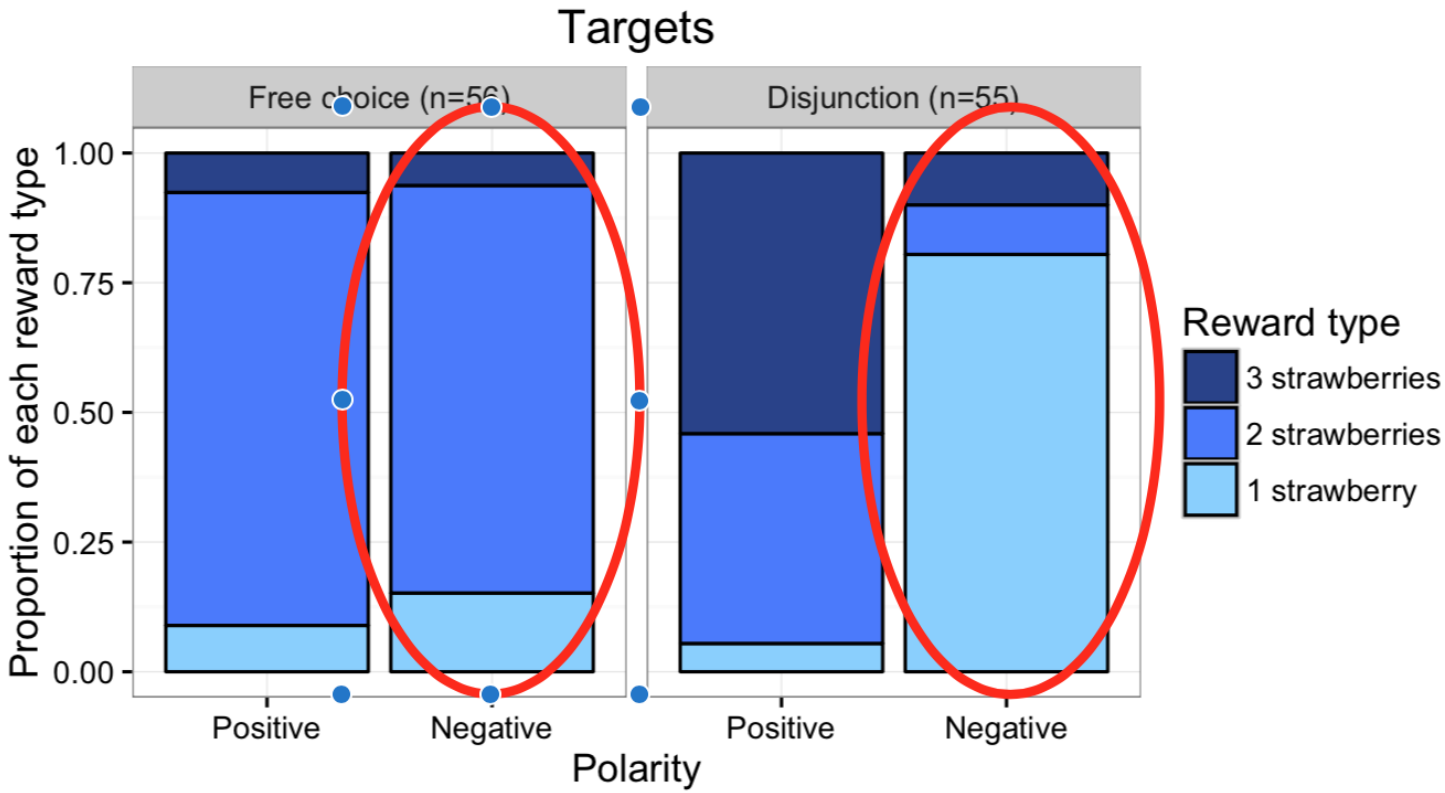


(58) Angie didn't buy the car or the boat FALSE

(59) Either Angie did not buy the car or she did not buy the boat FALSE

Back to the results

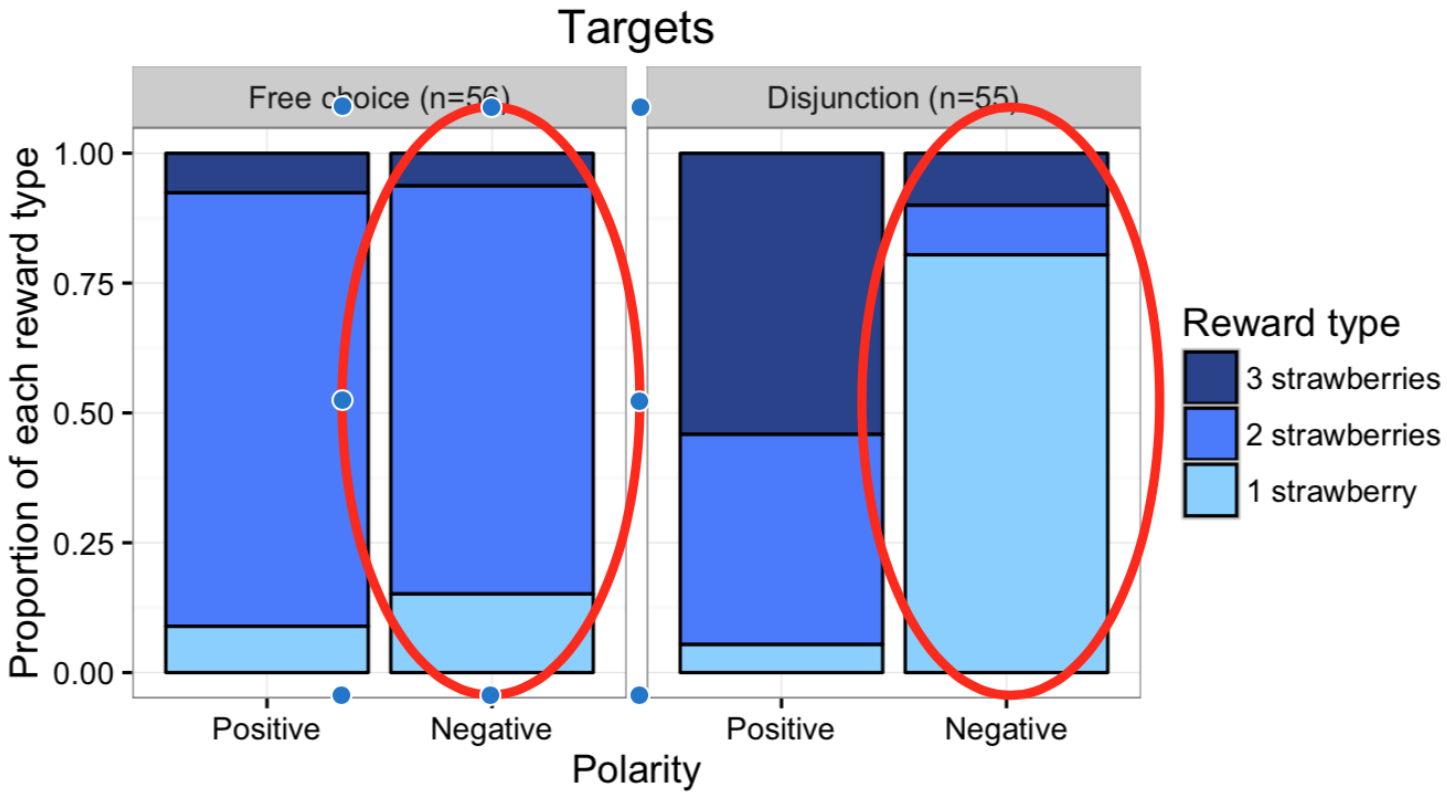
Possible interpretation



When there is ambiguity and the truth-value of the readings are different, the intermediate value is chosen[11]

[11] Bill et al 2018

Possible interpretation



The negative FC would be accounted for given this hypothesis

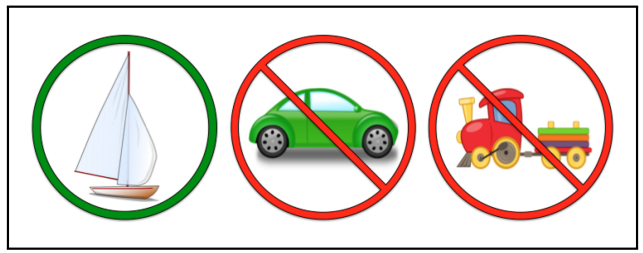
Another comparison

- To test this hypothesis we need a baseline with OR and negation

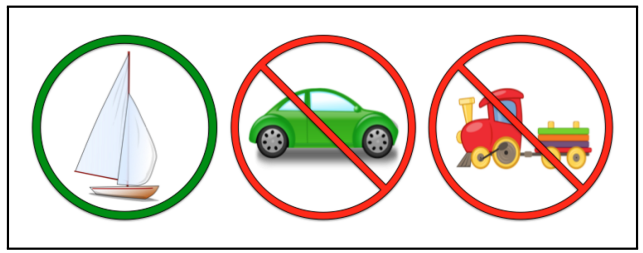
Another comparison

- To test this hypothesis we need a baseline with OR and negation
- Where wide scope disjunction leads to a true reading

Another comparison

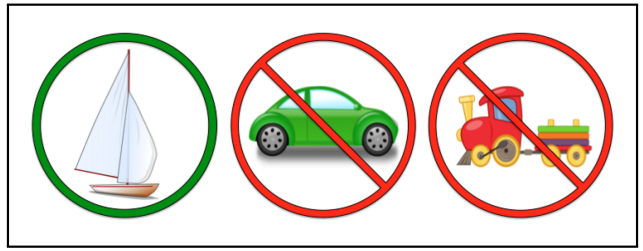


Another comparison



(60) Angie didn't buy the boat or the car FALSE

Another comparison



(60) Angie didn't buy the boat or the car FALSE

(61) Either Angie did not buy the boat or she did not buy the car TRUE

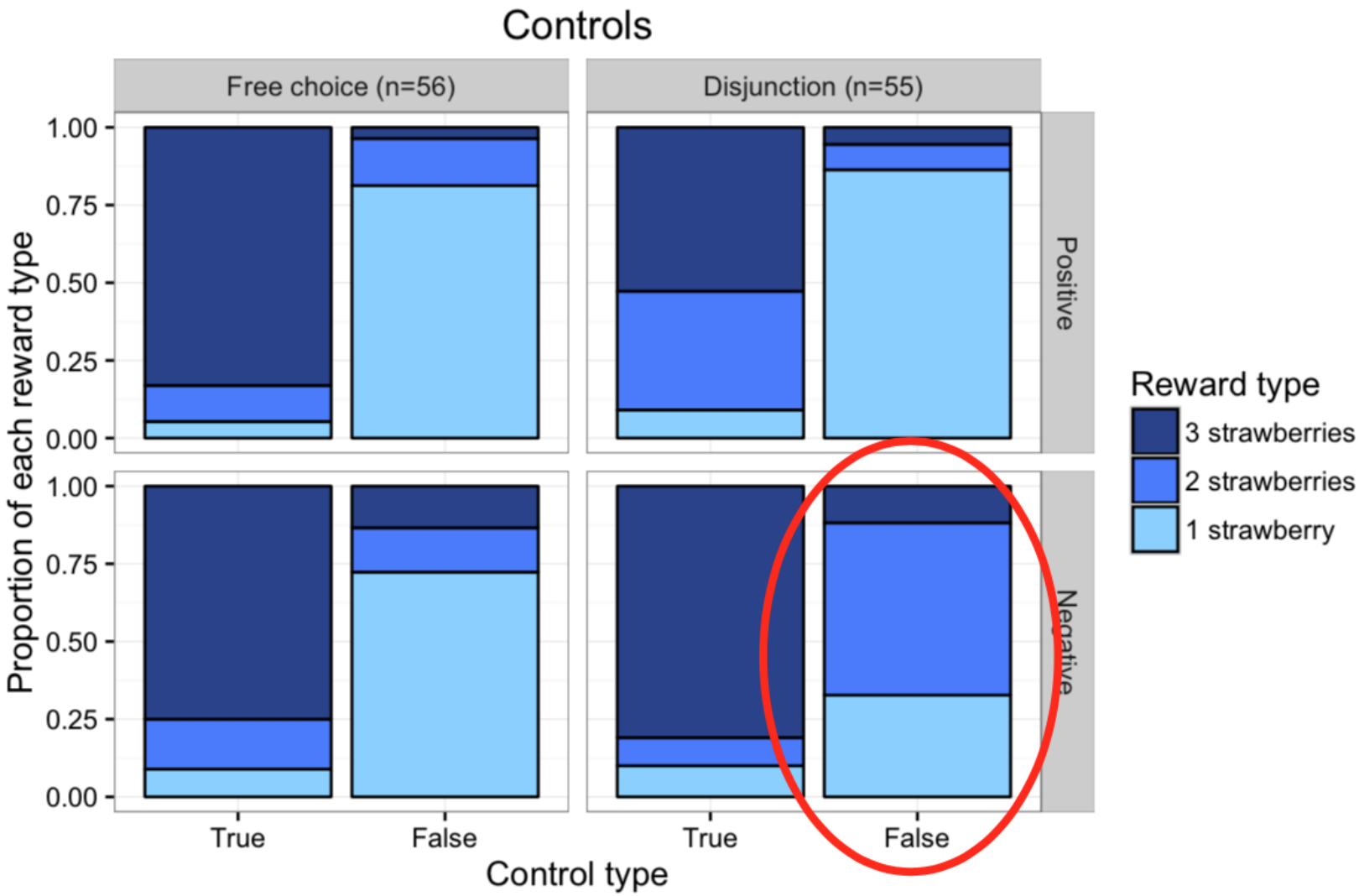
Another comparison

Context: $A \wedge \neg B$

(62) $\neg(A \vee B)$ FALSE

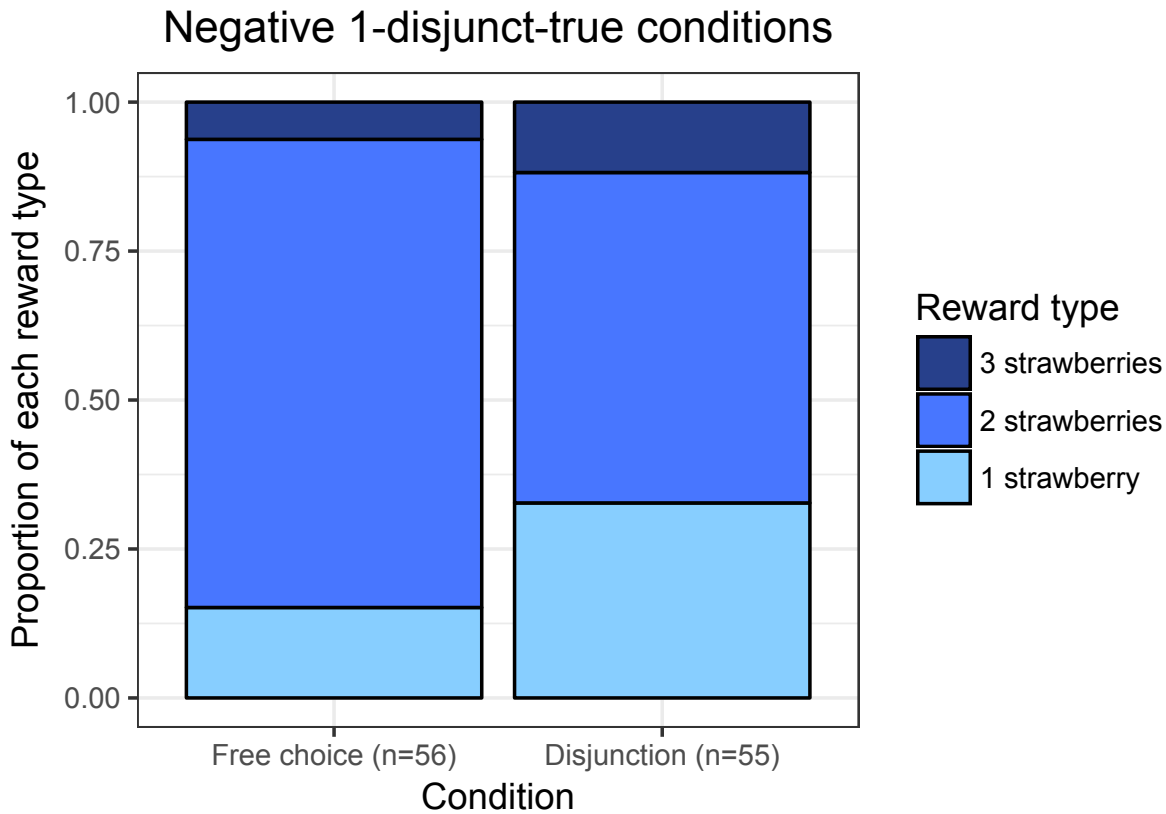
(63) $\neg A \vee \neg B$ TRUE

We have it already

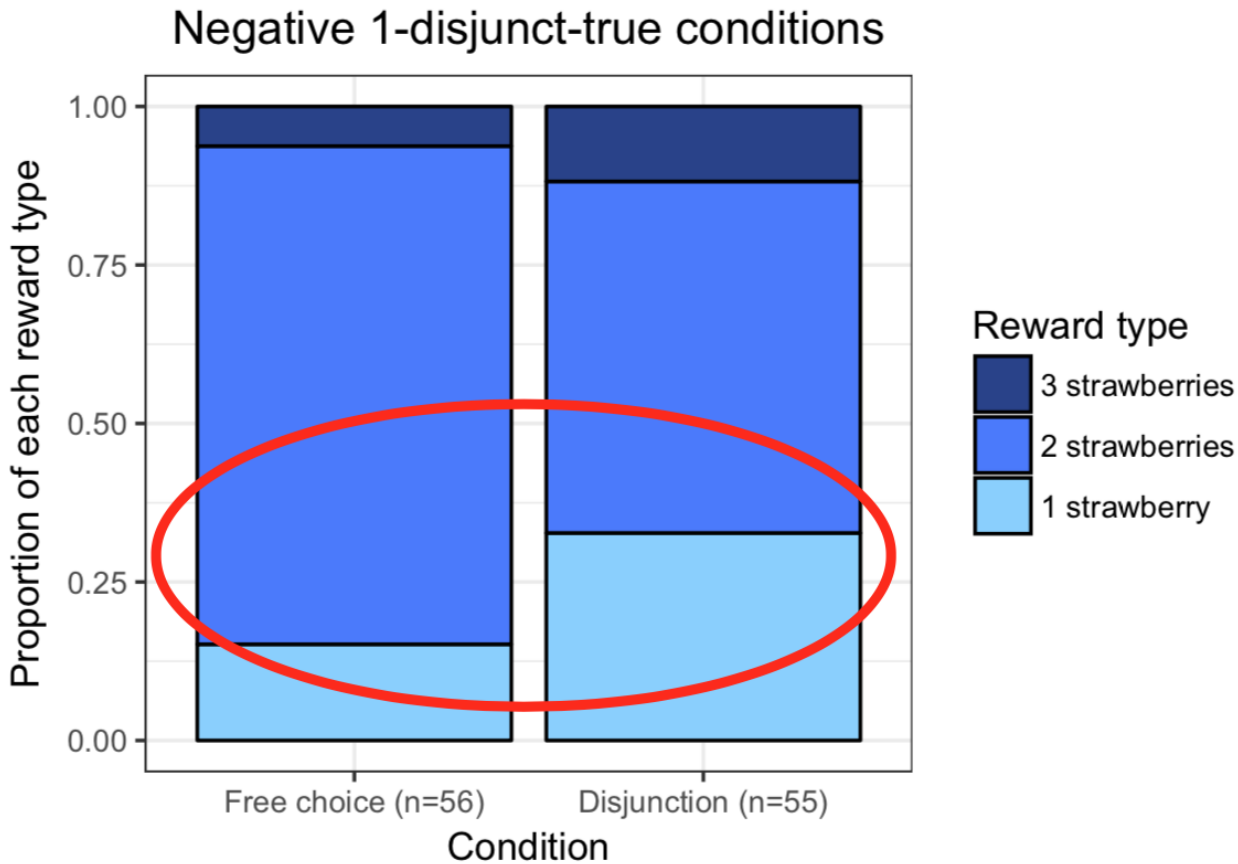


Comparing it to the FC negative target

The comparison

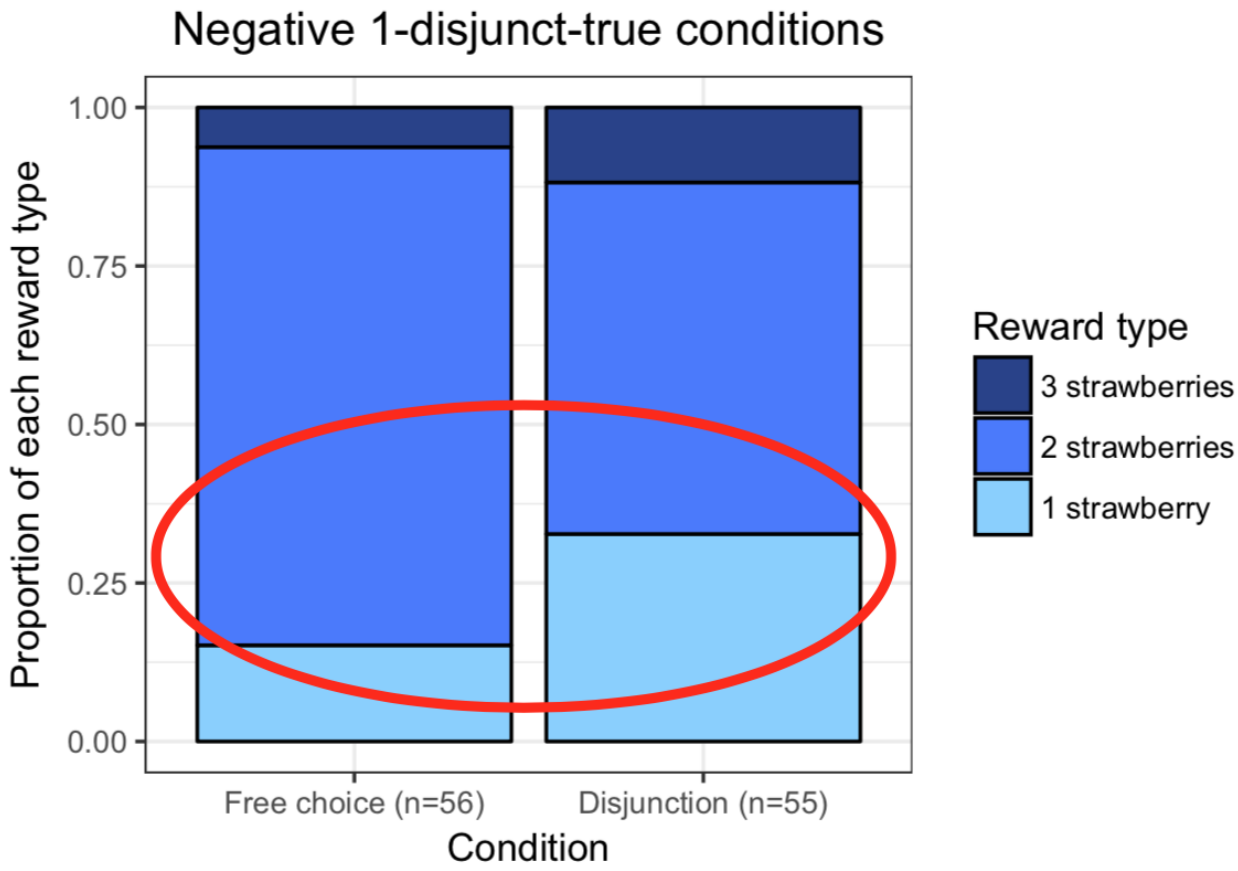


The comparison



Marginally significant effect of inference type ($z = 1.7$, $p = .08$)

The comparison



(64) Angie is not allowed to buy the car or the boat

(65) Angie didn't buy the car or the boat

In sum

- Wide scope as an explanation of the difference between OR and FC negative?

In sum

- Wide scope as an explanation of the difference between OR and FC negative?
- The comparison with the OR control also reveals a difference

In sum

- Wide scope as an explanation of the difference between OR and FC negative?
- The comparison with the OR control also reveals a difference
- Scope might be playing a role but it can't be the whole story

Outline

Addressing the challenge

- Appealing to differences among scalar items is not enough[12]

[12] Scalar diversity - van Tiel et al 2016

Addressing the challenge

- Unclear that a difference between alternatives would help[13]

[13] Chemla and Bott 2013, Tieu et al 2016

Addressing the challenge

- Re-thinking the distribution of implicatures might help[14]

[14] Enguehard and Chemla 2018

The distribution of implicatures

(66) Angie is not allowed to buy the car or the boat

The distribution of implicatures

(66) Angie is not allowed to buy the car or the boat

(67) not[Angie is allowed to buy the car or the boat]

The distribution of implicatures

(66) Angie is not allowed to buy the car or the boat

(67) not[Angie is allowed to buy the car or the boat]
$\rightsquigarrow$ *Angie cannot buy either one* FALSE

The distribution of implicatures

(68) Angie is not allowed to buy the car or the boat

(69) not[IMP[Angie is allowed to buy the car or the boat]

The distribution of implicatures

(68) Angie is not allowed to buy the car or the boat

(69) not[IMP[Angie is allowed to buy the car or the boat]
$\rightsquigarrow$ *it's not true that Angie can choose between the two*

The distribution of implicatures

(68) Angie is not allowed to buy the car or the boat

(69) not[IMP[Angie is allowed to buy the car or the boat]
$\rightsquigarrow$ *it's not true that Angie can choose between the two*
TRUE

The distribution of implicatures

Context: $\Diamond A \wedge \neg\Diamond B$

(70) $\neg\Diamond(A \vee B) = \neg\Diamond A \wedge \neg\Diamond B$ FALSE

The distribution of implicatures

Context: $\Diamond A \wedge \neg\Diamond B$

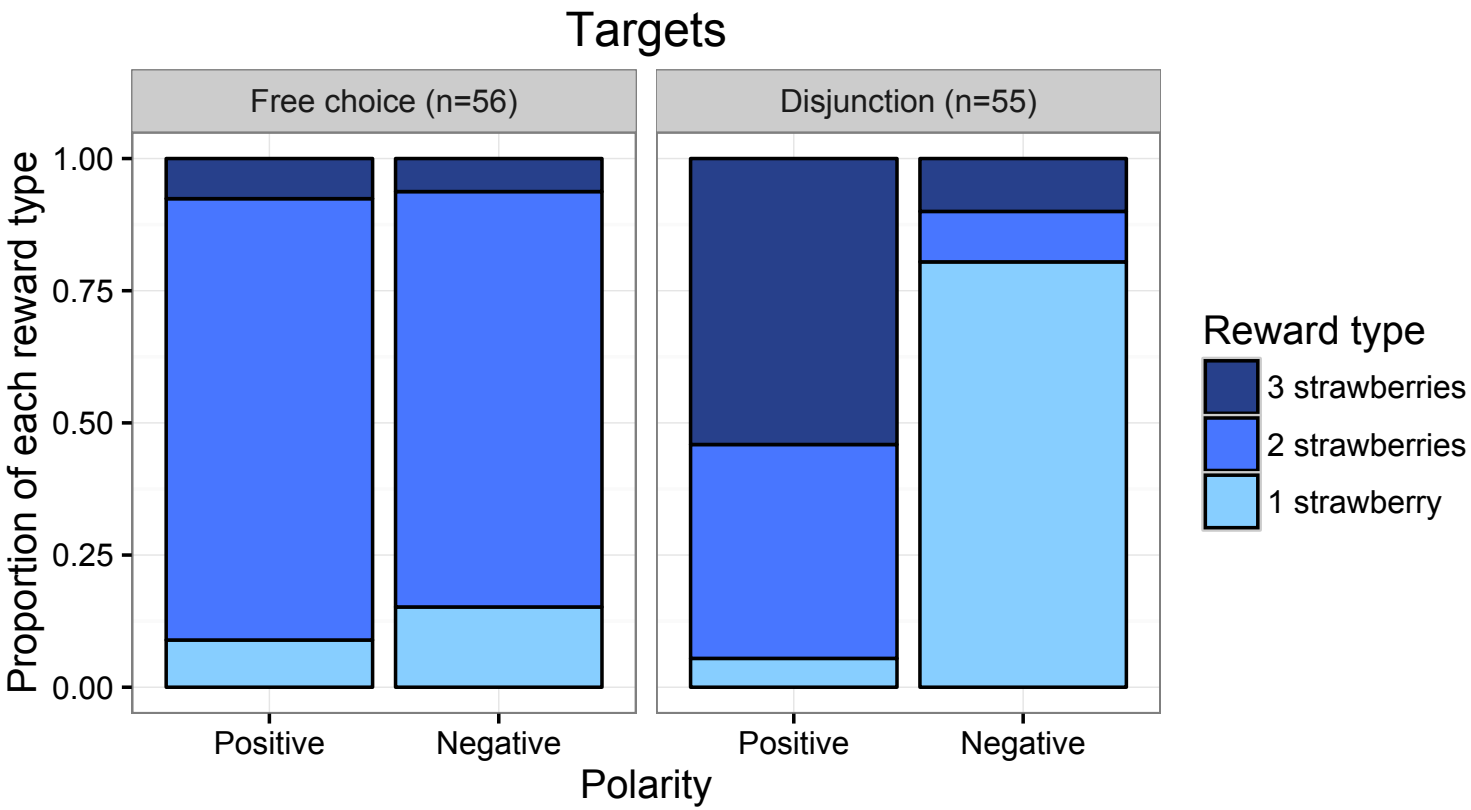
(70) $\neg\Diamond(A \vee B) = \neg\Diamond A \wedge \neg\Diamond B$ FALSE

(71) $\neg(\text{IMP}\Diamond(A \vee B)) = \neg(\Diamond A \wedge \Diamond B)$ TRUE

The interpretation as before

If one reading is true and one is false go for the intermediate value

Back to the results



The standard constraint

Do not weaken!: do not compute an implicature if it weakens the overall meaning of the sentence

The distribution of implicatures

(72) $\neg\Diamond(A \vee B) = \neg\Diamond A \wedge \neg\Diamond B$ FALSE

The distribution of implicatures

(72) $\neg\Diamond(A \vee B) = \neg\Diamond A \wedge \neg\Diamond B$ FALSE

(73) $*\neg(\text{IMP}\Diamond(A \vee B)) = \neg(\Diamond A \wedge \Diamond B)$ TRUE

Same for OR

(74) $\neg(A \vee B) = \neg A \wedge \neg B$ FALSE

Same for OR

(74) $\neg(A \vee B) = \neg A \wedge \neg B$ FALSE

(75) $\neg(\text{IMP}(A \vee B)) = \neg[(A \vee B) \wedge \neg(A \wedge B)]$ TRUE

Same for OR

(76) $\neg(A \vee B) = \neg A \wedge \neg B$ FALSE

(77) $*\neg(\text{IMP}(A \vee B)) = \neg[(A \vee B) \wedge \neg(A \wedge B)]$ TRUE

A different principle[15]

Do not compute an implicature if it leads to a non-connected meaning

[15] Enguehard and Chemla 2018

A different principle[16]

- This principle can distinguish between FC and OR

[16] Enguehard and Chemla 2018

A different principle[16]

- This principle can distinguish between FC and OR
- The inference of disjunction under negation leads to a non-connected meaning

[16] Enguehard and Chemla 2018

A different principle[16]

- This principle can distinguish between FC and OR
- The inference of disjunction under negation leads to a non-connected meaning
- Free choice under negation leads to a connected meaning

[16] Enguehard and Chemla 2018

A different principle

Context: $\Diamond A \wedge \neg\Diamond B$

(78) $\neg\Diamond(A \vee B) = \neg\Diamond A \wedge \neg\Diamond B$ FALSE

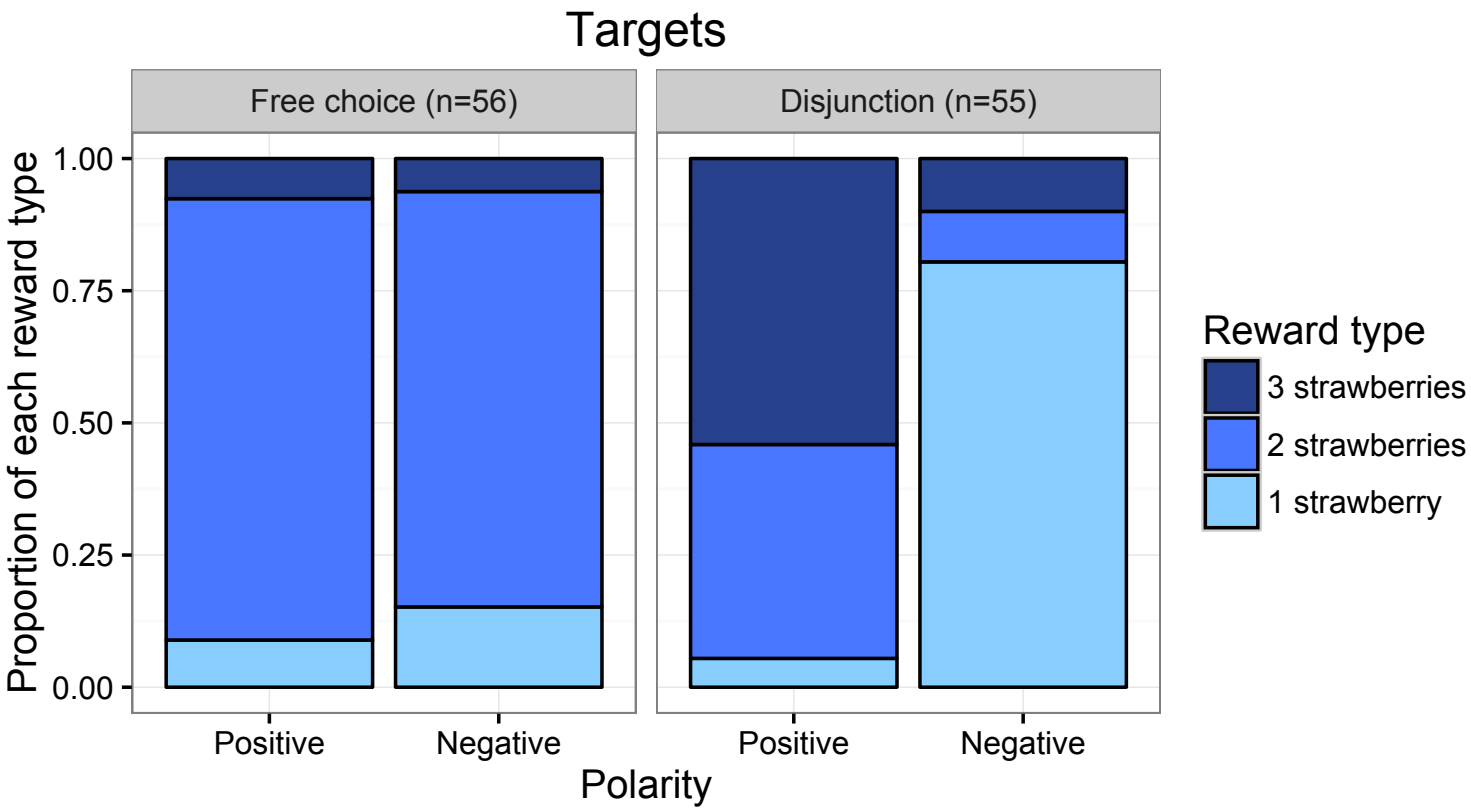
(79) $\neg(\text{IMP}\Diamond(A \vee B)) = \neg(\Diamond A \wedge \Diamond B)$ TRUE

Different for OR

(80) $\neg(A \vee B) = \neg A \wedge \neg B$ FALSE

(81) $*\neg(\text{IMP}(A \vee B)) = \neg[(A \vee B) \wedge \neg(A \wedge B)]$ TRUE

Back to the results



Prediction

(82) Angie didn't buy the car or the boat . . .

Prediction

(82) Angie didn't buy the car or the boat . . . she didn't want either one

Prediction

(82) Angie didn't buy the car or the boat . . . she didn't want either one EASY

Prediction

(82) Angie didn't buy the car or the boat . . . she didn't want either one EASY

(83) Angie didn't buy the car or the boat . . .

Prediction

(82) Angie didn't buy the car or the boat . . . she didn't want either one EASY

(83) Angie didn't buy the car or the boat . . . she bought both of them

Prediction

(82) Angie didn't buy the car or the boat . . . she didn't want either one EASY

(83) Angie didn't buy the car or the boat . . . she bought both of them HARD

Prediction

(84) Angie is not allowed to buy the car or the boat . . .

Prediction

(84) Angie is not allowed to buy the car or the boat . . . she doesn't deserve either one

Prediction

(84) Angie is not allowed to buy the car or the boat . . . she doesn't deserve either one EASY

Prediction

(84) Angie is not allowed to buy the car or the boat . . . she doesn't deserve either one EASY

(85) Angie is not allowed to buy the car or the boat . . .

Prediction

(84) Angie is not allowed to buy the car or the boat . . . she doesn't deserve either one EASY

(85) Angie is not allowed to buy the car or the boat . . . she can only buy the car

Prediction

(84) Angie is not allowed to buy the car or the boat . . . she doesn't deserve either one EASY

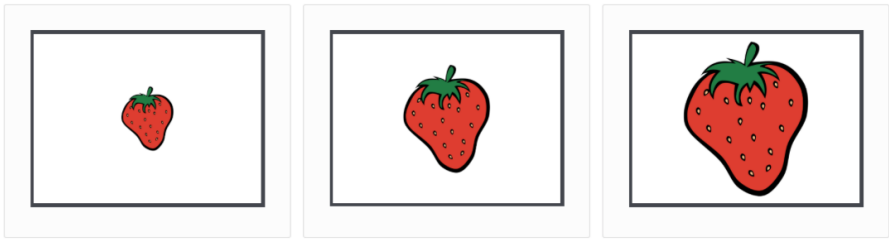
(85) Angie is not allowed to buy the car or the boat . . . she can only buy the car EASY

In sum

Promising direction to address the challenge for the implicature approach

Instructions

When it's time to answer, you'll see a small strawberry, a medium strawberry, and a big strawberry!



If Raffie's guess is totally right, give her the biggest strawberry!

If Raffie's guess is totally wrong, give her the smallest strawberry!

If Raffie's guess is sort of in between -- not totally right, but not totally wrong -- then give her the medium strawberry.