

# Supplementary Material 1: Individual Level Analyses

Manikya Alister

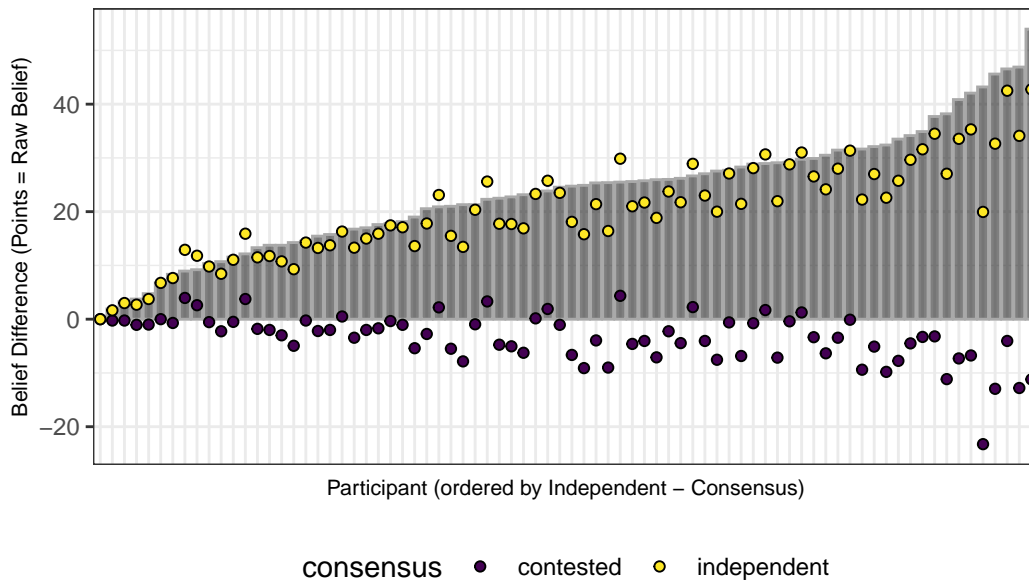
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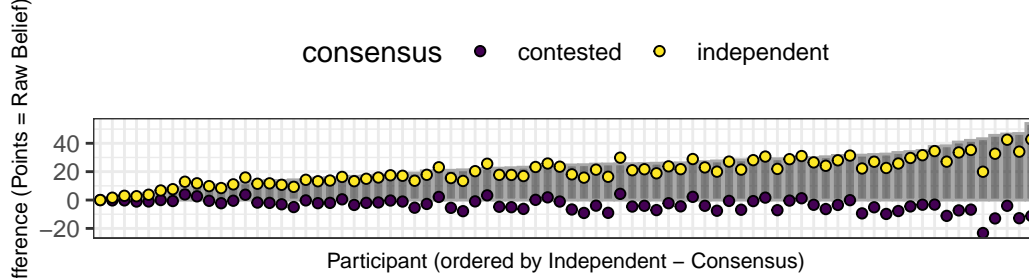
## 1 Deltas and Actual Data

The above plot shows participants' mean deltas (independent - dependent) and their average raw belief updates (post - pre) on dependent (red) and independent (blue) trials.

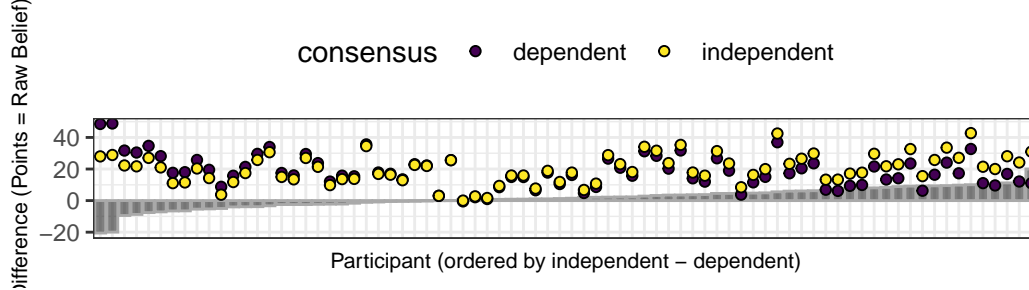
### Independent Consensus vs. Independent Contested (No Consensus)



### Independent Consensus vs. Independent Contested (No Consensus)

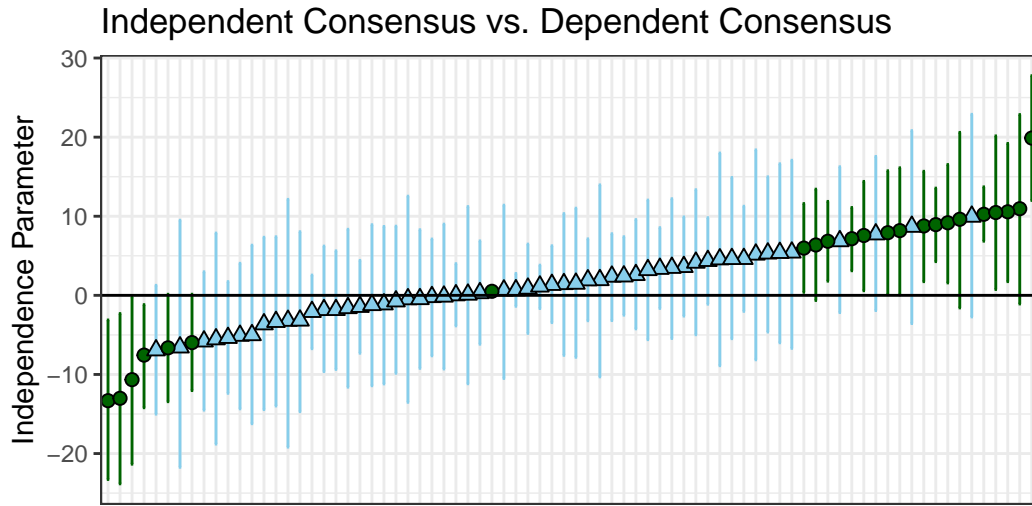


### Independent Consensus vs. Dependent Consensus



## 2 How many had a preference for diverse sources versus repeated sources, and how many weren't sensitive at all?

### 2.1 Plot with parameter estimates



ordered by independence parameter,  $> 0$  = more belief in independence,  $< 0$  = more

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

[1] "proportion of participants who preferred an independent consensus: 22"

[1] "proportion of participants who preferred an dependent consensus: 8"

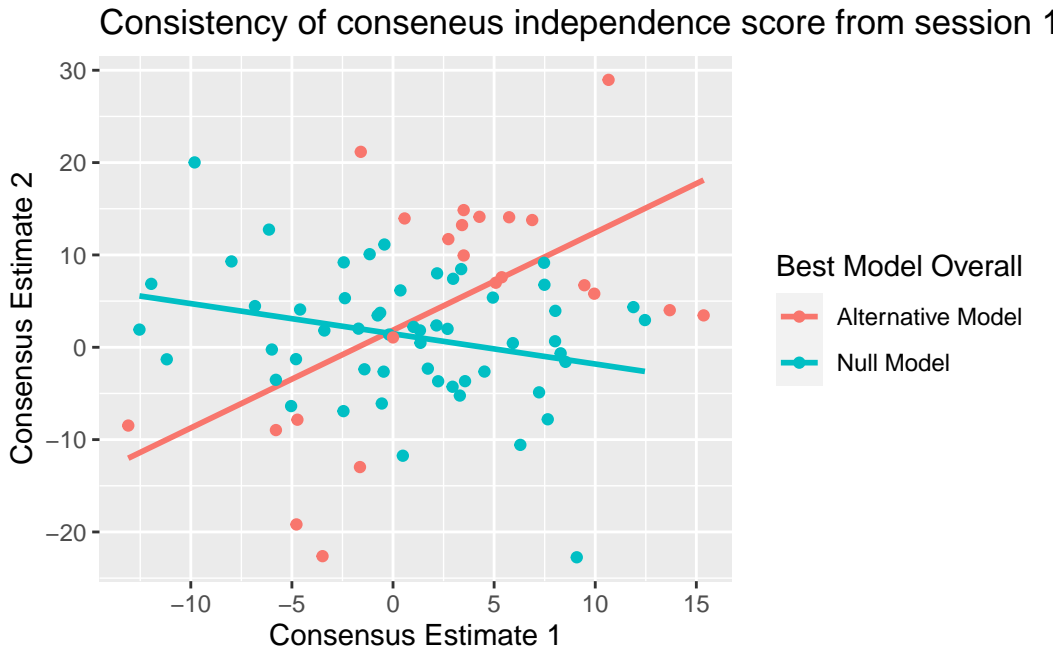
[1] "Median estimate for participants who preferred an independent consensus: 92"

[1] "Median estimate for participants who preferred an dependent consensus: -92"

29% of participants were sensitive to independence when reasoning. 8% of participants were more convinced by a dependent consensus where four different people each shared the same source. 22 % of participants were more convinced by an independent consensus where four people shared four different sources.

### 3 Correlation between consensus independence estimates in time 1 compared to time 2.

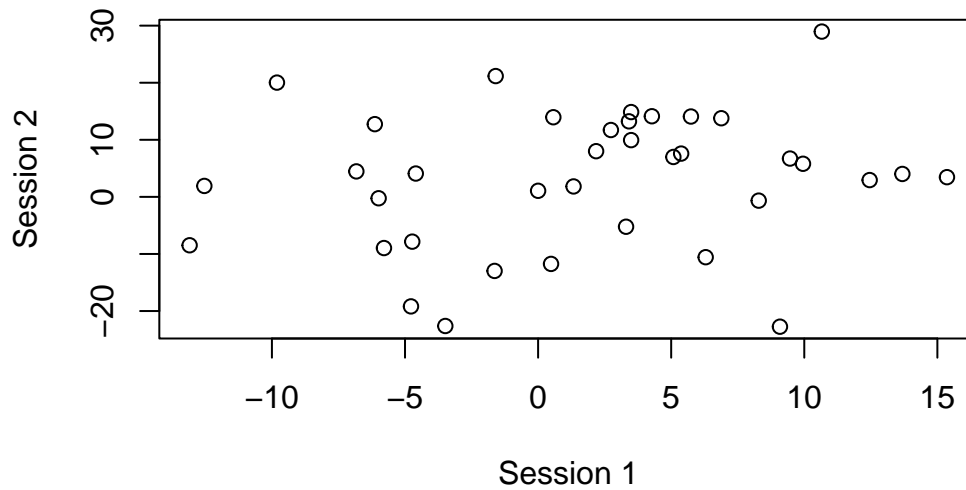
It is useful to know whether people who were labeled as preferring an independent v dependent consensus appeared to show consistent behavior across sessions.



```
cor  
0.5567265
```

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.

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.

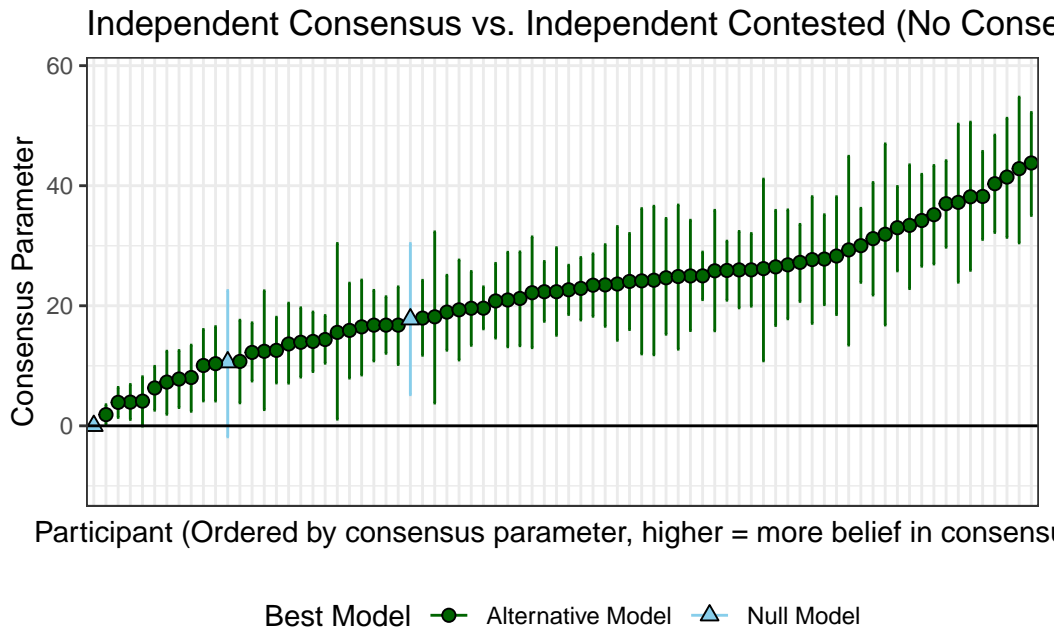


[1] 0.1897031

The correlation is much smaller, but I don't think this is 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 results are inconsistent from session 1 to session 2.

## 4 How many people weren't sensitive to a consensus at all, regardless of independence?

### 4.1 Plot with parameter estimates



The above plot shows that almost everyone was sensitive to the standard consensus effect.

### 4.2 Plot with deltas

## 5 What strategy did people say they used?

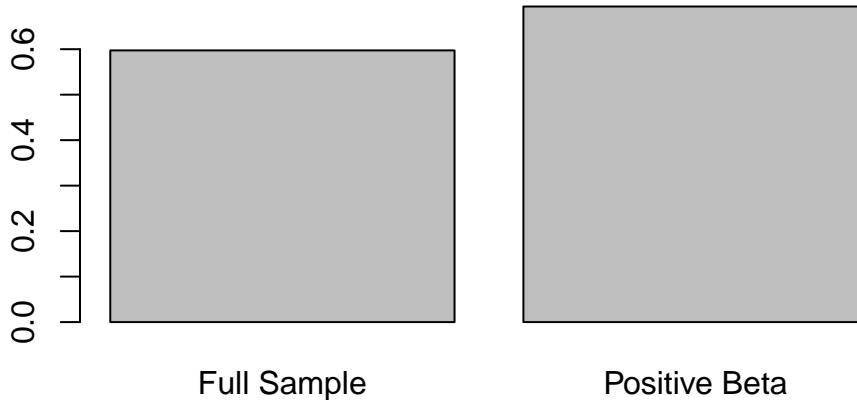
Comparing their behavior with their self-reported preference.

```
# A tibble: 6 x 3
  self_report_strategy count mean_estimate
  <chr>                <int>      <dbl>
1 consensusOnly         10      -0.439
2 diverse               46       3.63
3 none                   4      -3.99
4 noStrategy            14      -0.754
5 repeated              3       0.137
6 <NA>                   1      -2.08
```

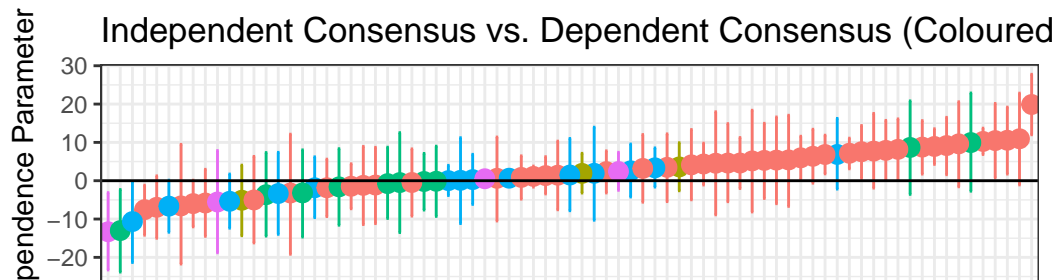
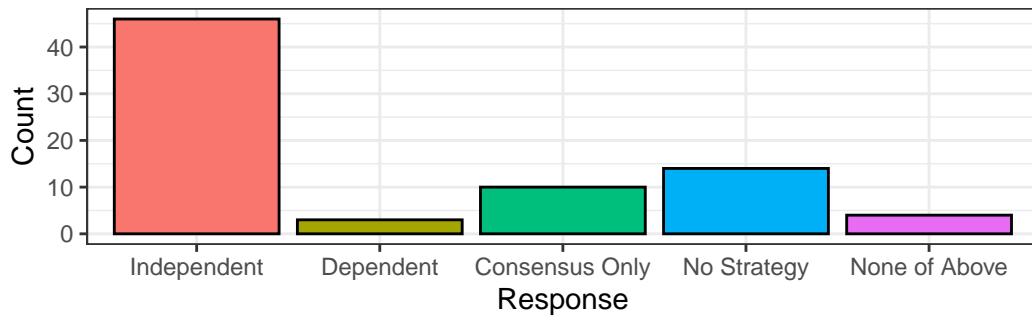
Most people said they they were more convinced by diverse sources, even though that's not what their behavior showed.

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.

### 5.1 Proportion of people who said they preferred diverse sources in the full sample, versus those who had a positive beta



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.



Intercepted by independence parameter,  $> 0$  = more belief in independence,  $< 0$  = more

The above plot shows more support for the claim that many participants' behavior did not align with their stated preferences. For example, many participants who said they found an independent consensus more convincing were actually more convinced by a dependent consensus (negative parameter estimate).

## 6 Participants who weren't sensitive to consensus effects

Were the people who were insensitive to independence sensitive to the standard consensus effect?

```
# A tibble: 6 x 11
# Groups:   subject [3]
  subject excluded_~1 consen~2 lower_CI upper_CI looic~3 looic~4 looic~5 best_~6
    <int> <fct>          <dbl>    <dbl>    <dbl>    <dbl>    <dbl>    <dbl> <chr>
1     48 contested    -1.30e+1 -2.38e+1 -2.30e+0  370.    368.    1.25 Altern~
2     48 dependent     1.06e+1 -1.82e+0  2.25e+1  368.    369.   -0.947 Null M~
3     56 contested     1.94e+0 -1.03e+1  1.40e+1  377.    380.   -2.27 Null M~
4     56 dependent     1.78e+1  5.19e+0  3.04e+1  380.    381.   -0.697 Null M~
5     58 contested     5.12e-1 -6.70e-2  1.08e+0  136.    135.    1.03 Altern~
6     58 dependent     7.51e-8 -3.64e-6  3.77e-6  -906.   -868.  -37.6 Null M~
# ... with 2 more variables: delta <dbl>, se_delta <dbl>, and abbreviated
# variable names 1: excluded_condition, 2: consensus_estimate, 3: looic_null,
```



# 4: looic\_alt, 5: looic\_diff, 6: best\_model

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.