Meta-analysis

Person & number agreement

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Jay van Cleef

Overview of presentation

1. Person and number agreement
2. Methodology of meta-analysis
3. Results of meta-analysis
4. Discussion

1. Person and number agreement
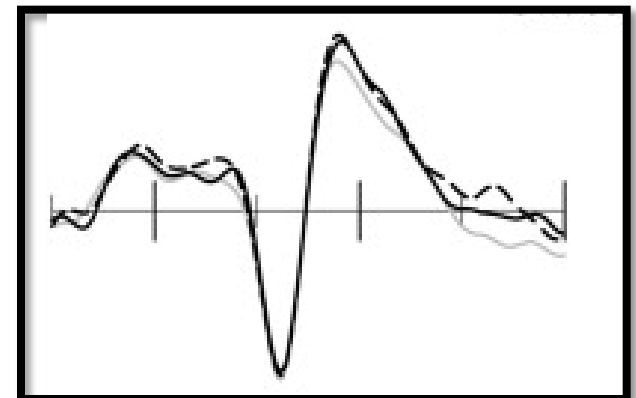
Example

1a. *I walks to school.

1b. I walk to school.

1c. *Ich machen etwas zu essen.

1d. Ich mach(e) etwas zu essen.

2. Methodology of meta-analysis

- 5 experiments (2 on number, 3 on person)
- N = 168
- Online data, ERP (69 electrodes)
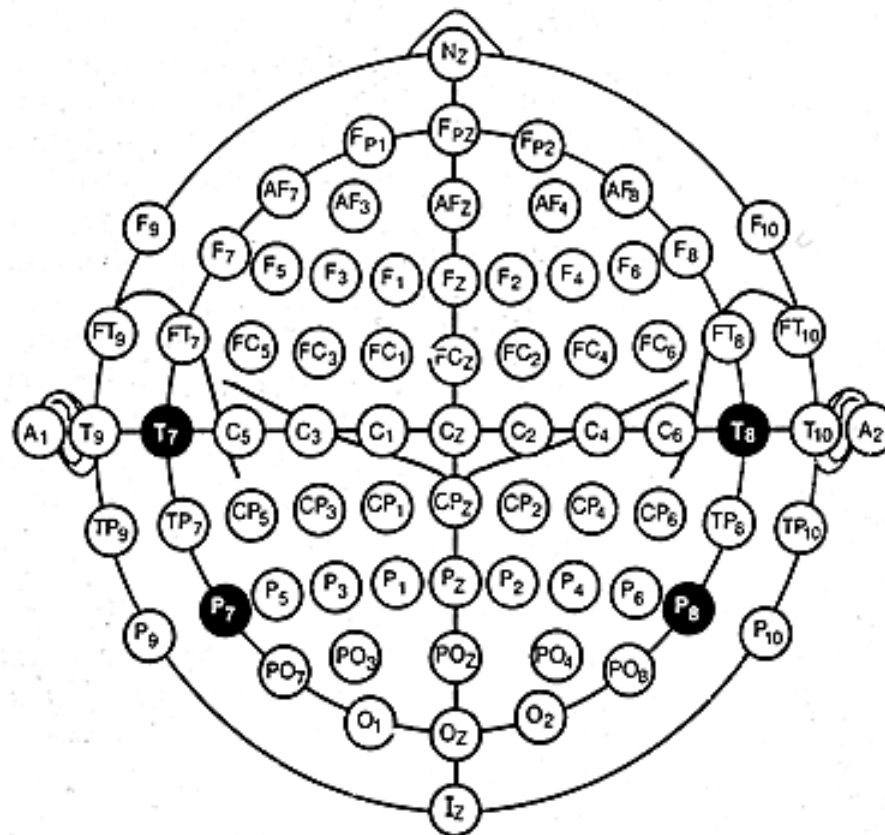- Time-frame analysis (100ms each) with paired t-test
- Three hypotheses

2. Methodology of meta-analysis

Hypotheses based on literature review by Molinaro, Barber, and Carreiras (2011):
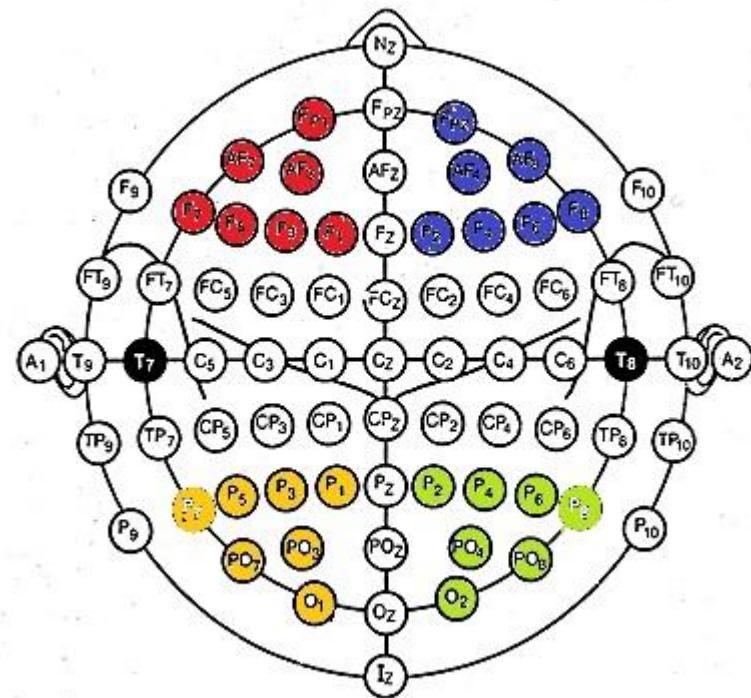
	Person (n=5)	**Number (n=17)**
LAN (left frontal)	40%	74%
N400 (mid-top)	20%	Not given
eP600 (midline)	100%	100%
lP600 (back)	80%	47%

2. Methodology of meta-analysis

3. Results of meta-analysis

Hypothesis 1: LAN for number disagreement in timeframe 300-500.

3. Results of meta-analysis

Result hypothesis 1
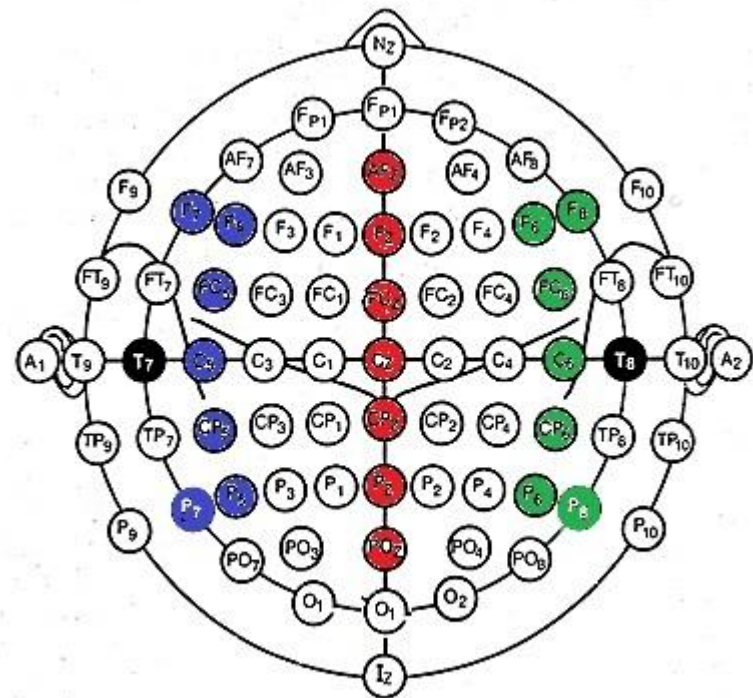
LAN only in 400-500 with $p < 0.05$ in experiment 1.

Other results

Experiment 1: back electrodes also showing negativity.

Experiment 5: all electrodes showing overall positivity.

3. Results of meta-analysis

Hypothesis 2: eP600 in midline for both disagreements in timeframe 600-800.

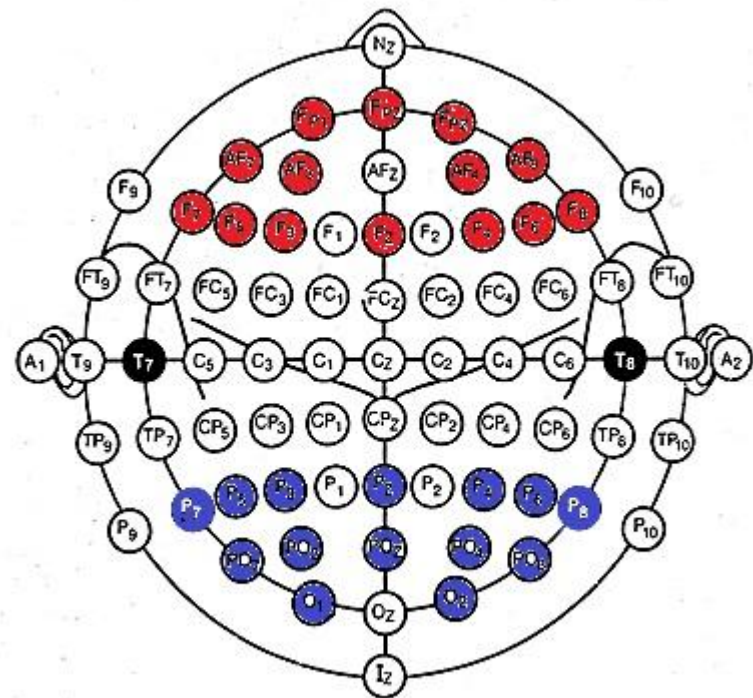# 3. Results of meta-analysis

Result hypothesis 2

Experiment 3 and 5 (both *person*) have significant medial activation with $p < 0.05$.

Other results

4/5 experiments show significant right activation with $p < 0.05$.

3. Results of meta-analysis

Hypothesis 3: IP600 in back for person disagreements in timeframe 700-1000.

3. Results of meta-analysis

Result hypothesis 3

All experiments show significant positivity in back electrodes (except one timeframe in experiment 1).

Other results

Three experiments show a frontal negativity.

3. Results of meta-analysis

	Person	Number
LAN (left frontal)	40%	74%
N400 (mid-top)	20%	Not given
eP600 (midline)	100%	100%
IP600 (back)	80%	47%

3. Results of meta-analysis

	Person	**Number**
LAN (left frontal)	0%	50%
N400 (mid-top)	Not given	Not given
eP600 (midline)	40%	0%
IP600 (back)	100%	88%

4. Discussion

End of presentation

Reference:

Molinaro, N., Barber, H.A., Carreiras, M. (2011). Grammatical agreement processing in reading: ERP findings and future directions. *Cortex*, 47: 908-930.