

Building a Graduate Seminar Around Conducting a Replication

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Warm-up

- Invite folks to turn on video.
- Probably best to mute audio except when you want to talk.
- Maybe worthwhile opening Chat.
- Have you ever conducted a direct replication?



Late November 2019 in Portsmouth...

What am I
gonna do in
576A?



Inspired by Prof. Lorne Campbell, U of Western Ontario, centred course on replicating a published finding (on the cognitive psychology of human memory).



For a syllabus see
<https://osf.io/9m4ed/>

- Position students as agents in their own learning.
- Create an opportunity for students to accomplish something of value to them.
- Emphasize learning/using transferable science skills/tools rather than particular content.
- Leave openings for dynamic changes in what students do over the semester.

I wracked my brain for ideas as to what the target effect should be.

But Eureka! I realized that students should select target.

Ethics

- Applied for [course-based research ethics](#) well in advance.
- The Human Research Ethics Board (HREB) sets certain rules (e.g., research cannot to be part of instructor's program of research; minimal risk; subjects competent adults; non-invasive; no deception).
- I set other constraints (e.g., cog psych of memory, no sensitive/personal info, single session fairly brief session, UVic students or Prolific participants).
- Some parts of application left incomplete/vague. Applied for provisional acceptance.
- HREB was helpful, flexible, timely.

The team

Alison Campbell



Cole Tamburri



Eric Mah



Kelly Grannon



During first 2 weeks:

Discussed readings on open-science methods reform and value of direct replication.

Each student searched for a candidate study to propose for replication:

- ✓ Recent: Last 3-10 years
- ✓ Feasible: No complicated/expensive instruments, not longitudinal, ethical
- ✓ Impactful finding, probably significant (but not necessarily)
- ✓ Finding not obviously true/false a priori
- ✓ Ideally with corresponding author still available
- ✓ Can't be in student's own research focus area

Each student gave an informal PPT pitch proposing one or two candidate studies.

Adaptive Memory: Animacy Enhances Free Recall But Impairs Cued Recall

Earl Y. Popp and Michael J. Serra
Texas Tech University

Recent research suggests that human memory systems evolved to remember animate things better than inanimate things. In the present experiments, we examined whether these effects occur for both free recall and cued recall. In Experiment 1, we directly compared the effect of animacy on free recall and cued recall. Participants studied lists of objects and lists of animals for free-recall tests, and studied sets of animal–animal pairs and object–object pairs for cued-recall tests. In Experiment 2, we compared participants’ cued recall for English–English, Swahili–English, and English–Swahili word pairs involving either animal or object English words. In Experiment 3, we compared participants’ cued recall for animal–animal, object–object, animal–object, and object–animal pairs. Although we were able to replicate past effects of animacy aiding free recall, animacy typically impaired cued recall in the present experiments. More importantly, given the interactions found in the present experiments, we conclude that some factor associated with animacy (e.g., attention capture or mental arousal) is responsible for the present patterns of results. This factor seems to moderate the relationship between animacy and memory, producing a memory advantage for animate stimuli in scenarios where the moderator leads to enhanced target retrievability but a memory disadvantage for animate stimuli in scenarios where the moderator leads to impaired association memory.

Keywords: adaptive memory, animacy, paired-associates, cued recall, free recall

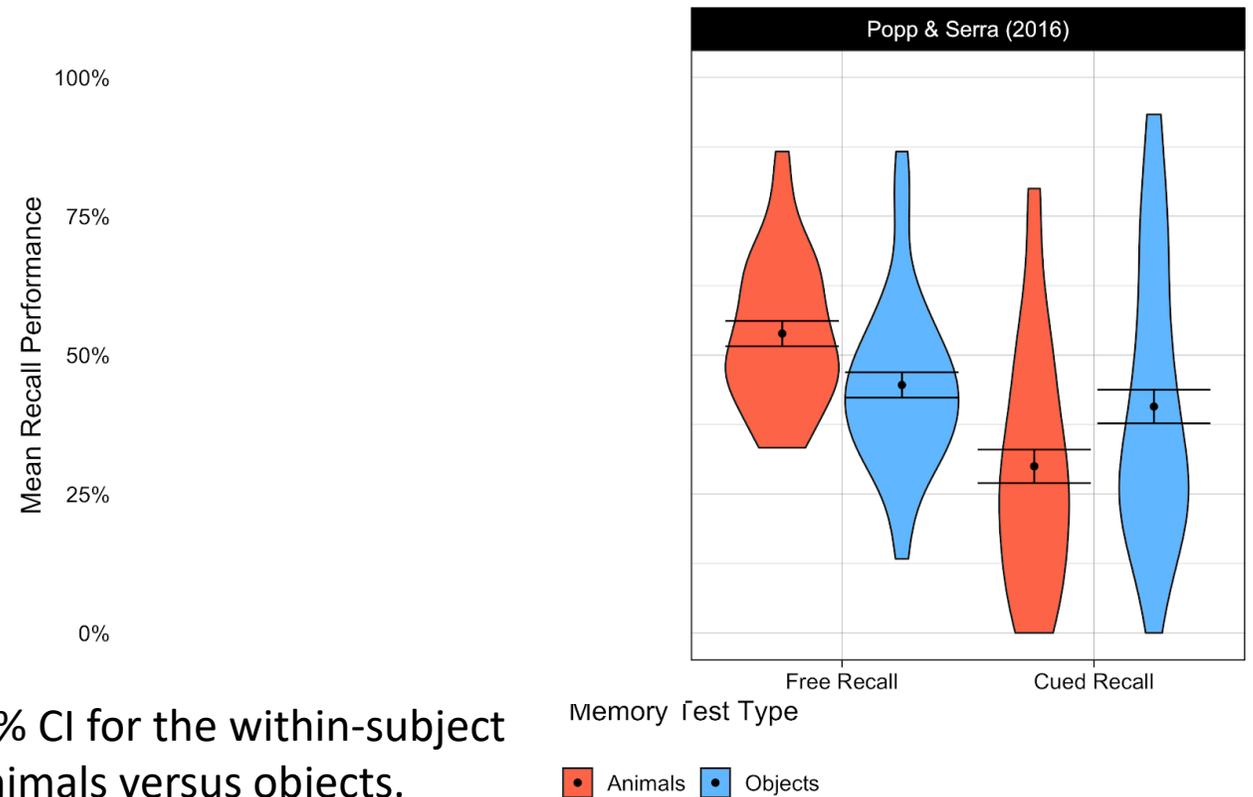


Eric Mah emailed Mike Serra and asked for code, materials, data.

Serra was super helpful.

Strong evidence of an “animacy effect” in free recall: Across several labs, stimulus sets, languages, words or pictures, free recall tends to be better for animal than object names.

Popp and Serra (2016) replicated that animacy effect in free recall. But in other blocks the same subjects studied animal-animal and object-object word pairs (e.g., camel-otter, pencil-flute, etc.) and were tested on cued recall (e.g., camel - ?). Cued recall was better on object-object pairs than on animal-animal pairs (reverse animacy effect).



Error bars are 95% CI for the within-subject comparison of animals versus objects.

Parallel Pursuit of Multiple Goals



CONTACT
CORRESPONDING
AUTHOR RE
MATERIALS, DATA,
& PROCEDURE



LEARN ABOUT
PREREGISTRATION
OF RESEARCH
PLANS, WORK ON
PREREGISTRATION



FIND AND READ
LITERATURE ON
ANIMACY EFFECT;
STUDENT
PRESENTATIONS.



CONTACT OTHER
EXPERTS RE
RELATED WORKS IN
PROGRESS



DEVELOP/REFINE METHOD
(INFORMED CONSENT,
SAMPLE-SIZE PLAN,
EXPLORATORY POST-TEST
MEASURES); IMPLEMENT

[Course materials](https://osf.io/hc2af/)
<https://osf.io/hc2af/>

Finalized HREB

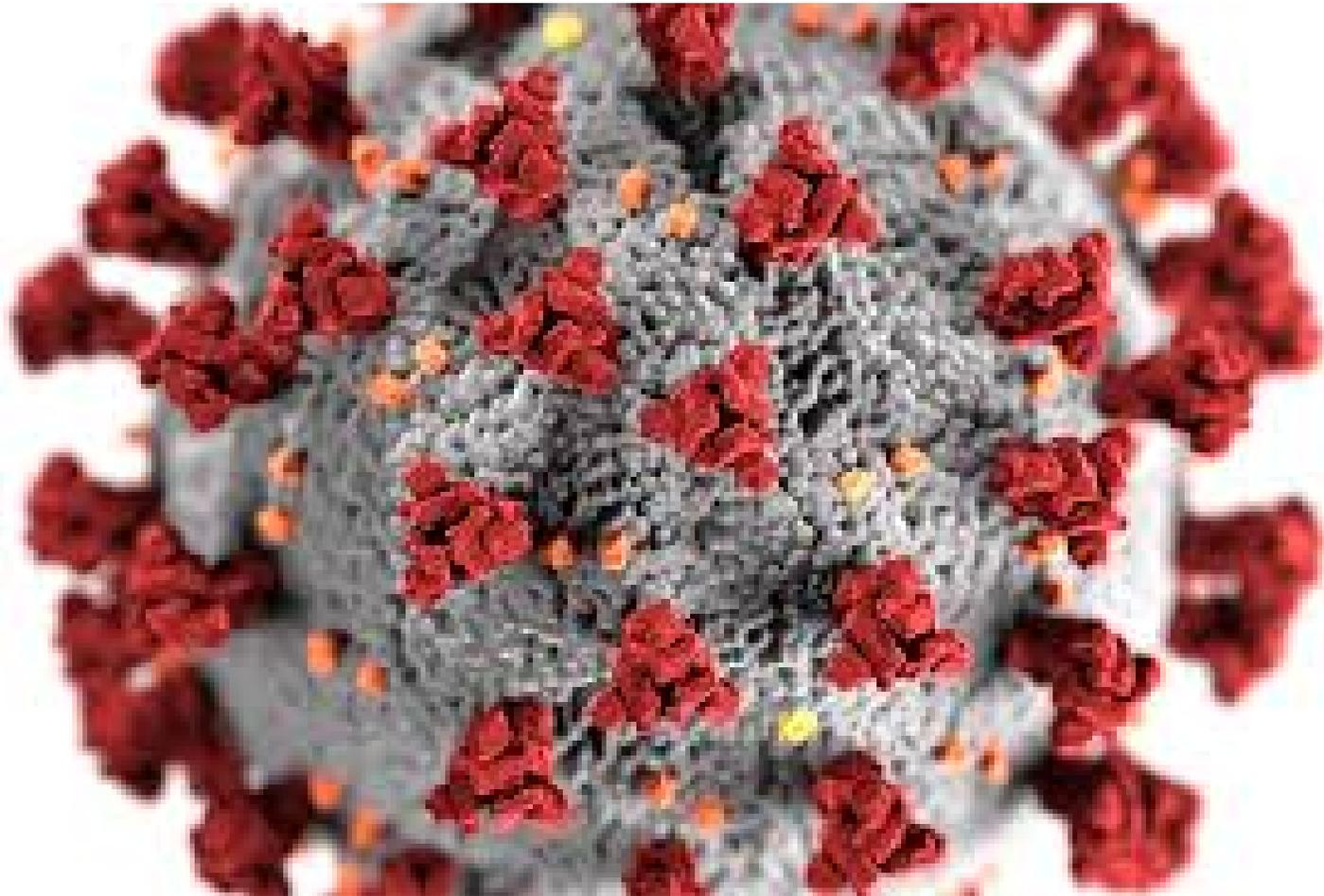
Booked computer lab and went to do test run.

Obstacle 1:



Livecode blocked from UVic Computer Lab machines.

Obstacle 2: COVID-10 shut down f2f testing.



Fred Grouzet graciously agreed that we could use the social lab and we spent a couple of days gearing up and Kelly tested one subject and then...



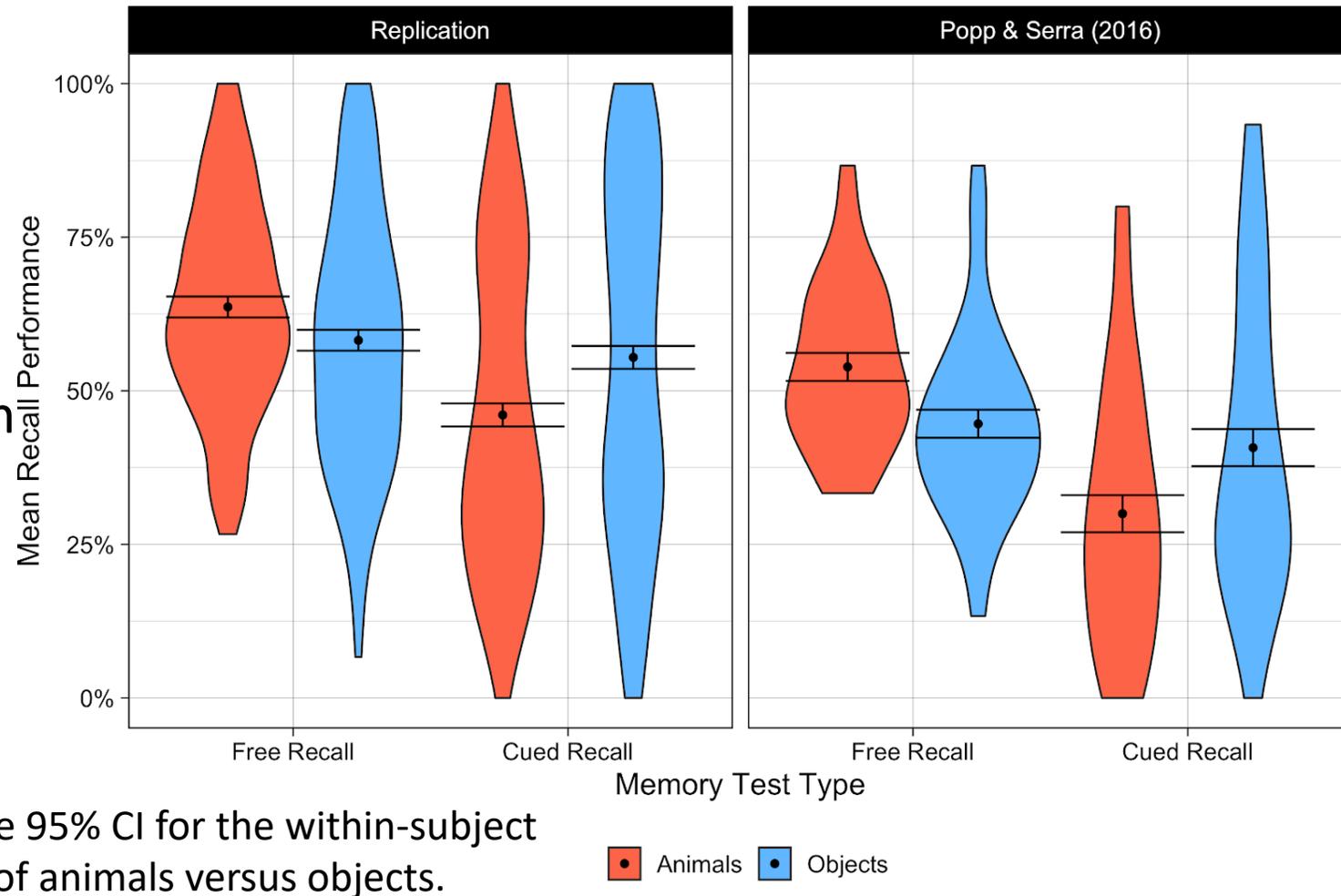
Undaunted, students developed a procedure in which SS signed up on SONA, downloaded a self-executing Livecode program, completed the study, and uploaded their data.

We set minimum N at 90; ended up with 101 subjects who met criteria. Within-SS w stimuli randomly selected anew for each S, task order (Free-Cued vs. Cued-Free) counterbalanced.

Replicated the animacy effect in free recall and the reverse animacy effect in cued recall.

Allaying fears that online data collection would lead to poor attention, our subjects outperformed those of P&S.

Note variability across subjects higher for CR than for FR in both studies.



Error bars are 95% CI for the within-subject comparison of animals versus objects.

We also added subjective self-report measures to the end of the procedure, which gave us some novel insights into the relationship between animacy and memory.

Not only a direct replication, but a direct replication with extension.

Benefits

Fun for me!

Was amazed at the skills students demonstrated, their willingness to dive in and figure things out.

Lots of students teaching students (and teaching me).

We plan to submit a ms to JEP:LMC (and before that will send report to Serra).

Limitations

The course criteria and expectations were not spelled out very clearly so grading felt overly subjective.

4 students felt about right – all found meaningful ways to contribute. With 6-8 students I recommend two independent projects led by teams of 3-4 students.

With more than two projects the procedure for selecting targets studies would need to be streamlined.

Non-trivial risk of complete project failure.