Monetary Rewards Speed Conscious Visual Perception
Blaire Dube and Naseem Al-Aldroos
Department of Psychology, University of Guelph

Background
Monetary rewards have a lasting effect on visual processing. Stimuli previously associated with high value or monetary reward involuntarily capture attention, even after reward is no longer being given. How does reward change processing?

Do learned reward associations accelerate perception?

Method

\[ N = 21 \quad \text{*For inclusion, participants must have greater than 75% accuracy on Reward Learning task.} \]

Reward Learning

Indicate the orientation of the gratings: Left

<table>
<thead>
<tr>
<th>500ms</th>
<th>100ms</th>
<th>2s</th>
<th>+ $0.08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total = $4.36</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Right

1s +/- 10ms jitter

Temporal Order Judgment

Indicate which white dot appears first (left vs. right)

Point of Subjective Simultaneity (PSS):
The time at which both stimuli (left and right) are reported as appearing first equally as often.

Accuracy Reward:
At High-Reward (HR) Location: 120 HR trials ($0.08) 30 LR trials ($0.02)
At Low-Reward (LR) Location: 120 LR trials 30 HR trials

Stimulus Onset Asynchronies (SOAs)

Left stimulus first

Right stimulus first

-150ms
-100ms
-70ms
-40ms
-20ms
0ms
20ms
40ms
70ms
100ms
150ms

Stimulus Onset Asynchrony

PSS = -0.014; \( p < 0.05 \)

In order to report simultaneous perception of stimuli at a high and low reward location, the stimulus at the low-reward location must be presented 14ms prior to the stimulus at the high reward location.

Conclusions
- Beyond measures of attention, reward also affects measures of perception.
- Rewarding a spatial location accelerates perception of stimuli appearing in that location, and this effect persists in the absence of actual reward.
- Rewarded spatial locations yield effects similar to rewarded features.

References

This work was supported in part by a Natural Science and Engineering Research Council grant to Naseem Al-Aldroos.