McNemar's Change Test -- Analysis of 2-Within-Group Data with a Qualitative (binary) DV

Application: To compare the patterns of responses to two qualitative variables obtained from dependent samples (repeated measures or matched groups). The two scores might be the same variable measured at two different times or under two different conditions, or two comparable variables measured at the same time.
The researcher went back to the same 12 stores 1 year later and recorded whether each displayed only freshwater fish or both freshwater and saltwater fish.
Research Hypothesis: Pet stores were more likely to display both saltwater and freshwater fish during the second observation (because of the introduction of an inexpensive saltwater filtration system).
H0: Pet stores have the same distribution of type of fish displayed before and after the introduction of the inexpensive saltwater filtration system.

Analyze ➔ Nonparametric Tests ➔ K Related Samples
- highlight each variable (be sure it is **binary**) and click the arrow
- check the "Cochran's Q" selection
- "Statistics" — check that you want "Descriptives"
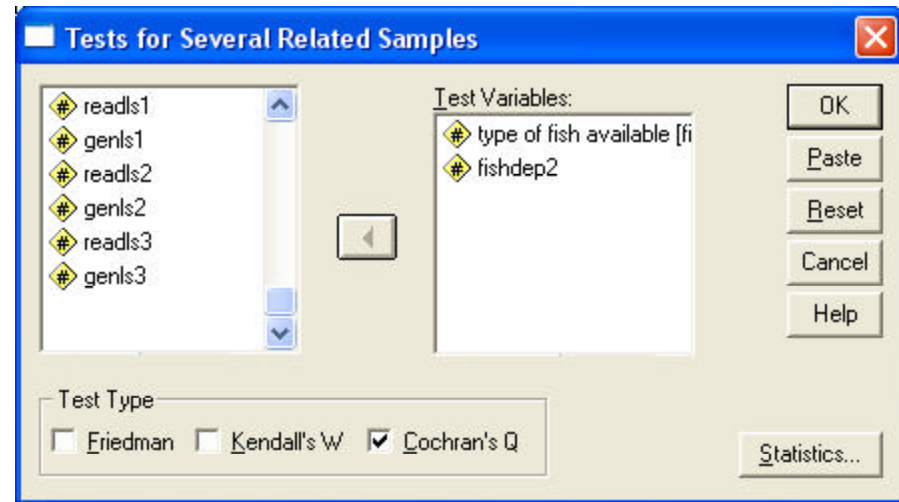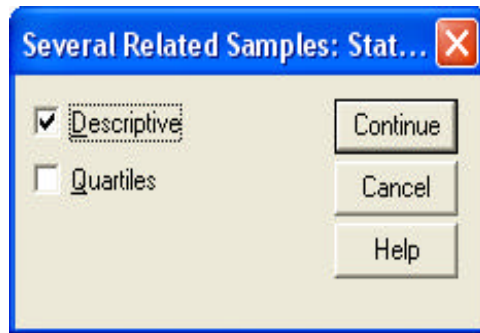
type of fish available in july & type of fish available in december

	type of fish available in december	
type of fish available in july	1	2
1	2	4
2	2	4

Test Statistics[b]

	type of fish available in july & type of fish available in december
N	12
Exact Sig. (2-tailed)	.688[a]

a. Binomial distribution used.

b. McNemar Test

Reporting the Results:

Table 1 shows the 2x2 table from the repeated observation of the types of fish displayed by these stores. Four of the stores changed from display-ing only freshwater fish during the first data collection to displaying both saltwater and freshwater fish during the second, whereas two of the stores changed from displaying both types of fish to displaying only freshwater fish. The pattern of change was not significant (McNemar's X^2 test revealed p = .688).

Table 1 would reproduce the contingency table output from SPSS.