LINE ON LIFE

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The Lie Detector – Does It Really Work? *

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Most of us have seen movies in which a suspect has been given a lie detector test. More recently, lie detectors are being used by some large companies or governmental agencies, when they interview prospective employees. How does a lie detector work? Are lie detectors efficient in detecting lies?

The concept of a lie detector is centuries old. The ancient Chinese had a suspect chew dry rice while he was being questioned. After questioning, the rice was examined. If it was dry, the suspect was assumed to be guilty. As was assumed then – and is currently supported by more recent evidence – the nervous tension created by lying slowed or blocked the flow of saliva. Thus, the dry mouth lead to dry rice and a guilty verdict.

The modern lie detector – the **polygraph** – does not use dry rice. ("*Poly*-" means "*many*," and "*graph*" refers to "*something that writes or records*.") The polygraph records several different activities at the same time. Typically it involves a pneumograph, a sphygmomanometer and the galvanic skin response.

The **pneumograph** ("*NEW-mow-graf*") involves a hose, which is pleated like an accordion, that is put around the suspect's chest. It records the depth and rate of respiration.

The **sphygmomanometer** ("*SFIG-mow-meh-NOM-eh-ter*") is merely a blood pressure cuff. (If you want to impress your physician, the next time he takes your blood pressure, you can make some comment on the "*sphygmomanometer*" he is using.)

The **galvanic skin response (GSR)** is related to the electrical resistance of your skin. When most people lie, their anxiety increases and reduces the electrical resistance of their skin. The GSR measures these changes in resistance.

Lie detectors only indicate changes in arousal. From the arousal changes, lying is inferred.

Essentially, the polygraph – lie detector – only measures changes in physiological arousal. The assumption is that lying increases anxiety that, in turn, is indicated by changes in physiological levels of arousal. The polygraph operator will first get a measure of **baseline** physiological levels – the levels of functioning typical of the person when not under stress. Lies are identified when there are changes from this baseline level.

If a person is suspected of a crime, he will typically *not* be asked, "*Did you do it?*" This type of question may even cause arousal in innocent suspects. Usually the operator asks questions that would only create stress in a person who is familiar with the crime. If a stolen object was found in a locker, the mention of the locker will most likely show changes in arousal in a guilty person – but not an innocent one.

However, there are ways a guilty person may be able to fake responses in an attempt to "*fool*" the lie detector. He could make himself tense, so an accurate baseline cannot be established. One investigator reported the case of a prison inmate who coached 27 other inmates on how to successfully lie when attached to the polygraph. All 27 had previously admitted their guilt. However, after a 20-minute coaching session, 23 of the 27 passed the lie detector test!

The role of the polygraph operator is very important. He must read the charts and interpret which changes indicate lying. Some studies have shown high agreement among different operators reading the same chart (80-90%). Yet other studies have found that the agreement was not much greater than could be expected by chance – just slightly better than flipping a coin.

Not only may agreement between some operators be low, but the accuracy of detecting lies may also be low. In one psychological study, operators were shown 100 charts – 50 from guilty persons and 50 from innocent ones. In trying to identify the guilty and innocent from analyzing the polygraph records, an average of 37% of the innocent people were classified as guilty! If your freedom – your life – will be based on the results of this test, the number of incorrect interpretations can be frightening. From this, you can see why there is still a great deal of controversy about the use of lie detectors.

During the Vietnam War, a new method of detection was developed. The Army wanted a simpler, more covert way to detect lies while interrogating prisoners. They developed a **voice stress analyzer**. Muscles controlling the voice are affected by arousal and stress, causing tremors. The voice can be recorded, and a picture of the voice tremor can be put on graph paper.

The beauty – and the frightening feature – of this method are that it can be used to analyze any voice that can be recorded. This includes personal conversations, telephone conversations – even speeches by politicians. Conversations can be recorded without knowledge or consent. This raises serious ethical questions about the use of voice analyzers.

Even though we do have the polygraph and the voice analyzer, their ability to detect lies is far from perfect. In addition, there are serious questions of ethics concerning their use. If you are ever asked to take a lie detector test, awareness of these factors should help you to make a better-informed decision.

^{*} Adapted from Worchel and Shebiliske's *Psychology: Principles and Applications*, Prentice-Hall, 1986, page 336-337.