

Supporting Information

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SI Text

All three tested species show cooperative behavior in the laboratory and in the field. Among capuchins, in mutualistic “bar-pull” tasks in which individuals work together to obtain food rewards, capuchins both visually coordinate and understand the role of their partner (1). They also understand reward contingencies. They are reciprocal (2), and do not cooperate when one member of the pair can dominate the rewards (3) or when their partner does not equitably share outcomes (4). Notably, cooperation occurs only when the monkeys understand the task (5), underscoring the importance of appropriate methodology. In the wild, monkeys collaborate (6) and may even hunt together (7).

Chimpanzees are similarly skilled at cooperation. In similar bar-pull tasks, chimpanzees cooperate at higher levels when paired with tolerant partners than with those that do not share (8), and actively choose tolerant partners when given the option (9). In the field, chimpanzees collaborate on group hunts, even taking complementary roles (10). They also exchange goods and services reciprocally (11, 12) and engage in coalitions and alliances (13, 14).

Humans are the most cooperative species. In laboratory settings, humans routinely achieve mutual gains in payoffs through trust and reciprocity by outperforming the rational predictions of game theory, even when the game is only played once and with an anonymous stranger (for a summary, see ref. 15). Human cooperation includes similar activities to the other two primates, including cooperative hunting of game and subsequent food sharing (e.g., 16).

SI Methods

Both species of nonhuman primates daily received a combination of primate chow, fruits, and vegetables, as well as additional enrichment foods. No individual was ever food- or water-deprived for testing. Subjects were adults that lived in the same social group and, when possible, multiple pairings within the same social group

were tested. Pairs were separated from the remainder of the social group in their indoor dens (chimpanzees) or their testing cage located in the indoor colony room (capuchins) to limit distractions during testing. All separation was voluntary (i.e., subjects were only tested if they entered the testing area freely).

For testing, the experimenter then held out one hand in a stereotypical “begging gesture” to request the return of a token. When a subject returned a token, the experimenter closed her hand over it (capuchins) or placed it behind her back (chimpanzees). After both subjects had returned their tokens, the experimenter held them up, with the token each subject returned in front of them. Experimenters then added the food rewards (if any) to their hand and held up the food rewards, with the tokens, for each subject. After the subjects took the food rewards, the next trial commenced. Tokens were PVC pipes painted either red (*Stag*) or blue (*Hare*). PVC pipes were sized appropriately for the species to easily manipulate.

Capuchin Monkeys. In pilot testing with a single pair there was no change in either individual’s behavior (i.e., both subjects chose randomly between the tokens). Thus, we conducted the experiment with one white token (*Hare*) and one black and white patterned token (*Stag*) to eliminate the possibility that the capuchins could not distinguish between the colors (although see ref. 17).

Chimpanzees, MD Anderson Cancer Center. Due to the large number of available subjects, each of the 20 subjects was used in only a single pair. A subset of chimpanzees required training in token exchange before the experiment, using standard procedures for training exchange (18). All training was done with a single token and invariant rewards to avoid the risk of inadvertently training a behavior; subjects learned the contingencies of the payoffs during the experiment.

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Table S1. The generic payoff matrix for the Assurance game

		Participant 2	
		<i>Stag</i>	<i>Hare</i>
Participant 1	<i>Stag</i>	w, w	y, x
	<i>Hare</i>	x, y	z, z