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TRACKING TRENDS & PERFORMANCE IN BASIC RESEARCH

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2009 : December 2009 - Emerging Research Fronts : Mark Pagel on Phylogenetic Analysis and Comparative Data

EMERGING RESEARCH FRONTS - 2009

December 2009



Mark Pagel talks with *ScienceWatch.com* and answers a few questions about this month's Emerging Research Front Paper in the field of Computer Science.



Article: Phylogenetic analysis and comparative data: A test and review of evidence

Authors: Freckleton, RP;Harvey, PH;**Pagel, M**

Journal: AMER NATURALIST, 160 (6): 712-726 DEC 2002

Address: Univ Oxford, Dept Zool, S Parks Rd, Oxford OX1 3PS, England.

Univ Oxford, Dept Zool, Oxford OX1 3PS, England.

Univ Reading, Sch Anim & Microbial Sci, Reading RG6 6AJ, Berks, England.

SW: Why do you think your paper is highly cited?

The paper reports a statistic that everyone who uses phylogenies for comparative studies is interested to estimate. Comparative studies make comparisons between species on the value of some trait or traits.

SW: Does it describe a new discovery, methodology, or synthesis of knowledge?

The paper describes and evaluates a statistical method that I introduced in an earlier paper (Pagel, *Nature*, 1999). Together with Robert P. Freckleton, a Royal Society University Research Fellow and Professor of Population Biology, University of Sheffield, and Paul H. Harvey of the Department of Zoology, University of Oxford, we performed computer simulations of the statistic's performance. These simulations are useful for people who want to use the statistic because they show that it is effective in a wide range of circumstances.

SW: Would you summarize the significance of your paper in layman's terms?

The statistic, known as "lambda," calculates the strength of the association between the value of some trait that is measured on a species, such as its body size, and its position in the phylogenetic tree. We normally expect species that are closely related—near to each other on the tree—to be similar on their traits. Lambda measures the strength of that association, which is important to know when doing comparative studies.

SW: How did you become involved in this research and were any particular problems encountered along the way?

I have been working in this area for about 20 years.

SW: Where do you see your research leading in the future?


We are planning new methods for studying trait evolution on phylogenies.

Mark Pagel, Ph.D.
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[Web](#) | [Web](#) | [Web](#) | [BBC audio](#): Professor Mark Pagel discusses his research into the oldest words in the English language.

KEYWORDS: COMPUTER-SIMULATION TEST; CORRELATED EVOLUTION; INDEPENDENT CONTRASTS; HABITAT USE; BODY-SIZE; CONTINUOUS CHARACTERS; GEOGRAPHICAL RANGE; ANOLIS LIZARDS; CONSTRAINTS; ADAPTATION.

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[back to top](#) 

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