

The **POWER** and **Pitfalls** of Language in Accident Investigation

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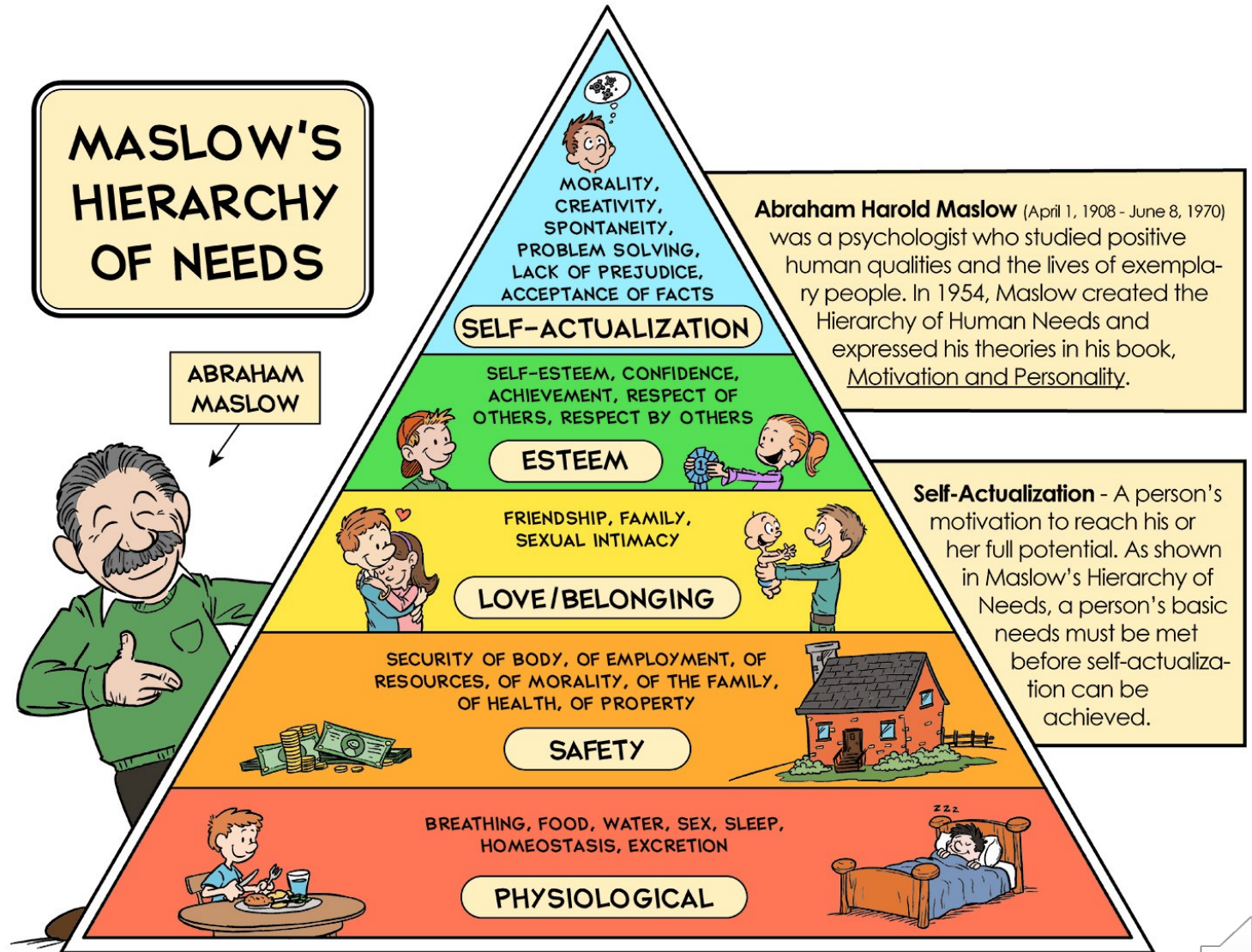
Why can't
we just say
what we
mean?

- Need for certainty and closure
- How we think
- Biases



The need for certainty

Safety needs include protection from elements, security, order, law, stability, freedom from fear





THE 2 SYSTEMS



READINGGRAPHICS
ACTIONABLE INSIGHTS IN ONE PAGE

System 1 (Fast Thinking)

Continuously scans our environment.



Fast but error-prone



Works automatically & effortlessly via shortcuts, impulses and intuition.



System 2 (Slow Thinking)

Used for specific problems, **only if necessary**



Takes effort to analyze, reason, solve complex problems, **exercise self-control**



Slow but reliable



System 1 Assumes certainty and predictability. It suppresses ambiguity and spontaneously constructs stories that are as coherent as possible.

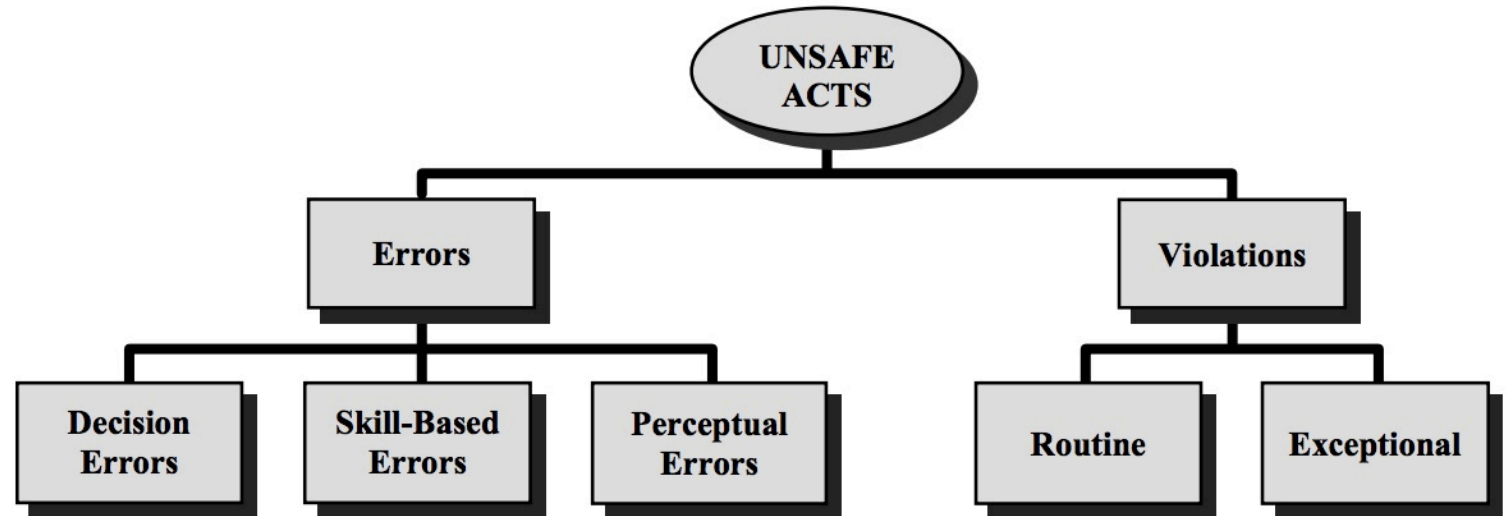
System 2 Can maintain incompatible possibilities at the same time. However, sustaining doubt is harder work than sliding into certainty.

From *“Thinking Fast and Slow”* by Daniel Kahneman



Linguistic Short-cuts

- Labels that masquerade as explanations
- Taxonomies that provide language for us



Binary Opposition

A relational pair, where one is the absence of the other

Strictly defines polar-opposites and sets them against each other

Does not consider the 'gray space' that lies between

Creates simple categories in the complex world of human judgment

Black ↔ White

Yes ↔ No

Hot ↔ Cold

Right ↔ Wrong

Success ↔ Failure

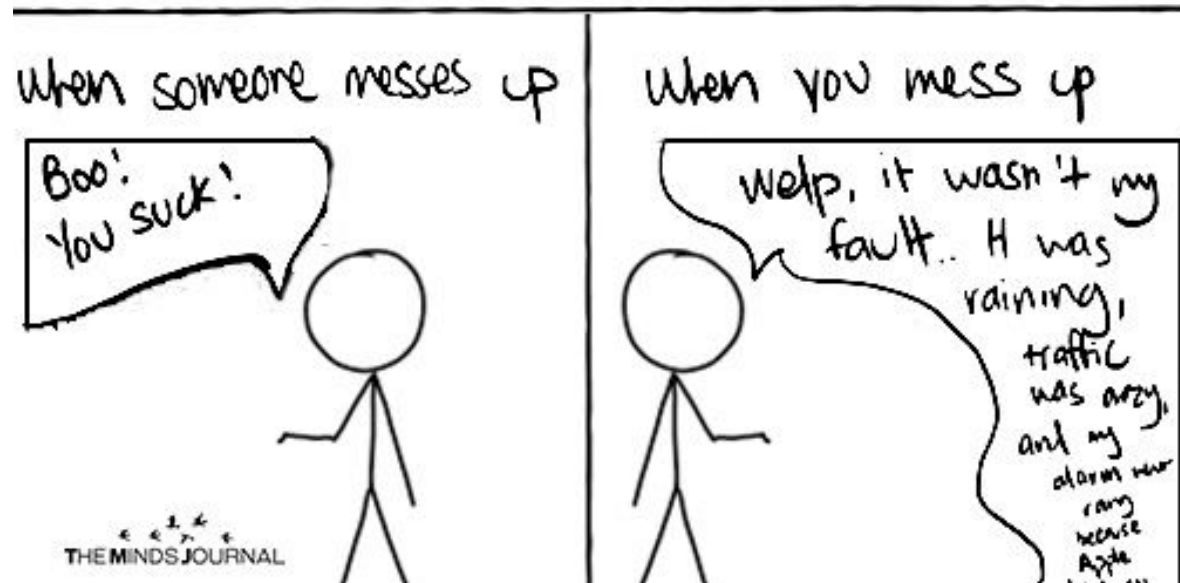


Our **biases** impact how we interpret and how we use language

Fundamental Attribution Error

Fundamental attribution error or correspondence bias makes us overemphasize personal characteristics & ignore situational factors when judging behavior of others.

| TheMindsJournal




Agency

What is an agent?

The 'doer' of an action, resulting in an event

...causality



A hand holding a thin rod over a globe of green and white powder. The globe is held by another hand from below. The background is black.

English is an agentive language

- Assign agency even for accidental events
- We remember agentive descriptions
- Presume the people closest to the event - in time or space - are the cause



Priming through language

Priming is when we expose
someone to something
(like language)
that influences their behavior

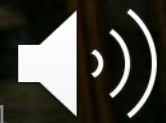


Often, a person does
not know they have
been 'primed'



POISE THE CAUSE IN JUSTICE EQUAL SCALES

WELCOME TO THE PEOPLE THE LAW



A close-up photograph of a spiral-bound notebook. The notebook is open, showing several pages. A black pen is resting on the pages. The pages have some faint, illegible text and numbers, possibly from a checklist or form. The spiral binding is visible on the left side.

Accident Reports

Every stage is affected by language

- The team while they gather information including the influence of their accident investigation guidance
- Writing the report
- Accident Report Review Board
- Interpretation of report by each audience



Accident Investigation Guide

2005 Edition

The causes of most accidents or incidents are a result of failures to observe established policies, procedures, and controls.

Chapter 1—Accident Investigation

1.1 Introduction

A Forest Service serious accident is one that involves:

- A death
- Three or more persons hospitalized after treatment for reasons other than observation
- Wildland fire shelter deployments or entrapments
- Property damage, other than to aircraft, that exceeds \$250,000
- Damage to aircraft that exceeds \$1,000,000 or results in total destruction of the aircraft

A. Supervisors and managers at all organizational levels are responsible for identifying and abating hazards, incorporating safe operating procedures into each of our daily tasks, and refusing to accept unnecessary risk. The causes of most accidents or incidents are a result of failures to observe established policies, procedures, and controls. All too often, accident investigations reveal existing hazards that were not adequately addressed.

B. The accident investigation gathers and interprets information to help managers understand how and why an accident or

- Executive Order 12196
- FSM 5700, Aviation Management, Chapter 5720
- FSM 6700, Safety and Health Program, Chapter 6732.1

1.3 Purpose

The purpose of accident investigations is to provide management with information for accident prevention. The *Accident Investigation Guide* details information on the investigative process and associated tasks, such as gathering and maintaining custody of physical and photographic evidence, documenting witness statements, interviewing witnesses, managing records, preparing the investigation report (factual and management evaluation sections), and conducting accident review boards. The guide also includes the investigation protocol for wildland fire shelter entrapments, deployments, and fatalities, and aviation accidents and incidents with potential. Because the guide is revised as needed, it is important to use the most current version.

A compact disk (CD) also is included with the guide. All exhibits

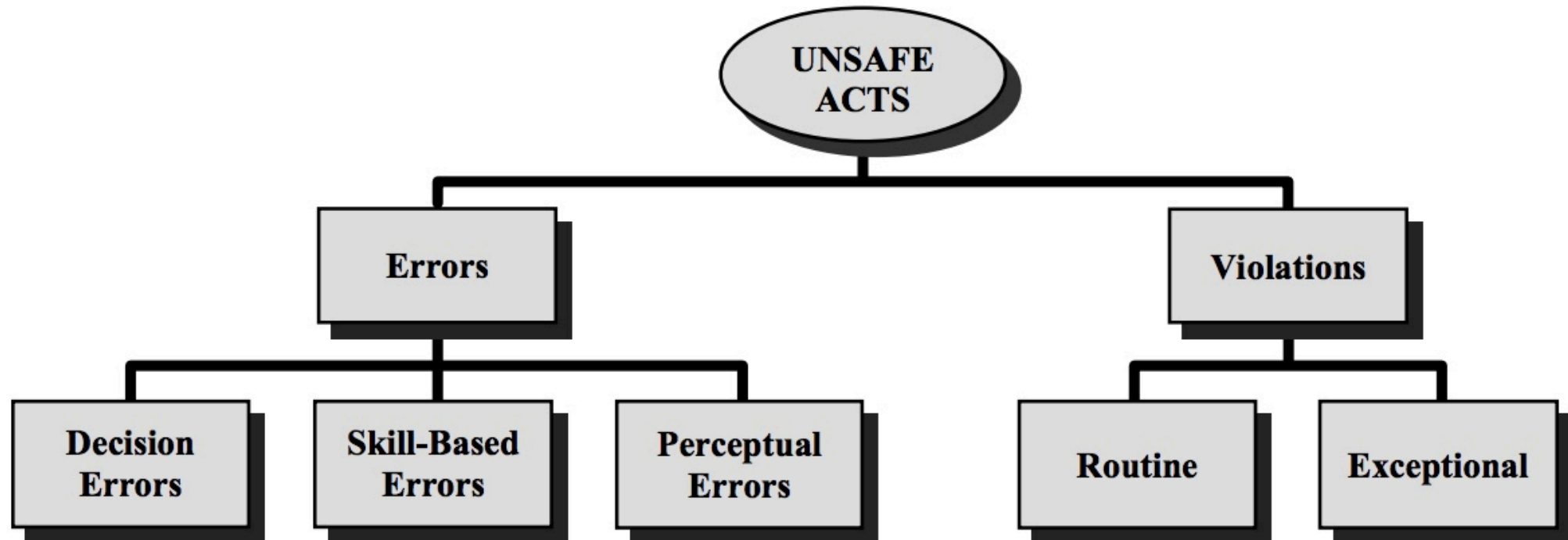


Serious Accident Investigation Guide (SAIG)

“Write causal factors in the active voice, clearly identifying the actor(s) and causal action, along with any necessary explanation.”

The Taxonomy Trap

The Human Factors Analysis and Classification System (HFACS)



Priming language in checklists

- Loss of situational awareness. Types:
 - ✓ Geographic disorientation (such as deviation from route, loss of position awareness).
 - ✓ General loss of situational awareness (such as **failure** to perceive hazardous condition).
 - ✓ Erroneous situational assessment (misinterpretation of situation or condition).
 - ✓ **Failure to predict or anticipate changing conditions.**
 - ✓ **False hypothesis confirmation bias (persistent false perception or misconception of situation).**
- Attention failure (such as failure to monitor or respond when correct information is available). Types:
 - Failure to visually scan outside the vehicle or equipment for hazards.
 - ✓ Omission of checklist items.
 - Failure to respond to communication or warning.

Binary opposition

Failure



Success

People Findings

Significant People Findings

- The fatalities and injuries all occurred during fire shelter deployment. Failure to adequately anticipate the severity and timing of the burnover, and failure to utilize the best location and proper deployment techniques contributed to the fatalities and injuries.
- Leadership, management, and command and control were all ineffective due to a variety of factors, such as the lack of communication and miscommunication, fatigue, lack of situational awareness, indecisiveness, and confusion about who was in control.
- Two civilians were involved in the entrapment due to a failure to properly close a potentially hazardous area.



Personalities and Safety Attitudes

Safety is a stated core value in USDA Forest Service Fire and Aviation Management operations. This investigation found no intentional or flagrant disregard of safety standards. However, in a mishap where the vast majority of the standing Fire Orders were violated and all but a few "Situations that Shout Watch Out" were present, one must question the field level understanding or commitment to the stated core value. One crewmember, when asked about the apparent apathy towards the guidelines, responded, "everyone knows that these things (Fire Orders) are just guidelines and can't always be followed." This appears to be a good distance away from the stated management philosophy that "we don't bend them and we don't break them."

(Thirtymile Fire Serious Accident Investigation Report, Human Factors Analysis)

Environment Findings

Significant Environment Findings

- The combination of weather (at or near historic extremes for temperature and relative humidity, and the extended drought in the region) and fuel conditions (complex fuels on the canyon floor, extremely low moisture content of both the live and dead fuels) created extraordinary circumstances for fire growth on July 10th.
- Potential fire behavior was consistently underestimated throughout the incident.

The language of reports lives on...

“Thirtymile Fire Boss Sentenced” *(from khq.com news)*



Four counts of the indictment alleged that Elreese Daniels **committed involuntary manslaughter** in the deaths of the four firefighters.

(the firefighters) were **killed** on July 10, 2001 while fighting the fire in the Chewuch River Canyon in Okanogan County.

Do a language review...

- Linguistic short-cuts
 - Labels
 - Taxonomies
 - Binary opposition
- Biases
 - Attribution error
 - Hindsight bias & counterfactuals
- Priming language
- **AGENTIVE LANGUAGE**



Thank you!
