

Time generalization, první experiment

Experiments ZS 2023

Why do temporal generalization gradients change when people make decisions as quickly as possible?

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Podmínky

- 1 Between factor - **Instrukce:** speeded vs accuracy (replikace)
- 1 within factor – **Feedback:** present vs non-present (nová)

Závisle proměnná

- Weighted mean of gradient (zdánlivé trvání podmínky v milisekundách)
- Proportion of same responses for each duration

Weighted mean of gradient

This was done by multiplying the number of “same” responses with the duration at which a “same” response was given, adding these products, and then dividing this weighted sum by the number of “same” responses of each participant given at all durations

```
#weighted mean gradient

# Assuming you have the 'result_df' dataframe from the previous step
# Calculate the weighted sum for each participant and feedback combination
result_df['Weighted_Sum'] = result_df['b'] * result_df['duration']

# Group by 'participant' and 'feedback' and sum the weighted sums
grouped = result_df.groupby(['participant', 'feedback', 'stress'])['Weighted_Sum'].sum().reset_index()

# Calculate the total count of "b" responses for each participant and feedback combination
grouped['Total_b_Responses'] = result_df.groupby(['participant', 'feedback'])['b'].transform('sum')

# Calculate the weighted mean of the gradient for each participant and feedback combination
grouped['Weighted_Mean_Gradient'] = grouped['Weighted_Sum'] / grouped['Total_b_Responses']

# If you want to save this new dataframe to a CSV file, you can use:
grouped.to_csv("weighted_mean_gradient.csv", index=False)
```

Hypotézy

- Pobídka k rychlosti povede k většímu množství SAME responses u delších stimulů.

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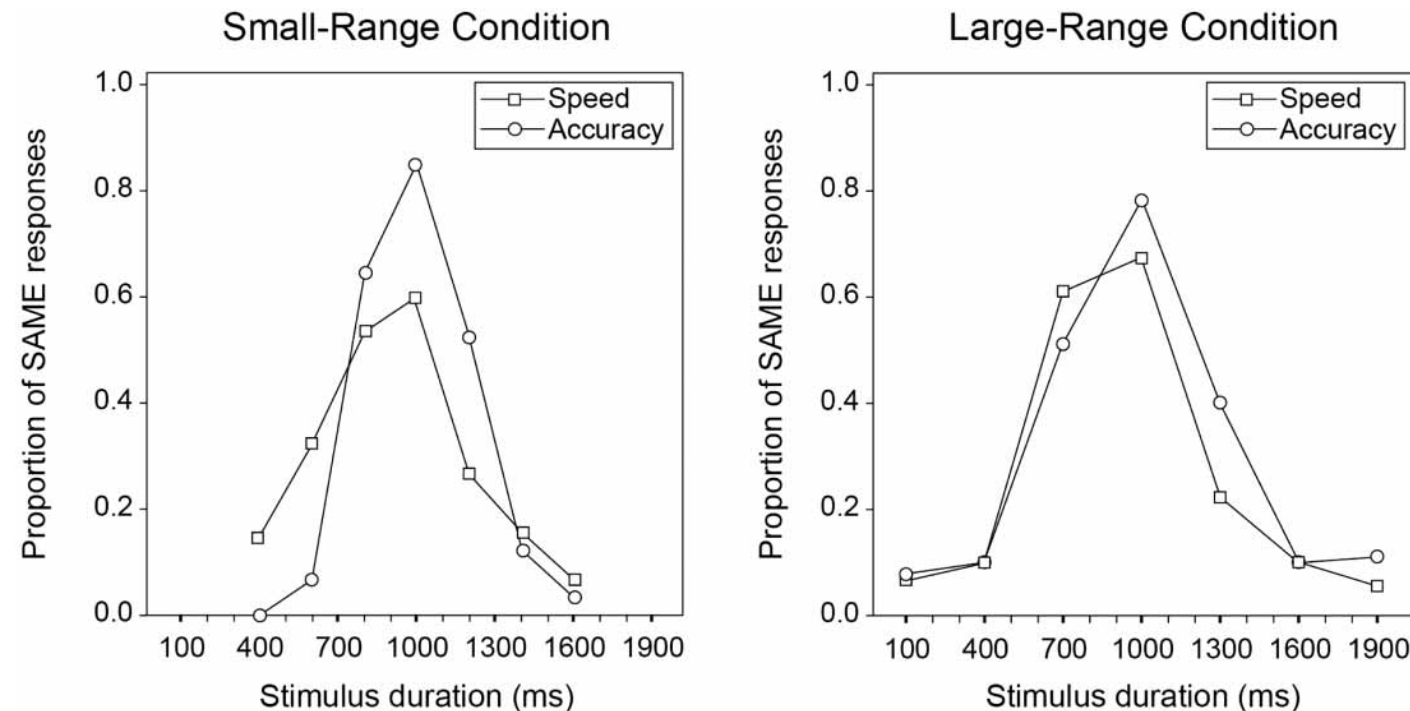


Figure 1. Temporal-generalization gradients (proportions of “same” responses plotted against stimulus duration) obtained from Experiment 1. Left panel: gradients from the small-range condition; right panel: gradients from the large-range condition. Squares represent data from the speed groups; circles represent data from the accuracy groups.

Hypotézy

- WMG bude nižší pro Speed condition.

The average means of the small-range conditions were MSpeed 955.1 ms (SD $\pm$ 57.3) and MAccuracy 1,004.3 ms (SD $\pm$ 21.7), and of the large-range conditions MSpeed 970.0 ms (SD $\pm$ 74.3) and MAccuracy 996.5 ms (SD $\pm$ 66.7).

ANOVA yielded a significant main effect of condition, $F(1, 56) 6.28, p .02$, reflecting the shift of the gradients of the speed groups towards durations shorter than the standard.

Hypotézy

- Přítomnost
feedbacku
zpřesní odhad
trvání stimulů.

Sample size

- Plánováno replikovat dle článku, celkem $n=60$ (dva faktory o dvou hladinách, between-subject design, v každé skupině $n=15$)
- Experiment do prvního deadline vyplnilo 33 participantů...

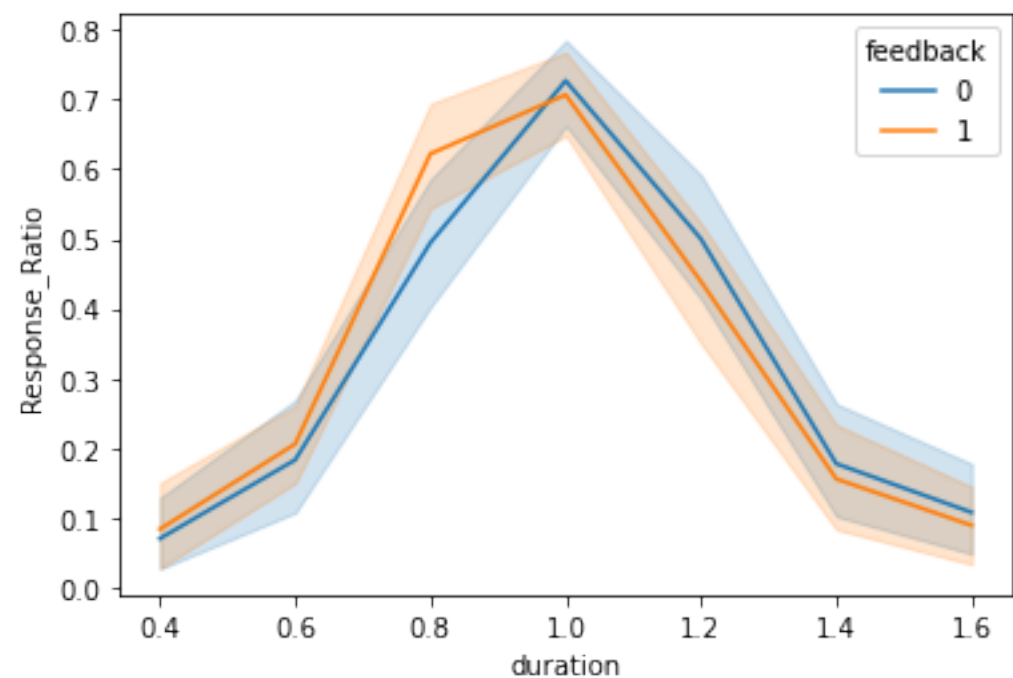
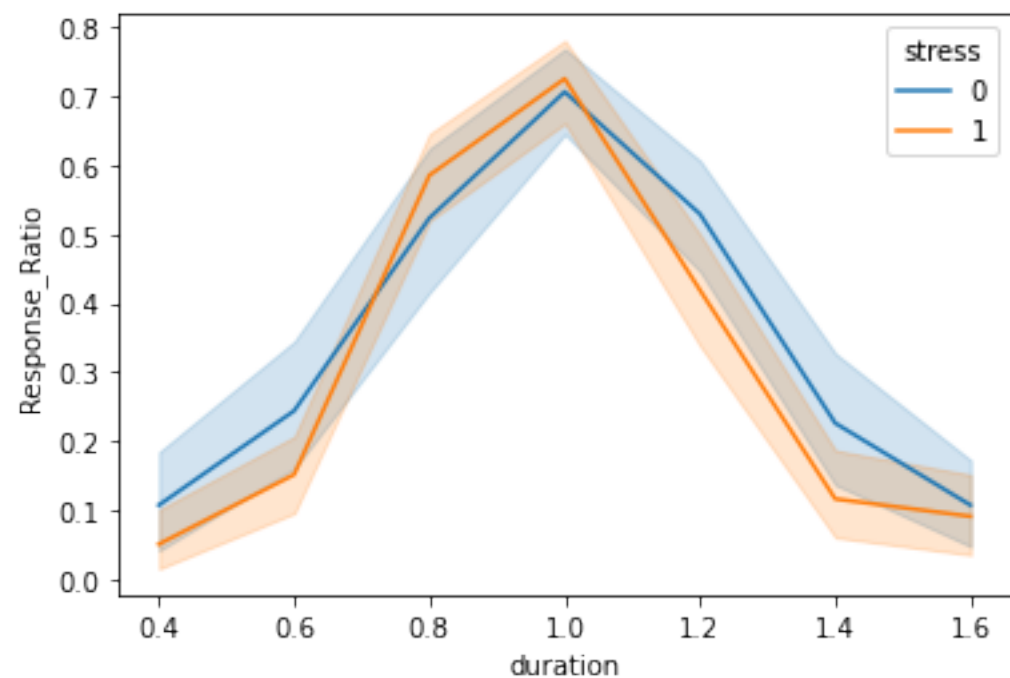
Podněty

- Šedý čtverec na černém pozadí
- Variují trvání
- Standard vždy 1s
- Stimul pak po 200ms; 0.4s, 0.6s, 0.8s, 1s, 1.2s, 1.4s, 1.6s
- Response – B or N (stejně nebo jiné trvání)

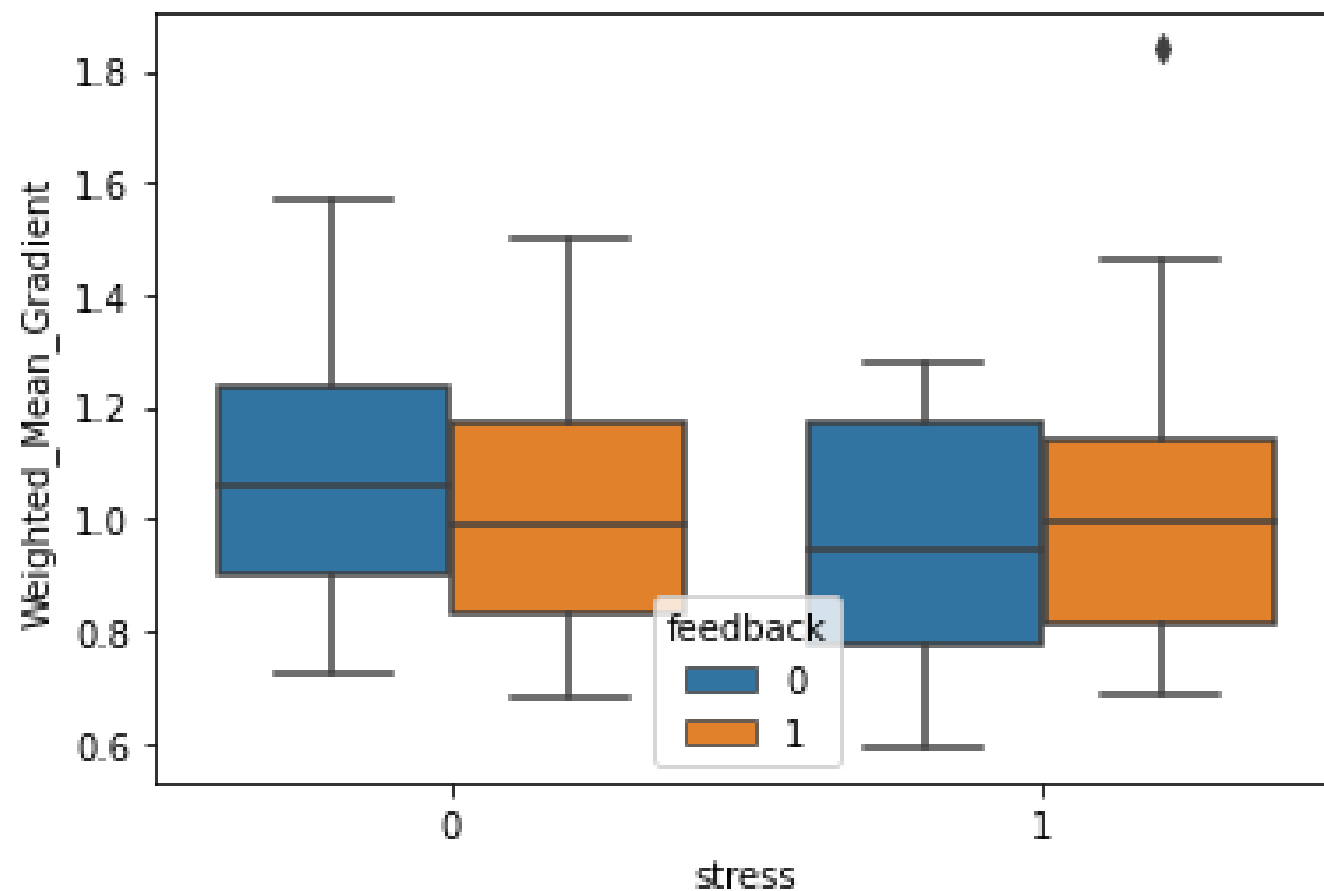
Experiment

- 6 bloků po 10 trialech pro každou podmínku (feedback yes/no)
- Přechází jim zácvik (10 trialů)

Results



Results



```
In [28]: import pingouin as pg
pg.mixed_anova(data=grouped, dv= "Weighted_Mean_Gradient", between="stress", within="feedback", subject="participant")
```

Out[28]:

	Source	SS	DF1	DF2	MS	F	p-unc	np2	eps
0	stress	0.057984	1	29	0.057984	0.637920	0.430958	0.021524	NaN
1	feedback	0.014228	1	29	0.014228	0.321417	0.575120	0.010962	1.0
2	Interaction	0.062349	1	29	0.062349	1.408515	0.244935	0.046320	NaN