

Consort Turnovers as Distributed Cognition in Olive Baboons: a systems approach to mind

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In a section on psychological components of tactics used by males in competition for mates, Smuts (1985: 153-154) provides the following anecdote from her field observations of olive baboons:

Early in the morning, Dante is in consort with Andromeda. Three older males, Alex, Sherlock, and Zim, are following and harassing Dante. Their movements are so perfectly synchronized that they take on an almost dance-like quality. Sherlock and Zim stand side by side facing Dante and, in unison, they rapidly and repeatedly threaten Dante with raised brows and then glance at Alex, 20 m away, soliciting his aid. Alex lopes over to them, places one arm around Sherlock's shoulder, and all three pant-grunt at Dante in an antiphonal chorus. In one smooth motion Zim lip-smacks, touches Alex's rear, looks at him, grunts at Sherlock, and then circles around to the other side of Dante. When he is opposite Alex and Sherlock, he resumes threatening Dante and, at precisely the same instant, they do the same. Alex embraces Sherlock and, together, they circle Dante and join Zim. All three stand in contact and swivel as a unit to face Dante, who avoids them. Dante appears increasingly tense. He repeatedly interposes his body between Andromeda and the other males and then herds her away by shoving her from behind. Each time he pushes her, Andromeda squeaks in protest. She too seems tense, glancing back and forth between Dante and the other three males. A few minutes later, a fifth male, Boz, appears on the hillside above the consort pair. Alex, Sherlock, and Zim immediately solicit Boz's aid against Dante. Boz runs towards them, and at the same time the other three once again move toward Dante. Dante and Andromeda break away from each other and run in opposite directions. Zim and Sherlock chase Dante while Boz and Alex run after Andromeda. Alex reaches her first, and she stops running and lets him copulate with her. A new consortship is formed (focal consorts sample, 2 July 1983).

The dynamics leading to a new consortship (referred to as a Consort TurnOver, or CTO, event), serve Smuts as the backdrop for a discussion of individual baboons as psychological beings motivated by sophisticated goals and emotions. The complex dance of activity is transformed into an argument about confidence, tension, frustration, and the ability (of a male baboon) to manipulate the emotion of others (Smuts 1985: 153-155). In this essay I will revisit such social dynamics and propose that alternative links between patterns of activity and their cognitive implications are possible, perhaps even necessary if we are to resolve current issues regarding the nature, development and evolution of cognition in primates. The general framework of *Distributed Cognition* (DCog) I present here was developed by Hutchins (1995) in a human setting. Later, in collaboration with Strum and Hutchins, I adapted this framework to the study of nonhuman primates (Forster et al. 1995; Strum et al. 1997; Strum and Forster 2001).

Research Questions and the Big Picture

Students of *animal behavior* are, most broadly, interested in constraints and underlying mechanisms that organize the behavioral patterns we observe. *Animal cognition* researchers are, more specifically, concerned with the role cognition plays in organizing and controlling behavior, with an understanding that not all behavior is necessarily cognitive and not all cognitive processes necessarily produce observable behavior. There is a more-or-less common grounding in cognitive science stating that the "stuff" of cognition is representational in nature, intimately related to the brain, and is (or should be) amenable to computational models (for a general review see Gardner 1983; alternatively, see Varela et al. 1991). The popular stance among cognitive scientists studying behavior is that cognition mediates between "experience" (a gloss, here, for "things" that happen to organisms) and behavior (certain kinds of activities that