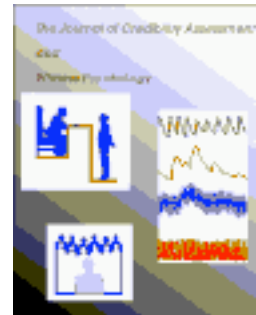


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## **Using the Polygraph in Employment and National Security**

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# Using the Polygraph in Employment and National Security

## Polygraph and Employment

- Three main applications:
  - Internal investigation
  - Pre-employment screening
  - Periodic evaluation

### Pre-Employment Screening

- There are very few studies in the scientific literature to provide guidance
- In contrast with the criminal justice applications, research on screening has produced mixed results.
- Pre-Employment Screening addresses two questions:
  - Has the applicant been honest in his application and statements?
  - Do the applicant's polygraph results accurately predict his behavior in the workplace?

### Possible Screening Issues

- Prior criminal behavior
- Drug and alcohol use
- Psychiatric and other health problems
- General honesty
- Education and work history
- Financial and life-style problems
- True identity and motives
- Possible security risks

### Criminal Behavior

- *Have you ever been arrested or convicted of a criminal offense?*
- *Have you ever committed a serious criminal act for which you were not caught?*
- *Do you have a relationship with anyone that you know is involved in criminal activity?*

### Drugs and Alcohol

- (In the past 5 years,) have you used an illegal drug or substance?
- Have you ever sold or distributed an illegal drug or substance?
- Do you frequently consume alcohol in substantially greater amounts than you have indicated?
- Have you ever received treatment for excessive use of drugs or alcohol?

### Health

- *Do you have any serious illness or disease that you have not indicated?*
- *Have you ever received medical treatment for a serious psychiatric illness?*

### **Honesty**

- Have you ever taken more than \$\_ from a place where you worked?
- Have you ever deliberately done something to cause your employer (agency, company) a serious loss or problem?

### **Education and Employment**

- Have you accurately represented your educational history?
- Have you accurately represented your employment history?

### **Financial and Life Style**

- Do you have any serious financial problems that you have not indicated?
- Is there anything in your background or present situation which someone could use to get you to violate the trust of your employer?

### **Identity and Security**

- Have you accurately represented your identity?
- Have you ever knowingly had unauthorized contact with a representative of a foreign government or hostile organization?
- Have you ever knowingly disclosed important confidential or security information to an unauthorized person or organization?

### **Periodic Testing**

- *Used in situations where there are serious consequences of undetected misbehavior by employees, for example, national security, industrial security, access to money or valuable commodities, drugs.*
- *Relevant questions take the form:*
  - ***Since your last polygraph, have you . . .***
- *Periodic testing should not be conducted more frequently than necessary.*

### **Research on Screening**

- The U. S. Government is the world's largest user of polygraphs for employment screening.
- The U. S. Government research program includes a major focus on polygraph screening issues.
- Some research may be unavailable because of national security classification.

### **Pre-Employment Screening**

- Pre-Employment Screening addresses two questions:
  - Has the applicant been honest in his application and statements?
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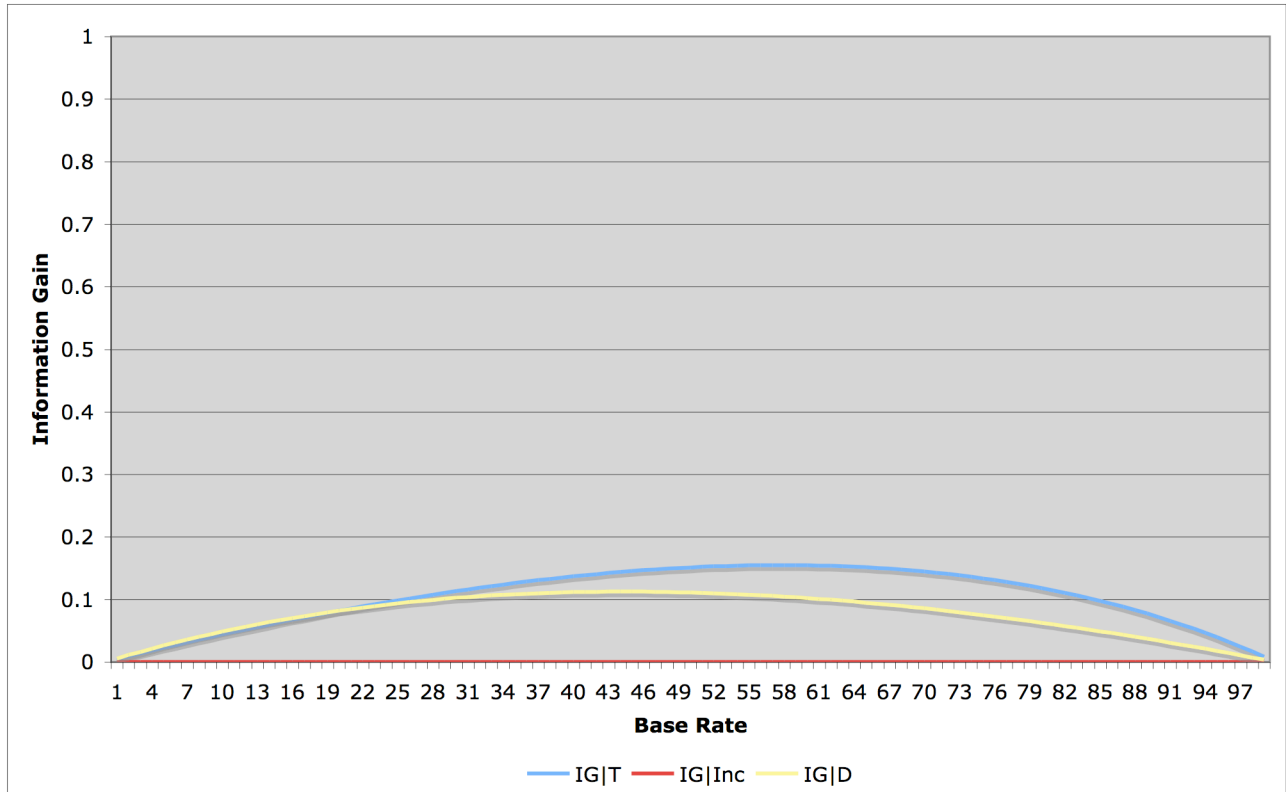
### **Base Rate**

- The prevalence of the target in the population affects the confidence in the outcome of a diagnostic test.
- Base Rates may often be an important consideration in screening polygraph examinations.

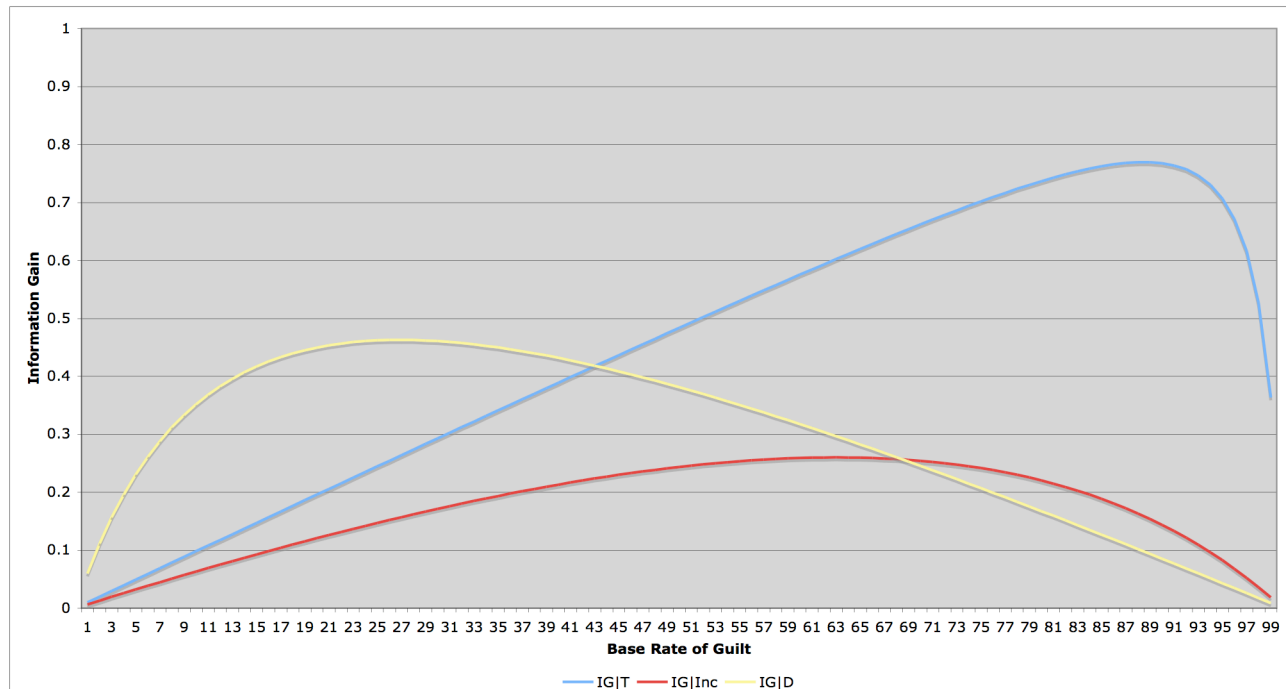
### **Information Gain**

- Information Gain (Wells & Olson, 2002) is the difference between the probability that a person is of the target status before a diagnostic procedure and the probability that the person is of the target state after the diagnostic procedure.
- Information Gain is a Bayesian approach that produces a curve describing information gain across the range of prior probability.

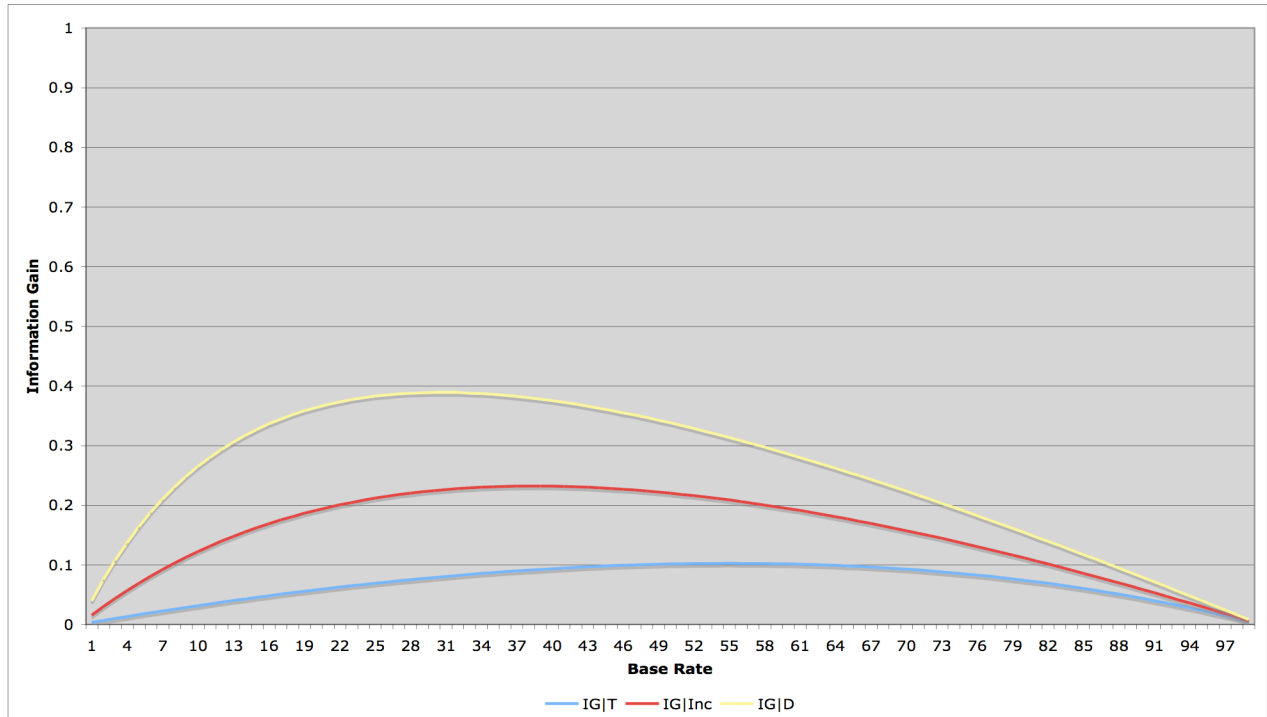
**Information Gain - Lay Person Deception Detection**



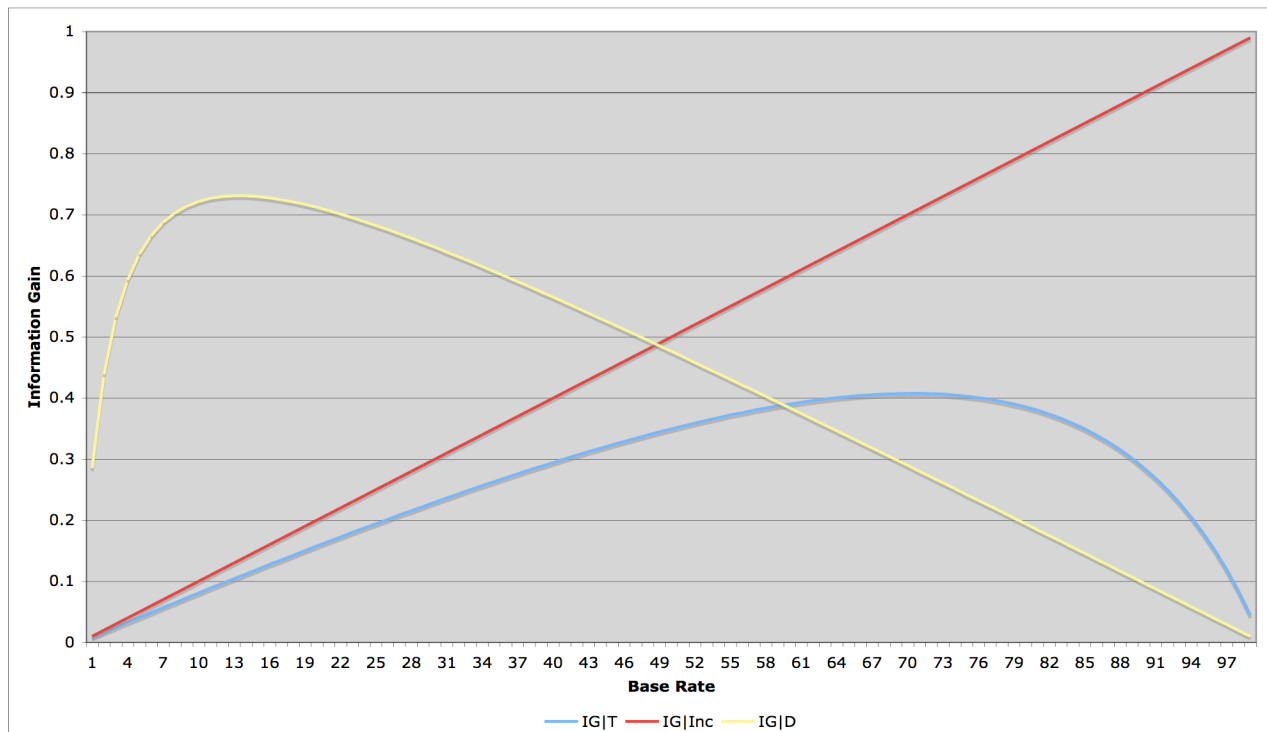
**Information Gain / Forensic Field Data**



**Information Gain National Security  
(Barland, Honts, & Barger, 1989)**



**Information Gain  
National Security (TES)**



**Barland, Honts, & Barger, 1989**



**Source for Screening Research**

- <http://truth.boisestate.edu>
- D. H. Krapohl in Kleiner, M. (Ed.) (2002). *Handbook of Polygraph Testing*. San Diego, CA: Academic Press

### **The Test For Espionage and Sabotage**

- Research results such as those shown in the previous slides resulted in the U. S. Government conducting research to develop more accurate screening examinations.
- The result of that research was a test now known as the Test for Espionage and Sabotage (TES).
- The TES uses Directed Lie Comparison Questions
- Only one test is conducted where each of two relevant questions is repeated 3 times.
- The TES question sequence:
  - **N1, N2, D1, R1, R2, D2, R2, R1, D1, R1, R2, D2**

### **Other Issues and Problems**

- Relevant questions in screening polygraph tests may be similar to comparison questions in forensic polygraph tests.
- Often there are too many relevant issues of interest for a single test session.
- Base-rate issues can pose problems for interpretation.