# Preliminary Results, Mario's Master Thesis, 22.09.2025

Independent variables

- Probe-to-Target Similarity (PTS; Nachfolgende Analysen beziehen sich vorerst ausschließlich auf PTS=Same-Trials)

- Queried Item Position (QIP: "P **=** T**1**?" vs. "P = T**2**?", visual probe, comparison; Gerne auch eine andere Bezeichnung; Analysen beziehen sich nur auf die zwei genannten question prompts, die Analysen zu den beiden anderen, "P!=T1?" vs. "P!=T2?", stehen noch aus.)

- Target Position (TP: 1 vs. 2; tactile stimulus, encoding)

- Accessory Stimulus Position (ASP: 1 vs. 2; auditory stimulus, encoding)

- Target-to-Nontarget Similarity (TNS: low vs. high; tactile stimulus, encoding)

Dependent variable

- *p*(c) = *p*(*correct*) - *p*(*error*).

**Table 1. *p*(c) under all *TP* (*Target Position*) × *ASP* (*Accessory Stimulus Position*) × *QIP* (*Queried Item Position*) × *TNS* (*Target-to-Nontarget Similarity*) experimental conditions / combinations**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***TP*** | **ASP** | **QIP** | **TNS** | ***Mean p(c)*** | ***SD p(c)*** |
| 1 | 1 | 1 | high | .65 | .30 |
| 2 | 1 | 1 | high | .57 | .36 |
| 1 | 2 | 1 | high | .69 | .30 |
| 2 | 2 | 1 | high | .49 | .44 |
| 1 | 1 | 2 | high | .44 | .46 |
| 2 | 1 | 2 | high | .84 | .19 |
| 1 | 2 | 2 | high | .45 | .48 |
| 2 | 2 | 2 | high | .77 | .24 |
| 1 | 1 | 1 | low | .76 | .29 |
| 2 | 1 | 1 | low | .76 | .30 |
| 1 | 2 | 1 | low | .80 | .24 |
| 2 | 2 | 1 | low | .75 | .26 |
| 1 | 1 | 2 | low | .71 | .36 |
| 2 | 1 | 2 | low | .85 | .16 |
| 1 | 2 | 2 | low | .76 | .33 |
| 2 | 2 | 2 | low | .85 | .16 |

**Table 2. Results of the repeated-measures ANOVA**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *Parameters* | | | |
| *Model* | *df* | *F* | *MSE* | *p* |
| *TP* | 1,24 | 3.796 | .161 | .063~ |
| *ASP* | 1,24 | 0.003 | .015 | .995 |
| *TNS* | 1,24 | 48.4 | .057 | .000\*\*\* |
| *QIP* | 1,192 | 1.175 | .066 | .280 |
| *TP × ASP* | 1,24 | 4.722 | .027 | .040\* |
| *ASP × QIP* | 1,192 | 0.000 | .000 | .986 |
| *QIP × TNS* | 1,192 | 0.000 | .000 | .995 |
| *TP × TNS* | 1,24 | 4.518 | .025 | .044\* |
| *TP × QIP* | 1,192 | 45.502 | 2.556 | .000\*\*\* |
| *ASP × TNS* | 1,24 | 1.036 | .042 | .319 |
| *TP × ASP × TNS* | 1,24 | 0.478 | .029 | .496 |
| *TP × ASP × QIP* | 1,192 | 0.037 | .002 | .847 |
| *TP × TNS × QIP* | 1,192 | 14.112 | .793 | .000\*\*\* |
| *ASP × TNS × QIP* | 1,192 | .052 | .003 | .819 |
| *TP × ASP × TNS × QIP* | 1,192 | 0.025 | .001 | .874 |

*Note*. *TP* = *Target Position*, *ASP* = *Accessory Stimulus Position*, *TNS = Target-to-Nontarget Similarity*, *QIP = Queried Item Position*; *MSE* = *Mean Sum of Squared Errors; p = Level of significance.*

*R* comment for running regression model*: p*\_*c* ~ *TP*\**ASP*\**TNS*\**QIP* + *Error*(*participant* / (*TP*\**ASP*\**TNS*\**QIP*))

**Table 3. Means (and SDs) of (error-corrected) percent correct, p(c), as a function of Target Position**

|  |  |
| --- | --- |
| *Target Position* | |
| 1 | 2 |
| .65 (.37) | .73 (.30) |

*Note*. *p*(*c*) = *p*(*correct*)-*p*(*error*)

**Table 4. Means (and SDs) of p(c) as a function of TNS**

|  |  |
| --- | --- |
| *TNS* | |
| low | high |
| .78 (.27) | .61 (.38) |

**Table 5. Means (and *SD*s) for p(c) when cross-tabulating *Target Position* and *ASP*:**

|  |  |  |
| --- | --- | --- |
|  | *ASP* | |
| *Target Position* | 1 | 2 |
| 1 | .64 (.37) | .67 (.37) |
| 2 | .75 (.28) | .71 (.32) |

**Table 6. Means (and *SD*s) for p(c) when cross-tabulating *Target Position* and *TNS*:**

|  |  |  |
| --- | --- | --- |
|  | *TNS* | |
| *Target Position* | low | high |
| 1 | .75 (.31) | .56 (.40) |
| 2 | .80 (.23) | .67 (.35) |

**Table 7. Means (and *SD*s) for p(c) when cross-tabulating *Target Position* and *QIP*:**

|  |  |  |
| --- | --- | --- |
|  | *QIP* | |
| *Target Position* | 1 | 2 |
| 1 | .72 (.29) | .59 (.43) |
| 2 | .64 (.36) | .83 (.19) |

**Table 8. Means (and *SD*s) for p(c) as a function of *Target Position (TP)*, *TNS* and *QIP*:**

|  |  |  |  |
| --- | --- | --- | --- |
| *Means* (and *SD*s) |  |  |  |
|  |  | QIP | |
|  | TP | 1 | 2 |
| TNS=low | 1 | .78 (.27) | .73 (.34) |
|  | 2 | .75 (.28) | .85 (.16) |
|  |  |  |  |
| TNS=high | 1 | .67 (.30) | .44 (.46) |
|  | 2 | .53 (.40) | .80 (.21) |

# Results of analyses based on Vibrotactile Model of Resonance (VMR)

Figure 1. Predicted (VMR) vs. observed (error-corrected) percent correct, (pEC) = under all sixteen conditions of the present

**Table 9. Free parameters: Abbreviation, meaning, best-fitting estimate**

|  |  |  |
| --- | --- | --- |
| Parameter | Meaning | Best-fitting estimate |
| βAS | Rate of (temporal context) drift evoked by Accessory Stimulus (click tone) | .83 |
| βL | Drift rate of list item | .85 |
| βProbe,low | Drift rate of Probe when TNS is low | .56 |
| βProbe,high | Drift rate of Probe when TNS is high | .94 |
| βret | Drift rate of retrieved context pattern (to be integrated into the context to derive response probabilities) | .99 |
| wFC | Weight of newly learned bindings between Layers F and C | .01 |
| wCF | Binding weights for Layers C and F | .69 |
|  |  |  |
|  |  |  |
|  |  |  |

*BIC* = -57.9

𝜒2= 6.63 (df = 16 – 7 = 9) 𝜒2crit = 6.9, *p* = .676)

Ein Bild, das Text, Reihe, Diagramm, Schrift enthält.

KI-generierte Inhalte können fehlerhaft sein.

**Figure 1. Observed and predicted (error-corrected) percent correct yes/no judgments under each experimental condition**

Note. Abbreviations at the abscissa: S = Same condition (Probe equals Target), first digit (after "S\_") = Target Position, second digit = ASP, third digit = QIP

# Results of Experiment without ASP

The design included the independent variables Target Position (TP), Queried Item Position (QIP), and Target-to-Nontarget Similarity (TNS)

**Table 2. Results of the repeated-measures ANOVA**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *Parameters* | | | |
| *Model* | *df* | *F* | *MSE* | *p* |
| *TP* | 1,33 | 0.651 | 0.107 | .426 |
| *TNS* | 1,33 | 78.89 | 3.546 | .000\*\*\* |
| *QIP* | 1,132 | 2.672 | 0.219 | .104 |
| *QIP × TNS* | 1,132 | 0.481 | .039 | .489 |
| *TP × TNS* | 1,33 | 1.622 | .034 | .212 |
| *TP × QIP* | 1,132 | 49.296 | 4.044 | .000\*\*\* |
| TP × TNS × QIP | 1,132 | 20.078 | 1.647 | .000\*\*\* |