

IT TAKES TWO: COOPERATIVE PROBLEM-SOLVING IN CHIMPANZEES (*PAN TROGLODYTES*)

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Chimpanzees sometimes collaborate with one another, but it is not clear whether this behavior constitutes the type of cooperative problem-solving found in humans. Experiments with chimpanzees have shown that they can cooperate using parallel roles, but to date there are no demonstrations of chimpanzees cooperating in complementary roles - which is important in human division of labor. We presented seven socially tolerant pairs with two different instrumental problems in which they had to guide a ball along an apparatus to release food rewards. Specifically, subjects had to cooperate by coordinating two distinct sequential actions: rolling a ball and opening a trap door (study 1) and rolling a ball and timing of finger insertion to redirect its path (study 2). In study 1 all pairs were successful in using complementary roles to obtain rewards and did so significantly more often than in non-reward baseline conditions. Moreover, they were successful in performing either role and flexibly switching between them (role-reversal). In study 2, five of the seven pairs were successful in using and switching between the more complex temporally-dependent complementary roles. More importantly, no single chimpanzee was successful in waiting for their partner when doing so was required for success. It appears that while they are able to perform varying roles and flexibly switch between them, chimpanzees have difficulty attending to the presence or absence of their partner. It is possible that their understanding of acting together is either lacking or being hindered by other relevant behavioral processes such as inhibition.

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