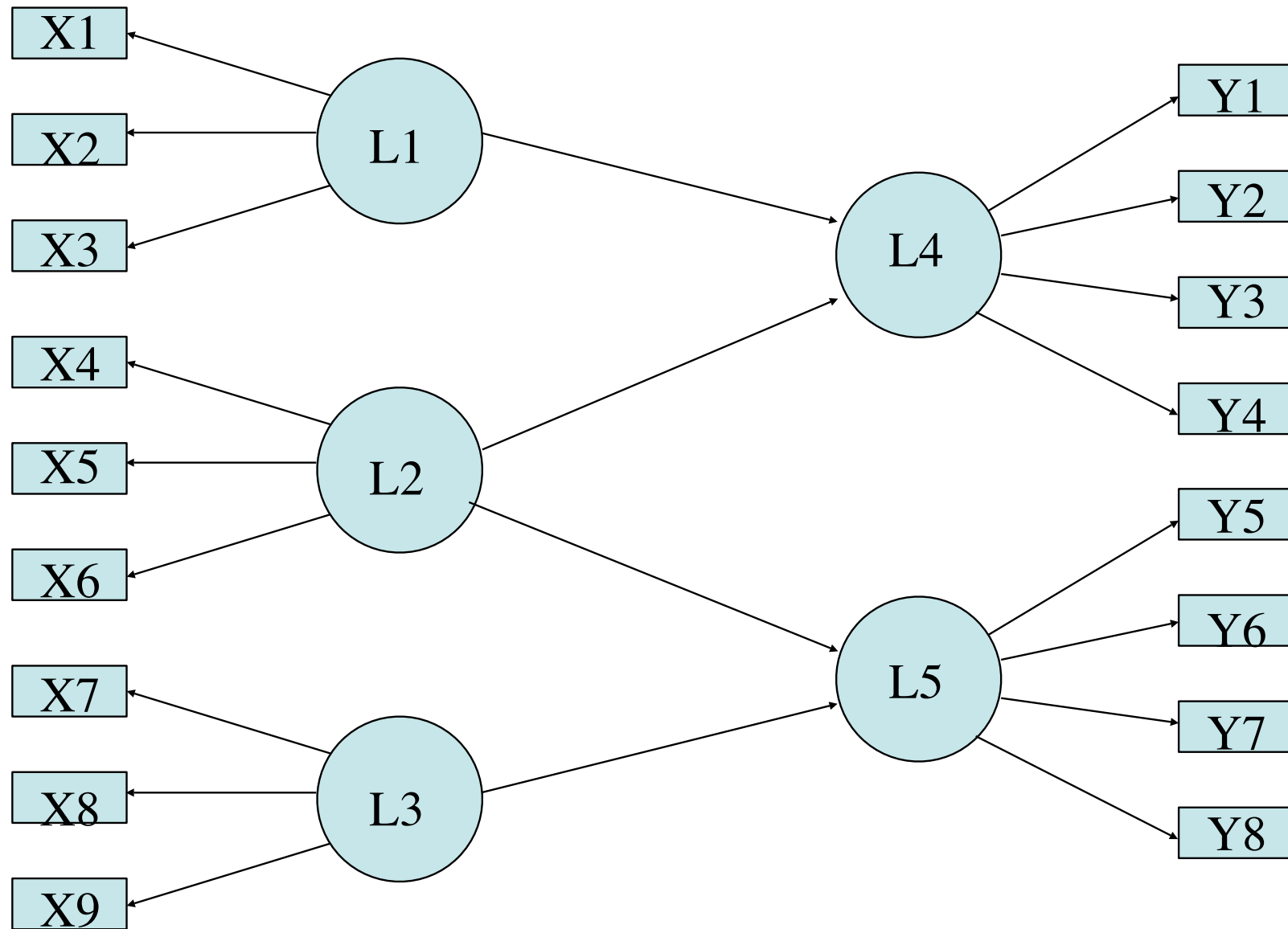


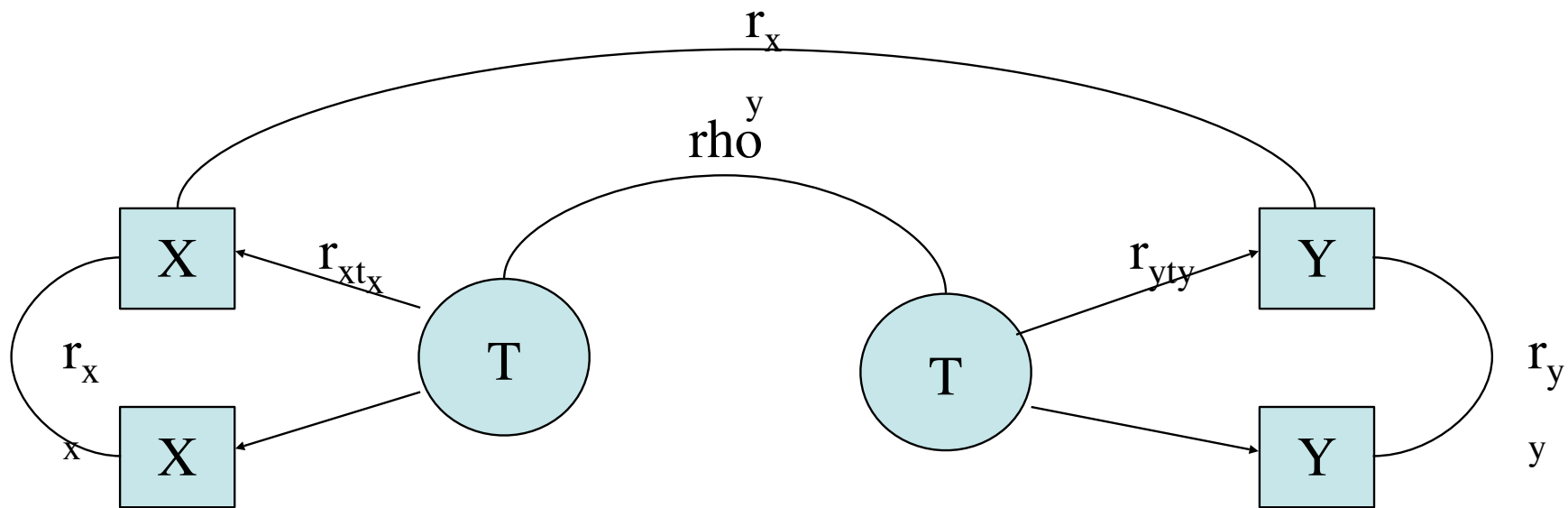
Validity

Face, Concurrent, Predictive, Construct

Psychometric Theory: A conceptual Syllabus



Reliability- Correction for attenuation

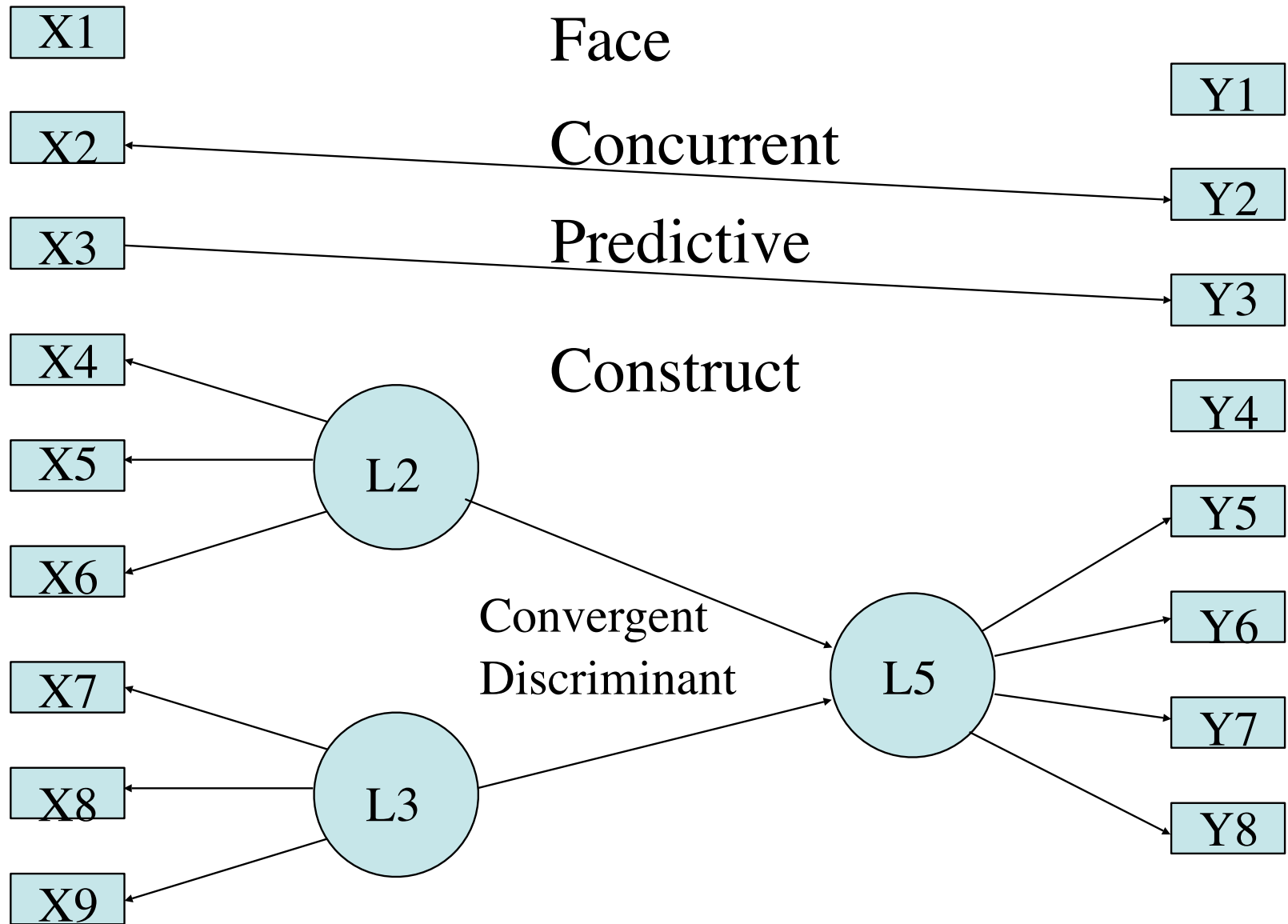


$$r_{xt_x} = \sqrt{r_{xx}}$$

$$r_{yty} = \sqrt{r_{yy}}$$

$$\text{Rho} = r_{xy} / \sqrt{r_{xx} * r_{yy}}$$

Types of Validity: What are we measuring

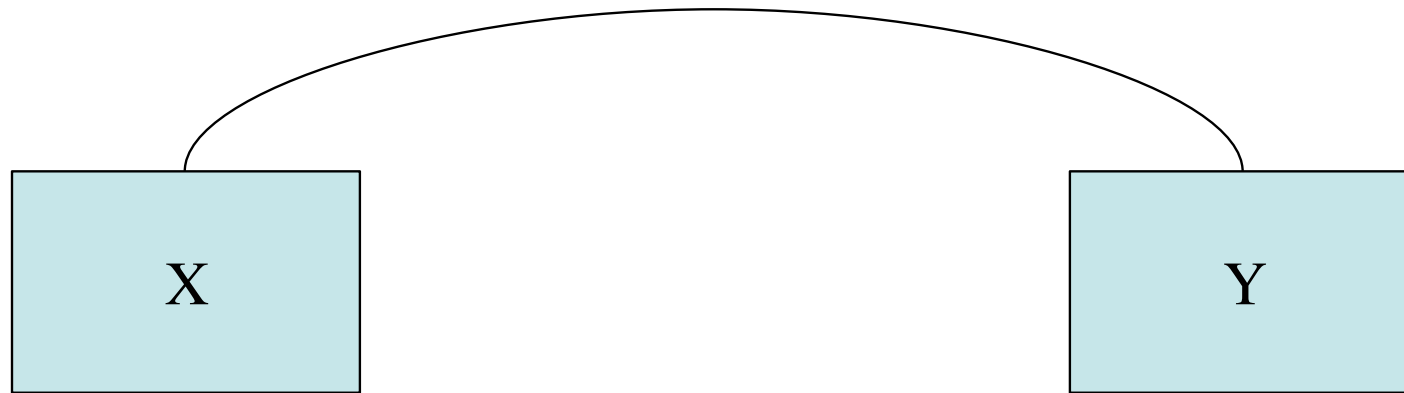


Face (Faith Validity)



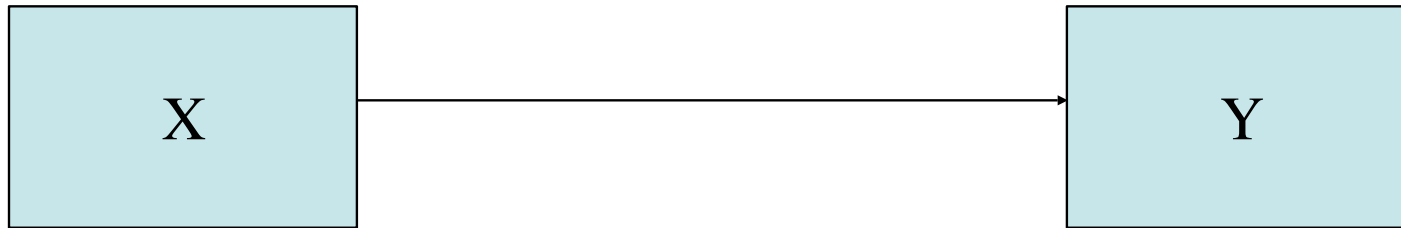
- Representative content
- Seeming relevance

Concurrent Validity



- Does a measure correlate with the criterion?
- Need to define the criterion.
- Assumes that what correlates now will have predictive value.

Predictive Validity

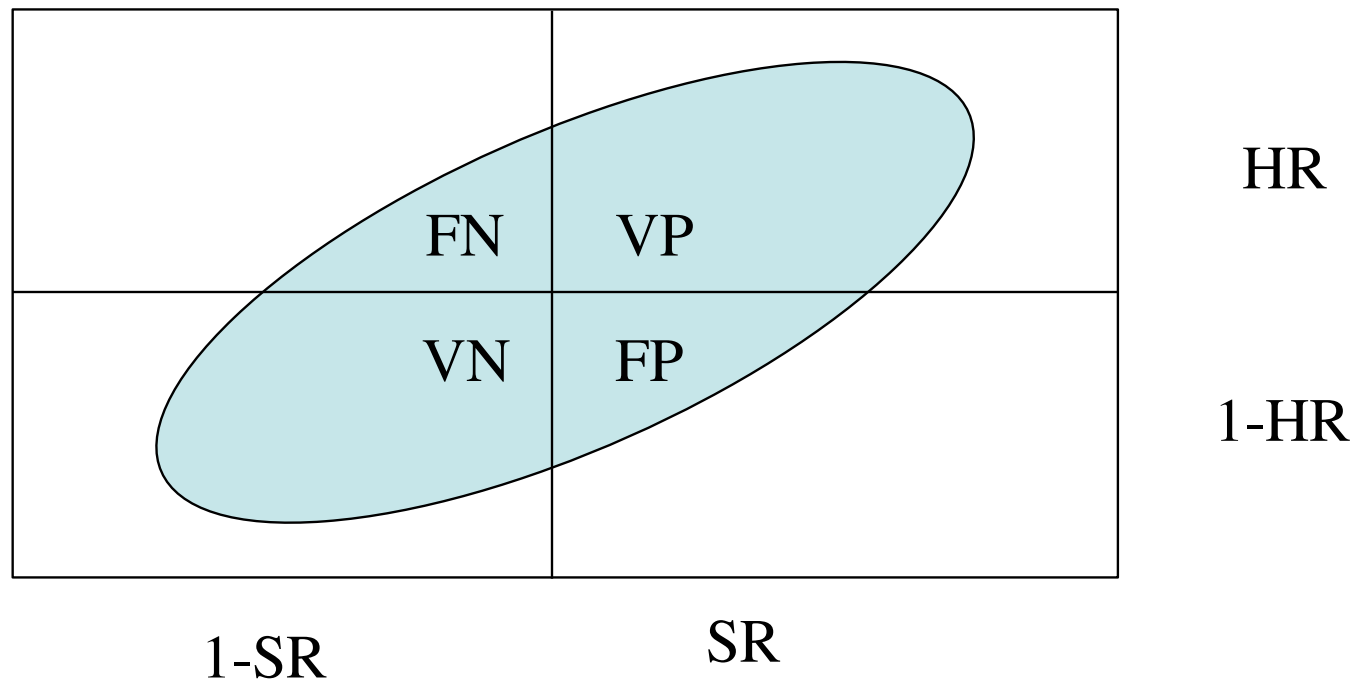


- Does a measure correlate with the criterion?
- Need to define the criterion.
- Requires waiting for time to pass.

Predictive and Concurrent Validity and Decision Making

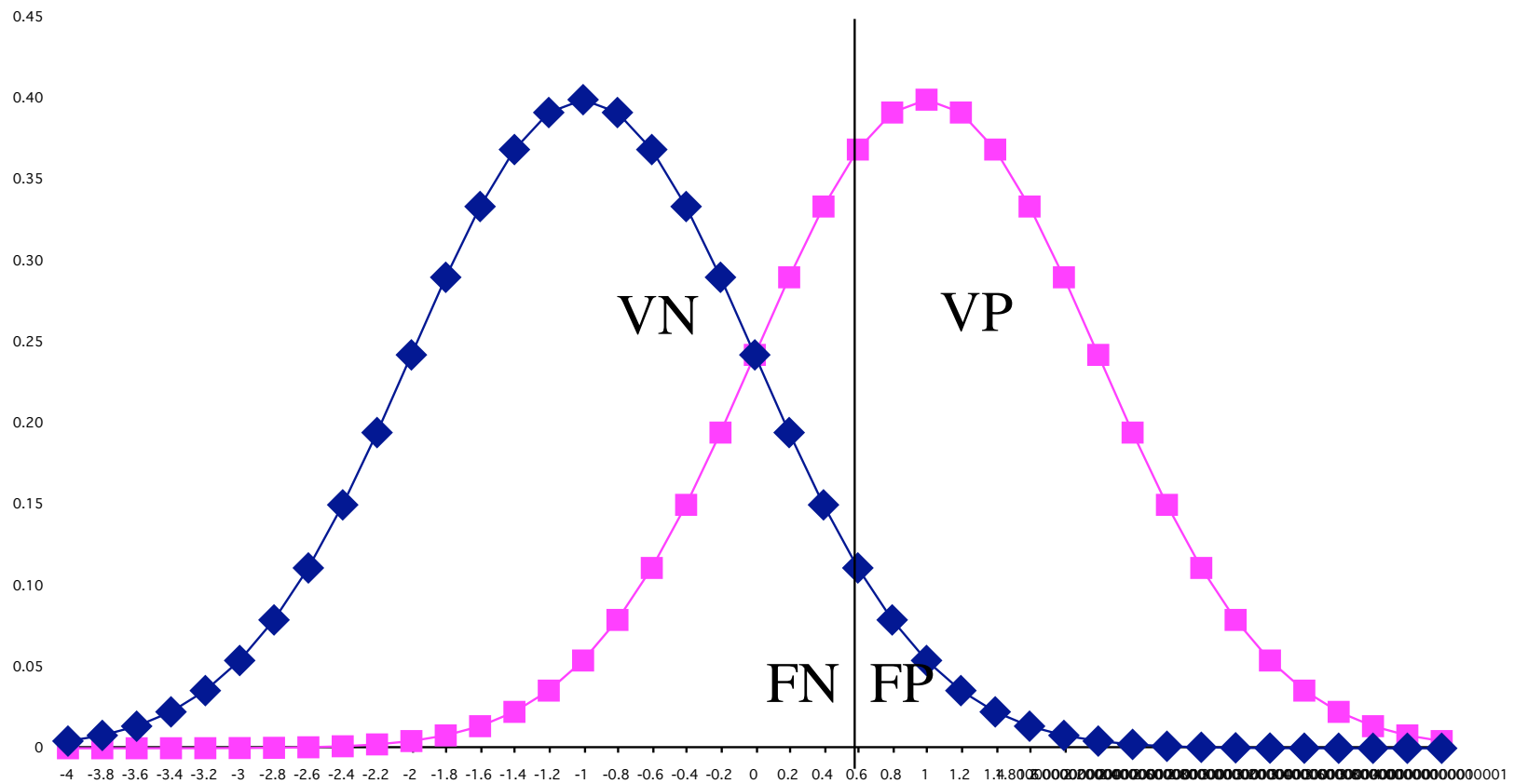
Hit Rate = Valid Positive + False Negative

Selection Ratio = Valid Positive + False Positive

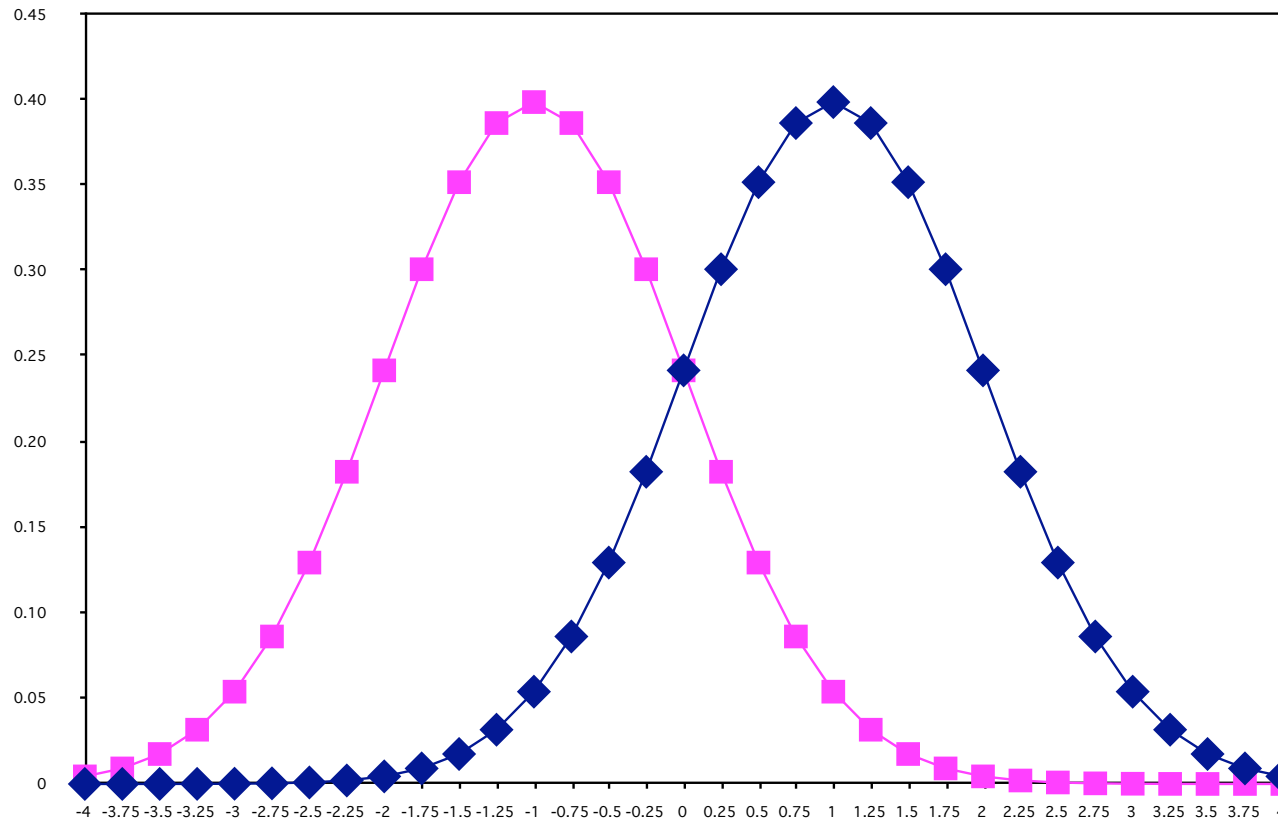


$$\text{Phi} = (\text{VP} - \text{HR} * \text{SR}) / \sqrt{(\text{HR} * (1 - \text{HR}) * (\text{SR}) * (1 - \text{SR}))}$$

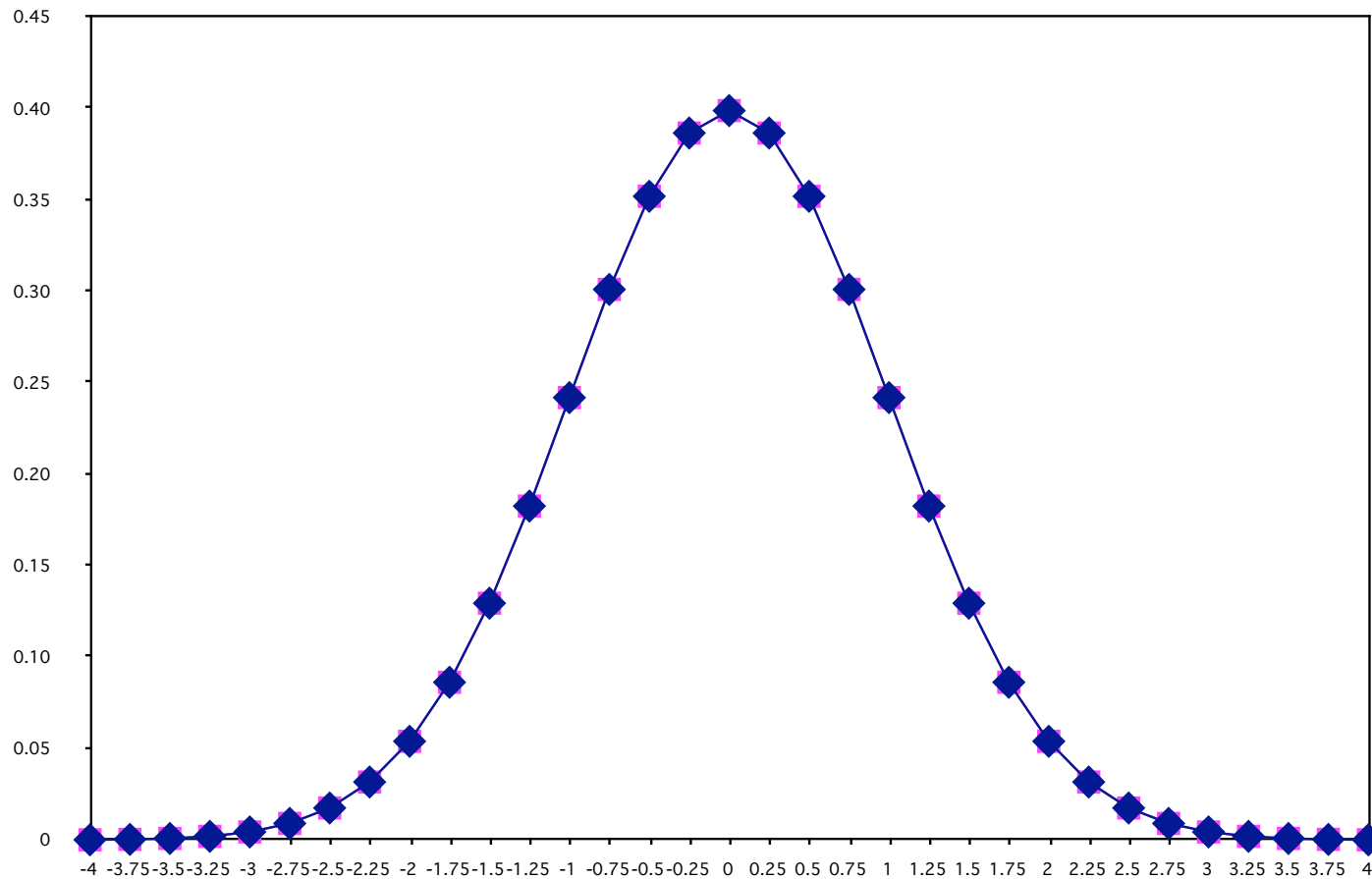
Validity as decision making



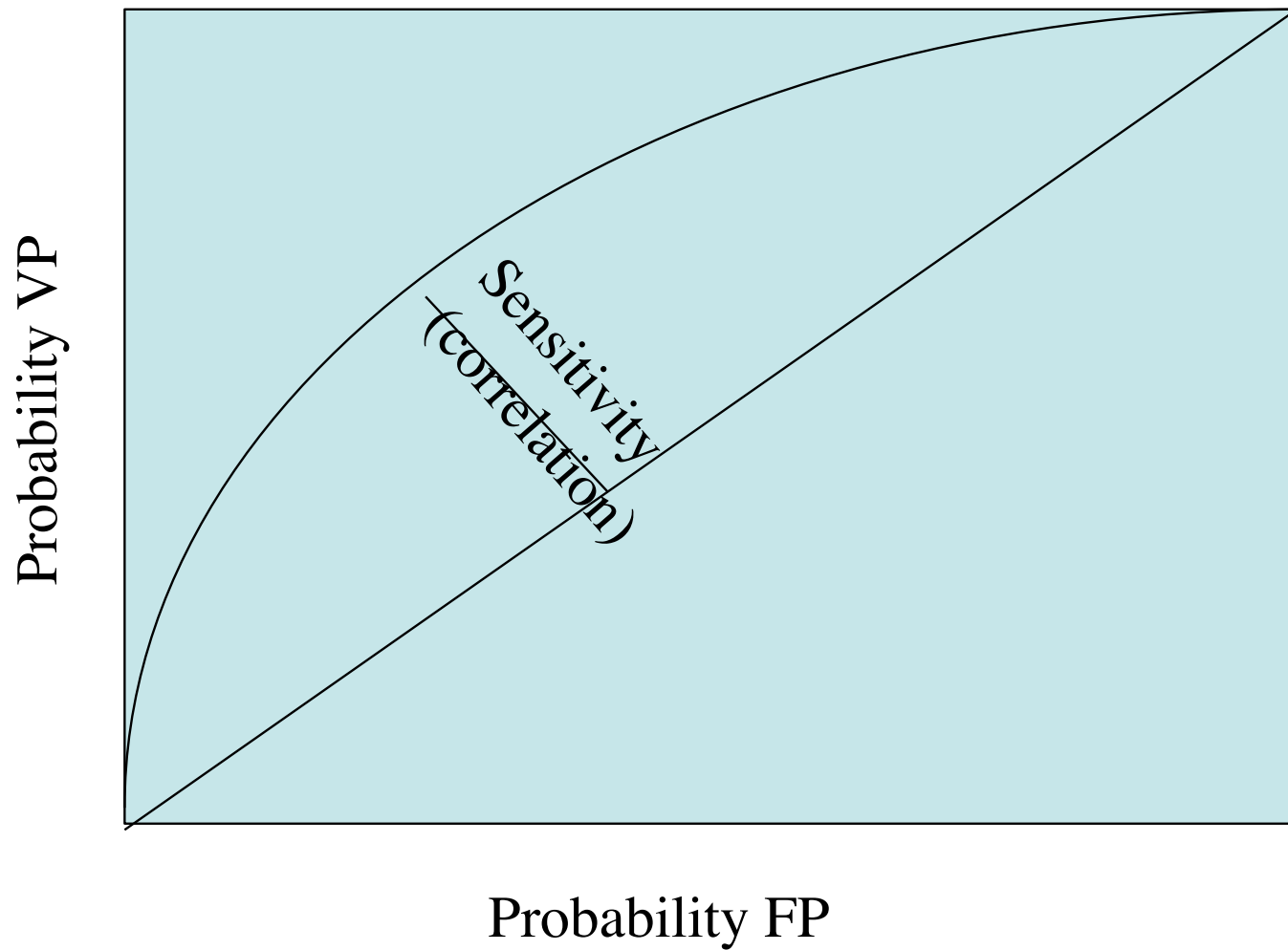
Validity as decision making



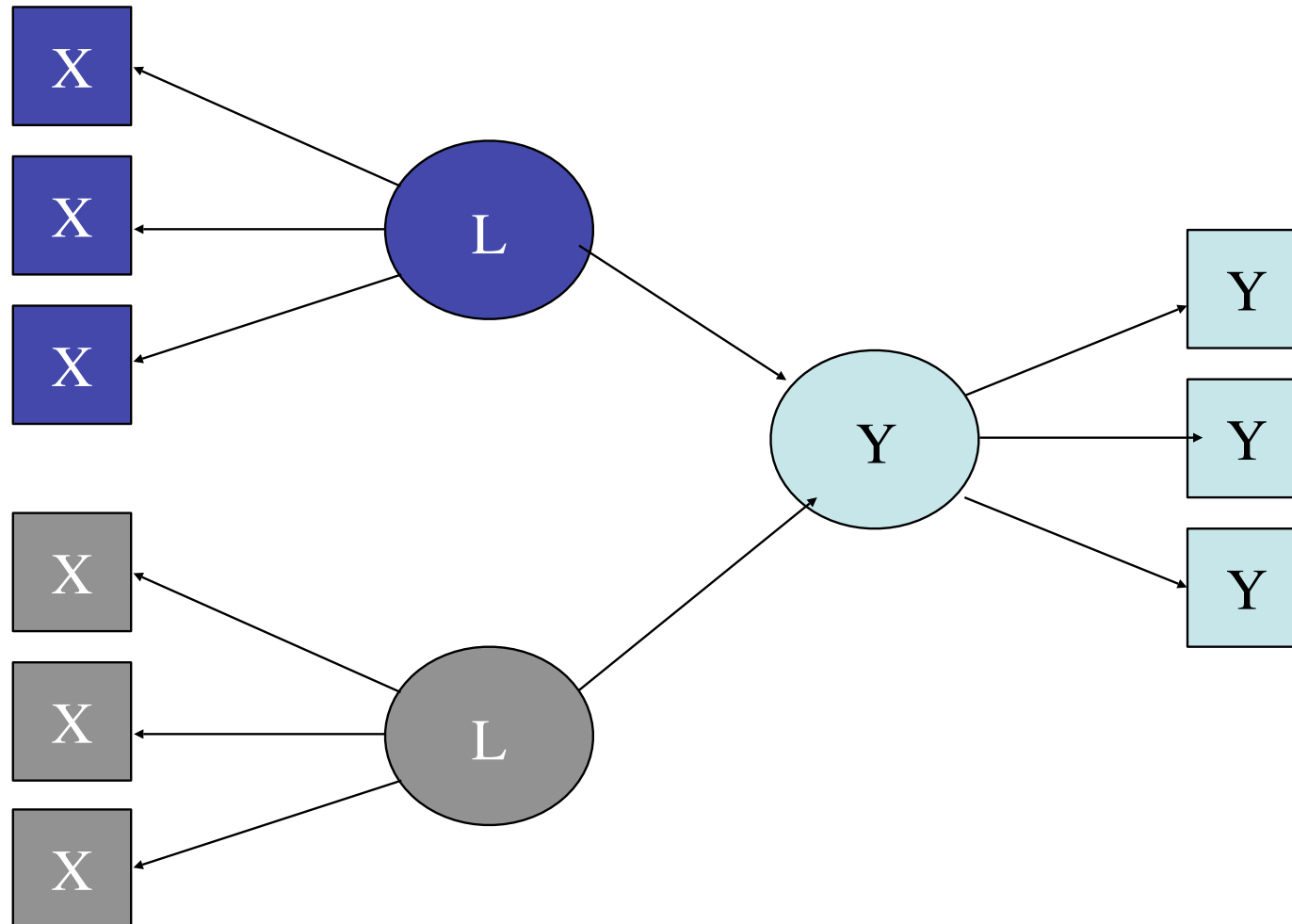
Validity as decision making



Decision Theory and Signal Detection



Construct Validity: Convergent, Discriminant, Incremental



Multi-Trait, Multi-Method Matrix

	T1M1	T2M1	T3M1	T1M2	T2M2	T3M2	T1M3	T2M3	T3M3
T1M1	T1M1								
T2M1	M1	T2M1							
T3M1	M1	M1	T3M1						
T1M2	T1			T1M2					
T2M2		T2		M2	T2M2				
T3M2			T3	M2	M2	T3M2			
T1M3	T1			T1			T1M3		
T2M3		T2			T2		M3	T2M3	
T3M3			T3			T3	M3	M3	T3M3

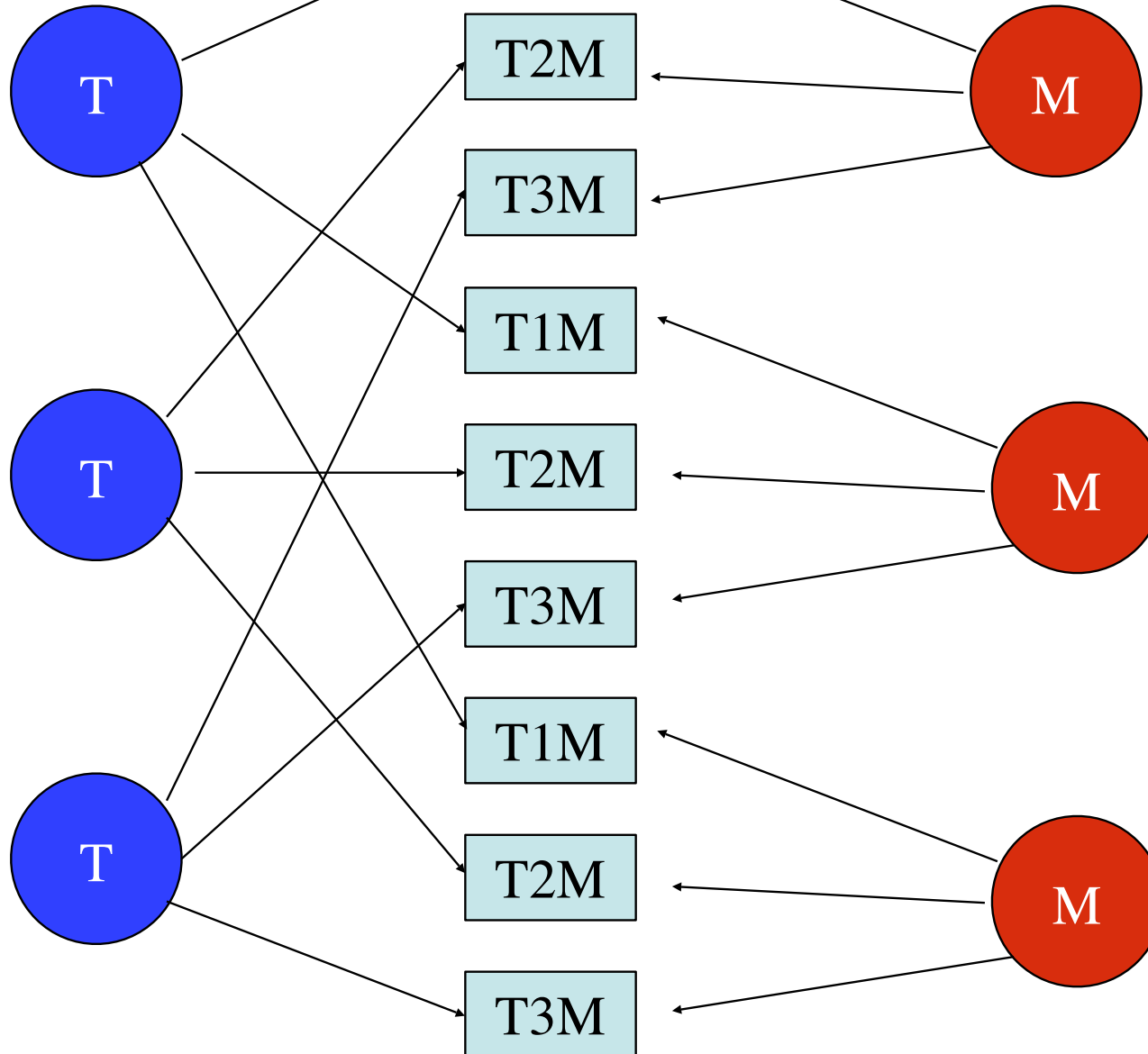
Mono-Method, Mono trait = reliability

Hetero Method, Mono Trait = convergent validity

Hetero Method, Hetero Trait = discriminant validity

Traits

Methods



Validity for what?

- Institutional versus individual
 - Does the instrument allow us to make decisions in terms of choosing applicants
 - Reduction of false positives
- Individual
 - Does the instrument provide meaningful advice
 - Express relative probabilities of success in different fields