Presenting:

Real Estate Diagrams

by Jim Felli

DAAG Conference 2016

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Real Estate Diagrams

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Requires three contextual components:

- a population,
- an event that may or may not obtain within the population,
- a test for the occurrence of the event.

Characterized by:

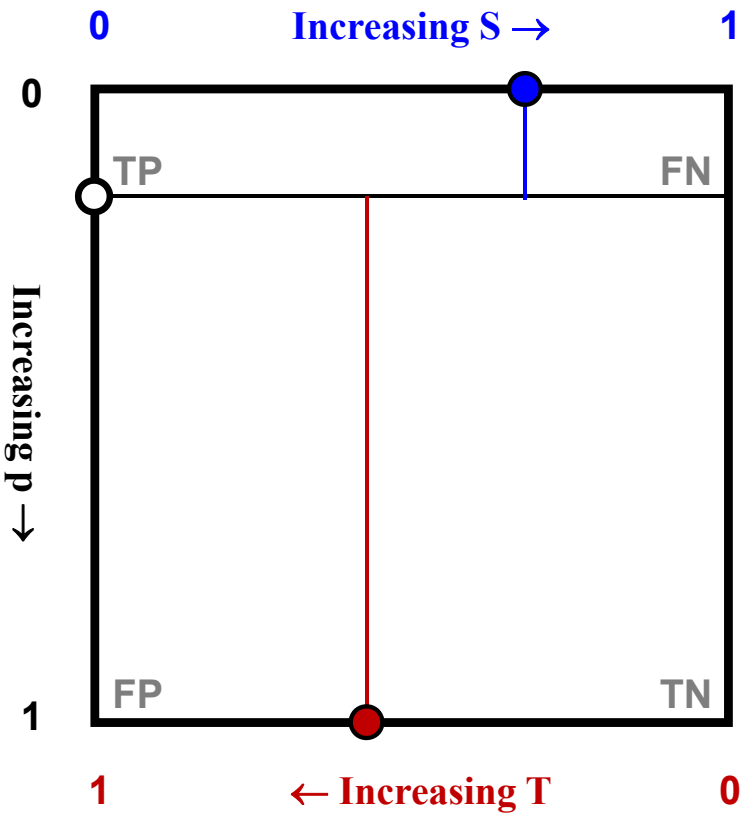
- the event's prevalence in the population,
- the presumed sensitivity of the test,
- The presumed specificity of the test.

Define:

- $p \in [0,1]$ = the event prevalence in the population,
- $S \in [0,1]$ = the test sensitivity,
- $T \in [0,1]$ = the tests specificity.

Real Estate Diagrams

1. Start with the [0,1] x [0,1] space
2. Define axes for p, S, and T
3. Define direction of increase on each axis as shown
4. Map population and test parameters
5. Extend p-line to opposing axis to divide [0,1] x [0,1] into two regions: [0,p] x [0,1] and [0,1 – p] x [0,1]
6. Extend S-line to the p-line to divide [0,p] x [0,1] into two regions: and [0,p] x [0,S] and [0,p] x [0,1 – S]
7. Extend T-line to the p-line to divide [0,1 – p] x [0,1] into two regions: [0,1 – p] x [0,1 – T] and [0,1 – p] x [0,T]



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Predictive values

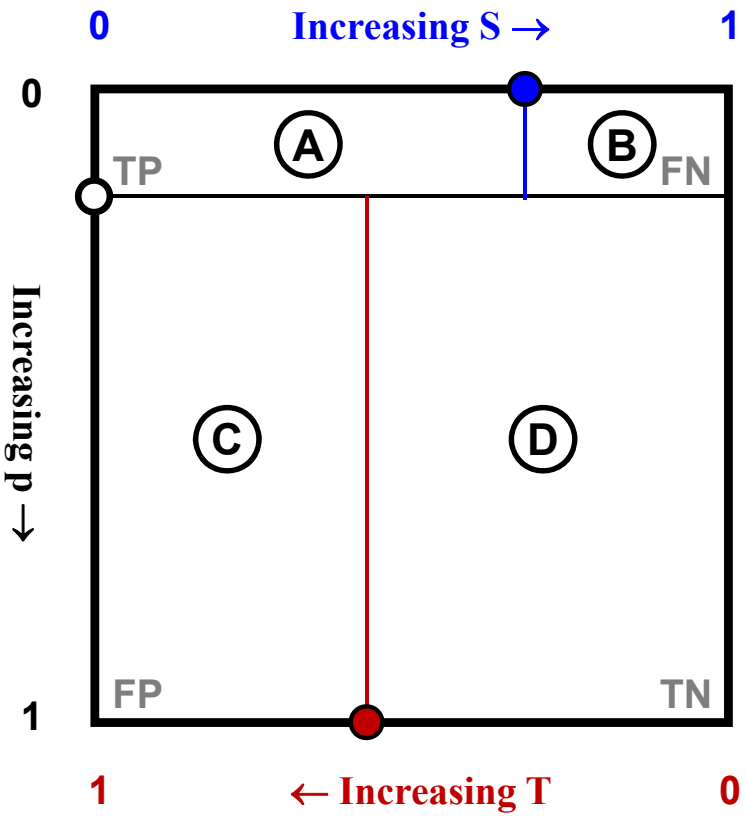
$$PPV = \frac{pS}{pS + (1-p)(1-T)} = \frac{A}{A+C}$$

$$NPV = \frac{(1-p)T}{(1-p)T + p(1-S)} = \frac{D}{D+B}$$

Interpretations

S becomes irrelevant as $p \to 0$
T becomes irrelevant as $p \to 1$
$p \to 0 \Rightarrow NPV \to 1$
$p \to 1 \Rightarrow PPV \to 1$

Consideration of desired test parameters should be conditional on the of **prevalence of the test event**.



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