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Supplementary material

Dealing with propositions, not with the characters: the ability of three-taxon statement analysis to recognise groups based solely on 'reversals', under the maximum-likelihood criteria

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Table S1. Summary of the results of maximum-parsimony (MP) analyses of 18 binary matrices from Nelson and Platnick (1991)

Consistency Index (CI), Retention index (RI) (reviewed in Kitching *et al*. 1998)

Matrix	MP (PAUP*): topology, uniform weighting	Number of steps	CI	RI
1	(O(A(B(CD))))	9	0.667	0.5
	(O((AB)(CD)))	9	0.667	0.5
2	(O(A(B(CD))))	51[A]/18	0.705[A]/0.722	0.583[A]/0.615
3	(O(B(A(DC))))	9	0.667	0.5
	(O(A(B(DC))))	9	0.667	0.5
	(O((AB)(DC)))	9	0.667	0.5
4	(O(B(A(DC))))	19	0.737	0.643
5	(O(AE(B(CD))))	8	0.625	0.5
	(O(AE(C(BD))))	8	0.625	0.5
6	(O(E(A(C(BD)))))	24	0.75	0.667
	(O(E(A(B(CD)))))	24	0.75	0.667
	(O(A(E(C(BD)))))	24	0.75	0.667
	(O(A(E(B(CD)))))	24	0.75	0.667
8	(O((H(AB))(C(E(G(DF))))))	39	0.615	0.68
	(O((H(AB))(C(E(F(DG))))))	39	0.615	0.68
	(O((H(AB))(C(E(D(FG))))))	39	0.615	0.68
9	(O((H(AB))(C(E(G(DF))))))	385[B]	0.735	0.639
11	(O(A(D(CB))))	7	0.714	0.6
12	(O(D(A(BC))))	15	0.733	0.636
	(O(A(D(BC))))			
13	(O(A(D(BC))))	9	0.667	0.5
14	(O(D(A(BC))))	18	0.722	0.615
15	(O(A(B(C(D(E(FG)))))))	8	0.875	0.889
16	(O((E(FG))(A(B(CD)))))	26	0.923	0.916
17	(O(A(B(C(D(EF))))))	6	0.833	0.875
18	(O(A(B(C(D(EF))))))	50	0.88	0.863
	(O(A(B((CD)(EF)))))	50	0.88	0.863
19	(O((AF)((DE)(BC))))	22	0.636	0.467
20	(O((F(DE))(A(CB))))	84	0.761	0.687

[A]If weights of three-taxon statements (3TSs) assigned as proposed by Nelson and Platnick (1991).

[B]386 steps in Nelson and Platnick (1991, p. 358).

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Table S2. Summary of the results of maximum-likelihood (ML) analyses of the fractionally weighted three-taxon statement (3TS) representations of the selected matrices from Kluge (1994), Farris (1997), Farris and Kluge (1998) and Nelson and Platnick (1991)

Source of the 3TS representation	Most probable ML-3TS topology (PAUP*, Mk, FW)	–log likelihood	Number of 3TSs
Table 2 from Kluge (1994)	(X(A(B(C(D(E(FGH(I(JK)))))))) (X(A(B(C(D(E((FGH)(I(JK))))))))	412.23921	708
Table 3 from Kluge (1994)	(X(A(B(C(D(E(FG)))))))	98.27079	90
Matrix Z from Farris (1997)	(O((A(B(C(D(E(FG)))))))(H(I(J(K(L(MN))))))))	758.78826	810
Figure 5 from Farris and Kluge (1997)	(O(A(B(C(D(E(F(G(H(I(J(K(L(M(N(P(Q(R(S(T(U(V(W(X(YZ)))))))))))))))))))))))	5582.00337	17 720
Modified matrix 17 from Nelson and Platnick (1991)[A]	(O(A(B(C(D(EF)))))	42.60620	40

[A]Character four excluded (see also Fig. 1 in the main paper).

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