# Hotheads

Selected sections from chapter 6 of Steven Pinker's book "How the Mind Works"

# Introduction

- Story about mass killing
- **Amok:** *Amok* is a Malay word for the homicidal sprees occasionally undertaken by lonely Indochinese men who have suffered a loss of love, a loss of money, or a loss of face.

Suggests a universality in emotional experience

Gives an example of a word with a specific emotional meaning.

# Universal Passion

pages 364 to 649

*"A familiar tactic for flaunting one's worldliness is to inform listeners that some culture lacks an emotion we have or has an emotion we lack."*

*(Pinker 364)*

# Are Emotions based in culture or language?

## Unique experience

| | |
|---|---|
| Utku-Inuit Eskimos | No word for anger and claim to not feel the emotion.<br><br>(yet understand outsiders anger, discipline dogs and children, and sometimes get "hot".) |
| Tahitians | Allegedly do not recognize guilt, sadness, longing, or loneliness; they describe what we would call grief as fatigue, sickness, or bodily distress.<br><br>(A Tahitian woman who says she feels sick after her husband dies would rarely be mistaken for having heartburn) |
| Spartan mothers | Were said to smile upon hearing that their sons died in combat.<br><br>(Extreme cultural response) |

## Unique Words

Some languages use words for unique emotional states:

***"Amok"***
Malay word for a guy who goes crazy and kills people basically the same as the American slang *going postal*.

***"Naches"***
Hebrew word for luminous pride in a child's accomplishments.

***"Schandenfreude"***
German for happiness in another's misfortune.

**Pinker's Point:**
Experience without words is universal
Words for experience do not imply uniqueness
It only implies good wordsmiths.

# Charles Darwin and Paul Eckman

- Charles Darwin
  - Wrote about emotion alongside evolution and took notice that all the races seemed to have the same expressions for common emotions.
  - " another observation by Darwin has been corroborated: children who are blind and deaf from birth display virtually the full gamut of emotions on their faces.“
- Paul Eckman
  - "When the psychologist Paul Ekman began to study emotions in the 1960s, facial expressions were thought to be arbitrary signs that the infant learns when its random grimaces are rewarded and punished."

Astonishment
Shame
Indignation
Concentration
Grief
Good spirits
Contempt
Obstinacy
Disgust
Fear
Resignation
Sulkiness
Guilt
Slyness
Jealousy
Yes
No

# Universality across race and culture

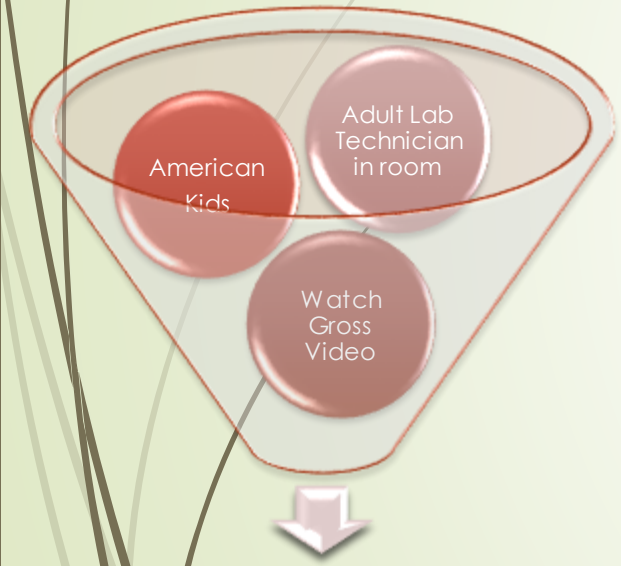

Ekman assembled photographs of people expressing six emotions

He showed them to people from many cultures, including the isolated Fore foragers of Papua New Guinea, and asked them to label the emotion or make up a story about what the person had gone through.

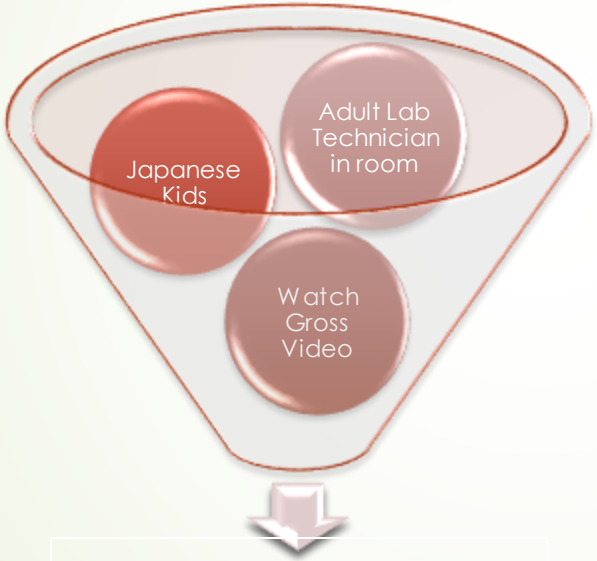
Everyone recognized happiness, sadness, anger, fear, disgust, and surprise.

# Differences in Emotional Expression are Public, but private emotional experience is universal…

*"If a white-coated experimenter was in the room, the Japanese students smiled politely during scenes that made the Americans recoil in horror…*

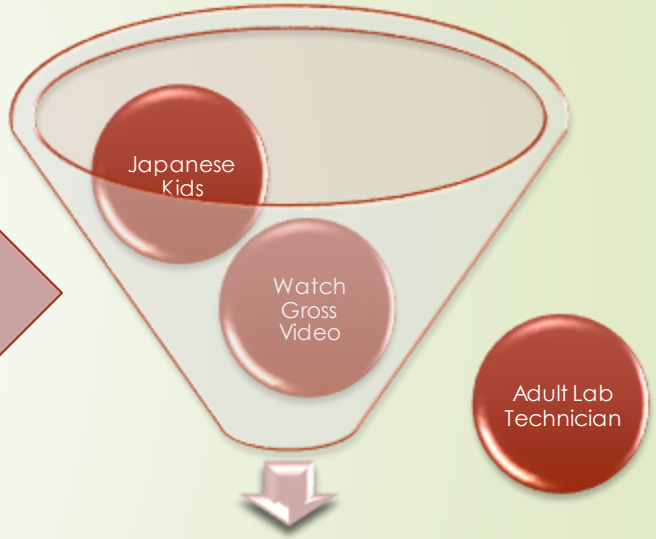



Ewww! Faces




Polite Smiling Faces

*…but when the subjects were alone, the Japanese and American faces were equally horrified." (369)*




Ewww! Faces

***Pinker's Point:***

*Display of emotion is cultural / social.*

*Uninhibited by cultural rules, the "natural reaction" the same*

# Wrap up Universal Passion

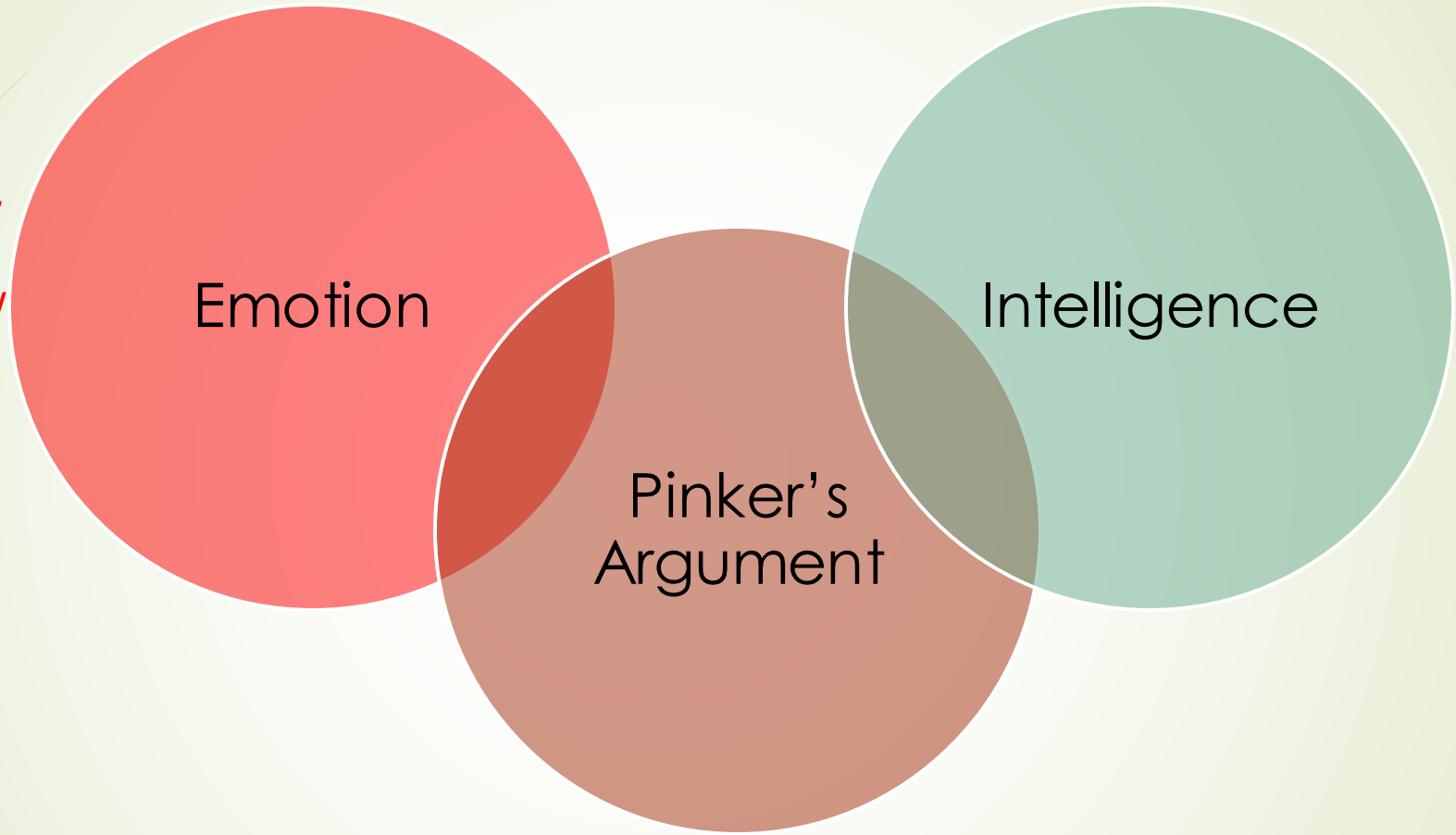
1. **Emotion causes action**
   - "Amok" or "Going Postal" occurs in many societies
2. **There are some emotions that seem to be universally experienced and expressed**
   - happiness, sadness, anger, fear, disgust, and surprise
3. **Since it crosses cultural and racial boundaries.**
   - Language is not necessary
   - Opinions are culturally bias
   - *"two sources that cannot be trusted at all as readouts of people's minds: their language and their opinions." (366)*
4. **While the internal experience is Universal, there are cultural differences in the public display of emotion**
   - When American and Japanese children are shown a gross out video they react different in the presence of a lab technician, but the same when they are alone.

# FEELING MACHINES

*"I will show that the emotions are adaptations, well-engineered software modules that work in harmony with the intellect and are indispensable to the functioning of the whole mind" (370).*

# Feeling Machines: Information or Energy?

The emotions come from nature and live in the body. They are hot, irrational impulses and intuitions, which follow the imperatives of biology.



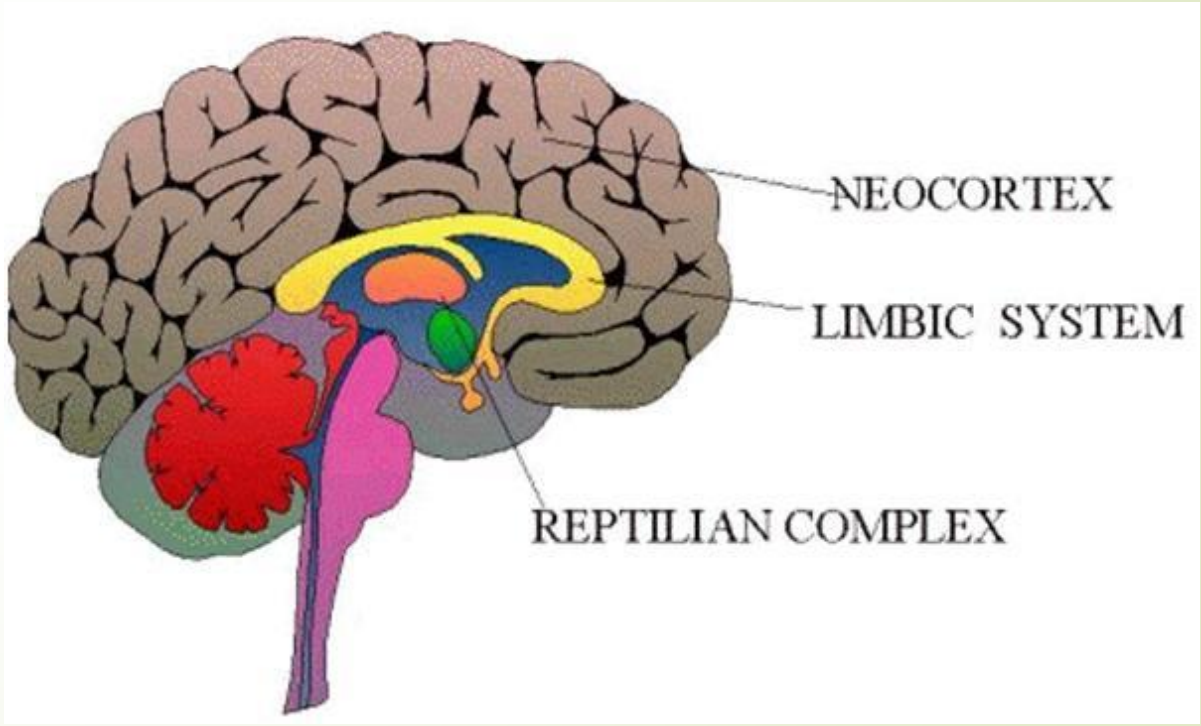

The intellect comes from civilization and lives in the mind. It is a cool deliberator that follows the interests of self and society by keeping the emotions in check

"**combines the computational theory of mind**, which says that the lifeblood of the psyche is information rather than energy, **with the modern theory of evolution**, which calls for reverse-engineering the complex design of biological systems." (370)

# Earlier Models of Emotions

Paul MacLean proposed the **triune model** of the brains evolution.

| Brain System | Layer of Evolution | Contributes |
|---|---|---|
| **NEOCORTEX** | Modern Mammalian | Higher thinking |
| **LIMBIC SYSTEM** | Primitive mammalian | Social Emotions like Parenting |
| **BASAL GANGLIA (reptilian)** | Reptilian Brain | **Four F's** Feeding Fighting Fleecing Sexual Behavior |



# Pinker on Triune Brain Theory

- Incorrect
- Evolution changes what is already there, not piling on new layers
- Are emotions primitive and unchangeable?
  - (implies cavemen emotions = modern emotions)
  - No, they are easily changed
- Amygdala houses emotion takes signals from both higher and lower thought
  - Does not "ride piggyback"
  - Higher thought (NeoCortex) – Understanding the nuances of a dear john letter or a regular letter.
  - Lower thought (Basal ganglia) – Loud noises, fight / flight.
- Emotions help contrive plans, set goals and urge us to explore
  - not only the 4 F's.
- Later Pinker notes that they create the sense of urgency

# Reverse Engineering Emotions

**Intelligence**:

"The pursuit of goals in the face of obstacles. Without goals, the very concept of intelligence is meaningless" (372)

**Goals**

Intelligence disseminates which goal we pursue.

**Subgoals**

Goals are a series of subgoals within subgoals

**EXAMPLE:**

If you are locked out of house.

The main goal is to get into the house.

A. Get keys out of pocket and unlock
B. Try to reach lock through mail slot
C. Break Window

If we choose A. the Sub-Sub Goals become

a. Insert hand in pocket
b. Grasp keys
c. Remove hands and keys from pocket
d. Look at keys
e. Select correct key
f. Move hand with keys towards lock
g. Insert keys into lock
h. Turn
i. Jiggle if needed
j. Etc…

**In living beings**

evolution decides which is the TOP MOST goal

**In Artificial Intelligence**

the programmer decides which goal is the TOP MOST goal

# **Reverse engineering emotions:**
## Key to why we have emotions

**Pinkers reasoning for why evolution uses emotion in living things:**

- "The goals installed in Homo sapiens, are not just the Four Fs. High on the list are understanding the environment and securing the cooperation of others" (373)

- "The key to why we have emotions. An animal cannot pursue all its goals at once." (373)

"The emotions are mechanisms that set the brain's highest level goals." (373)

# **Reverse engineering emotions:** Activating Urgency

Because the goals and means are woven into a multiply nested control structure of subgoals within subgoals within subgoals, **no sharp line divides the thinking from feeling, nor does one inevitably precede the other.**


The idea that Michael Jackson might drop the baby is intellectual in nature. The subgoals are both intellectual and emotional.

**INTELLECTUAL:** Bring the baby to the safe side of the ledge

**EMOTIONAL:** DO IT NOW! (sense of urgency)

# **Reverse engineering emotions:**
## Emotions of Things vs. People

***"Each human emotion mobilizes the mind and body to meet one of the challenges of living and reproducing in the cognitive niche." (374)***

- Physical Things

"Some challenges are posed by physical things, and the emotions that deal with them, like **disgust, fear, and appreciation of natural beauty**, work in **straightforward** ways." (374)

- People

"Others are posed by people. The problem in dealing with people is that **people can deal back**. The emotions that evolved in response to other people's emotions, like **anger, gratitude, shame, and romantic love**, are played on a **complicated** chessboard, and they spawn the passion and intrigue that misleads the Romantic." (374) "

# Reverse Engineering Emotion …Emotions Role in AI

- If emotions allow us to manage all the things we need to do
- And emotions help us set our highest goal in a changing environment
- And they interplay with intelligence to make manage all these goals and subgoals at each moment
- Then they may be the key to freely behaving AI.

"Most artificial intelligence researchers believe that **freely behaving robots** (as opposed to the ones bolted to the side of an assembly line) will have to be **programmed with something like emotions** merely for them to know at every moment what to do next." (374)

*(Whether the robots would be sentient of these emotions is another question)*

# Wrapping up Feeling Machines

- Old models are incorrect
- Emotions are involved in the management of all goals
- Emotions allow more than one goal at once
- Evolution uses emotion, the genes try to replicate and the emotions work to aid in gene replication.
- Emotions help us remember how goals are achieved and how to avoid erroneous sets of subgoals
- Emotions set TOP GOALS
- Emotions set urgency and rapid reprioritization of top goals based on arbitrary changes in the environment. (possible solution to Dennet's Frame problem?)
- Physical emotions are straightforward
- People emotions are complex

# FOOD FOR THOUGHT

"Disgust is intuitive microbiology" (383)

# Food for Thought:
## How do we think and emote about food

**Thinking about food consists of**

- Developing food **preferences**
- Developing **disgust** towards non preferred foods

**Disgust acts like voodoo!**

- Once something is contaminated it is always contaminated (**contagion**)
- Things that are like other disgusting things are also disgusting (**similarity**).

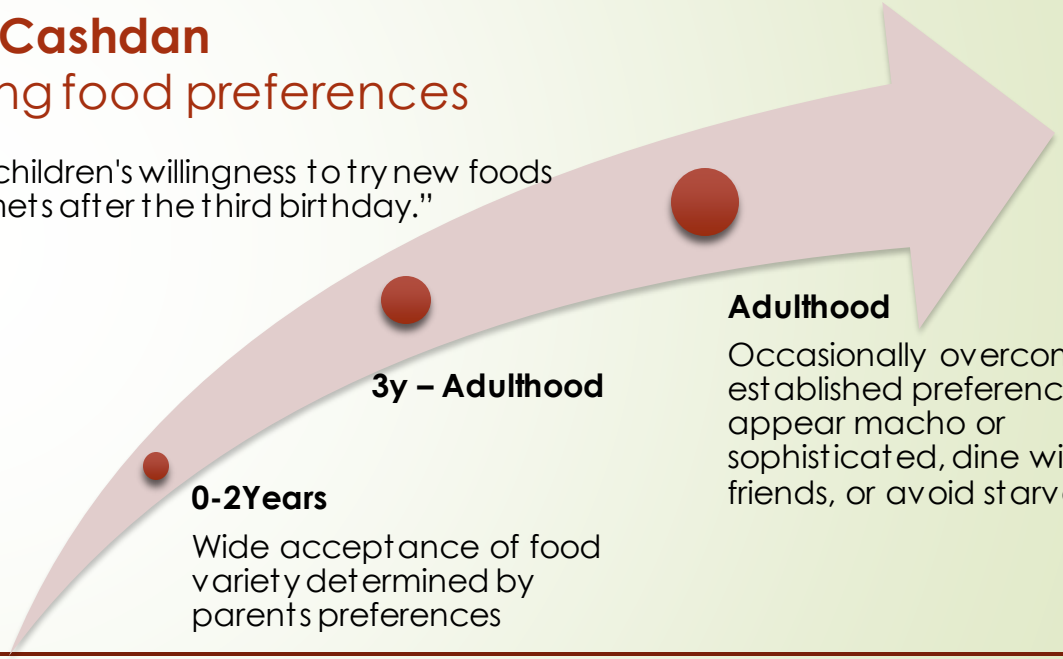
**Contagion:**
Soup in bedpan
Stirring drink with comb

**Similarity:**
Imitation Vomit
Dog poop chocolates

"Though disgust is universal, the list of nondisgusting animals differs from culture to culture, and that implies a learning process" (381)

**Elizabeth Cashdan**
Developing food preferences

"that children's willingness to try new foods plummets after the third birthday." (381)




"Disgusting things come from animals… Decaying animals and their parts are particularly revolting" (380)
"Disgust is intuitive microbiology" (383)

# **Food for Thought:**
# What is disgust for?

- Psychologist Paul Rozin:
  - "Disgust is a fear of incorporating an offending substance into one's body" (379)
  - Omnivores need discernment
  - "disgust is an adaptation that deterred our ancestors from eating dangerous animal stuff" (382)
  - Cultures claim rival cultures food to be taboo

# The Society of Feelings

*"Mental life often feels like a parliament within…*

*…The agents are bound by an entente that benefits the whole person over a lifetime, but over the short term the agents may outwit one another with devious tactics." (419)*

# Trickery

- Many competing needs
- Selfish genes serve individual needs.
- Doomsday machines compete for priority with selfish genes
- Mental games and self trickery result
- We use same tricks to control other people
- Trickery is bound by a requirement that the well-being of the whole organism is the goal.

# Grief

"No one knows what, if anything, grief is." (420)

- Why do we grieve?
  - Absurdist common sense question
  - Unexplained scientific question
- Grief could be:
  - Enforced interlude to reassess
    - Life has changed, now what?
  - Contemplate role and how it could have been prevented
    - Evolutionary value
  - Opposite side of love
  - Internal Doomsday machine