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Application Meta

jModeltest 2.1

(c) 2011-onwards D. Darriba, G.L. Taboada, R. Doallo and D. Posada,
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Notice: This program may contain errors. Please inspect results carefully.

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Settings

Arguments =
Input Alignment: "C:\Users\neal\Dropbox\systematics_ZOOL6305_F2015\excercises\unit17_Likelihood\primates_alnMuscle.fas"
NumTaxa = 50
Length = 1,140
Phyml version = 3.0
Phyml binary = PhyML_3.0_win32.exe
Candidate models = 24
number of substitution schemes = 3
including models with equal/unequal base frequencies (+F)
including models with/without a proportion of invariable sites (+I)
including models with/without rate variation among sites (+G) (nCat = 4)
Optimized free parameters (K) = Substitution parameters + 97 branch lengths + topology
Base tree for likelihood calculations = Maximum Likelihood
Tree topology search operation = NNI

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Model Optimization Results

ID	Name	Partition	-lnL	p	fA	fC	fG	fT	ti/tv	R(a)	R(b)	R(c)	R(d)	R(e)	R(f)	p-inv	shape
1	JC	000000	29701.5940	98	-	-	-	-	-	-	-	-	-	-	-	-	-
2	JC+I	000000	27324.1055	99	-	-	-	-	-	-	-	-	-	-	-	0.3810	-
3	JC+G	000000	26724.0701	99	-	-	-	-	-	-	-	-	-	-	-	-	0.4230
4	JC+I+G	000000	26617.8006	100	-	-	-	-	-	-	-	-	-	-	-	0.3640	1.5560
5	F81	000000	28912.5502	101	0.1829	0.2421	0.1243	0.4508	-	-	-	-	-	-	-	-	-
6	F81+I	000000	26559.6863	102	0.1959	0.2708	0.1171	0.4162	-	-	-	-	-	-	-	0.3800	-
7	F81+G	000000	25828.7521	102	0.1614	0.3539	0.1061	0.3785	-	-	-	-	-	-	-	-	0.4200
8	F81+I+G	000000	25716.6603	103	0.1627	0.3478	0.1062	0.3833	-	-	-	-	-	-	-	0.3580	1.2920
9	K80	010010	27866.1832	99	-	-	-	-	2.7241	-	-	-	-	-	-	-	-

10	K80+I	010010	25428.8853	100	-	-	-	-	2.9637	-	-	-	-	-	-	0.3810	-
11	K80+G	010010	24746.8632	100	-	-	-	-	3.3253	-	-	-	-	-	-	-	0.4200
12	K80+I+G	010010	24629.0831	101	-	-	-	-	3.3616	-	-	-	-	-	-	0.3620	1.3120
13	HKY	010010	27275.4182	102	0.2493	0.2338	0.1208	0.3961	2.7267	-	-	-	-	-	-	-	-
14	HKY+I	010010	24761.8904	103	0.3009	0.2892	0.0989	0.3110	3.1763	-	-	-	-	-	-	0.3800	-
15	HKY+G	010010	23759.5885	103	0.3850	0.3577	0.0588	0.1986	8.6155	-	-	-	-	-	-	-	0.3030
16	HKY+I+G	010010	23631.6488	104	0.3786	0.3561	0.0618	0.2036	6.5929	-	-	-	-	-	-	0.3330	0.6110
17	SYM	012345	26985.9919	103	-	-	-	-	-	16.1407	20.9709	6.2923	2.0327	55.8224	1.0000	-	-
18	SYM+I	012345	24673.0049	104	-	-	-	-	-	8.8731	13.7681	3.9383	0.9521	38.2714	1.0000	0.3790	-
19	SYM+G	012345	24105.9981	104	-	-	-	-	-	5.5796	9.1707	3.0531	0.3653	31.5571	1.0000	-	0.4420
20	SYM+I+G	012345	23968.3895	105	-	-	-	-	-	5.4821	8.9978	3.0830	0.3695	32.0798	1.0000	0.3490	1.2320
21	GTR	012345	26672.7317	106	0.2086	0.1620	0.2095	0.4199	-	29.3988	32.1777	5.0331	3.5315	57.1915	1.0000	-	-
22	GTR+I	012345	24577.7810	107	0.2754	0.2415	0.1476	0.3355	-	6.8060	16.5978	2.1509	1.3270	23.7550	1.0000	0.3800	-
23	GTR+G	012345	23707.3214	107	0.4029	0.3581	0.0533	0.1857	-	0.0941	5.8750	0.2751	0.2889	5.4351	1.0000	-	0.2860
24	GTR+I+G	012345	23591.5404	108	0.3850	0.3641	0.0554	0.1956	-	0.1545	5.9127	0.3586	0.3210	4.9825	1.0000	0.3220	0.5400

There are 23 different topologies. The following table shows the models supporting each topology and the rank according to each Information Criterion, as well as Robinson-Foulds and Euclidean distances with the tree of the best-fit model.

ID	Models	Topology
0	HKY+I+G GTR+I+G	(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Nasalis_larvatus#U62663.1,Pygathrix_nemaeus#AF295582.1), (Trachypithecus_cristatus#AF295580.1,((Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1),(((Chlorocebus_aethiops#JX983730.1, (Macaca_mulatta#U38272.1,(Mandrillus_leucophaeus#JQ068157.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)))), ((((Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1),(Hylobates_agilis#AJ010583.1,Symphalangus_syndactylus#GU321282.1)), (Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),((Saguinus_cruzlimai#KP182174.1,((Cebus_albifrons#FJ529108 (((Aotus_azarai#DQ098863.1, (Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1)),Callicebus_lugens#AF524888.2),Saimiri_boliviensis#AJ315383.1)),Callithrix_geoffroyi (Tupaia_belangeri#EU531776,(((((Euoticus_elegantulus#AY441469.1,(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)), (Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1)),(Nycticebus_pygmaeus#AY441476.1,Loris_lydekkerianus#KP410597.1)), (Tarsius_wallacei#HM115970.1,Daubentonia_madagascariensis#AY441444.1)),(Phaner_furcifer#AY441456.1,(Lepilemur_aeeclis#DQ108999.1, (((Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1,(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),(Cheirogaleus_crossley (Microcebus_murinus#AF285557.1,(Mirza_coquereli#AY441462.1,Allocebus_trichotis#AY441461.1)))),(Propithecus_coquereli#HQ731531.1, (Indri_indri#AY441455.1,Avahi_cleesei#EF103295.1)))))))))))));
1	HKY+G	(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1), ((((Chlorocebus_aethiops#JX983730.1,((Mandrillus_leucophaeus#JQ068157.1, (Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)),Macaca_mulatta#U38272.1)), (((((Hylobates_agilis#AJ010583.1,Symphalangus_syndactylus#GU321282.1),Bunopithecus_hoolock#GU321286.1),Nomascus_leucogenys#GU321259.1), (Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),((Saguinus_cruzlimai#KP182174.1,(Callithrix_geoffroyi#HM368 (Cebus_albifrons#FJ529108.1,((Callicebus_lugens#AF524888.2, ((Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1),Aotus_azarai#DQ098863.1)),Saimiri_boliviensis#AJ315383.1)))),(Tupaia_belangeri#EU ((Phaner_furcifer#AY441456.1,(((Propithecus_coquereli#HQ731531.1,(Avahi_cleesei#EF103295.1,Indri_indri#AY441455.1)), ((((Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1),Eulemur_albifrons#KF708205.1),Varecia_variegata#AF081047.1),(Cheirogaleus_crossleyi (Microcebus_murinus#AF285557.1,(Mirza_coquereli#AY441462.1,Allocebus_trichotis#AY441461.1))))),Lepilemur_aeeclis#DQ108999.1)), ((Tarsius_wallacei#HM115970.1,Daubentonia_madagascariensis#AY441444.1),(((Euoticus_elegantulus#AY441469.1, (Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1)), (Nycticebus_pygmaeus#AY441476.1,Loris_lydekkerianus#KP410597.1))))))), (Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1)),Trachypithecus_cristatus#AF295580.1)));
2	GTR+G	(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1), (Trachypithecus_cristatus#AF295580.1,((Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1),(((Chlorocebus_aethiops#JX983730.1, (Macaca_mulatta#U38272.1,(Mandrillus_leucophaeus#JQ068157.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)))), (((((Symphalangus_syndactylus#GU321282.1,Hylobates_agilis#AJ010583.1),Bunopithecus_hoolock#GU321286.1),Nomascus_leucogenys#GU321259.1), (Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),((((Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM22270 (Aotus_azarai#DQ098863.1,(Callicebus_lugens#AF524888.2,(Cebus_albifrons#FJ529108.1,Saimiri_boliviensis#AJ315383.1)))), (Saguinus_cruzlimai#KP182174.1,Callithrix_geoffroyi#HM368005.1)),(Tupaia_belangeri#EU531776,((Phaner_furcifer#AY441456.1,(Lepilemur_aeeclis# ((Propithecus_coquereli#HQ731531.1,(Avahi_cleesei#EF103295.1,Indri_indri#AY441455.1)), ((((Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1),Eulemur_albifrons#KF708205.1),Varecia_variegata#AF081047.1),(Cheirogaleus_crossleyi (Microcebus_murinus#AF285557.1,(Allocebus_trichotis#AY441461.1,Mirza_coquereli#AY441462.1))))))), ((Daubentonia_madagascariensis#AY441444.1,Tarsius_wallacei#HM115970.1),(((Euoticus_elegantulus#AY441469.1, (Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1)), (Loris_lydekkerianus#KP410597.1,Nycticebus_pygmaeus#AY441476.1)))))))))));
3	SYM+I+G	(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Nasalis_larvatus#U62663.1,Pygathrix_nemaeus#AF295582.1), (Trachypithecus_cristatus#AF295580.1,((Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1),(((Chlorocebus_aethiops#JX983730.1, (Macaca_mulatta#U38272.1,(Mandrillus_leucophaeus#JQ068157.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)))), ((((Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1),(Hylobates_agilis#AJ010583.1,Symphalangus_syndactylus#GU321282.1)), (Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),(((Callithrix_geoffroyi#HM368005.1,Saguinus_cruzlimai#KP18 (((Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1),Callicebus_lugens#AF524888.2), ((Cebus_albifrons#FJ529108.1,Aotus_azarai#DQ098863.1),Saimiri_boliviensis#AJ315383.1))),(Tupaia_belangeri#EU531776,((Loris_lydekkerianus#KP41 ((Euoticus_elegantulus#AY441469.1,(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Nycticebus_pygmaeus#AY441476.1, (Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1))),((Tarsius_wallacei#HM115970.1,Daubentonia_madagascariensis#AY441444.1 (Phaner_furcifer#AY441456.1,(Lepilemur_aeeclis#DQ108999.1,((Propithecus_coquereli#HQ731531.1,(Indri_indri#AY441455.1,Avahi_cleesei#EF103295 ((Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1,(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),(Cheirogaleus_crossleyi (Microcebus_murinus#AF285557.1,(Mirza_coquereli#AY441462.1,Allocebus_trichotis#AY441461.1)))))))))))))));
		(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Nasalis_larvatus#U62663.1,Pygathrix_nemaeus#AF295582.1), (Trachypithecus_cristatus#AF295580.1,((Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1),(((Chlorocebus_aethiops#JX983730.1, (Macaca_mulatta#U38272.1,(Mandrillus_leucophaeus#JQ068157.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)))), (((((Symphalangus_syndactylus#GU321282.1,(Hylobates_agilis#AJ010583.1,(Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1))), (Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),(((Callithrix_geoffroyi#HM368005.1,Saguinus_cruzlimai#KP18

4	K80+I+G	((Callicebus_lugens#AF524888.2,(Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1)), ((Cebus_albifrons#FJ529108.1,Aotus_azarai#DQ098863.1),Saimiri_boliviensis#AJ315383.1))),(Tupaia_belangeri#EU531776,((Loris_lydekkerianus#KP41 ((Euoticus_elegantulus#AY441469.1,(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Nycticebus_pygmaeus#AY441476.1, (Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1)))),((Tarsius_wallacei#HM115970.1,Daubentonia_madagascariensis#AY441444.1 (Phaner_furcifer#AY441456.1,(Lepilemur_aeeclis#DQ108999.1,((Propithecus_coquereli#HQ731531.1,(Avahi_cleesei#EF103295.1,Indri_indri#AY441455 ((Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1,(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),(Cheirogaleus_crossleyi (Microcebus_murinus#AF285557.1,(Mirza_coquereli#AY441462.1,Allocebus_trichotis#AY441461.1))))))))))))))));
5	JC+G	(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1), (Trachypithecus_cristatus#AF295580.1,((Procolobus_badius#AF294625.1,Colobus_angolensis#AF295583.1),((Chlorocebus_aethiops#JX983730.1, (Macaca_mulatta#U38272.1,(Mandrillus_leucophaeus#JQ068157.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)))), (((Symphalangus_syndactylus#GU321282.1,(Hylobates_agilis#AJ010583.1,(Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1))), (Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),((((Ateles_geoffroyi#HM222708.1,Alouatta_belzebul#AY37435 ((Cebus_albifrons#FJ529108.1,Aotus_azarai#DQ098863.1),(Callicebus_lugens#AF524888.2,Saimiri_boliviensis#AJ315383.1))), (Saguinus_cruzlimai#KP182174.1,Callithrix_geoffroyi#HM368005.1)),((Tarsius_wallacei#HM115970.1,Daubentonia_madagascariensis#AY441444.1), ((((Euoticus_elegantulus#AY441469.1,(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)), (Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1)),(Loris_lydekkerianus#KP410597.1,Nycticebus_pygmaeus#AY441476.1)), (Tupaia_belangeri#EU531776,(Phaner_furcifer#AY441456.1,(Lepilemur_aeeclis#DQ108999.1,((Avahi_cleesei#EF103295.1, (Propithecus_coquereli#HQ731531.1,Indri_indri#AY441455.1)),((Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1, (Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),(Cheirogaleus_crossleyi#AY605927.1,(Mirza_coquereli#AY441462.1, (Allocebus_trichotis#AY441461.1,Microcebus_murinus#AF285557.1))))))))))))))));
6	JC+I+G	(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Nasalis_larvatus#U62663.1,Pygathrix_nemaeus#AF295582.1), (Trachypithecus_cristatus#AF295580.1,((Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1),((Chlorocebus_aethiops#JX983730.1, (Macaca_mulatta#U38272.1,(Mandrillus_leucophaeus#JQ068157.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)))), (((Symphalangus_syndactylus#GU321282.1,(Hylobates_agilis#AJ010583.1,(Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1))), (Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),(((Callithrix_geoffroyi#HM368005.1,Saguinus_cruzlimai#KP18 (Saimiri_boliviensis#AJ315383.1,((Cebus_albifrons#FJ529108.1,Aotus_azarai#DQ098863.1),(Callicebus_lugens#AF524888.2, (Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1))))),(Tupaia_belangeri#EU531776,((Phaner_furcifer#AY441456.1,(((Varecia_variegata#A (Eulemur_albifrons#KF708205.1,(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),(Cheirogaleus_crossleyi#AY605927.1,(Mirza_coquereli#A (Microcebus_murinus#AF285557.1,Allocebus_trichotis#AY441461.1)))),((Avahi_cleesei#EF103295.1, (Indri_indri#AY441455.1,Propithecus_coquereli#HQ731531.1)),Lepilemur_aeeclis#DQ108999.1))),((Loris_lydekkerianus#KP410597.1, ((Euoticus_elegantulus#AY441469.1,(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Nycticebus_pygmaeus#AY441476.1, (Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1)))),(Tarsius_wallacei#HM115970.1,Daubentonia_madagascariensis#AY441444.1)
7	K80+I	(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Trachypithecus_cristatus#AF295580.1, ((Procolobus_badius#AF294625.1,Colobus_angolensis#AF295583.1),((((((Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1),(Aotus_azarai# ((Saimiri_boliviensis#AJ315383.1,Cebus_albifrons#FJ529108.1),Callicebus_lugens#AF524888.2))),(Saguinus_cruzlimai#KP182174.1,Callithrix_geoffroyi (((Phaner_furcifer#AY441456.1,(Lepilemur_aeeclis#DQ108999.1,((Indri_indri#AY441455.1,(Propithecus_coquereli#HQ731531.1,Avahi_cleesei#EF1032 ((Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1,(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),((Microcebus_murinus# (Allocebus_trichotis#AY441461.1,Mirza_coquereli#AY441462.1)),Cheirogaleus_crossleyi#AY605927.1))))), (Daubentonia_madagascariensis#AY441444.1,Tarsius_wallacei#HM115970.1)),(Tupaia_belangeri#EU531776,(((Euoticus_elegantulus#AY441469.1, (Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Nycticebus_pygmaeus#AY441476.1, (Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1))),Loris_lydekkerianus#KP410597.1)))),((Pongo_pygmaeus#X97717.1, (Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1)),(Symphalangus_syndactylus#GU321282.1,(Hylobates_agilis#AJ010583.1, (Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1))))),((Macaca_mulatta#U38272.1,(Mandrillus_leucophaeus#JQ068157.1, (Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1))),Chlorocebus_aethiops#JX983730.1)))),(Pygathrix_nemaeus#AF295582.1,Nasalis_larva
8	SYM+I	(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((((((((Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1), (Symphalangus_syndactylus#GU321282.1,Hylobates_agilis#AJ010583.1)),(Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X ((((Callicebus_lugens#AF524888.2,(Cebus_albifrons#FJ529108.1,Saimiri_boliviensis#AJ315383.1)),(Aotus_azarai#DQ098863.1, (Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1))),(Saguinus_cruzlimai#KP182174.1,Callithrix_geoffroyi#HM368005.1)), ((Tarsius_wallacei#HM115970.1,Daubentonia_madagascariensis#AY441444.1),((Tupaia_belangeri#EU531776,(Loris_lydekkerianus#KP410597.1, ((Nycticebus_pygmaeus#AY441476.1,(Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1)),(Euoticus_elegantulus#AY441469.1, (Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1))))),((Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1, (Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),((Propithecus_coquereli#HQ731531.1,(Indri_indri#AY441455.1,Avahi_cleesei#EF103295. ((Cheirogaleus_crossleyi#AY605927.1,(Microcebus_murinus#AF285557.1,(Allocebus_trichotis#AY441461.1,Mirza_coquereli#AY441462.1))), (Lepilemur_aeeclis#DQ108999.1,Phaner_furcifer#AY441456.1)))))))),(((Mandrillus_leucophaeus#JQ068157.1, (Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)),Macaca_mulatta#U38272.1),Chlorocebus_aethiops#JX983730.1)), (Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1)),Trachypithecus_cristatus#AF295580.1), (Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1)));
9	JC+I	(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Trachypithecus_cristatus#AF295580.1, ((Procolobus_badius#AF294625.1,Colobus_angolensis#AF295583.1),(((Macaca_mulatta#U38272.1,(Mandrillus_leucophaeus#JQ068157.1, (Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1))),Chlorocebus_aethiops#JX983730.1),(((Symphalangus_syndactylus#GU321282.1, (Hylobates_agilis#AJ010583.1,(Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1))),(Pongo_pygmaeus#X97717.1, (Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),((((Aotus_azarai#DQ098863.1,(Saimiri_boliviensis#AJ315383.1, (Cebus_albifrons#FJ529108.1,Callicebus_lugens#AF524888.2))),(Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1)), (Saguinus_cruzlimai#KP182174.1,Callithrix_geoffroyi#HM368005.1)),(Tupaia_belangeri#EU531776,(((((Euoticus_elegantulus#AY441469.1, (Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Nycticebus_pygmaeus#AY441476.1, (Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1))),Loris_lydekkerianus#KP410597.1), ((Lepilemur_aeeclis#DQ108999.1,Phaner_furcifer#AY441456.1),(((Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1, (Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),((Allocebus_trichotis#AY441461.1, (Microcebus_murinus#AF285557.1,Mirza_coquereli#AY441462.1)),Cheirogaleus_crossleyi#AY605927.1)),(Avahi_cleesei#EF103295.1, (Propithecus_coquereli#HQ731531.1,Indri_indri#AY441455.1))))),(Daubentonia_madagascariensis#AY441444.1,Tarsius_wallacei#HM115970.1))))))), (Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1)));
10	K80+G	(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1), (Trachypithecus_cristatus#AF295580.1,((Procolobus_badius#AF294625.1,Colobus_angolensis#AF295583.1),(((Chlorocebus_aethiops#JX983730.1, ((Mandrillus_leucophaeus#JQ068157.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)),Macaca_mulatta#U38272.1)), (((Symphalangus_syndactylus#GU321282.1,(Hylobates_agilis#AJ010583.1,(Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1))), (Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),((((Aotus_azarai#DQ098863.1,(Callicebus_lugens#AF524888.2, (Saimiri_boliviensis#AJ315383.1,Cebus_albifrons#FJ529108.1))),(Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1)), (Saguinus_cruzlimai#KP182174.1,Callithrix_geoffroyi#HM368005.1)),(Tupaia_belangeri#EU531776,((((Varecia_variegata#AF081047.1,(Eulemur_albifro (Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),((Propithecus_coquereli#HQ731531.1,(Avahi_cleesei#EF103295.1,Indri_indri#AY441455. ((Cheirogaleus_crossleyi#AY605927.1,(Microcebus_murinus#AF285557.1,(Mirza_coquereli#AY441462.1,Allocebus_trichotis#AY441461.1))),

(Lepilemur_aeeclis#DQ108999.1,Phaner_furcifer#AY441456.1)))),(Daubentonia_madagascariensis#AY441444.1,Tarsius_wallacei#HM115970.1)),
(((Euoticus_elegantulus#AY441469.1,(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Nycticebus_pygmaeus#AY441476.1,
(Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1))),Loris_lydekkerianus#KP410597.1))))))))));

11 SYM+G

(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1),
(((Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1),((Chlorocebus_aethiops#JX983730.1,(Macaca_mulatta#U38272.1,
(Mandrillus_leucophaeus#JQ068157.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)))),
((((Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1),(Symphalangus_syndactylus#GU321282.1,Hylobates_agilis#AJ010583.1)),
(Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),((((Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM22270
(Aotus_azarai#DQ098863.1,(Callicebus_lugens#AF524888.2,(Saimiri_boliviensis#AJ315383.1,Cebus_albifrons#FJ529108.1)))),
(Saguinus_cruzlimai#KP182174.1,Callithrix_geoffroyi#HM368005.1)),(((Nycticebus_pygmaeus#AY441476.1,((Euoticus_elegantulus#AY441469.1,
(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1))),
(Loris_lydekkerianus#KP410597.1,Tupaia_belangeri#EU531776)),(Daubentonia_madagascariensis#AY441444.1,(Tarsius_wallacei#HM115970.1,
((((Cheirogaleus_crossleyi#AY605927.1,(Microcebus_murinus#AF285557.1,(Allocebus_trichotis#AY441461.1,Mirza_coquereli#AY441462.1))),
(Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1,(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1)))),
(Lepilemur_aeeclis#DQ108999.1,Phaner_furcifer#AY441456.1)),(Propithecus_coquereli#HQ731531.1,
(Indri_indri#AY441455.1,Avahi_cleesei#EF103295.1)))))))))),Trachypithecus_cristatus#AF295580.1)));

12 JC

(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1),
(Trachypithecus_cristatus#AF295580.1,((Procolobus_badius#AF294625.1,Colobus_angolensis#AF295583.1),((Chlorocebus_aethiops#JX983730.1,
(Macaca_mulatta#U38272.1,(Mandrillus_leucophaeus#JQ068157.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)))),
(((Symphalangus_syndactylus#GU321282.1,(Hylobates_agilis#AJ010583.1,(Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1))),
(Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),(((Saimiri_boliviensis#AJ315383.1,
((Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1),(Aotus_azarai#DQ098863.1,(Callicebus_lugens#AF524888.2,Cebus_albifrons#FJ52910
(Callithrix_geoffroyi#HM368005.1,Saguinus_cruzlimai#KP182174.1)),(((((Euoticus_elegantulus#AY441469.1,
(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Nycticebus_pygmaeus#AY441476.1,
(Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1))),Loris_lydekkerianus#KP410597.1),(Tupaia_belangeri#EU531776,
((Lepilemur_aeeclis#DQ108999.1,Phaner_furcifer#AY441456.1),((Avahi_cleesei#EF103295.1,(Propithecus_coquereli#HQ731531.1,Indri_indri#AY44145
((Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1,(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),(Cheirogaleus_crossleyi
(Allocebus_trichotis#AY441461.1,(Microcebus_murinus#AF285557.1,Mirza_coquereli#AY441462.1))))))),
(Daubentonia_madagascariensis#AY441444.1,Tarsius_wallacei#HM115970.1)))))));

13 F81

(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Nasalis_larvatus#U62663.1,Pygathrix_nemaeus#AF295582.1),
(Trachypithecus_cristatus#AF295580.1,((Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1),
(((Chlorocebus_aethiops#JX983730.1,Macaca_mulatta#U38272.1),(Mandrillus_leucophaeus#JQ068157.1,
(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1))),(((Symphalangus_syndactylus#GU321282.1,(Hylobates_agilis#AJ010583.1,
(Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1))),(Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#
(((Callithrix_geoffroyi#HM368005.1,Saguinus_cruzlimai#KP182174.1),((Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1),
((Callicebus_lugens#AF524888.2,Saimiri_boliviensis#AJ315383.1),(Aotus_azarai#DQ098863.1,Cebus_albifrons#FJ529108.1)))),
(Daubentonia_madagascariensis#AY441444.1,(((Euoticus_elegantulus#AY441469.1,(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),
((Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1),(Loris_lydekkerianus#KP410597.1,Nycticebus_pygmaeus#AY441476.1))),
((Tarsius_wallacei#HM115970.1,Tupaia_belangeri#EU531776),((Lepilemur_aeeclis#DQ108999.1,Phaner_furcifer#AY441456.1),((Propithecus_coquereli#
(Avahi_cleesei#EF103295.1,Indri_indri#AY441455.1)),((Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1,
(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),((Allocebus_trichotis#AY441461.1,Mirza_coquereli#AY441462.1),
(Microcebus_murinus#AF285557.1,Cheirogaleus_crossleyi#AY605927.1)))))))))))));

14 F81+I+G

(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Nasalis_larvatus#U62663.1,Pygathrix_nemaeus#AF295582.1),
(Trachypithecus_cristatus#AF295580.1,((Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1),(((Mandrillus_leucophaeus#JQ068157.1,
(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)),(Macaca_mulatta#U38272.1,Chlorocebus_aethiops#JX983730.1)),
((((Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1),(Hylobates_agilis#AJ010583.1,Symphalangus_syndactylus#GU321282.1)),
(Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),((((Callithrix_geoffroyi#HM368005.1,Saguinus_cruzlimai#KP18
(Saimiri_boliviensis#AJ315383.1,((Cebus_albifrons#FJ529108.1,Aotus_azarai#DQ098863.1),(Callicebus_lugens#AF524888.2,
(Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1))))),((Tarsius_wallacei#HM115970.1,Daubentonia_madagascariensis#AY441444.1),
((Loris_lydekkerianus#KP410597.1,(Nycticebus_pygmaeus#AY441476.1,(((Euoticus_elegantulus#AY441469.1,
(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1)))),(Tupaia_belan
(Phaner_furcifer#AY441456.1,(((Mirza_coquereli#AY441462.1,Allocebus_trichotis#AY441461.1),
(Microcebus_murinus#AF285557.1,Cheirogaleus_crossleyi#AY605927.1)),((Lepilemur_aeeclis#DQ108999.1,(Avahi_cleesei#EF103295.1,
(Indri_indri#AY441455.1,Propithecus_coquereli#HQ731531.1))),(Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1,
(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1)))))))))))));

15 HKY+I

(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Trachypithecus_cristatus#AF295580.1,
((Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1),(((Chlorocebus_aethiops#JX983730.1,((Mandrillus_leucophaeus#JQ068157.1,
(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)),Macaca_mulatta#U38272.1)),(((Symphalangus_syndactylus#GU321282.1,
(Hylobates_agilis#AJ010583.1,(Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1))),(Pongo_pygmaeus#X97717.1,
(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),(((Callithrix_geoffroyi#HM368005.1,Saguinus_cruzlimai#KP182174.1),
((Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1),(Aotus_azarai#DQ098863.1,(Callicebus_lugens#AF524888.2,
(Cebus_albifrons#FJ529108.1,Saimiri_boliviensis#AJ315383.1))))),((((((Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1,
(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),(Cheirogaleus_crossleyi#AY605927.1,(Microcebus_murinus#AF285557.1,
(Allocebus_trichotis#AY441461.1,Mirza_coquereli#AY441462.1)))),(Indri_indri#AY441455.1,(Avahi_cleesei#EF103295.1,Propithecus_coquereli#HQ731
(Phaner_furcifer#AY441456.1,Lepilemur_aeeclis#DQ108999.1)),(Daubentonia_madagascariensis#AY441444.1,
(Tupaia_belangeri#EU531776,Tarsius_wallacei#HM115970.1))),(Loris_lydekkerianus#KP410597.1,((Euoticus_elegantulus#AY441469.1,
(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Nycticebus_pygmaeus#AY441476.1,
(Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1)))))))))),(Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1)));

16 F81+G

(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1),
(((((Mandrillus_leucophaeus#JQ068157.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)),
(Chlorocebus_aethiops#JX983730.1,Macaca_mulatta#U38272.1)),((((Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1),
(Hylobates_agilis#AJ010583.1,Symphalangus_syndactylus#GU321282.1)),(Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X
(((Callithrix_geoffroyi#HM368005.1,Saguinus_cruzlimai#KP182174.1),((Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1),
((Saimiri_boliviensis#AJ315383.1,Callicebus_lugens#AF524888.2),(Aotus_azarai#DQ098863.1,Cebus_albifrons#FJ529108.1)))),(((Loris_lydekkerianus#K
((Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1),(Nycticebus_pygmaeus#AY441476.1,(Euoticus_elegantulus#AY441469.1,
(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1))))),(Tupaia_belangeri#EU531776,(Phaner_furcifer#AY441456.1,
(((Allocebus_trichotis#AY441461.1,Mirza_coquereli#AY441462.1),(Microcebus_murinus#AF285557.1,Cheirogaleus_crossleyi#AY605927.1)),
((Lepilemur_aeeclis#DQ108999.1,(Avahi_cleesei#EF103295.1,(Propithecus_coquereli#HQ731531.1,Indri_indri#AY441455.1))),
(((Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1),Eulemur_albifrons#KF708205.1),Varecia_variegata#AF081047.1))))))),

(Tarsius_wallacei#HM115970.1,Daubentonia_madagascariensis#AY441444.1))))),
(Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1)),Trachypithecus_cristatus#AF295580.1)));

17 SYM

(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1),
((((Chlorocebus_aethiops#JX983730.1,(Macaca_mulatta#U38272.1,(Mandrillus_leucophaeus#JQ068157.1,
(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)))),(((Symphalangus_syndactylus#GU321282.1,(Hylobates_agilis#AJ010583.1,
(Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1))),(Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#
((((Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1),(Aotus_azarai#DQ098863.1,(Callicebus_lugens#AF524888.2,
(Saimiri_boliviensis#AJ315383.1,Cebus_albifrons#FJ529108.1)))),(Saguinus_cruzlimai#KP182174.1,Callithrix_geoffroyi#HM368005.1)),
(((((Euoticus_elegantulus#AY441469.1,(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Nycticebus_pygmaeus#AY441476.1,
(Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1))),Loris_lydekkerianus#KP410597.1),(Tupaia_belangeri#EU531776,
((Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1,(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),((Propithecus_coquereli
(Indri_indri#AY441455.1,Avahi_cleesei#EF103295.1)),((Cheirogaleus_crossleyi#AY605927.1,(Mirza_coquereli#AY441462.1,
(Microcebus_murinus#AF285557.1,Allocebus_trichotis#AY441461.1))),(Lepilemur_aeeclis#DQ108999.1,Phaner_furcifer#AY441456.1))))))),
(Daubentonia_madagascariensis#AY441444.1,Tarsius_wallacei#HM115970.1)))))),
(Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1)),Trachypithecus_cristatus#AF295580.1)));

18 K80

(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1),
(Trachypithecus_cristatus#AF295580.1,((Procolobus_badius#AF294625.1,Colobus_angolensis#AF295583.1),((Chlorocebus_aethiops#JX983730.1,
(Macaca_mulatta#U38272.1,(Mandrillus_leucophaeus#JQ068157.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)))),
(((Symphalangus_syndactylus#GU321282.1,(Hylobates_agilis#AJ010583.1,(Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1))),
(Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),
((((((Saimiri_boliviensis#AJ315383.1,Cebus_albifrons#FJ529108.1),Callicebus_lugens#AF524888.2),Aotus_azarai#DQ098863.1),
(Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1)),(Callithrix_geoffroyi#HM368005.1,Saguinus_cruzlimai#KP182174.1)),
(((((Euoticus_elegantulus#AY441469.1,(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Nycticebus_pygmaeus#AY441476.1,
(Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1))),Loris_lydekkerianus#KP410597.1),(Tupaia_belangeri#EU531776,
((Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1,(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),((Indri_indri#AY44145
(Avahi_cleesei#EF103295.1,Propithecus_coquereli#HQ731531.1)),((Cheirogaleus_crossleyi#AY605927.1,(Mirza_coquereli#AY441462.1,
(Microcebus_murinus#AF285557.1,Allocebus_trichotis#AY441461.1))),(Lepilemur_aeeclis#DQ108999.1,Phaner_furcifer#AY441456.1))))))),
(Daubentonia_madagascariensis#AY441444.1,Tarsius_wallacei#HM115970.1)))))))));

19 HKY

(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1),
(Trachypithecus_cristatus#AF295580.1,((Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1),(((Chlorocebus_aethiops#JX983730.1,
((Macaca_mulatta#U38272.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)),Mandrillus_leucophaeus#JQ068157.1)),
(((Symphalangus_syndactylus#GU321282.1,(Hylobates_agilis#AJ010583.1,(Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1))),
(Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),(((Callithrix_geoffroyi#HM368005.1,Saguinus_cruzlimai#KP18
((Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1),(Aotus_azarai#DQ098863.1,(Callicebus_lugens#AF524888.2,
(Saimiri_boliviensis#AJ315383.1,Cebus_albifrons#FJ529108.1)))))),((Loris_lydekkerianus#KP410597.1,(((Euoticus_elegantulus#AY441469.1,
(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),(Nycticebus_pygmaeus#AY441476.1,
(Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1)))),
(((Tupaia_belangeri#EU531776,Tarsius_wallacei#HM115970.1),Daubentonia_madagascariensis#AY441444.1),
((Lepilemur_aeeclis#DQ108999.1,Phaner_furcifer#AY441456.1),((Indri_indri#AY441455.1,(Propithecus_coquereli#HQ731531.1,Avahi_cleesei#EF10329
((Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1,(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),(Cheirogaleus_crossleyi
(Allocebus_trichotis#AY441461.1,(Microcebus_murinus#AF285557.1,Mirza_coquereli#AY441462.1))))))))))))));

20 GTR

(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1),
(Trachypithecus_cristatus#AF295580.1,((Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1),(((Chlorocebus_aethiops#JX983730.1,
(Mandrillus_leucophaeus#JQ068157.1,(Macaca_mulatta#U38272.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)))),
(((Symphalangus_syndactylus#GU321282.1,(Hylobates_agilis#AJ010583.1,(Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1))),
(Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),(((Callithrix_geoffroyi#HM368005.1,Saguinus_cruzlimai#KP18
((Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1),(Aotus_azarai#DQ098863.1,(Callicebus_lugens#AF524888.2,
(Saimiri_boliviensis#AJ315383.1,Cebus_albifrons#FJ529108.1)))))),(((Tupaia_belangeri#EU531776,(((Propithecus_coquereli#HQ731531.1,
(Avahi_cleesei#EF103295.1,Indri_indri#AY441455.1)),
((((Microcebus_murinus#AF285557.1,Allocebus_trichotis#AY441461.1),Mirza_coquereli#AY441462.1),Cheirogaleus_crossleyi#AY605927.1),
(Lepilemur_aeeclis#DQ108999.1,Phaner_furcifer#AY441456.1))),(Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1,
(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))))),(((Euoticus_elegantulus#AY441469.1,(Galago_alleni#KP410660.1,Otolemur_garnettii#A
(Nycticebus_pygmaeus#AY441476.1,(Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1))),Loris_lydekkerianus#KP410597.1)),
(Daubentonia_madagascariensis#AY441444.1,Tarsius_wallacei#HM115970.1)))))))));

21 GTR+I

(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Trachypithecus_cristatus#AF295580.1,
((Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1),(((Chlorocebus_aethiops#JX983730.1,(Mandrillus_leucophaeus#JQ068157.1,
(Macaca_mulatta#U38272.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU885487.1)))),((((Hylobates_agilis#AJ010583.1,
(Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1)),Symphalangus_syndactylus#GU321282.1),(Pongo_pygmaeus#X97717.1,
(Homo_sapiens#HE647856.1,Pan_troglodytes#X93338.1))),(((Callithrix_geoffroyi#HM368005.1,Saguinus_cruzlimai#KP182174.1),
((Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1),(Aotus_azarai#DQ098863.1,(Callicebus_lugens#AF524888.2,
(Saimiri_boliviensis#AJ315383.1,Cebus_albifrons#FJ529108.1)))))),((((Euoticus_elegantulus#AY441469.1,(Galago_alleni#KP410660.1,Otolemur_garnettii
(Nycticebus_pygmaeus#AY441476.1,(Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1))),Loris_lydekkerianus#KP410597.1),
((Daubentonia_madagascariensis#AY441444.1,(Tupaia_belangeri#EU531776,Tarsius_wallacei#HM115970.1)),((Varecia_variegata#AF081047.1,
(Eulemur_albifrons#KF708205.1,(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),((Propithecus_coquereli#HQ731531.1,
(Indri_indri#AY441455.1,Avahi_cleesei#EF103295.1)),((Cheirogaleus_crossleyi#AY605927.1,(Microcebus_murinus#AF285557.1,
(Allocebus_trichotis#AY441461.1,Mirza_coquereli#AY441462.1))),(Lepilemur_aeeclis#DQ108999.1,Phaner_furcifer#AY441456.1)))))))))),
(Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1)));

22 F81+I

(Presbytis_entellus#AF012470.1,Semnopithecus_entellus#AF293952.1,((Trachypithecus_cristatus#AF295580.1,
((Colobus_angolensis#AF295583.1,Procolobus_badius#AF294625.1),(((Macaca_mulatta#U38272.1,(Papio_anubis#EU885420.1,Theropithecus_gelada#EU
(Chlorocebus_aethiops#JX983730.1,Mandrillus_leucophaeus#JQ068157.1)),(((Symphalangus_syndactylus#GU321282.1,(Hylobates_agilis#AJ010583.1,
(Nomascus_leucogenys#GU321259.1,Bunopithecus_hoolock#GU321286.1))),(Pongo_pygmaeus#X97717.1,(Homo_sapiens#HE647856.1,Pan_troglodytes#
((((Alouatta_belzebul#AY374353.2,Ateles_geoffroyi#HM222708.1),((Aotus_azarai#DQ098863.1,Cebus_albifrons#FJ529108.1),
(Callicebus_lugens#AF524888.2,Saimiri_boliviensis#AJ315383.1))),(Callithrix_geoffroyi#HM368005.1,Saguinus_cruzlimai#KP182174.1)),
(((Loris_lydekkerianus#KP410597.1,((Euoticus_elegantulus#AY441469.1,(Galago_alleni#KP410660.1,Otolemur_garnettii#AF271412.1)),
(Nycticebus_pygmaeus#AY441476.1,(Arctocebus_calabarensis#AY441474.1,Perodicticus_potto#AF271413.1)))),(Tupaia_belangeri#EU531776,
((Varecia_variegata#AF081047.1,(Eulemur_albifrons#KF708205.1,(Hapalemur_aureus#AY441446.1,Lemur_catta#AF175955.1))),((Avahi_cleesei#EF103
(Indri_indri#AY441455.1,Propithecus_coquereli#HQ731531.1)),((Phaner_furcifer#AY441456.1,Lepilemur_aeeclis#DQ108999.1),(Cheirogaleus_crossleyi#
(Allocebus_trichotis#AY441461.1,(Microcebus_murinus#AF285557.1,Mirza_coquereli#AY441462.1))))))),
(Daubentonia_madagascariensis#AY441444.1,Tarsius_wallacei#HM115970.1)))))))),(Pygathrix_nemaeus#AF295582.1,Nasalis_larvatus#U62663.1)));

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BIC Selection Results

Model selected

Model	GTR+I+G		
partition	012345		
-lnL	23591.5404		
K	108		
freqA	0.3850	**R(a)**	0.1545
freqC	0.3641	**R(b)**	5.9127
freqG	0.0554	**R(c)**	0.3586
freqT	0.1956	**R(d)**	0.3210
ti/tv	-	**R(e)**	4.9825
		R(f)	1.0000
p-inv	0.3220	**gamma**	0.5400

Best model tree

(Presbytis_entellus#AF012470.1:0.06259126,Semnopithecus_entellus#AF293952.1:0.05440711,
((Nasalis_larvatus#U62663.1:0.16288139,Pygathrix_nemaeus#AF295582.1:0.20399461):0.03882536,(Trachypithecus_cristatus#AF295580.1:0.14816039,
((Colobus_angolensis#AF295583.1:0.26761582,Procolobus_badius#AF294625.1:0.11874754):0.08215063,((Chlorocebus_aethiops#JX983730.1:0.17720716,
(Macaca_mulatta#U38272.1:0.16408460,(Mandrillus_leucophaeus#JQ068157.1:0.19373674,
(Papio_anubis#EU885420.1:0.08839738,Theropithecus_gelada#EU885487.1:0.09784138):0.12213101):0.03056199):0.03693878):0.08604623,
((((Nomascus_leucogenys#GU321259.1:0.12722394,Bunopithecus_hoolock#GU321286.1:0.09071252):0.01924322,
(Hylobates_agilis#AJ010583.1:0.11450054,Symphalangus_syndactylus#GU321282.1:0.09282038):0.01112462):0.16575818,(Pongo_pygmaeus#X97717.1:0.24585739,
(Homo_sapiens#HE647856.1:0.12687534,Pan_troglodytes#X93338.1:0.09282809):0.09423032):0.08054880):0.13100418,
((Saguinus_cruzlimai#KP182174.1:0.19048101,((Cebus_albifrons#FJ529108.1:0.30171991,
((((Alouatta_belzebul#AY374353.2:0.11592996,Ateles_geoffroyi#HM222708.1:0.15865330):0.06051672,Aotus_azarai#DQ098863.1:0.16351682):0.02197902,Callicebus
(Tupaia_belangeri#EU531776:0.66150886,(((((Euoticus_elegantulus#AY441469.1:0.19364181,
(Galago_alleni#KP410660.1:0.10374808,Otolemur_garnettii#AF271412.1:0.13625089):0.04491903):0.19642462,
(Arctocebus_calabarensis#AY441474.1:0.28610171,Perodicticus_potto#AF271413.1:0.23424532):0.18018508):0.03826723,
(Nycticebus_pygmaeus#AY441476.1:0.27830987,Loris_lydekkerianus#KP410597.1:0.40760368):0.06776867):0.19344196,
(Tarsius_wallacei#HM115970.1:0.54898072,Daubentonia_madagascariensis#AY441444.1:0.46333238):0.02132865):0.03659986,
(Phaner_furcifer#AY441456.1:0.36613865,(Lepilemur_aeeclis#DQ108999.1:0.44392131,(((Varecia_variegata#AF081047.1:0.28559870,
(Eulemur_albifrons#KF708205.1:0.14974587,
(Hapalemur_aureus#AY441446.1:0.13038223,Lemur_catta#AF175955.1:0.06584360):0.04668329):0.04102297):0.10479913,
(Cheirogaleus_crossleyi#AY605927.1:0.16542831,(Microcebus_murinus#AF285557.1:0.27964609,
(Mirza_coquereli#AY441462.1:0.24955854,Allocebus_trichotis#AY441461.1:0.24533426):0.03496676):0.05514707):0.09889368):0.03408534,
(Propithecus_coquereli#HQ731531.1:0.12603339,
(Indri_indri#AY441455.1:0.22332837,Avahi_cleesei#EF103295.1:0.22967187):0.02772178):0.09028994):0.01600928):0.06893931):0.17516758):0.11333185):0.2329271

Display best model tree in PhyloWidget

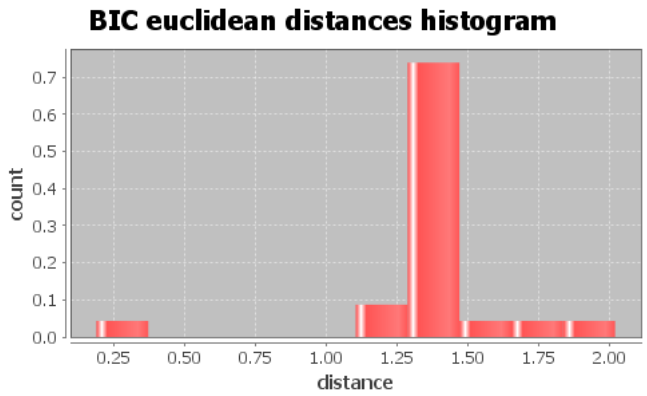
Model	-lnL	K	BIC	delta	weight	cumWeight
GTR+I+G	23591.5404	108	47943.2695	0.0000	1.0000	1.0000
HKY+I+G	23631.6488	104	47995.3311	52.0617	0.0000	1.0000
GTR+G	23707.3214	107	48167.7926	224.5232	0.0000	1.0000
HKY+G	23759.5885	103	48244.1717	300.9022	0.0000	1.0000
SYM+I+G	23968.3895	105	48675.8513	732.5818	0.0000	1.0000
SYM+G	24105.9981	104	48944.0296	1000.7602	0.0000	1.0000
GTR+I	24577.7810	107	49908.7118	1965.4423	0.0000	1.0000
K80+I+G	24629.0831	101	49969.0833	2025.8138	0.0000	1.0000
SYM+I	24673.0049	104	50078.0433	2134.7738	0.0000	1.0000
K80+G	24746.8632	100	50197.6048	2254.3354	0.0000	1.0000
HKY+I	24761.8904	103	50248.7755	2305.5061	0.0000	1.0000
K80+I	25428.8853	100	51561.6489	3618.3794	0.0000	1.0000
F81+I+G	25716.6603	103	52158.3152	4215.0458	0.0000	1.0000
F81+G	25828.7521	102	52375.4600	4432.1906	0.0000	1.0000
F81+I	26559.6863	102	53837.3286	5894.0591	0.0000	1.0000
JC+I+G	26617.8006	100	53939.4796	5996.2102	0.0000	1.0000
GTR	26672.7317	106	54091.5745	6148.3050	0.0000	1.0000
JC+G	26724.0701	99	54144.9798	6201.7103	0.0000	1.0000
SYM	26985.9919	103	54696.9785	6753.7090	0.0000	1.0000
HKY	27275.4182	102	55268.7924	7325.5229	0.0000	1.0000
JC+I	27324.1055	99	55345.0507	7401.7812	0.0000	1.0000
K80	27866.1832	99	56429.2059	8485.9364	0.0000	1.0000
F81	28912.5502	101	58536.0175	10592.7480	0.0000	1.0000
JC	29701.5940	98	60092.9887	12149.7193	0.0000	1.0000

-lnL: negative log likelihod
K: number of estimated parameters

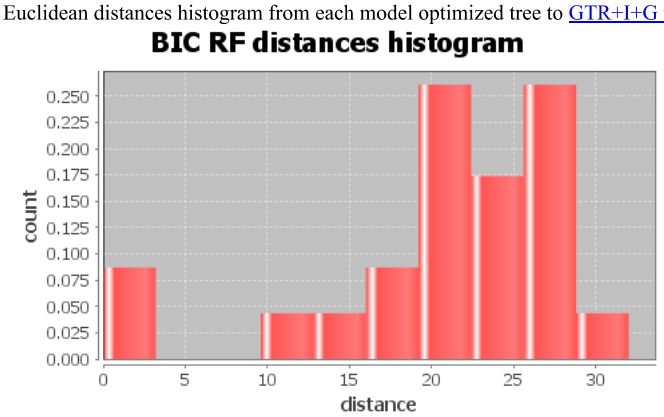
BIC:	Bayesian Information Criterion
delta:	BIC difference
weight:	BIC weight
cumWeight:	cumulative BIC weight

Confidence interval

There are 24 models in the 100.00% confidence interval:
GTR+I+G HKY+I+G GTR+G HKY+G SYM+I+G SYM+G GTR+I K80+I+G SYM+I K80+G HKY+I K80+I F81+I+G F81+G F81+I JC+I+G GTR JC+G SYM HKY JC+I K80 F81 JC



Euclidean distances histogram from each model optimized tree to GTR+I+G tree.



Robinson-Foulds distances histogram from the different topologies to GTR+I+G topology.

PAUP block

```
--
PAUP* Commands Block:
If you want to load the selected model and associated estimates in PAUP*,
attach the next block of commands after the data in your PAUP file:

[!
Likelihood settings from best-fit model (GTR+I+G) selected by BIC
with jModeltest 2.1.7 v20150530 on Tue Nov 10 15:54:09 CST 2015]

BEGIN PAUP;
Lset base=(0.3850 0.3641 0.0554 ) nst=6 rmat=(0.1545 5.9127 0.3586 0.3210 4.9825) rates=gamma shape=0.5400 ncat=0 pinvar=0.3220;
END;
--
```

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jModelTest 2.1. D.Darriba, G.L.Taboada, R.Doallo and D.Posada

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