

# Statistical Analysis Of Inversion Marker Frequencies

S.Steindl

2023-07-24

## TYPE 3 ANOVA

### All Inversions - Global

Table: In.3R.Payne

	LR Chisq	Df	Pr(>Chisq)
lat	6.771312	1	0.0092635
long	6.791804	1	0.0091577
continent	11.930059	5	0.0357588
lat:long	2.459512	1	0.1168151
lat:continent	10.107846	5	0.0722365
long:continent	13.806014	5	0.0168897
lat:long:continent	12.235225	5	0.0317030

Table: In.2L.t

	LR Chisq	Df	Pr(>Chisq)
lat	3.1138701	1	0.0776283
long	3.3185224	1	0.0685034
continent	34.4506478	5	0.0000019
lat:long	0.4155189	1	0.5191815
lat:continent	42.1654357	5	0.0000001
long:continent	10.3150641	5	0.0667847
lat:long:continent	11.1736697	5	0.0480433

Table: In.2R.Ns

	LR Chisq	Df	Pr(>Chisq)
lat	0.2804168	1	0.5964281
long	0.1403613	1	0.7079221
continent	12.0933847	5	0.0335304
lat:long	0.0084000	1	0.9269748
lat:continent	14.8932083	5	0.0108285

long:continent	16.6252385	5	0.0052682
lat:long:continent	17.3932130	5	0.0038114

Table: In.3R.C

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	0.0102974	1	0.9191725
long	0.0164612	1	0.8979107
continent	21.3799493	5	0.0006865
lat:long	0.1353973	1	0.7129002
lat:continent	20.8438528	5	0.0008670
long:continent	26.7844580	5	0.0000628
lat:long:continent	28.9820197	5	0.0000234

Table: In.3R.K

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	31.916615	1	0.0000000
long	18.432659	1	0.0000176
continent	29.426154	5	0.0000191
lat:long	11.647294	1	0.0006430
lat:continent	33.189548	5	0.0000035
long:continent	6.428226	5	0.2667509
lat:long:continent	9.220548	5	0.1005841

Table: In.3R.Mo

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	-0.0000002	1	1.0000000
long	0.0000001	1	0.9998063
continent	1.8332723	5	0.8717003
lat:long	0.0000010	1	0.9991967
lat:continent	2.7665108	5	0.7359286
long:continent	2.6152480	5	0.7590472
lat:long:continent	2.5483653	5	0.7691942

Table: In.3L.P

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	1.7982776	1	0.1799209
long	0.2384190	1	0.6253504
continent	44.7111203	5	0.0000000
lat:long	0.2293871	1	0.6319787
lat:continent	36.0846087	5	0.0000009
long:continent	14.5056191	5	0.0126974
lat:long:continent	14.7870438	5	0.0113121

# All Inversions Per Continent

## 1) Europe

Table: In.3R.Payne

	LR Chisq	Df	Pr(>Chisq)
lat	75.968613	1	0.0000000
long	5.426770	1	0.0198303
lat:long	4.962911	1	0.0258966

Table: In.2L.t

	LR Chisq	Df	Pr(>Chisq)
lat	21.53212	1	3.5e-06
long	34.01082	1	0.0e+00
lat:long	35.76151	1	0.0e+00

Table: In.2R.Ns

	LR Chisq	Df	Pr(>Chisq)
lat	0.4991029	1	0.4798946
long	7.8106444	1	0.0051939
lat:long	3.3506806	1	0.0671772

Table: In.3R.C

	LR Chisq	Df	Pr(>Chisq)
lat	42.334944	1	0.0000000
long	7.386054	1	0.0065732
lat:long	6.995001	1	0.0081738

Table: In.3R.K

	LR Chisq	Df	Pr(>Chisq)
lat	0.1133971	1	0.7363092
long	0.9755962	1	0.3232885
lat:long	1.3212551	1	0.2503669

Table: In.3R.Mo

	LR Chisq	Df	Pr(>Chisq)

lat	2.410077	1	0.1205565
long	2.797739	1	0.0943974
lat:long	2.339673	1	0.1261160

Table: In.3L.P

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	79.27926	1	0.0e+00
long	22.08933	1	2.6e-06
lat:long	27.83794	1	1.0e-07

## 2) North America

Table: In.3R.Payne

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	9.5796504	1	0.0019675
long	0.8716904	1	0.3504877
lat:long	0.6488347	1	0.4205296

Table: In.2L.t

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	30.65516	1	0e+00
long	27.07815	1	2e-07
lat:long	36.38592	1	0e+00

Table: In.2R.Ns

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	4.788003	1	0.0286586
long	3.758893	1	0.0525273
lat:long	4.545785	1	0.0329999

Table: In.3R.C

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	7.796615	1	0.0052344
long	12.372582	1	0.0004357
lat:long	11.967338	1	0.0005414

Table: In.3R.K

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	13.20924	1	0.0002786
long	20.87250	1	0.0000049
lat:long	22.09307	1	0.0000026

Table: In.3R.Mo

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	2.4033296	1	0.1210773
long	0.0001124	1	0.9915416
lat:long	0.1302504	1	0.7181726

Table: In.3L.P

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	0.3830169	1	0.5359931
long	2.5253838	1	0.1120275
lat:long	2.4527916	1	0.1173161

### 3) South America

Table: In.3R.Payne

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	0.1737554	1	0.6767956
long	0.1069614	1	0.7436305
lat:long	0.4325697	1	0.5107307

Table: In.2L.t

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	2.019303	1	0.1553104
long	3.322005	1	0.0683584
lat:long	1.956183	1	0.1619222

Table: In.2R.Ns

	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	10.131713	1	0.0014574
long	7.769325	1	0.0053141
lat:long	9.700203	1	0.0018425

Table: In.3R.C

	LR Chisq	Df	Pr(>Chisq)
lat	10.448066	1	0.0012278
long	6.855401	1	0.0088374
lat:long	10.457005	1	0.0012219

Table: In.3R.K

	LR Chisq	Df	Pr(>Chisq)
lat	0.4779233	1	0.4893645
long	0.1203293	1	0.7286776
lat:long	0.4970019	1	0.4808204

Table: In.3R.Mo

	LR Chisq	Df	Pr(>Chisq)
lat	0	1	0.9999971
long	0	1	0.9999939
lat:long	0	1	0.9999973

Table: In.3L.P

	LR Chisq	Df	Pr(>Chisq)
lat	0.0547291	1	0.8150297
long	0.0093818	1	0.9228378
lat:long	0.1021096	1	0.7493126

#### 4) Oceania

Table: In.3R.Payne

	LR Chisq	Df	Pr(>Chisq)
lat	4.195063	1	0.0405418
long	3.036977	1	0.0813874
lat:long	3.846069	1	0.0498627

Table: In.2L.t

	LR Chisq	Df	Pr(>Chisq)

lat	0.6071007	1	0.4358816
long	0.4488650	1	0.5028744
lat:long	0.5235280	1	0.4693406

Table: In.2R.Ns

	LR Chisq	Df	Pr(>Chisq)
lat	0.0504742	1	0.8222401
long	0.0649511	1	0.7988350
lat:long	0.0561488	1	0.8126899

Table: In.3R.C

	LR Chisq	Df	Pr(>Chisq)
lat	0.0007174	1	0.9786324
long	0.0057112	1	0.9397593
lat:long	0.0003912	1	0.9842202

Table: In.3R.K

	LR Chisq	Df	Pr(>Chisq)
lat	0.1072573	1	0.7432885
long	0.1471790	1	0.7012459
lat:long	0.1149368	1	0.7345922

Table: In.3R.Mo

	LR Chisq	Df	Pr(>Chisq)
lat	0.8696352	1	0.3510563
long	1.0421496	1	0.3073221
lat:long	0.8827725	1	0.3474434

Table: In.3L.P

	LR Chisq	Df	Pr(>Chisq)
lat	13.62182	1	0.0002236
long	14.27847	1	0.0001577
lat:long	13.46112	1	0.0002436

## 5) Africa

Table: In.3R.Payne

	LR Chisq	Df	Pr(>Chisq)
lat	6.771309	1	0.0092635
long	6.791801	1	0.0091577
lat:long	2.459509	1	0.1168153

Table: In.2L.t

	LR Chisq	Df	Pr(>Chisq)
lat	3.113870	1	0.0776283
long	3.318522	1	0.0685034
lat:long	0.415519	1	0.5191815

Table: In.2R.Ns

	LR Chisq	Df	Pr(>Chisq)
lat	0.2804168	1	0.5964281
long	0.1403613	1	0.7079221
lat:long	0.0084000	1	0.9269748

Table: In.3R.C

	LR Chisq	Df	Pr(>Chisq)
lat	0.0102974	1	0.9191726
long	0.0164612	1	0.8979107
lat:long	0.1353973	1	0.7129003

Table: In.3R.K

	LR Chisq	Df	Pr(>Chisq)
lat	31.91662	1	0.00e+00
long	18.43266	1	1.76e-05
lat:long	11.64730	1	6.43e-04

Table: In.3R.Mo

	LR Chisq	Df	Pr(>Chisq)
lat	0	1	1.0000000
long	0	1	0.9999892
lat:long	0	1	0.9999748

Table: In.3L.P



	LR Chisq	Df	Pr(>Chisq)
-----	-----	---	-----
lat	1.7982760	1	0.1799211
long	0.2384173	1	0.6253516
lat:long	0.2293854	1	0.6319799

## Average Frequencies and Standard Deviation

### Averages

##	In(2L)t	In(2R)Ns	In(3L)P	In(3R)C
##	Min. :0.0000	Min. :0.00000	Min. :0.000000	Min. :0.00000
##	1st Qu.:0.1002	1st Qu.:0.01604	1st Qu.:0.001412	1st Qu.:0.00968
##	Median :0.1702	Median :0.03930	Median :0.013171	Median :0.01652
##	Mean :0.1784	Mean :0.05621	Mean :0.032354	Mean :0.02294
##	3rd Qu.:0.2424	3rd Qu.:0.08038	3rd Qu.:0.049074	3rd Qu.:0.02894
##	Max. :0.7634	Max. :0.33386	Max. :0.476923	Max. :0.19824
##	In(3R)K	In(3R)Mo	In(3R)Payne	
##	Min. :0.00000	Min. :0.000000	Min. :0.00000	
##	1st Qu.:0.00000	1st Qu.:0.006775	1st Qu.:0.01223	
##	Median :0.00000	Median :0.014063	Median :0.04224	
##	Mean :0.01632	Mean :0.026459	Mean :0.08728	
##	3rd Qu.:0.00000	3rd Qu.:0.027621	3rd Qu.:0.09437	
##	Max. :0.89630	Max. :0.390266	Max. :0.95000	

### Standard Deviations

##	In(2L)t	In(2R)Ns	In(3L)P	In(3R)C	In(3R)K	In(3R)Mo
##	0.11306372	0.05106371	0.04556536	0.02104504	0.06692475	0.03777946
##	In(3R)Payne					
##	0.13730073					