

**Comparative Developmental Evolutionary Psychology and Cognitive Ethology:
Contrasting but Compatible Research Programs**
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Comparative developmental evolutionary psychology is the name I have given to the kinds of studies my colleagues and I have done (Parker 1990; Parker and Gibson 1990; Parker et al. 1994; Byrne 1995; Russon et al. 1996; Parker et al. 1999). My work in this tradition has focused on the following questions: What are the patterns of similarities and differences in cognitive abilities among humans, apes, and monkeys? How, when, and in which species have these patterns evolved (Parker and Gibson 1977, 1979)?

In addition, I have focused on the similarities and differences in patterns of developmental extent and timing of these abilities among primate species (Parker 1977). In accord with their developmental focus, my comparative studies and those of my colleagues have used a variety of frameworks from developmental psychology including Piagetian and neo-piagetian stages to compare abilities across cognitive domains.

Also, in accord with their evolutionary focus, studies of this kind have used evolutionary methodologies. I have used cladistic methods to identify cognitive adaptations and to pinpoint their origins; I have used heterochronic concepts to reconstruct evolutionary changes in the extent and timing of cognitive development. These studies have revealed a pattern of terminal addition of new stages of cognitive development in ape and human ancestors as well as a pattern of accelerated rates of cognitive development in humans as compared to great apes (Parker 1996; Parker and McKinney 1999).

Beginning in the seventies and eighties of the twentieth century, comparative developmental evolutionary psychology has grown up coincidentally with but largely isolated from the development of a parallel tradition known as cognitive ethology. This paper compares and contrasts cognitive ethology (CE) and comparative developmental evolutionary psychology (CDEP) and suggests ways each of the two research programs could benefit from adopting elements of the other, and both programs could benefit from strengthening their ties with evolutionary biology. It also briefly contrasts both these programs with that of evolutionary psychology (EP).

Both cognitive ethology and comparative developmental evolutionary psychology are based in evolutionary biology, particularly on animal behavior. As such, both focus to varying degrees on Tinbergen's (1963) four kinds of problems in the study of animal behavior: proximate causation, ultimate causation or adaptive significance, phylogenetic history, and ontogeny, which in turn map onto various subfields of evolutionary biology including genetics, physiology, ecology, systematics, and phylogenetics. Table 1 summarizes these relationships.

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Both CE and CDEP reject behaviorism and embrace folk psychology to address animal mentalities (Jamieson and Bekoff 1996). Both therefore have had to respond to charges of anthropomorphism (Mitchell et al. 1997). They differ primarily in the psychological frameworks and methods they have adopted: whereas cognitive ethologists use frameworks from cognitive psychology, CDEP use frameworks from developmental psychology.

The origins of cognitive ethology have been traced to Donald Griffin's (1978) papers on animal awareness which explicitly turned the attention of ethologists and animal behaviorists to questions of animal minds and animal consciousness (Ristau 1991). It is fair to say that Griffin's work was grounded in concepts of species-specific animal learning (Hinde and Stevenson-Hinde 1973; Roitblat et al. 1984) that emerged out of the ethology-comparative psychology wars in the fifties and sixties.

Cognitive ethologists differ from both comparative psychologists and animal behaviorists/ classical ethologists in focusing on animal consciousness, awareness, and