

Journal of Applied Sciences

ISSN 1812-5654





Generalization of Klotz's Test

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Abstract: In this study, Klotz's test for heterogeneity of variance is generalized to factorial designs. Although, Levene's test, the jacknife and Fligner and Killeen's test for heterogeneity of variance were generalized to factorial designs, Klotz's test was not studied. The performance of Klotz's test is compared with other previously studied tests. An application and comparison of these analyses to the 2 by 2 factorial design are examined in detail. A simulation study was performed for 10000 data sets to compare power and robustness properties of the tests. It is observed that as sample size increased and as the difference in variances increased all tests have higher power. According to these simulations, Klotz's test can particularly be recommended for symmetric parent distributions. For skewed parent distribution like chi-square, Klotz's test should not be used since it is not robust. Data from a multifactor agricultural system were used as an example to illustrate the usefulness of these tests.

Key words: Klotz's test, factorial design, heterogeneity of variance, test for variance

INTRODUCTION

Most frequently, statistical analysis were performed to detect the differences in the location or means of the treatment groups, but in some cases, differences in dispersion may be of as much interest. Distance-based tests were proposed by Anderson (2006) to test homogeneity of mulivariate dispesions. For unreplicated two-level fractional factorial designs McGrath and Lin (2002) developed a nonparametric dispersion tests. Ozaydin et al. (1999) studied factor effects on the variance in studies of an agricultural system involving chile peppers and two chile-pepper pests-root-knot nematodes and yellow nutsedge. Since there exist factor effects on the variance, analysis to detect factor effects on differences in means failed. Hence, this system required methods for examining the structure of effects on the variance. Although, there are many other situations to understand factor effects to the variance. pesticide application is one example to understand factor effects on the variance. Higher overall amounts to be applied for the methods with greater variability, so that; each area will receive the minimum amount of pesticide to be effective.

Some researchers performed testing heterogeneity of variance for one-way design. Some of these researchers are: Milliken and Johnson (1984) and Miller (1968) and so on. Among them Conover *et al.* (1981) performed 56 tests in a comprehensive simulation study of tests for heterogeneity of variance in the one-way model.

The Levene and the jackknife tests to detect heterogeneity of variance as a factor effect in a replicated two-way treatment structure were studied and then generalization of Fligner and Killeen (1976)'s test was considered by Ozaydin *et al.* (1999).

While, many tests for scale exist for the completely randomized design, fewer tests have been considered for more complex designs. In particular nonparametric rank based tests for scale have not been applied to more complex designs. In addition to Fligner and Killeen's nonparametric rank-based test, which was studied by Ozaydin *et al.* (1999), it is of interest to consider the generalization of one such test, Klotz (1962)'s nonparametric rank-based test, to a two-way treatment structure.

For one-way design according to power and robustness, performance of Klotz's test for symmetric parent distributions was quite well. It was also recommended for symmetric parent distributions by Conover *et al.* (1981).

As it mentioned on Ozaydin *et al.* (1999) study; computation of pseudo-observations reflects changes in the magnitude of the variance. Then either the usual ANOVA or an analogous chi-square analysis was used to analyze these pseudo-observations. A review of the tests was studied by Ozaydin *et al.* (1999).

Simulation studies were used to examine the power and the robustness of the generalized tests for the special case of a 2 by 2 treatment structure with balanced data. Performance of Klotz's test for the balanced two-way factorial treatment sructure is compared by other previously studied tests. These simulation studies were performed for 10000 data sets.

The simulation using SAS/STAT software was performed. Uniform (short-tailed), normal, double exponential (long-tailed) and chi-square (skewed) parent distributions were used for the simulation study. Samples of size 5, 10 and 20 observations were used for the different variance combinations.

THE MODEL AND HYPOTHESES

For the fixed two-way design with equal replication the cell mean model is:

$$y_{iik} = \mu_{ii} + \epsilon_{iik} \tag{1}$$

where, $i = ..., t_A > 1$, $j = 1..., t_B > 1, k = 1..., n > 1$. In the model, y_{ijk} is the k'th response from the i'th level of factor A and the j'th level of factor B. The μ_{ij} are unknown constants representing the average response due to the i'th level of factor A and the j'th level of factor B. Then, the ϵ_{ijk} are the random error associated with the observation y_{ijk} and are assumed to be independently distributed with zero mean and variance σ_{ii}^2 .

To investigate the behavior of the following test statistics under less restrictive distributional assumptions, the assumption that the errors are assumed to be normal random variables is suspended.

For my studies, I use the special case $t_A = 2$, $t_B = 2$, the null hypothesis is $H_0: \sigma_{11}^2 = \sigma_{12}^2 = \sigma_{21}^2 = \sigma_{22}^2$, (all variances are equal).

At least one variance does not equal to others' is the alternative hypothesis. Instead of using usual one-way ANOVA analysis to test equality of variance, following the Ozaydin *et al.* (1999), I perform an analysis that is analogous to the usual ANOVA for a two-way replicated treatment structure. The following null hypothesis are used to find the differences in variances and, if they differ, the form of the difference:

- $H_0: \sigma_{11}^2 \sigma_{12}^2 = \sigma_{21}^2 \sigma_{22}^2$ (interaction between factor A and factor B does not exist)
- $H_0: \sigma_{11}^2 + \sigma_{12}^2 = \sigma_{21}^2 + \sigma_{22}^2$ (there is not a factor A main effect on the variance)
- $H_0: \sigma_{11}^2 + \sigma_{21}^2 = \sigma_{12}^2 + \sigma_{22}^2$ (there is not a factor B main effect on the variance)

If there exists an interaction, main effects are not considered further. The presence of interaction suggests that a simple additive main effects structure does not exist among the factor effects on the variance so that a reduction in summarizing the variances is not possible.

THE TEST PROCEDURES

Levene's test and the jackknife test are classified as tests based on modifications of the F-test for means and Klotz's test and Fligner and Killeen's test are classified as a linear rank tests (or a rank-like tests) (Conover *et al.*, 1981). For these tests, pseudo-observations that in some way reflect changes in the magnitude of the variance are computed. Then, the pseudo-observations are analyzed.

In general, the pseudo-observations are some function of the absolute deviations from either the mean or the median. For the (1) continuous pseudo-observations, the analysis will be the two-way ANOVA with F-tests. For the (2) rank-based pseudo-observations, an analogous analysis using chi-square test statistics is more appropriate. The tests considered in this study, such as Levene's test, the jacknife test, Klotz's test and Fligner and Killeen's test for the one-way model are among the tests that follow this basic test rationale.

The following seven tests are considered and compared for balanced data using the pseudo-observations in this study (Ozaydin *et al.*, 1999) considered the first five of these tests and then compared all these five tests as having the best performance on the basis of robustness and power. The last two of the seven tests are generalizations of Klotz's test.

(1) For (Lev 1) the square of the residuals was computed, then ANOVA was performed on these pseudoobservations:

$$Z_{i_jk} = \left(y_{ijk} - \overset{-}{y}_{ij}\right)^2, \; i = 1,..., \, t_A; \; j = 1,..., \, t_B; \; k = 1,...,n \quad (2)$$

where, \bar{y}_{ij} is the sample mean for the ij'th group (Ozaydin *et al.*, 1999).

(2) For a modified Levene's test (Lev 2), the absolute deviations from the sample medians ỹ_{ij} was computed as follows, then ANOVA was performed on these pseudo-observations (Ozaydin et al., 1999).

$$Z_{ijk} = \left| y_{ijk} - \tilde{y}_{ij} \right| \tag{3}$$

(3) For the jackknife test, (Ozaydin *et al.*, 1999) performed ANOVA F-tests on the following pseudo-observations (jack):

$$U_{iik} = n \ln(S_{ii}^2) - (n-1) \ln(S_{ii(k)}^2)$$
 (4)

where, S_{ii}^2 is the usual sample variance for the ijth group.

$$\overline{y}_{ij(k)} = \sum_{l \neq k} \frac{y_{ijl}}{n-1}$$

was calculated and then:

$$S_{ij(k)}^2 = \sum_{i \neq k} \frac{\left(y_{ij1} - y_{ij(k)}\right)^2}{n-2}$$

(4) The first generalization of Fligner and Killeen's test applies an F-test analysis to rank-based pseudoobservations. Following (Conover et al., 1981; Ozaydin et al., 1999) used absolute deviations from the median:

$$Z_{iik} = |\mathbf{y}_{iik} - \widetilde{\mathbf{y}}_{ii}|$$

The Z_{ijk} 's were then ranked from smallest to largest (i.e., from 1 to $N = nt_A t_B$). The ranks are denoted by R_{ijk} . Following Conover (1980), if there were ties in my sample, I calculated the average of the ranks of the tied values and used the average as the R_{ijk} value for the tied Z_{ijk} 's.

Then to modify the ranks, a score function was used. The score function (denoted FK) was used by Fligner and Killeen (1976):

$$a(R_{ijk}) = \left[\Phi^{-1}\left(\frac{N+1+R_{ijk}}{2(N+1)}\right)\right]^2$$
 (5)

where, Φ is the standard normal cumulative distribution function. Following (Ozaydin *et al.*, 1999), I used Fligner and Killeen's original score function and denote the values $a(R_{iik})$ by a_{iik} .

Conover et al. (1981) used the positive square root of this score function. Ozaydin et al. (1999) used Fligner and Killeen's original score function since it has better power and is more robust than using the positive square root of this score function. The ANOVA F-test analysis was performed to the scores a_{ijk}. The procedure obtained by applying F-tests to the pseudo-observations FK is denoted as FK-F, which is same as by Ozaydin et al. (1999).

(5) The second generalization of Fligner and Killeen's test performs a chi-square analysis on the pseudoobservations FK. For the overall test of equality of variances, the one-way test statistic presented by Conover et al. (1981) was used:

$$X = n \sum_{i=1}^{t_A} \sum_{j=1}^{t_B} \left(\overline{a}_{ij.} - \overline{a}... \right)^2 / D^2$$
 (6)

where,

$$D^{2} = \frac{1}{N-1} \sum_{i=1}^{t_{A}} \sum_{j=1}^{t_{B}} \sum_{k-1}^{n} \left(a_{ijk} - \overline{a}... \right)^{2}$$

where, \bar{a}_{ij} is the mean score in the ij'th sample and $\bar{a}_{...}$ is the overall mean score. Under the null hypothesis of equal variances, D^2 is the known variance of the scores. Ozaydin *et al.* (1999) partitioned X into three pieces, corresponding to each of the three hypotheses mentioned earlier as:

$$X_{1} = n \sum_{i=1}^{t_{A}} \sum_{i=1}^{t_{B}} \left(\overline{a}_{ij.} - \overline{a}_{i..} - \overline{a}_{j.} + \overline{a}_{...} \right)^{2} / D^{2}$$
 (7)

$$X_2 = nt_B \sum_{i=1}^{t_A} (\bar{a}_{i..} - \bar{a}_{..})^2 / D^2$$
 (8)

where, \bar{a}_{i} is the mean score in the ith sample

$$X_3 = nt_A \sum_{i=1}^{t_B} (\bar{a}_{,i} - \bar{a}_{,..})^2 / D^2$$
 (9)

where, \bar{a}_{ij} is the mean score in the jth sample

Under the null of no differences, each of the above test statistics is approximately distributed as a chi-square random variable with degrees of freedom corresponding to the numerator sum of squares:

$$X - \chi^2_{t_A t_B - 1} \,, \ \, X_1 - \chi^2_{(t_A - 1)(t_B - 1)} \,, \ \, X_2 - \chi^2_{(t_A - 1)} \ \, \text{and} \quad X_3 - \chi^2_{(t_B - 1)}$$

where, I denote the procedure obtained by applying the chi-square tests to the pseudo-observations FK by FK-Chi.

(6) The first generalization of Klotz's test applies an F-test analysis to rank-based pseudo-observations. Following the same procedures as in (4), values of R_{ijk} were calculated

A score function was then used to modify the ranks. Klotz (1962) used the score function (denoted Klotzs)

$$\mathbf{a}\left(\mathbf{R}_{ijk}\right) = \left[\Phi^{-1}\left(\frac{\mathbf{R}_{ijk}}{N+1}\right)\right]^{2} \tag{10}$$

where, Φ is the standard normal cumulative distribution function. The values $a(R_{ijk})$ are denoted by a_{ijk} . The ANOVA F-test analysis was applied to the scores a_{ijk} . The

procedure obtained by applying F-tests to the pseudoobservations Klotzs is denoted as Klotz-F.

(7) A second variant of Klotz's test is a generalization of the usual rank-based nonparametric approach; i.e., a chi-square analysis was performed on the pseudoobservations Klotzs. Following the same steps explained as in (5), the chi-square tests were performed. The procedure obtained by applying the chi-square tests to the pseudo-observations Klotzs is denoted by Klotz-Chi

The last four tests are variations of Fligner and Killeen's and Klotz's nonparametric rank-based approach. Chi-square tests are more appropriate and have traditionally been used for rank-based tests. Following Conover and Iman (1981), rank transformation procedures applying the usual ANOVA F-tests to the ranks are easier to obtain. The fourth and sixth tests use this notion but apply the usual ANOVA F-tests to scores based on ranks. The fifth and seventh tests use a traditional chi-square analysis of the scores.

All of the above tests use pseudo-observations in different way. For example, pseudo-observations which are used in Lev1 are on the scale of variance, pseudo-observations which are used in Lev2 are on the scale of standard deviation, in Jack are on a log transformed scale. The FK and Klotz pseudo-observations are based on ranks.

RESULTS

It was shown by Conover et al. (1981) study that performance of Klotz's test for symmetric parent distributions was quite well according to power and robustness for one-way design. Therefore, in this study performance of Klotz's test statistics was studied for twoway design. Lev1 and Lev2 are modifications of the Levene's test. ANOVA performed on any monotonically increasing function of the absolute value of deviations from the sample means. To obtain more robust tests Levene's idea can be applied to deviations from the median (Miller, 1968). The third test is the jackniffe test. The forth and fifth tests are variations of Fligner and Killeen's and the sixth and seventh tests are variations of Klotz's nonparametric rank-based approach. For rankbased tests, chi-square tests are more appropriate then ANOVA. In this study, usual ANOVA F-tests applied to the ranks were also studied since it is easier to obtain (Conover and Iman, 1981). The fifth (FK-chi) and seventh Klotz-chi tests use traditional chi-square analysis of the scores. The forth (FK) and sixth (Klotz) tests use ANOVA F-tests to scores based on the ranks.

For the special case of a 2 by 2 treatment structure, simulations using SAS/STAT software and procedures compared the power and robustness of the seven proposed test procedures. Variance configurations, a range of parent distributions and sample sizes were indicated.

Uniform (short-tailed), normal, double exponential (long-tailed) and Chi-square (skewed) parent distributions were used for the simulation study. When sampling from a chi-square distribution to maintain the level of skewness, 1 d.f. chi-square random variables were generated and multiplied by the appropriate constant to attain the indicated variability. Samples of size 5, 10 and 20 observations were used for each of the following variance combinations indicated by $(\sigma_{11}^2, \sigma_{12}^2, \sigma_{21}^2, \sigma_{22}^2,)$:

- (1) (1,1,1,1)
- $(2) \quad (1,1,2,2), (1,1,4,4), (1,1,8,8)$
- (3a) (1,2,2,1), (1,4,4,1), (1,8,8,1)
- (3b) (1,1,1,2), (1,1,1,4), (1,1,1,8)
- $(4) \quad (1,2,2,3), (1,4,4,7), (1,8,8,15)$

Variance combination (1) was used to approximate the true type I error rate. (i.e., the observed significance level). The set of variance combinations (2) was used to investigate the power of the tests when only a factor main effect is present. The set of variance combinations (3a) was used to investigate the power of the tests when an interaction effect is present. The set of variance combinations (3b) was used to investigate the power of the tests when an interaction effect and both main effects are present. The set of variance combinations (4) was used to investigate the power of the tests when both A and B main effects exist.

The simulation results are shown in the Table 1-3. The simulation results of first five tests are similar to (Ozaydin *et al.*, 1999) results. It is observed that as sample size increased and as the difference in variances increased all tests have higher power.

All of the tests are robust with the exception of Jack, Lev 1, Klotz-F and Klotz-Chi. Jack, Klotz-F and Klotz-Chi are never robust when applied to samples from a chi-square parent distribution. Lev 1 is not robust when used with small samples (n = 5) from a chi-square parent distribution. Lev 2, FK-F and FK-Chi suffer

J. Applied Sci., 9 (16): 2916-2924, 2009

	Chi-square distribution							Double exponential distribution						
Tests	VC	Model	Only A	Only B	Both A and B	INT	Tests	VC	Model	Only A	Only B	Both A and B	INT	
Lev 1	1	0.1338	0.0534	0.0525	0.0091	0.1055	Lev 1	1	0.0703	0.0452	0.0457	0.0042	0.0645	
	2	0.1677	0.1043	0.0414	0.0106	0.1076		2	0.1399	0.1761	0.0284	0.0084	0.0668	
	3a	0.1739	0.0442	0.0431	0.0052	0.1808		3a	0.1371	0.0254	0.0309	0.0032	0.2145	
	3b	0.1688	0.0570	0.0581	0.0100	0.1299		3b	0.1505	0.0594	0.0581	0.0100	0.1137	
Lou ?	4 1	0.1657 0.0198	0.0688 0.0204	0.0691 0.0182	0.0118 0.0016	0.1108	Lon ?	4 1	0.1251 0.0094	0.0866 0.0151	0.0889 0.0149	0.0114 0.0006	0.0708 0.0163	
Lev 2	2	0.0196	0.0204	0.0162	0.0030	0.0232 0.0271	Lev 2	2	0.0094	0.1055	0.0149	0.0008	0.0103	
	3a	0.0424	0.0179	0.0110	0.0014	0.0696		3a	0.0378	0.0114	0.0125	0.0001	0.1145	
	3b	0.0433	0.0285	0.0260	0.0030	0.0386		3b	0.0456	0.0341	0.0303	0.0032	0.0431	
	4	0.0398	0.0368	0.0350	0.0026	0.0288		4	0.0314	0.0467	0.0491	0.0031	0.0178	
Jack	1	0.1220	0.0637	0.0632	0.0135	0.0914	Jack	1	0.0615	0.0414	0.0468	0.0055	0.0558	
	2	0.1716	0.1324	0.0536	0.0231	0.0914		2	0.1494	0.1835	0.0346	0.0177	0.0558	
	3a 3b	0.1765	0.0521	0.0548	0.0095	0.1886		3a 3b	0.1486	0.0301	0.0348	0.0041	0.2214	
	4	0.1581 0.1762	0.0739 0.0854	0.0732 0.0888	0.0194 0.0259	0.1134 0.1043		4	0.1336 0.1569	0.0638 0.0948	0.071 0.1039	0.0155 0.0255	0.1009 0.0685	
FK-F	1	0.0269	0.0034	0.0258	0.0030	0.0334	FK-F	1	0.0156	0.0190	0.0206	0.0014	0.0003	
	2	0.0492	0.0851	0.0220	0.0055	0.0362		2	0.0459	0.1234	0.0163	0.0043	0.0235	
	3a	0.0497	0.0256	0.0240	0.0033	0.0961		3a	0.0476	0.0154	0.0163	0.0015	0.1305	
	3b	0.0526	0.0410	0.0363	0.0056	0.0513		3b	0.0576	0.0407	0.0399	0.0049	0.0551	
	4	0.0463	0.0507	0.0493	0.0071	0.0357		4	0.0379	0.0585	0.0589	0.0047	0.0248	
FK-Chi	1	0.0173	0.0318	0.0278	0.0003	0.0321	FK-Chi	1	0.0081	0.0221	0.0204	0.0000	0.0212	
	2	0.0344	0.0938	0.0232	0.0005	0.0267		2	0.0271	0.1326	0.0161	0.0002	0.0150	
	3a	0.0325	0.0266	0.0245	0.0003	0.0900		3a	0.0285	0.0143	0.0155	0.0000	0.1322	
	3b 4	0.0359 0.0308	0.0425 0.0565	0.0411 0.0537	0.0002 0.0002	0.0420 0.0296		3b 4	0.0351 0.022	0.0426 0.0618	0.0389 0.0631	0.0003 0.0001	0.0441 0.0199	
Klotz-F	1	0.5355	0.0383	0.0337	0.0529	0.0236	Klotz-F	1	0.022	0.0819	0.081	0.0098	0.0199	
ILIOUZ I	2	0.6116	0.2822	0.1283	0.0688	0.3420	11.002 1	2	0.2698	0.2895	0.0521	0.0265	0.1232	
	3a	0.6089	0.1252	0.1271	0.0372	0.5254		3a	0.2639	0.0504	0.0527	0.0077	0.3762	
	3b	0.6088	0.1722	0.1696	0.0570	0.4100		3b	0.2695	0.1049	0.1108	0.0282	0.2115	
	4	0.6091	0.1951	0.1917	0.0775	0.3540		4	0.2408	0.1511	0.1602	0.0323	0.1250	
Klotz-Chi	1	0.4627	0.2210	0.2199	0.0223	0.2618	Klotz-Chi	1	0.0984	0.0886	0.0870	0.0046	0.1006	
	2	0.5381	0.3705	0.171	0.0308	0.2188		2	0.2182	0.3260	0.0617	0.0105	0.0773	
	3a 3b	0.5368	0.1691	0.1687	0.0164	0.4316		3a	0.2134	0.0603	0.0639	0.0029	0.3463	
	4	0.5378 0.5373	0.2298 0.2632	0.2268 0.2556	0.0283 0.0354	0.2913 0.2332		3b 4	0.2212 0.1852	0.1286 0.1745	0.1293 0.1777	0.0136 0.0124	0.1601 0.0902	
		l distribution	0.2002	0.2330	0.0331	0.2332			m distribution		0.1777	0.0121	0.0502	
Tosts	VC	Model	Only A	Only B	Doth A and D	INT	Tosts	VC	Model	Onlyr A	Only D	Poth A and D	INT	
Tests Lev 1	1	Model 0.0673	Only A 0.0504	0.0481	Both A and B 0.0055	0.0618	Tests Lev 1	1	0.0771	Only A 0.0587	Only B 0.0520	Both A and B 0.0067	0.0708	
Dev I	2	0.1954	0.0304	0.0205	0.0055	0.0618	Lev I	2	0.3041	0.4214	0.0320	0.0209	0.0708	
	3a	0.1962	0.0231	0.0222	0.0037	0.3469		3a	0.3027	0.0127	0.0151	0.0062	0.5072	
	3b	0.2219		0.0648	0.0133	0.1526		3b	0.3323	0.0602	0.0620	0.0272	0.2392	
			0.0694											
	4	0.1631	0.0694 0.1291	0.1226	0.0189	0.0734		4	0.2490	0.1527	0.1509	0.0529	0.0840	
Lev 2	4 1			0.1226 0.0085	0.0189	0.0734 0.0086	Lev 2	4 1	0.2490 0.0012	0.1527 0.0056	0.1509 0.0057		0.0840	
Lev 2	1 2	0.1631	0.1291	0.0085 0.0070			Lev 2		0.0012 0.0218			0.0529	0.0057 0.0070	
Lev 2	1 2 3a	0.1631 0.0030 0.0320 0.0297	0.1291 0.0083 0.1351 0.0077	0.0085 0.0070 0.0077	0.0000 0.0013 0.0004	0.0086 0.0109 0.1337	Lev 2	1 2 3a	0.0012 0.0218 0.0239	0.0056 0.1340 0.0045	0.0057 0.0053 0.0046	0.0529 0.0001 0.0006 0.0008	0.0057 0.0070 0.1313	
Lev 2	1 2 3a 3b	0.1631 0.0030 0.0320 0.0297 0.0479	0.1291 0.0083 0.1351 0.0077 0.0307	0.0085 0.0070 0.0077 0.0304	0.0000 0.0013 0.0004 0.0019	0.0086 0.0109 0.1337 0.0392	Lev 2	1 2 3a 3b	0.0012 0.0218 0.0239 0.0434	0.0056 0.1340 0.0045 0.0235	0.0057 0.0053 0.0046 0.0250	0.0529 0.0001 0.0006 0.0008 0.0027	0.0057 0.0070 0.1313 0.0324	
	1 2 3a 3b 4	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526	0.0085 0.0070 0.0077 0.0304 0.0496	0.0000 0.0013 0.0004 0.0019 0.0018	0.0086 0.0109 0.1337 0.0392 0.0144		1 2 3a 3b 4	0.0012 0.0218 0.0239 0.0434 0.0181	0.0056 0.1340 0.0045 0.0235 0.0410	0.0057 0.0053 0.0046 0.0250 0.0432	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019	0.0057 0.0070 0.1313 0.0324 0.0088	
Lev 2 Jack	1 2 3a 3b 4	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330	Lev 2 Jack	1 2 3a 3b 4 1	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0019	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243	
	1 2 3a 3b 4 1	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.0330		1 2 3a 3b 4 1	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0019	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0243	
	1 2 3a 3b 4	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0160	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.0330 0.2437		1 2 3a 3b 4 1	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0086	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0019	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243	
	1 2 3a 3b 4 1 2	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.0330		1 2 3a 3b 4 1 2 3a	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0019 0.0101 0.0023	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0243 0.2783	
Jack	1 2 3a 3b 4 1 2 3a 3b	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0160 0.0563	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020 0.0123	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.0330 0.2437 0.0813		1 2 3a 3b 4 1 2 3a 3b	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076 0.0428	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0086 0.0442	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0019 0.0101 0.0023 0.0161	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0243 0.2783 0.0761	
Jack	1 2 3a 3b 4 1 2 3a 3b 4 1 2	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1358 0.0081 0.0433	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0160 0.0563 0.0965 0.0140 0.0099	0.0000 0.0013 0.0004 0.00019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.0330 0.2437 0.0813 0.0496 0.0136	Jack	1 2 3a 3b 4 1 2 3a 3b	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076 0.0428 0.0902 0.0088 0.1609	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0086 0.0442 0.0930 0.0076 0.0064	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0019 0.0101 0.0023 0.0161 0.0309 0.0008	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0243 0.2783 0.0761 0.0387 0.0090	
Jack	1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1358 0.0081 0.0433 0.0398	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0160 0.0563 0.0965 0.0140 0.0099	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045 0.0010	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.0330 0.2437 0.0813 0.0496 0.0136 0.0159 0.1574	Jack	1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0380	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076 0.0428 0.0902 0.0088 0.1609 0.0062	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0086 0.0442 0.0930 0.0076 0.0064	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0019 0.0101 0.0023 0.0161 0.0309 0.0008 0.0032	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0243 0.0761 0.0387 0.0090 0.0126	
Jack	1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1358 0.0081 0.0433 0.0398 0.0694	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113	0.0085 0.0070 0.0077 0.0077 0.0304 0.0496 0.0238 0.0160 0.0563 0.0965 0.0140 0.0099 0.0103 0.0392	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045 0.00010	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.0330 0.2437 0.0813 0.0496 0.0136 0.0159 0.1574	Jack	1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0380 0.0776	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076 0.0428 0.0902 0.0088 0.1609 0.0062 0.0333	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0442 0.0930 0.0076 0.0064 0.0069	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0019 0.0101 0.0023 0.0161 0.0309 0.0008 0.0032 0.0015	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0243 0.0761 0.0387 0.0090 0.0126 0.1664 0.0537	
Jack FK-F	1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1358 0.0081 0.0433 0.0398 0.0694 0.0324	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113 0.0414	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0563 0.0965 0.0140 0.0099 0.0103 0.0392 0.0596	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045 0.0010 0.0051	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.0330 0.2437 0.0813 0.0496 0.0136 0.0159 0.1574 0.0549 0.0175	Jack FK-F	1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0380 0.0776 0.0313	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076 0.0428 0.0902 0.0088 0.1609 0.0062 0.0333 0.0510	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0086 0.0442 0.0930 0.0076 0.0064 0.0069 0.0356 0.0541	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0101 0.0023 0.0161 0.0309 0.0008 0.0032 0.0015 0.0088 0.0051	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0243 0.0761 0.0387 0.0090 0.0126 0.1664 0.0537 0.0125	
Jack FK-F	1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 1 2 1 3a 3b 4 1 1 2 1 3 1 2 1 3 1 1 1 1 1 1 1 1 1 1 1	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1358 0.0081 0.0433 0.0398 0.0694 0.0324 0.0044	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113 0.0414 0.0613 0.0162	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0160 0.0563 0.0965 0.0140 0.0099 0.0103 0.0392 0.0596 0.0149	0.0000 0.0013 0.0004 0.00019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045 0.0010 0.0051 0.0037	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.0330 0.0433 0.0496 0.0136 0.0159 0.1574 0.0549 0.0175 0.0137	Jack	1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 1 2 1 3a 3b 4 1 1 2 1 3a 3b 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0380 0.0776 0.0313	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076 0.0428 0.0902 0.0088 0.1609 0.0662 0.0333 0.0510 0.0101	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0442 0.0930 0.0076 0.0064 0.0069 0.0356 0.0541 0.0089	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0019 0.0101 0.0023 0.0161 0.0309 0.0008 0.0032 0.0015 0.0088 0.0051	0.0057 0.0070 0.1313 0.0324 0.0243 0.0243 0.0243 0.0761 0.0387 0.0090 0.1166 0.1664 0.0537 0.0099	
Jack FK-F	1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 2 3a 3b 4 1 2 2 3a 3b 4 1 2 2	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1058 0.0081 0.0433 0.0398 0.0694 0.0324 0.0044	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113 0.0414 0.0613 0.0162 0.1736	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0160 0.0563 0.0965 0.0140 0.0099 0.0103 0.0392 0.0596 0.0149	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045 0.0010 0.0051 0.0037 0.0000	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.0330 0.2437 0.0813 0.0496 0.0136 0.0159 0.1574 0.0549 0.0177 0.0549 0.0137	Jack FK-F	1 2 3a 3b 4 1 2	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0380 0.0776 0.0313 0.0021	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076 0.0428 0.0902 0.0088 0.1609 0.0062 0.0333 0.0510 0.0101 0.1807	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0086 0.0442 0.0930 0.0076 0.0064 0.0069 0.0356 0.0541 0.0089 0.0087	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0019 0.0101 0.0023 0.0161 0.0008 0.0008 0.0032 0.0015 0.0088 0.0051 0.0000	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.2783 0.0761 0.0387 0.0090 0.0126 0.1664 0.0537 0.0125 0.0099 0.0066	
Jack FK-F	1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 1 2 1 3a 3b 4 1 1 2 1 3 1 2 1 3 1 1 1 1 1 1 1 1 1 1 1	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1358 0.0081 0.0433 0.0398 0.0694 0.0324 0.0044	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113 0.0414 0.0613 0.0162	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0160 0.0563 0.0965 0.0140 0.0099 0.0103 0.0392 0.0596 0.0149	0.0000 0.0013 0.0004 0.00019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045 0.0010 0.0051 0.0037	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.0330 0.0433 0.0496 0.0136 0.0159 0.1574 0.0549 0.0175 0.0137	Jack FK-F	1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 1 2 1 3a 3b 4 1 1 2 1 3a 3b 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0380 0.0776 0.0313	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076 0.0428 0.0902 0.0088 0.1609 0.0662 0.0333 0.0510 0.0101	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0442 0.0930 0.0076 0.0064 0.0069 0.0356 0.0541 0.0089	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0019 0.0101 0.0023 0.0161 0.0309 0.0008 0.0032 0.0015 0.0088 0.0051	0.0057 0.0070 0.1313 0.0324 0.0243 0.0243 0.0243 0.0761 0.0387 0.0090 0.1166 0.1664 0.0537 0.0099	
	1 2 3a 3b 4 1 2 3a 3b	0.1631 0.0030 0.0320 0.0227 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1358 0.0081 0.0443 0.0324 0.0044 0.00261 0.0218	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113 0.0414 0.0613 0.0162 0.1736 0.0105	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0160 0.0563 0.0965 0.0140 0.0099 0.0103 0.0392 0.0596 0.0149 0.0085 0.0092	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045 0.00010 0.0051 0.0037 0.0000	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.0330 0.2437 0.0813 0.0496 0.0159 0.1574 0.0549 0.0175 0.0175 0.0175	Jack FK-F	1 2 3a 3b 4 1 2 3a	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0376 0.0313 0.0021 0.0221	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076 0.0428 0.0902 0.0088 0.1609 0.0062 0.0333 0.0510 0.0101 0.1807 0.0063	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0086 0.0442 0.0930 0.0076 0.0064 0.0069 0.0356 0.0541 0.0089 0.0067 0.0067	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0101 0.0023 0.0161 0.0309 0.0008 0.0032 0.0015 0.0088 0.0051 0.0000	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.2783 0.0761 0.0387 0.0090 0.0126 0.1664 0.0537 0.0090 0.0026 0.0090 0.0026	
Jack FK-F	1 2 3a 3b 4 1 2 3a 3b 4 1 2 2 3a 3b	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.1305 0.1058 0.1358 0.0081 0.0433 0.0398 0.0694 0.0324 0.0044 0.0261 0.0218 0.0443	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113 0.0162 0.1736 0.0162 0.1736 0.0105 0.0399	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0563 0.0965 0.0140 0.0099 0.0103 0.0392 0.0596 0.0149 0.0085 0.0092	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045 0.0010 0.0051 0.0037 0.0000 0.0000	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.2437 0.0813 0.0496 0.0136 0.0159 0.1574 0.0549 0.0175 0.0137 0.0137	Jack FK-F	1 2 3a 3b 4 1 2 3a 3b 4 1 1 2 3a 3b 4 1 1 2 3a 3b 4 1 1 2 3a 3b 4 3b 4 1 1 2 3a 3b 3b	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0376 0.0313 0.0021 0.0213 0.0221 0.0503	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2250 0.0076 0.0428 0.0902 0.0088 0.1609 0.0062 0.0333 0.0510 0.0101 0.1807 0.0063 0.0312	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.00442 0.0930 0.0076 0.0064 0.0069 0.0356 0.0541 0.0089 0.0067 0.0063 0.0063	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0101 0.0023 0.0161 0.0309 0.0008 0.0032 0.0015 0.0088 0.0051 0.0000 0.0000 0.0000	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0243 0.0761 0.0387 0.0090 0.0126 0.1664 0.0537 0.0099 0.0066 0.1824	
Jack FK-F	1 2 3a 3b 4 1 2 3 3a 3b 4 1 2 3 3b 4 1 2	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1058 0.0081 0.0433 0.0398 0.0694 0.0324 0.00261 0.0218 0.0443 0.0194 0.0977 0.2845	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113 0.0414 0.0613 0.0162 0.1736 0.0105 0.0399 0.0628 0.0704 0.3652	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0160 0.0563 0.0965 0.0140 0.0099 0.0103 0.0392 0.0596 0.0149 0.0085 0.0092 0.0373 0.0638 0.0638 0.0638	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0005 0.0001 0.0005 0.0001 0.0007 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0003	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.2437 0.0813 0.0496 0.0136 0.01574 0.0549 0.0175 0.0137 0.0188 0.1627 0.0365 0.0168 0.0189 0.01627	Jack FK-F FK-Chi	1 2 3a 3b 4 1 2	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0376 0.0313 0.0021 0.0221 0.0503 0.0173 0.0894 0.3711	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076 0.0428 0.0902 0.0088 0.1609 0.0062 0.0333 0.0510 0.0101 0.1807 0.0063 0.0312 0.0541 0.0643 0.4689	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0086 0.0442 0.0930 0.0076 0.0064 0.0069 0.0356 0.0541 0.0089 0.0067 0.0063 0.0330 0.0572 0.0615 0.0225	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0101 0.0023 0.0161 0.0309 0.0008 0.0032 0.0015 0.0088 0.0051 0.0000 0.0000 0.0000 0.0000 0.0003	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0273 0.0761 0.0387 0.0125 0.0126 0.1664 0.0537 0.0125 0.0099 0.0066 0.1824 0.0329 0.0117 0.0835 0.0835 0.1068	
Jack FK-F	1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 1 2 3a	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1058 0.0081 0.0433 0.0398 0.0694 0.0324 0.0044 0.0261 0.0218 0.0443 0.0194 0.0977 0.2845 0.2852	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113 0.0162 0.1736 0.0162 0.1736 0.0105 0.0399 0.0628 0.0704 0.3652 0.0327	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0563 0.0965 0.0140 0.0099 0.0103 0.0392 0.0596 0.0149 0.0095 0.0095 0.0149 0.0095 0.	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045 0.0010 0.0051 0.0037 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0083 0.0289 0.0067	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.2437 0.0813 0.0496 0.0136 0.0159 0.1574 0.0549 0.0175 0.0108 0.1627 0.0365 0.0161 0.0895 0.0161 0.0895 0.01018 0.0496	Jack FK-F FK-Chi	1 2 3a 3b 4 1 2 3a 3b 4 1 2 2 3a 3b 4 1 1 2 2 3a 3b 4 1 1 2 2 3a 3b 4 1 1 2 3a 3b 4 1 1 2 3a	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0376 0.0313 0.0021 0.0221 0.0503 0.0173 0.0994 0.3736	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076 0.0428 0.0902 0.0088 0.1609 0.0062 0.0333 0.0510 0.0101 0.1807 0.0063 0.0312 0.0541 0.0643 0.4689 0.0193	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0086 0.0442 0.0930 0.0076 0.0064 0.0069 0.0356 0.0541 0.0089 0.0067 0.0063 0.0330 0.0572 0.0615 0.0225 0.0204	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0101 0.0023 0.0161 0.0309 0.0008 0.0032 0.0015 0.0008 0.0051 0.0000 0.0000 0.0000 0.0000 0.0003 0.0003 0.0006 0.0003 0.0008 0.0008	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0761 0.0387 0.0761 0.0387 0.0126 0.1664 0.0537 0.0125 0.0099 0.0126 0.1664 0.0537 0.0125 0.0099 0.0126 0.1682 0.0329 0.0117 0.0835 0.1068 0.5793	
Jack FK-F FK-Chi	1 2 3a 3b 4 1 2 3a 3b	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1358 0.0081 0.0433 0.0398 0.0694 0.0221 0.0218 0.0443 0.0194 0.0977 0.2845 0.2852 0.2852	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113 0.0162 0.1736 0.0105 0.0105 0.0329 0.0628 0.0704 0.0652 0.0327 0.1037	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0160 0.0563 0.0965 0.0140 0.0099 0.0103 0.0392 0.0596 0.0149 0.0085 0.0092 0.0373 0.0638 0.0638 0.0638 0.0638	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045 0.0010 0.0051 0.0037 0.0000 0.0001 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.00083 0.0289 0.0067 0.0282	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.2437 0.0813 0.0496 0.0156 0.0156 0.0157 0.0137 0.0108 0.1625 0.0161 0.0895 0.0161 0.0895 0.0161 0.0895 0.0161	Jack FK-F FK-Chi	1 2 3a 3b 4 1 3 3b 4 1 3 3b 4 1 2 3a 3b 4 1 2 3a 3b 3b	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0380 0.0776 0.0313 0.0021 0.0221 0.0221 0.0503 0.0173 0.0894 0.3711 0.3736 0.3922	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076 0.0428 0.0902 0.0088 0.1609 0.0062 0.0333 0.0510 0.0101 0.1807 0.0063 0.0541 0.0643 0.4689 0.0643 0.0653	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0086 0.0442 0.0930 0.0076 0.0064 0.0069 0.0356 0.0541 0.0069 0.0067 0.0063 0.0330 0.0077 0.0063	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0019 0.0101 0.0023 0.0161 0.0009 0.0008 0.0032 0.0015 0.00051 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0006 0.0008 0.0003 0.0006 0.0008 0.0003 0.0006 0.0008 0.0003 0.0006 0.0006 0	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0761 0.0387 0.0090 0.0126 0.1664 0.0537 0.0125 0.0099 0.0066 0.1824 0.0329 0.0117 0.0835 0.0783 0.0783	
Jack FK-F FK-Chi Klotz-F	1 2 3a 3b 4 1 2 3 3a 3b 4 1 3 3b 5 3 3b 6 1 3 3b	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1058 0.1058 0.0081 0.0433 0.0398 0.0694 0.0324 0.0261 0.0218 0.0443 0.0194 0.0977 0.2845 0.2885 0.2288	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113 0.0414 0.0613 0.0162 0.1736 0.0105 0.0329 0.0528 0.0704 0.3652 0.0327 0.1037 0.1636	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0160 0.0563 0.0965 0.0140 0.0596 0.0149 0.0085 0.0092 0.0373 0.0638 0.0638 0.0638 0.0302 0.0309 0.0986 0.1555	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045 0.0010 0.0051 0.0037 0.0000 0.0001 0.0000 0.0000 0.0000 0.0000 0.0003 0.0289 0.0067 0.0282 0.0382	0.0086 0.109 0.1337 0.0392 0.0144 0.0330 0.2437 0.0813 0.0496 0.0136 0.0159 0.1574 0.0549 0.0177 0.0108 0.1627 0.0365 0.0161 0.0895 0.1018 0.4478 0.2198 0.1012	Jack FK-F FK-Chi Klotz-F	1 2 3a 3b 4 1 2 3 3a 3b 4	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0380 0.0776 0.0313 0.0021 0.0221 0.0503 0.0173 0.0894 0.3711 0.3736 0.3922 0.2901	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076 0.0428 0.0902 0.0062 0.0333 0.0510 0.0101 0.1807 0.0063 0.0312 0.0541 0.0643 0.4689 0.0193 0.0853 0.0853	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0086 0.0442 0.0930 0.0076 0.0069 0.0356 0.0541 0.0069 0.0067 0.0063 0.0067 0.0063 0.0067 0.0063 0.0067 0.0063 0.0067 0.0063 0.0067 0.0064 0.0069 0.0067	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0019 0.0101 0.0023 0.0161 0.0009 0.0008 0.0032 0.0015 0.0051 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0008 0.0033 0.0006 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0243 0.0761 0.0387 0.0090 0.0126 0.1664 0.0537 0.0126 0.1824 0.0329 0.0117 0.0835 0.1068 0.5793 0.2886 0.1011	
Jack FK-F	1 2 3a 3b 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1358 0.0081 0.0433 0.0398 0.0694 0.0224 0.0218 0.0443 0.0194 0.0977 0.2845 0.2852 0.2853 0.2288 0.0699	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113 0.0414 0.0613 0.0162 0.1736 0.0105 0.0399 0.0628 0.0704 0.3652 0.0327 0.1037 0.1636 0.0708	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0160 0.0563 0.0965 0.0140 0.0099 0.0103 0.0392 0.0596 0.0149 0.0085 0.0092 0.0373 0.0638 0.0638 0.0638 0.0302 0.0309 0.0309	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045 0.0010 0.0051 0.0037 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0289 0.0067 0.0282 0.0382	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.2437 0.0813 0.0496 0.0136 0.01574 0.0549 0.0175 0.0137 0.0108 0.1627 0.0365 0.0161 0.0189 0.1018 0.1627 0.0189 0.0191 0.0189 0.0191 0.019	Jack FK-F FK-Chi	1 2 3a 3b 4 1 2	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0376 0.0313 0.0021 0.0213 0.0221 0.0503 0.0173 0.0894 0.3711 0.3736 0.3922 0.2901 0.0657	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0902 0.0088 0.1609 0.0062 0.0333 0.0510 0.0101 0.1807 0.0063 0.0312 0.0541 0.0643 0.4689 0.0193 0.0853 0.1807 0.0724	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0086 0.0442 0.0930 0.0076 0.0064 0.0069 0.0356 0.0541 0.0089 0.0067 0.0063 0.0330 0.0572 0.0615 0.0225 0.0244	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0101 0.0023 0.0161 0.0309 0.0008 0.0032 0.0015 0.0088 0.0051 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0008 0.0033 0.0006 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0273 0.0761 0.0387 0.0190 0.0125 0.0099 0.0066 0.1824 0.0329 0.0117 0.0835 0.1068 0.5793 0.2886 0.1011 0.0729	
Jack FK-F FK-Chi Klotz-F	1 2 3a 3b 4 1 2	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1058 0.0081 0.0433 0.0398 0.0694 0.0261 0.0261 0.0218 0.0443 0.0194 0.0977 0.2845 0.2852 0.2853 0.2288 0.0699 0.2288	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113 0.0162 0.1736 0.0162 0.1736 0.0105 0.0399 0.0628 0.0704 0.3652 0.0327 0.1037 0.1636 0.0708 0.07088 0.4056	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0160 0.0563 0.0965 0.0140 0.0099 0.0103 0.0392 0.0596 0.0149 0.0085 0.0092 0.0373 0.0638 0.0638 0.0302 0.0309 0.0986 0.1555 0.0725 0.0386	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045 0.0010 0.0051 0.0037 0.0000	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.2437 0.0813 0.0496 0.0136 0.0159 0.1574 0.0549 0.0175 0.0175 0.0108 0.1627 0.0365 0.01627 0.0549 0.0549 0.0549 0.0549 0.0549 0.0549 0.0549 0.0549 0.0549 0.0549 0.0549 0.0549 0.0549 0.0549 0.0559 0.05	Jack FK-F FK-Chi Klotz-F	1 2 3a 3b 4 1 1 2	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0376 0.0313 0.0021 0.0213 0.0221 0.0503 0.0173 0.0894 0.3736 0.3922 0.2901 0.0657 0.3011	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0076 0.0428 0.0902 0.0088 0.1609 0.0062 0.0333 0.0510 0.0101 0.1807 0.0063 0.0541 0.0643 0.4649 0.0193 0.0853 0.1807 0.00724 0.05246	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0086 0.0442 0.0930 0.0076 0.0064 0.0069 0.0356 0.0541 0.0063 0.0330 0.0572 0.0615 0.0225 0.0225 0.0204 0.0846 0.1774 0.0656 0.0305	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0101 0.0023 0.0161 0.0309 0.0008 0.0032 0.0015 0.0005 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0008 0.0033 0.006 0.0088 0.0313 0.0092 0.0478 0.0651 0.0027	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0761 0.0387 0.0090 0.0126 0.1664 0.0537 0.0125 0.0099 0.0126 0.1824 0.0329 0.0117 0.035 0.0586 0.1824 0.0593 0.0586 0.1824 0.0593 0.0	
Jack FK-F FK-Chi Klotz-F	1 2 3a 3b 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.1631 0.0030 0.0320 0.0297 0.0479 0.0230 0.0339 0.1291 0.1305 0.1058 0.1358 0.0081 0.0433 0.0398 0.0694 0.0224 0.0218 0.0443 0.0194 0.0977 0.2845 0.2852 0.2853 0.2288 0.0699	0.1291 0.0083 0.1351 0.0077 0.0307 0.0526 0.0248 0.2286 0.0149 0.0543 0.0971 0.0133 0.1565 0.0113 0.0414 0.0613 0.0162 0.1736 0.0105 0.0399 0.0628 0.0704 0.3652 0.0327 0.1037 0.1636 0.0708	0.0085 0.0070 0.0077 0.0304 0.0496 0.0238 0.0160 0.0160 0.0563 0.0965 0.0140 0.0099 0.0103 0.0392 0.0596 0.0149 0.0085 0.0092 0.0373 0.0638 0.0638 0.0638 0.0302 0.0309 0.0309	0.0000 0.0013 0.0004 0.0019 0.0018 0.0031 0.0109 0.0020 0.0123 0.0246 0.0004 0.0045 0.0010 0.0051 0.0037 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0289 0.0067 0.0282 0.0382	0.0086 0.0109 0.1337 0.0392 0.0144 0.0330 0.2437 0.0813 0.0496 0.0136 0.01574 0.0549 0.0175 0.0137 0.0108 0.1627 0.0365 0.0161 0.0189 0.1018 0.1627 0.0189 0.0191 0.0189 0.0191 0.019	Jack FK-F FK-Chi Klotz-F	1 2 3a 3b 4 1 2	0.0012 0.0218 0.0239 0.0434 0.0181 0.0267 0.1294 0.1262 0.1041 0.1400 0.0046 0.0360 0.0376 0.0313 0.0021 0.0213 0.0221 0.0503 0.0173 0.0894 0.3711 0.3736 0.3922 0.2901 0.0657	0.0056 0.1340 0.0045 0.0235 0.0410 0.0154 0.2550 0.0902 0.0088 0.1609 0.0062 0.0333 0.0510 0.0101 0.1807 0.0063 0.0312 0.0541 0.0643 0.4689 0.0193 0.0853 0.1807 0.0724	0.0057 0.0053 0.0046 0.0250 0.0432 0.0167 0.0085 0.0086 0.0442 0.0930 0.0076 0.0064 0.0069 0.0356 0.0541 0.0089 0.0067 0.0063 0.0330 0.0572 0.0615 0.0225 0.0244	0.0529 0.0001 0.0006 0.0008 0.0027 0.0019 0.0101 0.0023 0.0161 0.0309 0.0008 0.0032 0.0015 0.0088 0.0051 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0008 0.0033 0.0006 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008 0.0008	0.0057 0.0070 0.1313 0.0324 0.0088 0.0243 0.0273 0.0761 0.0387 0.0125 0.0125 0.0099 0.0126 0.1824 0.0329 0.0117 0.0835 0.1068 0.5793 0.2886 0.1011 0.0729	

For VC see the variance combinations. As for the proportions in the columns Model, Only A, Only B, Both A and B, INT are based on 10,000 simulations for VC (1) and 30,000 for all other VC's, since these combine all three subcombinations for combinations (2), (3a), (3b), and (4). VC (1) exploring robustness, while VC (2) explores power in the presence of an A main effect, VC (3a) and (3b) explore power in the presence of interaction, VC (4) investigating power in the presence of A and B main effects. The column Model corresponds to the overall test of homogeneity of variance. Categories Only A, Only B, Both A and B, and INT are mutually exclusive and correspond to a factorial ANOVA

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	Chi-sq	uare distributio	on			Chi-square distribution						Double exponential distribution					
Tests	VC	Model	Only A	Only B	Both A and B	INT	Tests	VC	Model	Only A	Only B	Both A and B	INT				
Lev 1	1	0.0907	0.0500	0.0539	0.0040	0.0690	Lev 1	1	0.0484	0.0461	0.0450	0.0027	0.0514				
	2	0.1875	0.1817	0.0321	0.0152	0.0752		2	0.2232	0.3694	0.0190	0.0132	0.0497				
	3a	0.1856	0.0311	0.0357	0.0037	0.2329		3a	0.2241	0.0201	0.0179	0.0017	0.4113				
	3b	0.1894	0.0696	0.0643	0.0117	0.1242		3b	0.2703	0.0796	0.0858	0.0188	0.1709				
	4	0.1628	0.0964	0.0945	0.0147	0.0761		4	0.1759	0.1409	0.152	0.0249	0.0551				
Lev 2	1	0.0519	0.0376	0.0432	0.0033	0.0496	Lev 2	1	0.0358	0.0376	0.0366	0.0010	0.0388				
	2	0.1468	0.2149	0.0282	0.0131	0.0539		2	0.2452	0.4175	0.0156	0.0158	0.0385				
	3a 3b	0.1485 0.1518	0.0262 0.0711	0.0285 0.0678	0.0027 0.0116	0.2478 0.1027		3a 3b	0.2453 0.2627	0.0172 0.0904	0.0157 0.0943	0.0013 0.0222	0.4560 0.1676				
	4	0.1316	0.1037	0.0078	0.0143	0.1027		4	0.2027	0.1608	0.1686	0.0222	0.0498				
Jack	1	0.1451	0.0709	0.0738	0.0123	0.1023	Jack	1	0.0852	0.0572	0.0561	0.0057	0.0685				
Duck	2	0.2650	0.2222	0.0504	0.0357	0.1023	Datek	2	0.3403	0.3937	0.0272	0.0346	0.0685				
	3a	0.2723	0.0489	0.0543	0.0077	0.3030		3a	0.3407	0.0272	0.0258	0.0027	0.4654				
	3b	0.2376	0.0897	0.0937	0.027	0.1571		3b	0.2823	0.1028	0.1037	0.0312	0.1822				
	4	0.2774	0.1258	0.1225	0.0423	0.1181		4	0.3637	0.1545	0.1732	0.0814	0.1044				
FK-F	1	0.0718	0.0504	0.0538	0.0041	0.0671	FK-F	1	0.0348	0.0396	0.0385	0.0016	0.0414				
	2	0.2125	0.2605	0.0359	0.0194	0.0723		2	0.2490	0.4191	0.0175	0.0159	0.0442				
	3a	0.2077	0.0345	0.0352	0.0041	0.3043		3a	0.2530	0.0194	0.0183	0.0013	0.4616				
	3b	0.2004	0.0847	0.0871	0.0162	0.1385		3b	0.2574	0.0947	0.094	0.0229	0.1708				
	4	0.1843	0.1312	0.1304	0.0216	0.0786		4	0.1905	0.1621	0.1673	0.0338	0.0501				
FK-Chi	1	0.0628	0.0523	0.0562	0.0029	0.0628	FK-Chi	1	0.0280	0.0418	0.0389	0.0009	0.0403				
	2	0.1927	0.2699	0.0397	0.0133	0.0617		2	0.2244	0.4326	0.0186	0.0096	0.0327				
	3a	0.1913	0.0366	0.0388	0.0038	0.2968		3a	0.2251	0.0204	0.0201	0.0007	0.4590				
	3b	0.1838	0.0905	0.0937	0.0124	0.1252		3Ъ	0.2364	0.1006	0.1023	0.0174	0.1454				
	4	0.1673	0.1348	0.1365	0.0149	0.0708		4	0.1675	0.1690	0.1733	0.0207	0.0440				
Klotz-F	1	0.7296	0.1749	0.1778	0.0729	0.4443	Klotz-F	1	0.0835	0.0695	0.0643	0.0048	0.0774				
	2	0.8593	0.3398	0.0765	0.1008	0.4204		2	0.3989	0.4865	0.0275	0.0319	0.0776				
	3a	0.8593	0.0788	0.0797	0.0301	0.7514		3a	0.4122	0.0282	0.0271	0.0027	0.5718				
	3b	0.8371	0.1474	0.1423	0.0801	0.5553		3b	0.3763	0.1156	0.1181	0.0334	0.2547				
	4	0.8477	0.2025	0.1893	0.1238	0.4199		4	0.3312	0.2000	0.2086	0.0612	0.0847				
Klotz-Chi	1	0.7076	0.2063	0.2117	0.0636	0.3801	Klotz-Chi	1	0.0736	0.0718	0.067	0.0030	0.0727				
	2	84400	0.4223	0.0975	0.1035	0.3107		2	0.3745	0.5086	0.0283	0.0225	0.0587				
	3a	0.8412	0.0984	0.1015	0.0259	0.7101		3a	0.3846	0.0307	0.0289	0.0020	0.5632				
	3b	0.8188	0.1867	0.1815	0.0851	0.4663		3b	0.3530	0.1294	0.1315	0.0276	0.2209				
	4	0.8292	0.2504	0.2382	0.1213	0.3201		4	0.3028	0.2105	0.2198	0.0431	0.0717				
	Norma	l distribution							m distribution	1 							
Tests	VC	Model	Only A	Only B	Both A and B	INT	Tests	VC	Model	Only A	Only B	Both A and B	INT				
Lev 1	1	0.0576	0.0475	0.0523	0.0034	0.0564	Lev 1	1	0.0559	0.0492	0.0493	0.0027	0.0553				
	2	0.4566	0.6700	0.0082	0.0228	0.0587		2	0.7495	0.8531	0.0020	0.0219	0.0635				
	3a	0.4500	0.0088	0.0110	0.0016	0.7305		3a	0.7606	0.0013	0.0010	0.0010	0.9370				
	3b	0.5121	0.0993	0.0974	0.0453	0.3194		3b	0.7483	0.0635	0.0692	0.0588	0.5612				
	4	0.3428	0.2168	0.2245	0.0808	0.0653		4	0.6179	0.2334	0.2367	0.2519	0.0640				
Lev 2	1			0.0001	0.0044												
	2	0.0330	0.0295	0.0354	0.0016	0.0365	Lev 2	1	0.0252	0.0263	0.0266	0.0008	0.0288				
	2	0.3928	0.0295 0.6015	0.0104	0.0200	0.0400	Dev 2	2	0.5013	0.7352	0.0032	0.0180	0.0319				
	3a	0.3928 0.3883	0.0295 0.6015 0.0087	0.0104 0.0103	0.0200 0.0010	0.0400 0.6480	Dev 2	2 3a	0.5013 0.5072	0.7352 0.0042	0.0032 0.0049	0.0180 0.0008	0.0319 0.7855				
	3b	0.3928 0.3883 0.3896	0.0295 0.6015 0.0087 0.1030	0.0104 0.0103 0.1023	0.0200 0.0010 0.0414	0.0400 0.6480 0.2421	Dev 2	2 3a 3b	0.5013 0.5072 0.4928	0.7352 0.0042 0.0944	0.0032 0.0049 0.0943	0.0180 0.0008 0.0566	0.0319 0.7855 0.3134				
T1-	3b 4	0.3928 0.3883 0.3896 0.3187	0.0295 0.6015 0.0087 0.1030 0.2071	0.0104 0.0103 0.1023 0.2061	0.0200 0.0010 0.0414 0.0786	0.0400 0.6480 0.2421 0.0518		2 3a 3b 4	0.5013 0.5072 0.4928 0.4243	0.7352 0.0042 0.0944 0.2208	0.0032 0.0049 0.0943 0.2231	0.0180 0.0008 0.0566 0.1331	0.0319 0.7855 0.3134 0.0452				
Jack	3b 4 1	0.3928 0.3883 0.3896 0.3187 0.0493	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350	0.0104 0.0103 0.1023 0.2061 0.0387	0.0200 0.0010 0.0414 0.0786 0.0036	0.0400 0.6480 0.2421 0.0518 0.0424	Jack	2 3a 3b 4	0.5013 0.5072 0.4928 0.4243 0.0275	0.7352 0.0042 0.0944 0.2208 0.0203	0.0032 0.0049 0.0943 0.2231 0.0206	0.0180 0.0008 0.0566 0.1331 0.0023	0.0319 0.7855 0.3134 0.0452 0.0223				
Jack	3b 4 1 2	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424		2 3a 3b 4 1	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223				
Jack	3b 4 1 2 3a	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0089	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424 0.6979		2 3a 3b 4 1 2 3a	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9207				
Jack	3b 4 1 2 3a 3b	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0089 0.1116	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424 0.6979 0.2281		2 3a 3b 4 1 2 3a 3b	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9207 0.3461				
	3b 4 1 2 3a 3b 4	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0089 0.1116 0.1954	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424 0.6979 0.2281 0.1075	Jack	2 3a 3b 4 1 2 3a	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9207 0.3461 0.1176				
Jack FK-F	3b 4 1 2 3a 3b 4	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0089 0.1116 0.1954 0.0353	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424 0.6979 0.2281 0.1075 0.0376		2 3a 3b 4 1 2 3a 3b 4	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9207 0.3461 0.1176 0.0220				
	3b 4 1 2 3a 3b 4 1	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0089 0.1116 0.1954 0.0353 0.009	0.0200 0.0010 0.0414 0.0796 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424 0.6979 0.2281 0.1075 0.0376	Jack	2 3a 3b 4 1 2 3a 3b 4 1	0.5013 0.5072 0.4928 0.4243 0.0275 0.7387 0.7385 0.5889 0.7734 0.0141 0.5154	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9207 0.3461 0.1176 0.0220 0.0297				
	3b 4 1 2 3a 3b 4 1 2 3a	0.3928 0.3833 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0089 0.1116 0.1954 0.0353 0.009 0.0096	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424 0.6979 0.2281 0.1075 0.0376 0.0375 0.6703	Jack	2 3a 3b 4 1 2 3a 3b 4 1 2 3a	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.5154 0.5265	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137 0.0006	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9207 0.3461 0.1176 0.0220 0.0297 0.8366				
	3b 4 1 2 3a 3b 4 1 2 3a 3b	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821 0.4069	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0089 0.1116 0.1954 0.0353 0.009 0.0096 0.1042	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424 0.6979 0.2281 0.1075 0.0376 0.0375 0.6703 0.2618	Jack	2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.5154 0.5265 0.5480	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0884	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021 0.0021	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137 0.0006 0.0597	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9207 0.3461 0.1176 0.0220 0.0297 0.8366 0.3634				
FK-F	3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821 0.4069 0.2676	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062 0.2043	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0089 0.1116 0.1954 0.0353 0.009 0.1042 0.2077	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436 0.0642	0.0400 0.6480 0.2421 0.0518 0.0424 0.6979 0.2281 0.1075 0.0376 0.0375 0.6703 0.2618 0.0451	Jack FK-F	2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.5154 0.5265 0.5480 0.3397	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0384 0.2264	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021 0.0021 0.9110 0.2271	0.0180 0.0008 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137 0.0006 0.0597	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9207 0.3461 0.1176 0.0220 0.0297 0.8366 0.3634 0.0296				
FK-F	3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821 0.4069 0.2676 0.0254	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062 0.2043	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0089 0.1116 0.1954 0.0353 0.009 0.1042 0.2077 0.0364	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436 0.0642 0.0009	0.0400 0.6480 0.2421 0.0518 0.0424 0.6979 0.2281 0.1075 0.0376 0.0375 0.6703 0.2618 0.0451 0.0363	Jack	2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.5154 0.5265 0.5480 0.3397 0.0105	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0884 0.2264	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021 0.0021 0.9110 0.2271 0.0220	0.0180 0.0008 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137 0.0006 0.0597 0.112	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9207 0.3461 0.1176 0.0220 0.0297 0.3363 0.0236				
FK-F	3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 4 1 2 2	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821 0.4069 0.2676 0.0254 0.3513	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062 0.2043 0.0335 0.6458	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.1016 0.1954 0.0353 0.009 0.009 0.1042 0.0096 0.1042	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436 0.0642 0.0009 0.0109	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424 0.6979 0.2281 0.1075 0.0375 0.6703 0.2618 0.0451 0.0363 0.0254	Jack FK-F	2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3 3 4 1 2 2 3 4 1 2 2 3 4 1 2 2 3 4 1 2 2 3 4 1 2 2 3 4 4 1 2 2 3 3 4 4 1 2 2 3 3 4 4 1 2 3 4 4 1 2 3 2 3 4 4 4 1 2 3 2 3 4 4 1 2 2 3 2 4 4 1 2 2 2 2 2 3 2 4 4 1 2 2 3 2 3 4 4 4 1 2 2 3 2 3 4 4 4 4 1 2 2 3 2 3 4 4 4 4 4 1 2 2 3 2 3 4 4 4 4 4 4 4 1 2 3 2 3 4 4 4 4 4 4 4 4 1 2 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0.5013 0.5072 0.4928 0.4243 0.0275 0.7387 0.7387 0.5889 0.7734 0.0141 0.5154 0.5265 0.5480 0.3397 0.0105 0.4752	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0884 0.2264 0.0226 0.8164	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021 0.0021 0.9110 0.2271 0.0220 0.0028	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137 0.0006 0.0597 0.112 0.0002	0.0319 0.7855 0.3134 0.0452 0.0223 0.9207 0.3461 0.1176 0.0220 0.0297 0.3366 0.3634 0.0296 0.0221				
FK-F	3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821 0.4069 0.2676 0.0254	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062 0.2043	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0089 0.1116 0.1954 0.0353 0.009 0.1042 0.2077 0.0364	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436 0.0642 0.0009	0.0400 0.6480 0.2421 0.0518 0.0424 0.6979 0.2281 0.1075 0.0376 0.0375 0.6703 0.2618 0.0451 0.0363	Jack FK-F	2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.5154 0.5265 0.5480 0.3397 0.0105	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0884 0.2264	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021 0.0021 0.9110 0.2271 0.0220	0.0180 0.0008 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137 0.0006 0.0597 0.112	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9207 0.3461 0.1176 0.0220 0.0297 0.3363 0.0236				
FK-F	3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 4 1 2 3a 3b 4 1 2 3a	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821 0.4069 0.2676 0.0254 0.3513 0.3473	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062 0.2043 0.0335 0.6458 0.0086	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0099 0.1116 0.1954 0.0353 0.0096 0.1042 0.2077 0.3644 0.0089 0.0113	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436 0.0642 0.0009 0.0109	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424 0.6979 0.2281 0.1075 0.0376 0.0375 0.6703 0.2618 0.0451 0.0363 0.0254	Jack FK-F	2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.5126 0.5265 0.5480 0.3397 0.0105 0.4752 0.4897	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0884 0.2264 0.0226 0.8164 0.0032	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021 0.0021 0.9110 0.2271 0.0220 0.0020	0.0180 0.0008 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137 0.0006 0.0597 0.112 0.0002 0.0079 0.0004	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9207 0.3461 0.1176 0.0220 0.0297 0.8366 0.3634 0.0296 0.0221 0.0152 0.0225				
FK-F	3b 4 1 2 3a 3b 4 1 3b	0.3928 0.3833 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821 0.4069 0.2676 0.0254 0.3513 0.3473 0.3846	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062 0.2043 0.0335 0.6458 0.0086 0.1204	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0099 0.1116 0.1954 0.0353 0.009 0.0096 0.1042 0.2077 0.0364 0.0099 0.0113 0.0113	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436 0.0642 0.0009 0.0109 0.0109 0.0010	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424 0.6707 0.0376 0.0375 0.6703 0.2618 0.0451 0.0363 0.0254 0.6701 0.2138	Jack FK-F	2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3 5 4 1 1 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.5154 0.5265 0.5480 0.3397 0.105 0.4752 0.4897 0.5225	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0884 0.2264 0.0226 0.8164 0.0032 0.1118	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021 0.0021 0.9110 0.2271 0.0220 0.0028 0.0028	0.0180 0.0008 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137 0.0006 0.0597 0.112 0.0002 0.0079 0.0004	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.0223 0.220 0.3461 0.1176 0.0220 0.0297 0.3366 0.3634 0.0296 0.0221 0.0152 0.3838				
FK-F	3b 4 1 2 3a 3b 4 1	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3621 0.4069 0.2676 0.0254 0.3513 0.3473 0.3846 0.2376	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062 0.2043 0.0335 0.6458 0.0086 0.1204 0.2176	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0089 0.1116 0.1954 0.0353 0.009 0.0096 0.1042 0.2077 0.0364 0.0089 0.01178	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436 0.0642 0.0009 0.0109 0.0010 0.0355 0.0428	0.0400 0.6480 0.2421 0.0518 0.0424 0.6979 0.2281 0.1075 0.0376 0.0375 0.6703 0.2618 0.0451 0.0363 0.0254 0.6701 0.2138 0.0359	Jack FK-F FK-Chi	2 3a 3b 4 1 2 3a 3b 4	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.5154 0.5480 0.3397 0.0105 0.4752 0.4852 0.5825 0.5839	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0884 0.2264 0.0226 0.8164 0.0032 0.1118 0.2452	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021 0.0021 0.9110 0.2271 0.0220 0.0028 0.0028 0.0026 0.1126 0.2445	0.0180 0.0008 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.137 0.0006 0.0597 0.112 0.0002 0.0079 0.0004 0.0513	0.0319 0.7855 0.3134 0.0452 0.0223 0.9207 0.3461 0.1176 0.0220 0.0297 0.3634 0.0296 0.0221 0.0152 0.8382 0.2898 0.0237				
FK-F	3b 4 1 2 3a 3b 4 1	0.3928 0.3823 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821 0.4069 0.2676 0.0254 0.3513 0.3473 0.3473 0.3846 0.2376 0.0710	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062 0.2043 0.0335 0.6458 0.0086 0.1204 0.2176 0.0548	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.1016 0.1954 0.0353 0.009 0.1042 0.0096 0.1042 0.0099 0.0113 0.1178 0.0099	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436 0.0642 0.0009 0.0109 0.0109 0.0110 0.0355 0.0428 0.0034	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424 0.6979 0.2281 0.1075 0.0375 0.6703 0.2618 0.0451 0.0363 0.0254 0.6701 0.2138 0.0254	Jack FK-F FK-Chi	2 3a 3b 4 1 1 2 3a 3b 4 1	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.5154 0.5265 0.5480 0.3397 0.0105 0.4752 0.4897 0.5265	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0884 0.2264 0.0226 0.8164 0.0032 0.1118 0.2452 0.0495	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021 0.9011 0.2271 0.0221 0.0028 0.0028 0.0028 0.0026 0.1126 0.2445 0.0470	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137 0.0006 0.0597 0.112 0.0002 0.0079 0.0004 0.0513 0.0023	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9207 0.3461 0.1176 0.0220 0.0297 0.3366 0.3634 0.0221 0.0152 0.3832 0.9207				
FK-F	3b 4 1 2 3a 3b 4 1 1 2 3a 3b 4 1 2	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821 0.4069 0.2676 0.0254 0.3513 0.3473 0.3846 0.2376 0.0710 0.5681	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062 0.2043 0.0335 0.6458 0.0086 0.1204 0.2176 0.0548 0.6740	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0099 0.1116 0.1954 0.0353 0.009 0.1042 0.2077 0.0368 0.0113 0.1178 0.1178 0.0583 0.0583	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436 0.0642 0.0009 0.0109 0.0109 0.0109 0.0428 0.0034 0.0034	0.0400 0.6480 0.2421 0.0518 0.0424 0.4224 0.6979 0.2281 0.1075 0.0376 0.6703 0.2618 0.0451 0.0363 0.0254 0.6701 0.2138 0.0353 0.0254 0.6701 0.2138 0.0353 0.0254	Jack FK-F FK-Chi	2 3a 3b 4 1 2	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.5126 0.5265 0.5480 0.3397 0.0105 0.4752 0.4897 0.5225 0.3057 0.5225 0.3057 0.5225	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0884 0.2264 0.0226 0.8164 0.0032 0.1118 0.2452 0.0495 0.8381	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021 0.9110 0.2271 0.0220 0.0028 0.0026 0.1126 0.2445 0.0470 0.0027	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137 0.0006 0.0597 0.112 0.0002 0.0079 0.0004 0.0513 0.0723 0.0024 0.0302	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.0227 0.3461 0.1176 0.0220 0.0297 0.3366 0.3634 0.0296 0.0221 0.0152 0.38382 0.2898 0.0237 0.0556 0.0690				
FK-F	3b 4 1 2 3a	0.3928 0.3833 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821 0.4069 0.2676 0.0254 0.3513 0.3473 0.3846 0.2376 0.0710 0.56681 0.5604	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062 0.2043 0.0335 0.6458 0.0086 0.1204 0.2176 0.0548 0.6740 0.0108	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0099 0.1116 0.1954 0.0353 0.009 0.0096 0.1042 0.2077 0.0364 0.009 0.0113 0.1178 0.2190 0.0583 0.0101 0.0128	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436 0.0642 0.0009 0.0109 0.0109 0.0109 0.0010 0.0355 0.0428 0.0034 0.00361 0.0018	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424 0.6797 0.2281 0.1075 0.0376 0.0375 0.6703 0.2618 0.0451 0.0363 0.0254 0.6701 0.2138 0.0359 0.0682 0.0720 0.7648	Jack FK-F FK-Chi	2 3a 3b 4 1 2 3a	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.51545 0.5265 0.5480 0.3397 0.0105 0.4752 0.4897 0.5225 0.3057 0.5225 0.522	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0384 0.2264 0.0226 0.8164 0.0032 0.1118 0.2452 0.495 0.8381 0.0030	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021 0.0021 0.0220 0.0021 0.0220 0.0021 0.00220 0.0024 0.00220 0.0024 0.00220 0.0024 0.00220 0.0024 0.00220 0.0024 0.00220 0.0024 0.00220 0.0024 0.	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137 0.0006 0.0597 0.112 0.0002 0.0079 0.0004 0.0513 0.0723 0.0024 0.0302 0.0012	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.0227 0.3461 0.1176 0.0220 0.0297 0.3366 0.3634 0.0296 0.0221 0.0139 0.0237 0.0337 0.0556 0.0659 0.05690				
FK-Chi	3b 4 1 2 3a 3b 4 1 3 2 3a 3b 4 3b	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821 0.4069 0.2676 0.0254 0.3513 0.3473 0.3473 0.376 0.0710 0.5681 0.5604 0.5336	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062 0.2043 0.0335 0.6458 0.0086 0.1204 0.2176 0.0548 0.6740 0.0108 0.1143	0.0104 0.0103 0.1023 0.20261 0.0387 0.0096 0.0089 0.1116 0.1954 0.0353 0.009 0.0096 0.1042 0.2077 0.0364 0.0089 0.0113 0.1178 0.2190 0.0583 0.0112 0.0128	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436 0.0642 0.0009 0.0109 0.0109 0.0010 0.0355 0.0428 0.0034 0.0361 0.0018	0.0400 0.6480 0.2421 0.0518 0.0424 0.6979 0.2281 0.1075 0.0376 0.0375 0.6703 0.2618 0.0451 0.0363 0.0254 0.6701 0.2138 0.0359 0.0682 0.7204 0.7048 0.3549	Jack FK-F FK-Chi	2 3a 3b 4 1 2	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.5154 0.5265 0.5480 0.3397 0.0105 0.4752 0.4897 0.5225 0.3057 0.0562 0.7913 0.7913 0.7913 0.7913	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0884 0.2264 0.0226 0.8164 0.0032 0.1118 0.2452 0.0495 0.8381 0.0030 0.0809	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021 0.0021 0.00220 0.0028 0.0028 0.0028 0.0026 0.1126 0.2445 0.0470 0.0027 0.0027 0.0027	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.137 0.0006 0.0597 0.112 0.0002 0.0079 0.0004 0.0513 0.0723 0.0024 0.0302 0.0012 0.0729	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9207 0.3461 0.1176 0.0220 0.0297 0.3634 0.0296 0.0221 0.0152 0.3898 0.0237 0.0556 0.0690 0.9369 0.9369 0.9369				
FK-Chi Klotz-F	3b 4 1 2 3a 3b 4 1	0.3928 0.3823 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821 0.4069 0.2676 0.0254 0.3513 0.3473 0.3473 0.3846 0.2376 0.0710 0.5681 0.5694 0.5336 0.4343	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062 0.2043 0.0086 0.1204 0.2176 0.0548 0.6740 0.0108 0.1143 0.2359	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.1016 0.1954 0.0353 0.009 0.1042 0.0077 0.0364 0.0089 0.0113 0.1178 0.2190 0.0583 0.0101 0.0116 0.0284	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436 0.0642 0.0009 0.0109 0.0109 0.0100 0.0355 0.0428 0.0034 0.0361 0.0018 0.0627 0.1073	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424 0.6979 0.2281 0.1075 0.0375 0.6703 0.2618 0.0451 0.0363 0.0254 0.6701 0.2138 0.0451 0.0362 0.0254 0.6701 0.2138 0.0453 0.0254 0.6701 0.2138 0.0453 0.0454 0.6701 0.2138 0.0454 0.	Jack FK-F FK-Chi Klotz-F	2 3a 3b 4 1 2 3a 3b 4	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.5154 0.5265 0.5480 0.3967 0.0105 0.4752 0.4897 0.5255 0.3057 0.0562 0.7919 0.8013 0.7315 0.6053	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0884 0.2264 0.0032 0.1118 0.0495 0.8381 0.0030 0.809 0.80947	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021 0.9011 0.2271 0.0022 0.0028 0.0026 0.1126 0.2445 0.0470 0.0027 0.0027	0.0180 0.0008 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137 0.0006 0.0597 0.112 0.0002 0.0079 0.0004 0.0513 0.0004 0.0513 0.0004 0.0513 0.0004 0.0513 0.0004 0.0513 0.0004 0.0513 0.0004 0.0513 0.0004 0.0513 0.0004 0.0513 0.0004 0.0513 0.0004 0.0513 0.0004 0.0	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9207 0.3461 0.1176 0.0220 0.0297 0.3366 0.3634 0.0296 0.0221 0.0152 0.38382 0.0337 0.0556 0.0690 0.3636 0.0690 0.3636 0.0690				
FK-Chi Klotz-F	3b 4 1 2 3a 3b 4 1 1 2 3a 3b 4 1 1 2 3a 3b 4 1 1 2 3a 3b 4 1 1 2	0.3928 0.3883 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821 0.4069 0.2676 0.0254 0.3513 0.3473 0.3846 0.2376 0.0710 0.5681 0.5604 0.5336 0.4343 0.0625	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062 0.2043 0.0335 0.6458 0.0086 0.1204 0.2176 0.0548 0.6740 0.0108 0.1143 0.2359 0.0563	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0099 0.1116 0.1954 0.0353 0.009 0.1042 0.2077 0.0368 0.0113 0.1178 0.2190 0.0583 0.0111 0.0128 0.01128 0.0128	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436 0.0642 0.0009 0.0109 0.0109 0.0109 0.0355 0.0428 0.0034 0.0361 0.0018 0.0627 0.1073 0.0023	0.0400 0.6480 0.2421 0.0518 0.0424 0.4224 0.6979 0.2281 0.1075 0.6703 0.2618 0.0451 0.0365 0.0720 0.7648 0.375 0.0720 0.7648 0.3757 0.0757 0.0757	Jack FK-F FK-Chi Klotz-F	2 3a 3b 4 1 1 2 3a 3b 4 1	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.5124 0.5265 0.5480 0.3397 0.0105 0.4752 0.4897 0.5225 0.3057 0.00662 0.7919 0.8013 0.7315 0.6053 0.0480	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0884 0.2264 0.0226 0.8164 0.0032 0.1118 0.2452 0.452 0.4955 0.8381 0.0030	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1757 0.0220 0.0021 0.9110 0.2271 0.0022 0.0028 0.0026 0.1126 0.2445 0.0479	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137 0.0006 0.0597 0.112 0.0002 0.0079 0.0004 0.0513 0.0723 0.0024 0.0302 0.012 0.0729 0.2343 0.0010	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.0227 0.3461 0.1176 0.0220 0.0297 0.3366 0.3634 0.0296 0.0221 0.0152 0.8382 0.2898 0.0237 0.0556 0.0690 0.3369 0.36416 0.0679 0.0540				
FK-Chi Klotz-F	3b 4 1 2 3a 3b 4 1 2	0.3928 0.3833 0.3896 0.3187 0.0493 0.4884 0.4889 0.3810 0.5163 0.0301 0.3854 0.3821 0.4069 0.2676 0.0254 0.3513 0.3473 0.3846 0.2376 0.0710 0.5681 0.5604 0.5336 0.4343 0.0625 0.5382	0.0295 0.6015 0.0087 0.1030 0.2071 0.0350 0.6313 0.0091 0.1149 0.1945 0.0325 0.6254 0.0087 0.1062 0.2043 0.0335 0.6458 0.0086 0.1204 0.2176 0.548 0.6740 0.0108 0.1143 0.2359 0.0563 0.7099	0.0104 0.0103 0.1023 0.2061 0.0387 0.0096 0.0099 0.1116 0.1954 0.0353 0.0096 0.1042 0.2077 0.0364 0.0089 0.0113 0.1178 0.2190 0.0583 0.01116 0.1168 0.1178 0.2190 0.0583 0.01116 0.0128 0.1116 0.0128 0.1116 0.0128 0.0128 0.01	0.0200 0.0010 0.0414 0.0786 0.0036 0.0327 0.0014 0.0489 0.1649 0.0016 0.0193 0.0014 0.0436 0.0642 0.0009 0.0109 0.0109 0.0109 0.00355 0.0428 0.0034 0.0361 0.0018 0.0627 0.1073 0.0023 0.0023	0.0400 0.6480 0.2421 0.0518 0.0424 0.0424 0.6979 0.2281 0.1075 0.0376 0.0773 0.2618 0.0451 0.0363 0.0254 0.6701 0.2138 0.0359 0.0682 0.0720 0.7648 0.3549 0.0785 0.0555 0.0438	Jack FK-F FK-Chi Klotz-F	2 3a 3b 4 1 2	0.5013 0.5072 0.4928 0.4243 0.0275 0.7337 0.7385 0.5889 0.7734 0.0141 0.51245 0.5265 0.5480 0.3397 0.0105 0.4752 0.4897 0.5225 0.3057 0.0562 0.7919 0.8013 0.7315 0.6053 0.4800 0.7315 0.6053 0.4800 0.7315 0.6053	0.7352 0.0042 0.0944 0.2208 0.0203 0.8750 0.0018 0.0972 0.1771 0.0217 0.7946 0.0032 0.0384 0.2264 0.0226 0.8164 0.0032 0.1118 0.2452 0.495 0.8381 0.0030 0.0809 0.2447 0.0513 0.8806	0.0032 0.0049 0.0943 0.2231 0.0206 0.0016 0.0013 0.1040 0.1757 0.0220 0.0021 0.0021 0.02271 0.0220 0.0026 0.1126 0.2445 0.0470 0.0027 0.0027 0.0027 0.0028	0.0180 0.0008 0.0566 0.1331 0.0023 0.0213 0.0009 0.0949 0.3770 0.0009 0.0137 0.0006 0.0597 0.112 0.0002 0.0079 0.0004 0.0513 0.0723 0.0024 0.0302 0.0729 0.2343 0.0010 0.0201	0.0319 0.7855 0.3134 0.0452 0.0223 0.0223 0.9227 0.3461 0.1176 0.0220 0.0297 0.3664 0.3634 0.0296 0.0221 0.0152 0.8382 0.0237 0.0566 0.0659 0.9369 0.5416 0.0679 0.0540				

4 0.3978 0.2943 0.2945 0.0995 0.0096 4 0.3720 0.2764 0.2786 0.1825 0.0448

For VC see the variance combinations. As for the proportions in the columns Model, Only A, Only B, Both A and B, INT are based on 10,000 simulations for VC (1) and 30,000 for all other VC's, since these combine all three subcombinations for combinations (2), (3a), (3b), and (4). VC (1) exploring robustness, while VC (2) explores power in the presence of an A main effect, VC (3a) and (3b) explore power in the presence of interaction, VC (4) investigating power in the presence of A and B main effects. The column Model corresponds to the overall test of homogeneity of variance. Categories Only A, Only B, Both A and B, and INT are mutually exclusive and correspond to a factorial ANOVA

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	Table 3:	Result of	Large samp	les (n = 20)
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	Chi-sq	uare distributio	n					Double exponential distribution					
Tests	VC	Model	Only A	Only B	Both A and B	INT	Tests	VC	Model	Only A	Only B	Both A and B	INT
Lev 1	1	0.0568	0.0446	0.0387	0.0028	0.0516	Lev 1	1	0.0481	0.0444	0.0427	0.0027	0.0463
	2	0.2184	0.3132	0.0188	0.0141	0.0518		2	0.4685	0.6804	0.0081	0.0220	0.0460
	3a	0.2232	0.0199	0.0180	0.0018	0.3660		3a	0.4674	0.0084	0.0072	0.0004	0.7370
	3b	0.2547	0.0779	0.0818	0.0174	0.1521		3b	0.5399	0.1128	0.1174	0.0447	0.3333
	4	0.1747	0.1301	0.1303	0.0224	0.0576		4	0.3524	0.2313	0.2294	0.0796	0.0554
Lev 2	1	0.0457	0.0434	0.0427	0.0034	0.0461	Lev 2	1	0.0431	0.0433	0.0399	0.0019	0.0450
	2	0.2974	0.4547	0.0196	0.0200	0.0471		2	0.6256	0.7578	0.0068	0.0299	0.0452
	3a	0.3023	0.0215	0.0173	0.0023	0.5040		3a	0.6168	0.0073	0.0051	0.0008	0.8247
	3b	0.2952	0.1012	0.1073	0.026	0.1853		3b	0.5766	0.1233	0.1220	0.0641	0.3645
Tools	4	0.2463	0.1781 0.0677	0.1788 0.0631	0.0425 0.0101	0.0625 0.0929	Jack	4 1	0.5542 0.0798	0.2493 0.0552	0.2492 0.0548	0.1627 0.0059	0.0677 0.0674
Jack	1 2	0.1224 0.3784	0.3659	0.0031	0.0414	0.0929	Jack	2	0.6135	0.6499	0.0108	0.0039	0.0674
	2 3a	0.0376	0.0339	0.0318	0.0047	0.4592		2 3a	0.6153	0.0134	0.0103	0.0007	0.7569
	3b	0.3151	0.1064	0.1104	0.0360	0.1975		3b	0.5076	0.1319	0.1316	0.0691	0.3003
	4	0.3891	0.1575	0.1621	0.0832	0.1328		4	0.6426	0.2014	0.1953	0.2101	0.1481
FK-F	1	0.0711	0.0598	0.0535	0.0050	0.0656	FK-F	1	0.0441	0.0446	0.0419	0.0019	0.0461
	2	0.4090	0.4911	0.0242	0.0279	0.0702		2	0.6278	0.7458	0.0060	0.0311	0.0477
	3a	0.4077	0.0278	0.0225	0.0030	0.5658		3a	0.6206	0.0081	0.0067	0.0006	0.8145
	3b	0.3662	0.1175	0.1174	0.0381	0.2306		3b	0.5761	0.1228	0.1204	0.0657	0.3664
	4	0.3716	0.206	0.2008	0.0716	0.0883		4	0.5391	0.2565	0.2508	0.1479	0.0609
FK-Chi	1	0.0679	0.0610	0.0551	0.004	0.0641	FK-Chi	1	0.0406	0.0452	0.0425	0.0010	0.0461
	2	0.3964	0.5046	0.0248	0.0234	0.0595		2	0.6136	0.7628	0.0065	0.0253	0.0357
	3a	0.3962	0.0290	0.0237	0.0026	0.564		3a	0.6067	0.0085	0.0069	0.0008	0.8127
	3b	0.3556	0.1227	0.1259	0.0335	0.2165		3b	0.5634	0.1362	0.1319	0.0616	0.3368
	4	0.3563	0.213	0.2088	0.0592	0.0823		4	0.5227	0.2646	0.2634	0.1269	0.0544
Klotz-F	1	0.9093	0.1505	0.1497	0.1044	0.5545	Klotz-F	1	0.069	0.0595	0.0561	0.0036	0.0613
	2	0.9846	0.306	0.0253	0.1346	0.5289		2	0.6985	0.7476	0.0083	0.0402	0.0686
	3a	0.9841	0.0237	0.0236	0.0152	0.9321		3a	0.697	0.0097	0.0082	0.0008	0.8424
	3b	0.9734	0.0769	0.0824	0.0887	0.7415		3b	0.6341	0.1227	0.1227	0.0712	0.4125
	4	0.9849	0.1357	0.1373	0.2192	0.5018		4	0.6388	0.2540	0.2541	0.1915	0.0819
Klotz-Chi	1	0.9039	0.1707	0.1688	0.1053	0.5122	Klotz-Chi	1	0.0648	0.0590	0.0574	0.0028	0.0601
	2	0.9834	0.379	0.0303	0.1496	0.4356		2	0.6858	0.7710	0.0088	0.0327	0.0514
	3a	0.9834	0.0275	0.0288	0.0145	0.9232		3a	0.6853	0.0097	0.0086	0.0008	0.8410
	3b	0.9722	0.0958	0.1011	0.1048	0.6874		3b	0.6235	0.1353	0.1354	0.0712	0.3797
	4 Norma	0.9831 I distribution	0.1648	0.1653	0.2453	0.4182		4 IInifor	0.624 m distribution	0.2678	0.2697	0.1642	0.0731
Tests	VC	Model	Only A	Only B	Both A and B	INT	Tests	VC	Model	Only A	Only B	Both A and B	INT
Lev 1	1	0.0522	0.0505	0.0476	0.0029	0.0525	Lev 1	1	0.0504	0.0470	0.0433	0.0022	0.0510
	2	0.8726	0.8990	0.0003	0.0277	0.0501		2	0.9956	0.9213	0.0000	0.0247	0.0539
	3a	0.8729	0.0007	0.0004	0.0000	0.9797		3a	0.9958	0.0000	0.0000	0.0000	0.9999
	3b	0.8684	0.0792	0.0809	0.0742	0.6474		3b	0.9858	0.0142	0.0125	0.0316	0.9257
T 0	4	0.7601	0.2593	0.2617	0.3002	0.0603	T 2	4	0.9889	0.0967	0.0899	0.7534	0.0531
Lev 2	1	0.0364	0.0391	0.0355	0.0016	0.0397	Lev 2	1	0.0261	0.0299	0.0287	0.0014	0.0313
	2 3a	0.8536	0.8903	0.0010 0.0010	0.0284	0.0413 0.9608		2 3a	0.9612 0.9595	0.9361	0.0003	0.0231 0.0000	0.0344 0.9937
	3b	0.8559 0.7933	0.0012 0.0977	0.0010	0.0003 0.0938	0.5443		3b	0.9125	0.0002 0.0584	0.0002 0.0518	0.0000	0.7177
	4	0.7933	0.0377	0.0363	0.3607	0.0718		30	0.9123				
Jack	1								0.0520	0.1502			0.0601
Duck		0.0497					Tack	4	0.9520	0.1503	0.1442	0.6061	0.0691
	2	0.0497	0.0412	0.0415	0.0024	0.0448	Jack	4 1	0.0265	0.0282	0.0232	0.6061 0.0018	0.0319
	2 3a	0.9047	0.0412 0.8874	0.0415 0.0005	0.0024 0.0434	0.0448 0.0448	Jack	4 1 2	0.0265 0.9984	0.0282 0.9431	0.0232 0.0000	0.6061 0.0018 0.0250	0.0319 0.0319
	3a	0.9047 0.9088	0.0412 0.8874 0.0006	0.0415 0.0005 0.0003	0.0024 0.0434 0.0001	0.0448 0.0448 0.9764	Jack	4 1 2 3a	0.0265 0.9984 0.9988	0.0282 0.9431 0.0000	0.0232 0.0000 0.0000	0.6061 0.0018 0.0250 0.0000	0.0319 0.0319 0.9999
	3a 3b	0.9047 0.9088 0.8024	0.0412 0.8874 0.0006 0.1045	0.0415 0.0005 0.0003 0.1103	0.0024 0.0434 0.0001 0.1296	0.0448 0.0448 0.9764 0.5072	Jack	4 1 2 3a 3b	0.0265 0.9984 0.9988 0.9866	0.0282 0.9431 0.0000 0.0227	0.0232 0.0000 0.0000 0.0207	0.6061 0.0018 0.0250 0.0000 0.1072	0.0319 0.0319 0.9999 0.8366
FK-F	3a	0.9047 0.9088	0.0412 0.8874 0.0006 0.1045 0.1333	0.0415 0.0005 0.0003	0.0024 0.0434 0.0001	0.0448 0.0448 0.9764 0.5072 0.215	Jack FK-F	4 1 2 3a	0.0265 0.9984 0.9988	0.0282 0.9431 0.0000	0.0232 0.0000 0.0000 0.0207 0.0107	0.6061 0.0018 0.0250 0.0000	0.0319 0.0319 0.9999
FK-F	3a 3b 4	0.9047 0.9088 0.8024 0.9331 0.0368	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021	0.0448 0.0448 0.9764 0.5072 0.215 0.0423		4 1 2 3a 3b 4	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012	0.0319 0.0319 0.9999 0.8366 0.3887 0.0324
FK-F	3a 3b 4 1	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748	0.0412 0.8874 0.0006 0.1045 0.1333	0.0415 0.0005 0.0003 0.1103 0.1334	0.0024 0.0434 0.0001 0.1296 0.4785	0.0448 0.0448 0.9764 0.5072 0.215 0.0423 0.0409		4 1 2 3a 3b 4	0.0265 0.9984 0.9988 0.9866 0.9995	0.0282 0.9431 0.0000 0.0227 0.0115	0.0232 0.0000 0.0000 0.0207 0.0107	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888	0.0319 0.0319 0.9999 0.8366 0.3887
FK-F	3a 3b 4 1 2	0.9047 0.9088 0.8024 0.9331 0.0368	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285	0.0448 0.0448 0.9764 0.5072 0.215 0.0423		4 1 2 3a 3b 4 1 2	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234 0.9841	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182	0.0319 0.0319 0.9999 0.8366 0.3887 0.0324 0.0308
FK-F	3a 3b 4 1 2 3a	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748 0.8759	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001 0.0008	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004 0.0003	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285 0.0001	0.0448 0.0448 0.9764 0.5072 0.215 0.0423 0.0409 0.9722		4 1 2 3a 3b 4 1 2 3a	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234 0.9841 0.9852	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500 0.0000	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001 0.0000	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182 0.0000	0.0319 0.0319 0.9999 0.8366 0.3887 0.0324 0.0308
FK-F	3a 3b 4 1 2 3a 3b	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748 0.8759 0.8265	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001 0.0008 0.0930	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004 0.0003 0.0912	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285 0.0001 0.0920	0.0448 0.0448 0.9764 0.5072 0.215 0.0423 0.0409 0.9722 0.5869		4 1 2 3a 3b 4 1 2 3a 3b	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234 0.9841 0.9852 0.9589	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500 0.0000 0.0371	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001 0.0000 0.0332	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182 0.0000 0.0596	0.0319 0.0319 0.9999 0.8366 0.3887 0.0324 0.0308 0.9991 0.8355
	3a 3b 4 1 2 3a 3b 4	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748 0.8759 0.8265 0.7944	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001 0.0008 0.0930 0.2582	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004 0.0003 0.0912 0.2595	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285 0.0001 0.0920 0.3140	0.0448 0.0448 0.9764 0.5072 0.215 0.0423 0.0409 0.9722 0.5869 0.0526	FK-F	4 1 2 3a 3b 4 1 2 3a 3b 4	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234 0.9841 0.9852 0.9589 0.9601	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500 0.0000 0.0371 0.1666	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001 0.0000 0.0332 0.1595	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182 0.0000 0.0596 0.6162	0.0319 0.0319 0.9999 0.8366 0.3887 0.0324 0.0308 0.9991 0.8355 0.0332 0.0324 0.0171
	3a 3b 4 1 2 3a 3b 4 1 2 3a	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748 0.8759 0.8265 0.7944 0.0348	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001 0.0008 0.0930 0.2582 0.0421	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004 0.0003 0.0912 0.2595 0.0397	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285 0.0001 0.0920 0.3140 0.0014	0.0448 0.0448 0.9764 0.5072 0.215 0.0423 0.0409 0.9722 0.5869 0.0526 0.0421	FK-F	4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234 0.9841 0.9852 0.9589 0.9601 0.0213	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500 0.0000 0.0371 0.1666 0.0324	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001 0.0000 0.0332 0.1595 0.0287 0.0001 0.0000	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182 0.0000 0.0596 0.6162 0.0008	0.0319 0.0319 0.9999 0.8366 0.3887 0.0324 0.0308 0.9991 0.8355 0.0332 0.0324 0.0171 0.9991
	3a 3b 4 1 2 3a 3b 4 1 2 3a 3b	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748 0.8759 0.8265 0.7944 0.0348 0.8657 0.8684 0.8187	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001 0.0008 0.0930 0.2582 0.0421 0.9208 0.0010 0.1090	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004 0.0003 0.0912 0.2595 0.0397 0.0006 0.0005	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285 0.0001 0.0920 0.3140 0.0014 0.0211 0.0000 0.0969	0.0448 0.0448 0.9764 0.5072 0.215 0.0423 0.0409 0.9722 0.5869 0.0526 0.0421 0.0269 0.9716 0.5406	FK-F	4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234 0.9841 0.9852 0.9589 0.9601 0.0213 0.9822 0.9840 0.9566	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500 0.0000 0.0371 0.1666 0.0324 0.9733 0.0000 0.0469	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001 0.0000 0.0332 0.1595 0.0287 0.0001 0.0000 0.0422	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182 0.0000 0.0596 0.6162 0.0008 0.0008 0.0008	0.0319 0.0319 0.9999 0.8366 0.3887 0.0324 0.0308 0.9991 0.8355 0.0332 0.0324 0.0171 0.9991
FK-Chi	3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748 0.8759 0.8265 0.7944 0.0348 0.8657 0.8684 0.8187 0.7802	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001 0.0008 0.0930 0.2582 0.0421 0.9208 0.0010 0.1090 0.2749	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004 0.0003 0.9912 0.2595 0.0397 0.0006 0.0005 0.1072 0.2762	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285 0.0001 0.0920 0.3140 0.0014 0.0211 0.0000 0.0969 0.2808	0.0448 0.0448 0.9764 0.5072 0.215 0.0423 0.0409 0.9722 0.5869 0.0526 0.0421 0.0269 0.9716 0.5406 0.0432	FK-F FK-Chi	4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 4 1 2 3 4 4 1 2 3 4 4 4 1 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234 0.9841 0.9852 0.9589 0.9601 0.0213 0.9822 0.9840 0.9556 0.9550	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500 0.0000 0.0371 0.1666 0.0324 0.9733 0.0000 0.0469 0.1904	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001 0.0000 0.0332 0.1595 0.0287 0.0001 0.0000 0.0422 0.1879	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182 0.0000 0.0596 0.6162 0.0008 0.0086 0.0000 0.0866 0.0000	0.0319 0.0319 0.9999 0.8366 0.3887 0.0324 0.0308 0.9991 0.8355 0.0332 0.0324 0.0171 0.9991 0.7904
	3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 1	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748 0.8759 0.8265 0.7944 0.0348 0.8657 0.8684 0.8187 0.7802 0.0570	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001 0.0008 0.0930 0.2582 0.0421 0.9208 0.0010 0.1090 0.2749 0.0526	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004 0.0003 0.0912 0.2595 0.0397 0.0006 0.0005 0.1072 0.2762 0.0516	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285 0.0001 0.0920 0.3140 0.0014 0.0211 0.0000 0.0969 0.2808 0.0031	0.0448 0.0448 0.9764 0.5072 0.215 0.0423 0.0409 0.9722 0.5869 0.0526 0.0421 0.0269 0.9716 0.5406 0.0432 0.0561	FK-F	4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 1 2 3a 3b 4 1 1 2 3 4 1 1 2 3 4 1 1 1 2 3 3 4 1 1 1 1 1 2 3 3 4 1 1 1 3 1 3 1 3 1 4 1 1 1 1 1 1 1	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234 0.9841 0.9852 0.9589 0.9601 0.0213 0.9822 0.9840 0.9566 0.9550 0.0425	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500 0.0000 0.0371 0.1666 0.0324 0.9733 0.0000 0.0469 0.1904 0.0439	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001 0.0000 0.0332 0.1595 0.0287 0.0001 0.0000 0.0422 0.1879 0.0381	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182 0.0000 0.0596 0.6162 0.0008 0.0086 0.0008 0.0086 0.0000	0.0319 0.0319 0.939 0.8366 0.3887 0.0324 0.0308 0.9991 0.8355 0.0332 0.0324 0.0171 0.9991 0.7904 0.0208 0.0455
FK-Chi	3a 3b 4 1 2 3a 3b 4 1	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748 0.8759 0.8265 0.7944 0.0348 0.8657 0.8684 0.8187 0.7802 0.0570 0.9105	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001 0.0008 0.0930 0.2582 0.0421 0.9208 0.0010 0.1090 0.2749 0.0526 0.8828	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004 0.0003 0.0912 0.2595 0.0397 0.0006 0.0005 0.1072 0.2762 0.05516 0.0005	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285 0.0001 0.0920 0.3140 0.0014 0.0211 0.0000 0.0969 0.2808 0.0031	0.0448 0.0448 0.9764 0.5072 0.215 0.0409 0.9722 0.5869 0.0526 0.0421 0.0269 0.9716 0.5406 0.0432 0.0561 0.0569	FK-F FK-Chi	4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 1 2 3a 3b 4 1 1 2 3a 3 4 1 1 2 3 2 3 4 1 1 2 3 2 3 4 1 1 2 3 2 3 2 3 4 4 1 2 3 2 3 4 4 1 2 3 2 3 2 3 2 3 4 4 1 2 2 3 2 3 2 3 2 3 3 3 4 4 1 2 3 2 3 2 3 3 4 4 1 2 3 2 3 3 4 4 4 1 2 3 3 3 4 4 4 1 2 3 2 3 3 3 3 4 4 4 1 2 3 3 4 4 4 1 3 3 4 4 4 1 2 3 4 4 4 4 1 2 3 4 4 4 4 4 4 4 1 2 3 3 3 4 4 4 4 4 4 4 4 1 2 3 4 4 1 1 2 3 3 4 4 4 4 3 3 4 4 4 3 3 3 4 4 1 2 3 3 4 4 1 1 3 3 4 4 1 1 3 3 4 4 1 1 2 3 4 4 1 1 2 3 4 4 1 1 2 3 4 4 4 1 1 2 3 4 4 1 1 2 1 2 3 1 2 3 4 4 4 1 1 2 1 2 2 3 2 3 3 4 4 4 1 1 2 3 4 4 1 1 2 1 2 1 2 2 3 2 4 4 1 1 2 2 3 2 4 1 1 2 2 2 4 1 1 2 2 2 2 1 2 2 2 2 2	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234 0.9841 0.9852 0.9589 0.9601 0.0213 0.9822 0.9840 0.9566 0.9550 0.0425 0.9954	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500 0.0000 0.0371 0.1666 0.0324 0.9733 0.0000 0.0469 0.1904 0.0439 0.9178	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001 0.0000 0.0332 0.1595 0.0287 0.0001 0.0000 0.0422 0.1879 0.0001	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182 0.0000 0.0596 0.6162 0.0008 0.0006 0.0006 0.0000 0.0804 0.5719 0.0016 0.0238	0.0319 0.0319 0.9399 0.8366 0.3887 0.0324 0.0308 0.9991 0.8355 0.0332 0.0324 0.0171 0.9991 0.7904 0.0208 0.0455 0.0581
FK-Chi	3a 3b 4 1 2 3a	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748 0.8759 0.8265 0.7944 0.0348 0.8657 0.8664 0.8187 0.7802 0.0570 0.9105 0.9115	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001 0.0008 0.0930 0.2582 0.0421 0.9208 0.0010 0.1090 0.2749 0.0526 0.8828 0.0010	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004 0.0003 0.0912 0.2595 0.0397 0.0006 0.0005 0.1072 0.2762 0.0516 0.0005 0.0006	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285 0.0001 0.0920 0.3140 0.0014 0.0211 0.0000 0.0969 0.2808 0.0031 0.0361 0.0000	0.0448 0.0448 0.9764 0.5072 0.215 0.0423 0.0409 0.9722 0.5869 0.0526 0.0421 0.0269 0.9716 0.5406 0.0432 0.0569 0.0569	FK-F FK-Chi	4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 1 2 3a 3 3 4 1 1 2 3 3 3 3 3 3 4 4 1 2 3 3 3 3 4 4 1 2 3 3 3 3 4 4 3 3 3 4 4 3 3 3 3 4 4 3 3 3 3 4 4 3 3 3 3 4 3	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234 0.9841 0.9852 0.9589 0.9601 0.0213 0.9822 0.9840 0.9566 0.9550 0.0425 0.9954	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500 0.0000 0.0371 0.1666 0.0324 0.9733 0.0000 0.0469 0.1904 0.0439 0.9178 0.0000	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001 0.0332 0.1595 0.0287 0.0001 0.0000 0.422 0.1879 0.0381 0.0000 0.0000	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182 0.0000 0.0596 0.6162 0.0008 0.0008 0.0000 0.0804 0.5719 0.0016 0.0238 0.0000	0.0319 0.0319 0.9999 0.8366 0.3887 0.0324 0.0325 0.0332 0.0324 0.0171 0.9991 0.7904 0.0208 0.0455 0.0581 1.0000
FK-Chi	3a 3b 4 1 2 3a 3b 4	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748 0.8759 0.8265 0.7944 0.0348 0.8657 0.8684 0.8187 0.7802 0.0570 0.9105 0.9115 0.8564	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001 0.0008 0.0930 0.2582 0.0421 0.9208 0.0010 0.1090 0.2749 0.0526 0.8828 0.0010 0.0822	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004 0.0003 0.0912 0.2595 0.0397 0.0006 0.0005 0.1072 0.2762 0.0516 0.0005 0.0006 0.0005	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285 0.0001 0.0920 0.3140 0.0014 0.0211 0.0000 0.0969 0.2808 0.0031 0.00361 0.0000 0.0927	0.0448 0.0448 0.9764 0.5072 0.215 0.0423 0.0409 0.9722 0.5869 0.0526 0.0421 0.0269 0.9716 0.5406 0.0432 0.0561 0.0569 0.9776 0.6321	FK-F FK-Chi	4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3a 3a 3a 3a 3a 3a 3a 3a 3a 3a 3a 3a	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234 0.9841 0.9852 0.9589 0.9601 0.0213 0.9822 0.9840 0.9566 0.9550 0.0425 0.9954 0.9963 0.9794	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500 0.0000 0.0324 0.9733 0.0000 0.0469 0.1904 0.0439 0.9178 0.0000 0.0193	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001 0.0000 0.0332 0.1595 0.0287 0.0001 0.0000 0.0422 0.1879 0.0381 0.0000 0.0000 0.0000 0.0000	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182 0.0000 0.0596 0.6162 0.0008 0.0086 0.0000 0.0864 0.5719 0.0016 0.0238 0.0000 0.0238	0.0319 0.0319 0.9999 0.8366 0.3887 0.0324 0.0308 0.9991 0.8355 0.0332 0.0324 0.0171 0.9991 0.7904 0.0208 0.0455 0.0581
FK-Chi Klotz-F	3a 3b 4 1 2 3a 3b 4 1	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748 0.8759 0.8265 0.7944 0.0348 0.8657 0.7802 0.0570 0.9105 0.9105 0.9115 0.8564 0.8666	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001 0.0008 0.0930 0.2582 0.0421 0.9208 0.0010 0.1090 0.2749 0.0526 0.8828 0.0010 0.0822 0.2398	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004 0.0003 0.912 0.2595 0.0397 0.0006 0.0005 0.1072 0.2762 0.0516 0.0005 0.0006	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285 0.0001 0.0920 0.3140 0.0014 0.0211 0.0000 0.0969 0.2808 0.0031 0.0361 0.0000 0.0927	0.0448 0.0448 0.9764 0.5072 0.215 0.0423 0.9722 0.5869 0.0526 0.0269 0.9716 0.0421 0.0561 0.0569 0.9776 0.6321 0.0718	FK-F FK-Chi Klotz-F	4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 4 1 2 3a 4 1 2 3a 4 4 1 2 3a 4 4 4 1 2 3a 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0.0265 0.9984 0.9986 0.9995 0.0234 0.9841 0.9852 0.9589 0.9601 0.0213 0.9822 0.9840 0.9566 0.9550 0.0425 0.9954 0.9963 0.9794	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500 0.0000 0.0371 0.1666 0.0324 0.9733 0.0000 0.0469 0.1904 0.0439 0.9178 0.0000 0.0193 0.1132	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001 0.0000 0.0332 0.1595 0.0287 0.0001 0.0000 0.0422 0.1879 0.0381 0.0000 0.0000	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182 0.0000 0.0596 0.6162 0.0008 0.0086 0.0000 0.0804 0.5719 0.0016 0.0238 0.0000 0.0470 0.7131	0.0319 0.0319 0.9999 0.8366 0.3887 0.0324 0.0308 0.9991 0.8355 0.0332 0.0324 0.0171 0.9991 0.7904 0.0208 0.0455 0.0581 1.0000 0.8973 0.0568
FK-Chi	3a 3b 4 1 2 3a 3b 4 1 1 2 3a 3b 4 1	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748 0.8759 0.8265 0.7944 0.0348 0.8657 0.8684 0.8187 0.7802 0.0570 0.9115 0.9115 0.8564 0.8666 0.0533	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001 0.0008 0.0930 0.2582 0.0421 0.9208 0.0010 0.1090 0.2749 0.0526 0.8828 0.0010 0.0822 0.2398 0.0532	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004 0.0003 0.0912 0.2595 0.0397 0.0006 0.0005 0.1072 0.2762 0.0516 0.0005 0.0006	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285 0.0001 0.0920 0.3140 0.0014 0.0211 0.0000 0.969 0.2808 0.0031 0.0361 0.0000 0.0927 0.3673 0.0025	0.0448 0.0448 0.9764 0.5072 0.215 0.4023 0.409 0.9722 0.5869 0.0526 0.0521 0.0569 0.9716 0.0569 0.9776 0.0569 0.0569 0.0569 0.0569 0.0569 0.0569 0.0569	FK-F FK-Chi	4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 1 2 3a 3b 4 1 1 2 3 3 4 1 1 2 3 4 1 1 2 3 4 4 1 1 2 3 4 4 1 1 2 3 4 4 1 1 2 3 4 4 1 4 1 2 3 4 4 1 4 1 2 3 4 4 1 1 2 3 4 4 1 4 1 4 1 2 3 4 4 1 4 1 2 4 4 4 1 2 3 4 4 4 4 1 4 4 4 4 1 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234 0.9841 0.9852 0.9589 0.9601 0.0213 0.9822 0.9840 0.9566 0.9556 0.9550 0.0425 0.9954 0.9963 0.9794 0.9909 0.0396	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500 0.0000 0.0371 0.1666 0.0324 0.9733 0.0000 0.0469 0.1904 0.0439 0.9178 0.0000 0.0193 0.0193 0.0193	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001 0.0000 0.0332 0.1595 0.0287 0.0001 0.0000 0.0422 0.1879 0.0381 0.0000 0.0000 0.0192 0.1084 0.0386	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182 0.0000 0.5956 0.6162 0.0008 0.0006 0.0000 0.0804 0.5719 0.0016 0.0238 0.0000 0.0470 0.7131 0.0015	0.0319 0.0319 0.9999 0.8366 0.3887 0.0324 0.0308 0.9991 0.8355 0.0332 0.0324 0.0171 0.9991 0.7904 0.0208 0.0455 0.0581 1.0000 0.8973 0.0568 0.0449
FK-Chi Klotz-F	3a 3b 4 1 2	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748 0.8759 0.8265 0.7944 0.0348 0.8657 0.8664 0.8187 0.7802 0.0570 0.9105 0.9115 0.8564 0.8666 0.0533 0.9055	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001 0.0008 0.0930 0.2582 0.0421 0.9208 0.0010 0.1090 0.2749 0.0526 0.8828 0.0010 0.0822 0.2398 0.0532 0.9116	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004 0.0003 0.0912 0.2595 0.0397 0.0006 0.0005 0.1072 0.2762 0.0516 0.0005 0.0006 0.0837 0.0006	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285 0.0001 0.0920 0.3140 0.0014 0.0211 0.0000 0.0969 0.2808 0.0031 0.0361 0.0000 0.0927 0.3673 0.0025	0.0448 0.0448 0.9764 0.5072 0.215 0.0423 0.0409 0.9722 0.5869 0.0526 0.0421 0.0269 0.9716 0.5406 0.0432 0.0569 0.9776 0.6321 0.0766 0.0362	FK-F FK-Chi Klotz-F	4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 4 1 2 3 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 4 1 2 3 4 4 1 2 3 4 4 1 2 3 4 4 1 2 3 4 4 1 2 3 4 4 1 2 3 4 4 4 1 2 3 4 4 4 1 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234 0.9841 0.9852 0.9589 0.9601 0.0213 0.9822 0.9840 0.9566 0.9550 0.0425 0.9963 0.9794 0.9963 0.9794 0.9909 0.0396	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500 0.0000 0.0371 0.1666 0.0324 0.9733 0.0000 0.0469 0.1904 0.0439 0.9178 0.0000 0.0193 0.1132 0.0448	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001 0.0000 0.0332 0.1595 0.0287 0.0001 0.0000 0.0422 0.1879 0.0000 0.0000 0.0000 0.0000 0.0192 0.1084 0.0386 0.0000	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182 0.0000 0.0596 0.6162 0.0008 0.0086 0.0000 0.804 0.5719 0.0016 0.0238 0.0000 0.0470 0.7131 0.0015	0.0319 0.0319 0.9999 0.8366 0.3887 0.0324 0.0355 0.0332 0.0324 0.0171 0.9991 0.7904 0.0208 0.0455 0.0581 1.0000 0.8973 0.0589
FK-Chi Klotz-F	3a 3b 4 1 2 3a 3b 4 1 1 2 3a 3b 4 1	0.9047 0.9088 0.8024 0.9331 0.0368 0.8748 0.8759 0.8265 0.7944 0.0348 0.8657 0.8684 0.8187 0.7802 0.0570 0.9115 0.9115 0.8564 0.8666 0.0533	0.0412 0.8874 0.0006 0.1045 0.1333 0.0425 0.9001 0.0008 0.0930 0.2582 0.0421 0.9208 0.0010 0.1090 0.2749 0.0526 0.8828 0.0010 0.0822 0.2398 0.0532	0.0415 0.0005 0.0003 0.1103 0.1334 0.0399 0.0004 0.0003 0.0912 0.2595 0.0397 0.0006 0.0005 0.1072 0.2762 0.0516 0.0005 0.0006	0.0024 0.0434 0.0001 0.1296 0.4785 0.0021 0.0285 0.0001 0.0920 0.3140 0.0014 0.0211 0.0000 0.969 0.2808 0.0031 0.0361 0.0000 0.0927 0.3673 0.0025	0.0448 0.0448 0.9764 0.5072 0.215 0.4023 0.409 0.9722 0.5869 0.0526 0.0521 0.0569 0.9716 0.0569 0.9776 0.0569 0.0569 0.0569 0.0569 0.0569 0.0569 0.0569	FK-F FK-Chi Klotz-F	4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 2 3a 3b 4 1 1 2 3a 3b 4 1 1 2 3 3 4 1 1 2 3 4 1 1 2 3 4 4 1 1 2 3 4 4 1 1 2 3 4 4 1 1 2 3 4 4 1 4 1 2 3 4 4 1 4 1 2 3 4 4 1 1 2 3 4 4 1 4 1 4 1 2 3 4 4 1 4 1 2 4 4 4 1 2 3 4 4 4 4 1 4 4 4 4 1 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	0.0265 0.9984 0.9988 0.9866 0.9995 0.0234 0.9841 0.9852 0.9589 0.9601 0.0213 0.9822 0.9840 0.9566 0.9556 0.9550 0.0425 0.9954 0.9963 0.9794 0.9909 0.0396	0.0282 0.9431 0.0000 0.0227 0.0115 0.0313 0.9500 0.0000 0.0371 0.1666 0.0324 0.9733 0.0000 0.0469 0.1904 0.0439 0.9178 0.0000 0.0193 0.0193 0.0193	0.0232 0.0000 0.0000 0.0207 0.0107 0.0285 0.0001 0.0000 0.0332 0.1595 0.0287 0.0001 0.0000 0.0422 0.1879 0.0381 0.0000 0.0000 0.0192 0.1084 0.0386	0.6061 0.0018 0.0250 0.0000 0.1072 0.5888 0.0012 0.0182 0.0000 0.5956 0.6162 0.0008 0.0006 0.0000 0.0804 0.5719 0.0016 0.0238 0.0000 0.0470 0.7131 0.0015	0.0319 0.0319 0.9999 0.8366 0.3887 0.0324 0.0308 0.9991 0.8355 0.0332 0.0324 0.0171 0.9991 0.7904 0.0208 0.0455 0.0581 1.0000 0.8973 0.0568 0.0449

4 0.8558 0.2597 0.2694 0.3307 0.0578 4 0.9890 0.1381 0.1353 0.6854 0.0297

For VC see the variance combinations. As for the proportions in the columns Model, Only A, Only B, Both A and B, INT pare based on 10,000 simulations for VC (1) and 30,000 for all other VC's, since these combine all three sub-combinations for combinations (2), (3a), (3b), and (4). VC (1) exploring robustness, while VC (2) explores power in the presence of an A main effect, VC (3a) and (3b) explore power in the presence of interaction, VC (4) investigating power in the presence of A and B main effects. The column Model corresponds to the overall test of homogeneity of variance. Categories Only A, Only B, Both A and B, and INT are mutually exclusive and correspond to a factorial ANOVA

from being too conservative and also lack power when applied to small samples (n = 5).

For skewed parent distribution like chi-square Klotz-F and Klotz-Chi tests are not robust and strongly recommended that these two tests shold not be used for skewed parent distributions. For symmetric parent distributions performance of Klotz-F and Klotz-Chi is quite well. Both Klotz-F and Klotz-Chi tests show the most power. They are also robust. Klotz-F and Klotz-Chi tests can strongly be recommended when applied to samples from symmetric parent distributions.

NUMERICAL EXAMPLE

An example of a greenhouse experiment is used from Ozaydin *et al.* (1999). The treatment structure for experiment is a 2 by 2 factorial. The application of the seven test procedures to a two-way design is studied by the data. The first factor was chile (absent, present) and the other factor was source of nematodes (nematode from chile or from tomato) (Table 4). Germination of the yellow nutsedge tubers produced during the experiment was the response variable.

Regardless of nematode source, variance in yellow nutsedge tuber germination was higher when chile was present (Table 5). To test for the presence and form of heterogeneity of variance for two-way structures all seven of the analysis for two-way structures were used (Table 6). The conclusion of all the analyses was: Absence or presence of chile affects the variance of nutsedge tuber germination (means statistically significant chile main effect).

The variance of the tuber germination with respect to presence and absence of chile was pooled since the data suggested that there are two distinct variances, one when chile is present and one when it is absent. A two sample t-test comparing the means for the treatments (chile absent, nematode from chile) and (chile absent, nematode from tomato) was performed. The result was there is no significant difference in the mean tuber germination (p = 0.4609). Another two sample t-test comparing the means for the treatments (chile present, nematode from chile) and (chile present, nematode from tomato) was performed. The result was there is no significant difference in the mean tuber germination (p = 0.7856). Therefore the means within chile levels was also pooled (Table 7).

Although, in practice the most appropriate test should be chosen and applied, for purposes of example, all seven tests were applied to the data.

Table 4: Nutsedge tuber germination by chile and nematode source^a

	Nematode source			
Chile	Chile	Tomato		
Absent	86 100 70 80 88 70	100 60 67 71 70 90		
Present	30 100 100 63 100 30	40 100 44 100 29 78		

^aData from (Ozay din et al., 1999)

Table 5: Means and variances of nutsedge tuber germination by chile and nematode source

Chile	Nematode source	Mean	Variance
Absent	Chile	82.3333	133.4667
	Tomato	76.3333	233.8667
Present	Chile	70.5000	1,189.5000
	Tomato	65.1666	996.1667

^aData from Ozay din et al. (1999)

Table 6: Summary of analyses of the effect of chile nematode (N) source on nutsedge tuber germination variability

		p-values	p-values							
Source	d.f.	Lev 1	Lev 2	Jack	FK-F	FK-Chi	Klotz-F	Klotz-Chi		
Model	3	0.0016	0.0103	0.0210	0.0333	0.0465	0.0055	0.01414		
Chile	1	0.0002	0.0011	0.0029	0.0049	0.0061	0.0005	0.00115		
N. Source	1	0.8145	0.9732	0.7082	0.9752	0.9782	0.8648	0.89194		
$C\times N$	1	0.4611	0.7119	0.4658	0.4380	0.7749	0.9483	0.95873		

Table 7: Means and variances of nutsedge tuber germination by Chilea

Chile	Mean	Variance
Absent	79.3333	176.7879
Present	67.8333	1,001.2400

^aData from (Ozay din et al. (1999)

CONCLUSION

Although performance of Klotz's tests for symmetric distributions were quite well according to power and robustness in a one-way design, Klotz's test statistics was not studied in a two-way design. This is the reason why in this study the performance of the Klotz's test statistics was studied and compared with the other five tests. Also, a simulation study was performed for 10000 times instead 1000 times. So, the performance of other previously studied tests were restudied based on 10000 simulations. For future studies, other tests examined by (Conover et al., 1981) for one-way design could be tested and compared for more complex designs to evaluate their performance.

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