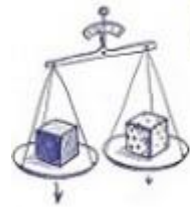


# Prof. Usher's Lab



**Usher Lab**

Decisions

Cognition

Neural Computation

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Moshe Glickman

June, 2017

# Overview

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## Decision-Making Biases



## Risk-Biases



## Eye-Tracking



# Contextual Preference Reversals

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≈24



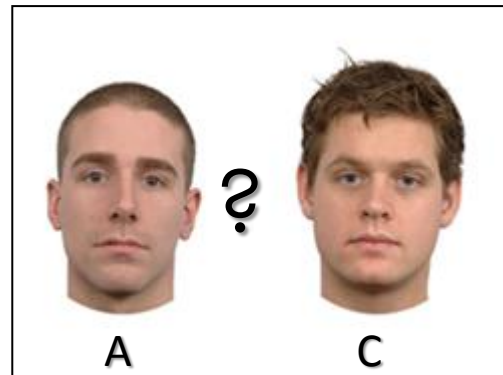
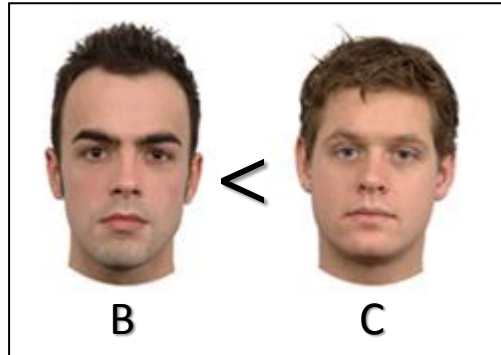
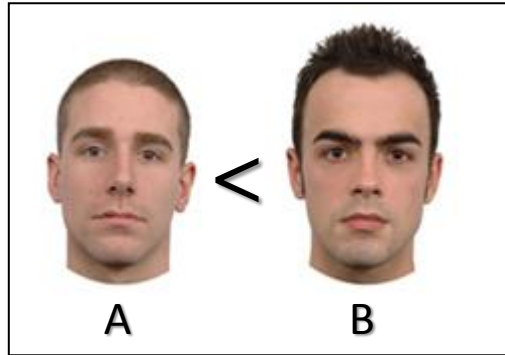
≈6



≈26

# Transitivity Violations

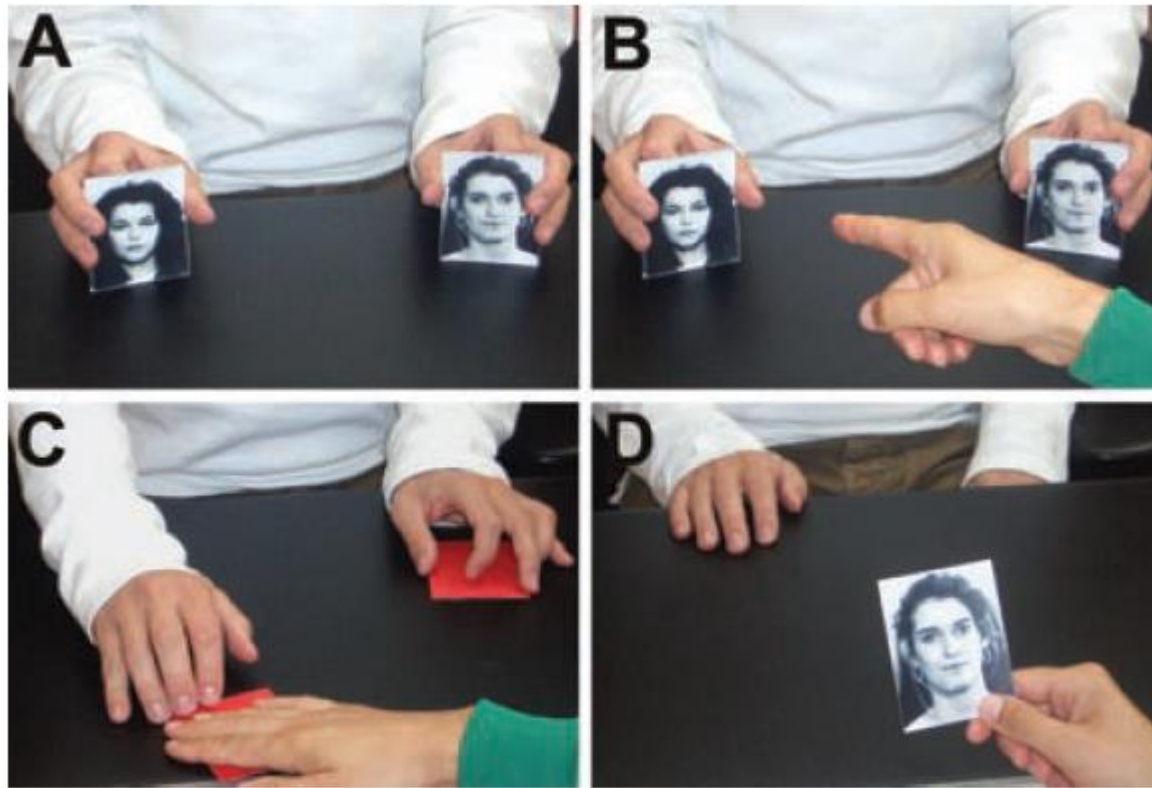
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*Transitivity:  $A < B \wedge B < C \rightarrow A < C$*

# Choice Blindness

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Johansson et al., Science, 2005

# Overview

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Decision-Making  
Biases



Risk-Biases



Eye-Tracking



# Risk-Biases

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50

50

66

55



71

57

21

33

37

49

30

66

74

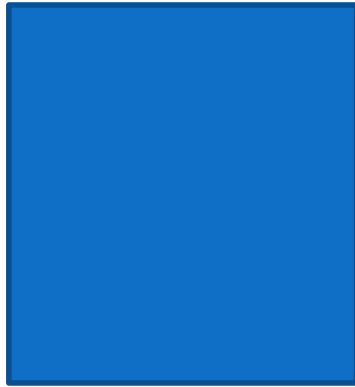
61

42

49

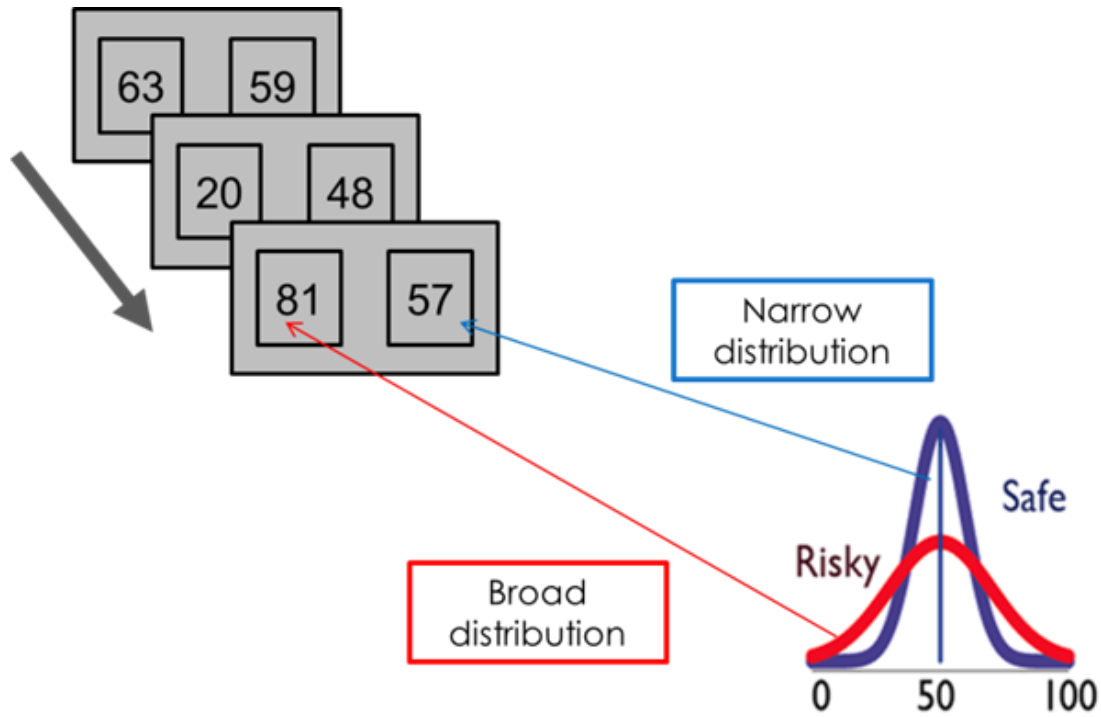
72

43



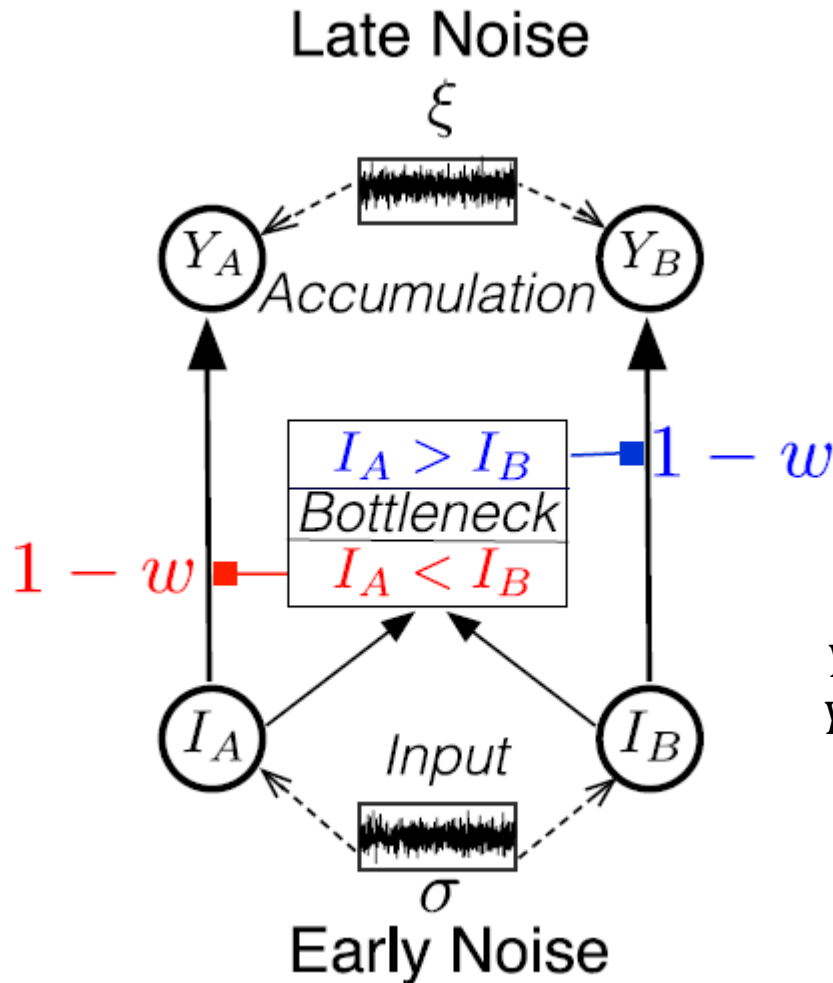


# Risk-Biases



**Rejection framing leads to choice reversal**

# The Selective Integration Model



## Stimuli

$$X_A(t) = \sigma \cdot \rho_A(t) + S_A(t)$$

$$X_B(t) = \sigma \cdot \rho_B(t) + S_B(t)$$

## Inputs

$$I_A(t) = X_A(t)$$

$$I_B(t) = (1 - w) \cdot X_B(t)$$

## Accumulators

$$Y_A(t) = (1 - \lambda) \cdot Y_A(t - 1) + I_A(t) + \xi \zeta_A(t)$$

$$Y_B(t) = (1 - \lambda) \cdot Y_B(t - 1) + I_B(t) + \xi \zeta_B(t)$$

# Overview

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## Decision-Making Biases



## Risk-Biases



## Eye-Tracking



# Lotteries



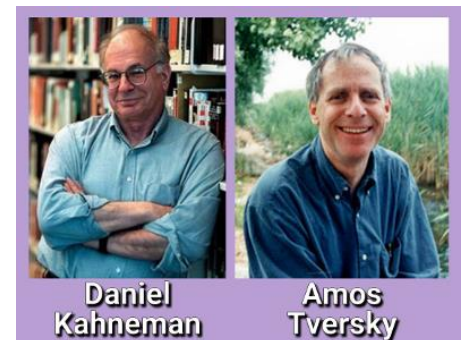
Option A	Option B
100 ILS with probability of 0.5	45 ILS for sure



*Expected Value = 50 ILS*

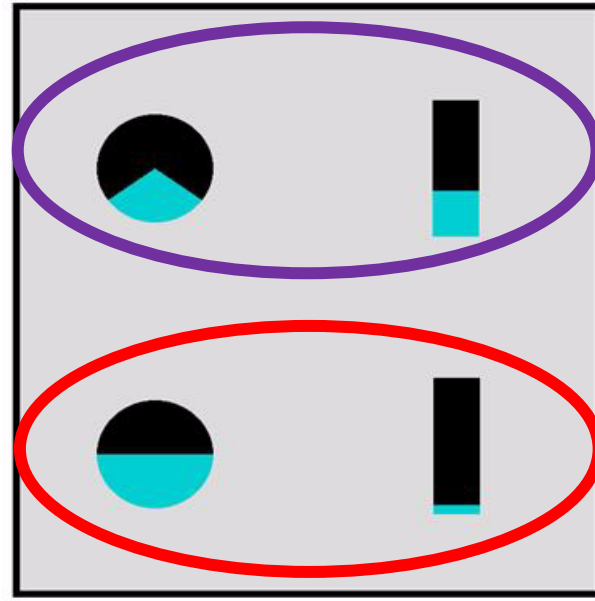


*Expected Value = 45 ILS*



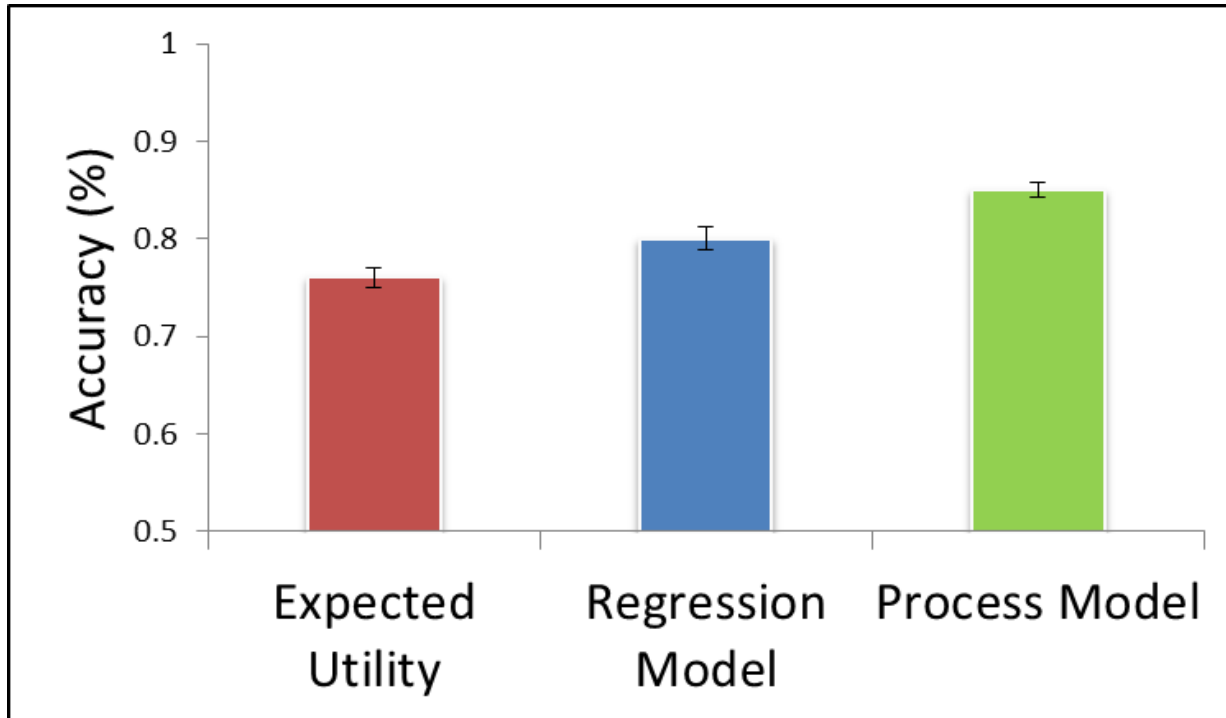
# Eye - Tracking

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# Results

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# Overview

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## Decision-Making Biases



## Risk-Biases



## Eye-Tracking

