

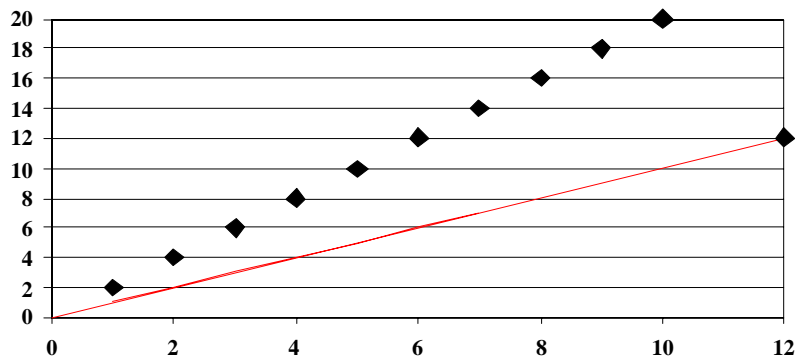
Neuendorf  
10/5/09

### The Pearson Correlation Coefficient (r) vs. Lin's Concordance Coefficient (r<sub>c</sub>)

The Pearson correlation coefficient (r) is a measure of how closely related two variables are in a linear fashion. The correlation line (a line of "best fit" that takes both X-->Y and Y-->X into account) will be straight, but may be situated anywhere (i.e., the slope may be above or below 1.0, and the line does not have to pass through the origin). Thus, the Pearson r provides a measure of linear covariation between two sets of scores, without specifying any degree of correspondence between the two sets of values.

Lin's concordance coefficient (r<sub>c</sub>), on the other hand, was devised to provide a measure of reliability that is based on covariation *and* correspondence. The Lin's correlation line passes through the origin and has a slope of 1.0.

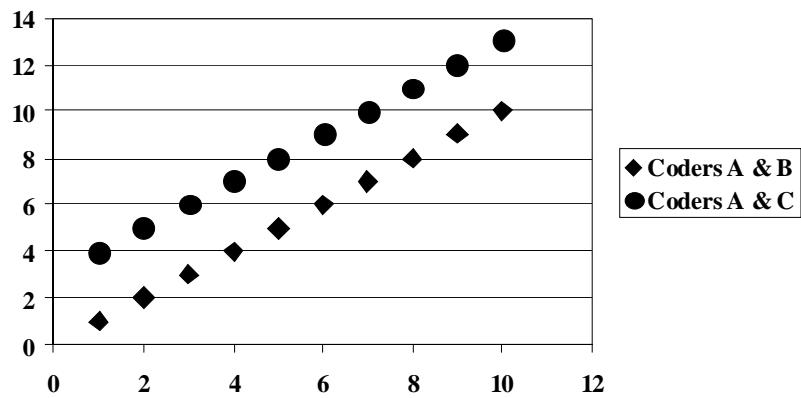
#### Comparing Pearson's r and Lin's concordance (r<sub>c</sub>) Example #1



Coders F & G: Pearson's r = 1.0; Lin's concordance = .42

Solid line is the Lin's concordance correlation line

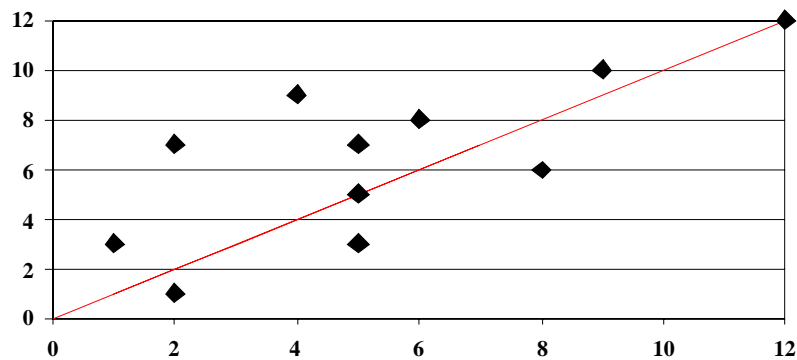
Comparing Pearson's  $r$  and Lin's concordance ( $r_c$ )  
 Example #2



Coders A & B: Pearson's  $r = 1.0$ , Lin's concordance = 1.0

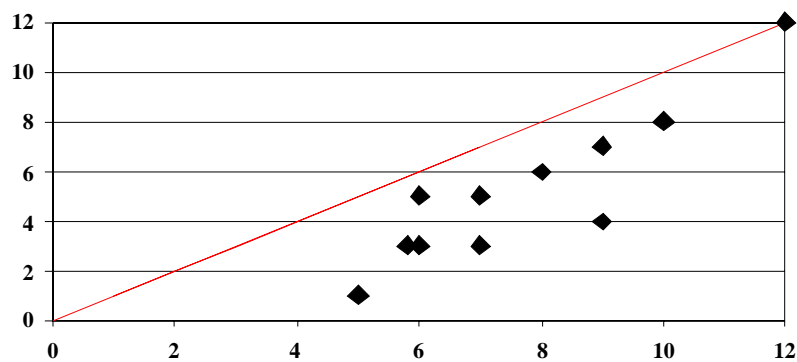
Coders A & C: Pearson's  $r = 1.0$ , Lin's concordance = .67

Comparing Pearson's  $r$  and Lin's concordance ( $r_c$ )  
Example #3



Coders D & E: Pearson's  $r = .58$ ; Lin's concordance =  $.52$

Comparing Pearson's  $r$  and Lin's concordance ( $r_c$ )  
Example #4



Coders F & G: Pearson's  $r = .82$ ; Lin's concordance =  $.36$