The Tracing Rule –

Given a correctly constructed path diagram for a fully recursive causal model, then the correlation between any two variables can always be decomposed into the sum of simple and compound paths:

A. The *simple path* is the coefficient for the direct effect of the causal variable on the effect variable (if any such path exists).

B. The *compound path* is the product of path coefficients along a *correct tracing* from the causal variable to the effect variable via one or more mediating variables.

1. A *correct tracing* is one which either

a. advances forward from cause to effect (picking up indirect effects)

b. retreats backward to all common cause(s) and then advances forward to the effect (picking up spurious and noncausal relations)

2. An *incorrect tracing* is one which

a. advances forward, then retreats back, then forward again ("no arrow impalement rule")

b. goes through the same variable more than once

c. includes more than one unanalyzed correlation