

**GROOMING RECIPROCITY IN WILD MALE CHIMPANZEES**

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Biological-markets theory provides a model for understanding the evolution of superficially altruistic behaviour in social groups. It is proving particularly useful in understanding grooming interactions of non-human primates, where it predicts that reciprocity should occur where dominance relationships are relaxed and/or where differences in social rank are small such that there are no other benefits for which grooming can be exchanged. In contrast, a lack of reciprocity with grooming traded for rank-related benefits is predicted where dominance relationships are manifest. We tested this prediction and investigated patterns of grooming reciprocity among wild male chimpanzees, using data from 55 dyads (11 adult males) from the Sonso (Budongo) community. We derived separate indices of reciprocity for both grooming frequency and duration. Our results provide mixed support for biological-markets theory. While some grooming – and grooming within particular dyads – was directed from lower to higher ranked individuals and higher ranked individuals were on average more reciprocal in their grooming, the expectation that greater reciprocity should occur between individuals close in social rank was not supported. We found that degree of reciprocity varied considerably between dyads and was not related to absolute grooming effort. While the majority of dyads showed a tendency towards reciprocity in their grooming (expressed by duration), only a small proportion showed strongly reciprocal grooming, although each male had at least one reciprocal grooming relationship. An examination of both frequency and duration of grooming showed that, for most dyads, reciprocity of effort occurs through unbalanced participation in grooming bouts.

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