

Constructing Meaning in Pandemic Culture

Thesis

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By

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Abstract

The purpose of this thesis is to explore the types of metaphors that are used to construct meaning during the COVID-19 pandemic. The thesis is founded on affect theory to explain how experience becomes objectified into a metaphor as a source mediating between a teller and an audience. I also use rhetorical narrative theory as a source for why affective experiences, such as describing COVID-19, is turned into a narrative that includes metaphor. Fictionality is also an instrumental theory for connecting how experiences are objectified and how fictionality thus produces a particular rhetoric. In illuminating such theories, I will be exploring the use of weather metaphors which are used by scientists and social scientists to explain complex events. I determine that while some metaphors are actually beneficial in describing complex scientific happenings as in the instance of the metaphor “cytokine storm” which allows for meaningful connection between scientists and the general population, others may create a dangerous rhetoric as seen in war metaphors. However, weather metaphors can also be deceiving by alluding that an event is a natural event when it is perpetuated by mankind. I will also explore the use of war metaphors which rely heavily on the body politic as a battleground for COVID-19 events. These metaphors are explained within the contexts of affect theory, rhetorical narrative theory, and fictionality. By illuminating the work that is done through metaphors which are operating as a mediator between affective experience and affective response between teller and audience, the meanings that become constructed around such narratives take shape. It is through metaphors that the complexities of pandemic culture within the U.S. is recognized and understood.

Dedication

For my parents and brother who have endlessly supported my pursuit of the medical humanities.

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Vita

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Life in the Pandemic

It *never* used to be like *this*. The barista hands me an iced green tea, unsweetened, in a plastic cup with a pair of gloves. From behind a facemask the barista shares a muffled, “take care.” I grab the cup and from behind my own mask share a muffled, “thanks, you too.” I drive forward a few spaces only to stop before setting my drink into the cupholder. I grab a Clorox wipe and wipe the entire cup down. I then tear off half of the straw wrapper, sticking the unwrapped part into the lid while sliding the other half of the wrapper off so as to not contaminate the straw. I crumple the wrapper and throw it into a reused plastic grocery bag in my passenger’s seat. I then douse my hands in hand-sanitizer before I even take a sip. It never used to be like this. I hesitate before entering stores, carefully reading through the procedures: only 4 customers at a time, hand-sanitizer required upon entry, aisles marked with arrows that must be followed, 6-foot distances must be kept from others, masks required. These rules vary from store-to-store and it’ll leave you dizzy trying to keep track of it. The overwhelming rules are suffocating, just as my mask draws disturbing attention to the warmth of my own breath trapped beneath the fabric. I fidget with my homemade mask, knowing full well that I shouldn’t be touching my face. It never used to be like this. My medical appointments got cancelled, rescheduled, then cancelled, rescheduled, and cancelled, and rescheduled. Some of them moved online, the nurses stumbling over the phone explaining new procedures for telehealth. For the medical appointments not cancelled, a phone call one week prior to ask about symptoms, a phone call the day of to ask about symptoms, and a temperature check and a verbal contract about symptoms is signed at time of appointment. There’s a wait to get in the door, makeshift tents outside of hospital emergency rooms with staff in full-gear. That is, a

gown (maybe two), a mask, another mask, a face shield, shoe covers and gloves (sometimes two pairs!). It never used to be like this.

Pandemic as an Affective Experience

It is the year 2020 and the United States of America, like much of the rest of the world, has been experiencing a pandemic of COVID-19, an illness caused by a novel coronavirus called SARS-CoV-2. Symptoms include a fever, cough, shortness of breath, fatigue, loss of taste or smell, body aches, headache, nausea, vomiting, diarrhea, sore throat, and/or runny nose (“Symptoms of Coronavirus”). The symptoms are commonly mistaken for allergies, the flu, or even the common cold which likely made it difficult to recognize a novel coronavirus before it became a pandemic. To make matters worse, the onset of symptoms can range anywhere from 2-14 days after being exposed to SARS-CoV-2 (“Symptoms of Coronavirus”). As the world begins to learn more about the coronavirus, the ways in which we live our daily lives will change.

It is not often that the world experiences something new that affects our daily lives in the way that this pandemic has. As the world’s understanding of this virus continues to grow, we work to create narratives that help us to construct meaning about this pandemic, hoping to make sense out of the experiences by expression of language. It is imperative that we pay attention to the ways in which we talk about this pandemic, as the language becomes instrumental in placing meanings that may or may not be warranted. Therefore, in an effort to illuminate common metaphors we are using to discuss this pandemic, I will be identifying the meanings that such metaphors construct in our understandings of COVID-19.

The use of metaphors in illness is commonly documented by scholars as having a detrimental effect on the ways in which we understand illness, as is the case with Sontag in *Illness as Metaphor and AIDS and its Metaphor*. The general point Sontag recognizes is that metaphors position illness experience as something other than what it actually is. That is, as

Sontag explains, cancer is not a “battle” to be fought and won (or lost), but rather a battle in the metaphorical sense of the term. However, this “battle” metaphor posits that illness is an individual’s responsibility, and the terminology suggests that a patient’s outcome is largely determined by their abilities to fight it. Sontag and other popular scholars have done tremendous work regarding metaphors used in illness narratives. While I recognize the harm that such metaphors do in understanding illness experiences, I argue that metaphors can operate as a bridge of understanding between affective experiences and affective response between teller and audience by creating an abstract space that is relatable from both parties.

The ways in which experiences are communicated exists primarily through the two parties, a teller and an audience, that are situated among complex actions. This is useful in the understanding of the two principles of rhetorical narrative theory. The first suggests that, “...narrative is ultimately not a structure but an action, a teller using resources of narrative to achieve a purpose in relation to an audience” (Phelan x). For the purposes of this paper, I identify that the use of metaphors exists within rhetorical theory on the basis that metaphors that are being used and told by the narrator (or teller) work to connect with the audience. I expand on Phelan’s definition by suggesting that not only does the metaphor work in connecting the information between teller and audience, but that metaphors offer up a platform of perspective that is agreed upon between both teller and audience. Phelan continues to identify the second principle of rhetorical narrative theory which he defines, “... the presence and the activity of the somebody else in the narrative action is integral to its shape. In other words, the audience does not just react to the teller’s communication; instead the audience and its unfolding responses significantly influence how the teller constructs the

tale” (Phelan x). This is where the work of affective response comes in to play. The teller communicates in a particular way that would create an equally affective response to the affective experience on the basis of a metaphor that positions both the teller and audience into a particular perspective of an experience.

The gaps that exist between teller and audience, whether it is between a doctor and a patient, a scientist and a policy maker, or a government official and the general public are imperative to our meaning construction. An example of these gaps is evident where the teller who has experienced an illness/injury has an audience who has not experienced illness in the same way, or when a scientist teller has an audience who may otherwise not have the background to understand the language of research. We can see this in the daily medical encounters. I position metaphors as the connection across such gaps by use of abstract language that creates a foundational rhetoric by which to understand some concept.

Metaphors in Medicine

Metaphors are used frequently in medicine as a way to construct a common meaning between medical professionals and patients in an effort to fill the gap between an affective experience and an affective response. Perhaps in a visit to a doctor’s office you’ve noticed a colorful printout on the wall of smiley faces asking you to rate your pain on a scale of one-to-ten, or maybe you’ve even been asked to use the scale to determine your pain through a quantifiable metaphor. The smiley faces begin with a happy face and slowly turn to grimace as the numbers on the scale increase. The chart is called the Wong-Baker FACES Pain Rating Scale. The chart itself was created in an attempt to make communication easier with pediatric patients who needed to rate their pain (“Wong-Baker FACES History”). It began as a collection

of drawings from pediatric patients to express their pain levels (“Wong-Baker FACES History”). In many ways, this metaphor for pain became a gateway for communication between medical professionals and children; however, the scale expands far beyond its intended audience and is now used widely among patients of all ages (“Wong-Baker FACES History”). These faces are operating as a metaphor for pain, a way for patients and medical professionals to agree upon the ways in which an experience is understood.

I suggest that the reason metaphors, an abstract symbol of experience, become useful in illness narratives is because illness is more than a physiological event that can be reduced to numbers; illness is an abstraction of lived experience, cultural meanings and understandings. Illness is an affective experience. This pandemic is an affective experience. That is, metaphors can operate as a mediator between a patient’s affective illness experience and the lived experiences of another.

Affective experience is difficult to standardize, meaning that affective experience in one may elicit a different experience for another. According to Seigworth and Gregg, “Affect arises in the midst of *inbetween-ness*: in the capacities to act and be acted upon” (Seigworth and Gregg 1). This is exactly where I position metaphors in illness narratives. **Metaphors are the mediators between an affective experience and an affective response.** I position this statement where a teller has something to tell (an affective experience) to an audience who has not experienced the same affective experience as the teller. Think about the relationships between doctors and patients, or government officials and the general public. The patient is generally having an affective experience (like cancer) that the doctor may or may not have ever experienced, much less in the same way as the patient. Metaphors work to communicate

affective experiences to an audience that results in a similar affective response. This is illuminated throughout the use of metaphors in COVID-19, especially in war metaphors where the government officials want us to be fearful of a threat or to take such threat seriously.

Many scholars take up criticism of metaphors over the desired affective responses. Particularly, the types of affective responses that metaphors can elicit in an audience are done so by the manipulation of metaphors and affective experiences as we will see in the instances of war metaphors. Similarly, Sontag and other scholars such as Brandt and Botelho take up issue with the ways in which metaphors act and are acted upon. Nonetheless, I argue that those actions, produced by storm or war metaphors, are necessitated by the need for a mediator in the first place. Otherwise, no action would have been made to relate between experiences. That is, without an effective way of transferring affective experiences from one person to another, the affective experience would remain isolated within individuals.

To further this argument of the importance of affect theory in metaphors, I turn to Seigworth and Gregg's expansion of their definition that, "...affect is found in those intensities that pass body to body (human, nonhuman, part-body, and otherwise), in those resonances that circulate about, between, and sometimes stick to bodies and worlds, *and* in the very passages or variations between these intensities and resonances themselves" (Seigworth and Gregg 1). What I'd like to take away from Seigworth and Gregg's expansion on how affect works is that we live in a world that is connected in more ways than we can easily recognize. The experience of being ill is a network of interactions that, depending on the situation, range from dependencies on hospitals, doctors, pharmacies, family, friends, strangers, policies and more. All of whom may or may not have any personal experience with the patient's illness, other than

to care for similar patients. Despite this realization that illness is uniquely individual, to be ill is to be connected to others. While a doctor who treats cancer might not have felt what it is like to have cancer, the doctor is still working to make connections with cancer patients in order to understand their experiences. While it is the patient that has the cancer, the patient still seeks care from doctors, nurses, and family. In order to share in these interactions, we must learn to communicate between such intensities.

How can a cancer doctor connect with a patient's experience without having experienced such illness? How can a COVID-19 patient connect with family and friends who haven't experienced the illness? How can a hospital in the heart of New York City connect with a person outside of the city to describe their experiences on the COVID-19 ward? How do scientists connect with the public about new findings important to the ways in which the public should safely conduct their daily lives living in a pandemic? How do public officials connect with the public about legal measures taken to adhere to the scientific findings? How does the public express the pain and heartache of such measures to the public officials making such decisions? Metaphors operate as a common ground for understanding between two entirely different experiences.

As I consider the ways in which COVID-19 intensities are communicated, I find that the issue of relativity of illness becomes particularly abstract. As Seigworth and Gregg state, "At once intimate and impersonal, affect *accumulates* across both relatedness and interruptions in relatedness, becoming a palimpsest of force-encounters traversing the ebbs and swells of intensities that pass between 'bodies'..." (Seigworth and Gregg 2). If we place illness into the realm of affect theory as an experience of intensities that must translate and transfer between

bodies, then the use of abstracted relatedness or interrupted relatedness (metaphors) becomes the primary mode of communication. In the case of COVID-19, some of these intensities exist as fear, threat, protection, security, feeling overwhelmed, anxiety, or depression. These intensities can be felt as illness itself. As human beings, we have a desire to share narratives that help place these intensities into a more static state within ourselves.

To further the ways in which we communicate the affective illness experience, I base my argument on the distinction that affective illness experience begins between one body and another, whether it is a large entity like a hospital or the country communicating to its patients or citizens, or from patient to doctor. As we begin to construct meaning for our particular experience in this pandemic, the seemingly common route is by use of metaphors. Ahmed dives deeper into our understanding of how affect constructs meaning when she states, “Affect is what sticks, or what sustains or preserves the connection between ideas, values, and objects” (Ahmed 29). It is through affect that we begin to make connections to ideas that create meaning through the use of metaphors that create a related affective experience. For example, the phrase, “I’ve been hit by a truck.” It is used to describe pain and fatigue all over the body, but not because a person was *actually* hit by a truck. However, in attempting to reach meaning and understanding between the person who was “hit by a truck” and a person who is not in pain, the phrase, “hit by a truck” elicits affective response by the meanings we’ve already placed onto experiences of “being hit by a truck.” Therefore, metaphors are used as affective language.

In the particular instance of the COVID-19 pandemic, the general approach toward such events is driven primarily by fear and threat. These are particularly difficult, yet strong affective

experiences: the fear of the unknown, the fear of illness, the threat of illness, the threat of death, etc. These are affects, something that is felt (Massumi 61). Massumi writes,

At the limit, threat is a *felt quality*, independent of any particular instance of itself, in much the way the color red is a quality independent of any particular tint of red, as well as of any actually occurring patch of any particular tint of red. It becomes an abstract quality. When threat self-causes, its abstract quality is affectively presented, in startle, shock, and fear. As presented affectively, its quality suffuses the atmosphere. Threat is ultimately *ambient*. Its logic is purely *qualitative*. (Massumi 61-62).

If “threat” or “fear” is a felt quality that becomes abstract, it would be only fitting that abstraction becomes the language of communication for such a threat; it becomes an object of relatedness, a bridge between the experienced and the understood.

As we further explore how metaphors operate to create meaning, we can identify metaphors as “objects” that are used in an attempt to elicit some form of a response and ultimately create meaning. Ahmed states, “The circulation of objects is thus the circulation of goods. Objects are sticky because they are already attributed as being good or bad, as being the cause of happiness or unhappiness” (Ahmed 35). So, as we begin to identify what metaphors are being used during the COVID-19 pandemic, we must also recognize the type of work that is being done by them. What attributions are metaphors making, how does this place pandemic experiences into a working order? The objects themselves, the ideas that metaphors place upon illness, may very well be hiding the injustices that are present as Sontag and many others suggest, but they may also be working by bridging a divide that might have otherwise been an injustice too. For example, a non-science educated person needing to understand the transmission of COVID-19.

The role of metaphor in creating injustice comes particularly when the teller manipulates the audience into a specific affective experience by using a metaphor that evolves into a dispersed meaning. This example is illuminated well in war metaphors used in most instances, as Sontag identifies for cancer narratives and as I will identify in COVID-19 narratives. These abstract concepts of affective experiences can be distractions from the narrative. This becomes dangerous as metaphors become more widely accepted within a narrative for a particular context, thus shadowing the reality of the situation.

Fictionality and Affective Mediators

Metaphors are commonly used as narrative devices to describe a concept through other similar concepts. I consider metaphors to act as affective mediators (fig. 1). Metaphors exist as the go-between for concepts/ideas/affects that otherwise might be incomprehensible. That is, where metaphors are used to describe an affective experience like this pandemic, it creates an affective response that is further conceptualized into meaning.

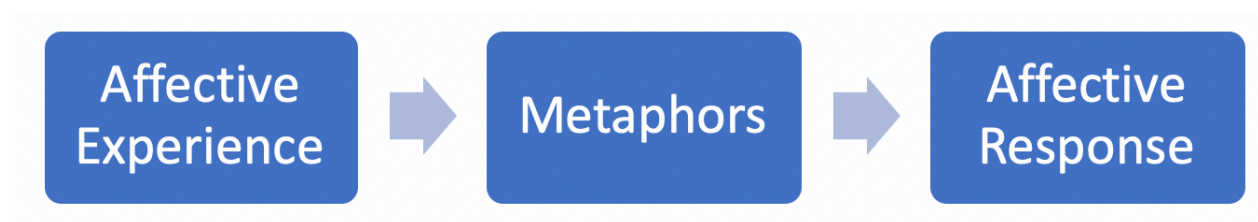


fig. 1: The connection between affective experience and affective response is metaphor. Metaphors operate as mediators.

In the book, *Metaphors We Live By*, Lakoff and Johnson define how metaphors operate systematically by stating, “The speaker puts ideas (objects) into words (containers) and sends them (along a conduit) to a hearer who takes the idea/objects out of the word/containers” (Lakoff and Johnson 32). Lakoff and Johnson further state that, “...words and sentences have meanings in themselves, independent of any context or speaker...[and that] meanings have an existence independent of people and contexts” (Lakoff and Johnson 34). This is how I conclude that metaphors exist as the bridge between affect. When we place affective experience into objected concepts (e.g. “hit by a truck”) which are already founded in meaning (a painful, full-body experience that came out of nowhere), we position the audience in a place of meaning and understanding (a person is in pain). In other words, metaphors, are abstracted objects that are translations from one to another (fig. 2). I see them working, more distinctly in this larger picture:

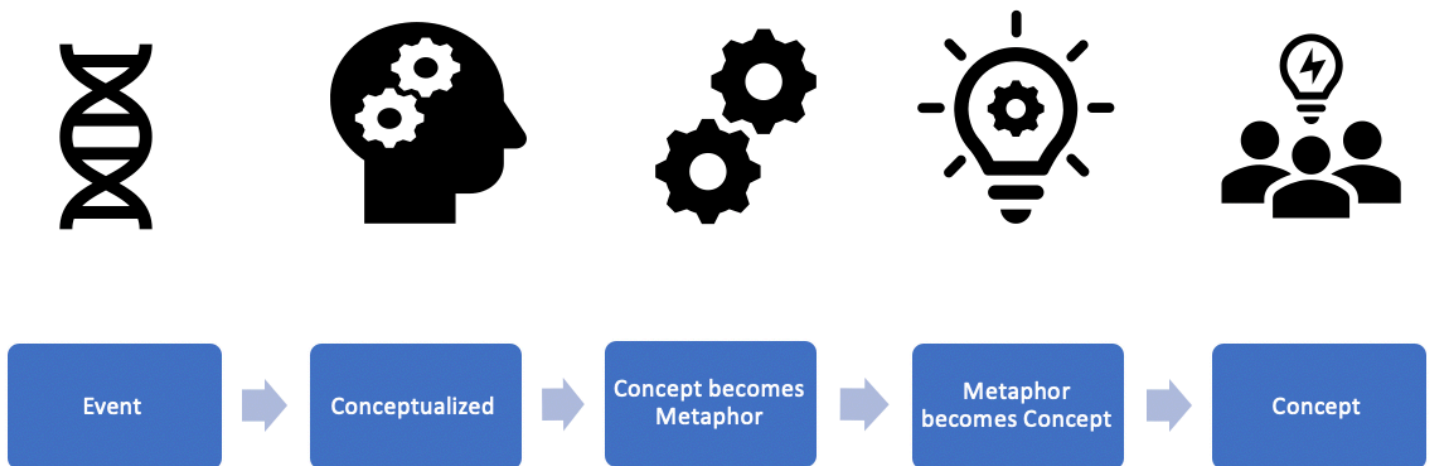


fig. 2: Events become interpreted and conceptualized into related metaphors that become new concepts for interpretation.

We start out with an event, like COVID-19. A person conceptualizes the event through affective experience; COVID-19 is a threat, COVID-19 should be feared. The concept (COVID-19 is a

threat) becomes metaphor through recognizing that threat often correlates with war through similar semantic features. The metaphor (COVID-19 and war) becomes concept: wage war on COVID-19. The concept becomes widely accepted in narratives for COVID-19.

To further this concept, I'd like to first start with Phelan's rhetorical definition of narrative, which describes "somebody telling somebody else on some occasion and for some purpose(s) that something happened" (Phelan 5). I position my argument by suggesting that the use of metaphors to engage with fictionality, as a form of rhetoric that allows for a common ground in understanding; and while the language used is "abstract," it is relatable. The "somebody telling somebody else" piece of metaphoric use happens to have a purpose of connection.

The abstracted characteristics of metaphor lies in fictionality. Fictionality is best defined as "...a means to communicate what is invented and as such transgresses the boundaries of both fiction and narrative" (Gjerlevsen 1). Through this working definition of narrative, I place metaphors as they are invented concepts to describe a similar event through narrative. Walsh suggests that fictionality, "...functions within a communicative framework: it resides in a way of using a language, and its distinctiveness consists in the recognizably distinct rhetorical set invoked by that use" (Walsh 15). In other words, the metaphors being constructed around this novel concept, COVID-19, are being placed into the distinctly recognizable rhetoric that does so in a way that allows us to create some sort of meaning for what we are experiencing. Phelan suggests that, "Readers [or audience] of fiction simultaneously participate in the illusion that the characters [or events] are independent agents pursuing their own ends and remain aware that the characters and their trajectories toward their fates are part of an authorial design and

purpose” (Phelan 69). Although both parties, teller and audience, are engaging in fictionality, there is an understanding between the two that the use of such metaphors acts as a way of explaining an affective experience. This duality of teller and audience within fictionality creates a particularly useful tool in negotiating an affective response. Phelan continues, “...the narrative audience responds to characters [events] as if they were acting autonomously, while the authorial audience remains tacitly aware of the function’s construction...” (Phelan 69). That is, when using fictional events to describe the actual event, the audience is reacting similarly to the fictional event despite knowledge that it is a constructed situation. This is particularly useful for tracking how metaphors exist between affective experiences and affective responses. The audience acts in two ways, (1) by acknowledging and reacting to the elicited affective response of an “invented” actual and (2) acknowledging that the “invention” (metaphor) was used primarily with authorial intent to elicit a particular response.

Fictionality operates as a way for an affective experience to become an object used in metaphor to translate into an affective response. It is fictionality that allows for language to be abstract and yet related, particularly through semantic features, which metaphors fall under the umbrella of fictionality because of this. To follow along the “hit by a truck” metaphor, a person (the teller) using such metaphor has likely not been “hit by a truck” nor has the audience who it is being told to. Rather, “hit by a truck” has developed a constructed rhetoric of meaning with semantic features, full-body pain that came out of nowhere. It is imaginative yet a fabricated explanation of pain. However, pain itself is a difficult concept for someone else to simply understand. When someone says, “I am in pain” it takes on a plethora of meanings to audience. Is it shooting pain, sharp pain, burning pain? Even there, it is difficult to describe pain

without metaphors and fictionality—pain does not “shoot”, pain is not “sharp”, pain does not “burn” in the physiological sense. However, pain is better understood because of the meanings surrounding the fictional, abstract metaphors used to describe it.

Situating the Human Body

The human body exists as a being of religion, a body of science, a body of state, a body of government, a body of politics. There is a collection of entities that stake claim to the human body. In the case of the COVID-19 pandemic, the human body is not only medicalized but politicized. Governments are situating public measures on the human body in an effort to slow the spread of COVID-19 like wearing masks in public, stay-at-home orders, contact tracing. Hospitals are weighing in on the cost of testing and caring for patients, exposure to staff and patients. This is the human body as body politic in action.

The body politic is where medical gaze becomes seemingly more evident. Medical gaze, a term originated by Foucault, is defined as a stripped-down version of a patient’s narrative into the biomedical paradigm (Misselbrook 312). The affective experiences turn into scientific explanations in the medical gaze of hospital encounters. When the human body and its affective experience are interpreted into a part of a governed entity, the language which we turn to is seemingly governed too. This turn of rhetoric into a seemingly politicized rhetoric explains why war metaphors become the metaphor of choice in illness. The body itself is a heavily politicized existence, so by relationship, abstracting experiences into war metaphors makes sense. If the body is a machine, it is capable of abstraction into a war machine, easily.

As we begin to realize the human body is defined by more than just the physiological processes but the cultural, religious, political, and global contexts that initiate relatability of

affective experiences into metaphors. As each of these entities begins to define how COVID-19 is contextualized, the use of metaphors becomes useful in describing action, concepts, and systems that will be placed on the human body.

All of this is to say, we are just beginning to comprehend the biological and social implications of COVID-19. It is already impacting global relations, personal relationships, business relationships, educational relationships, etc. Each entity participating in the body politic is affected by this pandemic in one way or another. There are processes that even the world's best virologist isn't able to explain about the function of the virus. If these complex viruses are difficult to understand for even the most educated individuals, then imagine how difficult it must be to explain these concepts to the general public. Let's have a look at the concepts that we are forming into metaphors that are loaded with the meanings we are placing on this COVID-19 pandemic.

The COVID-19 Pandemic

It is May 2020 and we are living through a pandemic. On December 31st, 2019, a report from the Wuhan Municipal Health Commission in China identified a suspected outbreak of a novel coronavirus to the World Health Organization ("WHO Timeline—COVID-19"). January 4th, 2020 marked the first acknowledgement from the WHO in a public form about a potential new outbreak of pneumonia cases in Wuhan, China ("WHO Timeline—COVID-19"). By January 13th, 2020, the new coronavirus, SARS-CoV-2, which causes the illness, COVID-19 had spread to Thailand as the first record of disease spread outside of China ("WHO Timeline—COVID-19"). It would not be until March 11th, 2020, that the WHO would declare COVID-19 a pandemic ("WHO Timeline—COVID-19"). Trying to track down the date of transmission of the disease to the U.S.

is difficult. The media reported the first community-spread of COVID-19 in California on February 26th, 2020 (Schumaker). However, as advanced testing becomes more widely available, we are learning that perhaps COVID-19 was here in the U.S. much earlier than we realized. It is suggested through antibody testing that patients who had similar symptoms to a fever and cough, but tested negative for the flu, likely had COVID-19. This is retracing the onset of illness in Ohio to early January and many other states as well (Borchardt). As we are beginning to unfold the impact of COVID-19 on the human body and our society, we are also working to produce knowledge and meaning in both the scientific and social worlds.

At the time this paper was written, the pandemic is ongoing. There have been extreme measures taken to protect the health of the human population through stay-at-home orders and quarantines lasting 14 days. In Ohio, dining-in at restaurants is prohibited, retail shops are closed, schools are closed and operating virtually, and what little human contact we are allowed to have is mostly done with masked faces and six feet between us. As it is going on three months of these changes, we are starting to open the economy back up, however, with the looming threat that the virus is still here and may result in strict closures once again. Humans are social beings, and with these new changes, we are grasping for some sort of meaning in all of this. Scientists are still studying the new concepts, they too are creating their own meanings as their understandings unfold. Therefore, I turn to metaphors as a way for each of us to meaning in an environment with threats that are still being learned. I will begin by describing how SARS-CoV-2 works in the body to create illness. I will use the detailed explanations to make the point that scientific knowledge is difficult to understand for those outside of the science field or specialty. Consequently, we turn to metaphors.

But First, Let Me Take A Cell-fie

SARS-CoV-2 begins on the cellular level. By understanding the complexity of the transmission of SARS-CoV-2 in the cell, we can begin to recognize the necessity of metaphors to communicate such events. The human body is comprised of 37.2 trillion cells (Bakalar). The cells are given their structure from that plasma membrane which is characteristically described as a phospholipid bilayer made up of a series of hydrophilic-heads and hydrophobic-tails that work together to create a selectively permeable barrier (Sadava et al. 79). Scientists classify human cells as eukaryotic cells because they contain a nucleus which protects the cell's DNA with a membrane and is characteristic of animal cells (Sadava et al. 81). Some of these membranous organelles include: (1) the mitochondria which stores energy from carbohydrates and fatty acids that become adenosine triphosphate which is an important source of energy for a cell's function, (2) the endoplasmic reticulum and Golgi apparatus which work to make the proteins that determine the cell's function, and (3) lysosomes which operate to break down large molecules (Sadava et al. 84). Within the nucleus, there is also a location that contains ribosomes that work to make the RNA and proteins that is called the nucleolus (Sadava et al. 85).

Now that the general map of the cell is created, how does a cell become a functioning cell? The cell's DNA consists of a sequence of four nitrogenous bases: adenine (A), guanine (G), cytosine (C), and thymine (T) (Sadava et al. 272). These nitrogenous bases organize much in the way that an alphabet can be organized to make words, except the nitrogenous bases organize to make three-lettered codons which make proteins. For each of these bases, there is an opposing pair that creates the double-stranded feature of DNA. DNA takes a double-helix shape

and it is partly because of the bonding that happens strictly between A and T or G and C, which are known as base pairs (Sadava et al. 273). In a healthy cell, DNA undergoes a semi-conservative replication, which produces two new DNA strands, each with a part of an old strand and one new strand (Sadava et al. 276). This is important for cell replication, which requires a copy of the original cell's DNA to work. To begin this DNA replication process, the double-stranded helical DNA is unzipped using an enzyme, creating two separate strands of single-stranded DNA, called a template strand (Sadava et al. 279). The template strand interacts with a replication complex that includes DNA polymerase, an enzyme that facilitates the replication process (Sadava et al. 131, 279). These DNA template strands are identified by its ends which are characterized as either 5' (read 5 prime) or 3' (read 3 prime). These are important in identifying where chemical processes start and stop reading the DNA. The process begins with primase moving from the 3' end of the DNA strand making a starter strand, called the RNA Primer (Sadava et al. 279). Next, DNA polymerase (enzymes are noted by the suffix -ase) continues moving along the DNA strand, making an RNA strand (Sadava et al. 279). RNA is different from DNA in that the base pair, T, is replaced with uracil (U) and typically consists of a single strand, this will be important knowledge later in the paper when discussing viruses (Sadava et al. 294). Once the DNA polymerase is done adding nucleotides to the template strand, a new DNA strand is complete (Sadava et al. 279).

These DNA strands then undergo *transcription*, which is the process of copying the DNA into an RNA strand (Sadava et al. 294). Then, the RNA strand undergoes *translation*, which uses the nucleotides (A, U, G, C) to create polypeptides (long proteins) which are the functioning proteins of the cell (Sadava et al. 294). Transcription produces an RNA strand known as pre-

mRNA, which then becomes mRNA, all of which is happening inside of the nucleus (Sadava et al. 295). When the mRNA leaves the nucleus, it enters into the cytoplasm and is met with ribosomes that help perform translation of the mRNA into proteins, becoming tRNA (Sadava et al. 295). This process is known as the central dogma discovered by Francis Crick in 1958 (Sadava et al. 294). This is how we make it to 37.2 trillion human cells in the body and how the cells in your heart know they are in your heart and not your stomach.

However, when a cell is introduced to a virus, the virus takes control of the replication process. Rather, viruses insert a singled-stranded RNA (explained later) which does not copy back into DNA, but rather, into more viral RNA strands that lead to a specific set of protein functions (Sadava et al. 295). These RNA strands then exit the cell in some fashion, depending on the virus, and look to infect other cells that can reproduce the necessary viral RNA strands. With this basic sample of how cells function, I will transition to how the novel coronavirus that is the cause of our current pandemic functions at the cellular level. However, before I transition specifically to SARS-CoV-2, I thought it best to explain what a coronavirus is and how they generally function within the cell. Since there are many types of viruses in the world and while SARS-CoV-2 may be considered novel in many ways, it comes from a family of viruses that also act in similar ways and so by understanding the general work done by the coronaviruses within the cell, we can begin to understand SARS-CoV-2.

The Sun and All Its Glory: Coronaviruses

Coronaviruses (CoVs) are classified under the *Nidovirales* order, which means that coronaviruses are made up of positive-sense RNA viruses that are non-segmented and enveloped by a protein before being delivered to its host (Fehr and Perlman 1). These viruses

get their name from their physical appearance, which consists of a spherical structure with spikes jutting out from the surface to give it similarity to the sun's corona, hence the name, coronavirus (Fehr and Perlman 2). Coronaviruses contain spike, membrane, envelope, and nucleocapsid proteins (Fehr and Perlman 3). The coronavirus attaches to its host and enters the cell through the use of spike proteins (the same ones that give the virus its name) which uses a unique sequence to enter the endoplasmic reticulum (Fehr and Perlman 3). The membrane protein acts as a structural glue for giving the coronavirus its spherical shape and with the help of spike proteins is also inserted into the endoplasmic reticulum (Fehr and Perlman 3). The envelope protein allows for the release of the virus into the host cell, this is the protein that is necessary for a virus to develop a disease (Fehr and Perlman 4). Lastly, the nucleocapsid proteins are assumed to assist in binding the replicase-transcriptase complex (RTC) which is important for RNA replication and enclosing the RNA into a viral particle (Fehr and Perlman 4).

Spike proteins on the coronavirus interact with certain receptors on eukaryotic cells (Fehr and Perlman 4). Once the virus has bound to the host cell's receptors, the spike protein is split which allows for the mixing of the virus membrane and the cell membrane (Fehr and Perlman 5). Then, the viral RNA must undergo translation within the host cell, which allows for coding of a replicase gene that determines two co-terminal polyproteins, this is done through ribosomal frameshifting (Fehr and Perlman 6). Frame-shift mutations happen when a base is added or deleted, resulting in a new codon that makes a different protein (Sadava et al. 320). Through viral RNA translation, the polyproteins subsequently contain nonstructural proteins (nsp) which then become a part of the replicase-transcriptase complex (RTC) which promotes RNA synthesis and allows for RNA replication and transcription (Fehr and Perlman 6). These

nonstructural proteins are also known for blocking natural immune responses (Fehr and Perlman 7). Once this translation process begins turning RNA into proteins, the viral RNA undergoes synthesis (Fehr and Perlman 7). It is through synthesis that two RNA structures are made, genomic and sub-genomic (Fehr and Perlman 7). The sub-genomic RNA acts as the mRNA (Fehr and Perlman 7).

The next step in coronavirus lifecycle occurs after the RNA is synthesized when the spike, envelope and membrane proteins show up in the endoplasmic reticulum after translation by moving into the Golgi intermediate compartment (ERGIC) (Fehr and Perlman 9). The viral RNA becomes enclosed in nucleocapsid proteins creating a mature delivery capsule for the virus (Fehr and Perlman 9). Once the membrane protein, with the assistance of spike proteins binds with the nucleocapsid, the virus is formed (Fehr and Perlman 9). These sequences are differentiated based on the identified coronavirus (Fehr and Perlman 10). The virus is released using vesicles that led to exocytosis (Fehr and Perlman 10). While there are many unknowns and variabilities that remain in the scientific understanding of coronaviruses as identified by Fehr and Perlman, many coronaviruses use excess spike proteins to create a cell-cell fusion leading to multinucleated cells which can make it extremely difficult for an organism's immune system to detect the virus before it has already made its mark (Fehr and Perlman 10).

Under the Microscope: SARS-CoV-2

Now that I've provided a general basis for coronaviruses, what's with SARS-CoV-2? SARS-CoV-2 is the newest discovery of the coronavirus family and the cause of the pandemic illness, COVID-19. Scientists all over the world are racing to understand all there is to know about the virus in an effort to learn how to treat the virus in the body or how to prevent the

virus from entering. However, at the time of this thesis, there is still a lot that is not known, which is why the process of finding a cure so difficult.

SARS-CoV-2 is thought to use a host cell's angiotensin-converting enzyme 2 (ACE2) as its receptor for spike proteins to inject viral RNA into the cells (Andersen et al. 450). This is an interesting pathway as some common over-the-counter pain medicines like ibuprofen might increase ACE2 expression in cells as does diabetes, potentially providing more opportunities for the virus to enter the cells, although, this has not been consistently agreed upon (Russell et al. 2). However, this affinity is variable, making for less-than-ideal environments for SARS-CoV-2 to bind to ACE2 receptors, suggesting that natural selection created a perfect mix between SARS-CoV-2 and a host cell that would allow for transmission and spread of the virus (Andersen et al. 450). SARS-CoV-2 has been identified as containing O-linked glycans which are predicted to act as a shield in protecting the virus from detection from an immune system (Andersen et al. 450). It is with these explanations that it is believed that SARS-CoV-2 was not developed in a lab in China as some are led to believe, but through the perfect pair of animal host and human host (Andersen et al. 450).

When a SARS-CoV-2 virus interacts with a human cell it begins a mechanism similar to the one discussed in an above section (Vabret et al. 4). The initiation of RNA transcription (making of new viral RNA) with a pattern recognition receptor (PRRs), which begin a cascading response of cytokine secretions (Vabret et al. 4). Cytokines are proteins that work to change the function or behavior of their target cells (Sadava et al. 876). This is where interferons type I and II (IFN-I, IFN-II), proinflammatory tumor necrosis factor alpha (TNF-a), and interleukin-1, interleukin-6, and interleukin-18 (IL-1, IL-6, IL-18), initiate an immune response (Vabret et al. 4).

IFN-I and IFN-II are known to play vital roles in antiviral defense, however, there also seems to be some uncertainty as to whether IFN-I does protect a cell against SARS-CoV-2 or if it's cousin, the IFN-induced transmembrane family actually increases a cell's susceptibility to SARS-CoV-2 as it is known to do in other coronaviruses (Vabret et al. 4). This will be important knowledge for understanding scientific metaphors. In particular, coronaviruses have evolved into inhibiting IFN-I and it is uncertain where SARS-CoV-2 stands in this evolution, but most patients are known to have impaired IFN-I (Vabret et al. 4). This suggests a possible correlation between SARS-CoV-2 and its ability to hide from IFN-I and the severity of a patient's resulting illness, COVID-19 (Vabret et al. 6).

It is believed that IFN signals an influx of monocytes, a type of myeloid cell likely responsible for the characteristic acute respiratory distress syndrome common in severe COVID-19 patients and cytokine release syndrome (CRS) as well as lymphopenia (Vabret et al. 7). Innate lymphoid cells (ILCs), which include natural killer cells and non-cytotoxic helper ILCs, are also thought to play a role in halting production of virus-controlled cells, but these levels are relatively low in patients with COVID-19 (Vabret et al. 9). Among immune responses, are T-Cells and B-Cells which are effective against viral infections (Vabret et al. 11-17). However, there is ongoing research in this particular aspect of understanding the body's response to SARS-CoV-2.

Cough, Cough: COVID-19

The general concept of identifying COVID-19 in a patient is through symptoms which include a fever, a dry cough, shortness of breath, and/or contact with an infected person. However, as the pandemic continues to unfold and more people become infected, we've

expanded those symptoms to include sore throat and loss of smell and taste (“Symptoms of Coronavirus”). If a person should be prescribed further testing, there are two types of tests currently available in the U.S.: a viral test or an antibody test (“Testing for COVID-19”). The viral test detects SARS-CoV-2 at the time of the test while the antibody test looks for antibodies made during the body’s immune response to SARS-CoV-2 which shows a previous infection (“Testing for COVID-19”).

So, why am I sharing this? Why did you read an in-depth description of how viruses work in the body, what we know about coronaviruses, and what we are learning about SARS-CoV-2? Scientific knowledge is based on foundational understanding. That is, in order to explain how coronaviruses typically work in the body, you have to understand the human cell, and RNA, and DNA, and transcription, and translation, and exocytosis, and spike proteins and so on. The question here being, how do we explain scientific knowledge in a way that allows those without a foundational understanding to attain an understanding, particularly in a world that is operating through many perspectives? The second point is that at the time of this paper, there are still many unknowns, which indicates that the meaning in pandemic culture is still under construction. The fields of science and medicine are still working to construct scientific knowledge regarding SARS-CoV-2, which positions this thesis in a unique role of piecing together the constructs into a basic understanding of the scientific meaning of SARS-CoV-2. So, in recognizing the current limits in constructing meaning in a pandemic, I turn to the use of metaphors as a way to make meanings of concepts that are difficult to understand without personal experience or foundational knowledge.

Cloudy with a Chance of Viral Particles: Weather Metaphors

The narrative around COVID-19 has made extensive use of weather metaphors to explain scientific and social science concepts during the pandemic. Many of these metaphors were already in existence but attached to other concepts prior to its application to COVID-19, as seen in the instance with cytokine storm which was already a known physiological response that just so happens to occur in COVID-19 patients. The general use of weather metaphors in COVID-19 experiences begins with affect. The teller, which may be a patient, a scientist, a government official, is experiencing some knowledge of threat which creates fear. What separates this affective experience from others is that the threat or fear comes from what is a seemingly naturally occurring phenomenon—one that is largely out of control of human intervention. The term “natural” exists with its own set of disputed understandings, but for the purposes of this paper I am referring to “natural” as being occurring without human ability to control, much like we can’t control the weather.

Whether it is the threat of a storm or the threat of COVID-19, the affective experience is similar. So, when tellers, whoever they may be and for whatever purpose they’re conveying, work upon this knowledge that the threats are similar. These similarities lead to semantic features that become useful in driving affective response. The idea is that metaphors are working to elicit a similar response between teller and audience. The teller is fearful of threat of natural event (COVID-19) and the teller recognizes that a familiar threat to such affective experience is through that of a storm. The audience would then connect with the familiar threat of a storm, placing such meaning onto the threat of COVID-19. All of these exchanges are

done with an unspoken agreement that threat of storm is not threat of COVID-19, but that the affective experiences of both should elicit a similar affective response that is fear.

These affective changes can be seen through numerous examples. In one instance, COVID-19 has been known to cause what scientists and medical professionals call, “a cytokine storm.” The cytokine storm is recognized as an event where cytokines are released after the initiation of RNA transcription with a pattern recognition receptor which initiates the immune response. This particular metaphor is useful in communicating a complex event to the general public. The cytokine storm metaphor does not belong solely to the COVID-19 narrative, but it is believed that the cytokine storm (a widely-used expression to explain inflammation in the body) is what leads a person to develop a more critical response to SARS-CoV-2 (Mehta et al. 1033). Engaging in fictionality, equating cytokine influx to a storm, is what allows the audience to imagine the process by which cytokines act inside the body.

Why does the storm metaphor work and not some other type of metaphor? A storm and a cytokine influx have many similarities. A storm is a naturally occurring event, it is destructive, it can cause flooding. Much like a storm, the cytokine influx is also a naturally occurring event, it is destructive, and the cytokines flood the body. These semantic features of such concepts are related (fig. 3). Further, a storm is a concept that is largely understood and easily contextualized making it an excellent mediator between an event and the concept itself.

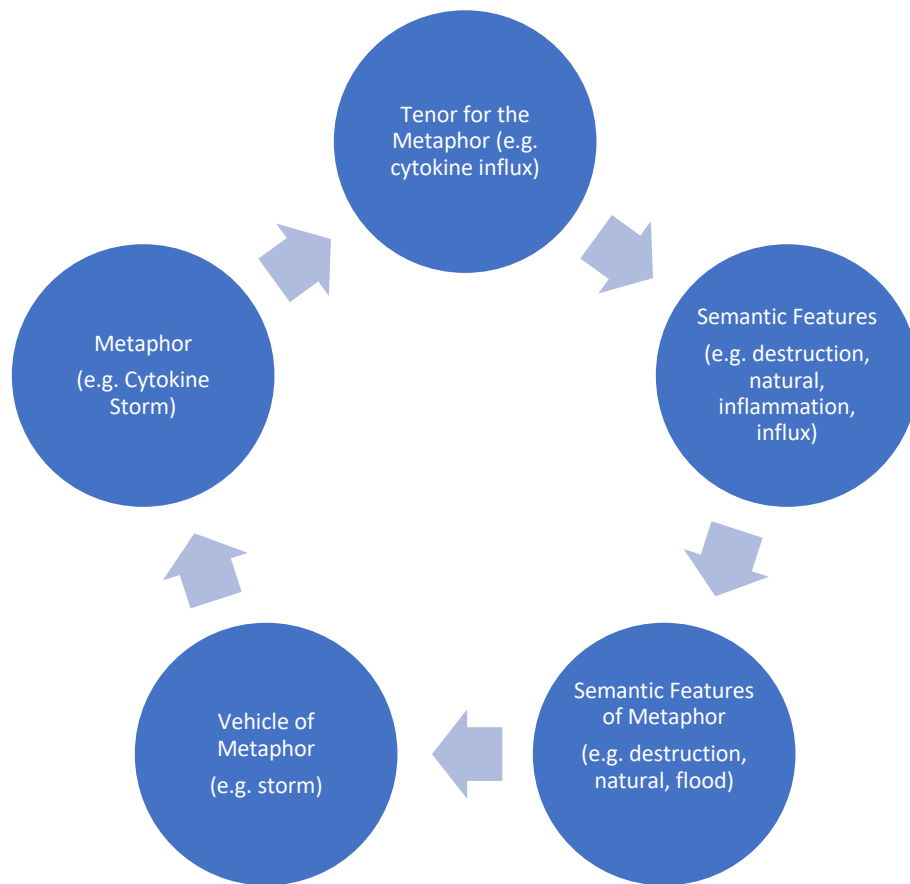


fig. 3: The event, cytokine influx is discussed through similar features to that of a storm which becomes the reason for using the metaphor cytokine storm.

The cytokine storm metaphor, however, is not the only storm metaphor in use through COVID-19 rhetoric. The start of the COVID-19 pandemic was the perfect mix of viral transmission from animals to humans which then further allowed for human-to-human transmission of SARS-CoV-2 (Andersen et al. 450). It was just the right human, met with just the right animal, that allowed for transmission. It was the perfect combination of just the right amount of asymptomatic carriers, carriers with mild symptoms, and an extended incubation period that led for the perfect global spread of COVID-19; much like in weather when a perfect

wind front moves over and the temperature drops making it an exceptional environment for the “perfect storm.”

COVID-19 became what is called a “perfect storm.” Brandt and Botelho take on this metaphor in their article, “Not a Perfect Storm—Covid-19 and the Importance of Language” by suggesting that such use of the “perfect storm” metaphor allows for unpredictability and anomaly (Brandt and Botelho 1493). While the storm metaphor may suggest an event as being unpredictable, many might argue that a global pandemic was “in the forecast”—but more on that, later. They argue that relating the COVID-19 pandemic to a storm allows for us to be, “...reactive rather than proactive, reductive rather than holistic, disempowering rather than empowering” (Brandt and Botelho 1493). This particular argument suggests that public health has the capability to have prepared for such a surge, for example through extensive contact tracing, but did not respond accordingly. This claim suggests that the extent of the pandemic’s effect on society is much more than it could have been if public health organizations had acted accordingly. It seems in this argument by Brandt and Botelho, that the very semantic features that made the “cytokine storm” such an effective metaphor are the same things that make this pandemic a not-so-perfect “storm.”

Brandt and Botelho suggest, “...outbreaks of zoonotic disease are not discrete events: they reflect complex ecosystem changes that are largely driven by human behavior” furthering the claim that yes, while perhaps the pandemic has become uncontrolled, the global society is making decisions that are knowingly creating these types of situations (Brandt and Botelho 1494). The perfect storm metaphor positions public health as being largely out of control, that such events came about by chance rather than a lack of preventative efforts (Brandt and

Botelho 1494). Despite knowledge of tools (disease surveillance) that decrease impact of zoonotic diseases, many of these tools, like contact tracing and access to care, are not being put to use (Brandt and Botelho 1494). The reason being, is that these tools do not allow for the heroic saving from the biomedical sciences by producing targeted therapies which creates an interesting intersection between weather metaphors and war metaphors.

Brandt and Botelho's argument particularly suggests that by considering this pandemic a measure of natural phenomenon, a flood of cases, mass destruction is exactly what takes away from the responsibility of governing entities to "protect" from an event that could have been easily managed, if it had actually been managed properly. I agree that in this instance, there could have been measures to protect and prepare for such destruction—much like the sand bags to prevent a surge of water from a hurricane from hitting a house. Perhaps it doesn't matter how much preparation can be done to protect oneself from a storm, the storm will still cause damage. This claim of the destruction created by such "storm" language is tactful, but it does not parallel to the use of "storm" metaphors within physiological events. Brandt and Botelho do important work in calling attention to lack of preparedness by governing entities, but it does not call attention to the variable natural factors that are so characteristic of COVID-19. So, for Brandt and Botelho to call out a storm metaphor as hiding responsibility is to ignore the natural phenomenon that is occurring during this pandemic. It seems interesting that Brandt and Botelho are holding such power to a metaphor. If the work could have been done, it should have been done. To place the blame of inaction on the use of a metaphor seems like a weak argument. Public health would have been reactive whether the event was described physiologically or metaphorically because we cannot fix a problem if we cannot see the

problem. That is what makes COVID-19 such a tricky event, even wide social distancing measures can't seem to stop the spread, but only slow it. COVID-19 is a natural event that has been perpetuated by sociological happenings, silently spread by asymptomatic carriers.

Biomedicine will be the hero in this story, but not without its trusty sidekicks: public health and the social sciences. Biomedicine will be the difference between life and death while public health will be the difference between prevention and transmission—that is, until biomedicine can solve the issue of transmission with a vaccine. So, while I agree with Brandt and Botelho that the perfect storm metaphor is working to displace blame and responsibility of protection from public health measures, I think that the idealization of the work that could be done by public health measures might not measure up to the work that is done through biomedicine, but rather the two entities must work in conjunction with each other. If a prediction of perfect storm is what sends public health officials into placing sandbags at the water's edge and biomedicine dives deep into research on how to eliminate destruction, then so be the work of a metaphor that prepares us for such surges.

Storm metaphors are not the only types of weather metaphors at work during the COVID-19 pandemic. Nathan Wolfe's book (pre-COVID-19), *The Viral Storm: The Dawn of a New Pandemic*, is abundant with weather metaphors, illuminating the suggestion that weather metaphors are not simply a COVID-19 fad but rather meant for general use in the sciences. For now, I'd like to identify the forecasting/predicting metaphor, which is yet another example of weather metaphors being used in the era of pandemic preparation. Wolfe talks about his work in identifying viruses in primates, but in his narrative of how viruses are identified, he states, "From the perspective of my work tracking and preventing pandemics, the deaths pointed out

another glaring weakness in the way we catch these epidemics” (Wolfe 295). Perhaps it is in this sentiment that we begin to realize the remarkable resemblance of pandemics and storms—that the true damage and strength of the storm/pandemic cannot be assessed until the storm/virus has passed.

The advantage of storm metaphors as a language to describe COVID-19 is that it is lined up with the language of prediction, forecasting, and destruction. Even more so, as a society, we recognize that storms do not last forever and while they might hit without warning, the events themselves are predictable. A hurricane is known to behave certain ways just as a tornado is known to behave certain ways. We know that illness is transmitted in certain ways, we know that there are typical responses from the body that identify symptoms like fevers and coughs. So, to compare COVID-19 to a storm, to assess damage from COVID-19 in the same way we assess damage from a storm, makes sense. The downfall is, however, as Brandt and Botelho suggested, that the work is done via reaction not pro-action.

Despite the variabilities, “storm” predictions continue to be used with the knowledge that their variability remains. This is the same whether in storm narratives or virus narratives. The standard public health approach to discussing the influx of COVID-19 cases is through the wave metaphors used in predicting caseloads, it can be seen on nearly every press conference from the Ohio Department of Health Director, Amy Acton and the “flatten the curve” initiative (“Coronavirus: COVID-19”). These metaphors work in suggesting the possible “floods” of cases that are coming into the hospitals. The weather metaphors come from the statistical work that is being done in predicting (or forecasting) the path of infection much like one might predict the path of a hurricane.

The usefulness of such a metaphor allows the general public to imagine and identify the impact of the virus on hospital systems. It offers up an opportunity to create an affective response from the audience. This is where the use of fictionality comes into play with the notion of constructing meaning in the midst of a new era like the COVID-19 pandemic. The weather metaphors being constructed around these novel concepts originating from COVID-19 are being placed into the distinctly recognizable rhetoric of weather and does so in a way that allows us to create some sort of meaning for what we are experiencing. We can see waves in the same images we see regarding the “curves” predicting COVID-19, we can imagine a tsunami while scientists forecast whether there will be a second wave of infection. When scientists start talking in complex language like R_0 (R-naught) or cytokine release in the body, the rhetoric turns to an unimaginable state—as if speaking a foreign language—through which only those with access to such knowledge can begin to understand.

This is where the language of natural, weather metaphors in scientific explanations comes about—it offers a response to climate change, but the real and metaphorical effects of the government’s stay-at-home orders has had miraculous effects on the environment which plays on weather metaphors as this virus being a response from nature, and what many claim as nature taking back the planet from the destructiveness of human life. The stay-at-home orders, the economic hit of such orders has shown an immediate decrease of waste emission (Chakraborty and Maity 5). The natural weather metaphors have quite possibly illuminated the relationships between human and nature. While I agree with Brandt and Botelho that such narratives have allowed covering of blame of inactivity, it has brought about an astounding awareness of the impact of humans on nature.

As we begin to recognize why weather metaphors are in use, we begin to recognize the meaning that is constructed during the COVID-19 pandemic. Weather metaphors are used to describe natural events by the sciences and social sciences because of the semantic features which describe such events as being natural, destructive, and flooding. The weather metaphors may be deceiving by covering up an event as being a natural phenomenon that could actually be perpetuated by public entities. However, I argue that weather metaphors, in other cases, act as a mediator between in-depth scientific knowledge and general understandings. When metaphors act in this way, as a mediator, it removes injustices that could be present when communicating scientific knowledge. Metaphors, as in the case of weather metaphors and COVID-19, do not operate equally. The context for which these metaphors are used is of utmost importance in determining their viability.

Waging War on COVID-19: War Metaphors

However, to suggest that the body exists solely within a narrative of “natural” events is to be ignorant of the complex layers through which the body is understood. Human beings are not understood as just a machine of physiological and biological systems, but beings of groups, of faiths, of classes, of race, of cultures, of governments, of countries and beyond. With these tenants of being human comes other narratives used to relate experiences. In particular, the human body is rooted in politics through many layers, either directly or indirectly. The human body not only exists within political thought but so much of what happens to the body is governed as in the political debates surrounding abortion, births and deaths for example. The body is a citizen of locale; a body within a governed nation, state, or city that must exist under the laws set by government officials. Beyond this localization of the body, we also live in a globalized community, one where bodies travel and exist in other nations, states, or cities that are not their origin. This notion of connectedness between opposing governments has become critical in the development of war metaphors in COVID 19. Not to mention, the unique political climate within the U.S. at the time of this metaphor further complicates the body narrative and spreading of illness across borders.

The use of war metaphors in COVID-19 has become increasingly more common by government officials. In a press conference in response to the effect of COVID-19 on New York City, Governor Cuomo is reported as saying, “Help New York. We’re the ones who are hit right now” (Melendez). Cuomo later said, “This is a war” (Melendez). Furthering the war narrative, Cuomo states, “In this battle, the troops are our healthcare professionals. We need relief. We need relief for nurses working 12-hour shifts. We need relief for doctors. Help us now and we

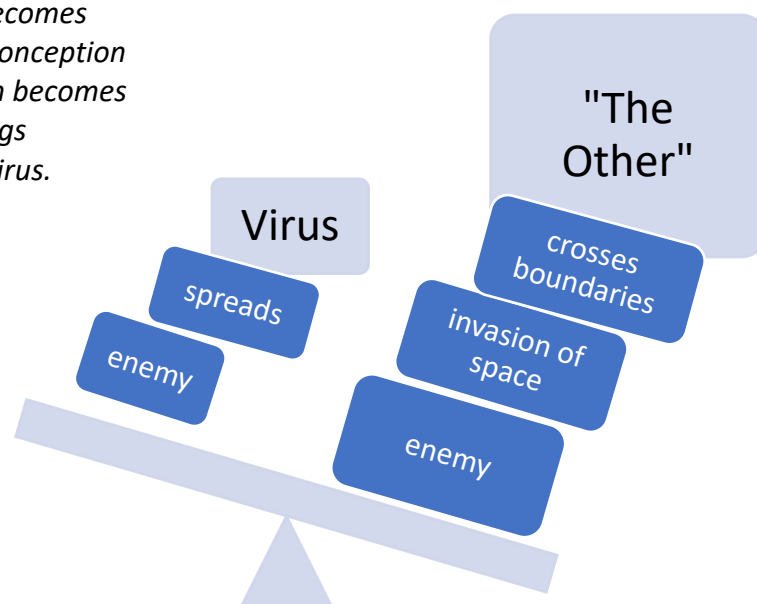
will return the favor” (Melendez). It is among these widely heard narratives by government officials that using such war-metaphors enacts a responsibility of the government to respond in war-like measures. Cuomo is not the only government official who is engaging in such language.

The Director of the World Health Organization, General Tedros Adhanom Ghebreyesus, has also acknowledged the virus through war-like narratives. Ghebreyesus states, “We are at war with a virus that threatens to tear us apart” (Chappell). Ghebreyesus encourages the world to, “First, fight. Fight hard. Fight like hell. Fight like your lives depend on it—because they do” (Chappell). The initial intentions begin as an encouragement to confront the threat to the best of our abilities, to make the necessary protective measures matter. Ghebreyesus ends his speech with, “And let our singular resolve be: never again” (Chappell). The coronavirus is not an issue of boundary. It is an issue of humanity, an issue of the world suffering together against a virus. While there is some excitement and movement that can come from the use of war metaphors like in the speech from Ghebreyesus or Cuomo, there are still underlying motives that might not be out of conscious effort but they evolve nonetheless. The identification of such differences in receiving begins with political responsibility of security and protection from invasion—where invasion in this case, is a virus but could be interpreted and translated to human beings becoming an invasion across borders.

These war metaphors are used for COVID-19 because of this idea of *boundary* and *invasion* between countries, that a contagion like COVID-19 spreads across these lines. These have become increasingly debated concerns within the U.S. political arena, and it seems that the spread of COVID-19 would not be saved such debates. A contagious body, in context, then becomes an issue of boundary and invasion to prevent spread from one nation to another. This

movement away from COVID-19 as a natural event and toward a governed event comes from the responsibility of a government to protect a healthy public from contagious bodies. This particular situation becomes problematic, the shift from natural to political, is what happens when Brandt and Botelho's claims of proactivity come to fruition—a turn to political narratives of defense and protection that can be harmful to the meanings placed on COVID-19. If an event is no longer “natural” then the event must have been manmade, which is a treacherous claim of a political game. Each nation wants to “win” this war against COVID-19 but the expense of such a narrative is detrimental to the social implications such meanings come to create on who the enemy really is. The enemy, in many cases becomes the country of origin, the people of such country, the contagious person. The enemy, in the sense of war metaphors, becomes “the other” when it should be the virus itself and the line between the two—“other” and virus—is too thin to differentiate narratives into meaning to suggest that war metaphors are useful for making meaning in our understandings of COVID-19.

fig. 4: The “virus” becomes weighted with the conception of “the other” which becomes the primary meanings constructed in the virus.



What becomes evident, particularly in the case of this balancing act between the virus and “the other” as enemy, is that the general public knows more about the rhetoric of “the other” than the system of the virus (fig. 4). This increased awareness of “the other” in general rhetoric narratives “weighs down” a war metaphor, far overshadowing the virus-as-enemy narrative. The use of war metaphors also often parallels political narratives that were already in place despite the virus. Furthermore, it is much more difficult to place blame on a natural occurrence than to place it on the other. As the use of war metaphors becomes more evident, the meaning that is placed onto such representations is likely to parallel some other political stance. Therefore, the use of war metaphors is a treacherous slope that should be avoided in order to refrain from false representations of COVID-19 as a political game.

Nonetheless, war metaphors are still present in the COVID-19 narrative. In an interview conducted by Terry Gross on NPR with a trauma surgeon, David Nott, the comparisons between war zone and coronavirus approaches are uncanny. Of these similarities Nott says, “It’s very similar, really, with the virus, because you have to appreciate that it is an invisible enemy—and you have to make sure that the invisible enemy doesn’t get you” (Nott). The “invisible enemy” has become a common notion in COVID-19 narratives because just as the wording states, coronavirus is invisible to the naked eye and it can take your life.

The use of invisible enemy has been taken up by President Donald Trump. On April 5th, 2020, President Donald Trump tweeted, “We are learning much about the Invisible Enemy. It is tough and smart, but we are tougher and smarter” (@realDonaldTrump). This comment has been retweeted nearly 72 thousand times on the internet. While the tweet alone seems to

attempt to gain confidence out of fear of the threat, in that the “invisible enemy” is becoming more visible, there are also underlying connotations of the metaphor that could be construed in other ways. Often times the word “enemy” is given to a living being and viruses are not living things. The concerns with such use of language is that affective fear is then placed on the individual that is carrying the invisible enemy. The virus itself is unseen but the person infected by such virus is visible, and that is the problem of idealizing COVID-19 as an invisible enemy.

In an article, “Humanizing the Coronavirus as an Invisible Enemy is Human Nature,” authors Porubanova and Guthrie argue that these personifications of inanimate objects, like a virus, is coming from a source of control. They write, “But having a human-like model—indeed, having any model—to apply to such a mysterious, invisible and dangerous entity as the coronavirus provides some measure of apparent control, and thus comfort” (Porubanova and Guthrie). The argument from Porubanova and Guthrie that anthropomorphizing the virus by placing human like features on the virus by calling it an enemy is a natural instinct that neuroscientists call “person networking” that humans have evolved to recognize faces to determine threats (Porubanova and Guthrie). Their closing argument suggests that, “Anthropomorphic narratives provide models of the virus and its behavior that feel familiar and accessible. They’re a way to grasp these unseen beings, and this grasp, illusory or not, provides a bit of the confidence and sense of control so crucial to mental well-being” (Porubanova and Guthrie).

While I agree that Porubanova and Guthrie have a point, that by humanizing the virus into an enemy might offer a sense of confidence and control, much like the President was attempting to instill in his tweet, there are also effects of responses when such enemies

become seen. We might not see the virus, but we can see the ill person carrying the invisible enemy. The recognition that metaphors do not stop at their initial intentions is important when identifying them. Perhaps when a teller is referring to the invisible enemy they are attempting to instill confidence and control over the situation, but the audience may take such metaphor and turn it to bias. These turns of affective response of the general public could potentially create bias and hate against individuals who are affected by such natural event. Even in such cases we have seen policing. Policing of individuals by others for coughing, not wearing a mask, being an “outsider.” More so, the stigma of an invisible enemy is placed upon recovered individuals or even individuals who have been in contact with the invisible enemy. There are plenty of concerns that such use of the invisible enemy metaphor creates.

In the invisible enemy narrative, there are similar semantic features that lead to the parallelism of its use or misuse (fig. 5). These features become the mechanism for which the metaphoric enemy makes sense.

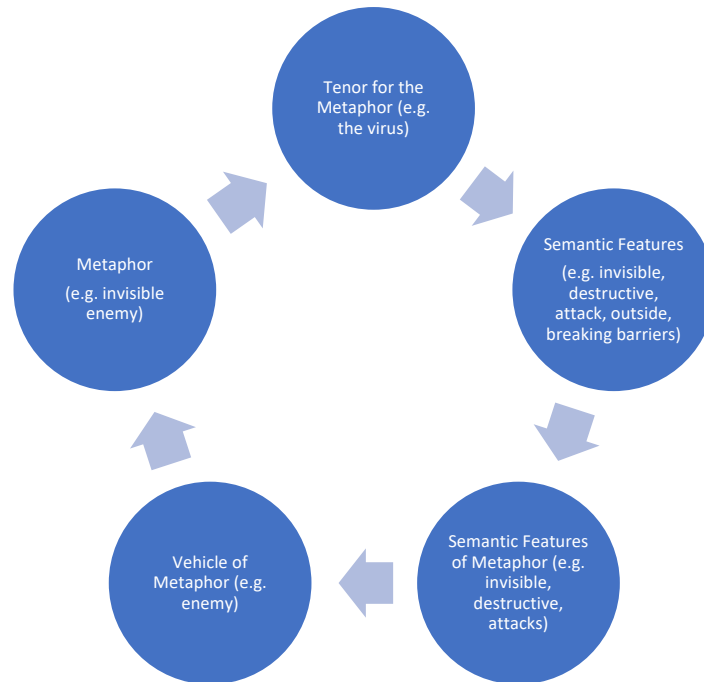


fig. 5: The relationship between semantic features of virus and its invisible enemy metaphor.

To further expand on the effects of the use of such language, the role of something being invisible is that it is unseen. The implications of being unseen in relation to an enemy is that it truly is a threat. If the scientists are unable to recognize the cause of COVID-19 or ideally how to stop the spread of it, then there really are bigger problems than comprehended by such metaphor. Scientists are working constantly to “see” the invisible enemy, but the truth is we still don’t have a cure or a preventative tactic. That is, perhaps the metaphor itself is actually more truthful in exposing the reality of the situation which is the virus is still widely misunderstood. There may be some larger understanding about COVID-19, but not so much of an understanding that scientists have been able to prevent it... yet. So, while there are some detrimental effects of using such metaphors, there’s also some truth in that it is a situation

largely unseen which is cause enough to arouse some type of response that whatever it is out there can't be good.

In an effort to regain some form of control, nations are looking for leaders to enact protection from threat of the virus. It would seem no surprise then, that President Trump would refer to himself as a “wartime president” on March 18th, 2020 (Elving). The common wartime narratives are not solely used in times of war and rather have frequently been used by politicians over many decades, so Trump in the time of Coronavirus would be no different. Elving writes, “There is, of course, nothing new about using war as a metaphor for a national mission. President Ronald Reagan declared a War on Drugs in the 1980s; President Lyndon Johnson a War on Poverty in the 1960s. In between, Jimmy Carter called the need to conserve energy in the 1970s ‘the moral equivalent of war’” (Elving). There is an overall understanding that the use of wartime metaphors by Presidents is a movement of control and command, in that it fits the need when there is a major global threat. Elving continues, “But if Americans are accustomed to such language, they also expect it to be matched by governmental mobilization and performance on a broad scale. So the deeper skepticism that greeted Trump’s use of the phrase ‘wartime president’ may be related to his record as commander in chief battling the ‘enemy’ to date” (Elving).

COVID-19 is not only crossing scientific boundaries but governmental boundaries, introducing a further narrative surrounding the “other” as the virus becomes weaponized from far-away lands, from outsiders. Barreneche writes about COVID-19 specifically in the article, “Somebody to Blame: On the Construction of the Other in the Context of the COVID-19 Outbreak,” when he writes,

...despite its [the virus'] biological nature, it also impacts strongly the socio-cultural dimension: when perceived—and interpreted—as a *threat*, it generates individual and collective feelings such as fear and panic, gives place to the implementation of political measures that has frozen the economy of several countries, and leads to controversial decisions that limit civil rights such as freedom of movement and of association. (Barreneche 20).

As Barreneche suggests, the war metaphors create an affective response that gives rise to the warranting of war-like political measures. However, such movement toward political parallelism in describing COVID-19 leads to conflict and blame for an event that is “natural”. Where there are enemies, there are heroes.

In this *fight* against COVID-19, the narrative has also chosen its unsung heroes: healthcare workers. Rightfully so, healthcare workers have become the image of selflessness, working the “frontlines” against the virus, risking their own lives for the sake of others. They are the ones protecting and “fighting” the “invisible enemy” on a daily basis. While the work that is being done by healthcare workers (among other essential workers) is worth recognizing and should be held in high-esteem, there is an underlying narrative track that is creating a different type of a response for the audience.

The use of a hero metaphor parallels the language used in describing soldiers who have gone off to war. The metaphor insinuates that the heroes that are sacrificing their lives will lose their lives, but that is the cost of protection from the invisible enemy. The loss of a hero is heroic itself. In a meme on social media, author unknown, the narrative revealing such a track is shown:



fig. 6: A meme from Scooby-Doo, where Fred Jones reveals who the criminal is. In this instance, Fred Jones is revealing that the heroic metaphor is actually working to prep the public for mass casualties. Identifying that metaphors are working to mask other narratives.

The language, the metaphors, that healthcare workers are frontline workers and heroes may prime the audience for mass casualties (fig. 6). This metaphor aligns perfectly with the war-zone mentality of COVID-19 patient units as being the battle zone—much of which is mimicked in certain cities like New York City where the government and certain charities have set up military tents for triage to “combat” the influx of COVID-19 patients.

The reason bodies have become so intertwined with war metaphors is through what Foucault identifies as the body politic. Foucault, as one of the foundational scholars in this

movement toward understanding body politics, writes in his book, *The Birth of the Clinic*, about the movement away from individuality in medicine and more toward a technical representation. According to Lemke, there are two important developments that came from Foucault's thoughts on bio-politics. Lemke states, "First of all, the concept of governmentality demonstrates Foucault's working hypothesis on the reciprocal constitution of power techniques and forms of knowledge. The semantic linking of governing ('gouverner') and modes of thought ('mentalité') indicates that it is not possible to study the technologies of power without an analysis of the political rationality underpinning them" (Lemke 191). It is in this position of governed bodies that the practice of medicine and the illness experience is seen through weaponized lenses which creates a whole new meaning as we militarize a response to COVID-19.

This in turn creates ways of thinking and constructing meaning for the COVID-19 pandemic. As the construction of meaning surrounding this COVID-19 pandemic unfolds, I turn to Rose's introduction of "style of thought" which he defines,

A style of thought is a particular way of thinking, seeing, and practicing. It involves formulating statements that are only possible and intelligible within that way of thinking. Elements—terms, concepts, assertions, references, relations—are organized into configurations of a certain form that count as arguments and explanations. Phenomena are classified and sorted according to criteria of significance. Certain things are designated as evidence and gathered and used in certain ways. Subjects are chosen and recruited. Model systems are imagined and assembled. Machines are invented and later commodified to make measures and inscriptions such as graphs, charts, and tables. All this is linked up within complex practical arrangements such as experiments and clinical trials. (Rose 61-62).

The way that Rose conceptualizes 'style of thought' is the root of war metaphors in illness narratives. Medicine has transformed into a governed specialty rooted in body politics, and to

place such illness concepts into a particular style of thought that is linked to politics would make sense. The use of a particular mode of thinking or style of thought is more so about the experience of constructing meaning (Rose 62). That is, the way in which we talk about illness says more about the experiences of illness than about the molecular interactions of illness. As members of society, we are fearful of the threat of illness and to explain what COVID-19 and these pandemic times are like and how they are influencing our day-to-day lives, we turn to explanations of experiences we relate to such as fear and threat.

Lemke furthers this explanation:

On the one hand, the term [governmentality or art of government] pin-points a specific form of *representation*; government defines a discursive field in which exercising power is 'rationalized'. This occurs, among other things, by the delineation of concepts, the specification of objects and borders, the provisions of arguments and justifications, etc. In this manner, government enables a problem to be addressed and offers certain strategies for solving/handling the problem. On the other hand, it also structures specific forms of *intervention*. For a political rationality is not pure, neutral knowledge which simply 're-presents' the governing reality; instead, it itself constitutes the intellectual processing of the reality which political technologies can then tackle. This is understood to include agencies, procedures, institutions, legal forms, etc., that are intended to enable us to govern the objects and subjects of a political rationality. (Lemke 191).

It is in this explanation that we can begin to debate the work that is done through such styles of thought (virus as war). One outcome from the use of war metaphors is that the responsibility of intervention rests in the hands of the government, but in doing so, changes the course of the narrative for the purposes of saving government narratives as opposed to handling natural disaster as such.

The use of war metaphors is a dangerous line that when crossed, cannot be reversed. We see this particularly concerning turn of events in the naming of coronavirus as the "Kung

Flu” or “Wuhan Virus,” particularly when such names are coming from President Donald Trump. These uses of words come down to responsibility and blame for this major pandemic. Texas senator, John Cornyn (R), blatantly stated, “China is to blame” (Gusterson). The disturbing use of such narratives to elicit racist thoughts becomes a bigger problem when Trump states, “It’s not racist at all. No, not at all. It comes from China, that’s why. I want to be accurate” (Gusterson). And while the political atmosphere in the U.S. and remarks made by President Trump might insinuate that the intention of the teller was to create a response of fear of China, there is a debate among society whether such use of imagery or referencing origin is appropriate or not. While I am not here to debate the politics of the President, I do believe that metaphors can operate within a political context for some purpose other than what it is intended as and that can be extremely dangerous in its consequences.

These metaphorical names for diseases are a frequent occurrence throughout history. There are many examples of viruses named for their origins such as the West Nile Virus, or Ebola from the Ebola River, and even MERS is short for Middle East Respiratory Syndrome (Gusterson). Despite this tradition of naming, Gusterson says, “Diseases with ethnically loaded nicknames are often those that carry the taint of immorality” (Gusterson). And for that reason, these types of metaphors become dangerous, just as the invisible enemy becomes visible. For this, the naming of diseases through metaphors or fictionality, in the case of Kung Flu, it walks hand-in-hand with ethnicity and creates a whole new set of affective responsive from individuals by holding those of the suspected ethnicities to blame—and for that, such metaphors need to be avoided.

Ultimately, the use of metaphors holds a deep tie with blame and responsibility within COVID-19 metaphors. Brandt and Botelho talked in depth about the responsibility of intervention in public health measures that were largely ignored in the weather metaphors as being a natural phenomenon. If we are to hold accountability among the government as the responsible party in preventing an illness (as Brandt and Botelho allude to), it would make sense that a war-like narrative would ensue. These war metaphors condition an affective response similar to an actual war by placing the body within a rhetoric that calls for political control, the drawing of borders, which we have seen clearly defined between nations, but also between individuals in quarantine and stay-at-home orders. The war-like metaphors allow for certain actions of the government to be accepted by the general public. Heroes are making a sacrifice, there will be loss just as the meme suggests.

The “invisible enemy” takes a harmful turn when the “invisible enemy” (the virus) becomes visible (the contagious individual). The “heroes”, our “frontline workers” become our valiant saviors until such titles and the individuals that represent them become sacrifice, many of whom are not voluntarily in such positions. The naming of fictitious elements like “Kung Flu” is detrimental to the health of our society. The experience of a pandemic is complex, but navigating such complexity when the cause is a novel virus, never-before-seen, this is going to add another layer to the mess. It is a mixture of social and physiological events that despite our best efforts we are still trying to completely understand. To place such weight on a metaphor would be a weak argument. Rather, metaphors are working in context with our understandings as a mediator between an event we recognize (war or storm) and an event we do not understand (COVID-19).

Conclusion

In exploring the types of metaphors that are used to construct meaning during the COVID-19 pandemic, there are two common themes: weather and war. These particular metaphors work by relying on similar semantic features that are comparable to the lived concept and the abstracted concept. These metaphors are best understood as mediators between an affective experience and creating an affective response. By creating an abstracted thought around a lived experience, it offers up an opportunity for engagement with individuals who might otherwise not understand a person's lived experience. However, in the use of metaphors it is important to recognize the types of responses such metaphors are welcoming into a novel concept.

Weather metaphors are useful in recognizing that transmission of COVID-19 is a natural event, one that was exacerbated by human factors such as travel and networking. In the example of the cytokine storm, there are benefits of the use of weather metaphors. It works as an explanation for physiological events which would have otherwise been difficult to explain to a person without some scientific understanding of the physiological processes of a virus and the immune system's response. However, in using metaphors such as perfect storm, there are concerns that such claims of an event as being natural clouds the responsibilities of public services that ideally have the tools and capacity to make an impact on the force of nature. With this in mind, I argue that while public services could have had a larger impact on the effects of COVID-19, to suggest that their lack in doing so was because of a metaphor is a weak argument. Rather, metaphors are working in a way that levels the playing field of understanding. I don't need to be a virologist or immunologist to understand what a cytokine storm does because of

the storm metaphor. It's bad and it's destructive to the body. Similar to the perfect storm metaphor, the perfect storm indicates that it was just the right situation and just the right time to make for a destructive event. The wave metaphor also provides an understanding of the way the virus is spreading, and the impact such numbers will have on a hospital system.

The use of weather metaphors is showing that COVID-19 is teetering between a social and physiological event that, despite what measures were in place, is destructive. Case in point being that these metaphors are working to act as a means of explanation for complex events. Metaphors are affective mediators. While these affective mediators are crucial in leveling complex information, metaphors are capable of changing the approach to a natural event.

These transitions to war metaphors are dangerous because of the "othering" that can happen in such metaphors. War metaphors come about because the body is not just a physiological being, but a being that is governed by many entities within a locale that is also governed. Any time such boundaries become threatened, whether by virus or contagion among travelers, it is expected that a war metaphor might come about. The dangerous problem with war metaphors is their quick turn away from their abstracted meanings (like invisible enemy) into political meanings that are no longer about the virus but the person(s) with virus. I believe this is the equal and opposite reaction to Brandt and Botelho's argument against weather metaphors. The blame is now being placed in the hands of public services that are removing the metaphor of abstraction and into action.

The use of war metaphors is a thin line between a government/body of people taking action and a virus. To suggest that war metaphors shouldn't be used seems to largely ignore the reality that bodies do exist within a governing body, but it is important to recognize the

derailing of such metaphors (the invisible enemy for example) which can have repercussions (bias, racism) that are difficult to extract from the original intention of a metaphor. So, war metaphors should be used with caution.

As I conclude examining the work that metaphors are doing in creating meaning, I'd like to turn to a call for the medical humanities to situate itself at the intersections of metaphors and medicine. The medical humanities as a field is an interdisciplinary focus on medicine, whether it be through religion, sociology, sciences, psychology, public health, or literature, etc. The medical humanities have a unique role in bringing together teams of experts to work at such intersections. As COVID-19 continues to become an increasing problem in our society (and in the globe) it is important that experts with such interdisciplinary training work to illuminate the problems in all fields of studies. COVID-19 has affected our schooling, our work, our socialization, our public health systems, our religion, our economies, and our medical systems. The medical humanities is uniquely situated at the intersection of these entities and it is the duty of its scholars to make the work known.

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