Ownership Psychology and Group Size

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Human group size seemingly has no limit, with many individuals living alongside thousands—even millions—of others. Non-human primate groups, on the other hand, cannot be sustained past a certain, relatively small size. I propose that Pascal Boyer’s model of ownership psychology may offer an explanation for such a significant divergence.

Pascal Boyer offers a compelling and nuanced model of the evolution of ownership psychology. I want to suggest that such a model might help explain why humans have been able to live and thrive in increasingly large groups, while other, non-human primate groups cannot be sustained past a certain, relatively small size.

Humans, non-human apes, and the majority of non-ape primates evolved to live in social groups (Tomasello, 2020). However, human group size is almost always substantially larger than that of non-human primates. Gorilla groups average around 9-10 members (Meder, 2013); chimpanzee groups 40-45 members (with a range of 20-150) (Lehmann & Boesch, 2003); and baboon groups (Papio cynocephalus) usually range from 20-100 members (Markham et al., 2015). Occasionally, primate group size can reach up to 800 members—such as in Mandrill populations—but this is likely the maximum stable group size seen in non-human primates, and such “hordes” are rare (Abernethy et al., 2002). Humans, on the other hand, regularly form groups of thousands, and even millions, of individuals, and there is no reason to believe that such groups won’t continue to grow.

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1 This is the penultimate draft of a commentary on the article “Ownership psychology as a cognitive adaptation: A minimalist model” by Pascal Boyer, which is forthcoming in Behavioral and Brain Sciences.
Why is there such a substantial difference between human and non-human primate group size? Boyer’s model of ownership psychology may provide an explanation. To see how, we first need to consider why it is that non-human primate group size cannot be sustained past a certain point. One well-supported explanation pertains to intragroup resource competition (Chapman & Chapman, 2000; Chapman & Teichroeb, 2012; Ganas & Robbins, 2005; Janson & van Schaik, 1988; Krause & Ruxton, 2002; Markham et al., 2015; Snaith & Chapman, 2007; Teichroeb & Sicotte, 2009). There are many benefits to living in a social group—including decreased predation risk, cooperative infant care, and the sharing of information (Markham et al., 2015). However, increased group size also means more competition for resources. Indeed, the larger the group, the further individuals will need to travel to gather resources (Snaith & Chapman, 2005), and the more individuals will need to compete over resources once they are found—i.e. fight to get hold of the resource and then defend the resource from others who attempt to take it (Chapman & Teichroeb, 2012; Janson & van Schaik, 1988; Krause & Ruxton, 2002; Markham et al., 2015). At a certain point, the costs of intragroup competition become so high that they begin to outweigh the benefits of group living. This then motivates individuals to leave the larger group to fuse with smaller ones, where the costs and benefits of group living are more equally balanced (Chapman & Teichroeb, 2012; Markham et al., 2015).

However, if Boyer’s model is correct, this may have changed the fission-fusion dynamic of ancestral human populations. In particular, if individuals were cued to recognize and respect ownership of resources, and property that housed resources, less energy would have been spent actively competing over resources. To take a specific example, one of the primary cues to
ownership that Boyer discusses is prior possession (target article, sections 2.1.3. and 8.1.3.). In ancestral populations, this would have meant that when individual A gained possession of a resource t, it would have triggered a P(A, t, s) representation, and as a result, other group members would have been less likely to attempt to separate A from resource t. This would have greatly reduced the energy that A would have otherwise needed to spend on defending resource t.

Boyer’s model also gives us an account of the “general respect” for ownership within a community (target article, section 7.3.). If B represents L(A, t, s), B can expect—barring information to the contrary—that others in the community also represent L(A, t, s), and that those others expect B to represent L(A, t, s). This mutual expectation creates an atmosphere that aspires to preserve the connection between A and resource t, which, in effect, decreases the need for A to monitor and protect the resource within the community. It also reduces the need for B (who, let’s say, is a close ally or kin of A) to expend energy in assisting A in protecting the resource.

In sum, a plausible consequence of the kind of ownership psychology that Boyer describes would be a decrease in intragroup resource competition. This would reduce the costs of living in increasingly large groups and, in turn, reduce individuals’ motivation to leave such groups. As a result, group size would continue to grow.

Of course, much work needs to be done before this hypothesis can be said to be empirically credible. Perhaps most saliently, the archaeological record would need to show that group size started to grow in ancestral human populations at some point (soon) after ownership psychology evolved. If it did turn out to have empirical plausibility, however, it would have significant
implications for our understanding of human groups. For one, it would mean that human group size originally came about as an evolutionary by-product. This might then shed light on why there is such a difference between the size of human groups and the actual number of people with whom we can maintain meaningful and stable social relationships (Dunbar, 1992).

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