2025-26 SPRING

PSYCHOLOGY OF CRIME

WEEK 14

Detecting Deception

INTRODUCTION

- "deception" is **not easy** to define
- deception is an **act** "**intended to** foster in **another a belief or understandin**g which the **deceiver considers to be false**"
- distinctions can be made between:

➢ **falsifications** (everything being told is contrary to the truth),

➢ **distortions** (the truth is altered) and

➢ **concealment** (the liar holds back the truth)

INTRODUCTION

- A person provides **a statement about the past** that is either **truthful** or **deceptive**.
- An **electronic recording**, typically a short videotape of the statement, is then **shown to observers**, sometimes referred to **as lie-catchers**.
- The task of these **lie-catchers** is to **make a judgment** of whether the target is **lying or telling the truth**.
- This method has been the **conventional way to study human deception detection**.
- But we will also **acknowledge a paradigm shift** that has taken place within the field.

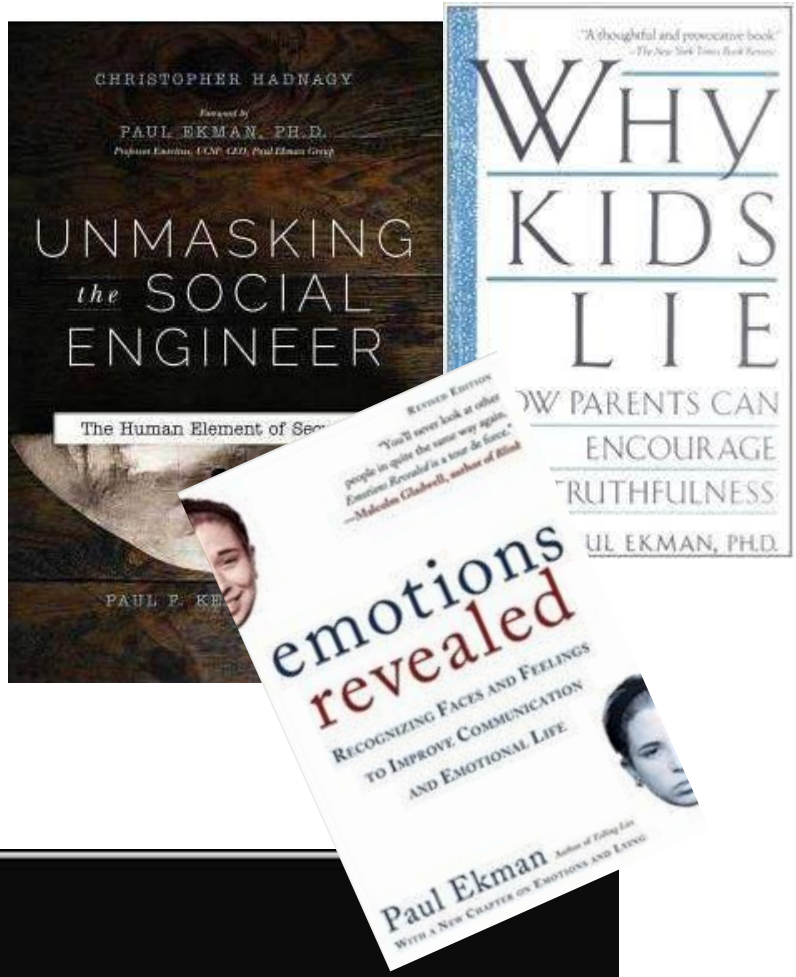
THEORETICAL APPROACHES TO DECEPTION

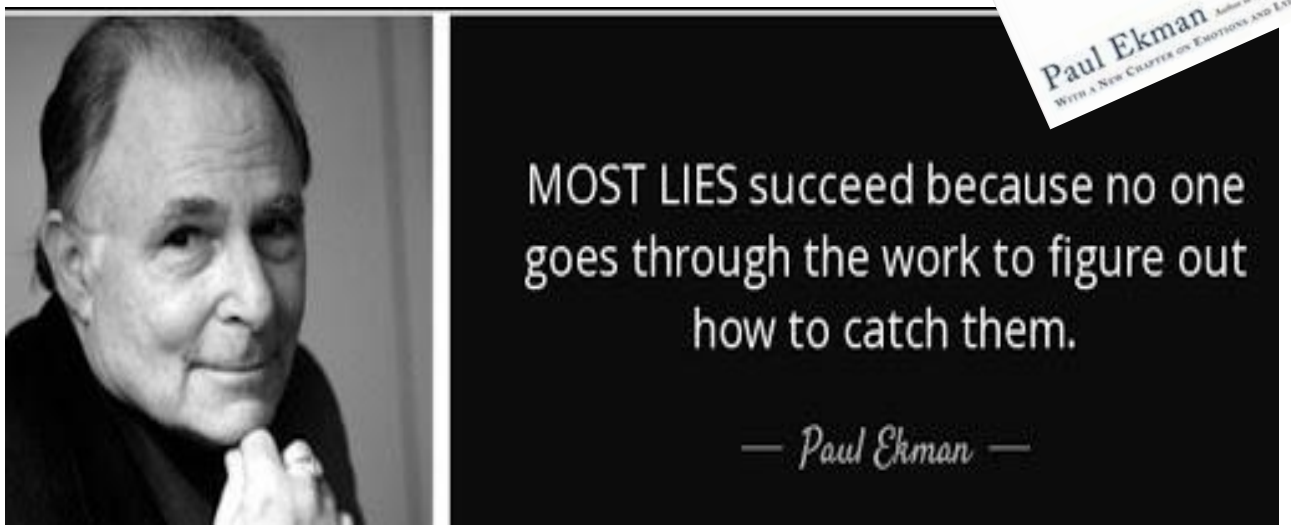
- What **cognitive and emotional** processes can we expect to be at play **during deception**?
- And **how** might these **processes cause liars' behaviour** to differ from truth tellers'?
- **Three theoretical** perspectives:
- the **emotional** approach,
- the **cognitive load approach** and
- the **self-presentational** perspective

The Emotional Approach

- The **emotional approach** states that **lying causes emotions** that **differ from** those experienced while **telling the truth** (Ekman, 2001).
- **Experiencing emotions** when lying **can lead to leakage of these emotions** in the forms of expressions of emotion.
- For example, **fear of detection** may cause liars to experience **stress and arousal**, causing the **pitch of voice to rise** and increasing **blushing**, **sweating** and number of **speech errors**,
- while **feelings of guilt** will cause liars to **avert their gaze**.
- According to the emotional approach, **the stronger the emotions experienced** by the liars, **the more likely that these emotions will leak**, leaving **visible traces in behaviour** (Ekman, 2001; Porter, ten Brinke, & Wallace, 2012).


sadness
1 drooping upper eyelids
2 losing focus in eyes
3 slight pulling down of lip corners
anger
1 eyebrows down and together
2 eyes glare
3 narrowing of the lips
contempt
1 lip corner tightened and raised on only one side of face
disgust
1 nose wrinkling
2 upper lip raised
surprise
Lasts for only one second:
1 eyebrows raised
2 eyes widened
3 mouth open
fear
1 eyebrows raised and pulled together
2 raised upper eyelids
3 tensed lower eyelids
4 lips slightly stretched horizontally back to ears


CHRISTOPHER HADNAGY
PAUL EKMAN, PH.D.
UNMASKING the SOCIAL ENGINEER
WHY KIDS LIE
emotions revealed
RECOGNIZING FACES AND FEELINGS TO IMPROVE COMMUNICATION AND EMOTIONAL LIFE
Paul Ekman


MOST LIES succeed because no one goes through the work to figure out how to catch them.
— Paul Ekman —

The Cognitive Load Approach

- It is based on the **fundamental premise that lying may be more mentally demanding** than telling the truth (Blandón-Gitlin, Fenn, Masip, J., & Yoo, 2014; Vrij, 2015a; Vrij et al., 2008).
- **Lying can be a more difficult** task than telling the truth, in that a liar **must provide a story consistent** with the facts known by the interviewer, **detailed enough** to appear based on something **self-experienced, but simple enough to be remembered** if one is asked to repeat the story later on.

The Cognitive Load Approach

- Moreover, they might **blink less frequently** (Leal & Vrij, 2008), and the **mental burden** they are facing might **lead to a general reduction in body movements**, in particular in the form of movements of **peripheral limbs** (e.g. arms/hands and legs/feet).

The Self-Presentational Perspective

- The **emotional and cognitive** approaches both view lying as **a process that differs** in a fundamental respect **from telling the truth**.
- **In contrast**, the **self-presentational perspective** emphasises the **similarities between truth tellers and liars** (DePaulo et al., 2003).
- Self-presentation has been defined as **regulating one's own behaviour to create a particular impression on others** (DePaulo, 1992).

The Self-Presentational Perspective

- In the self-presentational view, **liars and truth tellers share a mutual goal**: to **create an impression of honesty**.
- **Both** are **motivated** to reach this goal and might invest effort in their attempts to reach it, and **experience distress at the prospect of failure**.
- The **major difference** between liars' and truth tellers': **truth tellers have grounds** for their claims and stay within the boundaries of the truth, whereas **liars do not**.

The Self-Presentational Perspective

- DePaulo labels this the ***deception discrepancy***: **liars and truth tellers** can be expected to **differ cognitively and behaviourally** in several important ways.
- "**Liars** can be **preoccupied with the task of reminding** themselves to act the part that **truth tellers** are **not** just **role-playing but living**" .

OBJECTIVE CUES TO DECEPTION

- The most important results from a meta-analysis were that

1. reliable cues to deception were **scarce**, and
2. behaviours that were actually related to deception **lacked strong predictive value**.

- **Liars** appeared **more tense** than truth tellers, reflected in **dilated pupils** and **heightened voice pitch**.
- **Liars** were also rated as **less cooperative** than truth tellers, and their **faces** were perceived as **less pleasant**.

OBJECTIVE CUES TO DECEPTION

- **Liars talked** for a **shorter** time and include **fewer details** compared to truth tellers. Also, **liars' stories** made **less sense** in that they were less **plausible**, less logically structured and **more ambivalent**.
- **Truth tellers** spontaneously corrected themselves **more often** and **admitted not remembering more frequently** than liars.

LIE-CATCHERS' PERFORMANCE

- With few exceptions, **accuracy levels** fall between **45% and 60%** (Vrij, 2008).
- **Presumed lie experts** – such as police officers, **judges and customs officers** – have also participated in studies on deception detection. **Accuracy rates** tend to fall between **45–60%**: very similar to those observed for lay people.

Misconceptions about Deceptive Behaviour

- People **maintain misconceptions** about the characteristics of **deceptive behaviour**, and that they therefore **rely on invalid cues** when attempting to distinguish between truths and lies.
- People frequently express the belief that **liars are prone** to **gaze aversion** (a decrease in eye contact).
- People also tend to associate lying with **hesitations, slowed speech rate, longer and more frequent pauses**, and an **increase in smiling and self-manipulations**, such as **hand/finger and leg/foot movements**.

DETECTING DECEPTION FROM VERBAL CONTENT

- Is it **possible to detect deception** on the basis of what **is being said**?
- If so, what **should one listen for**; and is it better to **use human coders or computer programs**?
- Or are you **better off totally ignoring the verbal content** and instead **using special equipment** to **analys**e the speaker's **voice**?

Statement Validity Analysis

- ***Statement validity analysis (SVA)*** is the **most widely used technique** for assessing accuracy on the basis of **verbal content**.
- A full **SVA is a four-stage** procedure:

1. an in-depth **analysis of the case-file**,
2. a **semi-structured interview**, interview is audio-taped and transcribed,
3. the statement is assessed in terms of **credibility**, using a so-called **Criteria-Based Content Analysis (CBCA)**. The CBCA is based on a list of **19 criteria**,
4. by using a so-called **validity checklist**, alternative explanations to the CBCA outcome are considered.

Reality Monitoring

- ***Reality monitoring (RM)*** has been used in **basic memory** research for many years, and refers to **people's ability to discriminate** between **self-experienced** and **imagined** events.
- **Real experiences** are products of perceptual processes (e.g. details concerning **taste, touch, smell**), whereas **imagined events** are products of **reflective** processes. As a consequence, **memories of real events** tend to **differ from** memories of **imagined events**.

Scientific Content Analysis

- ***The scientific content analysis (SCAN)*** technique, similarly to SVA and RM, is that a **statement based on memory** of an actual experience **differs in content** from a statement based on invention.
- SCAN uses **written statements**, preferably statements that are **handwritten** by the examinee (to ensure that the examinee's own words are produced).
- There is a list of **12 SCAN criteria** that is used in research. Although the name of the method is scientific, it does **not provide enough scientific evidence**.

COMPUTER-BASED LINGUISTIC ANALYSIS

- (In the late 1960s) People's **choice of words** may **reveal more** about their underlying **mental states** than the actual message.
- There are **several methods:**

1. Linguistic Inquiry and Word Count (**LIWC**)
2. Computer Analysis of Voice Stress:

a) Voice stress analysis (**VSA**)

b) Layered voice-stress analysis (**LVA**)

PSYCHO-PHYSIOLOGICAL DETECTION OF DECEPTION

- Deception detection focuses on **differences in psycho-physiological patterns**, which are typically **measured** using the **polygraph**.
- The **polygraph measures** at least **three physiological** systems, all governed by the **autonomic nervous system** :
- ***galvanic skin response*** (sweating from the palm),
- ***cardiovascular activity*** such as systolic and diastolic blood pressure (measured by a cuff on the upper arm),
- ***breathing patterns*** (measured by sensors attached around the chest).

In the US, polygraph testing occurs in many parts of law enforcement and security screenings.
Polygraph tests play a role in the legal systems of Belgium, Canada, Israel, Japan, Korea, Mexico, Thailand and Turkey.

https://harrypottermagic.org/2019/10/20/lie-detector-polygraph/y

The Control Question Test (CQT)

- The most frequently used is the ***Control Question Test (CQT),*** sometimes referred to as the ***Comparison Question Test*** (Honts, 2004; Honts & Reavy, 2015), which is widely applied in law enforcement in the US, Canada and Israel.
- The subject will **respond** to the questions with "**yes**" or "**no**" (Vrij, 2008).
- The purpose of the control questions is to **establish a deception baseline**, to which responses to the relevant questions are compared.

Validity of the CQT

- The **polygraph has been evaluated** using both **field and laboratory** approaches.
- Field studies show that the **CQT** is rather **good at classifying guilty suspects**. In an overview by Vrij (2008), it was concluded that more than **80% of the guilty suspects failed** the test.
- The **results** of field studies must, **however**, be **interpreted with caution**. It is a well-known fact that **innocent people** sometimes **confess to crimes** they have **not committed**.

The Concealed Information Test

- The second **type of polygraph** test is the ***Concealed Information Test (CIT)*** (also referred to as the ***Guilty Knowledge Test*** (GKT).
- It aims to **detect concealed knowledge** that only the **guilty suspect has**. This is done by presenting a question together with a number of **answer alternatives**, **one** of which **is correct** (e.g. “What weapon was used to kill Mr. Sylvester? Was it a knife? A dagger? A pair of scissors?”).

Validity of the CIT

- **In contrast to the CQT**, the CIT seems to be **slightly more accurate** in **classifying innocent** than guilty.
- In an overview by Vrij (2008), **well over 90% of innocent suspects** and **around 80% of guilty suspects** were correctly classified in laboratory studies.

STRATEGIC INTERVIEWING IN ORDER TO ELICIT AND ENHANCE CUES TO DECEPTION

- It is possible to identify **several different approaches** within this new wave of research, and below we will discuss **three** of these:
- the **cognitive load** approach,
- the **unanticipated questions** approach, and
- the **verifiability approach**.

The Cognitive Load Approach

- **Lying** is often **more cognitive demanding** than telling the truth (e.g. Vrij, Fisher, Mann & Leal, 2006).
- It is assumed that **liars** would be more **disrupted by additional cognitive tasks**, as their resources are already **preoccupied with the cognitive challenge** of lying.

The Unanticipated Questions Approach

- Uses a consistent research finding as the point of departure: **liars tend to prepare themselves** before an interview; and they **predict the questions** they will be asked and **rehearse answers** to those questions.
- There is a **clear link between the unanticipated questions approach and the cognitive load approach**. For **liars**, anticipated questions are **easier to answer than unanticipated questions**, due to the fact that they can **evoke and use their rehearsed answers**, but for the **unanticipated questions** they are **forced to fabricate answers** on the spot.

The Verifiability Approach

- Basically, the verifiability approach rests on **two assumptions**:

1. **liars** often **include less detail** in their account than truth tellers, and
2. **liars prefer to not mention details** that can **be checked**.

- These two assumptions put liars in an information **management dilemma**:

1. on the one hand they know **they need to provide details** to be assessed as honest,
2. on the other hand they realise that **there is a risk in providing details** that can be checked.

NEW DIRECTIONS IN DECEPTION DETECTION RESEARCH

fMRI as a Deception Detection Tool

- **Functional Magnetic Resonance Imaging (fMRI)**
- This method **enables monit**oring of **neural activity during cognitive** operations.
- The findings from this research indicate that the **neural activity during lying may be different** compared to the activity during telling the truth.
- **fMRI studies** show an **increased activity** in the **prefrontal cortex** during deception (i.e. the "**executive**" part of the brain, supporting complex human behaviour such as **speech and problem solving**). (supports the theoretical perspective that **lying is more cognitively demanding** than telling the truth)

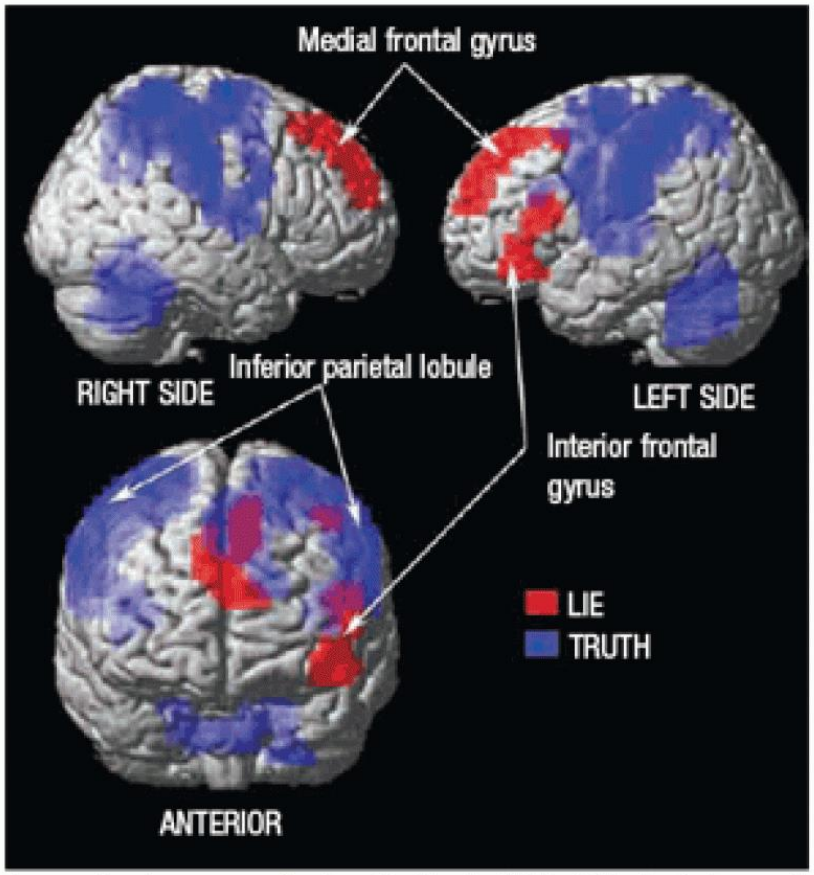


Image showing average brain activation for 22 individuals during modified Guilty Knowledge Test. Red areas represent brain regions more active during lie condition and blue areas represent brain regions more active during truth condition. (Provided by K. Ruparel and D. Langleben, University of Pennsylvania)

fMRI as a Deception Detection Tool

- **fMRI equipment** is extremely **expensive, immobile**, and **demands the suspect remain still**.
- It is even **more controversial** whether **fMRI produces evidence of sufficient reliability** to be **admissible in court**.
- using fMRI will **shed some light on the cognitive processes** taking place during deception, **but its future applications to forensic settings appears problematic**.

Discriminating Between True and False Intentions

- **Deception detection** is **one of the most popular subtopics** within forensic psychology.
- In **recent years**, researchers' **attention has turned to statements concerning future** rather than past events.
- **Distinguish** between persons **who are lying** and persons **who are telling the truth** about their **intentions**.

Discriminating Between True and False Intentions

- **Most intentions demand planning**.
- A person **who is telling the truth** about his/her intention **should be able to te**ll about the **planning phase**.
- A person **who lies** about his/her intention should **have much less to say** with respect to the **planning** (**why plan for something you never intend to carry out?**).

CONCLUSIONS

- **Research on deception detection** has exploded **since the mid 1990s** and it **continues to grow**.
- In an **era of threat, violence and terrorism**, a premium is placed on **research dealing with security and control**.
- We believe that **research on deception detection** has an **important role** to play in the **struggle for justice and a safer society**.