Preferences under pressure: limited processing time increases risk aversion during monetary decision making

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### Background
- Speed-accuracy trade-offs are a ubiquitous feature of perception and action.
- In decision making, the relationship between processing time and stochasticity has been addressed from multiple perspectives.
- But how processing time might impact preferences has received less attention.
- Here, we assess the impact of processing time on risk-taking during a monetary decision-making task.

#### Experiment 1
Does limited viewing time modulate risk preferences?

#### Experiment 2
When viewing time is fixed, does limited internal processing time modulate risk preferences?

### Methods

#### Experiment 2: parametric analysis

\[ SV = p \cdot V \]

\( SV = \) subjective value, \( p = \) probability, \( V = \) value, \( \alpha = \) risk aversion parameter

\[ P_L = 1 + e^{(SV - SV_0)} \]

\( P_L = \) probability choosing lottery, \( \gamma = \) logistic slope

### Results

#### Experiment 1 (\(n=11\))

<table>
<thead>
<tr>
<th>Processing Time</th>
<th>Proportion FOSD Violations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short</td>
<td>0.014</td>
</tr>
<tr>
<td>Long</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Experiment 2 (\(n=12\))

<table>
<thead>
<tr>
<th>Processing Time</th>
<th>Proportion FOSD Violations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short</td>
<td>0.09</td>
</tr>
<tr>
<td>Long</td>
<td>0.02</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Summary

- **Exp 1:** Limited viewing time increased risk aversion and decreased consistency.
- **Exp 2:** Limited internal processing time increased risk aversion and reduced slope of the logistic function.

#### Conclusions
Temporal constraints on decision making can modulate both consistency of choice and risk preferences.