CSRP 547

Eldan Goldenberg

September 2002

School of Cognitive & Computing Science !
"niver it# of Su e$!
%almer! &righton

eldango ' cog (u $(ac(u)

This paper considers the complex problem of why societies in many species, with special reference to chimpanzees and humans, are socially conservative, even when this prevents apparently adaptive behaviours from being adopted by social groups. Several theories are presented, with a focus on the benefits of social cohesion and social learning, and the likelihood that a heavily conservative society will reinforce such processes while also reducing individual experimentation. The difficulties of addressing such theories empirically are considered and some suggestions for further observations that would clarify matters are

There are various explanations of the possible adaptive benefits of social conservatism over unrestrained experimentation. These fall naturally into two groups: those that focus on costs of experimentation, and those that focus on the benefits of conservatism for other reasons.

2(*(Co t of e$perimentation

One possible drawback of unrestrained experimentation is the potential danger involved. This has been studied in detail for Norway rats, which face the problem of choosing what to eat in an environment that presents a range of foods, some of which are toxic. Experimental studies have shown that rats do not simply sample every available food, but share information with each other about what is safe to eat (Lore & Flanelly, 1977). Rats are relatively unlikely to try a novel food unless they

Another possible explanation of this social conservatism is that there is a specifically social cost to experimenting, or to the particular technique that is being looked for. Boesch (1996) also found that similar signs have different meanings in geographically separated chimp populations, such as leaf-clipping, which in some troops is used to initiate courtship, and in others is just a play behaviour. It is conceivable that the more efficient ant-dipping technique happens to resemble a gesture of defiance to the alpha male in the vernacular of a particular troop (Di Paolo, personal communication). Alpha males maintain their privileged status precisely by not allowing such defiance among the troop, so an action which is really super-efficient foraging but happens to look like a challenge will be responded to aggressively. This will probably not be dangerous to the chimp that discovers the new technique, as chimps are rather good at resolving intra-group conflicts without lethal fights (Aureli & de Waal, 2000), but it will probably stop the behaviour ttoctsT t

This difficult question may be partly answered with reference to yet another benefit of social learning over individual discovery. Further to the enhanced learning in a social setting, the actual process of learning from each other serves to bond a troop, while individuals wandering off and experiment would weaken bonds. This means that discouraging individual learning has the additional benefit of increasing group cohesiveness, which leads on to a final possible explanation of the curtailing of curiosity.

In almost all social animals there is some sort of

Andersson, M.; 1982; Female choice selects for extr