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Letter to the editor

Fallacies of false attribution: the defense of BPA by Brooks, Dowling, van Veller, and Hoberg

To the Editor:

Brooks parsimony analysis (BPA) received some criticism from Siddall and Perkins (2003) in the context of Dowling's (2002) admittedly flawed (Dowling, 2003) examination of BPA's utility. In addition to conflating BPA with its derivative (secondary or SBPA), which was not evaluated either by Dowling (2002) or by Siddall and Perkins (2003), Brooks et al. (2004, p. 43) level the quite serious charge that Siddall and Perkins (2003) ''reinvented'' aspects of coevolutionary methodology ''without attribution''. Herein I revisit some false accusations made by Brooks et al. (2004) none of which had the benefit of page numbers.

Accusation 1: ''Duplicating hosts originally proposed by Brooks (1990) to remove inclusive ORing from BPA. Partially reinvented without attribution by Siddall and Perkins'' (Brooks et al., 2004, p. 43).

Refutation: Siddall and Perkins (2003) did not duplicate hosts, wholly or partially.

Refutation: In fact, Siddall and Perkins (2003, p. 555) did attribute the duplications in secondary BPA to Brooks (1990) indicating that the ''methodological and theoretical update had a slant toward biogeographic questions (Brooks, 1990) and introduced a duplication to accommodate homoplasy (secondary BPA) only for Type I BPA; it was not clear that this 'fix' could be applied to Type II BPA for comparison of two known topologies.''

Refutation: Contrary to the assertion that ''Duplicating hosts'' was ''originally proposed by Brooks (1990)'', Brooks (1990) duplicated areas and specifically held that one ''would not want to code 'host species' more than once.''

Refutation: Duplication did not remove inclusive ORing from the method. Brooks and McLennan (2003, p. 108), for example, employed inclusive ORing for each of Cercopithecines_1, Colobines and Homo_1 in *their* use of Secondary BPA.

Refutation: Duplication should probably be credited to Nelson and Platnick (1981; and see algorithms in Page, 1988).

Accusation 2: That ''Non-basal parasites in basal hosts: First discussed by Mitter and Brooks (1983) as a possible explanation for a major pattern of host distributions for phytophagous insects'' was ''Reinvented without attribution by Siddall and Perkins.'' (Brooks et al., 2004, p. 43).

Refutation: Siddall and Perkins (2003) did not consider the problem of ''occurrence of young parasites in old hosts'' that supposedly ''excited Siddall and Perkins so much'' (Brooks et al., 2004, p. 44). Moreover, the words ''basal'', ''young'', and ''old'', for example, do not appear in Siddall and Perkins (2003).

Refutation: The closest approximation to the claim is Siddall and Perkins (2003, p. 557) illustrating an example in which a parasite switched to an earlier diverging host. However, that host was not basal on the tree and the example was Dowling's (2002) whose ''reinvention without attribution'' was properly cited in the text and figure legend: ''Reanalyses of Dowling's (2002) Trials 1 and 8, which recode widespread parasites as monophyletic lineages.''

Accusation 3: ''Siddall and Perkins' dual assertion that BPA is deficient because it is not based on a model and because it is a likelihoodist exercise, is an example either of general confusion or of Orwellian rhetorical style.'' (Brooks et al., 2004, p. 43).

Refutation: Style aside, Siddall and Perkins (2003) did not consider this deficiency and the word ''likelihood'' does not appear in Siddall and Perkins (2003).

Refutation: The only mention of models by Siddall and Perkins (2003, p. 554, 556) were those of Dowling's (2002) own creation in which he ascribed some meaning to frequencies of estimation, yet ''For the frequencies of the ad hoc events to be meaningful in Dowling's (2002) study, the modeled histories would have to have been generated according to some stochastic protocol which they were not.''

Refutation: Likelihood has a well-defined mathematical protocol. Presumably a likelihoodist exercise would accurately multiply probabilities of some sort. In contrast, Siddall and Perkins (2003) suggest that BPA does

not have a well-defined mathematical protocol and that it has problems with simple addition, that is to say, it "fails to accurately count" (Siddall and Perkins, 2003, p. 563).

Accusation 4: That "later (Brooks, 1985) applied BPA to historical biogeography, following a suggestion by Arnold Kluge" whereas "Page (1994a) [Ed.: 1994 here] claimed to have originated the idea that phylogenetic methods of coevolution and historical biogeography were different aspects of a common analytical problem" and that "Siddall and Perkins also claimed this as an innovation of the maximum cospeciation model" (Brooks et al., 2004, p. 43).

Refutation: Page (1994) is cited exactly once in Siddall and Perkins (2003, p. 556) and then without mention of biogeography whatsoever.

Refutation: In fact, Siddall and Perkins (2003, p. 555) did attribute the biogeography connection for BPA to Brooks (1985): "The use of associate tree topology recoded as phylogenetic character information readily led itself to its being applied to biogeographical questions (Brooks, 1985)…"

Refutation: Examination of biogeography in the context of coevolving species assemblages probably dates at least to Croizat et al. (1974).

Accusation 5: "Host switches between sister taxa. Siddall and Perkins claimed that this is 'methodologically impossible for BPA to yield.' and then presented an example showing BPA yielding precisely that solution." (Brooks et al., 2004, p. 43)

Refutation: Siddall and Perkins (2003) presented no such example.

Ad hominem logical fallacies come in many forms and are intended, for example, to misrepresent deliberately, knowingly publish material or a purported statement of fact, or make reference to a source which has been concocted, all in a manner that will distract readers from one's own impotence in the face of devastating arguments. That Dowling's (2002) analysis of his own examples was grossly flawed had already been admitted (Dowling, 2003; not cited by Brooks et al., 2004). That BPA is a failure has now been admitted as well (Brooks et al. 2004, p. 41). Yet, rather than answer the criticisms that some historical events "are simply ignored" by primary BPA while another it might imply "defies clear explanation" (Siddall and Perkins, 2003, p. 560, 562), yielding unparsimonious, unintelligible conclusions, Brooks et al. (2004) concoct mendacities, attribute those to Siddall and Perkins without year or page numbers, and proceed to cast the fabrications as "mistakes", "misrepresentation", "ignorance and poor scholarship". For those who would employ the *ad hominem* approach it is probably best done with some wit, though remembering that tact is knowing how far to go too far (Cocteau, 1926). Whether or not anyone is guilty of "ignorance and poor scholarship" is left to the discerning reader.

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