Online Appendix II. Complete VARPART results for the four configurations. Pure and Entire fractions have been tested for significance. Letters correspond to fractions in Fig. 6.

Skull - Dorsal View

Varpart(Y = Shape, X = HI, Phyl, CS orig)

Explanatory tables:
X1: **HI**
X2: **Phyl**
X3: **CS orig**

No. of explanatory tables: 3
Total variation (SS): 1.1493
Variance: 0.0082686
No. of observations: **140**

Partition table:

	Df	R.square	Adj.R.square	Testable	
[a+d+f+g] = X1	1	0.20783	0.20209	TRUE	
[b+d+e+g] = X2	9	0.69996	0.67918	TRUE	
[c+e+f+g] = X3	1	0.12533	0.11899	TRUE	
[a+b+d+e+f+g] = X1+X2	10	0.71785	0.69598	TRUE	
[a+c+d+e+f+g] = X1+X3	2	0.27028	0.25963	TRUE	
[b+c+d+e+f+g] = X2+X3	10	0.70165	0.67852	TRUE	
[a+b+c+d+e+f+g] = All	11	0.71810	0.69387	TRUE	
Individual fractions					
[a] = X1 | X2+X3	1		0.01534	TRUE	
[b] = X2 | X1+X3	9		0.43424	TRUE	
[c] = X3 | X1+X2	1		-0.00211	TRUE	
[d]	0		0.1253	FALSE	
[e]	0		0.05965	FALSE	
[f]	0		0.00145	FALSE	
[g]	0		0.06000	FALSE	
[h]=Residuals			0.30613	FALSE	
Controlling 1 table X					
[a+d] = X1 | X3	1		0.14064	TRUE	
[a+f] = X1 | X2	1		0.01679	TRUE	
[b+d] = X2 | X3	9		0.55954	TRUE	
[b+e] = X2 | X1	9		0.49389	TRUE	
[c+e] = X3 | X1	1		0.05754	TRUE	
[c+f] = X3 | X2	1		-0.00066	TRUE	

Model: rda(X = Shape, Y = CS orig)

	Df	Var	F	N.Perm	Pr(>F)
Model	1	0.001036	19.773	9999	1.00E-04
Residual	138	0.007232			

Model: rda(X = Shape, Y = HI)

	Df	Var	F	N.Perm	Pr(>F)
Model	1	0.001718	32.206	9999	1.00E-04
Residual	138	0.006550			

Model: rda(X = Shape, Y = Phyl)

	Df	Var	F	N.Perm	Pr(>F)
Model	9	0.005788	33.697	9999	1.00E-04
Residual	130	0.002481			

Model: rda(X = Shape, Y = HI, Z = cbind(Phyl, CS orig))

	Df	Var	F	N.Perm	Pr(>F)
Model	1	0.0001360	7.466	9999	1.00E-04
Residual	128	0.0023309			
Model: rda(X = Shape, Y = Phyl, Z = cbind(HI, CS orig))					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	9	0.003703	22.593	9999	1.00E-04
Residual	128	0.002331			
Model: rda(X = Shape, Y = CS orig, Z = cbind(HI, Phyl))					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	1	2.021E-06	0.111	9999	1
Residual	128	2.331E-03			

Skull - Lateral View

Varpart(Y = Shape, X = HI, Phyl, CS orig)

Explanatory tables:
X1: **HI**
X2: **Phyl**
X3: **CS orig**

No. of explanatory tables: 3
Total variation (SS): 1.8722
Variance: 0.010698
No. of observations: **176**

Partition table:

	Df	R.square	Adj.R.square	Testable
[a+d+f+g] = X1	1	0.22650	0.22205	TRUE
[b+d+e+g] = X2	9	0.77216	0.75981	TRUE
[c+e+f+g] = X3	1	0.12739	0.12238	TRUE
[a+b+d+e+f+g] = X1+X2	10	0.78877	0.77597	TRUE
[a+c+d+e+f+g] = X1+X3	2	0.27368	0.26528	TRUE
[b+c+d+e+f+g] = X2+X3	10	0.77693	0.76341	TRUE
[a+b+c+d+e+f+g] = All	11	0.79095	0.77693	TRUE
Individual fractions				
[a] = X1 | X2+X3	1		0.01352	TRUE
[b] = X2 | X1+X3	9		0.51165	TRUE
[c] = X3 | X1+X2	1		0.00096	TRUE
[d]	0		0.12938	FALSE
[e]	0		0.04227	FALSE
[f]	0		0.00264	FALSE
[g]	0		0.07651	FALSE
[h]=Residuals			0.22307	FALSE
Controlling 1 table X				
[a+d] = X1 | X3	1		0.14290	TRUE
[a+f] = X1 | X2	1		0.01616	TRUE
[b+d] = X2 | X3	9		0.64103	TRUE
[b+e] = X2 | X1	9		0.55392	TRUE
[c+e] = X3 | X1	1		0.04323	TRUE
[c+f] = X3 | X2	1		0.00360	TRUE
Model: rda(X = Shape, Y = CS orig)				
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**

Model	1	0.001363	25.402	9999	1.00E-04
Residual	174	0.009335			
Model: rda(X = Shape, Y = HI)					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	1	0.002423	50.951	9999	1.00E-04
Residual	174	0.008275			
Model: rda(X = Shape, Y = Phyl)					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	8	0.008240	69.966	9999	1.00E-04
Residual	167	0.002458			
Model: rda(X = Shape, Y = HI, Z = cbind(Phyl, CS orig))					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	0	0	0	0.0000000	
Residual	99	0.0023864			
Model: rda(X = Shape, Y = Phyl, Z = cbind(HI, CS orig))					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	8	0.005513	50.372	9999	1.00E-04
Residual	165	0.002257			
Model: rda(X = Shape, Y = CS orig, Z = cbind(Phyl, HI))					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	0	0.0000000	0	0.0000000	
Residual	99	0.0022597			

Mandible

Varpart(Y = Shape, X = HI, Phyl, CS orig)

Explanatory tables:
X1: **HI**
X2: **Phyl**
X3: **CS orig**

No. of explanatory tables: 3
Total variation (SS): 1.1440
Variance: 0.0065003
No. of observations: **177**

Partition table:				
	Df	**R.square**	**Adj.R.square**	**Testable**
[a+d+f+g] = X1	1	0.25528	0.25102	TRUE
[b+d+e+g] = X2	9	0.52453	0.49891	TRUE
[c+e+f+g] = X3	1	0.14992	0.14506	TRUE
[a+b+d+e+f+g] = X1+X2	10	0.59981	0.57570	TRUE
[a+c+d+e+f+g] = X1+X3	2	0.30417	0.29617	TRUE
[b+c+d+e+f+g] = X2+X3	10	0.54751	0.52025	TRUE
[a+b+c+d+e+f+g] = All	11	0.60017	0.57351	TRUE
Individual fractions				
[a] = X1 | X2+X3	1		0.05326	TRUE
[b] = X2 | X1+X3	9		0.27734	TRUE
[c] = X3 | X1+X2	1		-0.00219	TRUE
[d]	0		0.09786	FALSE
[e]	0		0.04734	FALSE

[f]	0		0.02353	FALSE	
[g]	0		0.07637	FALSE	
[h]=Residuals			0.42649	FALSE	
Controlling 1 table X					
[a+d] = X1 | X3	1		0.15112	TRUE	
[a+f] = X1 | X2	1		0.07679	TRUE	
[b+d] = X2 | X3	9		0.37519	TRUE	
[b+e] = X2 | X1	9		0.32468	TRUE	
[c+e] = X3 | X1	1		0.04515	TRUE	
[c+f] = X3 | X2	1		0.02134	TRUE	
Model: rda(X = Shape, Y = CS orig)					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	1	0.0009745	30.862	9999	1.00E-04
Residual	175	0.0055257			
Model: rda(X = Shape, Y = HI)					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	1	0.001659	59.987	9999	1.00E-04
Residual	175	0.004841			
Model: rda(X = Shape, Y = Phyl)					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	8	0.003382	22.777	9999	1.00E-04
Residual	168	0.003118			
Model: rda(X = Shape, Y = HI, Z = cbind(Phyl, CS orig))					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	0	0.00000000	0	0.00000000	
Residual	69	0.0029412			
Model: rda(X = Shape, Y = Phyl, Z = cbind(HI, CS orig))					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	8	0.001848	14.339	9999	1.00E-04
Residual	166	0.002675			
Model: rda(X = Shape, Y = CS orig, Z = cbind(HI, Phyl))					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	0	0.00000000	0	0.00000000	
Residual	69	0.0026013			

Upper tooth row

Varpart(Y = Shape, X = HI, Phyl, CS orig)

Explanatory tables:
X1: **HI**
X2: **Phyl**
X3: **CS orig**

No. of explanatory tables: 3
Total variation (SS): 0.36500
Variance: 0.0036139
No. of observations: **102**

Partition table:					
	Df	**R.square**	**Adj.R.square**	**Testable**	

[a+d+f+g] = X1	1	0.15923	0.15082	TRUE	
[b+d+e+g] = X2	9	0.41982	0.36307	TRUE	
[c+e+f+g] = X3	1	0.03523	0.02558	TRUE	
[a+b+d+e+f+g] = X1+X2	10	0.47973	0.42255	TRUE	
[a+c+d+e+f+g] = X1+X3	2	0.18656	0.17013	TRUE	
[b+c+d+e+f+g] = X2+X3	10	0.43106	0.36854	TRUE	
[a+b+c+d+e+f+g] = All	11	0.48216	0.41887	TRUE	
Individual fractions					
[a] = X1 | X2+X3	1		0.05033	TRUE	
[b] = X2 | X1+X3	9		0.24874	TRUE	
[c] = X3 | X1+X2	1		-0.00368	TRUE	
[d]	0		0.09422	FALSE	
[e]	0		0.02299	FALSE	
[f]	0		0.00916	FALSE	
[g]	0		-0.00289	FALSE	
[h]=Residuals			0.58113	FALSE	
Controlling 1 table X					
[a+d] = X1 | X3	1		0.14455	TRUE	
[a+f] = X1 | X2	1		0.05949	TRUE	
[b+d] = X2 | X3	9		0.34296	TRUE	
[b+e] = X2 | X1	9		0.27173	TRUE	
[c+e] = X3 | X1	1		0.01931	TRUE	
[c+f] = X3 | X2	1		0.00548	TRUE	
Model: rda(X = Shape, Y = CS orig)					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	1	0.0001273	3.6513	9999	0.0051
Residual	100	0.0034866			
Model: rda(X = Shape, Y = HI)					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	1	0.0005754	18.938	9999	1.00E-04
Residual	100	0.0030385			
Model: rda(X = Shape, Y = Phyl)					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	9	0.001517	7.3969	9999	1.00E-04
Residual	92	0.002097			
Model: rda(X = Shape, Y = HI, Z = cbind(Phyl, CS orig))					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	1	0.0001847	8.8805	9999	1.00E-04
Residual	90	0.0018714			
Model: rda(X = Shape, Y = Phyl, Z = cbind(HI, CS orig))					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	9	0.001068	5.7084	9999	1.00E-04
Residual	90	0.001871			
Model: rda(X = Shape, Y = CS orig, Z = cbind(HI, Phyl))					
	Df	**Var**	**F**	**N.Perm**	**Pr(>F)**
Model	1	8.769 E-06	0.423	9999	0.9488
Residual	90	1.871E-04			