Does attention to a point in time lead to temporal surround suppression?

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**Background:**
- When attending to a particular location or feature, processing of visual information at nearby locations or features is suppressed1.
- Visual attention can also be allocated to a time point, prioritizing information presented at this specific point in time2.

**Goal:** To examine whether attending to a point in time leads to suppression at nearby time points.

**Method:**
- **Target position:**
  - Neutral Blocks: The target appeared randomly in one of the frames.
  - Informative Blocks: The target appeared in the same frame within the sequence.

**Stimuli:** A sequence of letters (Exp. 1: 13 letters, Exp. 2: 11 letters).

**Task:** Indicate target orientation (0°, 90°, 180°, 270°).

**Results:**
- **Informative Blocks:**
  - Accuracy decreased after the attended frame, it was not lower than the neutral condition. Therefore, there is no evidence of temporal suppression.
  - The lack of suppression may be due to carryover effects from the informative blocks to the neutral block.
  - The results suggest that attention was allocated to the expected frame. Although accuracy decreased after the attended frame, it was not lower than the neutral condition. Therefore, there is no evidence of temporal suppression.
  - The results support the prediction of endogenous temporal attention–Super fast voluntary allocation of attention.

**Discussion:**

The results suggest that attention was allocated to the expected frame. Although accuracy decreased after the attended frame, it was not lower than the neutral condition. Therefore, there is no evidence of temporal suppression.

Four groups participated in the informative condition, and for each group, the expected frame was different: 4th, 5th, 6th, and 7th. An additional group performed the neutral condition.

**Experiment 2 - Between-Subjects Design**

- In each informative group, the accuracy was higher in the expected frame than the same frame in the neutral group, p<0.05.

**Results:** (n=250; 50 in each group)

<table>
<thead>
<tr>
<th>Informative group: 4th frame</th>
<th>Informative group: 5th frame</th>
<th>Informative group: 6th frame</th>
<th>Informative group: 7th frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td>0.60</td>
<td>0.63</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td>0.68</td>
<td>0.73</td>
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<td>0.82</td>
<td>0.85</td>
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<td>0.84</td>
<td>0.87</td>
<td>0.90</td>
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</tbody>
</table>

**Discussions:**

The results suggest that attention was allocated to the expected moment, and it was followed by suppression.

**Conclusion:**

Allocating endogenous attention to a particular point in time leads to suppression in subsequent time points.

The results support the prediction of the Selective Tuning model.

**References**