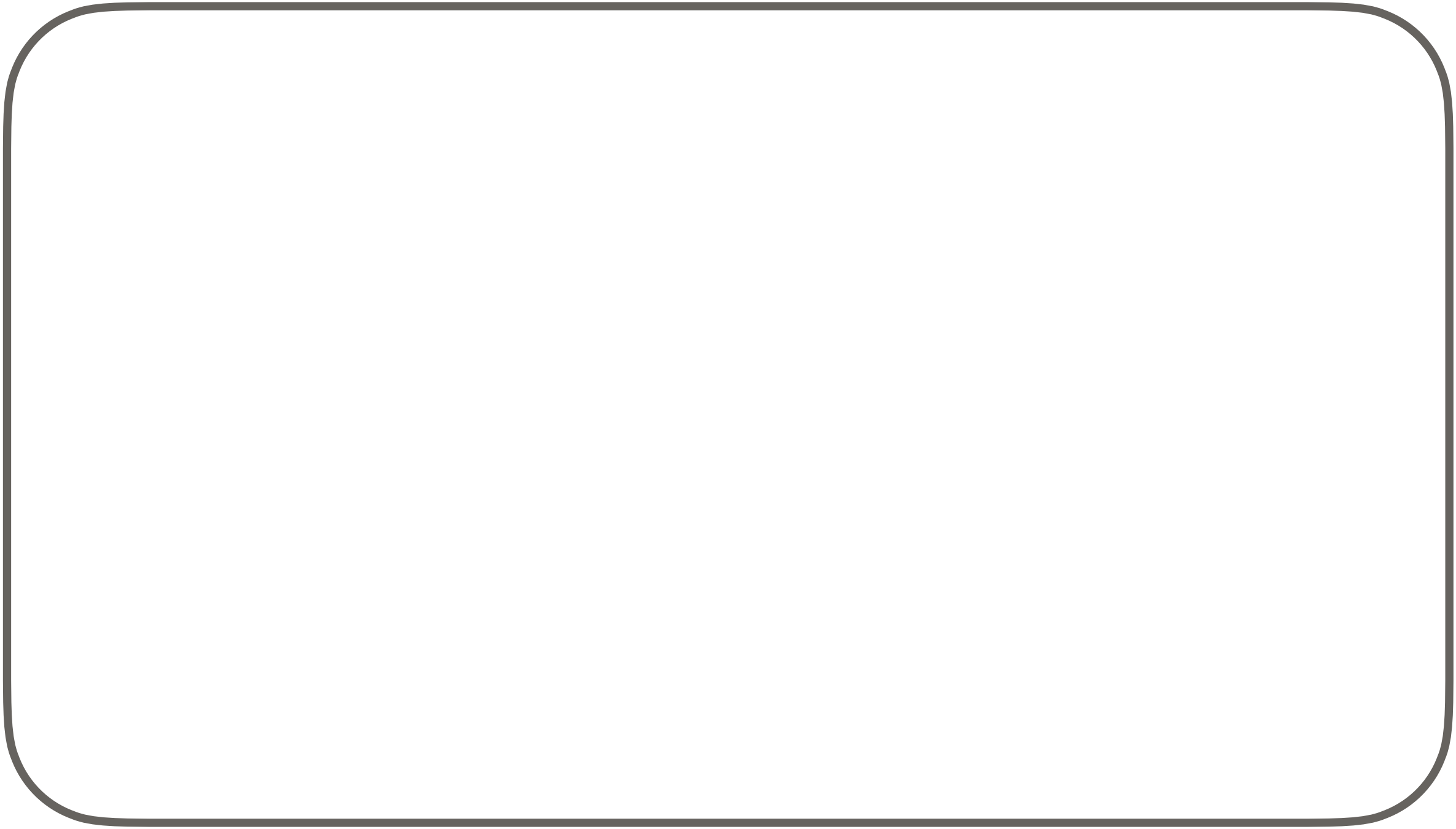


NON-CENTERED POOLED EFFECT



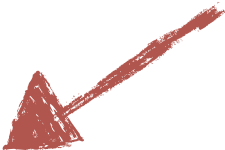
$$\textit{logit}(p_i) = \alpha_0 + \tilde{\alpha}_{actor[i]} * \sigma_{\alpha}$$

$$\tilde{\alpha}_j \sim \textit{Normal}(0, 1), \text{ for } j = 1..7$$

$$\alpha_0 \sim \textit{Normal}(0, 1.5)$$

$$\sigma_{\alpha} \sim \textit{Exponential}(1)$$

Non-Centered coefficient





$$\textit{logit}(p_i) = \alpha_{actor[i]}$$

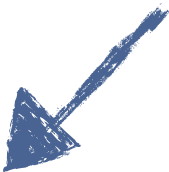
$$\alpha_j \sim \textit{Normal}(\alpha_0, \sigma_\alpha), \text{ for } j = 1..7$$

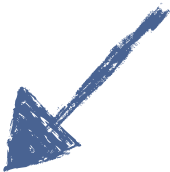
$$\alpha_0 \sim \textit{Normal}(0, 1.5)$$

$$\sigma_\alpha \sim \textit{Exponential}(1)$$

Centered coefficient









$$x_j \sim N(\mu, \sigma)$$



$$\tilde{x}_j \sim N(0, 1)$$

$$x_j = \mu + \tilde{x}_j \sigma$$

NON-CENTERED POOLED EFFECT

Centered coefficient

$$\text{logit}(p_i) = \alpha_{\text{actor}[i]}$$

$$\alpha_j \sim \text{Normal}(\alpha_0, \sigma_\alpha), \text{ for } j = 1..7$$

$$\alpha_0 \sim \text{Normal}(0, 1.5)$$

$$\sigma_\alpha \sim \text{Exponential}(1)$$

$$x_j \sim N(\mu, \sigma)$$

Non-Centered coefficient

$$\text{logit}(p_i) = \alpha_0 + \tilde{\alpha}_{\text{actor}[i]} * \sigma_\alpha$$

$$\tilde{\alpha}_j \sim \text{Normal}(0, 1), \text{ for } j = 1..7$$

$$\alpha_0 \sim \text{Normal}(0, 1.5)$$

$$\sigma_\alpha \sim \text{Exponential}(1)$$

$$\tilde{x}_j \sim N(0, 1)$$

$$x_j = \mu + \tilde{x}_j \sigma$$

NON-CENTERED CHIMP MODEL

```
m1nc <- ulam(  
  alist(  
    pulled_left ~ binomial( 1 , p ) ,  
    logit(p) <- a_0 + z[actor]*sigma_a +  
               x[block_id]*sigma_g +  
               b[treatment] ,  
    b[treatment] ~ normal( 0 , 0.5 ) ,  
    z[actor] ~ normal( 0 , 1 ) ,  
    x[block_id] ~ normal( 0 , 1 ) ,  
    a_0 ~ normal( 0 , 1.5 ) ,  
    sigma_a ~ exponential(1) ,  
    sigma_g ~ exponential(1) ,  
    gg> vector[actor]:a <- a_0 + z*sigma_a, # actor intercepts  
    gg> vector[block_id]:g <- x*sigma_g      # block intercepts  
  ) , data=dat_list , chains=4 , cores=4 )
```