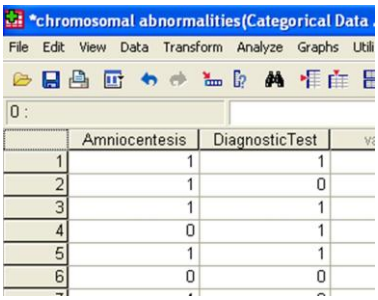
A clinical trial is conducted to evaluate a diagnostic screening test designed to detect chromosomal fetal abnormalities. Chromosomal fetal abnormalities are confirmed using amniocentesis. The diagnostic test is performed on a random sample of 200 pregnant women, who later undergo an amniocentesis. The following 2 x 2 cross-tabulation table summarizes the data:

Amniocentesis	Diagnostic Test		Total
	Positive	Negative	
Abnormal(Disease)	14	6	20
Normal(No Disease)	64	116	180
Total	78	122	200

Entering the data

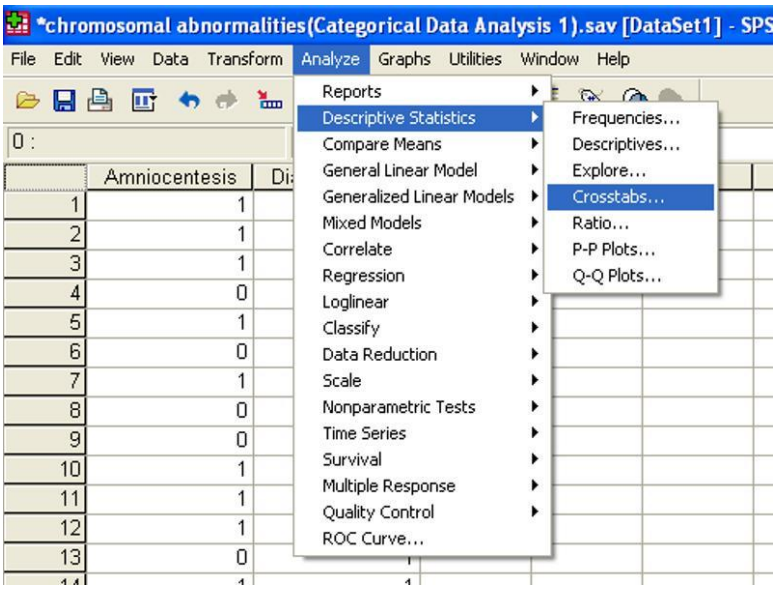
A sample the data entry is shown below. The data is also available at U:_MT Student File Area\hjkim\STAT380\SPSS tutorial\chromosomalabonormalities.sav.

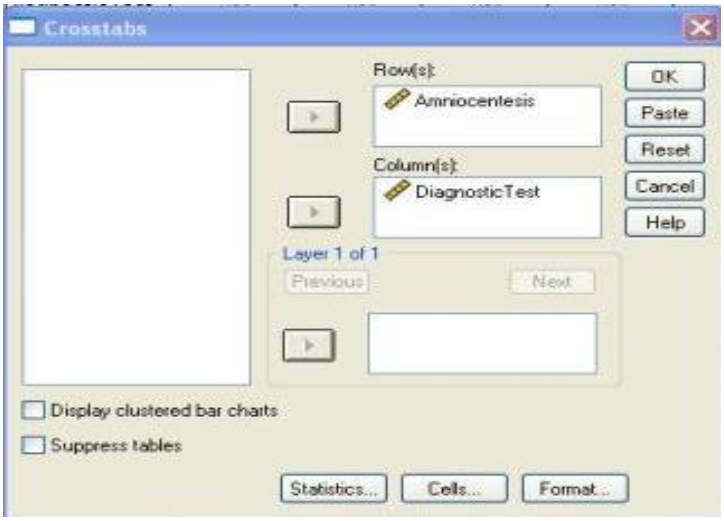


Creating a Cross-Tabulation Table

In applications involving discrete variables, cross-tabulation tables are often constructed to display the data. Cross-tabulation tables are also called R×C ("R by C") tables, where R denotes the number of rows in the table and C denotes the number of columns.

By clicking on the Analysis and Descriptive statistics and Crosstabs button, the crosstabs window will be opened.





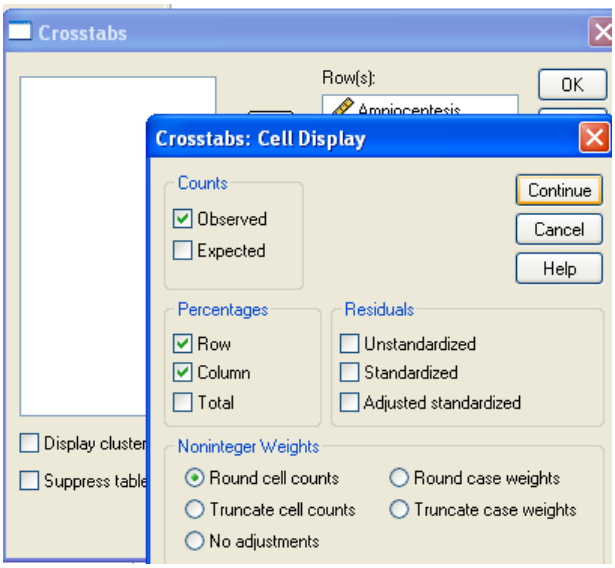
We then move the variables into the appropriate areas (Row(s) or Column(s)) and click ok. The cross tabulation table will appear in the output window. This is the simplest thing we can do with crosstabs.

Amniocentesis * DiagnosticTest Crosstabulation

Count

		DiagnosticTest		Total
		Positive	Negative	Positive
Amniocentesis	Disease	14	6	20
	No disease	64	116	180
Total		78	122	200

There are several optional things we can do with button at the bottom of the window (Statistics, Cells, and Format), and here are a few commonly used and useful options. Choosing "Cells" in crosstabs window will open the following window.



By clicking Row and Column percentage, the following cross tabulation table will appear in the output window.

Amniocentesis * DiagnosticTest Crosstabulation

			DiagnosticTest		Total
			Positive	Negative	Positive
Amniocentesis	Disease	Count	14	6	20
		% within Amniocentesis	70.0%	30.0%	100.0%
		% within DiagnosticTest	17.9%	4.9%	10.0%
	No disease	Count	64	116	180
		% within Amniocentesis	35.6%	64.4%	100.0%
		% within DiagnosticTest	82.1%	95.1%	90.0%
Total		Count	78	122	200
		% within Amniocentesis	39.0%	61.0%	100.0%
		% within DiagnosticTest	100.0%	100.0%	100.0%

Here, the sensitivity = P (Positive test| Disease) = 14/20, which is 70%. This is the Row Percent in the top left cell of the table. The specificity = P (Negative test | No disease) = 116/180, which is 64.4%. This is the Row Percentage of the bottom right cell of the table.