

Morrone & Escalante (2002) Geodis output for nesting level 4

Differentiating population structure from history - Geodis 2.3 beta
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Input file: C:\Documents and Settings\Anthony
Deo\Desktop\geo_in_transfer\geodis_in_level4_final
Endemic Areas Mexico

Wed Mar 16 11:05:31 EST 2005

PERMUTATION ANALYSIS OF 4-1 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 454.3033

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.0000

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
4-1	21.7368	101.9477
3-1	20.6762	101.5485
3-2	23.3477	102.5540

CLADE 3-1 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	328.6840	0.0000	1.0000
NESTED CLADE	348.5092	0.0000	1.0000

CLADE 3-2 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	446.9706	1.0000	0.0000
NESTED CLADE	477.6645	1.0000	0.0000

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 4-2 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 245.5740

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.9490

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
4-2	19.1930	98.0754
3-3	19.0685	97.8166
3-4	19.6250	98.9734

CLADE 3-3 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	341.3803	0.0380	0.9620
NESTED CLADE	342.8492	0.0290	0.9710

CLADE 3-4 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	499.2081	0.7790	0.2210
NESTED CLADE	545.9006	0.9980	0.0020

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 4-3
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 862.0610

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.9770

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
4-3	19.5272	98.0409
3-8	19.2528	98.0860
3-9	19.5678	97.0480
3-10	19.8754	99.1876

CLADE 3-8 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	344.0206	0.2120	0.7880
NESTED CLADE	348.8206	0.3200	0.6800

CLADE 3-9 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
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WITHIN CLADE	318.8078	0.0030	0.9970
NESTED CLADE	329.6567	0.0400	0.9600

CLADE 3-10 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	373.7873	0.8730	0.1270
NESTED CLADE	400.1457	0.9990	0.0010

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 4-4
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 309.5093

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.9780

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
4-4	21.2363	100.7631
3-11	20.6808	100.5408
3-12	21.9169	101.0356

CLADE 3-11 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	339.6290	0.0940	0.9060
NESTED CLADE	348.0882	0.4120	0.5880

CLADE 3-12 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	352.8598	0.6720	0.3280
NESTED CLADE	351.2723	0.5940	0.4060

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 4-5
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 682.4543

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.1000

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
4-5	18.8205	93.7692
3-5	23.0761	100.3599
3-6	17.3163	91.4604
3-7	23.0502	100.0965

CLADE 3-5 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	656.0464	0.1180	0.8820
NESTED CLADE	947.7122	0.9220	0.0780

CLADE 3-6 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	670.2983	0.0440	0.9560
NESTED CLADE	663.7353	0.0290	0.9710

CLADE 3-7 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	1255.9112	0.9560	0.0440
NESTED CLADE	1680.9846	0.9990	0.0010

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 4-6
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 196.7197

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.0610

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
4-6	19.7009	93.2985
3-18	19.3448	93.6524
3-19	19.9405	93.0603

CLADE 3-18 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
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WITHIN CLADE	311.6235	0.0130	0.9870
NESTED CLADE	321.9021	0.0310	0.9690

CLADE 3-19 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	406.4680	0.9290	0.0710
NESTED CLADE	404.9700	0.9010	0.0990

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 4-7
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 206.8701

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
 OR EQUAL TO THE OBSERVED CHI-SQUARE = 1.0000

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
4-7	18.8726	93.3311
3-20	19.4009	93.0082
3-21	18.7869	93.3834

CLADE 3-20 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	310.7977	0.0550	0.9450
NESTED CLADE	312.5715	0.0550	0.9450

CLADE 3-21 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	371.5870	0.8200	0.1800
NESTED CLADE	372.6618	0.8660	0.1340

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 4-8
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 294.0243

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 1.0000

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
4-8	18.2975	93.7118
3-13	19.0447	94.9359
3-14	18.1329	93.4421

CLADE 3-13 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	335.5036	0.0040	0.9960
NESTED CLADE	379.6003	0.0590	0.9410

CLADE 3-14 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	471.2671	0.8110	0.1890
NESTED CLADE	468.7675	0.8170	0.1830

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 4-9
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 300.1062

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.5900

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
4-9	21.9732	99.2507
3-15	21.5506	98.7768
3-16	23.2431	100.6747

CLADE 3-15 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	346.7464	0.2570	0.7430
NESTED CLADE	352.2321	0.4040	0.5960

CLADE 3-16 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	325.7120	0.1280	0.8720

NESTED CLADE 366.8020 0.6340 0.3660

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 4-10
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 470.0703

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.2810

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
4-10	27.1556	109.1045
3-22	28.0973	110.5108
3-23	26.4993	108.7877
3-36	27.9667	109.1437

CLADE 3-22 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	498.0839	0.3090	0.6910
NESTED CLADE	536.6989	0.4170	0.5830

CLADE 3-23 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	626.9777	1.0000	0.0000
NESTED CLADE	625.8221	1.0000	0.0000

CLADE 3-36 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	399.8694	0.0000	1.0000
NESTED CLADE	415.3299	0.0000	1.0000

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 4-11
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 390.2387

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.0030

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
4-11	28.5256	112.0794
3-24	27.9896	110.9184
3-25	25.6922	109.8028
3-35	29.6476	113.2079

CLADE 3-24 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	396.5110	0.0730	0.9270
NESTED CLADE	369.7699	0.0000	1.0000

CLADE 3-25 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	433.9652	0.4920	0.5080
NESTED CLADE	500.7256	1.0000	0.0000

CLADE 3-35 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	369.1618	0.0000	1.0000
NESTED CLADE	435.8387	0.4800	0.5200

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 4-12
BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 1058.1192

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.0000

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
4-12	25.9064	104.6328
3-26	25.6989	102.5361
3-27	25.4331	103.3833
3-33	25.9286	104.9647
3-34	26.7381	106.9521

CLADE 3-26 (Interior)				
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=	
WITHIN CLADE	292.3453	0.0390	0.9610	
NESTED CLADE	363.6019	0.3090	0.6910	
CLADE 3-27 (Interior)				
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=	
WITHIN CLADE	317.7408	0.0000	1.0000	
NESTED CLADE	336.2546	0.0000	1.0000	
CLADE 3-33 (Interior)				
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=	
WITHIN CLADE	292.0064	0.0000	1.0000	
NESTED CLADE	295.2548	0.0000	1.0000	
CLADE 3-34 (Interior)				
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=	
WITHIN CLADE	707.8488	1.0000	0.0000	
NESTED CLADE	713.0419	1.0000	0.0000	

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 4-13
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 482.2762

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
 OR EQUAL TO THE OBSERVED CHI-SQUARE = 1.0000

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
4-13	24.4270	102.7258
3-28	23.5372	102.5615
3-29	24.0445	103.5025
3-31	24.8787	102.5148

CLADE 3-28 (Interior)				
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=	
WITHIN CLADE	316.5200	0.4630	0.5370	
NESTED CLADE	326.2095	0.6630	0.3370	

CLADE 3-29 (Interior)				
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=	
WITHIN CLADE	341.4916	0.9300	0.0700	
NESTED CLADE	356.3323	0.9870	0.0130	

CLADE 3-31 (Interior)				
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=	
WITHIN CLADE	296.7544	0.0080	0.9920	
NESTED CLADE	304.3259	0.0640	0.9360	

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 4-14
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 218.8809

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN
 OR EQUAL TO THE OBSERVED CHI-SQUARE = 0.8970

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE	
4-14	26.1154	106.3995	
3-37	27.5707	107.6057	
3-38	25.4684	105.8633	

CLADE 3-37 (Interior)				
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=	
WITHIN CLADE	409.8533	0.0300	0.9700	
NESTED CLADE	458.0443	0.5370	0.4630	

CLADE 3-38 (Interior)				
TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=	
WITHIN CLADE	453.7980	0.4430	0.5570	
NESTED CLADE	454.4572	0.4560	0.5440	

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

PERMUTATION ANALYSIS OF 4-15
 BASED ON 1000 RESAMPLES

PART I. PERMUTATIONAL CONTINGENCY TEST:

OBSERVED CHI-SQUARE STATISTIC = 221.7067

THE PROBABILITY OF A RANDOM CHI-SQUARE BEING GREATER THAN

OR EQUAL TO THE OBSERVED CHI-SQUARE = 1.0000

PART II. GEOGRAPHIC DISTANCE ANALYSIS:

GEOGRAPHICAL CENTERS	LATITUDE	LONGITUDE
4-15	23.0681	102.7801
3-29	24.0445	103.5025
3-30	22.7441	102.5404

CLADE 3-29 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	341.4916	0.4830	0.5170
NESTED CLADE	360.7222	0.8670	0.1330

CLADE 3-30 (Interior)

TYPE OF DISTANCE	DISTANCE	PROB.<=	PROB.>=
WITHIN CLADE	335.6697	0.1960	0.8040
NESTED CLADE	336.5437	0.2140	0.7860

NO INTERIOR/TIP CLADES EXIST IN THIS GROUP

** ANALYSIS FINISHED **
It took 324.9530 seconds.