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Section 103

Problem Set #8

1. **How did the experiment with pigeons being rewarded for categorizing face drawings demonstrate that the pigeons were solving the problem by creating prototypes? (4 pts).**

The pigeons learned to discriminate negative faces from positive faces by creating a prototype for each of the expressions. We know that they were creating prototypes because after they had been trained with 81 faces, they could then correctly distinguish between positive and negative expressions on novel faces that they had not seen before. This shows that they really had created prototypes and learned the difference between the two expressions, rather than just memorizing each of the faces.

1. **How did training children and chimpanzees to open puzzle boxes that were opaque differ from their performance solving the same box when it was transparent? What was the significance of this result? (4 pts).**  
   When the box was opaque, both children and chimpanzees followed all of the steps that they observed in order to open the box. When the box was clear, the chimpanzees did not follow the directions, instead they only completed the last step that was required to receive the food because they could now see the internal mechanism. However, with the same clear box, children would follow even the unnecessary steps (tapping on the top, poking with the stick, etc.) to get the treat, even though these steps were not required. This result stems from the fact that humans expect to learn from others, while the chimpanzees just wanted to get to the end goal (the food) as quickly as possible. When they didn’t understand the mechanism, both chimps and kids imitate, but when the box is clear, the chimpanzees emulate while children continue to imitate.
2. **For what two (non-human animal) behaviors has teaching been demonstrated? (2 pts).**

Both Temnothorax ants and meerkats have been observed teaching others. The ants were observed teaching naïve ants where they had found food by slowly leading others to the food and maintaining contact with antenna. Additionally, adult meerkats would teach their young how to catch and kill their prey by bringing the prey to young pups and gradually introducing them to more difficult prey, until the pups are competent in hunting.