```
## Loading required package: stringr
```

```
## Loading required package: mnormt
```

Simulation for Significance of splitting (Jan. 2014)

Based on Jamie's notes go to pdf

Setup

Model

Two continuous latent variables (() and ()) are created with **N** cases, sharing a correlation equal to (). A measure (x) of () is created with reliability (rel), and then is dichotomized accordingly to (p) (1-p) into (c). The correlations (r_pe=r(,x)) and (r_pb=r(,c)) are computed, their p-value and significance (at .05) is recorded. ### Design

N={20, 40, 60, 80, 100, 120, 140, 160, 180, 200}
rho={0}
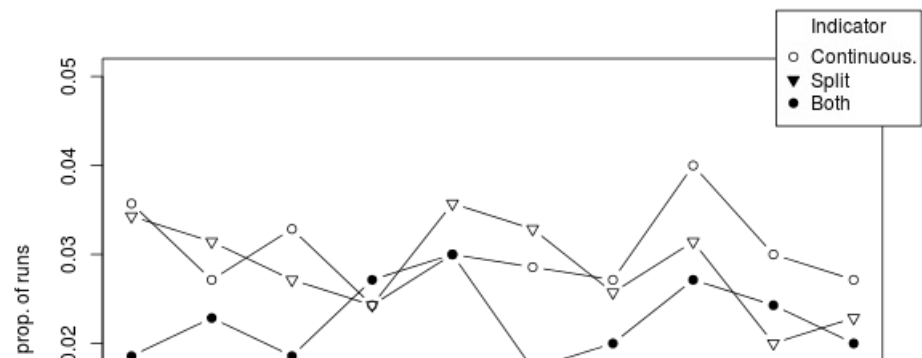*rel*={0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9}

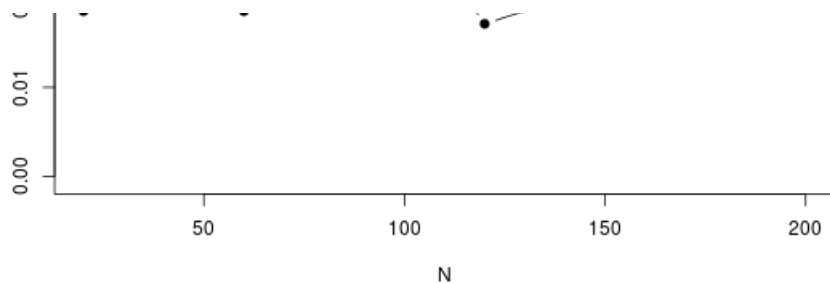each combination of *N* and *rho* is repeated 100 times.

Proportions of samples where both correlations are significant (*both*), only the .biserial (*Split*), and only the Pearson (*continuos*) by reliability
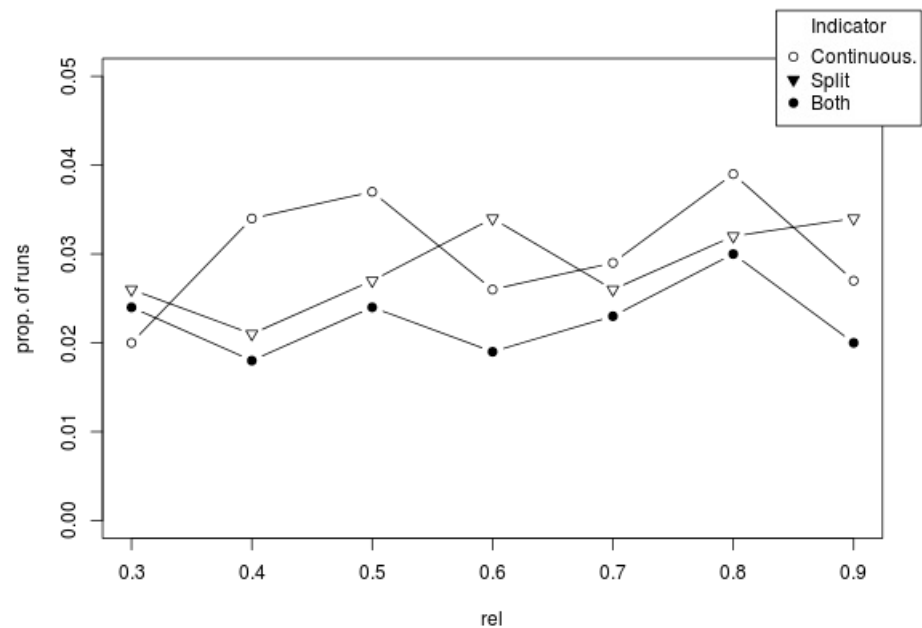
plot of chunk unnamed-chunk-2

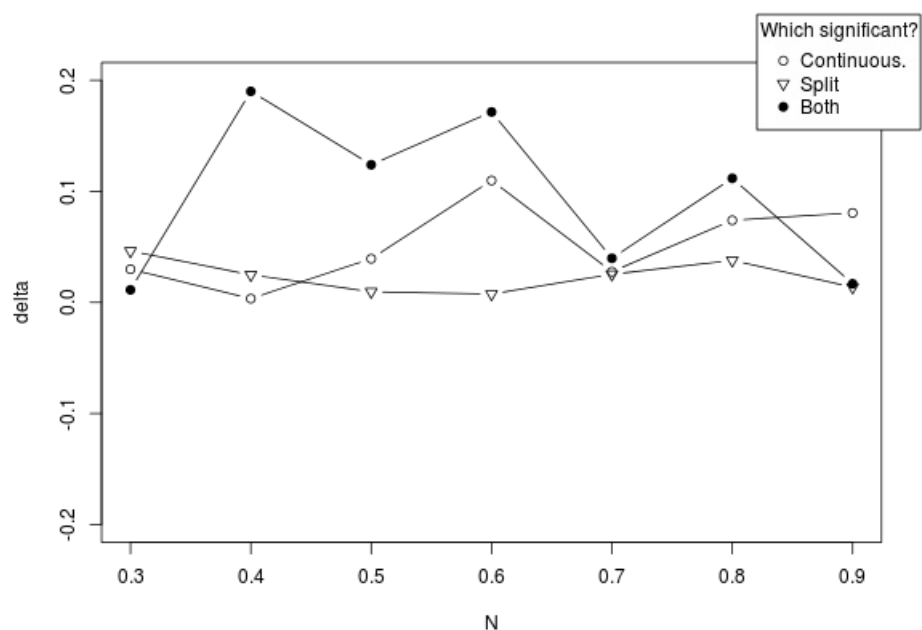**Proportion of significant results by N broken down by indicator type**

plot of chunk unnamed-chunk-3

Mean abs distance between Pearson correlation and () results by reliability broken down by indicator significance
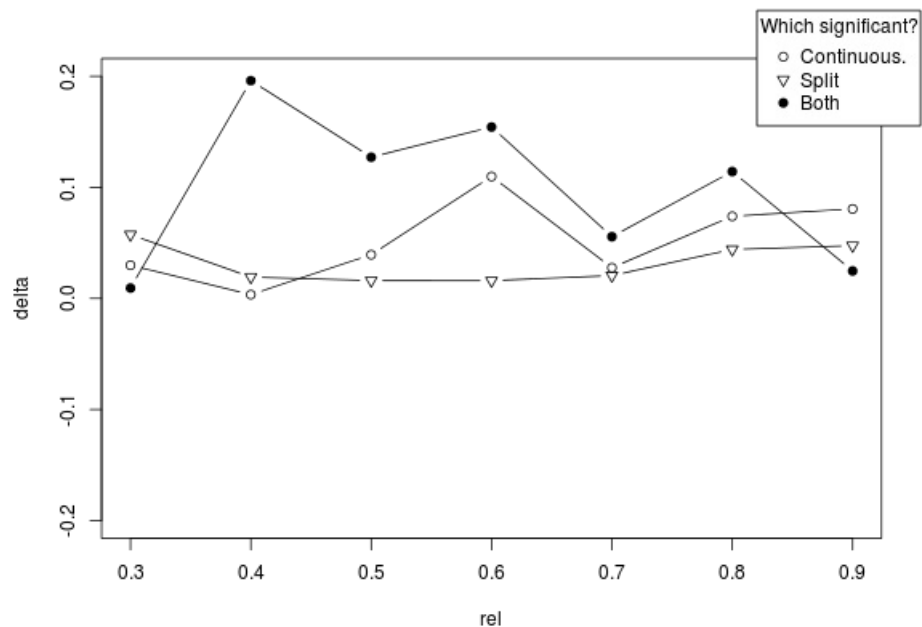
in this case mean distance=effect size in terms of r

plot of chunk unnamed-chunk-4

Mean abs distance between .biserial correlation and () results by reliability broken down by indicator significance

in this case mean distance=effect size in terms of r
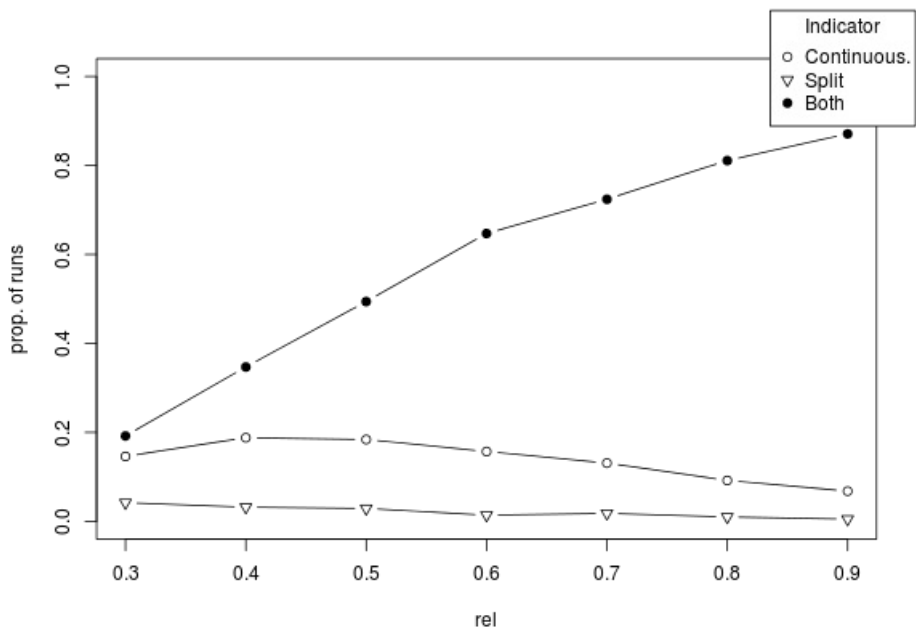
plot of chunk unnamed-chunk-5

not null hypothesis

Design

$N=\{20, 40, 60, 80, 100, 120, 140, 160, 180, 200\}$
$rho=\{0.5\}$
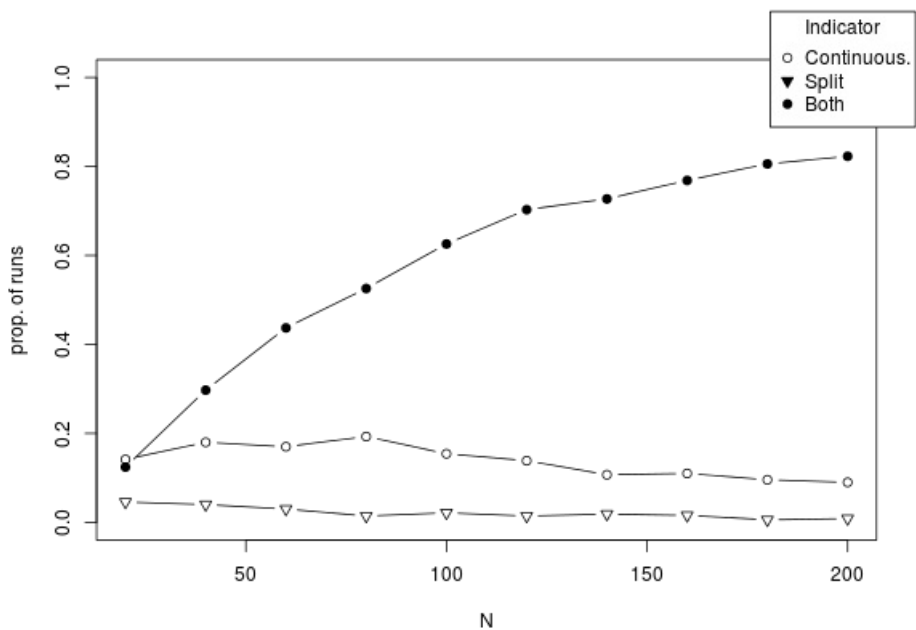$rel=\{0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9\}$

each combination of N and rho is repeated 100 times.

Proportions of samples where both correlations are significant (*both*), only the .biserial (*Split*), and only the Pearson (*continuos*) by reliability
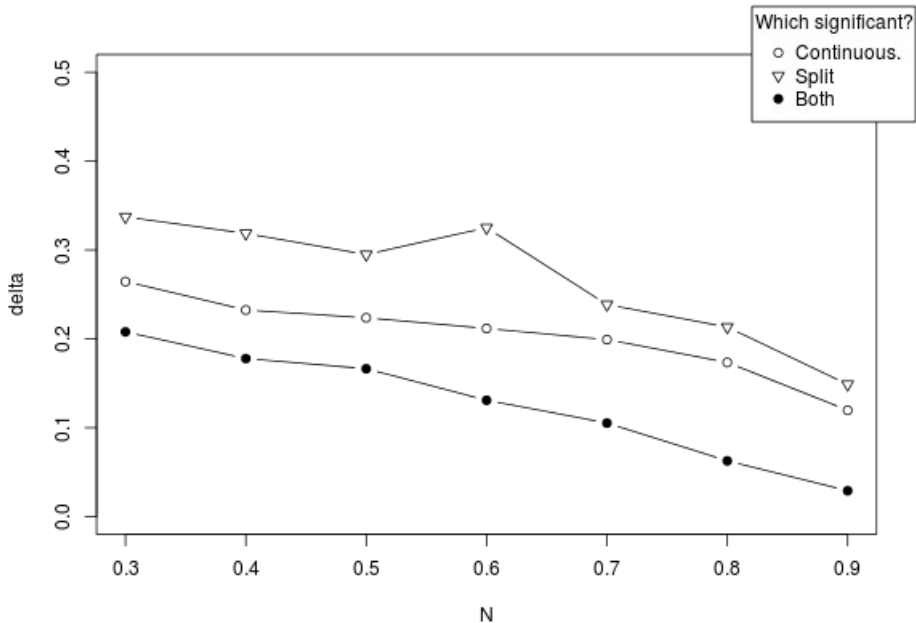

plot of chunk unnamed-chunk-6

Proportion of significant results by N broken down by which indicator is significant
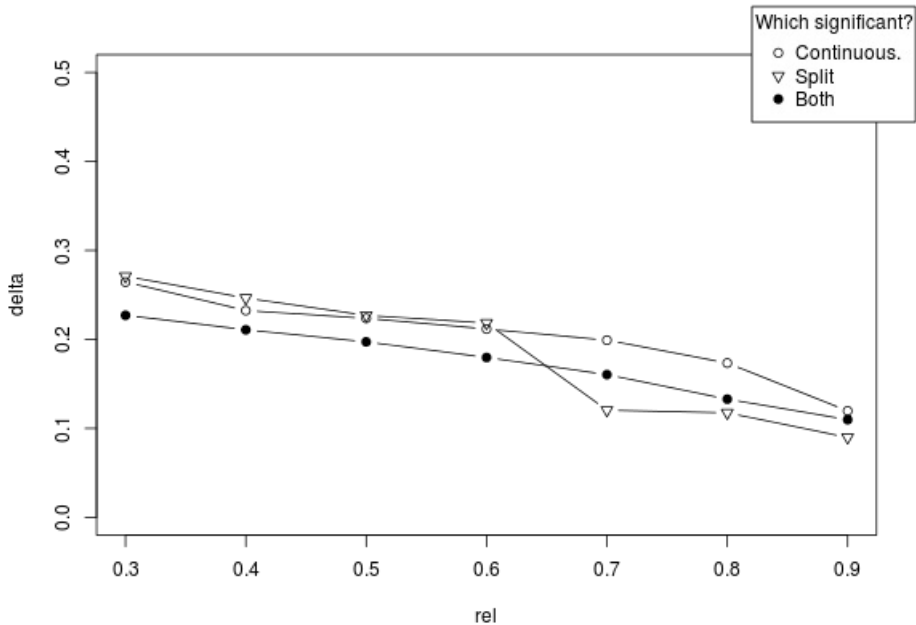
plot of chunk unnamed-chunk-7

Mean abs distance between Pearson correlation and () results by reliability broken down by indicator significance

plot of chunk unnamed-chunk-8

Mean abs distance between .biserial correlation and () results by reliability broken down by indicator significance

plot of chunk unnamed-chunk-9