

Arithmetics in chicks

(R Rugani, L Fonatanari, E Simoni, L Regolin, G Vallortigara. Proc. R. Soc. B 276, p. 1666, 2009)

Experiments

- Newborn chicks are reared with colored balls (imprinting)
- E1/E2: Chicks see number of balls deposited behind two screens (2 vs 3) and choose
⇒ Chicks go to larger set in $\sim 65\%$ of trials (consecutive+simultaneous removal)
- E3: After initial placement, balls are visibly shifted from one screen to other:
Comparison of 4-2 vs 1+2 or 4-1 vs 1+1 necessary
⇒ Chicks succeed in $> 70\%$ and can add numbers up to 5

Summary/Background

- Chicks can perform the basic arithmetic tasks addition and subtraction.
- Chicks seem to be better at math than human infants (that can only handle numbers up to 3)
- Numerical and language abilities correlated?
- Symbolic mathematical capacity seems to need language, but not basic arithmetics

