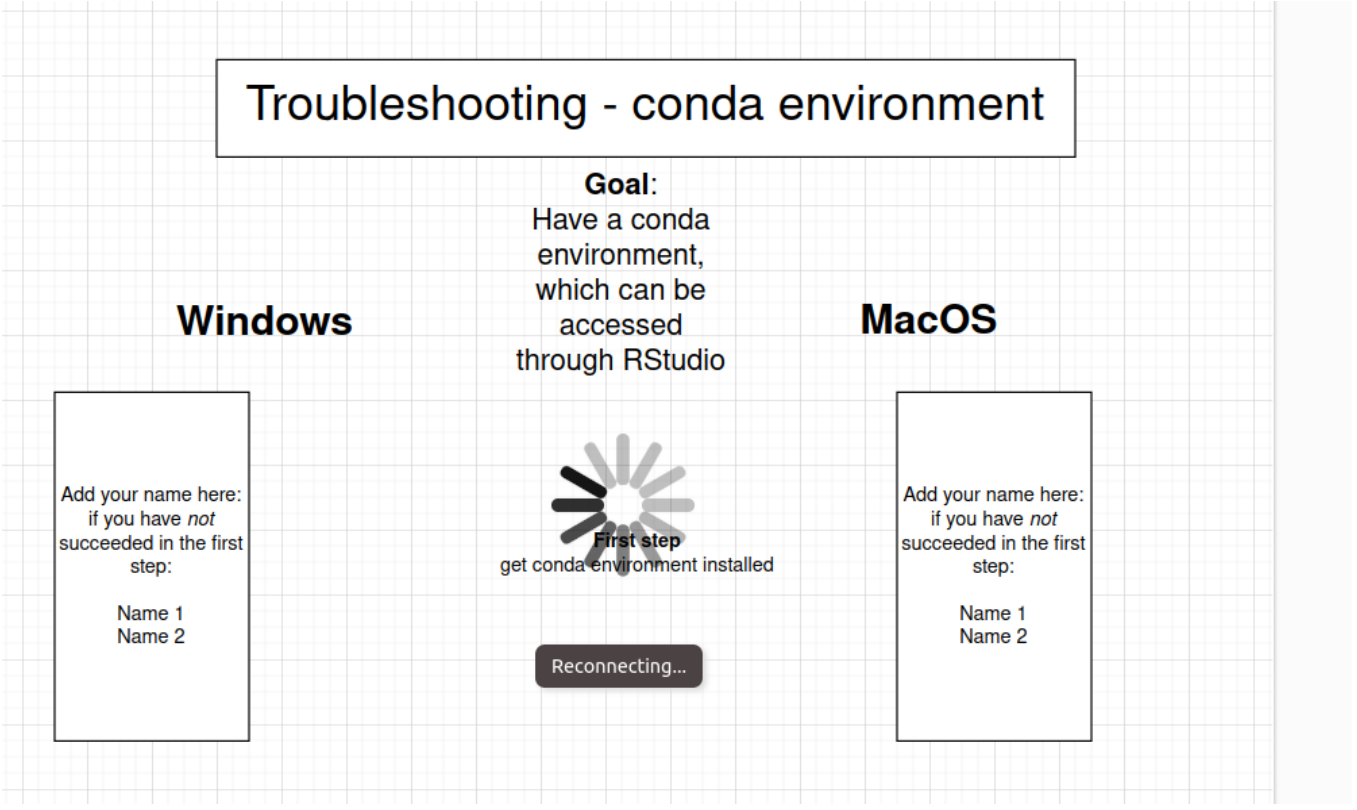
Methods 3: Multilevel Statistical Modeling and Machine Learning

Class 03:

What to do when the response variable is not continuous?

September 19, 2024



Assignment 2 – parts 1 and 2

Will count as one assignment for the purposes of the exam

If you cannot knit a pdf, try html instead (you can make it a pdf afterwards)

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```

```yaml
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```

assignment_2_part_1, Methods 3, 2024

2024-09-19

REMEMBER: In your portfolio, make sure to include code that can reproduce the answers requested in the exercises below (**MAKE A KNITTED VERSION**). If it does not KNIT, it cannot be part of your portfolio

Exercises and objectives

The objectives of the exercises of this assignment are:
A) Download and organise the data and model
B) Fit multilevel models for response times
C) Fit multilevel models for binomial data
D) Fit multilevel models for count data

Introduction to experiment

Consciousness and Cognition
Volume 71, May 2019, Pages 59-69

Visual expectations change subjective experience without changing performance

Lau Møller Andersen [a b], Morten Overgaard [b], Frank Tong [c]

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https://doi.org/10.1016/j.concog.2019.03.007

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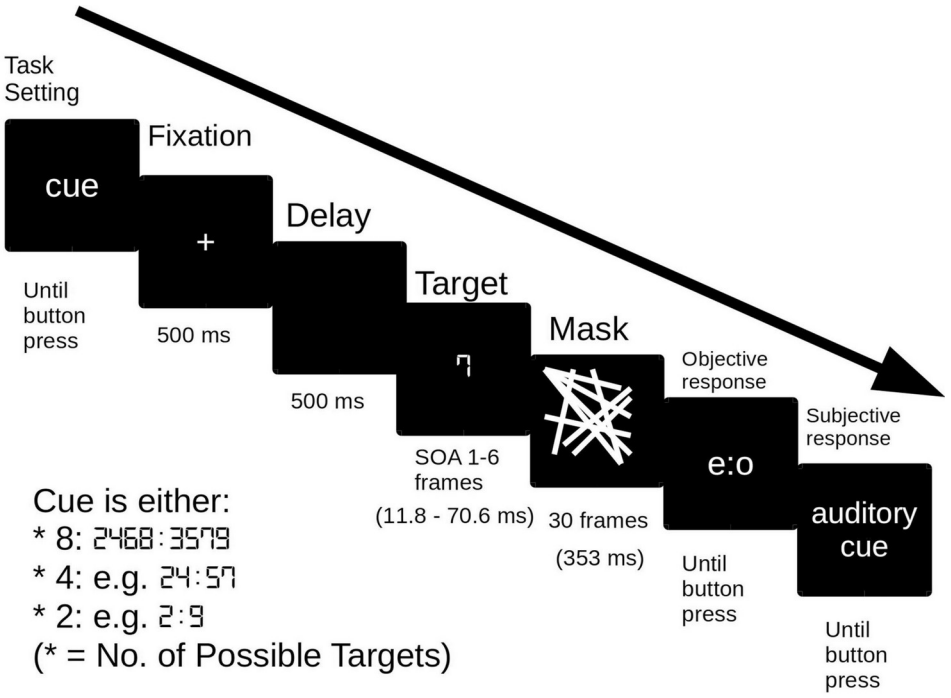
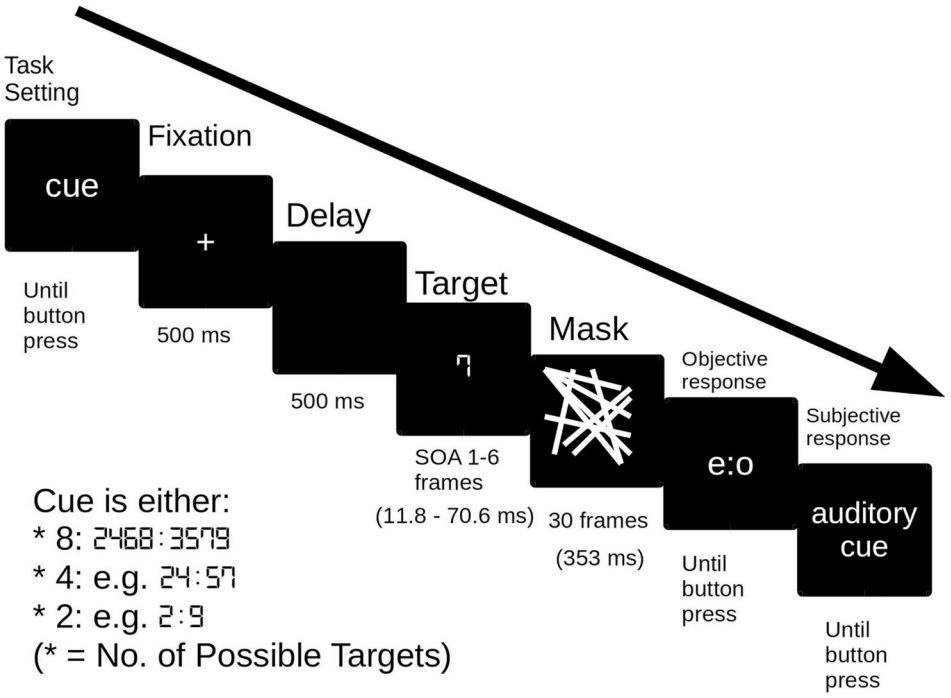
Introduction to experiment



Andersen LM, Overgaard M, Tong F (2019) Visual expectations change subjective experience without changing performance. Consciousness and Cognition 71:59–69. https://doi.org/10.1016/j.concog.2019.03.007

Introduction to experiment

We are looking at experiment 2, where Stimulus Onset Asynchrony was always 3 frames, i.e. 35.3 ms



Andersen LM, Overgaard M, Tong F (2019) Visual expectations change subjective experience without changing performance. Consciousness and Cognition 71:59–69. https://doi.org/10.1016/j.concog.2019.03.007

Perceptual Awareness Scale

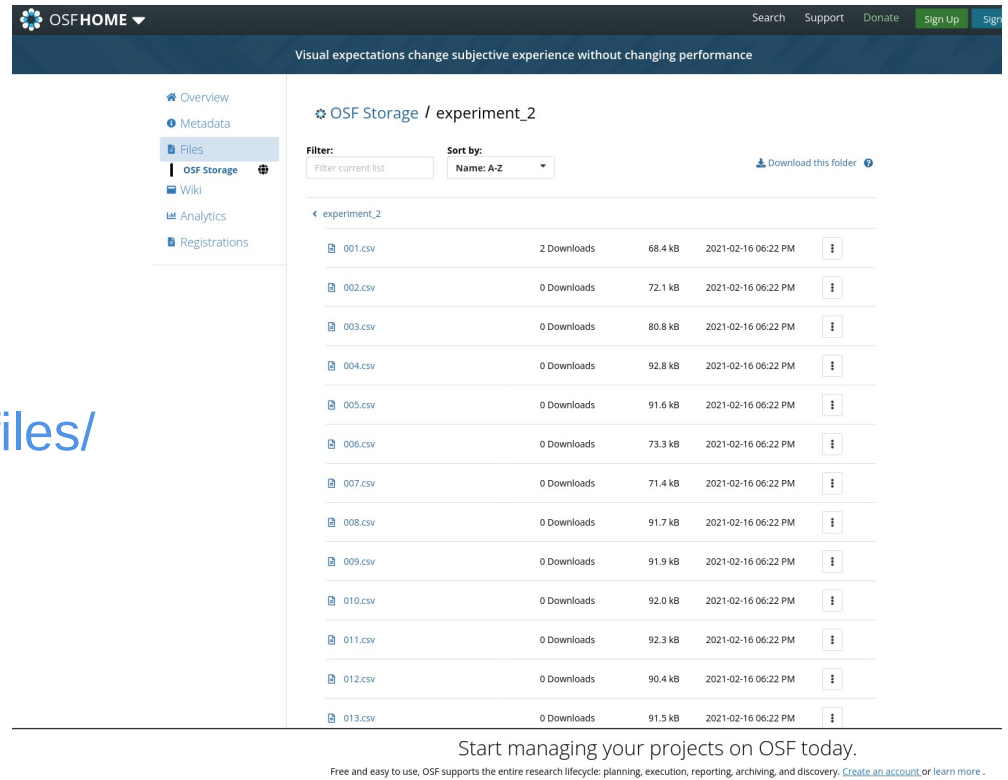
Table 2. A generalisation of all subjects' description of each category based on the interview following the experiments.

PAS	Category	Description
1	No experience	No impression of the stimulus. All answers are seen as mere guesses
2	Brief glimpse	A feeling that something has been shown. Not characterised by any content, and this cannot be specified any further
3	Almost clear experience	Ambiguous experience of the stimulus. Some stimulus aspects are experienced more vividly than others. A feeling of almost being certain about one's answer
4	Clear experience	Non-ambiguous experience of the stimulus. No doubt in one's answer

Ramsøy TZ, Overgaard M (2004) Introspection and subliminal perception. Phenomenology and the Cognitive Sciences 3:1–23. https://doi.org/10.1023/B:PHEN.0000041900.30172.e8

Data – Center for Open Science

https://osf.io/ecxsj/files/



Data contains

- Response times
- Accuracy
- And counts of Perceptual Awareness Scale Ratings

Model comparisons

- In part 1, you are asked to do model comparisons – on purpose, I ask you to do this before you have had the lecture on quantitative comparisons
  - Model comparisons can also be done without appealing to statistical significance
- If you prefer, you may come back to part 1 in your exam and use the quantitative methods you will learn about performing model comparisons, but it is *not* a requirement

Now let’s get to it!