

In explaining what a superorganism is, Hölldobler and Wilson draw up a useful set of “functional parallels” between an organism (such as ourselves) and the superorganism that is an ant colony. The individual ants, they say, function like cells in our body, an observation that’s given more piquancy when we realize that, like many of our cells, individual ants are extremely short-lived. Depending on the species, between 1 and 10 percent of the entire worker population of a colony dies each day, and in some species nearly half of the ants that forage outside of the nest die each day.

We do not suggest that humans have become ants in a colony, but we may have taken that evolutionary path.

## Open Peer Commentary

### Differentiation of individual selves facilitates group-level benefits of ultrasociality

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**Abstract:** Gowdy & Krall’s target article complements our recent theorizing on group behavior. In our comment, we elucidate complementary aspects of the two theories and highlight the importance of differentiation of selves for human groups to reap the benefits of ultrasociality. We propose that achieving optimal group outcomes depends on the differentiation of individual selves.

Social scientists have long struggled with the question of whether groups are more or less than the sum of their parts (Le Bon 1895/1960; Smith 1776/1991). That is, do people perform worse in groups than alone, or do groups enable outcomes superior to those that could be achieved by individuals? We read Gowdy & Krall’s (henceforth G&K) target article with great interest because their theory bears directly on that question. Our theorizing has focused on how division of labor and other phenomena (related to ultrasociality) affect group outcomes (Baumeister et al. 2016). In our comment we aim to elucidate complementary aspects of the two theories and to highlight the importance of differentiating between selves in order for human groups to reap the benefits of ultrasociality.

We proposed that group activity can be divided into two heuristic steps. In the first step, individuals seek acceptance into the group because of the benefits that group membership confers. This first step of group activity emphasizes how group members are the same. Individuals at this step are motivated to maintain cohesion and shared group identity. Group identification may motivate members to work hard on behalf of the group.

The second step is role differentiation. This stage of group activity focuses on how members of the group differ from one another. At this stage, individuals cement their acceptance by performing unique roles or functions for the group. Role differentiation in turn enables the group to operate in complex, organized systems with interlocking roles, thereby improving group performance and making more benefits available to the group.

Our review found that differentiation of selves led to better group outcomes while reducing group pathologies (e.g., social loafing,

failure to pool information). Conversely, blending individuals into the group lowered the quality of group performance. Differentiation of individual selves improves group outcomes by promoting accountability, evaluation, responsibility, and independent judgment.

G&K’s proposal that the agricultural transition prompted the evolution of ultrasociality complements our two-stage model of group activity. In particular, they argue that food cultivation led to a more complex division of labor. They also note that specialization and division of labor are well suited to larger, as opposed to smaller groups. We concur. Division of labor necessarily involves differentiation of roles and thus of the individual selves who perform the roles. The agricultural transition may have prompted human groups to move from step 1 (achieving acceptance) to step 2 (achieving role differentiation). Furthermore, the increase in biotic potential linked to division of labor in food cultivation provides an example of how role differentiation enables social systems to function better and increase benefits.

Ultrasociality is associated with group-level benefits, but a potential downside, according to G&K, is the loss of individual autonomy. They argue that ultrasociality leads to increased interdependence and specialization in a narrowly defined role. This converges with our point that in the second step in our model, individual identification makes people more susceptible to control by the group (thus reducing autonomy to some degree). Role differentiation allows groups to easily identify contributions of each member and distribute punishments or rewards accordingly. Individual members who do not perform their role adequately may be sanctioned by the group to elicit cooperation.

G&K also argue that ultrasociality is what led humans and other social animals to dominate against competitors. Here again, we agree, and we think a key component of this process in humans was the development of differentiated selves. That is, the complex social systems associated with ultrasociality may have facilitated the development of increasingly well-defined selves, enabling groups to work together more efficiently (including on the battlefield, where group dominance has often been enacted).

Efforts to locate a specific brain area associated with the self have failed, suggesting that the self may be a social rather than physical reality. Humans learn to operate selves to fit roles within society. As G&K point out, the human brain can choose to adopt any of a variety of different roles. The specific role that is adopted likely depends on the needs of the group. These differentiated selves in turn enable the group-level benefits associated with ultrasociality.

In summary, we find much to admire in G&K’s analysis of the origins of ultrasociality. Their contribution enriches our own theorizing about how human selfhood may have developed to facilitate group success. The evolution of ultrasocial economic systems in humans, which greatly expanded population size, may have created the need for differentiated selves. Differentiated selves in turn facilitate improved group-level outcomes via system gain.

### “If it looks like a duck...” – why humans need to focus on different approaches than insects if we are to become efficiently and effectively ultrasocial

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**Abstract:** The parallels between the agricultural successes of ultrasocial insects and those of humans are interesting and potentially important. There are a number of important caveats, however, including the