

- Guilty suspect will recognize and respond more to crime related choice
- Innocent suspect will have similar physiological responses to all choices

Advantage of CIT

- Very unlikely that innocent person will respond by chance to incriminating choice
- CIT really reduces chance of false positives
- If your chance are good you will be fine

Disadvantages of CIT

- Applicability is limited
 - Protected info
 - May have knowledge but not be guilty
- Reliance on suspect's knowledge
 - Attention and memory
 - Depends on the information what the innocent know

*Micro Facial Expressions

--Leakage of emotions through facial expressions provide clues that may betray deception(Frank & Ekman, 1997)

****Discussion Question

-Could you design a research study to test the polygraph's accuracy?

*take the advantage of the tester

Validity of Research Studies

- **Internal validity
 - Causes
 - The extent to which the independent variable, rather than extraneous influences, can account for the results
 - Reasonable
- **External validity
 - The extent to which the results can be generalized or extended to persons, settings, times, measures, and characteristics other than those in this particular study

Different ways to study polygraph Accuracy

--Lab

- ▶ Randomly assigned to:
 - guilty condition - commit mock crime
 - innocent condition - given description of crime
- ▶ Polygrapher is blind to condition assignment
- ▶ Debateable

- ▶ The test about we want to know
- ▶ Punishment

**Advantages

- ▶ Really know who is really guilty
- ▶ Relatively high internal validity
- ▶ "Ground truth" is known
- ▶ Experimental control

**Disadvantages

- ▶ Relatively low external validity
- ▶ Motivation, emotion level
- ▶ Representativeness
- ▶ Stressful experience

--Field

- ▶ Real cases
- ▶ By the original or rescore polygraph records
- ▶ Pre-test for the presentation
- ▶ What are exam are using?

**Advantages

- ▶ Relatively high external validity
- ▶ Real-life cases
- ▶ Higher motivation and emotional level

**Disadvantages

- ▶ Relatively low internal validity
- ▶ Ground truth unknown
 - confessions, judicial outcomes

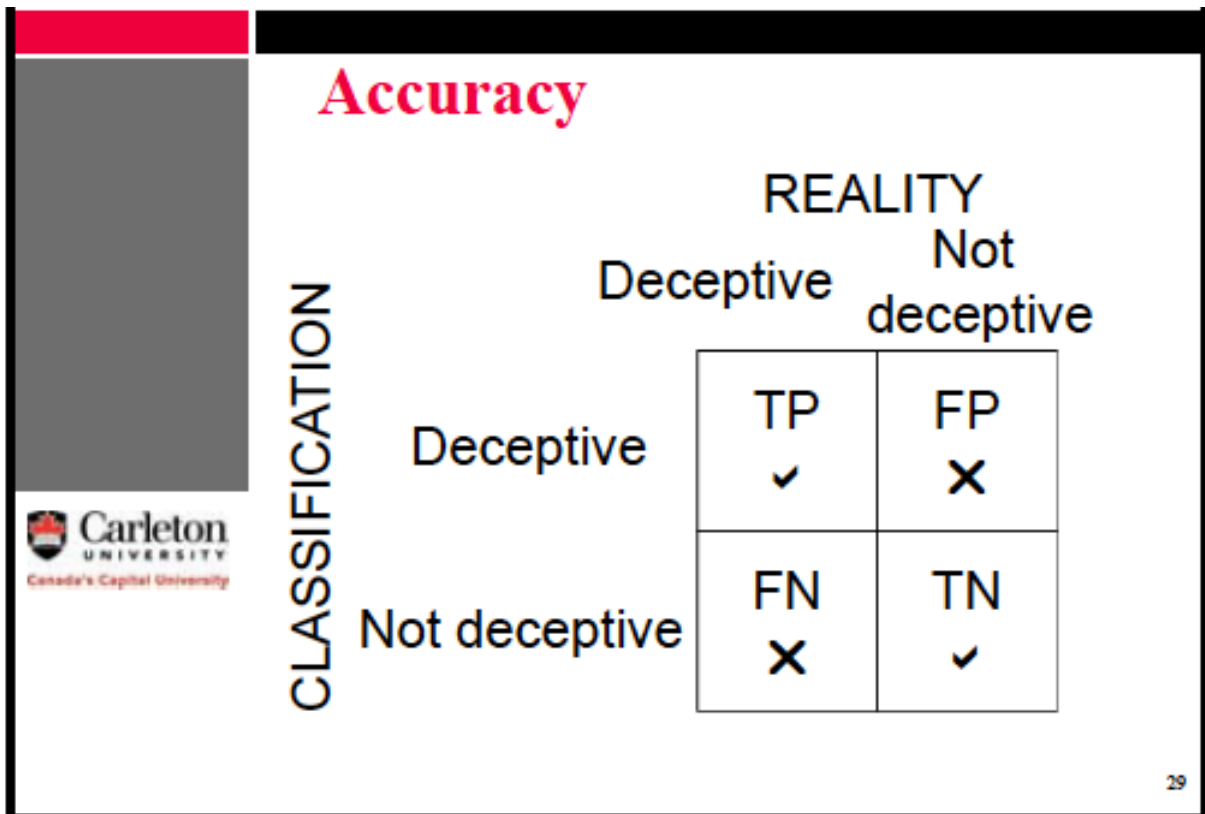
****Correct Classifications

- True positive(TP)
 - the polygrapher says suspect is deceptive and the suspect really is deceptive
- True negative(TN)
 - polygrapher says suspect is not deceptive and suspect really is not deceptive

****incorrect Classifications

- False positive(FP)
 - the polygrapher says suspect is deceptive but the suspect really is not deceptive
- False negative(FN)
 - polygrapher says suspect is not deceptive but the suspect really is deceptive





Accuracy of CQ

- Pretty good at detecting guilt(TP)
- Less accurate at detecting innocence(TN)
- More "inconclusive" in lab studies
- Compared to blind examiners, original examiners achieve general higher accuracy in field studies.(Research)
- 50% to higher
- You cannot really tell

Accuracy of CIT

- Fairly accurate at detecting innocence(TN) above 90%
- Less accurate at detecting guilt(TP)

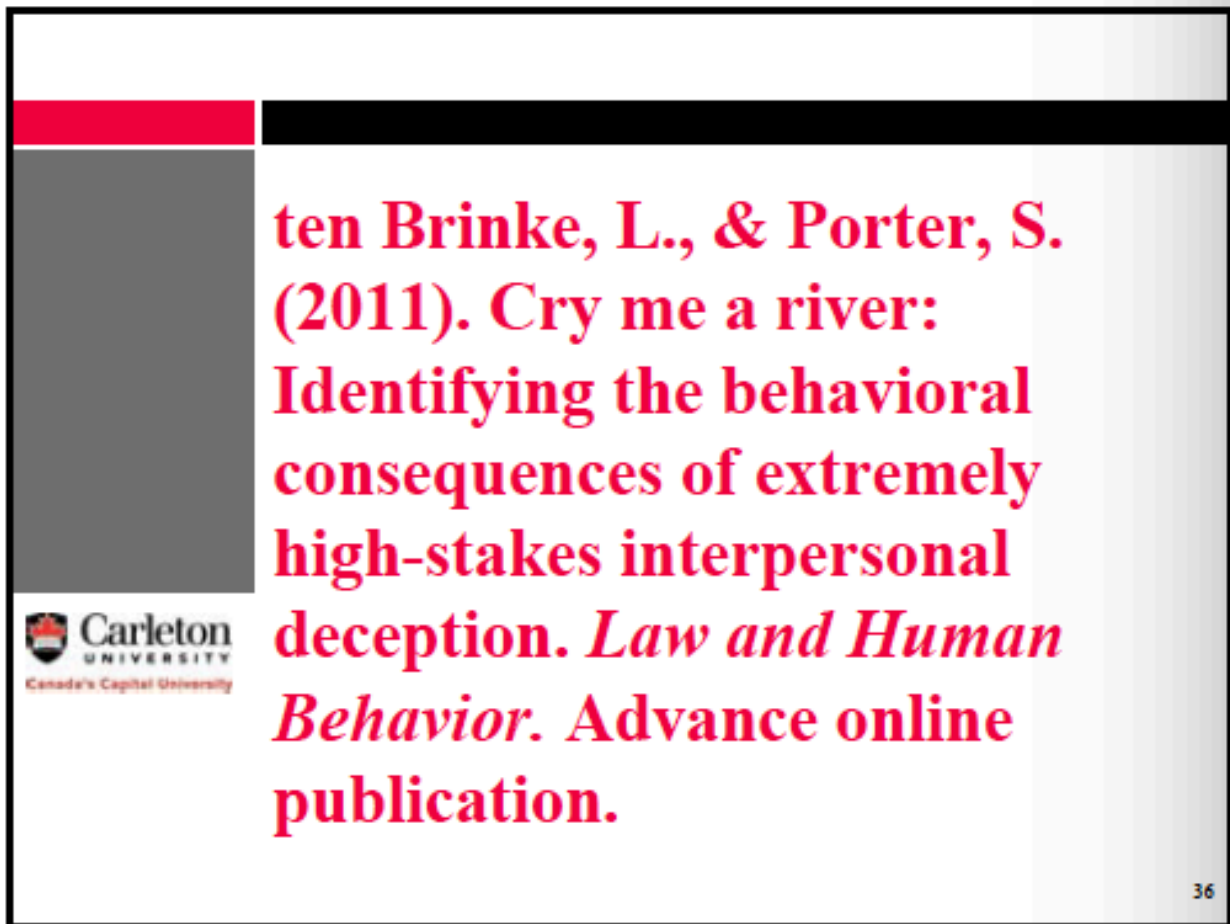
Countermeasures

- Deliberate techniques to appear truthful
- CQT--more to comparison question
- CIT--equally to all choices


Countermeasures(cont'd)

- Physical: increase arousal
--EX. Tongue biting, foot tensing
- Mental: Avoid processing
--EX. Counting backwards

- Countermeasures can be effective at 'beating the polygraph'
- It is possible



**ten Brinke, L., & Porter, S.
(2011). Cry me a river:
Identifying the behavioral
consequences of extremely
high-stakes interpersonal
deception. *Law and Human
Behavior*. Advance online
publication.**



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Purpose

- Examine verbal, body language, and emotional facial signals that differentiate liars from truth-teller in high-stakes, real-life deception
 - Leaking
 - Cognitive load
 - Distress
 - The truth tell what they remember
 - Psychological distance
 - Feel so confident
 - Body language under conscious control
 - Complementing this holistic examination of behavioral leakage

Cases

- Look for the real
- Videos of 78 individuals who made televised pleas for the safe return or info leading to arrest of unknown suspect in the number of their relative

	Deceptive	Genuine	Odds ratio
Surprise (upper face)	57.7%	19.2%	5.73*
Happiness (lower face)	50.0%	23.1%	3.33*

* $p < .05$.

-Fake

Verbal Predictors

	Deceptive		Genuine	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Word count*	22.47	14.73	45.44	38.47
% tentative words*	13.94	9.50	5.45	6.16

* $p < .05$.

- How they work together with they work alone
- From truth tell to liar
- Discussion questions
- What do these results mean?

.....
-Do you think these results would generalize to other suspected criminals?