

SUPPLEMENTARY MATERIALS

Great apes stick with what they know; children conform to others

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Additional Participant information Study 1:

Forty human children, 15 chimpanzees and 15 orangutans participated in this study. All children were recruited from local kindergartens, were native German speakers of normal ability range and came from mixed socio-economic backgrounds. We excluded a total of twenty-two children: Fourteen were excluded because one of the demonstrators dropped the ball into the wrong section. Five were excluded because the box malfunctioned. Two were excluded due to experimenter error. One child did not reach training criterion. Children were free to choose not to participate at all times (0 quit). All chimpanzees were housed at the Tchimpounga Chimpanzee Sanctuary, Republic of Congo. All orangutans were housed at the Orangutan Care Centre and Quarantine, Kalimantan, Indonesia. The presented study was non-invasive and strictly adhered to the legal requirements of the countries in which it was conducted. The study was approved by an internal ethics committee at the Max Planck Institute for Evolutionary Anthropology. Animal husbandry and research complied with the PASA Primate Veterinary Healthcare Manual and the policies of Tchimpounga Chimpanzee Sanctuary and the Orangutan Care Centre and Quarantine. Apes voluntarily participated in the study and were never food or water deprived. Two chimpanzees and 3 orangutans were excluded, due to demonstration error by one of the models. One chimpanzee was excluded due to experimenter error.

Additional Analysis Study 1:

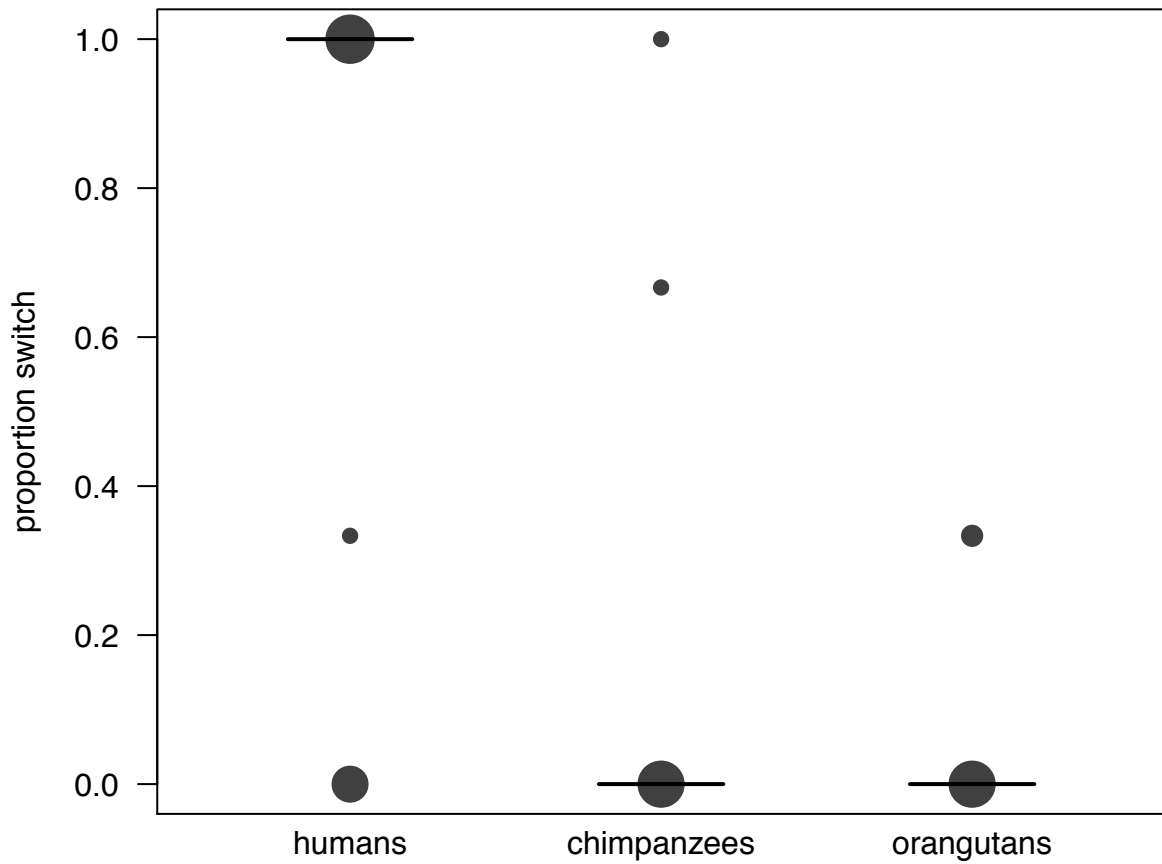
To verify that the ANOVA reported in the main text reported valid results despite the non-normal distribution of residuals, we ran a generalized linear mixed model (GLMM) (Baayen, 2008), with binomial errorstructure and logit link function. We included as the factors species, gender, trial-number as fixed effects and participant as random effect. We included random slopes for trial-number within participant (Shilzid & Forsteier, 2009; Barr, Levy, Scheepers & Tily, 2013) in order to account for the potential of the effect of trial-number to vary between participants and keep the

type 1 error rate at the nominal level of 0.5. To test the effect of species, we compared the full model as described above with a reduced model lacking species but comprising all other terms in the full model using a likelihood ratio test (Dobson, 2002). The model was implemented in R version 3.1.0 (R-Core team, 2014) using the function `glmer` of the package `lme4` (R Core Team, 2014). Since age and species were highly correlated we could not include both into one model. To rule out that the effect of species was actually an effect of age, we ran an additional model in which we replaced species by age and compared the AIC values of the two models (Burnham & Andersen, 2002).

Results

We checked for whether the assumptions of normally distributed and homogeneous residuals were fulfilled by visually inspecting a qqplot and the residuals plotted against fitted values (both indicated no obvious deviations from these assumptions). Overall, the full model was clearly significant as compared to the null model (likelihood ratio test: $\chi^2=19.83$, $df=2$, $P<0.0001$). More specifically we found that species had an effect (likelihood ratio test: $\chi^2=19.83$, $df=2$, $P<0.0001$) with humans giving more switch responses than chimpanzees ($p<0.001$) and orangutans ($p<0.001$). Orangutans and chimpanzees did not significantly differ in their responses ($P=0.928$). Finally the AIC scores of the model including age instead of species was much higher (AIC age: 90.21; AIC species: 76.09), indicating that the observed effect was indeed an effect of species, not age.

Supplementary Figure 1:



The Figure shows the proportional switch-responses per subject. The surface of the dots codes the number of subjects with a certain proportion, the horizontal lines show the value of the fitted model.

Additional Participant information Study 2:

Sixty-seven human children participated in this study. All children were recruited from local kindergartens, were native German speakers of normal ability range and came from mixed socio-economic backgrounds. We excluded a total of 13 children: Four children were excluded due to demonstration error by one of the model children. Two children were excluded because the box malfunctioned. Three children were excluded due to experimenter error. Two children did not reach training criterion. Children were free to choose not to participate at all times (2 quit). After exclusions we included the data provided by the children in study 1 (N=18), adding up to a final, analyzed sample of 72 children

Supplementary References

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- Burnham, K. P., & Anderson, D. R. (2002). *Model Selection and Multimodel Inference (2nd ed.)*. Berlin: Springer.
- Dobson, A. J. (2002). *An Introduction to Generalized Linear Models*. Boca Raton: Chapman & Hall/CRC.
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