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# Distortions in Judged Spatial Relations

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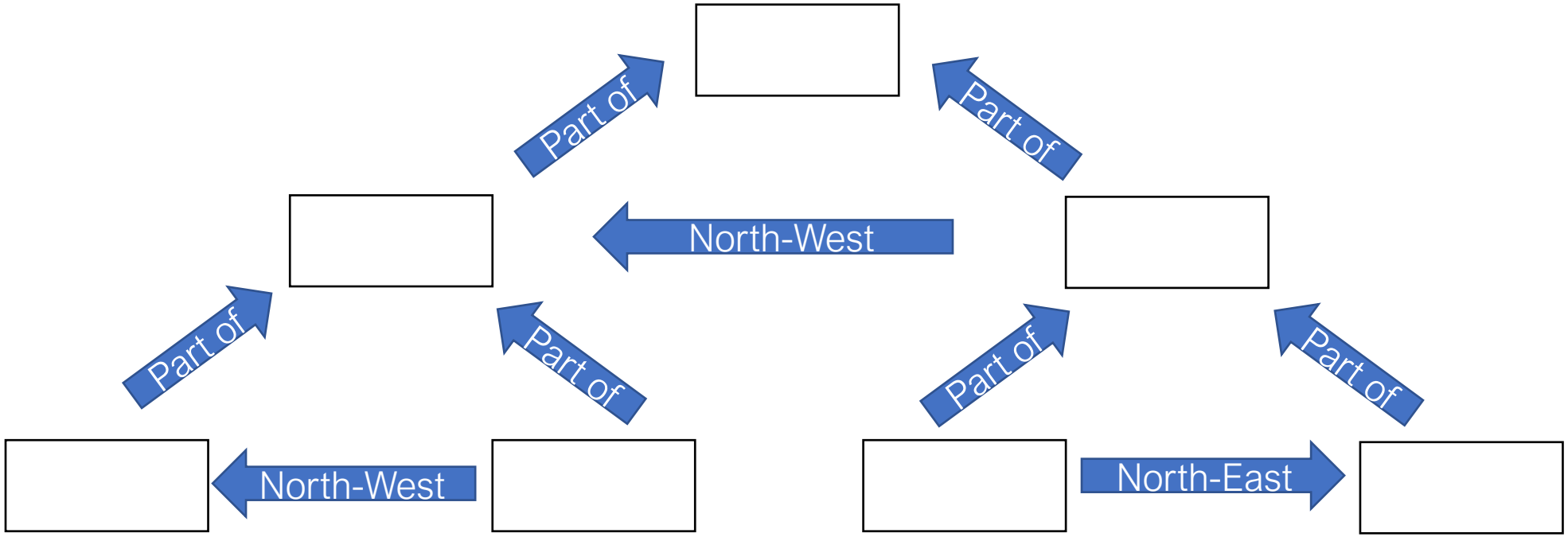
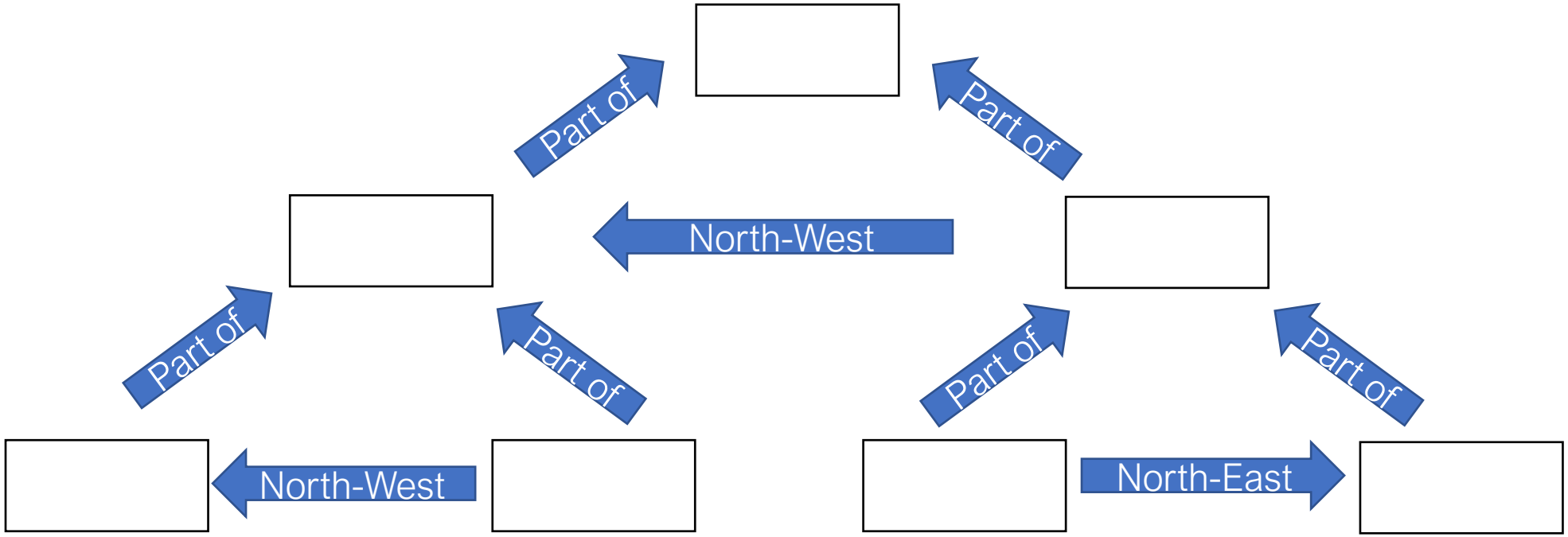
In three experiments, we explore distortions in subjects' judgments of relative geographical relations. People make large systematic errors in judging the geographical relations between two locations that are in different geographical or political units. There is a strong tendency to distort the judged relation to conform with the relation of the superordinate political unit. To account for this result, we present a model in which spatial information is stored hierarchically. Spatial relations between any two locations are stored explicitly only if those locations are within the same superordinate unit. Spatial relations not stored are inferred by combining the relations from between and within superordinate units.

1. Fill out the scheme below using Munich, Ulm, Salzburg and Linz. Which elements are subordinate and which superordinate?



# 2. Relationship between which cities in 1. will be most distorted?

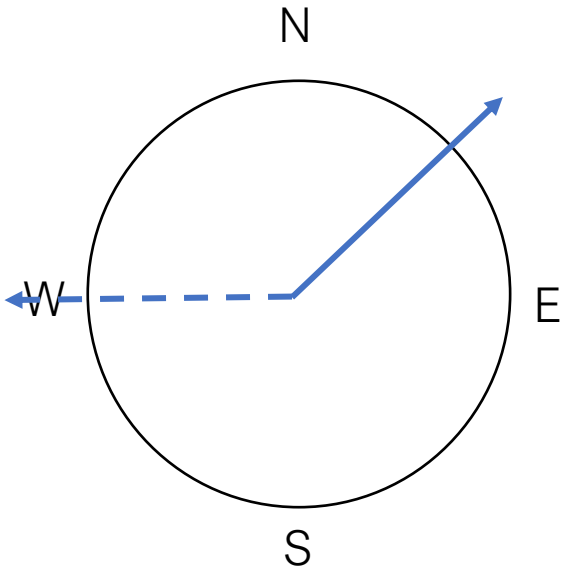


# 3. Experiment 1: Indicate by “x” participant’s response if…

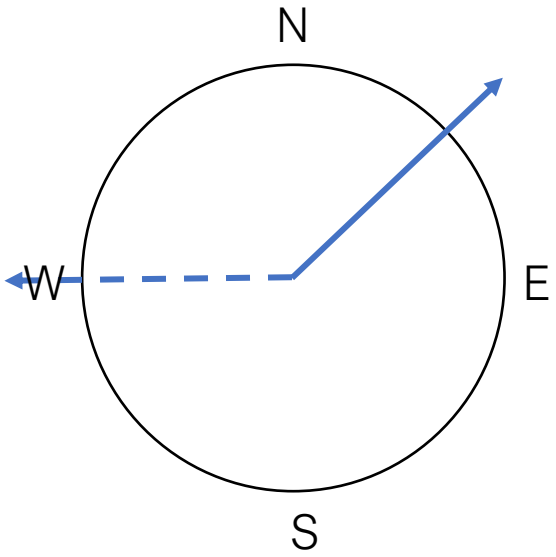
Actual direction

Superordinate direction

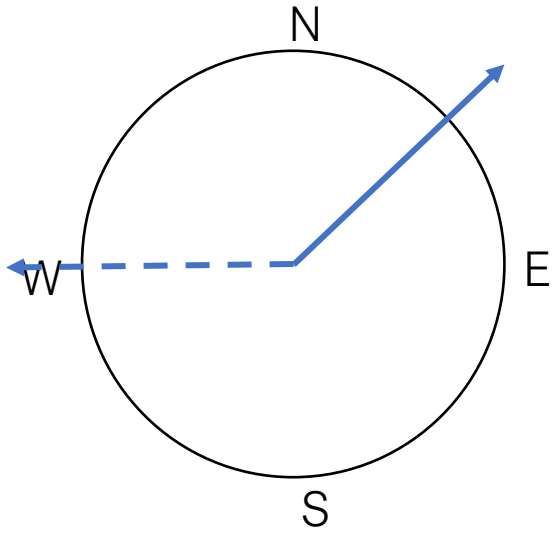
Geneva to Strasbourg




The representation is *not* influenced by superordinate category

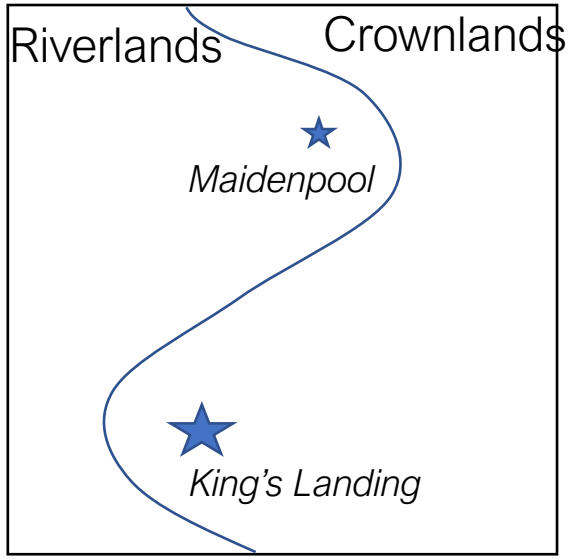


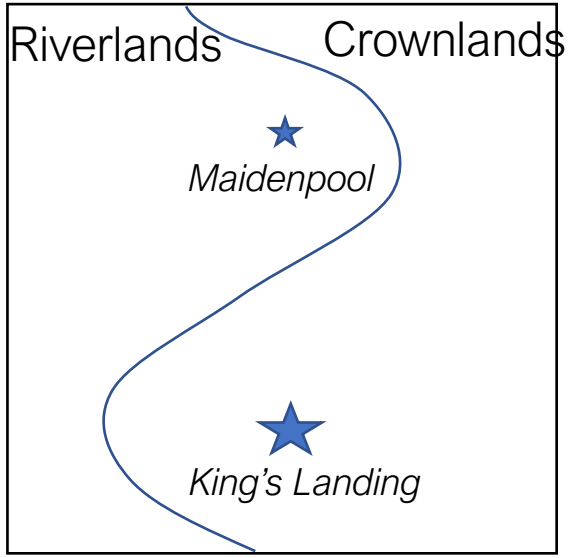

The representation is fully determined by the superordinate category

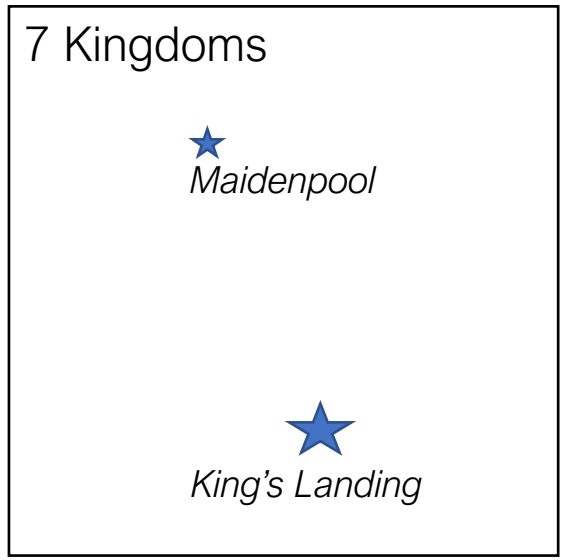


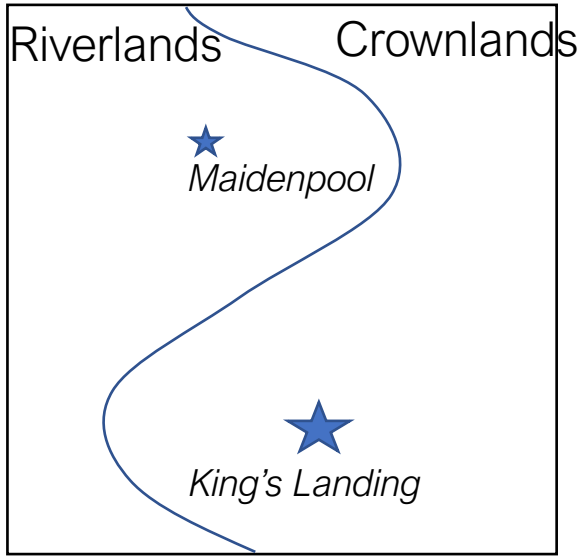

The representation is *somewhat* influenced by the superordinate category

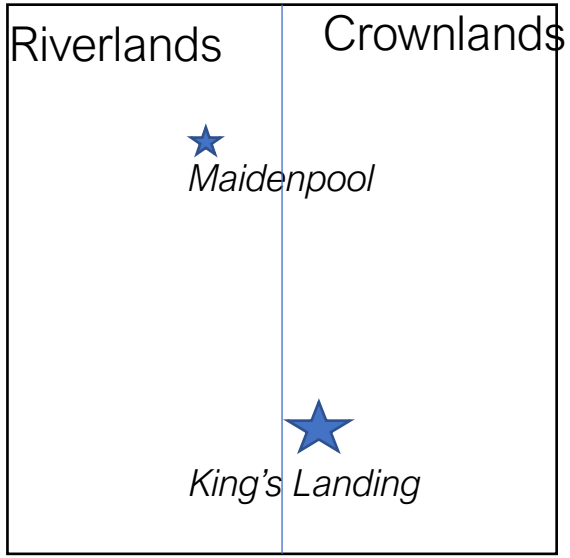
4. Experiment 2: which of the imaginary maps should cause the largest distortion of mental representation. Bonus: rate all maps according to the amount of distortion from strongest to weakest

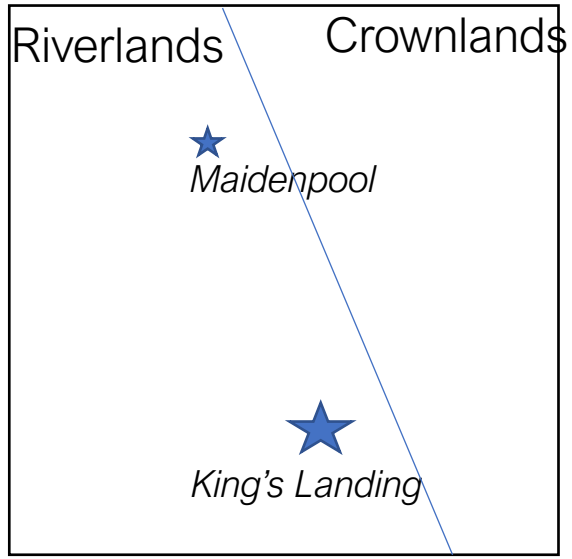


# 5. Complete the information on experimental design (Experiment 2A)

## Independent variables

| Name | Levels | Within- or between-subject |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

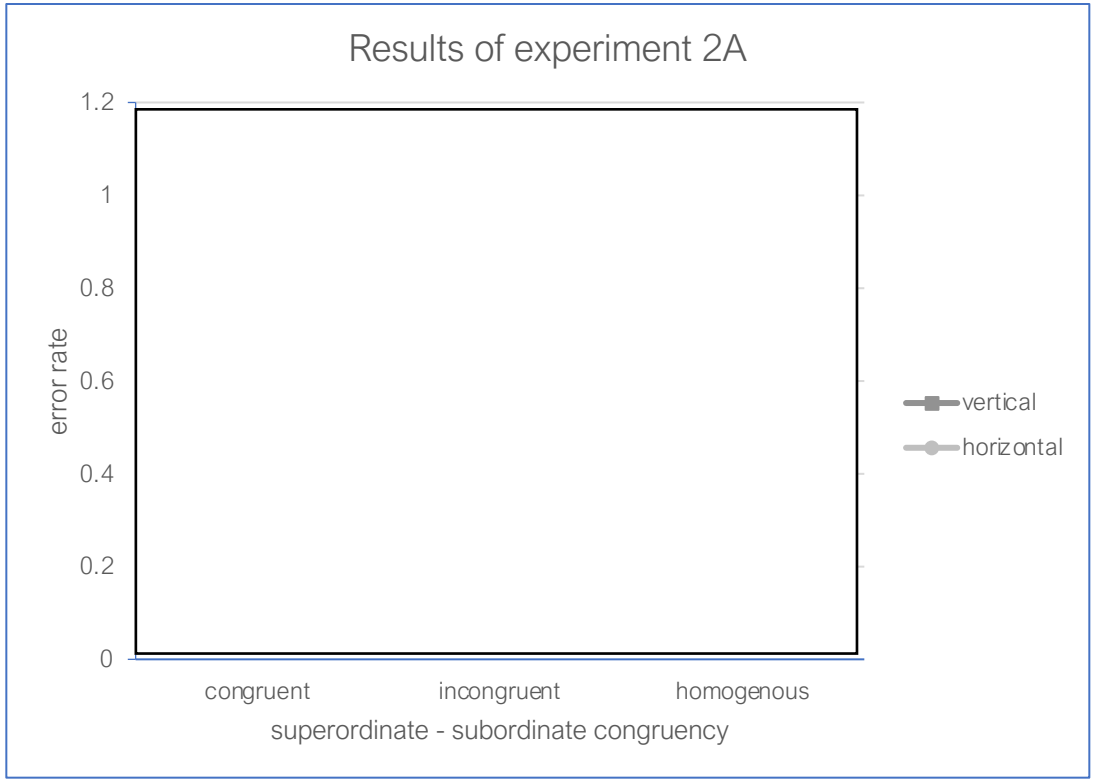
## Dependent variables

| Name | Measurement scale |
|---|---|
| | |
| | |
| | |
| | |

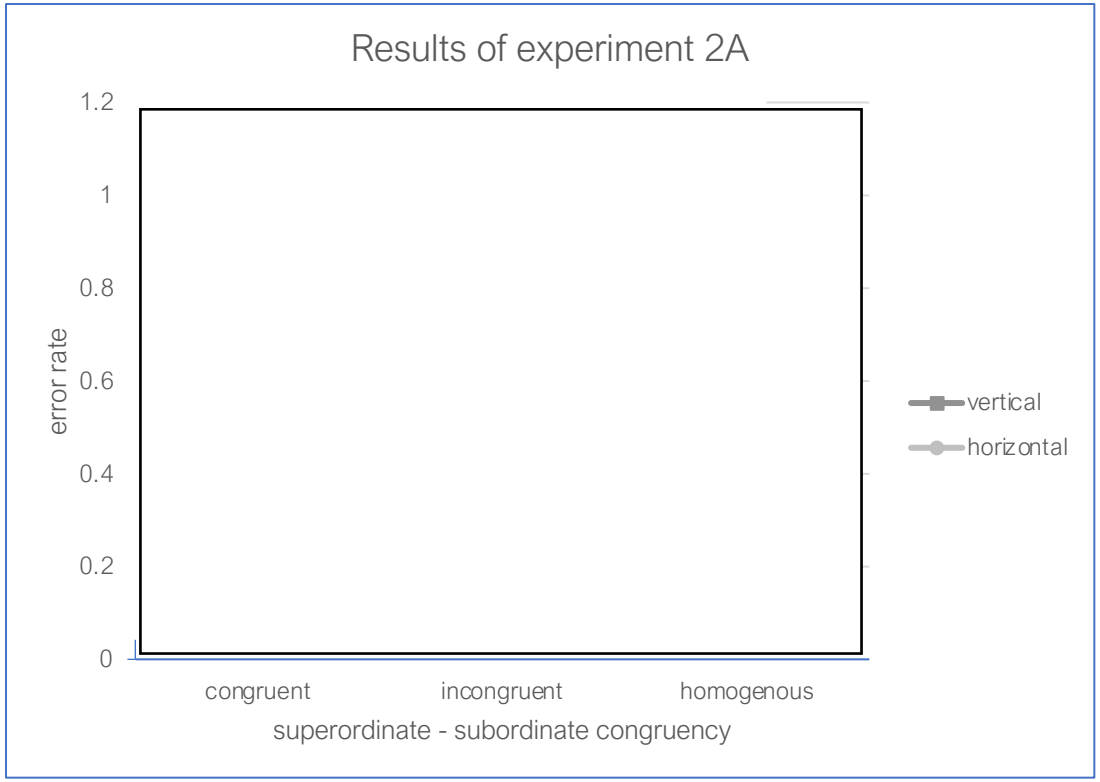
*Bonus: Experiment 2B

# 6. Study hypothesis of experiment 2A. Complete the plot with possible experimental outcomes

## Subordinate locations are inferred from superordiante




## Subordinate locations are represented explicitly



# 7. Study hypothesis of experiment 2A. For each hypotheses, which significant ANOVA results do you expect?

Subordinate locations are *inferred* from superordiante

- Main effect of factor “ ”
- Main effect of factor “ ”
- Interaction of “ ” x “ ”

Subordinate locations are represented explicitly

- Main effect of factor “ ”
- Main effect of factor “ ”
- Interaction of “ ” x “ ”