

# CS 6795 Spring 2024 - Individual Exercise 2

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**Abstract**—This assignment explores the CRUM (Computational-representational understanding of the mind) account of Fear and Anger. The first two parts briefly describe the CRUM account of Fear discussed in the Emotions lecture. Subsequently, this assignment attempts to identify common patterns between Fear and Anger using CRUM. Finally, the assignment requires a detailed CRUM account focused on the Emotion of Anger.

**Keywords**—CRUM, Fear, Anger, Emotions, Common Patterns, Cognition Science.

## I. QUESTION 1: CRUM ACCOUNT OF FEAR

I will briefly describe the CRUM account of "Fear" through the four theories mentioned in class (Figure 1).

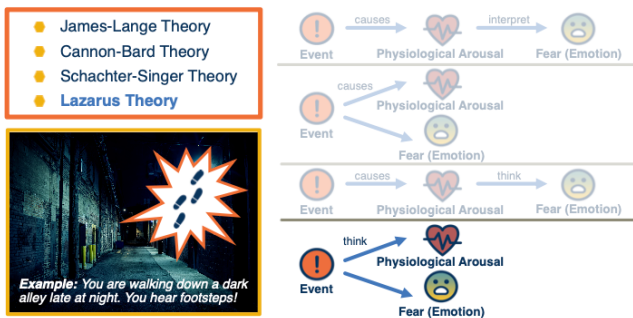


Fig. 1. Emotion Theories to Explain Fear.

### A. James-Lange Theory

According to James-Lange Theory, when an event occurs, a person will produce corresponding Physiological Arousal based on the scenario at the time, and these physiological responses will integrate and be interpreted as an Emotion. Take the situation mentioned in the lecture as an example: When you walk alone in a dark alley and hear other footsteps, these phenomena may cause you to produce the Physiological Arousal of a faster heartbeat and higher blood pressure and then further generate the Emotion of Fear.

### B. Cannon-Bard Theory

Cannon-Bard Theory, on the other hand, suggests that when an event occurs, a person will produce the corresponding Physiological Arousal and Emotion according to that scenario rather than the emotion being interpreted by the Physiological Arousal. Take the situation mentioned in the class as an example; when you are walking alone in a dark alley and hear other footsteps, these phenomena will cause you to produce a Physiological Arousal of faster heartbeats, raised blood pressure, or Fear Emotion.

### C. Schachter-Singer Theory

According to the Schachter-Singer Theory, when an event occurs, a person will produce the corresponding Physiological Arousal and the corresponding emotion after

the person has thought about it. Take the scenario mentioned in the lecture: Walking alone in a dark alley. Then you hear other footsteps. These phenomena will cause physiological arousal, a faster heartbeat, and higher blood pressure. Then, you will produce the emotion of Fear after you think about and evaluate the situation.

### D. Lazarus Theory

Although both Lazarus' Theory and Cannon-Bard Theory suggest that a given scenario evokes both the corresponding Physiological Arousal and emotions for a person, Lazarus' Theory suggests that these Physiological Arousal and Emotions are the product of the person's thinking rather than being directly caused by the scenario. Take the scenario mentioned in the lecture: walking alone in a dark alley. Then you hear other footsteps, physiological arousal such as rapid heartbeat and elevated blood pressure, and fear emotion, which will be generated after you think about and evaluate the situation.

## II. QUESTION 2: THE EMOTION "FEAR"

This section will analyze two situations in which I have felt the emotion of Fear.

### A. A random stabbing was reported at a busy Skytrain station in Vancouver, BC, Canada.

I saw on the news one day that there was a random stabbing at a station where I regularly ride the SkyTrain, and that the suspect fled the scene immediately after committing the crime and still hadn't been apprehended as of the newscast.

This news scares the hell out of me. Since I inevitably need to take the sky train from that station and the criminal is still at large, I think the risk of my daily commute has become very high. If I choose not to rely on public transit, then the cost of my trips goes up. Not only do these thoughts cause my heartbeat to change, but they also cause me to feel the emotion of Fear.

### B. I saw a bear not far from me during my hike.

On a pleasant hike with a friend, I suddenly saw a black bear in a place that was not a zoo for the first time in my life. Since the bear was a giant not far from me, so I felt very fearful.

The situation was terrifying because I had no idea what to do to ensure our safety, had no bear spray with me, and had been told by my friends that it was best to stay still. And because the bear had a definite size advantage over us, we could not fight it off if it decided to attack us. I was sweating during that period. Even now, I look back on this incident and can still feel the emotion of Fear I felt.

### III. QUESTION 3: THE EMOTION “ANGER”

This section will analyze two situations where I have felt the Emotion of Anger.

#### A. Idea plagiarizes in the workplace.

In a professional setting, my Anger arose when a colleague took credit for my ideas during a team meeting. The idea received the supervisor's approval and soon moved to the design and development process.

The sense of injustice and a perceived lack of recognition ignited my Anger. Not only does this kind of thing make me feel like I'm losing the ownership I deserve, but if it happens repeatedly, it could gradually hurt my career growth. Collaborative work can also become challenging in this case. I perceived my Anger at that point, and I felt I was running out of breath at the same time.

#### B. Unhelpful interactions with customer service

While dealing with customer service online, a series of unhelpful interactions and bureaucratic hurdles triggered escalating frustration, eventually turning into Anger. The chatbots at the beginning somewhat further increased the time cost of tackling my problem.

The perceived lack of efficiency in resolving a simple refund issue made me feel like I was wasting time, especially when I was on a tight schedule. Customer service's unreasonable responses to questions and poor processing flow overcomplicated very simple things, making me impatient and angry.

### IV. QUESTION 4: COMMON PATTERNS BETWEEN FEAR AND ANGER

In answering the above questions, I extracted the common patterns of how I experience the emotions of Anger and Fear as follows:

*Situation* – First, emotions are developed in a given context; otherwise, they cannot appear out of nowhere. As outlined in Questions 2 and 3, “reported random stabbing” and “unhelpful interactions with customer services” are such scenarios.

*Thinking Process* – Secondly, I realize I have a thinking process before or in the meantime when an emotion arises. This thinking process usually involves perceiving, evaluating, and analyzing the current circumstances and drawing

immediate conclusions about myself. Such findings can further stimulate the production of emotions.

*Emotion Generation* – Finally, particular emotions arise as a reaction to the situation. Emotions are often accompanied by perceptible physiological variations, such as heart rate, blood pressure, perspiration responses, and even immediate body temperature changes.

In analyzing my experiences of Anger and Fear, I identified common patterns: emotions are context-driven, with specific situations triggering a thinking process involving perception and evaluation, leading to the generation of emotions accompanied by physiological responses.

### V. QUESTION 5: CRUM ACCOUNT OF ANGER

The CRUM account of "Anger" can be summarized in Figure 2.

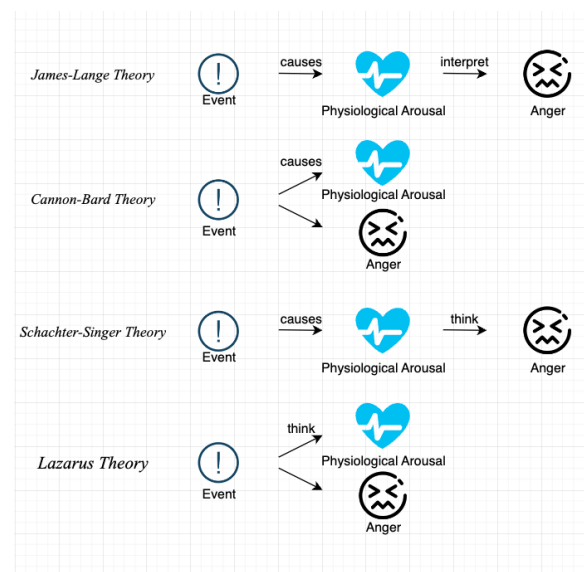


Fig. 2. Emotion Theories to Explain Anger.

Although all four theories (James-Lange, Cannon-Bard, Schachter-Singer, and Lazarus) can explain the production of angry emotions, the Lazarus Theory is more in line with my personal experience, as described above. My feelings are not a direct result of external or physiological changes but rather are a result of the current situation combined with a synthesis of my background.