**The Reversal Paradox in Contingency Table Analysis[[1]](#footnote-1)©**

 A **reversal paradox** is when 2 variables are positively related in aggregated data, but, within each level of a third variable, they are negatively related (or negatively in the aggregate and positively within each level of the third variable). See Messick and van de Geer’s article on the reversal paradox (*Psychol. Bull. 90*: 582-593).

 Later I shall discuss the reversal paradox in the context of ANOVA and multiple regression. Here I have an example in the context of contingency table analysis.

 At Zoo Univ. 15 of 100 women (15%) applying for admission to the graduate program in Clinical Psychology are offered admission. One of 10 men (10%) applying to the same program are offered admission. For the Experimental Psychology program, 6 of 10 women (60%) are offered admission, 50 of 100 men (50%) are offered admission. For the department as a whole, (15 + 6)/(100 + 10) = 19% of the female applicants are offered admission and (1 + 50)/(10 + 100) = 46% of the male applicants are offered admission. Assuming that male and female applicants are equally qualified, is there evidence of gender discrimination in admissions, and, if so, against which gender?

|  |  |  |
| --- | --- | --- |
| Program | Female Applicants | Male Applicants |
| Experimental Psychology | 6 of 10 offered admission60% | 50 of 100 offered admission50% |
| Clinical Psychology | 15 of 100 offered admission15% | 1 of 10 offered admission10% |
| Department as a whole | 21 of 110 offered admission19% | 51 of 110 offered admission46% |

See also: [The Reversal Paradox (Simpson's Paradox)](http://core.ecu.edu/psyc/wuenschk/StatHelp/Reversal-Paradox.htm)

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