

Supplemental Materials: Activity Videos

Experiment 1 Activities

Video A (6-11.9 months) “Pick it up”

Parents are told to encourage their child to pick up and drop individual objects. They are also encouraged to place toys on a small cloth and show the child that they can drag the cloth towards them to reach the toys.

Props: cloth, plastic horse, plastic sheep, plastic elephant, toy car

Video B (6-11.9 months) “Animal sounds”

Parents are told to call different animals and imitate different sounds the animals make. They are also encouraged to observe which animal the child prefers.

Props: plastic sheep, plastic horse, plastic frog, plastic cow, bowls

Video C (12-17.9 months) “Give me the toy”

Parents are told to ask their child to hand over individual toys. They are also encouraged to praise the child after they give them the toys, and repeat the process until the child follows the verbal instructions.

Props: toy boat, plastic frog, plastic elephant, toy bus

Video D (12-17.9 months) “Classifying my toys”

Parents are told to place toys of different sizes (big or small) in two hoops. They are also encouraged to ask their child to distinguish between two objects and identify which one is larger.

Props: two yellow and green rings, big car, small car, big horse, small horse

Video E (18-23.9 months) “My toys”

Parents are told to show the child toys of the same shape but different sizes, to place one of the objects in a basket and to ask the child to take out the object. They are also encouraged to ask their child if the object is bigger or smaller compared to its pair.

Props: two buckets, big car, small car, big horse, small horse

Video F (18-23.9 months) “The orchestra”

Parents are told to give their child a musical instrument to play. They are also encouraged to play a song and see if the child follows the rhythm.

Props: maracas, drum, tambourine, clapper

Experiment 2 Activities

Video A (12-17.9 months) “Give me the toy”

(The same as Video C in Exp. 1, but with different props.)

Props: plastic pig, plastic horse, plastic dog, plastic cat, plastic cow

Video B (12-17.9 months) “Classifying my toys”

(The same as Video D in Exp. 1.)

Video C (12-17.9 months) “Geometric shapes jigsaw puzzle”

Parents are told to encourage their child to name different shapes on a jigsaw puzzle. Then they are told to undo the puzzle and invite the child to complete the puzzle.

Props: A jigsaw puzzle of geometric shapes

Video D (18-23.9 months) “My toys”

(The same as Video E in Exp. 1.)

Video E (18-23.9 months) “The orchestra”

(The same as Video F in Exp. 1.)

Video F (18-23.9 months) “My yellow toys”

Parents are told to show their child yellow toys and to ask, “What color are they?” They are also told to give the child toys of different colors, to ask them to only play with the yellow ones, and to praise the child after they do so.

Props: blue car, yellow car, yellow block, red block, blue block, green block

Supplemental Materials: Bayesian Analysis Overview

Here we look at one of the regressions from Experiment 1 in detail in order to explain and illustrate the rationale of the Bayesian analysis, in particular the *probability of direction* (pd) and the 89% CI (credible interval). For this example we take the exploratory regression from Experiment 1 predicting parents' rate of word types with fixed effects of condition (*No Video* or *Activity Video*), each subscale of the EPAQ (EL: Early Learning, AA: Affection and Attachment, and RR: Rules & Respect), parent education (parent_ed), the child's age (centered) and gender. The model also included interactions for condition and each subscale of the EPAQ, as well as a random intercept for each video. The model syntax was: $\text{types} \sim \text{condition} * \text{EL} + \text{condition} * \text{AA} + \text{condition} * \text{RR} + \text{age} + \text{gender} + \text{parent_ed} + (1|\text{video})$. Table 1 reports the mean of each coefficient's posterior distribution, along with the lower and upper bounds for the 89% credible interval, and the probability of direction (pd).

Parameter	pd	Mean	89% CI Lower	89% CI Upper
conditionexp	0.83	-2.01	-5.41	1.39
EL	0.83	-3.33	-9.27	2.44
AA	0.80	-2.43	-7.09	2.34
RR	0.51	0.04	-2.50	2.45
age	0.77	-1.91	-6.03	2.38
genderM	0.79	-1.71	-5.06	1.52
parent_ed	0.86	1.22	-0.56	3.00
conditionexp:EL	0.56	0.60	-6.41	7.68
conditionexp:AA	0.97	6.92	0.95	12.74
conditionexp:RR	0.71	1.23	-2.38	4.79

What do these values mean? Let's take a closer look at the posterior distribution of the parent education (parent_ed) coefficient. Shown below in Figure 1, the 87% of this distribution that is greater than 0 is shaded orange, which corresponds to the probability of direction $pd = 0.87$, which has the straightforward interpretation of being the probability that an effect has the same sign as the median value of the posterior. Thus, pd has a range of 0.5 (if the distribution is equally-distributed around 0: a likely true null effect) to 1.0 (if the posterior is entirely positive or negative). Since $pd < 0.95$ in this case (corresponding to a $p < .05$ threshold in the null hypothesis significance-testing framework), we do not consider parent education to have a notable effect on the rate of types used during play, but the posterior distribution is interpretable. Also shown are the mean estimated coefficient value (red line) and 89% credible intervals (blue lines), within which 89% of the posterior distribution falls.

Figure 2 shows the posteriors for all of the coefficients in this regression. Only the interaction between condition and the Affection and Attachment subscale of the EPAQ was notable (by pd in Table 1), but as indicated by their pd values, much of the mass some other parameters' posteriors are skewed negative (e.g., conditionexp: the Activity Video condition; EL: the Early Learning subscale of the EPAQ), while others are more evenly-distributed (e.g., RR, $pd = 0.51$).

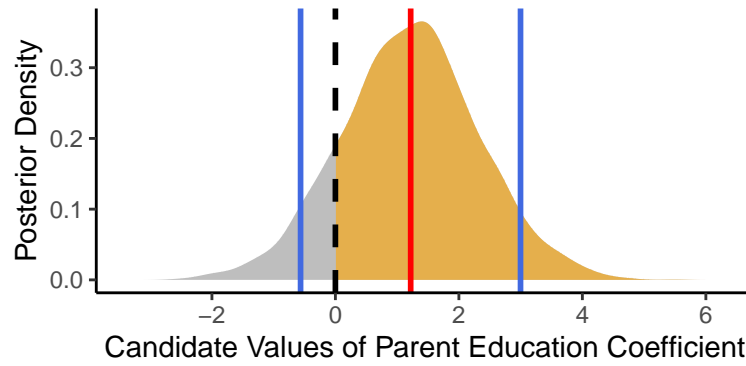


Figure 1: Posterior distribution of parent education coefficient with mean (red), 89% CIs (blue), and pd (orange portion) shown.

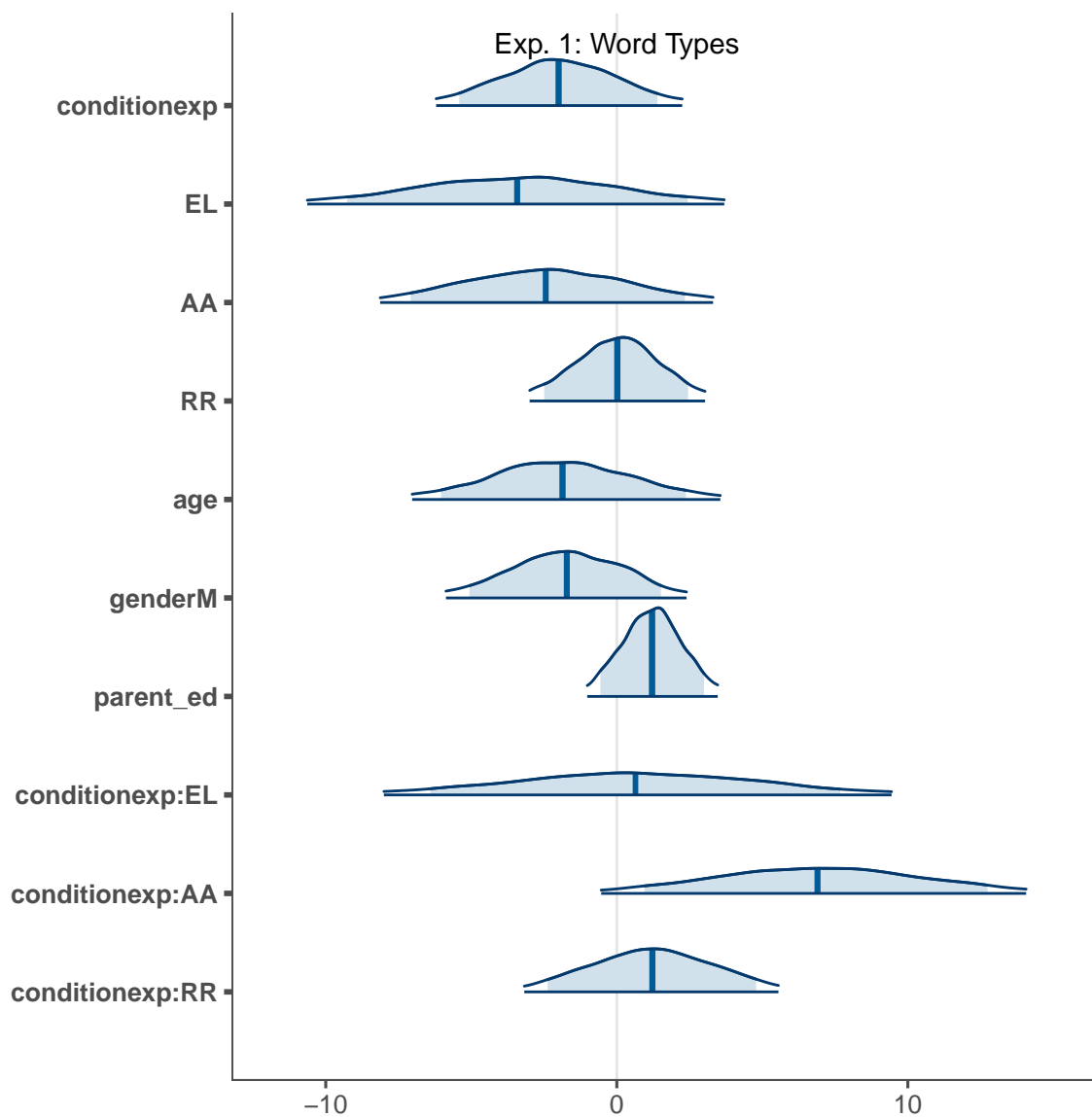


Figure 2: Posterior distributions with means and 89% credible intervals. The outermost 5% of each posterior distribution is clipped and not shown.