X: COR

Y: Sparring

Calculation: Pagel's 1994 test of correlated (discrete) character evolution

Testing: X depends on Y

For 6 parameter model (X's evolution is independent of Y):

q12 = 5.0627990989253355 q13 = 6659.940100955235 q21 = 3.7400314292680146 q31 = 19989.812216497015 q24 = 34254.147937686605 q34 = 5.0627990989253355 q42 = 7613.866744430874 q43 = 3.7400314292680146

RATEMATRIX

[-1952.3708226741785 1.1299971324017741 5856.032845822362 0.0 ]

[1.453507483935024 -10035.900264603682 0.0 2230.5428622167683 ]

[1950.9173151902435 0.0 -5857.486353306297 1.1299971324017741 ]

[0.0 10034.77026747128 1.453507483935024 -2231.6728593491703 ]

log Likelihood is -1.0E100

For eight parameter model :

q12 = 5.063293378409667

q13 = 6659.3504404093665

q21 = 3.7400314292680146

q31 = 19989.812216497015

q24 = 34254.147937686605

q34 = 5.0627990989253355

q42 = 7613.866744430874

q43 = 3.7400314292680146

log Likelihood is -1.0E100

Difference is 0.0

p-value from 1000 simulations is 0.88

Simulation set includes 33 sets with constant characters

Difference in log likelihoods = 0.0.**p-value = 0.88** (from 1000 simulations)

X: SpringStiffness

Y: Sparring

Calculation: Pagel's 1994 test of correlated (discrete) character evolution

Testing: X depends on Y

For 6 parameter model (X's evolution is independent of Y):

q12 = 4.874649880922725 q13 = 1.043578130838246E-4 q21 = 3.728372233951209 q31 = 92.40122062201829 q24 = 15.5141491875914 q34 = 4.874649880922725 q42 = 20.323978318771587 q43 = 3.728372233951209

RATEMATRIX

[-4.874754238735808 3.728372233951209 92.40122062201829 0.0 ]

[4.874649880922725 -19.24252142154261 0.0 20.323978318771587 ]

[1.043578130838246E-4 0.0 -97.27587050294102 3.728372233951209 ]

[0.0 15.5141491875914 4.874649880922725 -24.052350552722796 ]

log Likelihood is -13.386753420648455

For eight parameter model :

q12 = 5.874350465905755

q13 = 1.783838147638012E-4

q21 = 7.583526278233951

q31 = 120.97360946559084

q24 = 15.212083746386238

q34 = 0.06523064430882602

q42 = 23.90086788739855

q43 = 2.7465732305401874E-4

log Likelihood is -13.128167912368095

Difference is 0.2585855082803601

p-value from 1000 simulations is 0.33599999999999997

Simulation set includes 149 sets with constant characters

Difference in log likelihoods = 0.2585855082803601.**p-value = 0.33599999999999997** (from 1000 simulations