

ADDITIONAL FILE 4: V AND V+ SCORES FOR EXTENDED MAJORITY RULE HYMENOPTERA SUPERTREES

Superfamilies recovered by at least one analysis as monophyletic are colour-coded, as are relationships within. Green boxes indicate in which supertrees specific clades are recovered. V scores and supporting/conflicting input trees are for MRC trees unless relationship appears only in MRP tree. Because some input trees are upweighted the number of supporting/conflicting input trees exceeds 77 (the final input tree set). Permitting input trees not shown.

Clade	MRC All-inclusive	MRC Compartmentalised	Standard MRP	V	V+	Supporting Input Trees	Conflicting Input Trees
Hymenoptera				1	1	2376	0
Hymenoptera (excl. Xyelidae)				0.481	0.576	480	168
Hymenoptera (excl. Xyelidae, Tenthredinoidea)				0.111	0.111	640	512
Tenthredinoidea				0.556	0.694	616	176
Tenthredinoidea (excl. Xyelotomidae)				0.374	0.569	544	248
Tenthredinoidea (excl. Blasticotomidae)				0.418	0.604	556	228
Tenthredinoidea (excl. Xyelotomidae, Blasticotomidae)				0.562	0.729	556	156
Tenthredinoidea (excl. Xyelotomidae, Blasticotomidae, Electrotomidae)				0.461	0.667	520	192
Argidae + Electrotomidae + Pergidae + Pterygophoridae				0.871	0.929	520	36
Argidae + Pergidae + Pterygophoridae				0.871	0.929	520	36
Argidae + Pergidae				1	1	484	0
Argidae + Pterygophoridae				0	0.907	36	36
Cimbicidae + Diprionidae + Tenthredinidae				0.051	0.517	248	224
Cimbicidae + Diprionidae				-0.48	0.245	104	296
Cimbicidae + Tenthredinidae				-0.2	0.372	144	216
Hymenoptera (excl. Xyelidae, Tenthredinoidea, Megalodontoidea)				0.028	0.028	592	560
Megalodontoidea				0.303	0.361	516	276
Hymenoptera (excl. Xyelidae, Tenthredinoidea, Megalodontoidea, Cephoidea)				-0.176	-0.176	504	720
Cephoidea				1	1	72	0
Hymenoptera (excl. Xyelidae, Tenthredinoidea, Megalodontoidea, Cephoidea, Xipydriidae)				-0.847	-0.739	88	1064
Hymenoptera (excl. Xyelidae, Tenthredinoidea, Megalodontoidea, Cephoidea, Siricoidea)				-0.5	-0.412	288	864
Siricoidea				-0.27	0.316	184	320
Apocrita + Orussoidea				-0.733	-0.529	144	936
Apocrita (excl. Karatavitidae) + Orussoidea				-0.733	-0.529	144	936
Apocrita				-0.329	-0.292	376	744
Orussoidea				1	1	72	0
Apocrita (excl. Karatavitidae)				-0.329	-0.292	376	744
Apocrita (excl. Karatavitidae, Ephialtitidae)				-0.329	-0.292	376	744
Apocrita (excl. Karatavitidae, Ephialtitidae, Praeichneumonidae, Stolamissidae, Megalyridae, Eurytomidae)				-0.591	-0.487	328	1278

Praeichneumonidae + Stolamissidae + Megalyridae + Eurytomidae		0	1	0	0
Megalyridae + Eurytomidae		0	1	0	0
Apocrita (excl. Karatavitidae, Ephialtitidae, Praeichneumonidae, Stolamissidae, Megalyridae, Eurytomidae, Ceraphronoidea, Evanioidea)		-0.594	-0.565	344	1352
Trigonalidae + Ichneumonoidea + Platygasteridae + Scelionidae + Cynipoidea + Mymarommatoidea + Chalcidoid (excl. Eurytomidae) & Proctotrupoid Families		-0.602	-0.2	256	1032
Ichneumonoidea + Platygasteridae + Scelionidae + Cynipoidea + Mymarommatoidea + Chalcidoid (excl. Eurytomidae) & Proctotrupoid Families		-0.602	0.204	156	627
Platygasteridae + Scelionidae + Cynipoidea + Mymarommatoidea + Chalcidoid (excl. Eurytomidae) & Proctotrupoid Families		-0.248	0.589	177	294
Platygasteridae + Scelionidae + Cynipoidea + Pelecinidae + Roproniidae		-0.583	0.402	90	342
Platygasteridae + Scelionidae + Cynipoidea		-0.643	0.276	90	414
Platygasteridae + Scelionidae		1	1	243	0
Apocrita (excl. Karatavitidae, Ephialtitidae, Ceraphronoidea, Evanioidea)		-0.708	-0.672	216	1264
Praeichneumonidae + Ichneumonoidea + Platygasteridae + Scelionidae + Cynipoidea + Mymarommatidae + Chalcidoid & Proctotrupoid Families		-0.788	0.254	60	507
Ichneumonoidea + Platygasteridae + Scelionidae + Cynipoidea + Mymarommatidae + Chalcidoid & Proctotrupoid Families		-0.587	0.292	132	507
Platygasteridae + Scelionidae + Cynipoidea + Mymarommatidae + Chalcidoid & Proctotrupoid Families		-0.064	0.73	153	174
Platygasteridae + Scelionidae + Cynipoidea + Mymarommatidae + Diapriidae + Monomachidae + Chalcidoid Families		-1	0.371	0	405
Roproniidae + Pelecinidae + Heloridae + Proctotrupidae + Vanhorniidae		-0.632	-0.292	63	279
Mymarommatidae + Diapriidae + Monomachidae + Chalcidoid Families		-0.208	0.341	171	261
Mymarommatidae + Chalcidoid Families		1	1	360	0
Mymarommatidae + Chalcidoid Families (excl. Eurytomidae, Leucospidae, Chalcididae)		-0.156	0.35	171	234
Mymarommatidae + Chalcidoid Families (excl. Eurytomidae, Leucospidae, Chalcididae, Eulophidae, Perilampidae, Eucharitidae)		-0.052	0.408	192	213
Eulophidae + Perilampidae + Eucharitidae		0	0.6	72	72
Mymarommatidae + Praeichneumonidae + Stolamissidae + Cynipoid, Chalcidoid, Platygasteridae + Scelionidae & Proctotrupoid Families		-0.064	0.744	153	174
Roproniidae + Pelecinidae + Praeichneumonidae + Stolamissidae + Tanaostigmatidae + Platygasteridae + Scelionidae & Cynipoid Families		-0.5	0.556	90	270
Roproniidae + Pelecinidae		-0.234	-0.208	162	261
Praeichneumonidae + Stolamissidae + Tanaostigmatidae + Platygasteridae + Scelionidae + Cynipoid Families		-0.583	0.438	90	342
Praeichneumonidae + Stolamissidae + Tanaostigmatidae + Platygasteridae + Scelionidae		0.542	0.771	243	72
Praeichneumonidae + Stolamissidae		0	1	0	0
Tanaostigmatidae + Platygasteridae + Scelionidae		1	1	243	0
Scelionidae + Tanaostigmatidae		0	1	0	0
Cynipoidea		0.714	0.874	432	72
Cynipoidea (excl. Liopteridae)		0.667	0.874	360	72
Cynipoidea (excl. Archaeocynipidae)		0.714	0.874	432	72
Figitidae + Cynipidae + Ibaliidae		0.667	0.874	360	72
Cynipidae + Ibaliidae		0.316	0.795	225	117

Heloridae + Vanhorniidae + Proctotrupidae + Monomachidae + Diapriidae + Mymarommatidae + Chalcidoid Families (excl. Tanaostigmatidae)		-0.667	0.167	72	360
Heloridae + Vanhorniidae + Proctotrupidae		-0.292	-0.292	153	279
Vanhorniidae + Proctotrupidae		0.6	0.667	288	72
Monomachidae + Diapriidae + Mymarommatidae + Chalcidoid Families (excl. Tanaostigmatidae)		-0.322	0.229	171	333
Monomachidae + Diapriidae		0.179	0.319	207	144
Mymarommatidae + Chalcidoid Families (excl. Tanaostigmatidae)		0.667	0.833	360	72
Eucharitidae + Perilampidae + Tetracampidae + Elasmidae + Eulophidae		0	0.6	72	72
Eucharitidae + Perilampidae		1	1	72	0
Tetracampidae + Elasmidae + Eulophidae		1	1	72	0
Elasmidae + Eulophidae		1	1	72	0
Mymarommatidae + Chalcidoid Families (excl. Tanaostigmatidae, Eucharitidae, Perilampidae, Tetracampidae, Elasmidae, Eulophidae)		0.098	0.558	252	207
Mymarommatidae + Chalcidoid Families (excl. Tanaostigmatidae, Eucharitidae, Perilampidae, Tetracampidae, Elasmidae, Eulophidae, Pteromalidae)		-0.07	0.477	180	207
Eurytomidae + Chalcididae + Leucospidae		0.333	0.926	48	24
Chalcididae + Leucospidae		0.333	0.926	48	24
Mymarommatidae + Chalcidoid Families (excl. Tanaostigmatidae, Eucharitidae, Perilampidae, Tetracampidae, Elasmidae, Eulophidae, Pteromalidae, Eurytomidae, Chalcididae, Leucospidae)		-0.279	0.26	120	213
Heloridae + Proctotrupidae + Vanhorniidae + Monomachidae + Diapriidae + Mymarommatidae + Chalcidoid Families (excl. Eurytomidae)		-0.556	0.222	96	336
Monomachidae + Diapriidae + Mymarommatidae + Chalcidoid Families (excl. Eurytomidae)		-0.226	0.285	195	309
Mymarommatidae + Chalcidoid Families (excl. Eurytomidae)		0.778	0.889	384	48
Mymarommatidae + Chalcidoid Families (excl. Eurytomidae, Tanaostigmatidae)		0.524	0.744	384	120
Mymarommatidae + Chalcidoid Families (excl. Eurytomidae, Tanaostigmatidae, Leucospidae, Perilampidae, Eucharitidae, Tetracampidae, Elasmidae, Eulophidae, Pteromalidae)		-0.07	0.425	180	207
Leucospidae + Perilampidae + Eucharitidae + Tetracampidae + Elasmidae + Eulophidae + Pteromalidae		0	0.778	72	72
Perilampidae + Eucharitidae + Tetracampidae + Elasmidae + Eulophidae + Pteromalidae		0	0.75	72	72
Tetracampidae + Elasmidae + Eulophidae + Pteromalidae		1	1	72	0
Elasmidae + Eulophidae + Pteromalidae		1	1	72	0
Eulophidae + Pteromalidae		0	1	0	0
Eupelmidae + Encyrtidae		0.846	0.9	216	18
Mymarommatidae + Aphelinidae + Trichogrammatidae + Signiphoridae + Mymaridae + Agaonidae + Ormyridae + Eupelmidae + Encyrtidae		-0.28	0.26	120	213
Mymarommatidae + Aphelinidae + Trichogrammatidae + Signiphoridae + Mymaridae + Agaonidae + Ormyridae + Torymidae		-0.423	0.177	237	243
Mymarommatidae + Aphelinidae + Trichogrammatidae + Signiphoridae + Mymaridae + Agaonidae + Eupelmidae + Encyrtidae		-0.423	0.177	96	237
Mymarommatidae + Aphelinidae + Trichogrammatidae + Signiphoridae + Mymaridae + Agaonidae + Ormyridae		-0.667	0.583	24	120
Mymarommatidae + Aphelinidae + Trichogrammatidae + Signiphoridae + Mymaridae + Agaonidae		-0.6	0.667	24	96
Mymarommatidae + Aphelinidae + Trichogrammatidae + Signiphoridae + Mymaridae		0	0.75	72	72
Mymarommatidae + Aphelinidae + Trichogrammatidae + Mymaridae		-1	0.5	0	144
Mymarommatidae + Aphelinidae + Trichogrammatidae + Signiphoridae		-0.333	0.333	48	96
Mymarommatidae + Aphelinidae + Trichogrammatidae		0.333	0.833	48	24
Aphelinidae + Trichogrammatidae		1	1	48	0

Ichneumonoidea + Ceraphronoidea + Evanioidea + Stephanidae + Trigonalidae + Megalyridae + Aculeata		-0.6	-0.495	296	1184
Ichneumonoidea		0.571	0.75	396	108
Ceraphronoidea + Evanioidea + Stephanidae + Trigonalidae + Megalyridae + Aculeata		-0.669	-0.554	233	1175
Ceraphronoidea + Evanioidea		0.298	0.515	549	297
Ceraphronoidea		1	1	432	0
Megaspilidae + Ceraphronidae		1	1	432	0
Evanioidea		0.418	0.632	549	225
Evanioidea (excl. Gasteruptiidae)		1	1	72	0
Evaniidae + Cretevaniidae		1	1	72	0
Gasteruptiidae + Aulacidae		0	1	0	0
Stephanidae + Trigonalidae + Megalyridae + Aculeata		-0.642	-0.529	252	1156
Stephanidae + Trigonalidae + Megalyridae		-0.347	-0.031	360	742
Trigonalidae + Megalyridae		-0.31	0.311	261	496
Stephanidae + Aculeata		-0.594	-0.565		
Aculeata		0.038	0.342	486	450
Chrysoidea		0	0.333	216	216
Chrysoidea (excl. Plumariidae)		0	0.333	216	216
Chrysoidea (excl. Plumariidae, Scolebythidae)		-0.091	0.333	180	216
Bethylidae + Chrysididae		0.111	0.556	180	144
Dryinidae + Embolemidae + Sclerogibbidae		0	0	108	108
Dryinidae + Embolemidae		0.667	0.667	180	36
Apoidea + Vespoidea Families		-0.161	0.188	423	585
Apoidea + Vespoidea Families excl. Sierolomorphidae		-0.589	-0.113	207	801
Vespoidea		-0.628	0.125	144	630
Vespoidea excl. Sierolomorphidae		-0.795	0.125	72	630
Vespoidea excl. Sierolomorphidae, Pompillidae, Rhopalosomatidae		-0.795	0.125	72	630
Pompillidae + Rhopalosomatidae		0.25	0.5	180	108
Tiphiidae + Mutillidae + Sapygidae		0	0.6	144	144
Mutillidae + Sapygidae		0.333	0.714	144	72
Bradynobaenidae + Vespidae + Scolidae + Falsiformicidae + Formicidae		-0.527	0.475	117	378
Vespidae + Scolidae + Falsiformicidae + Formicidae		-0.527	0.475	117	378
Vespidae + Scolidae		0	0.789	144	144
Falsiformicidae + Formicidae		0	0.889	36	36
Vespoidea excl. Sierolomorphidae, Tiphiidae, Mutillidae, Sapygidae		-0.633	0.275	117	522
Vespoidea excl. Pompillidae, Rhopalosomatidae		-0.692	0.175	108	594
Sierolomorphidae + Formicidae + Falsiformicidae		-0.5	0.667	36	108
Bradynobaenidae + Vespidae + Scolidae + Tiphiidae + Mutillidae + Sapygidae		-0.619	0.363	108	459
Bradynobaenidae + Vespidae + Scolidae		-1	0.684	0	216
Apoidea		0.667	0.818	360	72
Anthophila + Sphecidae + Heterogynaeidae		0.467	0.692	396	144
Anthophila + Sphecidae		0.467	0.692	396	144
Anthophila		1	1	144	0
Anthophila (excl. Colletidae, Stenotritidae)		0.125	0.781	162	126
Colletidae + Stenotritidae		0.5	0.833	108	36
Anthophila (excl. Colletidae, Stenotritidae, Halictidae)		0.167	0.792	168	120
Anthophila (excl. Colletidae, Stenotritidae, Halictidae, Oxaeidae, Adrenidae)		0.556	0.917	168	48

Oxaeidae + Adrenidae		0.5	0.917	54	18
Melittidae + Megachilidae + Apidae + Anthophoridae		0.556	0.917	168	48
Megachilidae + Apidae + Anthophoridae		1	1	216	0
Apidae + Anthophoridae		0	1	0	0
Anthophoridae + Megachilidae		1	1	72	0
