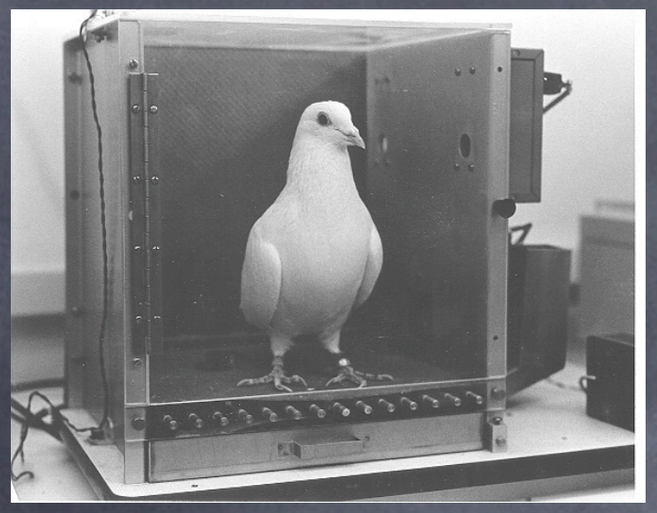

Transitive Inference and Comparative Cognition

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Overview

1. Description of TI and basic 3 and 5 element experimental designs
2. "Cognitive model" and comparative distribution of TI
3. Transitive Performance not Transitive Inference?
4. Testing VTT with 7 elements
5. Summary table
6. Some Outstanding issues

Transitive Inference

- Example: A > B, B > C ∴ A > C
- Basic Experiment: Train on A+B- and B+C-; Test on AC
- Basic experiment has simple associationist explanation
- 5-element experiment: Train to criterion on A+B-, B+C-, C+D-, D+E-; Test on BD

TI Cognitive Model

- The cognitive model involves mental representation of series ABC
- Piaget thought only 7+ year olds could do this
- But many animals and children as young as 4 pass 5-element TI test
- Unambiguous evidence of TI?

TP not TI?

- Value Transfer Theory (Fersen et al. 1991): In any simultaneous discrimination task, some of the value associated with the S+ is transferred to the accompanying S-.

- B gains more from A+B- than D gains from C+D- because A has higher value than C

- Zentall's (1994) test of Positive VTT: Train to criterion on $A_{100}B_0$, $C_{50}D_0$; Test BD

- Pigeons may only have TP: "Transitive Performance"

Test of VTT?

- 7-element task: Train with pairs from ABCDEFG; Test with CE
- Not tried with pigeons (too slow?)
- Bond et al. (2003) with 5 pinyon jays and 5 scrub jays (corvids smarter than pigeons?)
- Species difference: Pinyon jays faster than scrub jays to reach criterion ...
- ... but still required 3-stage training process and hundreds of exposures to the training set

Summary

Models \ Tasks	3 element AC task	5 element BD task	7 element CE task
Simple Associationist	+		
Value Transfer Theory	+	+	
Explicit seriation	+	+	+

Some Remaining Issues

- Accounting for fast learning and large domains in natural settings (e.g. dominance hierarchies)
- Accounting for species differences
- Integrating neural and computational models

End