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**“Lessons from the cognitive ontogeny of ravens”**

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At present the biology of cognition booms, with the potential side effect of overly “mentalistic” interpretations of behaviour. Social complexity may indeed, select for social intelligence, at least in the homoeothermic vertebrates. In reverse however, this does not mean that individuals living in complex social systems would permanently need to make use of all their cognitive potentials. We will show that complex caching behaviour and coalitionary social support in common ravens (*Corvus corax*) develops ontogenetically by integration of stereotypic elements and associative learning along a developmental trajectory.

Relatively complex cognitive mechanisms do not seem to be available until a few months post fledging. We suggest that cognitive mechanisms may be used hierarchically, with standard mechanisms being employed for the daily routines and the more complex mechanisms being activated upon demand.

This is supported by three lines of evidence: 1. Complex cognitive mechanisms usually appear late in ontogeny. 2. Individuals faring well in tests of complex cognition are often highly “enculturated”. 3. Finally, “adaptations” (i.e. complex cognition making fit for complex social environments) more often than non enable species/individuals to overcome bottlenecks where others would fail. Hence, complex cognitive adaptations would only show in adequate challenges.