A replication of Coulson & Williams (2005)

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Author Note

The authors made the following contributions. Joshua R. de Leeuw: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Software, Supervision, Validation, Visualization, Writing - original draft, Writing - review & editing; Daniel P. Bliss: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Software, Supervision, Visualization; Martin Burstein: Formal analysis, Investigation, Methodology, Visualization; Nona Chen: Formal analysis, Investigation, Methodology, Visualization; Julissa Coplin: Formal analysis, Investigation, Methodology; Duc Dang: Formal analysis, Investigation, Methodology; Mira Genkovska: Formal analysis, Investigation, Methodology; Chuqi Hu: Formal analysis, Investigation, Methodology; Dora Law: Formal analysis, Investigation, Methodology, Software; Emma Leshock: Formal analysis, Investigation, Methodology; Natasha Orellana: Formal analysis, Investigation, Methodology; Shivani Pandey: Formal analysis, Investigation, Methodology; Yaser Pena: Formal analysis, Investigation, Methodology; Naima Saini: Formal analysis, Investigation, Methodology; Raia Stern: Formal analysis, Investigation, Methodology; Orcun Tasdemir: Formal analysis, Investigation, Methodology, Software; Yuchen Wang: Formal analysis, Investigation, Methodology; Ava Waters: Formal analysis, Investigation, Methodology, Software; Zachary Watson: Formal analysis, Investigation, Methodology; Lily Yan: Formal analysis, Investigation, Methodology, Software; Yuchen Zhou: Formal analysis, Investigation, Methodology.

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Abstract

ADD LATER

Keywords: keywords

Word count: X

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Introduction

The purpose of an introduction in a research article is to clearly convey the rationale for the empirical work. The introduction should explain why the study was done, usually by explaining one or more unresolved questions in existing research and/or theory and describing how the experiment will help to answer those questions. For this assignment, this is a short (approx. 3 paragraphs) description about the need for replications in general and the general findings and theoretical relevance of the original study.

Methods

A complete methods section should provide sufficient detail that someone could conduct a replication of the experiment without seeking out additional information from the researchers. Note that "sufficient detail" is a subjective judgment about what aspects of the method are crucial to reproduce the study and which aspects are free to change. For example, we don't usually report the clothes that participants wore in the experiment, because we don't believe that the experimental results depend on this factor. A typical methods section has a Participants section, a Materials section, and a Procedure section. I sometimes omit the Materials section in my own work because I find it clearer to describe these details in the context of the procedure. You can choose what to do here. Because this study is a replication, your methods section can be shorter than usual by referring to the original study for details. You should provide enough information that a reader doesn't need to consult with the original study to understand the gist of the experiment, but you don't need to be super detailed.

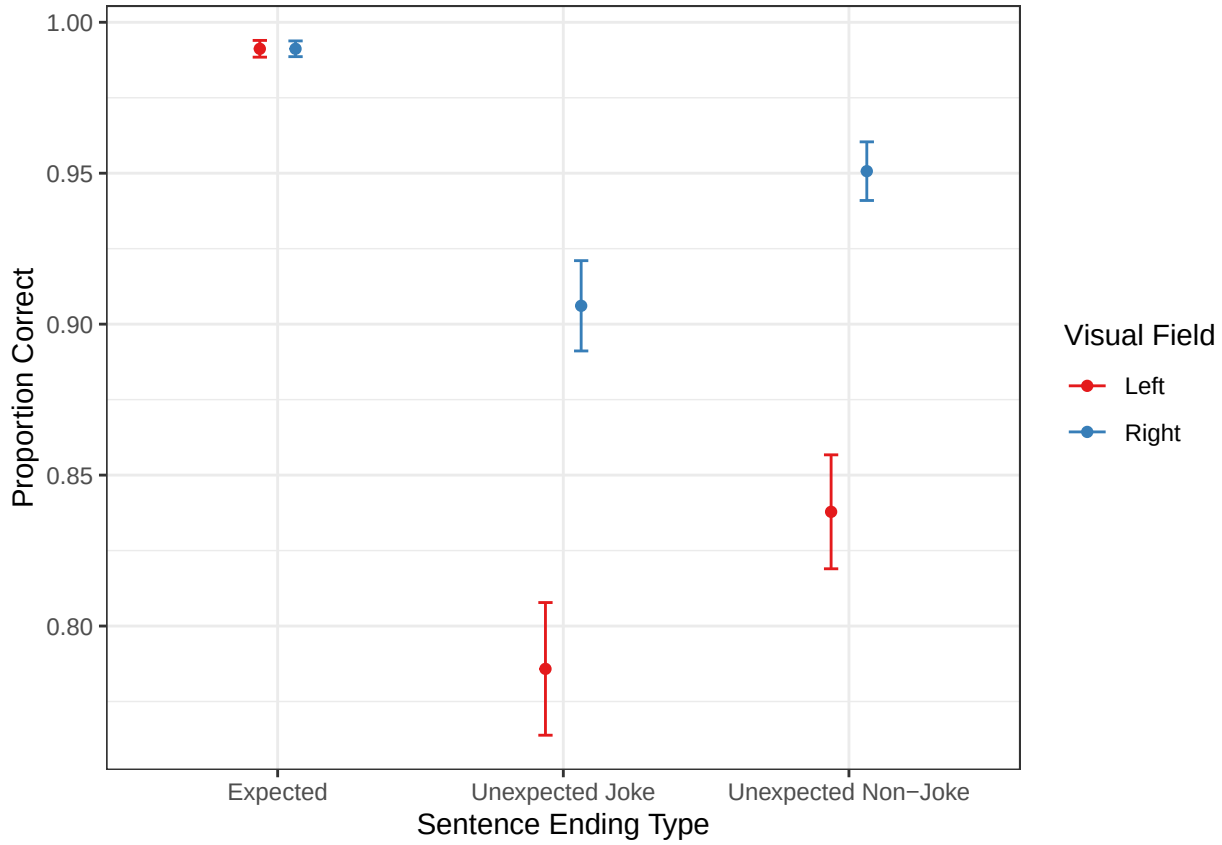
You should pay careful attention to and describe all deviations from the original protocol.

Results

The results section should describe the analysis in sufficient detail that someone could reproduce your analysis if given the raw data. Note that one advantage of an R Notebook is that the code to do the analysis is right there in the document, so this is a pretty easy thing to do in this context! While the focus of a results section is on the analytical work, a good results section will carefully guide the reader through the analysis, explaining why each critical statistical test was conducted (e.g., by connecting it back to the questions raised in the introduction) and doing a little bit of interpretative work to explain the outcomes of each step.

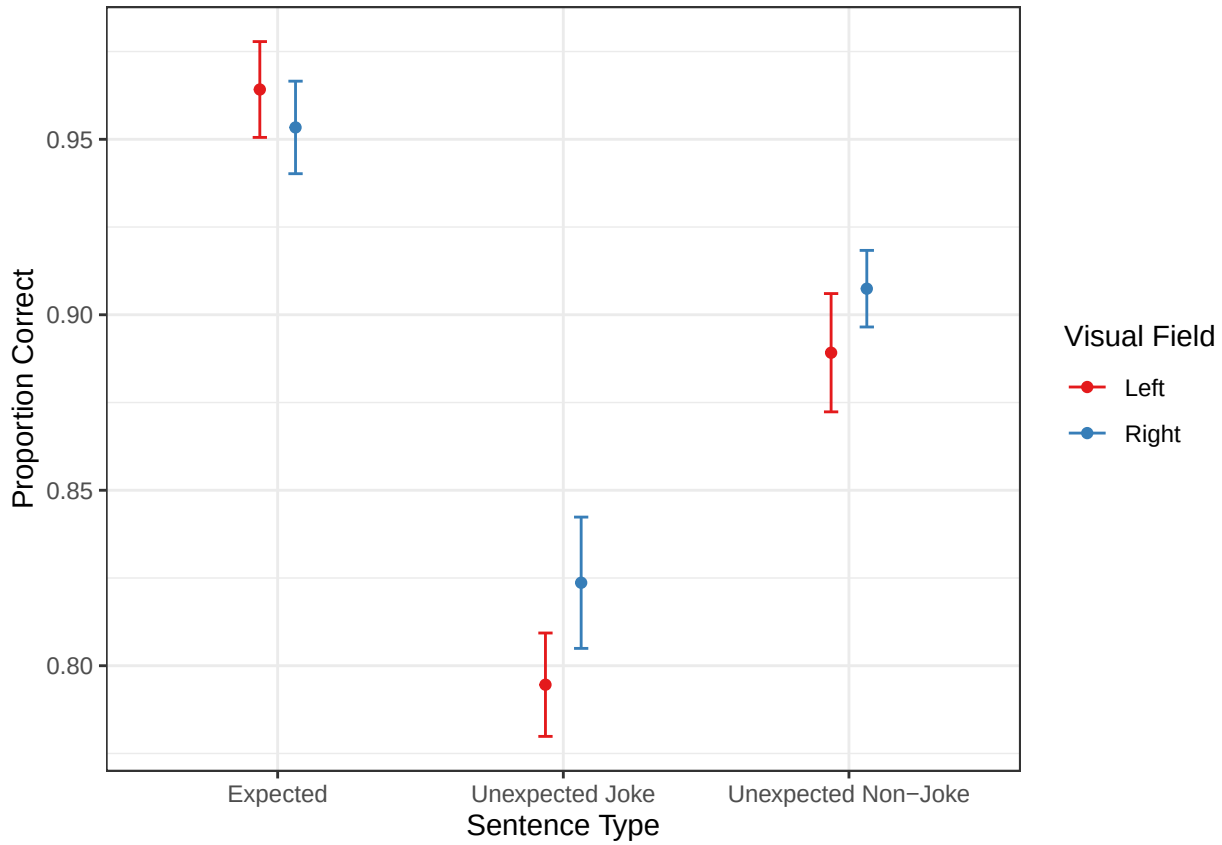
Behavioral

Delayed Naming Task.




```
##                          Effect DFn DFd        F             p p<.05        ges
## 2                 sentence_type   2  72 71.48964 7.901183e-18     * 0.34168917
## 3                 left_or_right   1  36 38.73041 3.498795e-07     * 0.17676464
## 4 sentence_type:left_or_right   2  72 30.71996 2.257784e-10     * 0.09721801
```

Comprehension Task.

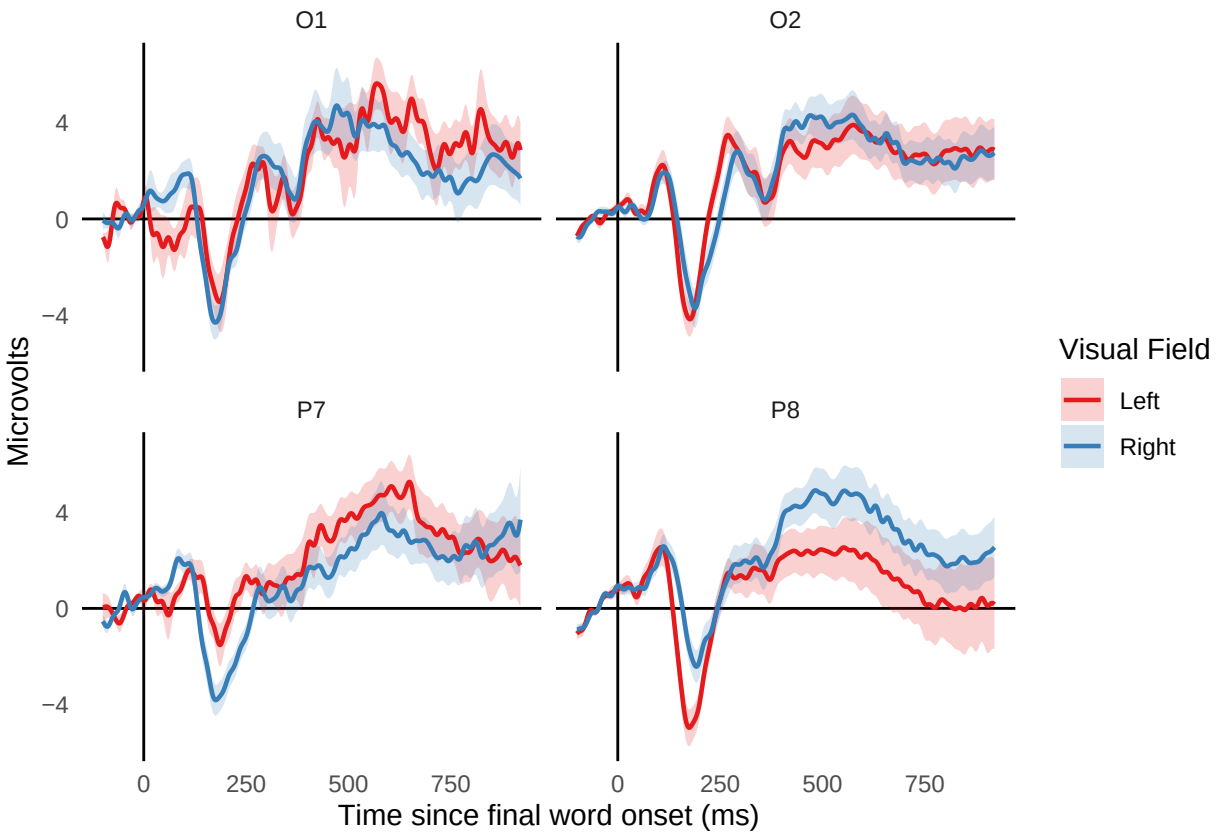



```
##                          Effect DFn DFd         F            p p<.05         ges
## 2                 sentence_type   2  72 94.062887 8.267382e-21     * 0.321376418
## 3                 left_or_right   1  36  3.001716 9.173694e-02       0.004612844
## 4 sentence_type:left_or_right   2  72  2.678637 7.549674e-02       0.008799372
```

EEG

N1.

ERP Figure.



Good Segments. This table is the number of good segments for each subject in each cell of the ANOVA (visual_field x hemisphere).

```
## # A tibble: 144 x 4
## # Groups:   subject, visual_field [72]
##    subject visual_field hemisphere     n
##    <chr>   <chr>        <chr>      <int>
##  1 01      left         left          91
##  2 01      left         right         85
##  3 01      right        left         114
##  4 01      right        right        106
##  5 02      left         left          95
##  6 02      left         right         95
```

```
##  7 02      right        left         115
##  8 02      right        right        115
##  9 03      left         left          95
## 10 03      left         right         95
## # ... with 134 more rows
```

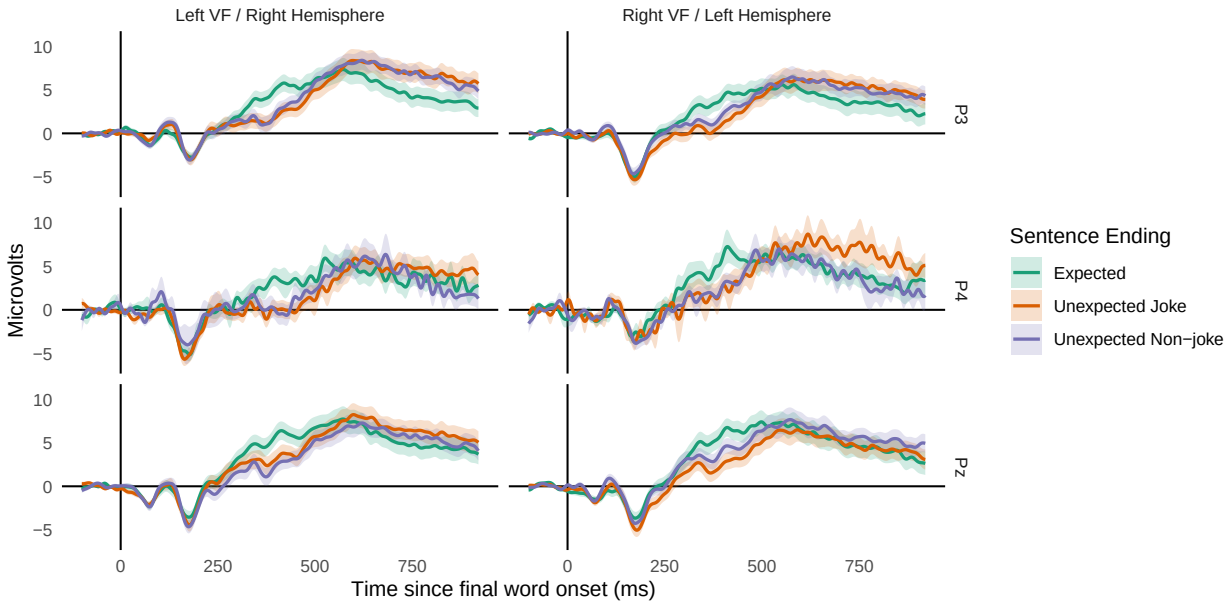
The smallest number is 56 and the largest is 120 out of 120 possible segments. Note that these numbers also factor in excluded segments for when a participant did give the correct answer in the delayed naming task.

ANOVA.

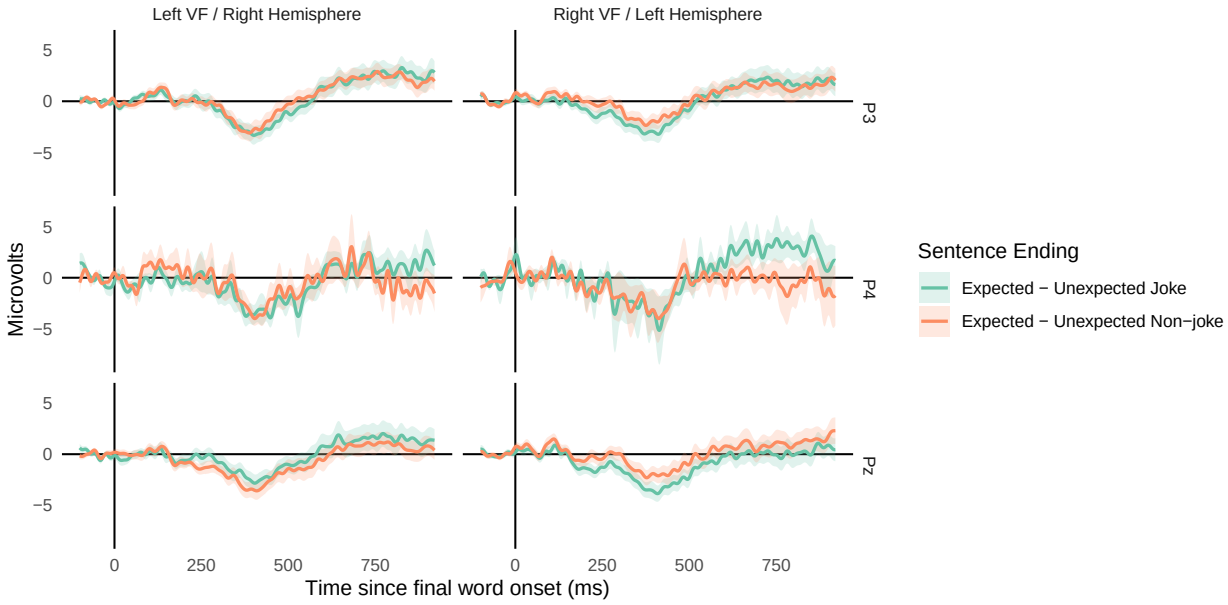
```
##                    Effect DFn DFd           F           p p<.05          ges
## 2           visual_field   1  35 4.416253e-04 0.983353135       7.773104e-07
## 3             hemisphere   1  35 8.527350e-01 0.362102514       2.542724e-03
## 4 visual_field:hemisphere   1  35 1.342680e+01 0.000814502     * 3.256492e-02
```

N400.

ERP Figure.



Difference Waves.



Good Segments. This table is the number of good segments for each subject in each cell of the ANOVA (visual_field x hemisphere).

```
## # A tibble: 216 x 4
## # Groups:   subject, ending [108]
##    subject ending  visual_field     n
##    <chr>   <chr>   <chr>        <int>
##  1 01      filler  left            40
##  2 01      filler  right           40
##  3 01      joke    left            24
##  4 01      joke    right           36
##  5 01      nonjoke left            27
##  6 01      nonjoke right           38
##  7 02      filler  left            38
##  8 02      filler  right           40
##  9 02      joke    left            24
## 10 02      joke    right           36
```

```
## # ... with 206 more rows
```

The smallest number is 20 and the largest is 40 out of 40 possible segments. Note that these numbers also factor in excluded segments for when a participant did give the correct answer in the delayed naming task.

ANOVA.

```
##                 Effect DFn DFd          F            p p<.05         ges
## 2        visual_field   1  35  3.1333049 8.541944e-02       0.005922382
## 3              ending   2  70 14.3035321 6.189426e-06     * 0.038023776
## 4 visual_field:ending   2  70  0.8818875 4.185494e-01       0.002472240
```

Follow-up to this result: Is there a difference between non-joke and joke endings? We can use the difference waves to figure this out. Run another ANOVA on just the difference wave data to see if there is an effect of ending.

```
##                 Effect DFn DFd           F         p p<.05          ges
## 2        visual_field   1  35 0.008303909 0.9279122       0.0000983155
## 3              ending   1  35 1.227476588 0.2754542       0.0027602235
## 4 visual_field:ending   1  35 0.578896912 0.4518409       0.0018702544
```

Discussion

The goal of a discussion section is to answer the question: what do we now know about our original questions that we didn't know before conducting the research? There are many different stylistic approaches to a discussion section, so you'll have to find what is comfortable for you. In this assignment, the discussion should focus on the ways in which our study did or did not replicate the original experiment.

156 ## References

157 A complete reference list in APA format.