Individual Level Analyses

Anonymised

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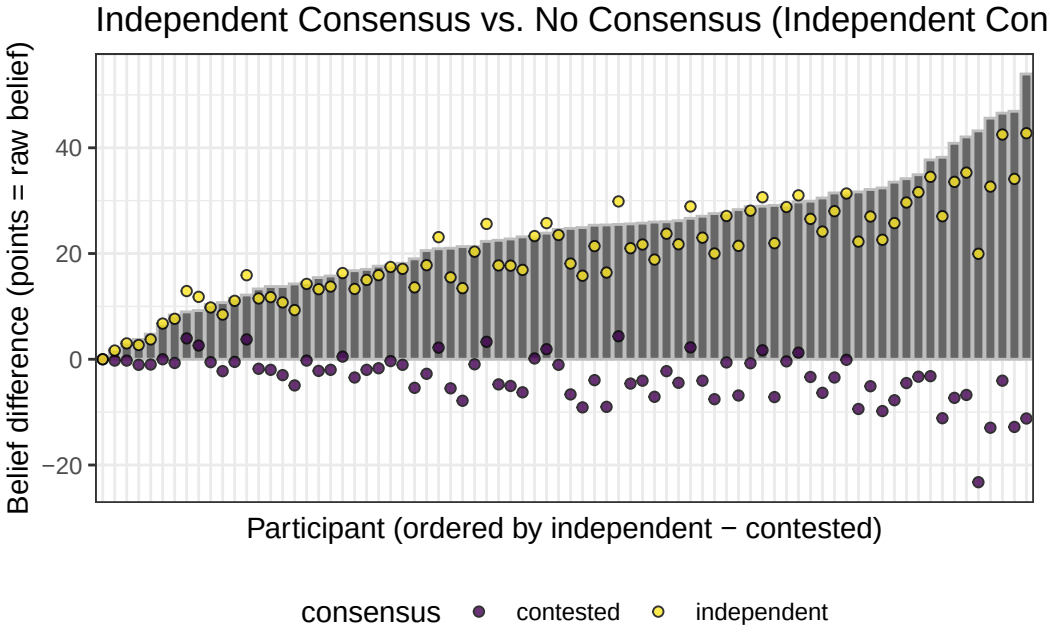
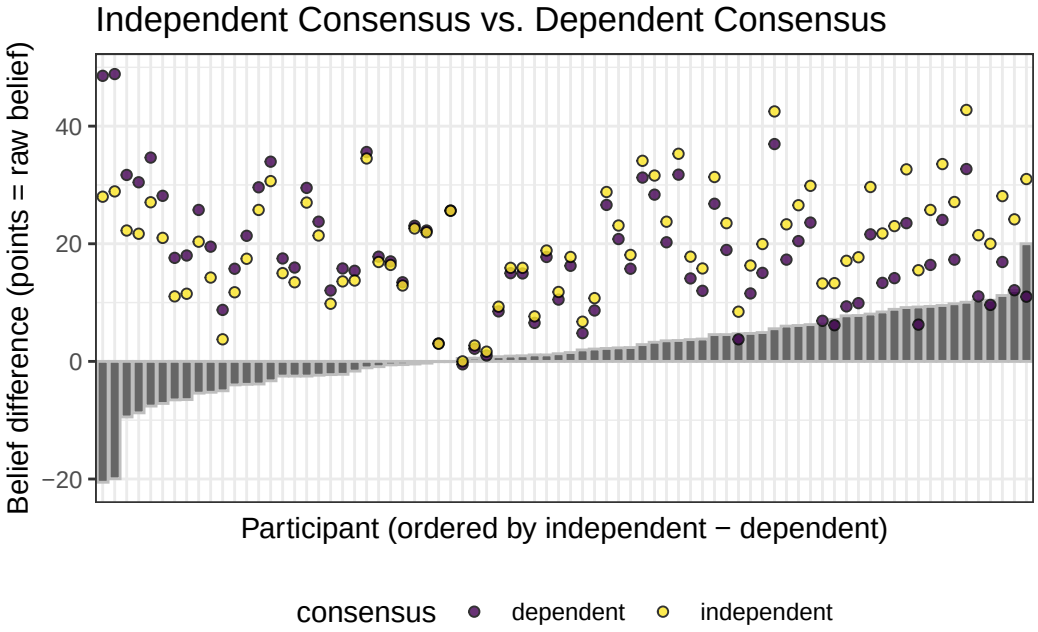
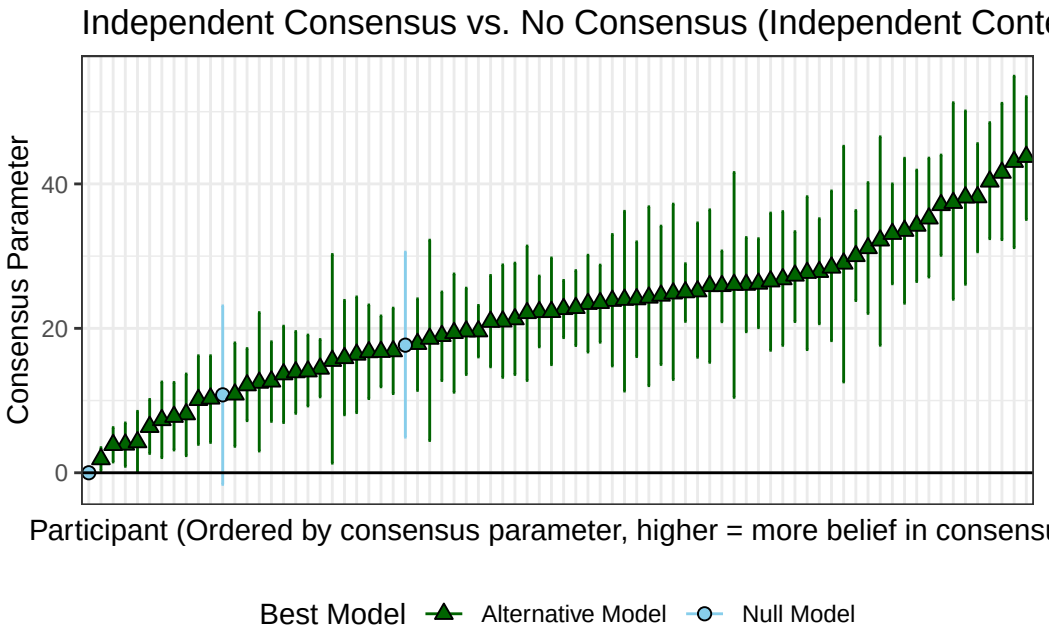
1 Raw Data

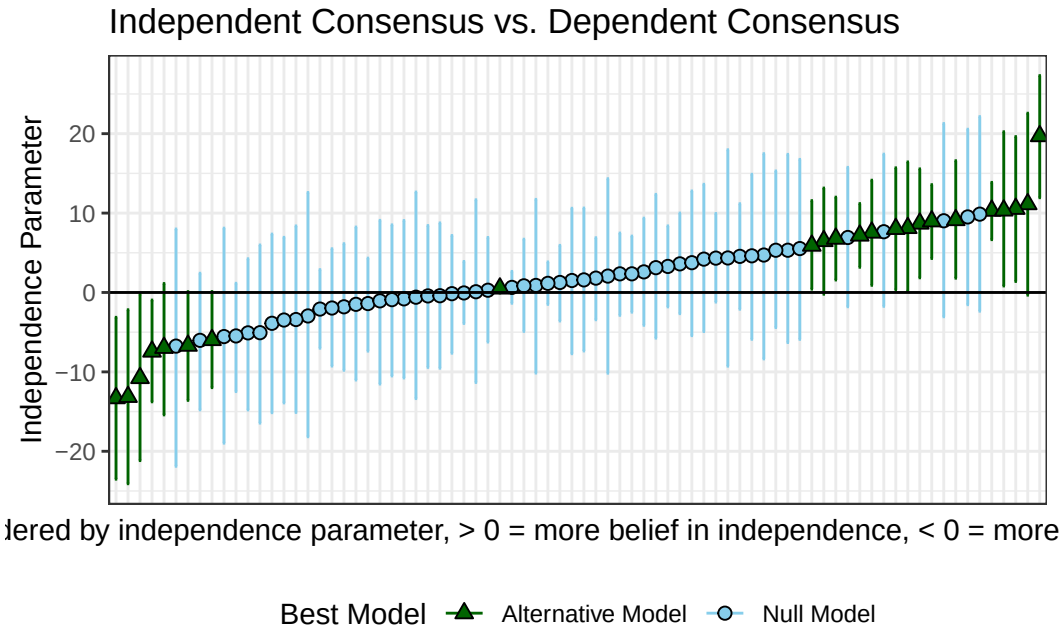

Independent Consensus vs. No Consensus (Independent Con
Belief difference (points = raw belief)
40
20
0
−20
Participant (ordered by independent − contested)
consensus
contested
independent


Independent Consensus vs. Dependent Consensus
Belief difference (points = raw belief)
40
20
0
−20
Participant (ordered by independent − dependent)
consensus
dependent
independent

2 Modelling

2.1 How many people were sensitive to consensus





2.2 How many have a preference for independent sources versus dependent sources, and how many aren't sensitive at all?

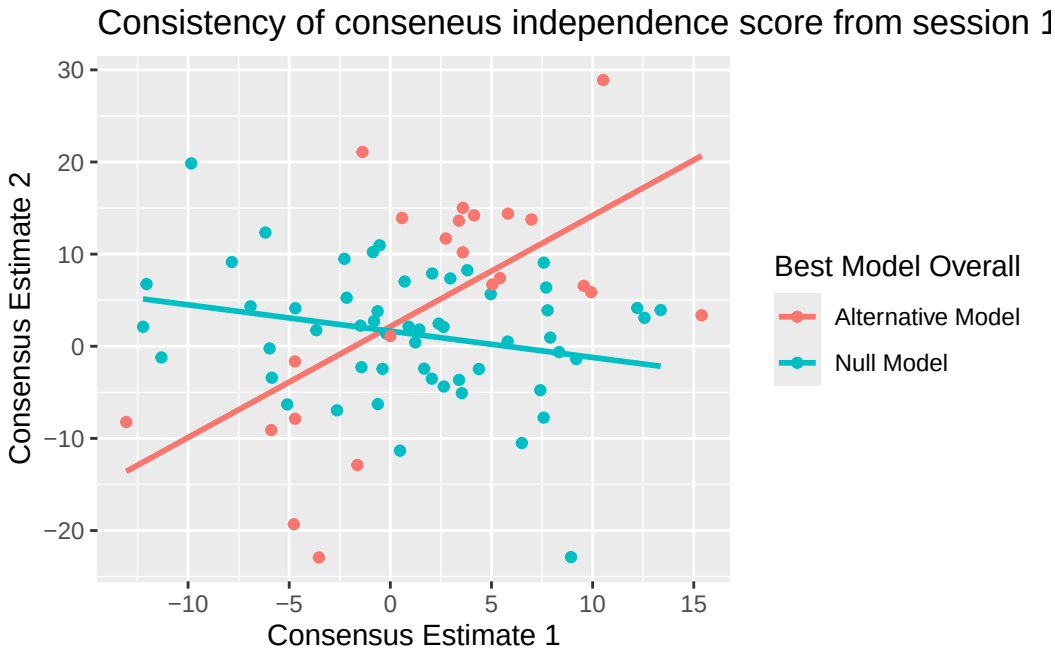
```
[1] "total proportion of participants best fit by the alernative model: 29"

[1] "proportion of participants who preferred an independent consensus: 21"

[1] "proportion of participants who preferred an dependent consensus: 9"

[1] "Median estimate for participants who preferred an independent consensus: 8.407477492072

[1] "Median estimate for participants who preferred an dependent consensus: -7.4376308096359
```

29% of participants were sensitive to independence when reasoning. 9% of participants were more convinced by a dependent consensus where four different people each shared the same source. 21 % of participants were more convinced by an independent consensus where four people shared four different sources.

3 Correlation between sessions for independence comparison

It is useful to know whether people who were labeled as preferring an independent v dependent consensus appeared to show consistent behavior across sessions.

cor_all

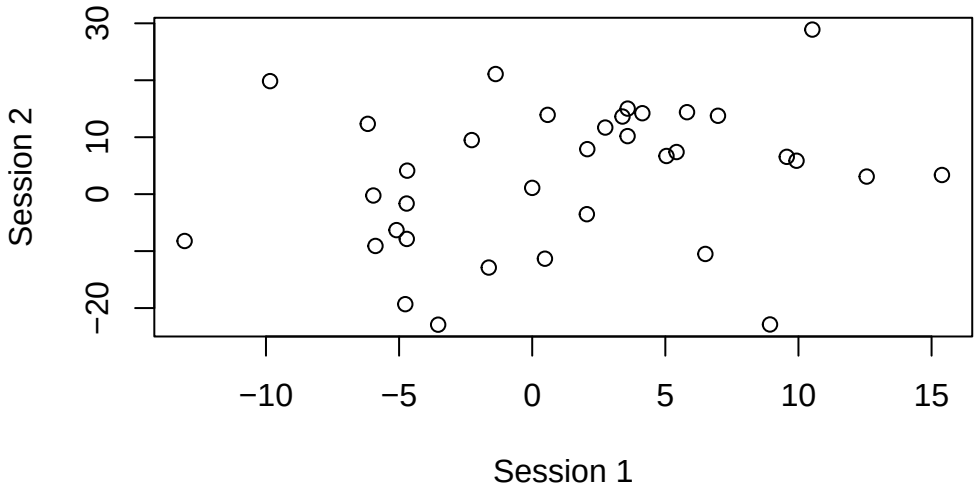


```
    Pearson's product-moment correlation

data:  session_estimates$consensus_estimate_1 and session_estimates$consensus_estimate_2
t = 1.1898, df = 76, p-value = 0.2378
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.09001642  0.34730301
sample estimates:
     cor
0.135223
```

```
    Pearson's product-moment correlation

data:  session_estimates_alt$consensus_estimate_1 and session_estimates_alt$consensus_estimat
t = 3.4676, df = 21, p-value = 0.002302
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.2545049 0.8133156
sample estimates:
      cor
0.6034053
```

The correlation appears to suggest reasonably consistent individual differences. Among participants who were labelled as not being best fit by the null model, there was a strong correlation between session 1 and session 2 (0.56). We would not expect there to be any correlation for participants best fit by the null model, which there did not appear to be, as evidence by the very small, non-significant correlation (0.19) when including all participants and the blue line in the plot above.

It may also be interesting to know what the correlation looks like when we include participants who were labelled as being best fit by the alternative model in either session 1 or session 2, as well as overall.



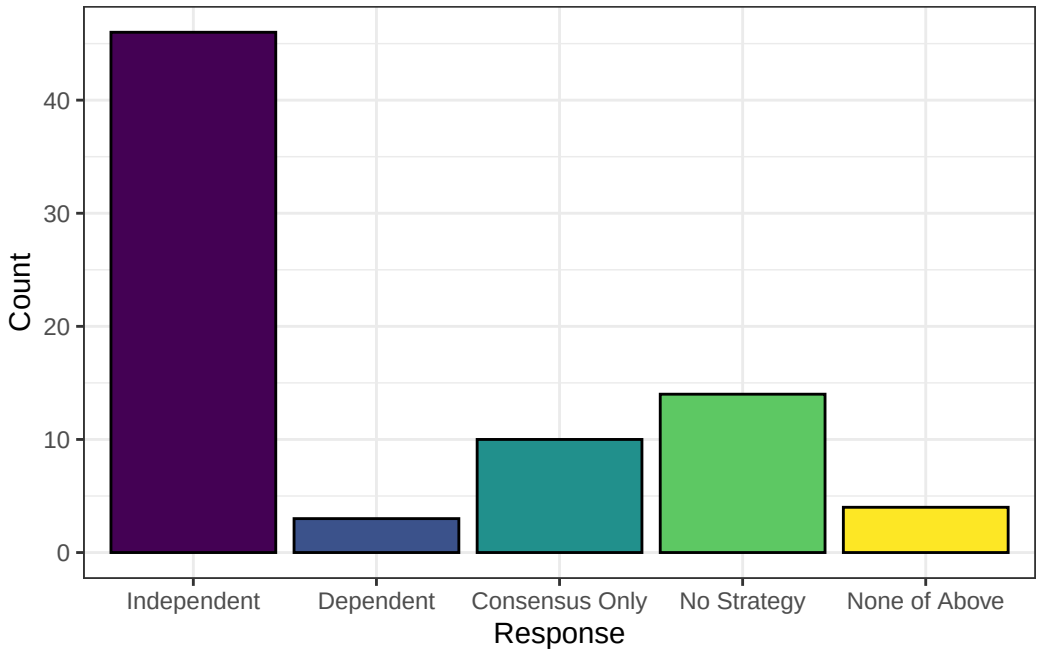

```
[1] 0.2431186
```

The correlation is much smaller, but this is not particularly informative as to the overall quality of our analysis/consistency of the results. If participants were labelled as being best described by the alternative model in only 1 session but not overall, this actually means that our analysis is doing a good job only classifying people who are consistently showing a particular behavior across the two sessions. It does tell us that having half the number of trials makes the analysis misleading because it can identify people as being best fit by the alternative model even when their results aren't consistent across sessions, which further justifies our sample size, but I do not think the low correlation suggests are results are inconsistent from session 1 to session 2.

4 What strategy did people *say* they used?

Comparing their behavior with their self-reported preference.

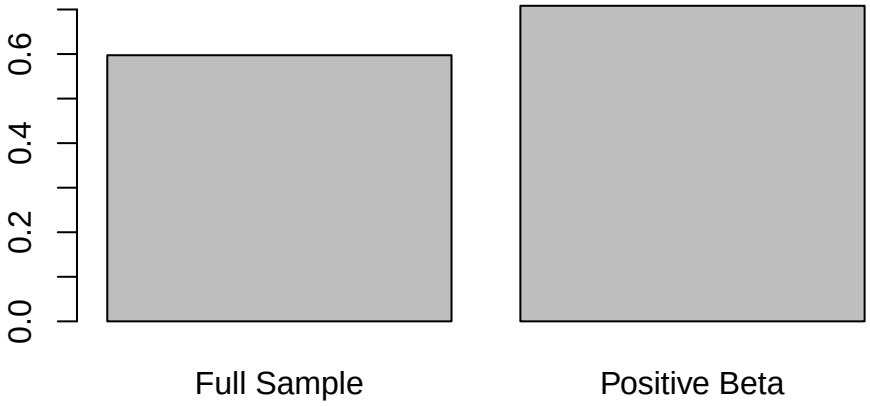
```
# A tibble: 6 x 3
  self_report_strategy count mean_estimate
  <chr>                <int>         <dbl>
1 consensusOnly           10        -0.508
2 diverse                 46         3.63
3 noStrategy              14        -0.771
4 none                     4        -4.00
5 repeated                 3         0.108
6 <NA>                     1        -2.09
```



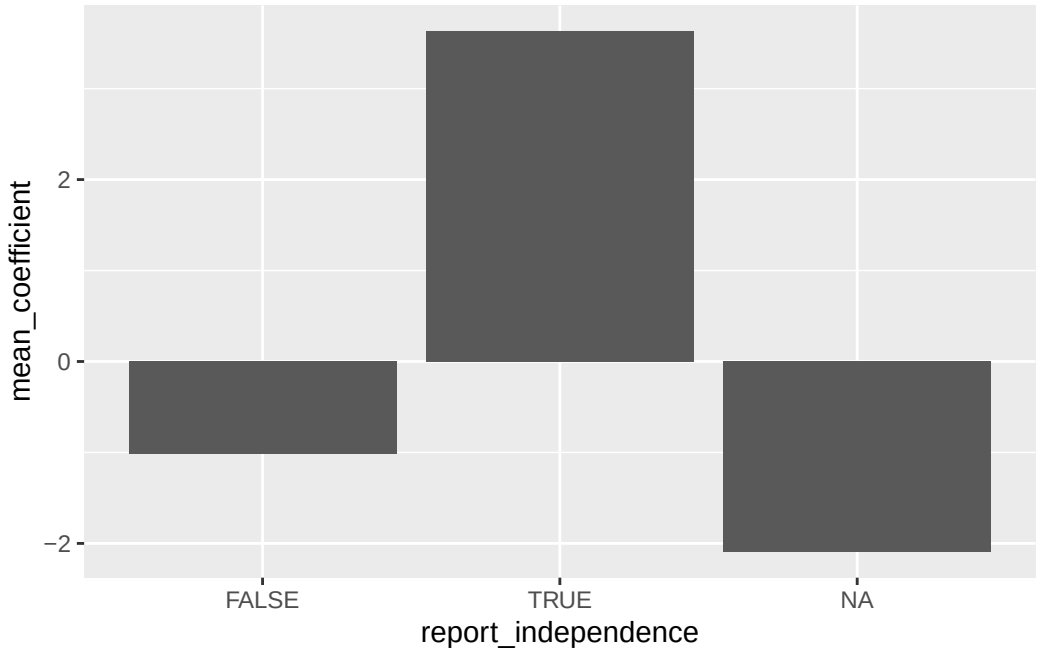
Most people said they they were more convinced by diverse sources, even though that's not what their behavior showed.

Could it be that our model comparison is just penalizing too harshly? A lot of people show positive independence estimate in the first figure, even though the for most of them the model comparison preferred the null and the credible intervals were overlapping with zero.

4.1 Proportion of people who said they preferred diverse sources in the full sample, versus those who had a positive beta indicating a (not necessarily credible) behavioral preference for diversity.

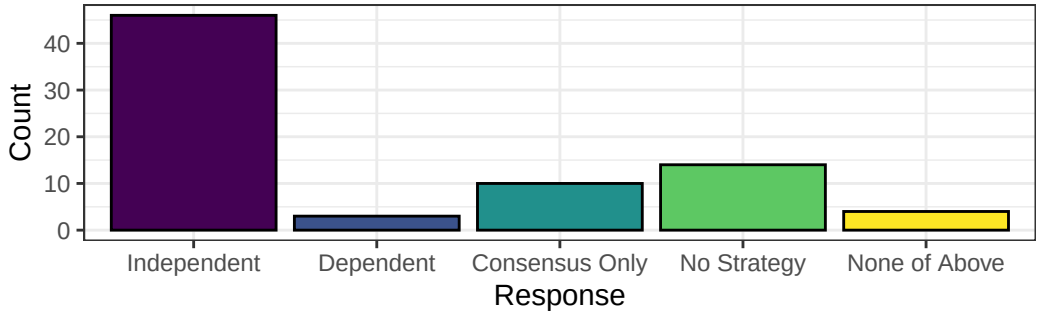


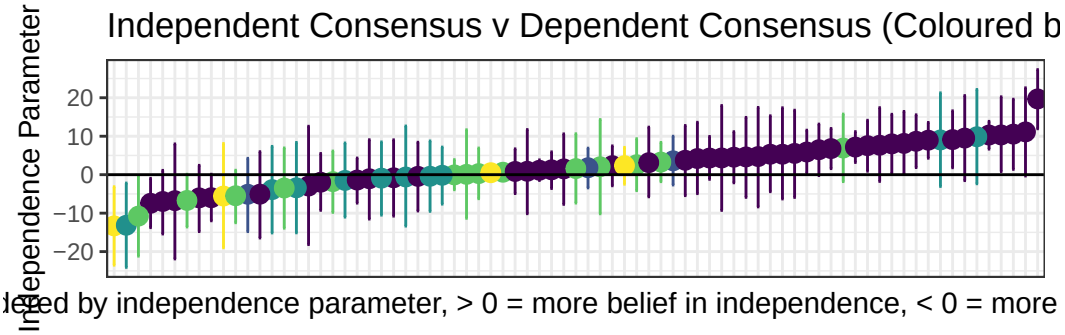
The above plot shows that the proportion of participants who said they preferred an independent consensus was only slightly higher for participants who showed behavior in line with that preference (positive beta) than in the full sample. This suggests that a lot of participants who said they preferred an independent consensus did not show behavior in line with this stated preference.




```
    Welch Two Sample t-test

data:  coefficient by report_independence
t = -3.597, df = 66.959, p-value = 0.000611
alternative hypothesis: true difference in means between group FALSE and group TRUE is not eq
95 percent confidence interval:
 -7.22544 -2.06819
sample estimates:
mean in group FALSE  mean in group TRUE
          -1.017940            3.628876

[1] NA
```

4.2 Matching self reported preference with





5 Participants who weren't sensitive to consensus

```
# A tibble: 6 x 9
# Groups:   subject [3]
  subject excluded_condition consensus_estimate     lower_CI upper_CI looic_null
    <int> <fct>                           <dbl>        <dbl>    <dbl>      <dbl>
1      48 contested                    -1.31e+1 -24.1        -2.17e+0       370.
2      48 dependent                     1.08e+1  -1.61         2.31e+1       368.
3      56 contested                     2.06e+0 -10.2          1.43e+1       377.
4      56 dependent                     1.77e+1   4.93         3.05e+1       380.
5      58 contested                     5.13e-1  -0.0639       1.10e+0       136.
6      58 dependent                    -4.92e-8  -0.00000282   2.61e-6      -900.
# i 3 more variables: looic_alt <dbl>, looic_diff <dbl>, best_model <chr>
```

All of the participants who were insensitive to independence, except one, were sensitive to the standard consensus effect.

Two out of the three participants who did not show any standard consensus effect were sensitive to independence, such that they were more convinced by *dependent* (repeated) sources. This makes sense since these participants were relatively less persuaded by an independent

consensus, which is what the contested (no consensus) condition was compared with to assess the standard consensus effect. It is probable that if we had assessed consensus by comparing the dependent consensus with the contested condition, these participants would have shown a consensus effect. It is interesting however, that for these participants, their preference for repeated, dependent sources appeared not just when compared to an independent consensus, but also when compared to no consensus at all.