“IT WASN’T SUPPOSED TO BE HAIRY”: FROM VARIANT GLYPHS TO RENDERED ECOLOGIES OF CODE, CONSTRAINT, AND CULTURE

by

Kellie M. Gray

A Dissertation
Submitted to the
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of
Doctor of Philosophy
Writing and Rhetoric

Committee:

_____ Director

_____

_____

_____ Department Chairperson

_____ Program Director

_____ Dean, College of Humanities and Social Sciences

Date: _____ Spring Semester 2019
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Fairfax, VA

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Kellie M. Gray
Master of Arts
Auburn University, 2013
Bachelor of Arts
Lynchburg College, 2011

Director: Douglas Eyman, Professor
Department of Writing and Rhetoric

Spring Semester 2019
George Mason University
Fairfax, VA

DEDICATION

This dissertation is dedicated to Pat Armbrust and Scott Bray, my fourth and ninth grade teachers, respectively, who challenged me and gave me so many of the tools that have helped me as a student all these years.

And to Jim Gray, who gave me his stubbornness, which I also needed.

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Throughout the writing of this dissertation, I have received a great deal of support and assistance. I would like to thank my committee chair, Dr. Doug Eyman, for his unwavering guidance, for responding to multiple frantically written (and probably incoherent) emails over the past few years, and for always taking the time to help students network with other scholars in the field. It was Doug who first introduced me to Dr. Laurie Gries, whose generosity and expertise were instrumental in shaping my project. Dr. Alexander Monea pushed me to articulate the stakes of my research, and my dissertation is stronger for it. Dr. Emily Vraga helped me think through my study of U.S. Senators, and her feedback has helped me think about how I might expand my research (and refine my methods) in the future.

Several members of my cohort at GMU have been patiently listening to me talk about emoji for the past five years, and I am incredibly grateful for their support. Thank you to Elizabeth, Lourdes, Bree, Rachael, and Norma. I am equally grateful to Molly and Robin, who were always already available when I needed reassurance or a laugh.

This work would not have been possible without the support of my family. Dad and mom, after twenty-third grade, I think I'm finally done with school. Thank you for putting up with me. And to Steve, who kept me fed, kept me laughing, and kept me away from #🤖problems throughout this process, I am thankful for you each and every day.

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LIST OF ABBREVIATIONS

Emoji Subcommittee..... ESC
Unicode Technical Committee .....UTC
World Wide Web Consortium W3C
Cascading Style Sheets ..... CSS
Unicode Technical Report .....UTR
Unicode Technical Standard ..... UTS
Common Locale Data Repository.....CLDR

ABSTRACT

"IT WASN'T SUPPOSED TO BE HAIRY": FROM VARIANT GLYPHS TO RENDERED ECOLOGIES OF CODE, CONSTRAINT, AND CULTURE

Kellie M. Gray

George Mason University, 2019

Dissertation Director: Dr. Douglas Eyman

This dissertation uses an ecological approach to examine a type of emergent, dynamic text that's rapidly permeated both public and private everyday communication/communicative practices around the world: emoji. Unlike visually similar "smiley" graphics, emoji are encoded characters supported by the Unicode Consortium. While many popular "emoji" keyboard apps, such as Bitmoji, simply make it easier for users to copy and paste an image into a message, emoji are cross-platform compatible characters with variant glyphs, and each emoji character has a unique hexadecimal codepoint provided by Unicode. It is in part due to this compatibility that emoji are becoming increasingly relevant on a global scale—both in terms of their cultural significance and the manner in which they facilitate a growing worldwide trend of hybrid writing (Danesi, 2017). Yet the encoded nature of emoji also presents technological and cultural constraints, such as (1) unexpected design variations across

platforms (as suggested in the title of this dissertation), (2) deficiencies in text mining tools that either don't account for emoji accurately or omit them altogether (as demonstrated in my four-month quantitative study of U. S. Senators' emoji use on Twitter [chapter 4]), and (3) the Unicode Consortium's absolute control over which emoji it chooses to adopt, encode, and support (as explained in my analysis of the emoji proposal system [chapter 5]).

While the fields of digital and visual rhetoric, writing studies, and professional communication have addressed and analyzed both the rhetorical nature of visual texts and the rhetorical properties of the systems which process texts and through which texts circulate, emoji rhetoric represents a unique intersection of these fields and challenges some of our past and present methodological paradigms for visual and digital rhetoric. In response, my dissertation aims to expand upon previous work in digital and visual rhetoric as well as circulation studies in order to create the sorts of digital rhetoric methodologies that are necessary to theorize the rhetorical affordances of emoji and to account for the technological, cultural, and political factors that mediate those affordances. I argue that the rhetoric of emoji necessitates a flexible methodological and theoretical framework that can balance the deterministic elements of code and platform, the creative agency of digital writers, and the broader structural, cultural, and political elements that influence how emoji circulate (or fail to circulate) across different platforms and networks. This project will demonstrate that emoji rhetoric represents a

convergence and expansion of the field's establish interests in digital, procedural, public, algorithmic, visual, and machinic rhetoric(s).

CHAPTER ONE: INTRODUCING EMOJI

Over Thanksgiving break in fall of 2014, I was catching up with a friend and mentioned a *New York Times* article I'd read a few months prior that discussed the anxiety surrounding iMessage's "typing awareness indicator." This led to a conversation about both the anxieties unique to mobile messaging in general and the frustrating features of iMessage specifically. Nevertheless, neither of us was willing to breakup with Apple altogether. "Especially since other companies screw up emojis," she exclaimed. I was caught entirely off guard.

"What do you mean?"

"You haven't seen the hairy heart?"

No, I had not seen the hairy heart. As it turned out, the "yellow heart emoji" (U+1F49B) did, in fact, render as a pink heart with dark stubble on Google Android platforms for an astonishing several months after the release of Google Android 4.4 on November 1st, 2014 (Figure 1).

Figure 1 The "yellow heart" emoji on Google Android 4.4 (“Yellow Heart,” 2019)

My friend’s observation was only the tip of the iceberg. Other short-lived 4.4 faux pas included a frowning "Smiling Face with Horns" (U+1F608), a less-than-jolly "Father Christmas" (U+1F385), and a number of distinctly white characters (that would become yellow blobs with Android 5.0). I didn’t quite understand it at the time, but it turns out that unpacking the mystery behind the hairy heart would eventually give rise to my dissertation topic.

At the heart of the hairy heart is U+1F49B: the same hexadecimal code, or hex code, that unifies all “yellow heart” emoji. Figure 2 shows what other vendors’ “yellow heart” emoji designs looked like at the same time when Android 4.4 was displaying the hairy heart.

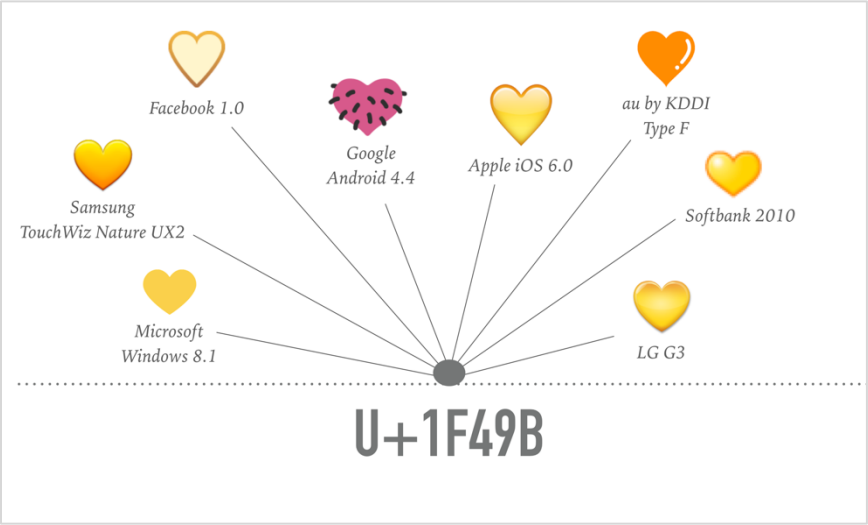


Figure 2 Other vendors' "yellow heart" emoji glyphs (Yellow Heart, 2019)

With emoji, what might seem like changes are actually adaptations of the same character. Emoji are variant glyphs, which means that each emoji character (such as the "yellow heart" emoji) has a single underlying form (U+1F49B) and multiple surface forms. It's especially important not to conflate the underlying and surface forms because perceivable changes in an emoji's appearance actually belie underlying continuity across operating systems.

Framing Emoji

One of the chief issues of researching emoji is figuring out how to conceptualize them within existing visual and digital rhetorical frameworks. On the one hand, emoji are certainly visual texts. Theories of the visual offer inroads to examine how emoji can reinforce dominant ideologies (Mitchell, 1994); to analyze the appearance of emoji and consider the implications of realistic versus abstract and flat versus skeuomorphic designs (McCloud, 1994); and to study or "track" the ways in which images transform while and

as they circulate (Gries, 2013, 2015; Edbauer, 2005). However, most treatments of visual rhetoric still do not seek to encompass the role of platform or code as a rhetorically salient feature. All too often, theories of the visual in rhetoric and composition, to paraphrase Sheridan et al. (2011), risk rendering multimodality into a secondary support for textual communication (like graphs, charts, or illustrations) rather than a primary means of rhetorical expression in and of itself (p. 11). In other words, our field has something of a resurgent tendency—even when we earnestly want to incorporate and acknowledge new and emergent digital forms—to reinscribe the new to the known, thereby treating the visual as either of secondary important to text at worse or, at best, "confusing their secondary features" with the constitutive ones (Bogost, 2007, p. 5).

On that same note, while scholars—particularly those interested in circulation—have emphasized the importance of studying how images transform while and as they spread (Gries, 2015; Jenkins, 2006; Jenkins et al., 2013), emoji do not exhibit fixed, distinguishable transformations like those Gries (2015) studied on Fairey's Obama Hope. With emoji, what might *seem* like changes are actually adaptations of the same character. This oversight poses a problem for emoji because of the role that code and platform play in constraining rhetorical choice often beyond a user's conscious intent (hence the title of this dissertation: "It wasn't supposed to be hairy"). To contribute a methodological framework that can avoid these sorts of issues, this dissertation contends that examining the rhetoric of variant glyphs, such as emoji, requires us to extend some of these previous research paradigms to consider aspects of circulation and platform.

Currently, the types of visual theories employed in writing studies do not directly account for platform compatibility, let alone the role of "procedural rhetoric" as specific rhetorical affordances and constraints for the rhetoric of variant glyphs (Bogost, 2007). By contrast, there is a substantial body of work both in digital writing and rhetoric scholarship as well as software studies that, while not specifically focusing on visual elements, argues for the importance of analyzing, exploring, and understanding the mechanisms (Kirschenbaum, 2012), protocols (Galloway, 2004), procedures (Bogost, 2007; Brock & Shepherd, 2016), interfaces (Tarsa, 2015; Gallagher, 2015), programming languages (Vee, 2013; 2017), and software programs (Kitchin & Dodge, 2011; Brown Jr., 2015; Holmes, 2017) that affect both the personal and public aspects of our lives on a daily basis. While the call to attend to these matters is well-established, scholars have not yet applied such concerns to encoded variant graphics, such as emoji. Furthermore, to understand emoji, it's critical to understand not only the infrastructures and mechanisms through which they circulate (Beer, 2013; Nahon & Hemsley, 2013), but also to recognize the hidden networks (i.e., the various systems that transmit and render) at play even when we can't access them directly (Langlois et al., 2009). Brock and Shepherd (2016) highlight this point in suggesting that procedural systems' influence on rhetorical agents extends beyond a user's immediate context of use or instrumental aims. Instead, procedural systems like Unicode are not "neutral, inert tools," but rhetorical agents who both assist and constrain digital rhetors from making and completing arguments (Brock & Shepherd, 2016, p. 26). Thus, one major claim of this dissertation is that understanding

the rhetoric of emoji requires an understanding of code and technical literacy, or attention to rhetoric "beneath the screen" (Boyle, Brown Jr., Ceraso, 2018; Vee, 2013, 2017).

While certainly visual and digital, emoji must also be studied as cultural objects and, furthermore, it is not difficult to make the case that emoji are rhetorical. Countless examples confirm that emoji take meaning through the realm of rhetorical contingency (*doxa*) and not Plato's invariable philosophical truths (*episteme*). According to Echo Huang (2017), in China's popular WeChat social media platform, for example, the "smiley emoji" which simply conveys "happiness" for many users around the globe, is instead used to express contempt with a mocking tone. A user on Zhihu (similar to Quora) explained that the reason for this alternative interpretation is due to the perceived "muscle movements" on the WeChat smiley; the smile doesn't appear to be genuine because the muscles near the eyes aren't moving and the mouth seems to be suppressing a smile (Huang, 2017). Another Zhihu user explained that it was because the WeChat smiley is looking downward while smiling, which comes across as malicious (Liu, 2017). Similarly, in parts of the Middle East, West Africa, Russia, and South America, the seemingly innocent "thumbs up" emoji is essentially "the equivalent of using the middle finger in the Western world" (Danesi, 2017, p. 31). That is to say, the effective use of specific emoji by digital writers—like any form of rhetoric in any medium—depends upon context and audience. In other words, emoji are *doxa*, that is, rhetoric. Emoji are not just value-neutral or context-neutral objective vehicles of thought, but a form of meaning-making determined and shaped by audience understandings and individuals' intentional or unintentional rhetorical aims.

To clarify what I mean by "rhetoric," my definition here is broad and epistemic. In classical Greco-Roman rhetoric, rhetoric was largely limited to persuasion or, an instrumental form of discovering the available means in a given case (as Aristotle's notes famously describe) in order to induce a change in attitude or belief in an audience. Centuries later, rhetorical scholars and theorists have expanded the idea of rhetoric from mere persuasion to include epistemic dimensions, such as in Robert L. Scott's pioneering work (see also Brummett). In epistemic approaches, rhetoric creates knowledge instead of merely shaping the communication or expression of pre-rhetorical or non-rhetorical ideas or knowledges. In this shift, twentieth-century rhetoricians sought to study how everyday forms of communication or meaning-making through language reflected contingency (*doxa*). Encapsulated by Kenneth Burke's (1969) axiom, "wherever there is meaning, there is persuasion," modern rhetoric sought to locate a knowledge-created role for rhetoric even in the hardest of scientific discourses like physics (Bazerman 1988).

In my dissertation, I see something of an epistemic role for emoji rhetoric and therein lies the broad way in which I choose to define it. Take computer code, for example. When Ian Bogost (2007) defined procedural rhetoric, he employed a classical notion of rhetoric as persuasion to argue that a user's interaction with rule-based computational systems, such as video games, is persuasive and thus a form of rhetoric (p. 3). Yet, he doesn't describe the actual operation or programming of the software code itself as rhetorical. How might code be considered persuasive? The compiler doesn't need to be persuaded to execute the coded function after all. Code works unless it's not programmed in a way that follows the computational rules of a given programming

language like Python or Unicode. Yet, give two different programmers can be given the same complex task, and they will likely use different styles, code lines, and so on. Programmers leave non-executed notational comments to one another to justify changes to source code. In other words, an epistemic approach like Burke's enables us to easily talk about different programming styles in terms of rhetorical contingency (or terministic screens, perhaps). Burke wants rhetoricians to explore the discursive constraints that give rise to the enactment of rhetorical agency and persuasion alongside the study of how to change an audience's mind. It is for these sorts of more expansive considerations that I want to signal my awareness of the fact that even more expansive definitions of rhetoric, especially since around 2010, have been challenged through a renewed interest in rhetoric's material character.

While previous work has explored rhetoric's embodied and material character, post-2010 scholarship saw the use of theoretical frameworks like actor-network theory (Lynch & Rivers, 2015), new materialism (Gries, 2015; Rickert, 2013), and posthumanism (Boyle, 2018) to argue, by some accounts, that the agency of nonhuman actors participates in shaping rhetorical agency. In *Ambient Rhetoric*, for example, Thomas Rickert (2013) argues that rhetoric is not persuasion, epistemic, or even primarily discursive; it is instead a "pre-symbolic relation" to the material and ecological world. Such conversations definitely overlap with emoji rhetoric, as my subsequent discussions of circulation scholarship will demonstrate. However, since the purpose of my dissertation is largely to introduce a rhetorical framework that I feel is most useful to studying certain prominent aspects of the ecological character of emoji, rather than to

produce a more complex theoretical engagement with the nature of rhetoric itself, I am going to stay with a generalized epistemic notion of rhetoric whenever the reader encounters the word "rhetoric."

My aim in this dissertation is quite straightforward: I want to grapple with what makes emoji a necessary subject matter of study for digital rhetoric and writing scholars and, especially, to examine how ecologies of code affect structure, culture, and practice. My hope is to encourage not only the further study of emoji rhetoric, but also to encourage scholars—like rhetoricians who study materiality and code literacy/rhetoric—to study digital visual forms for how code enables and constrains rhetorical agency at multiple sites. In other words, I use the distinctive encoded nature of emoji to ground visual methodologies in code, while simultaneously extending circulation scholarship by examining the algorithmic nature of emoji. Building from this work, my dissertation offers to stage a version of Collin Gifford Brooke's (2009) transformative encounter for new media by seeking to expand upon previous work in digital and visual rhetoric as well as circulation studies in order to create the sorts of digital rhetoric methodologies that are necessary to theorize the rhetorical affordances of emoji for a wide variety of personal and professional motives. I use emoji as a lens to articulate how, as a field, writing studies' understanding of digital and visual practices requires the application of software and platform studies. Far from the domain of computer scientists, this dissertation argues that a consideration of code for native digital visual writing practices, such as emoji, is essential if we want to understand their role in everyday rhetorical choices.

Rendered Ecologies

To help researchers better grapple with the rhetoric of emoji, this dissertation is going to explore a conceptual framework that I call rendered ecologies. I primarily view this as a concept designed to call attention to certain aspects of rhetoric that I see as most prominently featured in the rhetorical use of emoji; however, it can also be used to generate and inform a variety of data-driven studies, including the mixed-methods approach that I employ in chapter 4. To develop the concept of rendered ecologies, I drew heavily from Collin Gifford Brooke's (2009) updated medieval trivium that he describes in *Lingua Fracta* and from Lloyd Bitzer's (1968) notion of constraint which he explains in "The Rhetorical Situation." While I offer a more detailed explanation of the framework and its application to emoji in chapter 2, here I'll simply explain that this dissertation is organized according to Brooke's (2009) new media ecologies of code, practice, and culture (which replace grammar, logic, and rhetoric, respectively).

Chapter Outline

The primary objective of chapter two is to offer a detailed explanation of rendered ecologies as a conceptual framework for understanding the nature of emoji and to provide examples to illustrate how the framework applies to emoji. Additionally, chapter two includes a very brief history of emoji, a description of their popularity, and a general overview of Unicode.

Chapter three focuses primarily on the ecologies of code and seeks to characterize emoji in technical detail through updating the concept of *topos* (place). I include a more detailed overview of character encoding, how it relates to Unicode's institutional

objectives, and how even Unicode must contend with encoding constraints. I also explain how search and trend algorithms affect emoji prior to their encoding and how those algorithms privilege, exclude, and shape various publics. Finally, I turn to online web development forums, such as GitHub and StackOverflow, to analyze discussions among programmers regarding emoji display, and I then explain why such debates can help rhetoricians understand how programmers define emoji based on their arguments over which CSS properties should (and should not) be able to manipulate emoji. My analysis in this chapter extends early conversations about the rhetoric of code to also account for the unique rhetorical function of rendering. At the end, I also start to tie these modes of analysis to research in software studies and the rhetoric of code that have raised the political nature of code to shape into ecologies of culture, which I discuss in detail in chapter 5.

In chapter four, I discuss the ecologies of practice, which Brooke defines as the temporary (and by no means separate or isolated) space of rhetorical invention. Since practice is the realm of effectiveness, I turn to a case study of a population who could stand to improve their emoji literacy: U.S. Senators' and their use of emoji on Twitter. Using the idea of rhetorical decorum (Hariman, 1992), I use a mixed methods emoji frequency analysis of four months of Senators' Tweets to demonstrate that they are not as effective in using emoji as typical social media users—a clear gap in effective practice, in other words. This chapter strives to highlight that rendered ecologies is a conceptual framework that can be used to generate research questions as well as interpret results for a variety of methodological approaches. However, to wholly realize the potential of full-

fledged quantitative research to study patterns of effectiveness for population's emoji use in social media practice, I close this chapter by show how rendering constraints in *logocentric* textual mining and analysis tools for social media researchers will continue to limit this research for the majority of digital rhetoricians.

While chapter four focuses on the how emoji are used and discussed after they've been officially added to the Unicode Standard, chapter five, which aligns with Brooke's ecologies of culture, focuses on the issues and processes that precede the encoding of emoji. I examine both the procedures through which new emoji emerge and the politicized influence of Unicode. To make these claims, I draw on visual rhetoric researchers and visual theorists, including WJT Mitchell, Stuart Hall, and Jacques Rancière, to demonstrate the ways in which emoji representations (and lack of representations) engender the formation of cultural subjectivities through rendered ecologies. Chapter five is therefore where I discuss the broader significance of emoji on a cultural level, with particular attention to the ways in which Unicode's decisions to accept or reject proposed emoji have come to symbolize social affirmation or exclusion on a broader scale. Additionally, I examine some of the contours of constraint through the Unicode Emoji Subcommittee's and the Unicode Technical Committee's publicly available responses to emoji proposals and track the developments and discussions related to several specific proposals to better illustrate those constraints. I feature some of the work of the progressive emoji advocacy group, Emojination, as an illustrative example this in chapter. To use Rancière's term, Emojination's efforts are part of how everyday users can attempt—even if it's a slow and steady (and frustrating) process—to

revise inegalitarian "partitions of the sensible" by trying to create more diverse emoji representations.

My sixth and final chapter pans out to consider encoded new media visuals more broadly, where emoji fit into this body of texts, and how we can continue to study and theorize such texts moving forward. I reiterate the exigence for rhetoricians, specifically, to study encoded graphics, and I highlight future research needs, including a more rigorous theoretical approach to the politics of images (I admittedly only scratch the surface in this dissertation) and developing new tools for our own purposes to study the collective behavioral patterns of emoji users across multiple ecological scales.

But why emoji?

While the framework I use is suited to variant glyphs in general, I'm focusing specifically on emoji due to their current popularity and, consequently, the rich cultural commentary they've garnered over the past decade. At the present moment in 2018, over half of all Instagram posts use an emoji (Shaul 2015). In other words, they are currently a popular form. Here, I want to preemptively address any critique of emoji as a passing fad. While we've certainly inculcated emoji into our everyday communicative practice to an extensive degree, it's difficult to say how long they will remain in vogue, so to speak. Emoticons, for example, are hardly used anymore. Inputting an emoticon like ";-)" triggers the ability to easily input an automatic winking emoji on most mobile devices. Looking ahead to work on augmented reality (Tinell, 2014), it is fair to question if emoji will still be as popularly employed in social or individual digital communication in another decade. Just as Unicode rejected a proposal of a "mic drop" emoji as lacking

relevance over time (unlike, for example, the dumpling emoji), it's entirely possible that emoji themselves may disappear in the next great technological shift (whatever that may be). But while I acknowledge that the popularity of emoji, in particular, may one day decline, I also believe that some variety of encoded, widely supported (i.e., cross-platform) graphic character will remain prominent in digital communication.

Emoji embody a very particular moment—a sea change, if you will—in hybrid text-visual communication specific to screen cultures. The value of and exigence for studying this emergent digital rhetoric form extends beyond emoji. As linguist Marcel Danesi (2017) points out, the "emoji phenomenon" is evidence "that human communication in written form is evolving more and more on a single path of hybridization across the globe" (p. 88). A major goal of this dissertation is not only to draw attention to the evolution Danesi mentions, but to consider the widescale consequences should this evolution get ignored by scholarly and everyday communities alike. While emoji representations play an increasingly significant role in the ideological construction of cultural identity (chapter 5), they are also ambiguous. Many users, however, either don't realize that emoji are ambiguous or don't fully understand the degree to which emoji are ambiguous at multiple sites.

At the level of code, the same emoji can vary in design from one operating system to another—furthermore, some emoji can revert to neutral, default forms and, occasionally, emoji can fail to render altogether. In terms of practice, the same emoji can be used to mean or suggest very different ideas. For example, the "blue heart" emoji is used to promote and in support of Autism awareness, but it's also used to express BDSM

fetishes. Furthermore, there are few established mores that suggest when emoji are an appropriate or effective means of communication. In other words, everyday emoji users are operating without a clear sense of emoji decorum—an issue that has become increasingly problematic in court cases that reference emoji. Culturally, emoji have come to broadly symbolize social affirmation and inclusion or, in absentia, Otherness and marginalization. In other words, users want to see their myriad identities (e.g. gender, racial, professional, religious, etc.) reflected in the emoji they use to communicate.

At the same time, a specific emoji can be interpreted in dramatically different ways depending on cultural context. The fact that 70% of U.S. Senators use emoji serves to illustrate what's at stake here. Political decorum hasn't caught up with digital communication trends. Everyone knows that you are not supposed to touch the Queen of England, but how many politicians and diplomats are aware that certain emoji are considered offensive to foreign audiences or have connotative inflections that yield varied interpretations? I found examples of both in my four-month study, which I discuss in chapter 4. Likewise, it's not always clear how to interpret an emoji. Consider a tweet from the National Weather Service that was posted in February 2019 (see Figure 3). The tweet includes a "snowflake" emoji, which is obviously meant to correlate with the potential blizzard mentioned in the second sentence, but it also includes a "tornado" emoji. The tweet, however, does not mention a tornado. Is the emoji meant to imply that weather conditions could be conducive to tornados? Is the "tornado" emoji meant to refer to storms in general? Did the "tornado" emoji simply match the grey of the clouds on the radar map and serve to reinforce the potential severity of the weather system? The

National Weather Service's tweet is precisely the sort of communication that would benefit from emoji literacy.

Figure 3 NWS tweet with "tornado" emoji (National Weather Service, 2019)

As emoji continue to permeate public, private, and professional spheres in new ways, the need for scholarship that addresses emoji and foregrounds their ambiguity only grows more acute. This dissertation offers the conceptual framework of rendered ecologies as a gateway/inroad to contextualize emoji, concurrently, as coded, visual, cultural, rhetorical objects.

When the Oxford English Dictionary chose the "face with tears of joy" emoji as its word of the year in 2015, Casper Grathwohl, the President of Oxford Dictionaries, explained the decision as follows:

> You can see how traditional alphabet scripts have been struggling to meet the rapid-fire, visually focused demands of 21st Century communication. It's not surprising that a pictographic script like emoji has stepped in to fill those gaps—it's flexible, immediate, and infuses tone beautifully. As a result emoji are becoming an increasingly rich form of communication, one that transcends linguistic borders. (Oxford Dictionaries, 2015, para. 3)

I would amend Grathwohl's comment to say that while emoji are certainly capable of transcending linguistic borders, they do not do so inherently. Furthermore, I would posit the danger of conflating linguistic borders with cultural borders. In sum, we do ourselves a great disservice if we assume that any visual wholly transcends such borders in and of itself. Thus, any visual text circulating on a global scale—but especially those that are variant by nature—requires scholarly examination and, in turn, public awareness about its affordances and deficits. Therefore, while I focus on emoji, my goal

moving forward is to develop a means of studying all manner of encoded, widely-used, variant graphics that will likely continue to emerge in a digital age both in the era of emoji and beyond.

CHAPTER TWO: LOCATING EMOJI & RETHINKING CONSTRAINT FOR EMOJI ECOLOGIES

This chapter provides an in-depth overview of rendered ecologies as a conceptual framework for studying emoji. However, I think it's first necessary to provide a bit more background information on emoji and the Unicode Consortium (or Unicode). I use the first part of this chapter to explain what *emoji* means and how I use the term before moving on to discuss the popularity of emoji and various types of cultural commentary they've garnered over the past decade. In turn, I'll provide more information about Unicode and explain the role it plays relative to emoji production and circulation. In the second part of this chapter, I will layout, specifically, how I've adapted Brooke's (2009) trivium for new media and Bitzer's (1968) notion of constraint into the conceptual framework that I'm calling rendered ecologies. In synthesizing and extending these frameworks, rendered ecologies accommodates and elucidates the site at which emoji render: a nexus of individual rhetorical action(s), Unicode's gatekeeping function, and algorithmic factors that constrain and facilitate emoji communication.

Part I

A Brief History

"Emoji" is romaji—or the alphabetic identifier—for the kanji 絵文字, which in Japanese means "picture writing character" (Unicode Consortium, 2019d). The first emoji, a pictographic heart, was a special feature on pagers sold by DoCoMo, a Japanese

telecom company. Shigetaka Kurita created the first set of emoji, also for DoCoMo, in the late 1990s. As emoji became increasingly popular, other carriers created their own sets of emoji—none of which were compatible outside of each company's network. When the Unicode Consortium agreed to support the encoding of emoji in 2010, the first set was largely comprised of those used by different Japanese carriers, hence the nods to Japanese culture which are still included today.

Similar to the word *sushi*, *emoji* is, technically, the correct spelling for both the singular and plural form of the term; however, as is the case with many loan words in the English language, plural forms can be inconsistent. In his article on this very topic for *The Atlantic*, Robinson Meyer (2016) points out that while *sushis* sounds odd, *tsunamis* is perfectly acceptable. Likewise, English typically uses the correct Latin plural form of *datum* (data) and *medium* (media), but *stadium* turns into *stadiums*. While *emojis* is preferred by certain organizations, such as the Associated Press (AP style), many publications, such as *The New York Times* and *The Atlantic*, have used both emoji and emojis (Meyer, 2016). In this dissertation, I use *emoji* as the plural form because that is what the Unicode Consortium uses. Indeed, the first sentence on the Unicode Emoji webpage begins, "Emoji are pictographs…" (Unicode Consortium, 2019e, para. 1).

In popular usage, "emoji" has occasionally become a synecdoche for all digital "smiley" graphics. For my purposes, emoji are the 3018 characters (including variations) currently supported by the Unicode Consortium (Unicode Consortium, 2019f). Each of these characters has an abstract meaning and a unifying code point (Unicode Consortium, 2019a, p. 7); the character and code point make up the underlying form of an emoji. In

other words, no character has a standardized form. What we see when we look at an emoji is the surface form, or glyph. Whether on paper or screen, a glyph is the "visual representation of a character," and the Unicode Standard, to be clear, is concerned with "defin[ing] how characters are *interpreted*, not how glyphs are *rendered*" (Unicode Consortium, 2019a, p. 6; emphasis added). As an example, for the "Tears of Joy" emoji, the CLDR (Common locale data repository) short name for the abstract character is "face with tears of joy," and the unit code is U+1F602. The reason that Unicode encodes *characters* and not *glyphs* is because "many common text-processing tasks would become convoluted or impossible" if an encoding were unified "based strictly on appearance" (Unicode Consortium, 2019a, p. 247). For that reason, Unicode doesn't specify "the precise shape, size or orientation of on-screen characters" (Unicode Consortium, 2019a, p. 6), and "[u]ltimately, the software or hardware rendering engine of a computer is responsible for the appearance of the characters on the screen" (p. 6). Therefore, U+1F602 could render as any of the variations in Figure 4.

№	Code	Browser	Appl	Goog	FB	Wind	Twtr	One	Sams	GMail	SB	DCM	KDDI	CLDR Short Name
8	U+1F602											—		face with tears of joy

Figure 4 Variations of "face with tears of joy" emoji (Unicode Consortium, 2019k)

Just as certain labels are sometimes used inaccurately to describe emoji, "emoji" is sometimes used to described graphics that are not *technically* emoji. I use "sticker" or "efauxgi" to indicate graphics that are visually similar to emoji but confined to specific apps or devices. In other words, emoji are cross-platform compatible; stickers are not.

Emoji are variant glyphs encoded and supported by the Unicode Consortium; stickers are platform-bound. While some of these graphic sets do come with their own keyboard, users have to paste images from the keyboard into their messages, and those images cannot be used in line with alphabetic script. While these downloadable keyboards might seem similar to the emoji keyboard, efauxgi keyboards transmit graphics as picture or video files; technologically, it's no different than sending a picture you took of your cat to a friend. You insert the picture into a message, your device transmits the file to your friend's device, and your friend's device receives and opens the file you sent. If, however, you sent your friend a cat emoji, your device would send the unit code for the cat emoji you included, and your friend's device would interpret and render the native design for that unit code. If you both use the same device and operating system—say, iPhone running on iOS 11.4—the cat emoji will look the same on both devices. If you use an iPhone and your friend has a Samsung, the cat emoji should be similar, but Apple and Samsung each has its own design, or allograph, of the same unit code. This distinction gestures to a gap in visual rhetorical methods, which often ask researchers to describe and analyze the image's "visual content" (Rose, 2016). A description of the visible content neglects the underlying uniformity.

Unicode

Even readers who aren't familiar with Unicode (and I'll offer a full account in Chapter 3) likely rely on it daily due to the fact that it's one of the most widely-used, universal character encoding standards around the globe at the moment. Imagine that I open a MS Word document, select Times New Roman font, and hit the "A" key on my

laptop keyboard. The graphical icon “A” renders on the screen instead of a “Q” or a hairy heart emoji. If I then open that same Word file as a Google Doc on my tablet device or mobile phone app and change the font to Arial, the “A” still appears carrying the same semantic weight.

Getting to heart of why an “A” appears in each place is actually key to understanding why a “hairy” heart appeared instead of a normal, yellow heart. Computers do not process letters but numbers. Each letter is understood by a computer through a number. Prior to Unicode, there was a proverbial Tower of Babel for character encoding with hundreds of *de jure* systems (Unicode Consortium, 2017a). Not only were these systems not comprehensive in the sense of covering all or even most major global languages (Chinese, English, Russian, etc.), punctuation, and other common symbols, but they also risked data corruption if two different platforms—say MS Word and Google’s Chrome browser—each had its own unique character encoding system; the letter “A” from the previous example would not appear correctly because the two programs wouldn’t agree on which number *meant* “A.” Now, imagine if every operating system, browser, software, etc. (e.g. iOS, Windows, Android, Safari, Linux, WeChat) used a different encoding system. It’s very easy to see how errors could emerge. In response, Unicode simplified character encoding across platforms, devices, and operating systems by offering a unique number for each character in a particular language in encoding formats such UTF-16 or UTF-8.

Unicode is also responsible for assigning a unique encoded character number, or code point, to each emoji so that—in theory—a user with an iPhone who texts a dancing

girl emoji to a friend with an Android phone will receive that particular emoji and not a chipmunk.

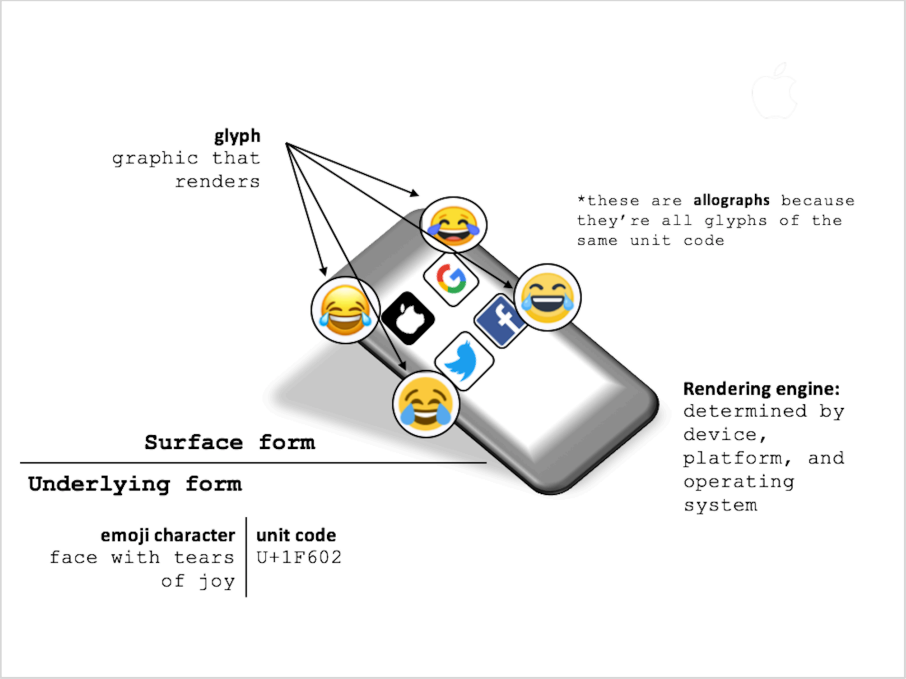


Figure 5 Surface versus underlying forms

As Figure 5 highlights, each emoji character has an underlying form (the "unifying code point" or sequence of code points) and a surface form (the glyph that displays on a user's screen). Unicode clarifies that "[t]he character identified by a Unicode code point is an abstract entity" (e.g. "face with tears of joy" is identified by U+1F602) whereas the glyph is the "visual representation of a character" (e.g. 😂) (Unicode Consortium, 2019a, p. 6). The rendering engine of the device determines which glyph displays. These variations are, in part, what distinguishes emoji from graphics that are visually similar, such as stickers or efauxgi. As I explained earlier, many popular

"emoji" keyboards, such as Bitmoji, simply make it easier for users to copy & paste images into their messages.

This distinction is important because platform and code play a fundamental role in how we understand emoji as multimodal forms, as well as how they circulate as digital rhetorical forms across different networks and devices. The hairy heart isn't an isolated occurrence. To offer a brief example, Hollywood celebrity Jessica Chastain included the "shocked emoji" in her original tweet about the film *Lady Bird* (via her Samsung phone) in 2018 (Figure 6). Within hours, she discovered online news reports of users whose Twitter viewing platforms rendered the shocked emoji as the "drooling emoji" (Kircher, 2018).

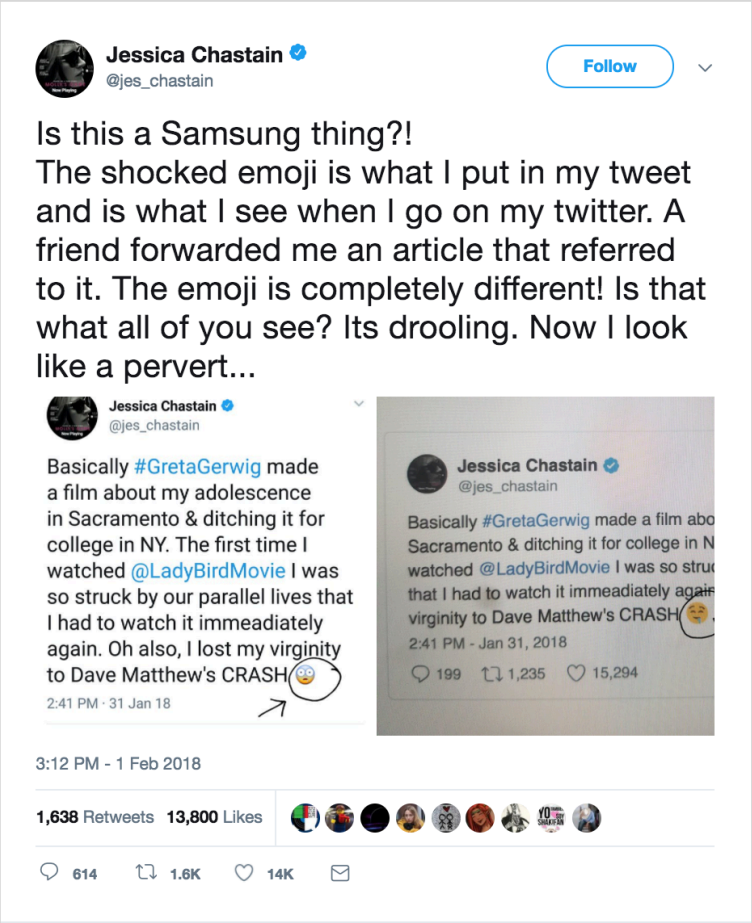


Figure 6 Jessica Chastain tweet example (Chastain, 2018)

In other words, cross-platform rendering limitations can determine and constrain users' rhetorical options with emoji regardless of original intent to a far greater extent than other forms of text-based digital or networked writing.

The reliance of emoji upon Unicode creates a unique rhetorical situation because users are limited to the emoji that Unicode adopts and supports. Emoji, by definition, have to be approved, added, and supported by Unicode. Chastain's relatively benign experience only scratches the surface when it comes to rendering issues. To foreground

an illustration that I will explore in great detail in Chapter 5, digital writers lacked customizable (people) skin tone emoji until 2015. However, when Apple via Unicode helped to offer the latter, many systems and devices did not yet support these features, including older versions of Apple's own iOS. Many emoji that were meant to depict a person of color instead displayed as a white emoji next to an alien emoji, which is an inadvertent but historically fraught figuration for the non-white Other. In other words, the available means of (cultural) persuasion, to paraphrase Aristotle, are governed by Unicode. As Chapter 5 explores, equally fraught are the politics of how Unicode acknowledges, advances, or occasionally alters emoji petitions–a publicly available process by which new emoji are suggested. Even when progressive emoji are accepted, they tend to have Western biases (LaFrance, 2017; Shade, 2015).

To better consider Unicode's technical and cultural role in emoji production, let us consider the humble "bread" emoji. To reiterate, the Unicode Standard is concerned with interpretation and does not specify "the precise shape, size or orientation of on-screen characters" (Unicode Consortium, 2019a, p. 6); Unicode is more concerned with encoding and supporting the code point so that machines understand that U+1F35E is the "bread" emoji character. Therefore, U+1F35E could render as any of the allographs in Figure 7.

№	Code	Browser	Appl	Goog	Twtr	One	FB	Sams	Wind	GMail	SB	DCM	KDDI	CLDR Short Name
591	U+1F35E													bread

Figure 7 Variations of the "bread" emoji (Unicode Consortium, 2019k)

Even when the loaf of bread emoji successfully appears on a reader's screen, each platform renders the same unit code for the "bread" emoji differently.

While U+1F35E consistently renders as bread, few would argue that each of these distinct renderings are identical. Some platforms favor skeuomorphic designs, while others are flat; some favor more cartoon-like designs while others strive for realistic depictions. In WhatsApp, the loaf of bread even faces the other direction (Figure 8).

Figure 8 WhatsApp "bread" emoji design (Bread, 2019)

While Unicode does encourage vendors to be somewhat consistent with their designs for the same emoji, Unicode ultimately has no recourse if a vendor designs a glyph that doesn't match other vendors' designs for the same character.

Unicode does, however, get to decide which emoji to encode and support, and in turn, the CLDR (common locale data repository) names, or "short names," for the emoji it accepts. I discuss Unicode's emoji proposal system in more detail in chapter 5, but here I'll use the "bread" emoji to briefly demonstrate how a seemingly innocuous emoji embodies a larger critique of western-centric design. While U+1F35E is often referred to as the loaf of bread emoji—especially since emoji for other types of bread have emerged

since its original encoding—the CLDR name of the character is simply "bread." The character is meant to convey the general idea of "bread" to users all over the world. While Unicode has since encoded a croissant, a baguette, a pretzel, and a bagel, the available means of communicating the semantic essence of "bread" via emoji are limited to designs featuring mostly leavened varieties that are popular in the United States. Users wishing to represent types of bread that are not leavened or not baked in loaf bans, such as roti, ciabatta, naan, challah, arepa, or lavash, must instead settle for one of the more "universal" and "recognizable" options. In chapter 5, I offer a longer critique of how Unicode, in its *support* of egalitarianism, sometimes appropriates cultural images only to reinscribe Western norms on them. I also explain in greater detail how emoji can play a role in shaping political subjectivity through the cultural differences that emoji do and do not acknowledge or represent. Here, however, my goal is to illustrate an additional cultural constraint that users face and to emphasize that we must pay attention to the code itself because it, in turn, affects—through limitation or validation—a user's means of self- or cultural representation.

In sum, Unicode serves an important technical function in keeping emoji in circulation by supporting emoji codepoints, but it also serves a cultural function by acting as gatekeeper and determining which emoji it encodes and supports in the first place. While Unicode certainly plays a major role in emoji communication, an individual rhetor's emoji agency is not *wholly* mediated by the Unicode Consortium.

There's a specific reason why I chose to consider the "bread" emoji in this section. As Jenny Rice (2008) and, in turn, James J. Brown, Jr. (2014) have highlighted,

rhetoric has a historic tension with “grammar” and “procedure” (see also Bogost, 2007), which helps to explain why we tend to leave code to the domain of computer science or, at best, technical communication. Plato at one point compares (and dismisses) rhetoric by analogy to a baker who rigidly follows a recipe to make (among other things) loaves of bread. According to Plato’s Socrates, it is just some mechanical trick instead of a creative epistemic force. I imagine that many readers are likely viewing the 🍞 (bread) emoji in this chapter in a word processing program. In the spirit of Plato’s eidetic forms, I ask: are readers looking at the pure essence of a loaf of bread emoji?

Of course, this loaf bread emoji is not *the* true, fixed, or invariable form for all time for many of the same reasons Magritte (1929) explained that a representation of a pipe in a painting of a pipe is not a pipe (Mitchell, 1994; McCloud, 1994). In fact, 🍞 may appear differently to you—or fail to appear at all—because, as I explained earlier, vendors’ designs for U+1F35E can vary. Vendors also have different display protocols for emoji they do not have designs for (see Figure 9).

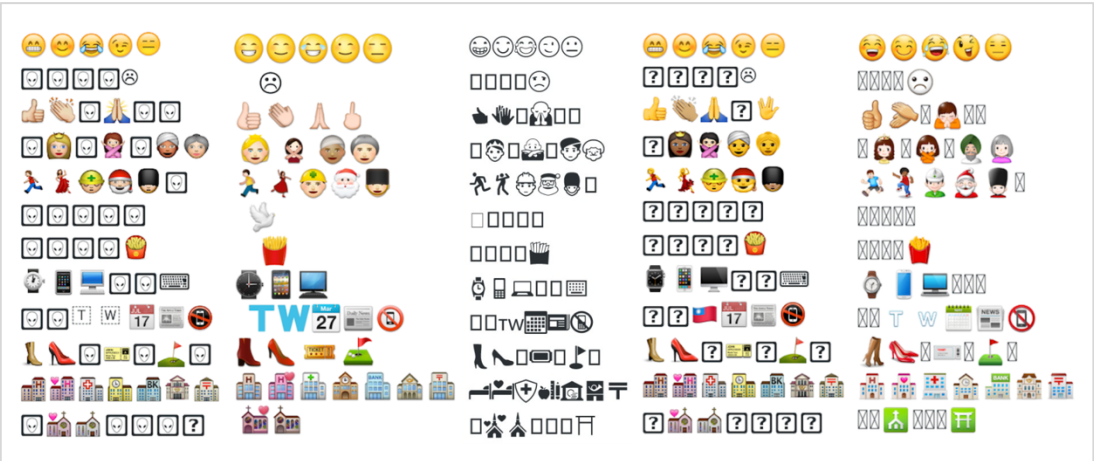


Figure 9 Examples of display protocols

Those who use emoji regularly can typically recognize when an emoji did not display as the sender intended (often it means the recipient's device needs updating). At the same time, frequent emoji users also know that recently added emoji are more likely to render unexpected designs because devices, browsers, etc. must be updated to accommodate the new emoji. As a rhetor, I chose the "bread" emoji knowing that, because it was released in August 2015 as part of Emoji 1.0 (which was part of Unicode 6.0), it was more likely to display as I expected it to on recipients' screens than the "baguette" (U+1F956) or "croissant" (U+1F950) emoji because they were both added in 2016 as part of Emoji 3.0 / Unicode 9.0. In other words, a certain degree of emoji-literacy, if you will, can help rhetors consider which emoji are more likely to render predictable designs and also to recognize when, as recipients, they've been sent a design that is not rendering as the sender anticipated. Moreover, with emoji communication increasing around the world, users have numerous opportunities to develop their emoji-literacy skills.

Emoji Today

Emoji have permeated a variety of public and private spheres since their humble beginning as a novelty feature of a specific brand of pagers. According to linguist Vyvyan Evans (2017), "over 80 per cent of all adults regularly use emojis in smartphone messages, with figures likely to be far higher for under-eighteens" (p. 29). Another study reported that 92% of the online community in the United States has employed emoji in text messages or in social media posts and that half of all Instagram posts include an emoji (Shaul, 2015). Given these findings on emoji usage, it is perhaps unsurprising that

there are few digital spaces that emoji have yet to permeate. They're increasingly popular on social media, in brand marketing campaigns, and in personal communications.

While many popular websites and publications were discussing emoji well before the 2015 "Word of the Year" announcement, the Oxford English Dictionary's decision seemed to affirm academics' interest in emoji. No longer relegated to op-eds and humor sites, discussions about emoji have appeared in multiple peer- reviewed journals across a range of disciplines, which I discuss in more detail in chapter 4. In addition to scholarly attention, emoji have also garnered no small amount of public commentary and featured in a variety of popular publications. Examples include cartoons in *The New Yorker*; the 2017 *Emoji Movie*; social media accounts dedicated to emoji or communicating predominantly with emoji, such as @Biolojical (2018), a Twitter account dedicated to "Sharing the science of biology through emojis"; and sites like Emojipedia, which provides information about new emoji, explains emoji connotations, and provides images of each platform's glyph design for each character.

As emoji grow in popularity and feature in a variety of new media, it's also worth questioning more broadly how emoji might fit into an existing genre and, taking into account Lev Manovich's (2001) claim that "new media is old media that has been digitized" (p. 47), to consider the "old media" of which emoji might be considered a remediation (Bolter & Grusin, 1996). A few obvious correlations include emoticons and perhaps even physical stickers. However, in some ways emoji evoke a much older style: rebus writing. Danesi (2017) explains that rebus writing, a "type of hybrid script that has existed since time immemorial," "prefigures emoji writing" (p. 89). According to Danesi

(2017) rebuses were used throughout history "as part of a strategy to both bolster alphabetic writing and to teach literacy" (p. 89). As you can see from the example below (Figure 10), rebuses are used amid alphabetic script in the same way that emoji are often use within text messages, tweets, etc.

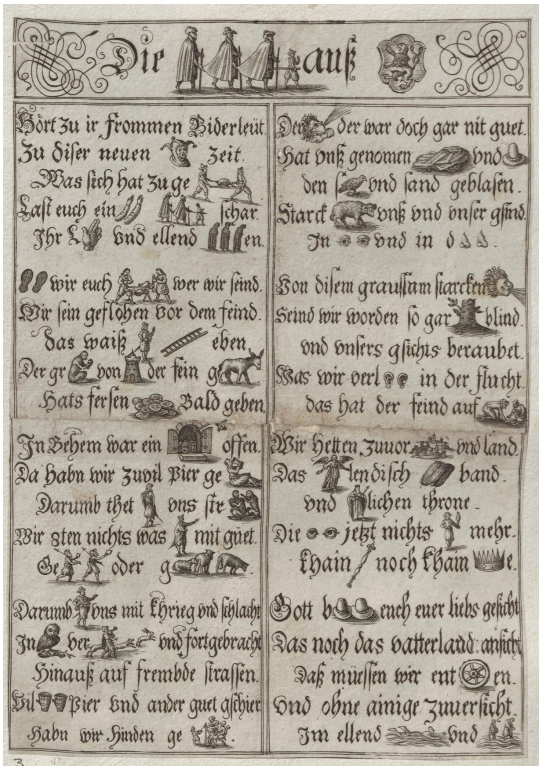


Figure 10 German rebus manuscript (German Rebus Manuscript)

Like emoji often do, rebuses appeared alongside written text to provide clarity, especially in largely illiterate societies. Also, like emoji, they were sometimes met with criticism for disrupting the sanctity of writing—muddling the page for the sake of those who couldn't read the *real* text. This not-so-subtle dismissal of the visual as superfluous, subordinate, or—occasionally—corruptive is a recurring one. In *Defining Visual*

Rhetorics, Hill and Helmers (2004) use Wordsworth's 1896 critique of the *Illustrated London News* to demonstrate how sentiments toward the visual—particularly "new" visuals—remain hostile throughout history:

> It was the word that raised the English from their earliest beginnings to an 'intellectual land.' The image, because it is mute, or 'dumb,' cannot express either truth or love, but rather has a profound national and psychological effect of reverting the country 'back to childhood.' He concludes his poem with the exclamation, 'Heaven keep us from a lower stage!' (p. 3)

Today we have similar public commentary that illustrate this same anxiety towards emoji. Take, for instance, the following cartoons (Figure 11, Figure 12) published in *The New Yorker*.

"Look, the new emoji are here."

Figure 11 Harvey cartoon from *The New Yorker* (Harvey, 2015)

"Godot says, 'Running late, frowny face, winky face.'"

Figure 12 Schwartz cartoon from *The New Yorker* (Schwartz, 2014)

Both cartoons gesture towards the confused, and occasionally hostile, reactions that emoji sometimes incite. These cartoons speak to the underlying anxiety of those with logocentric attitudes regarding the "progress" of Western communicative practice--a Derridean distinction I will unpack below. The hieroglyphic cartoon suggests a possible regression to antiquated forms of communication that are—judging by the tools present in the image—perhaps more trouble than they're worth. But if the first cartoon suggests an ironic decline in communication efficiency, the second potentially hints at something darker. There are a number of literary allusions that would suffice here—perhaps Penelope receiving a text from Odysseus that reads "leaving now. be home soon"—but Schwartz instead chose Samuel Beckett's *Waiting for Godot*: widely known as the play in which nothing happens.

The cartoon implies that emoji are unreliable—or at least wield a propensity for deception—when it comes to conveying messages accurately. In fact, the sentiment of the cartoon is reminiscent of the manner in which rhetoric was historically dismissed by Platonists as dissimulation, concealment, etc. in Plato's *Sophist* dialogue (Miller, 2010). In *Waiting for Godot*, Vladimir and Estragon—who have lost their sense of time and reality—spend the entire play waiting for Godot. At the end of the play, the two men decide to commit suicide should Godot fail to show up again the following day. It's unclear just how long the two men have been waiting, who Godot is, or whether or not Godot exists at all. This cartoon, then, not only represents a communication failure, but suggests the potential consequences of that failure and a loss of touch with reality.

While the comics discussed here feature sentiments ranging from mockery to contempt, it's not unusual for emergent forms to be met with such reactions—emoji are merely the latest target amid a long history of Western logocentric privilege. In article for *The Guardian*, art critic Jonathan Jones (2015) argued that emoji represented a "huge step back for humanity" and that he'd prefer to "stick with the language of Shakespeare." In *The Emoji Code*, Evans (2017) addresses emoji critics as follows: "To assert that Emoji will make us poorer communicators is like saying that using facial expressions in conversation makes your ideas more difficult to understand" (p. 137-138). Thus, while emoji certainly aren't loved by all, it's fair to say that, over the past decade, they have become an incredibly popular form of digital visual rhetoric and they are widely used all over the world. In fact, the trendiness of emoji has led to no shortage of keyboard applications that I discussed earlier in this chapter that are visually, if not structurally,

similar to emoji. Regardless, the global proliferation of emoji—even to those who aren't fans—is surely an indication that they're worth studying, an approach for which I outline in the next section.

Part II

An Ecological Approach

To understand emoji rhetoric requires attention to numerous overlapping but distinct elements, including rendering operations, devices, operating systems, cultural contexts, and individual rhetorical practices. Furthermore, Unicode, who ultimately standardizes which emoji are offered up to major technology vendors for addition, has to negotiate public criticism of current emoji as well as user demands for new emoji that range from the political (the hijab emoji) to the whimsical (fantasy beings emoji). In my view, rendered ecologies as a conceptual framework best captures this complex of technological, material, affective, and embodied factors that serve as a condition of possibility for individual users' subsequent efforts to use emoji rhetorically for a wide variety of purposes. Rendering isn't merely a technical process, but an ecological assemblage. To understand the emoji moment, when a user Tweets a raised fist emoji alongside with the #metoo hashtag means understanding rendering through an "ecological" process that is technology and rhetorical (and thus political as well) (and, of course, many previous rhetorical scholars like Kelly Pender or Byron Hawk have observed that *techne* (art) shares an etymological root with technology—*techne-logos*).

Thus, my first step toward defining rendered ecologies lies in articulating how ecological frameworks for writing and digital rhetoric can help to capture the dimensions

of emoji rhetoric that this dissertation will explore. Many writing studies scholars have employed ecological frameworks to pay specific attention to how various aspects of writing circulate across time, space, place, affect, and materiality (Cooper, 1986; Nardi & O'Day, 1999; Syverson, 1999; Brooke, 2009; Edbauer, 2005; Seas, 2011). "Ecology," writes Brooke (2009) "has become a crucial framework in recent years, particularly for scholars who examine media that, paradoxically, grow increasingly interconnected and global, on the one hand, and ever more diverse and intricate, on the other hand" (p. 28). It is not difficult to draw parallels between emoji and the type of media that Brooke describes, nor is it difficult to see the utility of an ecological framework for such media.

Another particularly suitable discussion of ecological systems can be found in Marilyn Cooper's (1986) oft-cited article, "The Ecology of Writing." Cooper (1986) writes:

> An important characteristic of ecological systems is that they are dynamic; though their structures and contents can be specified at a given moment, in real time they are constantly changing, limited only by parameters that are themselves subject to change over longer spans of time. (p. 368)

The dynamism that Cooper discusses applies to emoji in several ways. The official set of Unicode emoji is updated with increasing regularity, but major vendors' support of emoji characters and designs for emoji characters can vary more frequently. In other words, a vendor (1) is not *obligated* to design a glyph for a character it doesn't want to support on its operating system, and (2) it can change the designs of its glyphs at any time. We can see an example of the latter in the Android 4.4 hairy heart that I discussed in chapter 1;

the former can be more difficult to detect. In 2017, for instance, Unicode decided to add more sports-related emoji—especially emoji for winter sports in anticipation of the 2018 Winter Olympic Games in PyeongChang. A "rifle" emoji (for the winter biathlon even) was part of the approved set, and it was even assigned a code point before Apple, a full member of Unicode, "told the consortium it would not support a rifle on its platforms and asked for it not to be made into an emoji" (Warzel, 2016a, para. 4). It's impossible to know whether Apple's announcement was viewed as a contentious boycott or if the company was merely voicing a concern shared by other members; what is clear is that, to date, there is no rifle emoji.

The case of the rifle emoji also gestures to larger questions about the role of Unicode within an ecological framework. Through its encoding and supporting of emoji, Unicode has taken on a larger, perhaps less obvious, cultural gatekeeping role. In *The Emoji Code*, Vyvyan Evans (2017) scrutinizes Unicode's decision to do away with the rifle emoji after it was already assigned a code point. Evans opines that while it is perfectly reasonable for "appropriate authorities" to address gun violence as they see fit, "it is less clear how this provides international tech companies with the moral authority to restrict which sort of emojis can be encoded by Unicode as a consequence" (p. 66). Furthermore, Evans (2017) asks, "[I]s freedom of expression subject to constraint because some social media users may misuse proprietary emojis to threaten and intimidate?" (p. 66-67). As users' requests for more diverse emoji continue to rise, Unicode is in a unique position to determine the available means of emoji communication for a global user base. Thus, a framework for emoji rhetoric would be severely lacking if

it failed to accommodate not only what's on and beneath the screen, but the institutional forces that predetermine what *can* be part of everyday screen culture.

Socially, the connotative associations and innuendos a single emoji evokes can change in a day. Take, for instance, the case of the "key" emoji. In December of 2015, the traffic on Emojipedia's "key emoji" page increased by 800% from November of the same year (Seward, 2016). The overnight popularity of the key emoji can be attributed to DJ Khaled, who used the emoji to share his "keys to success" with followers on Snapchat, Twitter, Instagram, and Facebook (Seward, 2016). "It's easy to see how Khaled's major 🔑's—catchy, over the top, and hard to quibble with—became a meme in their own right, replicating across social media in a variety of forms," writes Seward (2016). The "variety of forms" Seward mentions ties back to my earlier discussion of emoji display(s) and how the same emoji can change in appearance across platforms.

Emoji encoding facilitates circulation, but different vendors (e.g. Apple, Twitter, Samsung, etc.) have artistic license when it comes to how they render. That said, each device's operating system can complicate matters further; for instance, if I use the Twitter app on my iPhone, I see Apple's emoji design, not Twitter's. An ecological model accounts for these types of "amalgamations and transformations" (Edbauer, 2005, p. 20) in ways that rhetorical situation models do not. Equally important, ecological frameworks offer a means of "explain[ing] nonlinear phenomena without assuming intentionality" (Seas, 2011, p. 52). This is especially important for emoji because when vendors update their emoji designs, the effect is retroactive. An example of this can be found in Table 1 (chapter 3, p. 70), which illustrates how a few vendors have modified their designs of the

"unicorn face" emoji over time. If I posted a tweet with a "unicorn face" emoji in 2016, the unicorn in question, at the time, would have appeared purple with blue hair when viewed on Twitter; however, with the recent update to Twemoji, the same "unicorn face" emoji in the same tweet now appears as a white unicorn with purple hair. Likewise, while Unicode stresses to vendors the importance of directional consistency across emoji designs, there are still emoji that do not face the same direction in each vendor's design. To illustrate, Figure 13 shows how the same emoji sequence appears using the designs of Apple, Facebook, and Twitter.

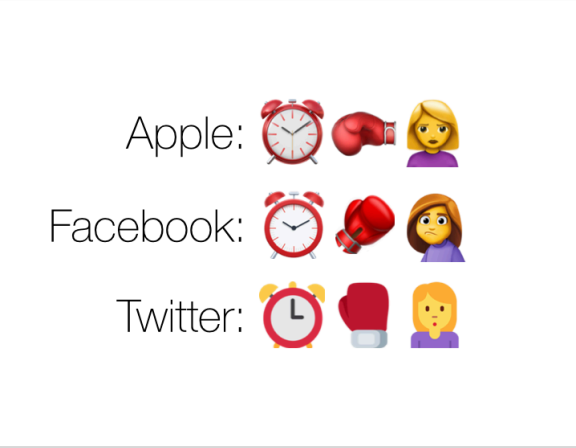


Figure 13 Example of emoji sequence variation among vendors

While the version with Apple designs might suggest that the sender wants to punch her alarm clock (especially given the woman's discernible scowl), Facebook's emoji show the "woman with pouting face" emoji receiving a punch rather than delivering one, and furthermore, the Facebook's woman emoji looks perplexed but decidedly less angry than Apple's. Finally, Twitter's "boxing glove" emoji is facing

directly upward, and while some might say the "woman with pouting face" looks shocked, her face is altogether less expressive than the first two designs. In fact, the third example seems more likely to imply an early morning boxing workout than to express any alarm clock-related tribulations. An ecological framework can account for this sort of variation. Why? Because ecological approaches are designed to situate a user's intentional agency as a digital rhetor within these complex and overlapping structures that the user may be fully aware or unaware of and, regardless, has no complete control over. A user cannot ultimately determine, for example, which devices his, her, or their audiences will use to read a given Instagram post with an emoji on, which can thereby—in albeit small and affective registers—influence how rhetorical content is received.

Rendered Ecologies

To build on ecological approaches, I propose the conceptual framework of "rendered ecologies," which I started to define in the Introduction. My addition of the adjective "rendered" is designed to highlight what I see as an important element within ecological scholarship that is sometimes overlooked, but that nevertheless plays an important role in emoji rhetoric: constraints that the user has little to no control over in rhetorical practice. Since a user must select and deliver emoji through the reliance upon the relative rendering processes of audiences' devices as well as Unicode's ability to constrain which emoji are even available as the means of persuasion, ecological notions have to account for this factor in a more comprehensive way. Here, I echo digital rhetoric scholars like Christopher Mays (2015) (via Sarah Ahmed's affect theory) who have called for ecology (and circulation) scholarship to pay attention to the factors—both

cultural and technological—which can limit or obstruct the ways in which digital rhetoric can flow. Thus, to highlight the role that constraint plays in rendered ecologies, I will offer an alternative reading of Lloyd Bitzer's (1968) notion of constraint from "The Rhetorical Situation." While critics of Bitzer's static model of the rhetorical situation are correct, his notion of constraint as an inartistic proof which rhetors cannot control has, I suggest, a great deal of descriptive relevance for rendered ecologies. In this section I offer a more specific explanation of why I call the framework rendered ecologies and a description of how I adapted Bitzer's work in addition to Brooke's as well as my rationale for doing so.

I use rendered ecologies to refer to the mixed-method conceptual framework that I developed to study emoji; however, it would be suitable for any type of variant glyph. I say, "mixed-methods" because it offers an interpretative schema that could be used to interpret qualitative or quantitative data as well as more traditional forms of rhetorical analyses and inquiry a similar sense to how Bitzer uses "the rhetorical situation" as a conceptual lens to help identify some salient parts of a wide variety of heterogenous rhetorical activities and subject matters. I use "rendered" to describe the ecological framework for several reasons, the first being the most obvious: that rendering is the computational process of making something display, such as an emoji. At the same time, render can also mean *perform* or *translate*; in this sense, a vendor's emoji design could be considered a performance of the character or a translation of the character into the vendor's aesthetic. Finally, render can also suggest *concealment*—a characteristic of the ecological framework that this dissertation seeks to highlight. On the one hand,

concealment gestures toward the general ignorance of how emoji circulate under the screen, so to speak, but also to the role of Unicode in emoji gatekeeping. On the other hand, concealment refers to the ambiguity inherent in emoji communication and, simultaneously, the concealment *of* that ambiguity.

In *Lingua Fracta*, Brooke (2009) reimagines the medieval trivium of grammar, logic, and rhetoric as ecologies of code, practice, and culture, respectively. Brooke's aim is to consider these ecologies in the context of attempting to stage what he calls a "transformative encounter" between new media and digital rhetoric—an encounter that avoids importing models of rhetoric and writing grounding in static print texts to interactive, linkable, and updatable new media texts. Brooke's framework locates rhetorical meaning in new media as a complex interplay among rhetors' directed actions (logic/practice), the cultural contexts at multiple scales that influence how rhetors create meaning (rhetoric/culture), and, of course, the actual technological infrastructures (grammar/code) that influence their available means of persuasion. In other words, a digital text cannot be studied in isolation from culture, practice, and code—rather, in digital landscapes the rhetor's *practice* is negotiating *code* and *culture*; as I demonstrate in this dissertation, emoji are no different.

While there are obvious parallels to my ecological framework and Brooke's, I adapted Brooke's ecologies to be far more specific than he intended them to be. By code, for example, he refers to anything used in practice and not just computer code; in contrast, I use ecologies of code quite literally. When I explain how emoji fit within ecologies of code, I am specifically looking at how emoji are encoded and how they are

interpreted, processed, and transmitted by computational systems as well as the ways in which constraints function to limit certain ecological flows or cultural differences.

According to Brooke (2009), "Practice implies conscious, directed activity, the explicit combination of elements from the ecology of code to produce a particular discursive effect" (p. 49). My use of ecologies of practice is very similar to Brooke's in essence though narrower in application. I use *practice* to refer specifically to the ways in which the rendered artifact is used. With emoji, for instance, I would categorize the use of emoji in personal messages and social media posts as practices, but I would also include the use of emoji in marketing campaigns and official reports; the use of emoji as passcodes and usernames; and the use of emoji to annotate documents, such as medical charts. However, while Brooke's definition of practice would also encompass a user's submission of an emoji proposal, I would leave this out of a rendered ecology because (1) it does not include the use of the specific emoji around which the rendered ecology emerges and (2) it works against the immediacy that I mean to evoke with rendered ecologies. One affordance of this framework is that it privileges immediate context. The Android 4.4 "yellow heart" emoji, for instance, renders a slightly different ecology than does the Apple iOS 12.2 "yellow heart" emoji even though, collectively, they are both part of "yellow heart" emoji practice. While differences between the two hearts fall into the cultural ecologies of the "yellow heart" emoji, I believe that ecologies of practice, conceptually, must allow for scalable discernment—that is, varying levels of discernment in relation to the scale of study—in order for this framework to accommodate texts that are inherently variant without negating what makes each instantiation unique/nuanced. In

this regard, my intent is for rendered ecologies, as a concept, to accommodate scale in a flexible way. One the one hand, researchers can examine practices involving the "yellow heart" emoji and include both the Android 4.4 and the iOS 12.2 versions (e.g. the yellow heart is often used to express friendship); however, it's also possible to look at a specific use of the "yellow heart" emoji and acknowledge that one vendor's design might be semantically charged in a way that slightly or dramatically deviates from Unicode's official character name (e.g. a "yellow heart" that is pink and appears hairy) or other vendors' designs for the same emoji (e.g. "yellow heart" designs that are yellow).

Of the trivium as I've employed it, the only ecology that does not deviate from Brooke's explanation is the ecology of culture, which, Brooke (2009) explains, "operates at the broadest range of scales, from interpersonal relationships and local discourse communities to regional, national, and even global cultures" (p. 49). For emoji, then, ecologies of culture could include everything from the emoji that have been re-appropriated en masse within certain cultures for specific purposes (e.g. the eggplant emoji); the emoji proposal system that the Unicode Consortium uses to determine which emoji it will encode and support; or the cultural commentary that addresses emoji at various scales.

To recap, I use rendered ecologies as a conceptual framework wherein ecologies of code refer specifically to code; ecologies of practice refer to the conscious, intentional use of emoji by rhetors; and ecologies of culture refer to the social discourse emoji invite, the institutional structures in place to govern emoji, and the various connotative and appropriative uses that emoji develop as they circulate across and among cultures.

In addition to drawing on Brooke's work, Lloyd Bitzer's (1968) notion of constraint features heavily in my framework for studying emoji. While the static elements of Bitzer's rhetorical situation have been challenged—indeed, Edbauer (2005) has argued that the situation is better thought of as an emerging and unfolding ecological "event"—Bitzer's critics have often overlooked the contemporary utility of Bitzer's distinction between *proper* constraints and *improper* constraints. Unlike proper constraints, which are created by the rhetor for a specific audience, *improper constraints* are concrete and unalterable constraints which a digital writer has to negotiate, *but cannot directly alter through his, her, or their rhetorical agency*. (Bitzer, 1968, pp. 7-9). The latter offers a powerful lens to account for multiple forms of constraint in emoji for digital writers and researchers alike, as well as the social forces such as Unicode's gatekeeping function. Thus, Bitzer's notion of improper constraint (which I will often simply refer to as constraint) helps us examine the ways in which emoji can precipitate miscommunications for users and prove elusive for researchers but also how emoji users' rhetorical affordances are largely predetermined by Unicode and its various systems for evaluating and selecting new emoji (i.e. procedural systems laden with additional constraints that I discuss in chapter 3).

To illustrate the considerable overlap of ecologies of code, practice, and culture; the constraints within those ecologies; and the ways in which an emoji's component parts map onto those ecologies, let us consider the emoji formerly known as the "dancer." The "dancer" emoji was assigned the hex code U+1F483 in 2010 as part of Unicode 6.0, and it would later be part of Emoji 1.0, which was released in 2015. While many mobile

devices today already include an emoji keyboard at the time of purchase, users once had to download an emoji keyboard app to use emoji on their phones, tablets, etc. Longtime iPhone users should recognize Apple's now-iconic design of the "dancer" emoji from iOS 8.3 in Figure 14.

Figure 14 Apple's "dancer" emoji design in iOS 8.3 ("Woman Dancing," 2019)

Because "dancer," is a fairly ambiguous short name, vendors took a variety of approaches to designing glyphs for the character (see Figure 15).

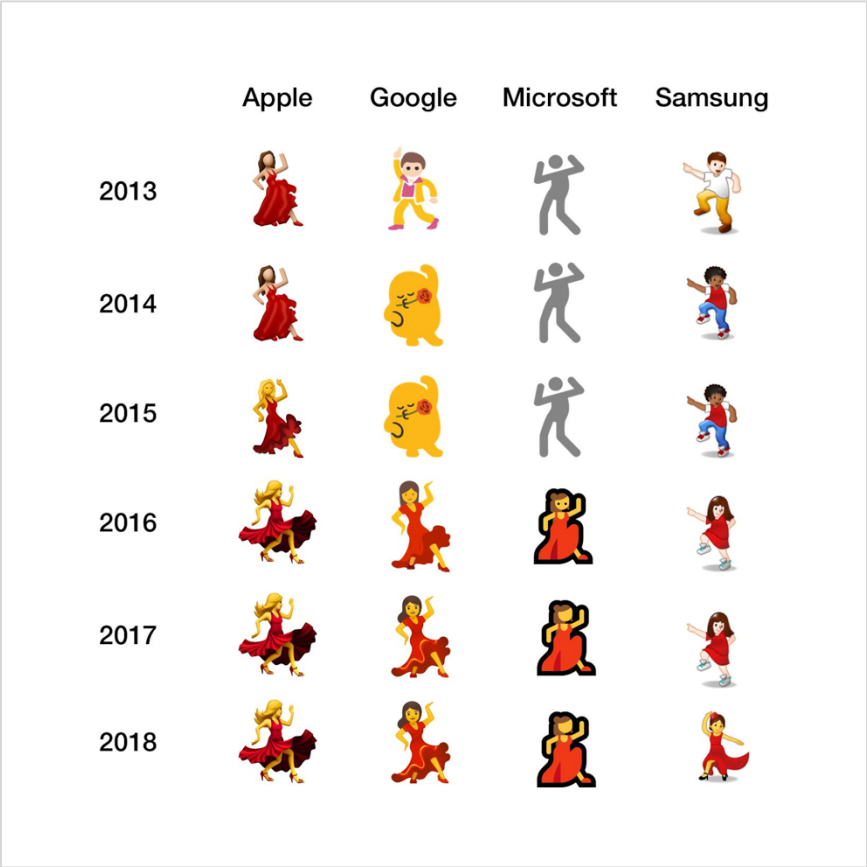


Figure 15 Evolution of the "dancer" emoji from *Medium* (Solano, 2018)

Over time, we gradually see more uniformity in vendors' designs. An ecological framework helps examine and explain why the designs gradually became more similar but also how design variations pose constraints for users.

The popularity of emoji grew rapidly in 2015 with the release of Emoji 1.0. For many users, this marked the turning point when emoji keyboards came pre-installed on their electronic devices. Those for whom downloading the app served as barrier now had an emoji keyboard at their fingertips as long as the operating systems of their devices were up-to-date. The fact that nearly every vendor started modeling its "dancer" emoji

design after Apple's designs shows how popular the iOS 8.3 was among users. In this sense, ecologies of practice (that is, how the "dancer" emoji was being used) had a significant effect on ecologies of culture (that is, how the "dancer" emoji was understood).

The emerging culture of the "dancer" emoji did not go unnoticed by Unicode. In 2015, Mark Davis and Jeremy Burge composed a list of proposed emoji changes for Unicode to consider. In the document, Burge, the Editor-in-Chief of *Emojipedia*, recommended changes to the "dancer" emoji and explained the exigence for the changes as follows:

> Apple's dancing woman image has become very iconic, and seems to imply a different meaning to the disco-dancing man. A gender-neutral image like Android or Windows might be a noble goal, but it removes some aspect of how this is used. Generally as "let's party" or "let's forget our worries and have a good time". [sic] (Unicode Consortium, 2015a, p. 1)

In reply to Burge's suggestions, Davis commented, "I agree that it takes a lot of the flavor out of this to make it gender neutral. Perhaps add another dancer so that we can have both genders?" (Unicode Consortium, 2015a, p. 1). Ultimately, Davis's suggestion of two dancing emoji came to pass. Today, we have "woman dancing," which kept the original hex code for "dancer," and "man dancing," which was assigned the hex code U+1F57A (Figure 16).

359	U+1F483											—		woman dancing
360	U+1F57A									—	—	—	—	man dancing

Figure 16 Variations of "woman dancing" and "man dancing" emoji (Unicode Consortium, 2019k)

Apple released its “man dancing” and re-designed “woman dancing” glyphs as part of iOS 10.2 in December 2016. Just as the inconsistency of vendors’ “dancer” emoji designs proved incompatible with the emoji’s most prominent connotations, Apple’s redesigned “woman dancing” was met with frustration by users who felt that the design failed to reflect or support what the emoji was used to express. In fact, some users actually started petitioning Apple to change the “woman dancing” back to its former design. Tyler Murphy created the petition on Change.org in 2017, and he explained in detail why the new design failed to convey the same meaning as the former design:

> The original was tall with her eyes looking down, letting everyone else know that she was better than anyone else in the room. Now she just stares blankly into the distance. Our OG [original/original gangster] girl, with her hands held high and her one leg stepping out of the dress portrayed a strong, powerful woman who ain’t takin’ no shit from no man. Now she’s just following the rules. (Murphy, 2017, para. 1)

In an article for *BuzzFeed News*, Charlie Warzel (2016b) commented that he thought Apple’s new “woman dancing” emoji was “flashing what feels like maybe a weird amount of leg for an emoji” (para. 2). Users expect designs for a particular emoji—especially re-designs—to continuously support and facilitate the various connotative and

appropriative meanings the emoji has developed and cultivated through ecologies of practice and culture.

In fact, Murphy's and Warzel's frustrations serve as good illustrations of one type of constraint that affects emoji users; sometimes a vendor re-designs (or designs) a glyph in a way that fails to support established practices and cultural understandings of the particular emoji. Conversely, user expectations can also pose constraints for vendors' designers. In the case of the "dancer" emoji, some vendors, such as Google, Microsoft, and Samsung, had to re-design their glyphs for the "dancer" emoji because users preferred and expected the emoji to look like Apple's design. At the same time, there's an obvious constraint for rhetors if a message is composed and sent with an emoji resembling a Flamenco dancer but received and interpreted with an emoji that looks like a *Saturday Night Fever* poster. In other words, it's not difficult to see how constraints can emerge amid and across each ecology.

I chose the "dancer" emoji as an example because it clearly illustrates the recursive nature of a single emoji's development, but it also highlights how the rendered ecologies framework allows for overlap and the ways in which the ecologies inform one another. Unicode encoded the "dancer" emoji and continues to support the hex code U+1F483. Vendors can design glyphs for the code point because it's part of the Unicode Standard. Unicode's continued support of U+1F483 facilitates its circulation across platforms, thereby facilitating the practice(s) of the "dancer" emoji. The practices collectively cultivate the culture of the "dancer" emoji, and the culture of the emoji, in turn, influences Unicode's decisions regarding emoji, which can affect (or effect) code

points, which in turn affect vendors' emoji design decisions, which in turn affects users' practice(s), and cycle goes on and on. Rendered ecologies can accommodate the interplay amid ecologies of code, practice, and culture, but it's also scalable and can privilege certain ecologies when necessary. For example, in chapter 4 I discuss my four-month study of how U. S. Senators used emoji on Twitter. In counting the emoji in the tweets, I primarily focused on practice. I began by examining which emoji were used and how many times they were used. However, I used my analysis of Senators' practices to inform my cultural analysis. Additionally, I focused on ecologies of code when discussing the constraints that I faced as a researcher. Within the rendered ecologies framework, the separate ecologies of code, practice, and culture are never wholly distinguishable from one another, but each ecology can serve as a primary inroad for inquiry.

Conclusion

In this chapter, I've outlined the conceptual framework (rendered ecologies) I use to study emoji and explained how I developed it using Brooke's (2009) new media ecologies and Bitzer's (1968) notion of constraint. Throughout this dissertation, I will continue to flesh out this framework by focusing heavily (though not solely) on a specific ecology in each of the next three chapters.

CHAPTER THREE: FROM TECHNICAL STANDARDS TO CULTURAL STANDARDIZATION

As I've reiterated in the first two chapters, emoji are encoded characters. Machines and programs understand and interpret each emoji by its underlying, unifying code point. This is also why the appearance of an emoji often varies from one operating system to another; it is the code—not an image file—that is translated. While I've discussed code as it pertains to each emoji character's general make-up, in this chapter I discuss how my emoji research fits in with other scholarship on the rhetoric of code, how emoji as coded objects might be characterized rhetorically, how Unicode came to be and acts as the "governing body" of emoji, how emoji are understood by developers, and how emoji are accounted for in a legal sense.

AI enthusiast and innovator Terry Winograd (1984) argues, "In the popular mythology the computer is a mathematics machine; it is designed to do numerical calculations. Yet it is really a language machine; its fundamental power lies in its ability to manipulate linguistic tokens— symbols to which meaning has been assigned" (131). There is something within computational processing, therefore, that requires us to study ecologies of culture, code, and practice in terms of the semiotics (or representations) that occur during processing. However, with emoji, we also have to examine the end-product, or what renders.

As a result, part of understanding emoji's unique rhetorical character lies in examining the ecology of code. In this chapter, I want to extend previous work on the rhetoric of code (Bogost, 2007; Carnegie, 2009; Brock, 2019; Brown Jr., 2015; Vee and Brown Jr., 2015 (eds.), Beck, 2016), code literacy (Vee, 2013, 2017), and software studies (Galloway, 2004; Manovich, 2001; Kitchin & Dodge, 2011; Chun, 2011) by a specific study of Unicode as a programming language in relationship to emoji. Unicode is a kind of middle ground in between a formal programming language (Java, etc.) and actual alphabetic language itself. No programmer or coder is going to start building an app or web browser with Unicode as a primary language.

Unicode is instead the formalized and universal standard for assigning unique numbers to renderable symbols (e.g. letters, characters, emoji, numbers, etc.) that allows computers to understand data without corruption or error. As Unicode's organizational rationale explains:

> Fundamentally, computers just deal with numbers. They store letters and other characters by assigning a number for each one. Before Unicode was invented, there were hundreds of different systems, called character encodings, for assigning these numbers. These early character encodings were limited and could not contain enough characters to cover all the world's languages. . . .
>
> Early character encodings also conflicted with one another. That is, two encodings could use the same number for two *different* characters, or use different numbers for the *same* character. Any given computer (especially servers) would need to support many different encodings. However, when data is passed through

> different computers or between different encodings, that data runs the risk of corruption. (Unicode Consortium, 2017a, "Characters Before Unicode," para. 1)

In my reading, these efforts to standardize codepoints for emoji (as well as other symbols) in order to solve one problem, present an opportunity to examine how a different set of problems emerged. Such areas of interest offer clear points of overlap with digital rhetoric's interests in how code, algorithms, or procedures work beneath the screen to shape rhetorical practices. It is part of studying what Brock (2019) (via Beck, 2016) has called "rhetorical code studies." Among other things, this approach means studying the social structures that influence how code lines are produced as well as, more broadly, how code—digital and non-digital—is fundamentally cultural, technical, human, and nonhuman, such as in Finn's (2017) discussion of algorithms (which, to be clear, do not have to be digital) as an "assemblage."

Following Bogost (2007) and the idea of procedural rhetoric, digital rhetoric scholars have studying how computational systems make arguments through a user's encounter with rule-based interactivity. In this regard, understanding how Unicode's various procedural arguments work is key due to the ways in which Unicode's presence in our daily uses of heterogenous digital devices is pervasive and un-noticed. Every single major commercial operating system, application software, and web browser on personal computers and mobile devices alike uses Unicode to render language and language-like visuals. But, at the same time, it's nowhere. There is no essence of emoji. The assignment of a hexadecimal code to an emoji requires a subsequent system or platform to render it (and, hence, why the Unicode Consortium is forced to use ecologies

of culture to try to require emoji designers to maintain some sort of fidelity to the original).

While Chun (2013), Holmes (2016), Brock (2019), and Brown Jr. (2015) talk about the rhetoric of "speculative techne," with code, my approach for Unicode--which never disappears and never "does what it says it does" (because it's not asked to execute anything in particular) is actually the <meta> tag of "grammar" (code) in Brooke's sense. Unicode hex codes are unique and invariable. They have the capability to account for anything–any encoded graphic in any language (indeed, Egyptian hieroglyphic emoji may be in the near future). The meta tag in HTML, as theorized by Cynthia Haynes (2010), is more like Galloway and Thacker's work on "control" and "protocol," which is deceptive since each vendor is granted artistic license to design the set of emoji glyphs that will render on its platforms and devices. According to Haynes (2010), the <meta> tag "attempts to transcend the neutrality of data and installs metadata as the ultimate 'quality control'" (p. 232). In the case of emoji, vendors have the opportunity to impress ideologically-laden/bent designs onto/upon "neutral" code points. Furthermore, Haynes argues that "it is not unimaginable to consider Galloway and Thacker's exploit[1] as a postprotological *deus ex machina*" (p. 233). Rather than a happy ending, the hexcode-as-exploit allows vendors to supply what they deem an appropriate or conscientious expression of the emoji character.

[1] According to Galloway and Thacker, because networks "operate under the brutal limitations of abstract logic (if/then, true or false)," hackers identify exploits by "discovering holes in existent technologies and projecting potential change through these holes" (as cited in Haynes, 2010, p. 232).

As one reader, Alexander Monea, pointed out in an earlier draft of my dissertation, Unicode may share more points in common with a database than an executable programming language like R or Python. In my conclusion (chapter 6), I will say more about poststructuralist challenges to the idea of a "concept," in order to gesture toward my own understanding of rendered ecologies as a conceptual framework as opposed to a method. I mention this because challenges to concepts as universal definitions for static and knowable classes of objects or things is analogous to what Unicode does to hexadecimal codepoints for emoji. It is ontological in the sense that it establishes a hierarchy of what has or does not have presence within how most computational systems are able to render common communication symbols.

As with any encoded character, an emoji character's appearance varies depending on platform, device, browser, etc. Throughout the 12.0 Standard, Unicode (2019a) reiterates that "consistency with the representative glyph does not require that the images be identical or even graphically similar; rather, it means that both images are generally recognized to be representations of the same character" (p. 87). This is why some users mistook the "pile of poo" emoji for chocolate soft serve ice cream and why, at one point, the "yellow heart" emoji appeared to be pink and hairy for Android users. While Unicode has taken measures to promote consistency among the glyphs associated with a specific code point, platforms do maintain some artistic license and emoji still get lost in translation—or rather—lost in transcription. Emoji characters are what Kitchin & Dodge (2011) refer to as coded objects, which is to say that they are "reliant on software to perform as designed" (p. 5).

On the one hand, I want to examine how the ecologies of culture and code align with Unicode's mission to be a global lingua franca in its boast "When the world wants to talk, it speaks Unicode." Yet, to paraphrase Wendy Chun (2011), code is tricky and devious, and it "does not always or automatically do what it says" (p. 24). With emoji, this computational "deviousness," or speculative techné, is afoot preceding and following the encoding of each emoji character. Furthermore, this "deviousness" reinforces the necessity of an ecological analytical framework. In *Programmed Visions*, Chun (2011) "emphasizes code as a set of relations, rather than as an enclosed object, [and] highlights both the ambiguity and the specificity of code" (p. 54). An ecological model both situates and disrupts the various "set[s] of relations" that comprise emoji rhetoric. Additionally, it facilitates the "un-blackboxing" of the code itself, thereby revealing the type(s) of procedural rhetoric built into the very DNA of Unicode and calling into question who and what speaks when Unicode is speaking.

I'll make this specific. I'm going to look in detail about an issue I raised in Chapter two: namely, *what are emoji?* but also *of what are emoji?* Here, I'm not seeking to go into metaphysical or philosophical realms, but rather technical detail: how emoji *are* coded, how emoji *affect* and are *affected by* algorithmic and computational processes, and how emoji are *understood* as coded objects. I begin with a brief overview of Unicode and character encoding and subsequently argue that Unicode's hexadecimal codepoints might be understood as *topos*. While digital rhetoric scholars (following Gregory Ulmer's lead) have focused on *chora* and rhetorical invention through technology as an emergent flux of Becoming to move beyond static models of communication, the stability of *topos*

(topics, places) as heuristic methods for generating arguments, I suggest, lends a great deal of explanatory insight to how Unicode establishes invariable hierarchies of inclusion and exclusion.

Next, I explain how search and trend algorithms affect emoji prior to their encoding; how those algorithms privilege, exclude, and shape various publics; and how the speculative bias of such algorithms might yield a not-quite-all-encompassing/comprehensive "universal" set of emoji characters. Finally, I turn to online web development forums, such as GitHub and StackOverflow, to analyze discussions among programmers regarding emoji display. The debates in such forums can help rhetoricians understand how programmers "define" emoji based on their arguments over which CSS properties should (and should not) manipulate emoji and which emoji behaviors they should (and should not) be able to control through CSS properties. Such discourse serves to illustrate another important function of constraint: where code itself doesn't flow. Thus, I offer my analysis in this chapter as a way to extend early conversations about the rhetoric of code to also account for the unique rhetorical function of rendering.

Unicode

Despite the fact that any emoji user who has Googled, "What is an emoji?" has likely come across the word "Unicode" before, few might actually know much about the programming language itself beyond the mere association of Unicode with controlling which emoji are adopted. In this section, I want to provide a bit of history on Unicode, or

a genealogy in Foucault's sense,[2] that offers a recounting with an eye toward seeing how different forms of power and privilege that subjectify bodies and subjectivities in certain ways are blackboxed over time.

Incorporated in January of 1991, the Unicode Consortium is the brainchild of engineers from Xerox and Apple (Unicode Consortium, 2015c). It was founded "to develop, extend and promote the use of the Unicode Standard, which specifies the representation of text in modern software products and standards" (Unicode Consortium, 2017a). Unicode reiterates the need for universal encoding in the preface to the 12.0 Standard: "Without the properties and algorithms in the Unicode Standard and its associated specifications, interoperability between different implementations would be impossible, and much of the vast breadth of the world's languages would lie outside the reach of modern software" (Unicode Consortium. 2019a, p. xxi). With the development of their Standard, Unicode is unifying the conflicting encoding systems that caused translatability issues. In other words, "Unicode has completely transformed the foundation of software and communications" (Unicode Consortium, 2017a). As to why the scholarly community would do well to devote more attention to Unicode, here is how Joel Lee, the Former Director of the Non-Roman Script Initiative of SIL International, describes the Consortium's work:

> Unicode is a global standard whose ambitious goal is to uniquely encode every character of every language in the world. It is needed for all forms of print and

[2] A well-known approach in critical theory and media studies approach (Parikka, 2012; Packer, 2007; Monea & Packer, 2016) as well as in rhetoric scholarship (Chaput, 2010; Muckelbauer, 2010).

> digital communication as the world moves increasingly toward becoming a global, information-driven society. (Unicode Consortium, 2017b)

In no small irony given the occasional hostility towards emoji and the historic privileging of text over visuals, Unicode is what produces text in the world's various digital writing systems. As of March 2019, Unicode 12.0 covers 150 scripts of past and present languages and 137,929 graphic characters (Unicode Consortium, 2019a, p. xxi), and Unicode is typically quite progressive in many regards. For example, the Unicode 10.0 release included "Nüshu, used by women in China to write poetry and other discourses until the late twentieth century" and the Bitcoin sign in response to pervasive use (Unicode, 2017). Likewise, Unicode 12.0 (Unicode Consortium, 2019a) includes "several new emoji for accessibility" (p. xxii).

Brock & Shepherd (2016) talk about how procedural enthymemes encourage users to infer logics of algorithmic systems and Carnegie (2009) has talked about the power of interfaces to encourage users into inhabiting certain subject positions. Unicode is no different. Consider the world before Unicode. All computers operate through numbers, so each letter, symbol, punctuation mark, etc. is understood as an integer within a character set. In Unicode, for example, the Latin capital letter "A" is represented by U+0041 and it is distinct from visually similar letters such as À (U+00C0), Ã (U+00C3), and Ä (U+00C4). Prior to Unicode, there were countless character encoding systems, so the same character was assigned a different number within each system. Furthermore, computers couldn't always identify or access the correct character set to interpret the integer accurately. As a result, it truly was a Tower of Babel situation. Even in fairly

flexible languages like English, which can adopt words from other languages pretty easily ("taco"), there is still not an adequate method in English to account for the many letters, diacritics, punctuation marks, and technical symbols that comprise various writing systems around the world. The differences among different writing systems, which Unicode refers to as scripts, also meant that two computers would have difficulty communicating or sharing information because they might use different numbers for the same character.

As an example, my research turned up a column about why web developers—and any programmers—needed Unicode written by a professional software developed named Joel Spolsky. He noted his participation on building the website infrastructure for a project management software company, FogBUGZ. A beta tester asked whether the new FogBUGZ system could handle incoming email written in Japanese. Spolsky (2003) writes:

> When I looked closely at the commercial ActiveX control we were using to parse MIME email messages, we discovered it was doing exactly the wrong thing with character sets, so we actually had to write heroic code to undo the wrong conversion it had done and redo it correctly. When I looked into another commercial library, it, too, had a completely broken character code implementation. I corresponded with the developer of that package and he sort of thought they "couldn't do anything about it." Like many programmers, he just wished it would all blow over somehow.

The technical details here are not as important as the fact that without Unicode, Spolsky, and, by extension, FogBUGZ's web architecture, could not effectively open and render email documents that were not written in English. In trying to remedy this problem, Spolsky (2003) ran into more issues:

> When I discovered that the popular web development tool PHP has almost complete ignorance of character encoding issues, blithely using 8 bits for characters, making it darn near impossible to develop good international web applications, I thought, enough is enough.

Here, I'm going to paraphrase his loose description of the world before Unicode and why it helps to explain why Unicode was a useful step. In the early days of the personal computer, American programmers employed ASCII to represent unaccented English letters (a, b, c, etc.) ASCII employed numbers between 32 and 127 to represent all of the major alphabetic symbols necessary for communication (e.g. space was 32, the letter 'A' was 65) (Spolsky, 2003). ASCII could be stored in seven bits, which was convenient because almost all early computers were limited to 8-bits. What did programmers do with this extra storage space? Codes below 32 were "control characters," such as "7 which made your computer beep and 12 which caused the current page of paper to go flying out of the printer and a new one to be fed in" (Spolsky, 2003). This system was fine, Spolsky argues, if you were only interested in communicating in English. Codes 128-255 were empty and so programmers around the English-speaking development world were free to assign any content they wished to this higher ASCII number set. As an example, the IBM-PC developed the OEM character set which

produced the accented alphabetic scripts for European languages. Once PCs were purchased and developed outside of the United States and Europe, different linguistic needs similarly filled out the 128-255 range as per their own idiosyncratic needs.

In practice, asking computers to do tasks that we now take for granted—such as a college student being able to type a research paper for English 101 by creating a .docx file on a Windows Surface and then having the same .docx file open up with all of the college student's intended letters displayed accurately—was impossible with the former lack of standardization. As an example, Spolsky (2003) notes that certain PCs would have the character code 130 "display as é, but on computers sold in Israel it was the Hebrew letter Gimel (ג)." One can imagine a series of confusing communications between Israel's diplomats and Western nation-states; Derrida's "différance" would read "diffגrance."

Enter Unicode: "arguably the most widely adopted software standard in the world, reaching into any program, application or system that displays text" (Unicode Consortium, 2017b). Just as with emoji, Unicode works to ensure that all text is cross-platform compatible by "provid[ing] a unique number for every character, no matter what platform, device, application or language" (Unicode Consortium, 2017a). It is used across mobile devices, software, web browsers, search engines, and any major operating system. As I explained chapter 1 and earlier in this chapter, Unicode's aim is to provide and support codepoints that are reliably interpreted across platforms. Regardless of whether you downloaded this document to your computer or you're reading it in a browser, the letters I type, each associated with a code point, will display as I've entered them. The

typeface might change, and the page layout could shift, but the correct letters and punctuation marks will appear in the correct order. Yet, it is code.

From Chora to Topos

While emoji fit in well with a growing body of rhetorical scholarship that attends to software and code, characterizing their rhetorical nature in a classical sense is a more elusive endeavor. Just as Brock & Shepherd (2016) used an enthymematic lens to study procedural arguments in algorithms, I have in mind a conceptual paradigm that helps to elucidate the encoded nature of emoji: Aristotle's *topos*. George Kennedy (2007) explains that "*topos* literally means 'place,' metaphorically that location or space in an art […] where a speaker can look for 'available means of persuasion' (44), and he notes that Aristotle did not define *topos* in *Topics* or *Rhetoric*, "a sign that he [Aristotle] assumed the word would be easily understood" (p. 45). While Aristotle may have erred in that assumption(footnote), his discussion of topos in other works, notably the *Physics*, offers more insight into his understanding of the term.

For context, digital rhetoric scholars (see, for example, Ulmer, 2003; Rickert, 2013; Hawk, 2007; Arroyo, 2013; Holmes, 2017; Rice, 2007; Davis, 2019) have been drawn to *chora* as discussed in Plato's *Timaeus* dialogue. Seemingly anticipating many posthuman approaches to rhetorical invention, *chora* is this space before conscious thought and action—a before space of potentiality that is material, embodied, and affective. The general move has been to argue that *topos* operates from a static and knowable definition of rhetorical invention while *chora* is more preferable since it

captures rhetoric not as a situation but as an active and unfolding *event* (Edbauer-Rice, 2005).

Yet, *topos* – much like my efforts to carve out a new role for Bitzer's constraint – retains a great deal of descriptive potential when it comes to Unicode. To realize this claim, however, I need to establish a working definition of *topos* in greater detail. In "The Aristotelian Topos: Hunting for Novelty," Carolyn Miller (2016) highlights the parallels between Aristotle's description of particular and common *topics* in the *Rhetoric* and exclusive and common *places* in the *Physics*—noting that he even uses the same words, *idios* and *koinos* in each (104). Miller then goes on to consider the "implications for rhetorical theory of Aristotle's treatment in the *Physics* of form and substance and of the topos as container-like" (104).

To back-up a little, in the *Physics*, Aristotle rejected the Platonic notion that "place is coextensive with the object occupying the place" (Miller, 2016, p. 103). "Place," explains Miller (2016), "cannot be matter (*hylē*) (Phys. 209a21), but it is not independent of matter"; it "contains, but is not, shape or form (*eidos*) (Phys. 209a22) because it is separable from that which is in the place" (p. 103). Furthermore, Aristotle compared place (*topos*) "with a vessel or container (*aggeion*)" (Miller, 2016, pp. 103-104). The rhetorical understanding of topoi, however, has largely abandoned the spatial metaphor. Miller (2016) draws on Marc Cogan's explanation of why that is, writing, "Using Cicero's Latin term *sedes*, which originally carried a 'spatial or architectural sense of "residence,"' medieval discussions of topical invention […] treated the *sedes* as complete propositions, rather than as 'empty "residences"'" (p. 105). Aristotle's original

metaphor, however, works quite well with emoji, for which the *hylē* (matter) is the unit code, and the *eidos* (form) is the rendered glyph, or allograph. While my aim here is not to apply a literal reading of Aristotle to emoji, I do think the thought experiment/metaphor of code as topos is a useful one not just for emoji, but for any encoded variant glyph as it accounts for the duality of sameness and difference; it reflects that emoji are unified, yet distinct. Likewise, as a speculative techné, emoji as *topos* embodies Chun's (2011) assertion that "[c]ode points to, it indicates, something both specific and nebulous, both defined and undefinable" (p. 54).

As I've demonstrated in previous chapters, the same code point can be represented by a number of different designs. Over time, vendors' designs tend to grow more similar, but for most emoji, there are multiple appropriate interpretations. For example, the bell emoji, which was added to Unicode in 2010, displays almost identically on each platform (see Figure 17).

Figure 17 Similar variations the bell emoji (Unicode Consortium, 2019k)

For newer emoji, vendors' designs tend to become more uniform over time. Table 1 shows how three major vendors, Apple, Google, and Twitter changed the designs of their "unicorn face" emoji (U+1F984) over the course of three years.

Table 1 Evolution of the "unicorn face" emoji (images from Unicorn face, 2019)

	Original Design	Current Design
Apple	 iOS 9.1 (October 2015)	 iOS 12.1 (October 2018)
Google	 Android 6.0.1 (December 2015)	 Android 9.0 (August 2018)
Twitter	 Twemoji 2.0 (December 2015)	 Twemoji 11.3 (January 2019)

Over time, each vendor modified its unicorn design to feature a white or grey body, a spiraled horn, and a mane with hues of pink, purple, and blue. While the unicorn design variations were fairly harmless—that is to say, no one called into question whether the unicorn was depicted accurately—other unit codes offered more room for interpretation. The unicorn emoji CLDR name is “unicorn face,” so each variation includes the creature’s face. Other animal CLDR names are less specific, such as the “bird” emoji. As Figure 18 illustrates, some vendors chose to design a whole bird in flight while others opted for a stationary bird or bird head; likewise, some designs

resemble specific types of birds, such as a blue bird (Facebook), a cardinal (Microsoft and Twitter), or a parakeet (Google).

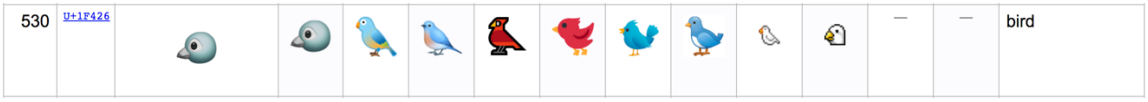


Figure 18 Variations of the "bird" emoji (Unicode Consortium, 2019k)

For some animals, vendors opted to characterize the emoji very differently. When Apple redesigned its “wolf face” emoji with the release of iOS 10.2, Warzel (2016b) jokingly suggested that the former “poor ambiguous canine” had undergone “some kind of demonic puberty” to become the current “formidable grey wolf” (see Figure 19).

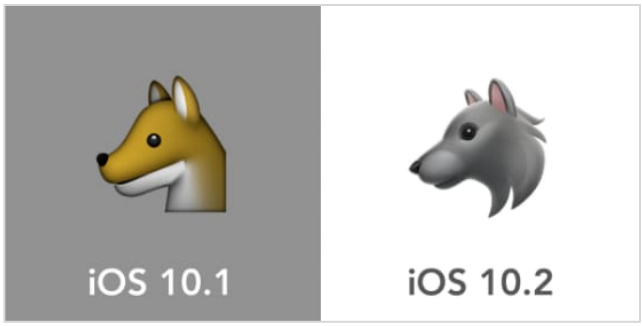


Figure 19 Apple's re-design of its "wolf face" emoji glyph (Warzel, 2016b)

Other vendors’ wolf designs at the time included Samsung’s happy woodland creature that looked like it fell out of a Pixar film and Facebook Messenger’s sinister, red-eyed beast that looked part Grimm villain, part lycanthrope (Figure 20).

Figure 20 Samsung and Facebook Messenger "wolf face" designs (images from Wolf Face, 2019)

Vendor designs can also vary according to the scope of what's represented—such as the "tennis" emoji which is sometimes just a tennis ball and sometimes a ball and racquet—or the specificity of what's represented, such as the "stadium" emoji, for which some vendors included a goal net or field goal post to denote a specific type of stadium while others were deliberately ambiguous. Regardless, each interpretative design of each vendor is "correct"; despite the aesthetic variations of an emoji's surface form(s), it is the same emoji with the same unifying code point. "The topos," writes Miller (2016), "is like a cauldron in which form and substance are brought together, where *hylē* and *eidos* interact to create material shaped for argument and persuasion" (p. 105). As I might summarize Miller's claim, emoji embody a paradoxical topos that offers a consistent-but-indefinite, accurate-but-approximate means of visual communication. In the case of emoji (and many other encoded characters), Unicode is responsible for "forging" these cauldrons. Yet, since any form of rhetoric works from a combination of *hylē* and *eidos*, I see Unicode as uniquely foregrounding these types of relationships in its enactment. It is similar to new media's logic of hyperlinking, which would not by design be able to predict in advance how a user would navigate a particular website let alone which order

of links on particular page he, she, or they would click on. Weblinks foregrounded the "always already" poststructuralist birth of the reader with print-based texts—a point Brooke (2009) has made in the past.

Miller (2016) notes that due to Aristotle's discussion of special versus common topics, "we can surmise that he did not appreciate the generative potential of the container metaphor so much as he did its managerial potential" (106). While this managerial potential is largely afforded to/claimed by Unicode, emoji agency is actually distributed far more broadly. Before an emoji is added to Unicode, for example, the emoji proposal system—which I discuss in chapter 5—requires that each proposal include Google Trends data as evidence of the general public's interest in the proposed emoji. After an emoji is accepted, each vendor is afforded the artistic license to decide how the emoji will appear on its platform. When an emoji is used, its appearance is determined by the operating systems and browser rendering engines through which it's processed. Thus, emoji are not only coded objects, they are the effect(s) of an algorithm's quantification of public interest, and they are affected by the various systems and processes through which they're transmitted. To clarify one potential source of confusion, this process for Unicode is largely denotative. It has to do with which emoji will and will not by standardized. By contrast, the connotative realm of user practices (local and global) is not something that Unicode can entirely control. In this chapter, I therefore hope to offer a linear approach to tracking and understanding the ways in which emoji are affected by code, are coded, and are understood as code.

The Constraints of Character Encoding

While I primarily focus on the constraints faced by users and researchers, Unicode faces its own set of constraints unique to ecologies of code. In addition to selecting which emoji get adopted, Unicode also has to figure out how best to encode the new emoji. The Editor in Chief of Emojipedia, Jeremy Burge (2018b), explains it like this:

> Each emoji takes up space on the emoji keyboard, uses memory on a device, and has the potential to bump other requests for representation such as diverse families, people with disabilities, gender inclusive options and more. (para. 20)

Essentially, the size of the emoji keyboard and the effort required to keep it compatible across operating systems pose some of the biggest constraints Unicode faces. Additionally, Unicode updates have to account for new emoji while still supporting old emoji in the same fashion; otherwise, an emoji someone used in a tweet six months ago could disappear or change into a different emoji than the author intended. To better illustrate the constraints of character encoding, let's consider the encoding of the much-anticipated redheaded emoji.

Unlike previous releases of diverse emoji which offered modifiers for hair and skin tone for each gendered default human emoji, the redhead emoji are separate, as are the new bald, curly-, and white-haired emoji (see Figure 21).

Figure 22 Redhead emoji on iOS 12.1 (Burge, 2018b)

Because the redhead emoji is a separate component and not a modifier, users don't have the option to use a redheaded (or white-, curly-, or bald-headed) version of many popular emoji. Soon after Apple released iOS 12.1, many redheaded emoji users took to Twitter to air their frustrations (see Figure 22).

Figure 21 Tweet with complaint about redhead emoji (Watters, 2018)

In a piece for *The Irish Post*, Jack Beresford (2018) explained that many redheads were "left feeling something close to discrimination because of the lack of options for ginger emoji compared with emoji boasting other hair colours." While it's easy to understand why some users are frustrated by the limitations of the new hair colors and styles, Unicode did not make those decisions lightly. Much like the issue of vendors' interpretive emoji designs, the four new style (curly and bald) and color (white and red) options posed a bit of a conundrum for Unicode. Each method of encoding the new emoji raised a different set of implications—some of which curiously weren't raised with previous emoji updates, such as the pairings of hair color and skin tones. With the release of diverse emoji in 2015, certain hair colors were automatically paired with certain skin tones, meaning that users with light brown hair and pale skin were simply out of luck.

With the recent release, however, Unicode didn't want to create more of those forced associations. Emojipedia created a few mockups to help explain the issue.

Figure 23 Emojipedia mockup without assigned skin tones (Burge, 2018b)

Figure 23 (above) shows what the keyboard might look like if Unicode decided to include each new hair option as a modifier without assigning a skin tone. The emoji characters would display with the default, "neutral" skin tone.

Figure 24 Emojipedia mockup of new hair options with assigned skin tones (Burge, 2018b)

Figure 24 (above) shows what the keyboard might look like if Unicode went ahead and assigned a skin tone to each new hair option as it has in the past. This model would force Unicode to choose a skin tone to represent everyone with curly, white, red, or no hair. When Unicode first announced the new emoji, most people probably had in mind something similar to Figure 25 (below), but even that option suggests that redheads can't have curly hair.

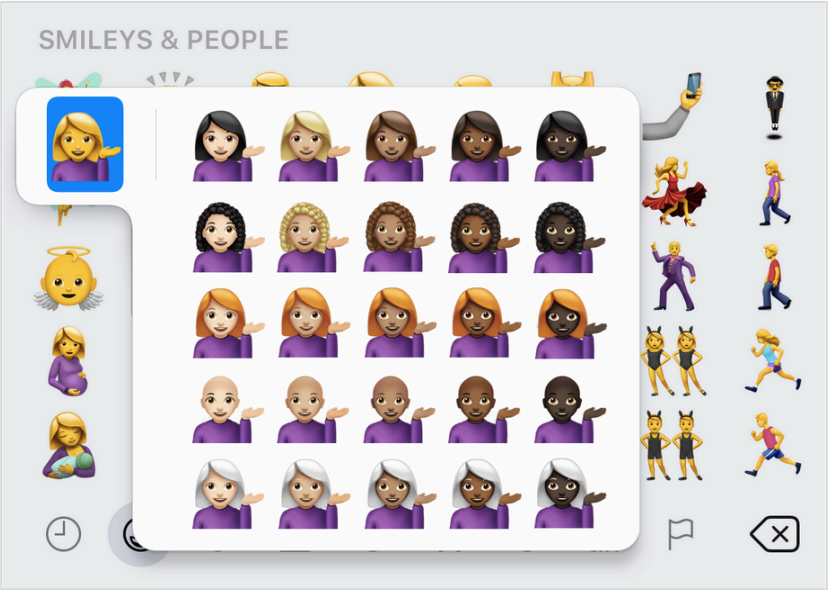


Figure 25 Emojipedia mockup of alternate menu display (Burge, 2018b)

As I'll discuss in chapter 5, there are clear implications for gender and racial theory here. To offer a brief example, visual studies scholars have noted that photo and film development in America suffers from a default universal color spectrum norm that centered around whiteness. Roth (2009) argues, "Film chemistry, photo lab procedures, video screen color balancing practices, and digital cameras in general were originally developed with a global assumption of 'Whiteness'" (see also Lewis, 2019). Until the 2000s, a stock photo of a white woman ("Shirley") was the norm reference card for photographic development to determine whether a given photo's "Skin-color balance" needed tweaking (see Figure 26).

Figure 26 Shirley Card, 1978 (Lewis, 2019)

As a result, non-Caucasian skin tones were figured as deficient that produced and maintained racial hierarchies in American culture through protocological choices that most users—including African-Americans—were unaware of. Here, Roth echoes decades of work on constructions of "whiteness" by critical race theorists (see Delgado & Stefancic, 2001; Fanon, 1967; Griffin, 1962; Hale, 1998; Hill, 1997; Roediger, 1998; Russell, Wilson, & Hall, 1992). I mention this as a brief point of comparison because the very visual forms of encoding that Unicode uses may similarly presuppose a certain white experience as a default (likely without even being conscious of it), which is precisely why these moments function as part the "technological unconscious" of race (Vaccari, 1981). In a tweet from 2016, even Nancherla acknowledges the impracticality associated with some emoji requests, posting "Why does the snowman emoji only come in straight white cis-male!!" These examples only scratch the surface, and I will be offering a more sustained analysis of image politics in Chapter 5.

The Algorithmic Ecologies of Emoji

In "Unframing Models of Public Distribution," Jenny Edbauer (2005) argues that an "ecological model allows us to more fully theorize rhetoric as a public(s) creation" (p. 9). In chapter 5, I explain that the emoji proposal system allows anyone to suggest a new emoji. While, on the surface, this may seem like the primary instrument of public agency, everyday users actually have far more influence, albeit unwittingly, through their search history. When a new emoji is proposed, the proposer must provide specific data to help Unicode "assess the expected usage level for the new emoji," though Unicode admits that there's "no perfect way to do this" ("Evidence of Frequency"). Each proposal must include screenshots of the search results for the proposed emoji and the results for one of the approved "reference" emoji (for comparison) from each of the following search methods: "Google Search, Bing Search, Youtube [sic] Search, Google Trends (Web Search), and Google Trends (Image Search)" (Unicode Consortium, 2019h, "Evidence of Frequency").[3] This data is then used as evidence of (or lack of) public interest in the object, place, creature, food, symbol, activity, etc. that the proposed emoji would represent.

In this regard, emoji are very much a "public(s) creation," but we should be wary of the temptation to equate "public" access, participation, or opportunity with egalitarian inclusion or transparency (McKelvey, 2015). Along those same lines, we should be less hasty to deem "legitimate" any and all data that's promoted as "a product of aggregate

[3] Explain the discrepancy in requirements re: Trends data on Unicode's Submitting Emoji Proposals page

user activity" (Gillespie, 2012, para. 16). In this section, I consider the efficacy of Unicode's method of assessing "expected usage," focusing specifically on the affordances and limitations of the algorithms used to collect, process, and present data.

Searching for Emoji

To be clear, my aim here is not to diminish the utility of Google or Bing or even to suggest a better alternative. Furthermore, I acknowledge that portions of my discussion in this section are somewhat speculative. While a large tech company, such as Google, might offer search tips or very general explanations of how one of its algorithms works, only the company actually knows the specifics of what data that algorithm accounts for and how it processes that data (Monea, 2016). My intent is to consider how search engines and trend algorithms quantify public interest and to draw attention to populations that may be excluded from data that influences Unicode's decision to adopt or reject an emoji.

There is a substantial body of scholarship that pushes us to question how a public or those who comprise it might be constrained, defined, or otherwise affected by the algorithms, platforms, and software through which public discourse is facilitated, mediated, or prohibited (Galloway, 2004; Bogost, 2007; Kitchin & Dodge, 2011; Gillespie, 2014; Brown, Jr., 2015; Pasquale, 2015; Brock & Shepherd, 2016; Noble, 2018). Outside of rhetoric, scholars like Cheney-Lippold (2017) note the great power of institutions to use personal data to authorize a range of police and state interventions. The quote that begins Chapter 1 of *We Are Data,* "We kill people based on metadata" is taken from the title of David Cole's (2014) article on the National Security Agency's

preference to use metadata over content to speed up threat detection in phone surveillance. So-called "data about data," metadata provides data about the context (location, date, time, transmission destination, type of device, etc.) for a given communication activity.[4] Cole (2014) writes,

> [M]etadata alone can provide an extremely detailed picture of a person's most intimate associations and interests, and it's actually much easier as a technological matter to search huge amounts of metadata than to listen to millions of phone calls. As NSA General Counsel Stewart Baker has said, "metadata absolutely tells you everything about somebody's life. If you have enough metadata, you don't really need content. (para. 2)

That last comment about content is truly damning. And it isn't just metadata, the algorithmic analysis of any data, such as O'Reilly's unproblematized description of the use of "algorithmic regulation," to use real-time data monitoring and correct to improve citizen behaviors is what Bogost (2015) critiqued as the blind faith in the "cathedral of computation" or what Gillespie (2014) referred to as the myth of "algorithmic objectivity."

There is also excellent work within digital rhetoric studies that already gets at similar relationships. As Brock & Shepherd (2016) write, "In regards to computational systems in particular, and especially those systems which impact various components of social life, one's participation therein is increasingly difficult to recognize, and the mechanisms by which one participates are often obscured" (p. 21). For instance, whether

[4] See also Eubanks, 2018

or not I, personally, wanted a "ball of yarn" emoji is irrelevant; the fact remains that each time I searched for a particular type of yarn on Google, I was contributing to the argument for a "ball of yarn" emoji. Had I been a more mindful participant in the case for a yarn emoji, I might have deliberately typed "skein of yarn" or "crochet yarn" in an effort to skew the Trend algorithm to reflect my specific interests. Had I the spare time to feel frustration, I might have dwelled on the fact that three vendors interpreted an interest in "yarn" to mean an interest in knitting, as evidenced by the knitting needles in their "ball of yarn" designs. But, alas, I do not regularly ask myself, "What emoji might this yield?" every time I use Google to search for something.

My attitudes toward the "ball of yarn" emoji illustrate what Gillespie (2014) describes as "the friction between the 'networked publics' forged by users and the 'calculated publics' offered by algorithms [which] further complicates the dynamics of networked sociality" (p. 189). Due to and despite the breadth of information users knowingly or unknowingly provide to Google on a regular basis, algorithms don't always group or categorize individuals as those individuals would group or categorize themselves. Rather, the user is absorbed and understood as an assemblage of data points by a proprietary algorithm that privileges the reification of what it already understands over novelty or outliers. In other words, it's worth considering whether we're enculturating algorithms to reflect the "real world" or being acculturated into reality as they're able to perceive and understand it. Monea (2016) argues that Google's Knowledge Graph and the machine learning techniques used to develop it "constitut[e] a machinic rhetoric, by which increasingly autonomous machines are capable of producing

their own discursive knowledge-formations, which have aesthetic, ethical, and political implications" (para. 3). Concrete examples of this are easy to find, as Google has received no small amount of criticism for its search engine's behavior.

In *Algorithms of Oppression*, Noble (2018) argues that Google's search engine, including its autocomplete suggestions, is a form of "racial algorithmic oppression" (p. 196)—a claim she supports with past and present Google search results for queries such as "black girls," "Jew," and Dylann Roof's specific search for "black on White crime" prior to his 2015 attack on an African American church in Charleston, SC (p. 263). But the concerns that Noble raises are not unique to Google. In September of 2018, Warzel (2018) critiqued Apple Safari for similar reasons, noting that "incomplete search terms that *might* [emphasis added] suggest contentious or conspiratorial topics" (para. 6) were generating lists of "Siri Suggested Websites" that privilege conspiracy theories and fake news. Less than a month later, Hoffman (2018) reported that Microsoft's Bing search engine (and the Bing Images search feature) not only provided extremely racist autosuggestions for terms such as "jews," "muslims are," and "black people are" ("First, Bing Gets Super Racist," para. 1-7), it responded to a misspelled image search for "gril" with recommendations such as "Cute Girl Young 16," which, if clicked, yielded increasingly disturbing suggestions: "Cute Girl Young 12," "Cute Girl Young 10," and "Little Girl Modelling Provocatively" (Hoffman, 2018, "Worst of all, Bing," para. 1-6).

While these examples are troubling on their own, it's perhaps more unnerving to consider how these suggestions resonate through physical and virtual public spheres. In the case of emoji proposal data, for example, there's no way to know exactly *how* search

suggestions affect a user's original motive, but it's also unclear *what* data is collected from such searches and *how* that data is interpreted by trend(ing) algorithms. *Do* search results and Trends data for the word "grill" incorporate searches for "gril," "grile," and "grilll," and if so, how and to what degree? To put it differently, emoji are affected by algorithmic arguments, and these arguments are often obfuscated in a manner that inhibits or constrains any comprehensive analysis of them.

To give credit where it's due, Unicode (2019h) does take measures to reduce irrelevant search results ("Reducing irrelevant results," para. 1-6). Users are instructed to complete the required searches in private browsers to minimize personalized results, to use category terms (e.g. "animal"), to use quotation marks for multiword searches, to use parallel terms for the proposed emoji and the reference emoji, and to complete searches in different languages and provide translation "[i]f [the] proposed emoji has high usage in a broad region of the world but relatively low usage in English" (Unicode Consortium, 2019h, "Reducing irrelevant results," para. 1-6). While these guidelines help to ensure that users are conducting searches as accurately as possible, the concerns I've raised about the search algorithms remain unchanged, for the most part. Both Unicode's search requirements and its advice for choosing the appropriate language(s) to use in a search invite broader questions about who is represented in the data collected that is ultimately collected.

As I explained earlier in this section, Unicode specifically requires search results from Google, YouTube (owned by Google), and Bing (Microsoft). In 2018, Alphametic conducted a study to determine "the percentage of search engine market penetration" in

"the 15 nations with the largest nominal GDPs in the world" (Capala, 2018, Our Methodology, para. 1). Google accounted for more that 95% in four of those nations (India, Brazil, Mexico, Spain) and more than 90% in five (Italy, Germany, Australia, France, and Canada) (Capala, 2018). The United States, the United Kingdom, and South Korea also favored Google, but by a less overwhelming majority, and Google's percentage in Japan was only 70.31% (Capala, 2018). In Russia, the most popular search engine was Yandex with Google trailing at 45.27%, and in China, Google only comes in at 1.5% (Capala, 2018), which is actually somewhat impressive given that Google has been unavailable in China since 2010 (Griffin, 2018). The issue of government censorship raises additional questions about how algorithms calculate and interpret search history, but I don't address those questions in this dissertation. Although China makes up nearly 20% of the world's population (Central Intelligence Agency, 2019; U.S. Census Bureau, 2019), the country's search activity is largely excluded from emoji proposal data. This omission has the potential to be especially problematic in cases where a proposer is using Unicode's option to search in a language that's widely-used in the region of the world where the proposed emoji is popular. In other words, if someone completed the required searches in Mandarin because she was proposing a Chinese-themed emoji, the search data for the proposed emoji still would not reflect Chinese users' search activity. For example, if user who submitted a proposal for a Chinese moon cake emoji before it was adopted in 2018 included trend data from Tencent, a Chinese multinational technology firm, Unicode by its own proposal requirements would consider such data

ancillary at best. All proposals are required to include Google or Bing trends as of the writing of the dissertation.

While there's no simple solution to this issue, it gestures toward a more in-depth discussion of cultural representation that I address in chapters 4 and 5. Yiying Lu, the designer of four "Chinese-themed" emoji released June 2017, explained that the new emoji "are not *Chinese* Chinese, but instead reflect Westernized elements of Chinese culture" (as quoted in LaFrance, 2017). The lack of search data from Chinese users might, in part, explain *why* the new emoji weren't *Chinese* Chinese.

Trends with Caveats/Benefits

In *The Black Box Society*, Pasquale (2015) voices his concerns about the long-term effects of politically and commercially driven search experiences and warns that as humans become increasingly dependent on search engines and social networks, we give those tools and sites more "power to include, exclude, and rank," which is, in turn, "the power to ensure that certain public impressions become permanent, while others remain fleeting" (p. 14). Exacerbating the potential consequences that Pasquale implies is the widespread public belief that algorithms are neutral, objective, and scientific (Pasquale, 2015; Gillespie, 2014). In cases where search engine results work to reinforce harmful stereotypes, such as those Noble (2018) addresses, many users don't think to question the results or to consider the underlying cultural assumptions thereof. But even when questions do arise, the companies who own the algorithms are unlikely to respond. In fact, search engine algorithms have thus far been protected under the First Amendment.

When another company sued Google in 2003, the judge sided with Google and "likened Google's algorithmic outputs to opinions, ultimately concluding that the company [Google] cannot be compelled to change its opinions simply because someone disagrees with them" (Schroeder, 2018, para. 12).

In cases where an algorithm's output has yielded widespread public outrage, companies have occasionally issued statements acknowledging a glitch or defending the algorithm, but there's very rarely an apology. An exception to this was Twitter's response when users noticed that "Kill All Jews" was trending in New York on November 2, 2018 after a synagogue was vandalized; a Twitter spokesperson stated, "[the phrase] should not have appeared in trends, and we're sorry for this mistake" (Emerson, 2018, para. 2). When Google faced similar criticism for its algorithm's anti-Semitic tendencies, the company responded differently. In a now-removed Google Blog post from 2004, Google defended its search algorithm when the top result for "jew" was a hate site and recommended that users search for less "linguistically charged" terms such as "Judaism," "Jewish," or "Jewish people" (Baker, 2004, "An explanation of our," para. 3). More recently, Microsoft has been notably quiet in response to the high volume of child pornography in Bing search results (Cameron, 2019).

As another example, the Cambridge Analytica scandal in 2016 made a number of Americans suddenly aware of the fact that their personal data profiles were being not only sold without their knowledge, but also used to target them with advertisements or political posts. In March 2019, *The Washington Post* reported (Jan & Dwoskin, 2019) that Facebook finally removed the ability of advertisers to target individuals by race.

Predatory payday loan companies were able to target impoverished non-white demographics. However, an equally as pernicious problem was how Facebook sold user data such as gender, age, and zip codes, which could be converted into metrics related to race, to advertisers searching for new employees, credit worthiness, and even new houses for sale. Facebook was forced to withhold this information from advertisers lest they continue to re-enact an *de jure* version of digital segregation ("separate and definitely not equal").

In cases where a company *does* offer an explanation, users sometimes find that an algorithm operates differently than expected. For example, in 2010, Twitter provided a very general explanation of its Trending algorithm in response to accusations that the site was blocking the #wikileaks and #occupy hashtags from trending. Some users were surprised to learn that Trends are "not just what's popular" (Twitter, 2010, para. 5). As explained on Twitter's blog, "Topics break into the Trends list when the volume of Tweets about that topic at a given moment dramatically increases" (Twitter, 2010, para. 6). This means that even the most widely-used hashtag could fail to Trend if "the velocity of conversation isn't increasing quickly enough" (para. 7). Google Support provides a very general overview of Google's Trends algorithm with just enough detail to deter accusations of bias, but not enough for users to actually understand how the algorithm works.

For example, Google assures users that the search data is random, but does not explain how data is "randomly selected" or offer any proof that it's random (Google, 2019, "Where trends data comes from"). Google also explains that data from "[s]earches

made by very few people," "[d]uplicate searches," and searches that include special characters are excluded from Trends (Google, 2019, "Data that is excluded"), but Google does not clarify how many people count as "very few," how long a "short period of time" is, or what *exactly* is considered a "special character" (only the apostrophe is listed as an example). However, once search data has been collected, Google "categorize[s] it [and] connect[s] it to a topic," (Google, 2019, "Where trends data comes from"), but as I've explained in this section, Google's methods of organizing information, or at least the manifestations thereof, have been critiqued and questioned by numerous scholars in a variety of fields (Noble, 2018; Pasquale, 2015; Monea, 2016; Vaidhyanathan, 2011). In sum, just as Twitter's Trending algorithm operated differently than many users perceived, Google Trends might also be collecting and processing information in ways that don't align with users' expectations.

The point is, that these algorithms have the capacity to influence, or, in some cases, *effect* cultural, political, and social change(s)–sometimes in ways that are indiscernible to those affected *by* such changes. In an article for *Limn* that specifically addresses Twitter's Trending algorithm, but that's relevant for all similar algorithms, Gillespie (2012) stresses the following fact:

> [That] we have not fully recognized how these algorithms attempt to produce representations of the wants or concerns of the public, and as such, run into the classic problem of political representation: who claims to know the mind of the public, and how do they claim to know it? (para. 3)

Gillespie's questions bring us back to emoji and how proposed emoji are justified as "popular" based on algorithms' quantification of public interest in the potential emoji. But, as I've demonstrated in this section, there are seen and unseen parameters, or constraints, to inclusion in this public.

Classifying Emoji

Throughout this dissertation, I explain that Unicode is the authority when it comes to selecting and encoding emoji, and I also emphasize that each vendor retains artistic license to design the glyphs that will render on its operating system(s), platform(s), or device(s). However, debates among programmers on Github and StackOverflow about which Cascading Style Sheets (CSS) properties apply (or should apply) to emoji reveal a different picture: the individual appearance of a specific emoji remains firmly wedded to the code point and the limitations of how a given program will interact with it.

It's worth repeating here that Unicode functions more like a Universal glue than a formal coding language. Each fixed codepoint comprises invariable content and variable form(s). Because computers would be unable to render the same characters (as intended by programmers or end users) if the content were altered, Unicode's policy is that no character will ever be moved or removed once it's been encoded (Unicode Consortium, 2019j, "Encoding Stability," para. 1). Unlike other earlier character encoding systems, Unicode characters never depreciate. One way that Unicode maintains this consistency is by only supporting plain text (as opposed to rich text). This is an important distinction, explains Gillam (2003), because "[p]lain text is the words, sentences, numbers, and so forth themselves. Rich text is plain text plus information about the text, especially

information on the text's visual presentation (for example, the fact that a given word is in italics)" (p. 6). Rich text is an example of a higher-level protocol that can override the normative default behavior of an encoded character (Unicode Consortium, 2019a, p. 88). In application, some higher-level protocols have raised questions among programmers regarding the classification of emoji.

Even Unicode has to appeal to a higher authority when it comes to properties that dictate or alter how emoji display on websites. In 2016, Unicode contacted the World Wide Web Consortium (W3C) to request a CSS property to control emoji styles (Phillips, 2016). Phillips (2016) summarizes the nature of the request as follows:

> …[E]moji characters come in two flavors. Some characters most frequently are used as "normal" (non-emoji) textual characters, but sometimes are used as emoji also. These characters have a default display of 'text'. Some characters most frequently are used as emoji characters, but occasionally are used in a plain text context. These characters have a default display of 'emoji'…. Unicode is requesting a property that would allow sequences of emoji characters to be styled in one of three ways… (para. 2-3)

Unicode provides a table in Unicode Technical Report (UTR) #51 to illustrate the three different styles (see Table 2).

Table 2 Emoji presentation styles (Unicode Consortium, 2019d)

Example Environment	with Emoji presentation selector	with Text presentation selector	with neither	
			text-default	emoji-default
word processing	☕	☕	☕	☕
plain web pages	☕	☕	☕	☕
texting, chats	☕	☕	☕	☕

To clarify, a text presentation style, according to Unicode, is "a simple foreground shape whose color which is determined by other information, such as setting a color on the text" whereas "an emoji presentation determines the color(s) of the character, and is typically multicolored" (Unicode Consortium, 2019d, "Design Guidelines"). In other words, if I could ensure a text presentation of the "hot beverage" emoji (the third column in Table 2), I could, in turn, use CSS properties to indicate the color of the "hot beverage" emoji (just I could with alphabetic web copy. In other words, if a developer wanted the "hot beverage" emoji to match a color from a coffee shop's logo, they would need to specify that the emoji should render as the text presentation. If the "hot beverage" emoji renders with emoji presentation, the colors are already predetermined based on vendor designs, and the developer would not be able to control the color of the emoji. Essentially, Unicode is requesting that a CSS property be developed so that developers can specify whether an emoji renders a text presentation or an emoji presentation.

In response to Unicode's request, Christoph Päper (whose username is Crissov) created a GitHub forum where programmers deliberated over the best way to implement the request. In the initial forum post, Päper (2016a) lists different users' suggestions for how to handle the request: font-variant-color, font-variant-emoji, @font-palette,

"something more generic," or "a new property" (para. 3). Over the next few months, there were debates over the merits of font versus text properties, and at least three additional GitHub issues were created in response to concerns that were raised by different contributors. Ultimately, a group of programmers, developers, and engineers were tasked, or perhaps burdened, with classifying emoji to a degree of specificity not required by other populations / in a more exacting manner than required of most/other users. Some contributors suggested that emoji presentation should be treated like any other font—that specifying the font-color as colorful, monochrome, auto, or including a specific color should account for emoji display as it would for any other glyph (i.e. to make A display as a green A). Alternatively, some argued that text-transform was more appropriate because it "is about using the glyph of a different character than the one encoded or, some may argue, changing the code of the character and thus the glyph" (Päper, 2016b, para. 2). In other words, should the property alter the default display of the codepoint or should the property specify an alternative glyph to display? Ishii (2016) argued that anything related to "font selection and rendering…should be font-*, not in* text-" (para. 2). In turn, Atkins (2016) pointed out that forum contributors were conflating the issues at hand, writing, "The two features aren't really connected in any meaningful way, except weakly by metaphor. Emoji switching is changing the entire glyph used to render the codepoint; multicolor fonts just let you specify the color palette directly" (para. 1).

Eventually, Päper reached out to Mark Davis, co-founder and president of the Unicode Consortium, for clarification regarding Unicode's request. In one of the

additional forums he created to address the issue, Päper (2017) posted a portion of Davis's response:

> [E]ven for cases in which the emoji and text presentation selectors are available, it had not been clear for implementers whether the default presentation for pictographs should be emoji or text. That means that a piece of text may show up in a different style than intended when shared across platforms. While this is all a perfectly legitimate for Unicode characters—presentation style is never guaranteed—a shared sense among developers of when to use emoji presentation by default is important, so that there are fewer unexpected and 'jarring' presentations." (as cited in "UTR/UTS#51," para. 3)

What I find interesting about Davis's reply is the implication that "jarring presentations" are more problematic in some situations than others. Why is it "perfectly legitimate" for characters to "show up in a different style than intended" *except* for situations where developers want to ensure that emoji display as intended? To me, this suggests that Unicode is more concerned with emoji accuracy in public communications, such as websites, than in personal communications, such as text messages. It also seems to offer an "out" to programmers in cases where one or more glyph(s) of an emoji might yield a confusing or "jarring" presentation in the context of a particular composition. But, as I explained in chapter 1, emoji are becoming legally important as text, and therefore "jarring" presentations in personal communications can have legal consequences.

For example, Ziccarelli & Goldman (2017) analyzed an Israeli court case from 2016 in which a prospective tenant used emoji to communicate with a landlord (see Figure 27).

Figure 27 Image of the disputed text message (Ziccarelli & Goldman, 2017)

The landlord argued that the prospective tenants acted in bad faith by sending emoji which indicated that they were planning to lease the apartment. This communication prompted the landlord to take down the listing and resulted in financial losses for the landlord when the prospective tenants did not sign the lease. Ultimately, the Judge determined that "the sent symbols support the conclusion that the defendants acted in bad faith" (as cited in Ziccarelli & Goldman, 2017, para. 4). Furthermore, the Judge wrote that several of the symbols used— "a 'smiley', a bottle of champagne, dancing figures, and more"—are "icons [that] convey great optimism" (as cited in Ziccarelli & Goldman, 2017, para. 4). One of the major criticisms Ziccarelli & Goldman (2017) put forth is that the court "[did] not consider whether the landlord and tenant saw the same emojis on their screens"–an especially pertinent oversight given the "substantial variation in how

platforms implement the women with bunny ears emoji" (para. 17). Goldman (2019) raises a similar concern in his discussion of how emoji should be displayed in court proceedings, alluding to potential complications that result from disputes over "cross-platform display errors" ("How to Publish," para. 2).

While it seems somewhat unlikely that the "women with bunny ears" emoji will factor prominently in many court decisions, the "pistol" emoji, sometimes referred to as the "gun" or "handgun" emoji, has featured in at least eight court opinions in the United States since 2016 (Goldman, 2018). As I mentioned in chapter 1, Apple released its redesigned "pistol" emoji, which resembles a water pistol instead of a revolver, in September of 2016. At the time, Apple was the only vendor whose "pistol" appeared as a *water* gun, but Microsoft's "pistol" emoji looked like a toy ray gun until August of 2016 when it was redesigned to appear as a revolver. By October of 2018, other major vendors (Google, Microsoft, Samsung, Twitter, and Facebook) had redesigned their "pistol" emoji to resemble a toy, but there are still six vendors with handgun designs. Thus, messages could be seriously misconstrued due to the variations; one user's innocuous squirt gun is another's semi-automatic weapon. It is not difficult to understand (1) why it's important for the legal community to view emoji as they originally rendered upon delivery for both sender and recipient or (2) how a "jarring" (or "devious") presentation could yield serious consequences for the sender.

Though it might seem like the option to designate text-presentation could help users avoid this type of miscommunication, it's hardly a fix-all solution. In fact, while text-presentation emoji might help users mitigate "jarring presentations," they also come

with their own set of constraints--perhaps most notably that the majority of emoji don't have a variation sequence for text presentation. Of the 2740 emoji that Unicode supports (3010 if you include modifiers and ZWJ sequences), only 353 have variation sequences to support text-presentation (Unicode Consortium, 2019b). The "pistol" emoji is not one of those 353. Because text-presentation emoji are monochromatic and flat (as opposed to skeuomorphic), they're understandably less detailed than their emoji-presentation counterparts and sometimes difficult to discern. For example, the text-presentation "comet" emoji looks like it belongs in a game of Badminton (see Figure 28), and the "mountain" emoji is barely distinguishable from generic triangle (see Figure 29).

2604			9.0	COMET

Figure 28 "Comet" emoji presentation styles (Unicode Consortium, 2019g)

26F0			9.0	MOUNTAIN

Figure 29 "Mountain" emoji presentation styles (Unicode Consortium, 2019g)

Thus, the ability to designate presentation style still doesn't give users the agency to fully ensure accurate, that is to say non-jarring, emoji communication.

By looking closely at the nature of emoji encoding, the properties that affect (or fail to affect) the display style of emoji, and the constraints that programmers face in

controlling emoji behavior, we can better examine how emoji are a different species within the larger genus of smiley graphics or, possibly, make the case that they're more suited as a species of font. Then again, perhaps there's an argument to be made that such categorization is futile because emoji are a species of the digitally-native glyph: a genus that imbibes the visual and the textual—that standardizes content *by* allowing fluidity of form.

Conclusion

In this chapter, I've discussed the various algorithms, computational processes, and style properties that affect emoji *before*, *as*, and *after* they are encoded by Unicode. The examples I've offered, including the debate(s) among programmers over which properties should affect emoji presentation style and the "jarring" presentations that occur in cross-platform communication, support my earlier characterization of emoji as a speculative techné. Steve Holmes (2016) builds on Chun's (2011) notion of speculative techné and articulates an exigence for digital rhetoricians "to situate code's revealable technical operations alongside its concealed temporal, material, and rhetorical enactments and speculative conditions of possibility in order to acknowledge and yet reconceive of rhetoric's endless regress" (Holmes, 2016, para. 7). The ecological framework I've employed to study the encoded nature of emoji accounts for the various set(s) of relations I discussed at the beginning of this chapter, but it also affords researchers an inroad to

consider how speculative techné might be conceptualized and realized at scale and to dive into the structuring conditions that give rise to blackboxing.

I fully realize that I mentioned "power" and genealogy in the introductory section to this chapter without explicitly making a tie to it. What I have been doing, I hope, is tracing through some of the complex forces that produce *topos* for ecologies of code in a way that correspond to contemporary power diffusions. To recap, the Foucault of *Discipline and Punish* explore how individuals were subjectified by institutional techniques of observation and correction to produce "docile bodies." Later, in his discussion of governmentality, he theorizes how power works when entire populations who are not confined in direct institutional space become entangled by certain biopower techniques which occur similarly across heterogenous cultural and state discourses (see Chaput, 2005).

I know I am only providing some of the general contours here, but I am trying to raise a very specific point that is relevant to rendered ecologies. Foucauldian approaches are best captured for software studies by Galloway's pioneering work on protocol as well as Chun's *Programmed Visions*. Chun sees software as a technique of neoliberal governmentality. Computers are not just instruments through which humans accomplish instrumental tasks but technologies that reconfigure subject-object relations. However, because software gives us the ability to manipulate information—either by programming them or by using graphic user interfaces—we feel a certain deceptive sense of mastery. The computer is here to do our bidding. We control which particular emoji we post to Instagram, forgetting, of course, that there are only a limited number of emoji to post in

the first place. Chun's message is that this feeling of user sovereignty (p. 9) means that we overlook or fail to understand how computers fit into the totality of power relations that constitute the self. Yet, as computers augment our abilities to communicate and think in the world, we personalize our routines within these spaces to the point where they maintain that feeling of mastery, while missing the fact that "our computers execute in unforeseen ways" (p. 9) that we do not entirely know or have control over.

For me, this explanation is why connecting ecologies of code to *topos* and constraint is worthwhile. With Unicode, there will always be a degree of constraint built into the literal way the code structures which emoji are available. These conditions are not directly alterable by users who participate in these systems to create more connotative and idiosyncratic uses of emoji. Thus, the hero of this story—Bitzer and his neglected notion of improper constraint in particular—may well end up becoming one of the most enduring rhetorical concepts leftover from the pre-digital 20th century canons of rhetoric. In many ways, rendered ecologies is a story about constraints and the interplay between social and computational structures. As my subsequent chapters will demonstrate, realizing this interplay is both depressing but liberating. Better diagnosing the constraints on *topos* and rendered ecologies also demonstrates new paths toward thinking of different political and ethical settlements for using emoji to communicate.

CHAPTER FOUR: POLITICS OF PRACTICE, CONSTRAINTS OF RESEARCH

In this chapter, I primarily examine rendered ecologies through ecologies of practice. Throughout this dissertation, I emphasize that studying emoji requires a flexible framework that allows for the interplay of overlapping ecologies rather than imposes harsh definitional boundaries. This is especially true when it comes to ecologies of practice because Brooke acknowledges that practice, out of the three ecologies, is not entirely possible due the profound influence that code and culture play in structuring rhetorical activities. He argues, "distinguishing [practices] from ecologies of code and culture can only ever be a temporary, conceptual maneuver" (Brooke, 2009, p. 52). In other words, Brooke suggests that we can certainly describe rhetorical practice to describe certain directed or intentional rhetorical actions by suspending the role of code and culture, the overall picture of rhetorical agency that he sketches confirms that code and culture are inseparable for any rhetorical act. In this chapter, I therefore emphasize the intertwining of the three ecologies and work to support my earlier assertion that practice is the negotiation of code and culture. Additionally, I draw attention to the constraints that both emoji users and researchers face in terms of practice.

I've broken this chapter into two parts. In the first part of the chapter, I review my understanding of the ecology(ies) of practice, and I use examples to illustrate how it fits within my larger conceptual framework, rendered ecologies. I also discuss several of

the different types of emoji practices that ultimately comprise ecologies of practice, including but not limited to the use(s) of emoji in personal communications, marketing campaigns, professional fields, and other specific communities.

In the second part of this chapter, I discuss my four-month study of U.S. Senators' use of emoji on Twitter to illustrate a particular ecology of practice with respect to showing readers something about how rendered ecologies work, well, *in practice*. I will concede up front that this chapter may initially strike readers as a strange choice since I leave my more traditional forms of rhetorical analysis and turn to data and frequency analysis. For context, I elected to do a data-driven study in order to highlight the fact the rendered ecologies can be used to inform the research inquiry and results interpretation for different methodological approaches, including the mixed-method study of social media texts.

I selected US Senators as a population to study for reasons that have to do with rendered ecologies and ecologies of practice. First, I wanted a pre-set group (100 senators) with a public profile and whom other researchers, particularly those in political science and communication (Ammann, 2010; Ausserhofer & Maireder, 2013; Bode & Dalrymple, 2016; Bode, Vraga, Borah, & Shah, 2014; Chi & Yang, 2010; Christensen, 2013; Dang-Xuan, Stieglitz, Wladarsch, & Neuberger, 2013; Evans, Cordova, & Sipole, 2014; Gainous & Wagner, 2013; Golbeck, Grimes, & Rogers, 2010; Hemphill, Otterbacher, & Shapiro, 2013; Hong, Choi, & Kim, 2019; Jungherr, 2016; Kavanaugh et al., 2012; Kruikemeier, 2014; Mousavi & Gu, 2019; Parmelee, 2014; Steiglitz & Dang-Xuan, 2013; Straus, Glassman, Shogan, & Smelcer, 2013; Vergeer, 2015; Vraga, 2016).

In other words, the analysis of the social media habits of US politicians is already an established scholarly topoi across many different academic disciplines. Secondly, all US senators have had at least one Twitter handle since 2013. In other words, as a social media platform, the use of Twitter is largely familiar to the individual senators or, more likely, the individuals on their staff who compose tweets on their behalf. Thirdly, US senators are an intriguing example of practice precisely because of their role in American society. Senators, like any US politician not named President Trump, often have to balance demographic expectations for acceptable decorum standards (defined below), which is a cultural constraint on rhetorical practice (as per Robert Hariman's work on Ciceronian rhetoric).

The use of emoji and social media more broadly speaking can still be considered non-serious and ephemeral by non-millennial demographics who grew up with literacies grounded in print newspapers, magazines like *Time* and *Newsweek*, radio, and television. As an example, GOP presidential hopeful Mitt Romney famously remarked that he thought it was "undignified" for presidential candidates to answer questions from an animated snowman in a YouTube video during CNN's 2007 televised presidential debates, stating "I just don't know that it makes sense to have people running for president answering questions posed by snowmen" (Schatz, 2007). Indeed, my findings and discussion will confirm that many senators do not understand how to use emoji as an organic part of social media literacy in the same way that average social media users do. As a case in point, I started thinking about studying this unique "emoji-using/emoji-abusing" population (to update Kenneth Burke's describing of the rhetorical human), in

response to Senator Hilary Clinton's #emojifail in 2015 (Walsh, 2015). She asked college students to tweet about their responses to student debt in three emoji or fewer, only to receive unanticipated (non-emoji) responses that chastised her for tokenizing millennials as well as failing to treat student debt with adequate seriousness.

For these and countless other reason, Senators represent an intriguing site where generational print literacy decorum meets with the *kairotic* reality of how users in social media use emoji. Furthermore, since their tweets are so highly scrutinized, I hypothesized that there would be a degree of intentionality or constructedness in this population that would make it an ideal site to see how and in what way rendered ecologies could play an explanatory role for studying ecologies of emoji practice. When a white Senator Mitch McConnell deliberately Tweets a holiday post with a white skin toned Santa emoji instead of the yellow-skin tone default Santa emoji, it means something in terms of national audience awareness or lack thereof.

It is for this reason why political scientists and communication scholars (discussed below) have spent a considerable amount of time in the past and present studying various forms of politicians' public rhetorical activities. To this area, rendered ecologies and the focus on practice makes sure to situate the constraints of emoji offered relative to individual senators' practices, but, in turn, to also measure these against aggregate collective trends to see if it can shed any light on how we understand or theorize individual senators' practices.

In brief, I found that many Senators use emoji for indexing and for creating lists in tweets and that the "police car light" emoji was used almost exclusively by Democrats.

For context, I view this study as a pilot method of a larger study that I hope to undertake once I have access to data analytics tools, like MassMine's in development emoji analysis search capacity (which I am currently consulting for). I therefore do not call it quantitative despite the fact that my study involves coding, counting, and reporting emoji frequency. As my results below document, I did not find enough data to produce any statistically significant findings, which in turn necessitated me to turn to more conventional forms of rhetorical analysis to make sense of senators' practice. Nevertheless, I argue that the fact that I did not find effective uses of emoji means that my research has potentially identifies exactly this decorum/generational literacy gap that I suspected might play a role in how Senators use social media. Drawing on Carolyn R. Miller's (1989) discussion of *praxis*, I suggest that the use of frequency and larger data sets to locate patterns and trends in human communicative behavior (echoing Graham *et al*., 2014 offers a way to help improve individual and collective forms of emoji practice. However, in addition to explaining some of my findings and illustrating the utility of rendered ecologies as a conceptual framework for emoji, I also explain the constraints I had to contend with as a researcher. I use several examples to demonstrate how some research tools and programs fail to accommodate emoji in data collection on social media. In other words, my methodological tools constraint serves once more to highlight how rendered ecologies play a role at multiple ecological levels.

Mapping the Decorous Use of Ecologies of Practice

I use *practice* to refer specifically to the conscious use of emoji; thus, ecologies of practice include the myriad ways the emoji are used in a variety of personal and public

communication. As I explained in chapter 2, ecologies of practice are, simultaneously, informed by ecologies of code and influencing ecologies of culture. Indeed, Brooke (2009) stresses to readers that "there is no 'pure' zone of practice distinguishable from either code or culture" (p. 52). However, the rendered ecologies framework that I employ does not require such a distinction. To illustrate this point, this section will offer a few explanatory examples as well as tie the idea of rhetorical decorum to rendered ecologies to help introduce and frame my case study.

To illustrate, the "loaf of bread" emoji, which I discuss in chapter 2, has a unifying codepoint and character name, but it's also burdened with Westernized stereotypes of what bread *is*—or at least what it should look like (see page 28). And yet, there are clear examples of practice amid the obvious ecologies of code and culture. On Twitter, the "bread" emoji is often used alongside the hashtags #catloaf and #kittyloafmonday in tweets that include images of cats sitting in a loaf-like position (Figure 30).

It is also common to see the "bread" emoji in tweets about or referring to *Les Misérables*, a story in which the protagonist is famously imprisoned for stealing a loaf of bread (Figure 31). After the release of the "baguette bread" and "croissant" emoji were released in 2016, some *Les Mis* fans started using those emoji instead of the standard "bread" emoji, which serves to illustrate how ecologies of code can directly affect ecologies of practice.

Figure 30 Bread emoji in #kittyloaf and #catloaf tweets (SoxandD, 2019; PefGreyCat, 2019)

Figure 31 Bread emoji in a tweet about *Les Misérables* (Grigsby, 2018)

Additionally, the “bread” emoji is associated with the “Let’s get this bread” meme, which is “generally used to describe the daily grind” (Louise-Smith, 2018, para. 2) and “expresses both enthusiasm and frustration with jobs and capitalism” (Sommer, 2018, para. 1). However, online communities have adopted the meme, and in turn the emoji, in slightly different ways. For example, many professional gamers use the “bread” emoji alongside the “face with steam from nose” emoji (see Figure 32). Meanwhile, the meme and the “bread” emoji have also become a symbol of the LGBTQ community on Twitter, who joke that LGBTQ stands for “Let’s get this bread quickly” (see Figure 33).

Figure 32 Bread emoji in a tweet about gaming (VeroxUK, 2019)

Figure 33 Bread emoji in LGTBQ tweet (Gallagher, 2018)

While gamers use the "bread" emoji to express a more competitive sentiment associated with the meme, the LGBTQ community uses it to express solidarity and to emphasize the additional struggles of the "daily grind" faced by marginalized populations.

Figure 34 Bread emoji in a tweet during Pride Month (LiloTheCorgi, 2018)

It wasn't long before corporate regimes recognized the popularity of the meme and started incorporating it in their own social media posts (Figure 35). Numerous athletic organizations (the Kansas City Chiefs, the Ohio State Buckeyes, NCAA Volleyball), restaurants and food companies (Panera, Cracker Barrel, G Fuel), and other business and publications (Food Insider, iHeart Radio, NPR) joined the "Let's get this bread" bandwagon and used the meme in Tweets (many of which included the "bread" emoji).

Figure 35 Kansas City Chiefs use bread emoji (Kansas City Chiefs, 2018)

These organizations, however, are hardly the first to use emoji on social media. In fact, emoji have been employed in marketing materials by numerous organizations with varying degrees of success.

Emoji have become such a popular marketing tool that the Shorty Awards created a specific category to recognize the "most effective and creative use of emojis by a brand, agency or organization" ("Best Use of Emojis," 2019). Dominos created a way to customers to place an order using the "pizza" emoji on Twitter. Goldman Sachs created a series of tweets that used emoji to explain how Millennials were changing the economy (see Figure 36). Bud Light has posted tweets that are almost entirely composed of emoji (see Figure 37).

Figure 36 Goldman Sachs tweets to Millennials with emoji (Goldman Sachs, 2015)

Figure 37 Bud Light uses emoji for Independence Day tweet (Bud Light, 2014)

However, some brands and franchises have faced significant public backlash in response to their emoji practices. After Apple released its first set of diverse emoji with skin tone modifiers in April 2015, Clorox posted the tweet in Figure 38, which reads, "New emojis are alright but where's the bleach" (Clorox, 2015a).

Figure 38 Original Clorox tweet and retraction (Clorox, 2015a, 2015b)

When the company was very publicly criticized for its racially insensitive tweet, Clorox deleted the original tweet and released an apology (also Figure 38) which also included in emoji. Only a few weeks after the Clorox mishap, the digital communications manager for the Houston Rockets was fired for posting the tweet in Figure 39 (Gaines, 2015).

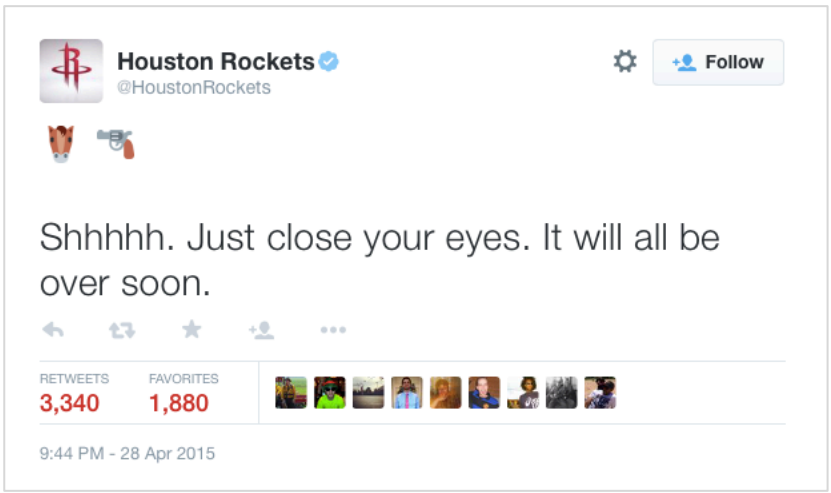


Figure 39 Houston Rockets' emoji fail (Houston Rockets, 2015)

Based on these successes and failures, marketers are still working to figure out emoji decorum on social media. While they do not use this term in marketing discourses, the term decorum is ancient in the Greco-Roman (Western) rhetorical tradition. As Robert Hariman (1992) argues, *decorum*, as far back as Cicero, refers to a set of cultural constraints—often reflective of elite cultural values and norms—that function to configure rhetorical acts (e.g. words, gestures, phrases) into appropriate or inappropriate modes of expression. They were (artificially) naturalized ways to channel rhetorical excess into pre-existing behavioral norms, including the rhetor's "action as well as words, in the expression of the face, in gesture and in gait" according to Cicero (as quoted. in Hariman, 1992, p. 152; see also Stoneman, 2011). Decorum was rooted in elite values: "The architectonic rule to adapt the speech to its situation was articulated through the aristocratic social code available to any classical thinker" (Hariman, 1992, p. 153). From this ancient discussion, Hariman productively updates decorum through postmodern and poststructuralist theorists to include ideological factors, such as gender, race, sexuality, and class to the point where any individual rhetorical practice or "style can be recast as concept for the analysis of political experience" (150). As a brief example, I think of how speakers of African-American English vernacular (as humorously satirized by Danny Glover's character in the film *Sorry to Bother You* (2018) and his use of "white voice" to improve telemarketing sales to white customers) are often forced to "code switch" to standard white English to be more acceptable in white dominated cultural institutions and work places. We can find more evidence of an emerging emoji decorum amid ecologies

of practice, especially when it comes to emoji depicting facial expressions and hand gestures as well as the syntagmatic variations in emoji practice across different cultures.

Several studies have confirmed that emoji are primarily used to express emotion in digital communication (SwiftKey, 2015; Danesi, 2017; Evans, 2017). In his survey of 2,000 UK residents aged 18-65, linguist Vyvyan Evans (2015) found that 72% of 18- to 25-year-olds believed it was "easier to express their emotions using emojis" (para. 3). Marcel Danesi (2017) conducted a similar study of 18- to 22-year-olds in Toronto, and every single participant agreed that emoji made them "feel more comfortable with communicating" (p. 177). For its 2015 Emoji Report, SwiftKey analyzed over a billion "pieces of emoji data" from 16 different languages and found that happy faces (44.8%), sad faces (14.33%), and hearts (12.5%) account for over 70% of all emoji usage (SwiftKey, 2015, p. 2). SwiftKey's findings suggest that there's a somewhat universal emoji decorum when it comes to expressing emotion with the face emoji. Interestingly enough, these findings corroborate psychologist Paul Ekman's finding that "the basic emotions (disgust, fear, anger, contempt, sadness, surprise, happiness) activate the same microexpression patterns across the world" (Danesi, 2017, p. 62). In other words, it makes sense that the emoji faces expressing basic emotions are some of the most universally popular emoji and that they comprise the categories with the highest usage in SwiftKey's study (happy and sad faces). Furthermore, the basic emotion emoji suggest that there are some global patterns within the ecologies of practice.

Emoji help to mitigate the ambiguity in text-based digital communication, or what Evans (2017) refers to as "textspeak." What we typically lose in textspeak are kinesic

signs (body language) and paralanguage (e.g. intonation, pitch), both of which are instrumental in helping communicators interpret an utterance and detect things like sarcasm, nervousness, affection, etc. (Danesi, 2017; Evans, 2017). According to Evans (2017), emoji serve the same function in textspeak that kinesic signs and paralanguage serve in spoken, face-to-face interaction (Evans, 2017, p. 129). While facial expressions might be more universally recognizable, other kinesic signs are heavily culturally coded; this is the case in face-to-face interaction as well as textspeak.

When it comes to the kinesic emoji depicting hand gestures, for instance, emoji decorum is contingent upon cultural context. In chapter 1, I explained that while the "thumbs up" emoji typically means "okay" or "great" in Western cultures, it is essentially the equivalent of the middle finger in other parts of the world. Likewise, the "fingers crossed" emoji, which often expresses "good luck" in Western cultures is offensive in Vietnam, and the "sign of the horns" emoji that's often associated with rock culture in the United States can be mistaken for the "corna," a gesture which implies that an individual's partner has been unfaithful when used in Spain, Italy, Portugal, Greece, Brazil, Colombia, Argentina, Cuba, Uruguay, and The Baltics (Thompson, 2017; "Rude hand gestures," 2017). Danesi (2017) explains that while emoji depicting kinesic signs "certainly can be seen to refer denotatively to specific manual actions…their ultimate interpretation involves cultural coding" (p. 65). Thus, emoji decorum varies across cultures just as behavioral and interactional decorum varies for face-to-face meetings of rhetors from different cultures. The structure of emoji compositions can also very from culture to culture. Emoji can be used as different parts of speech; the "woman running"

emoji, for example, could be used as a noun (e.g. runner, running in general) or a verb (e.g. ran), but it could also be used as an adjective to reflect speed or a pronoun if the user is referring to herself with the emoji. When emoji are "strung together or distributed in some way," writes Danesi (2017), "it tends to be the structure of the user's native language that guides their selection and distribution" (p. 42). In this way, emoji decorum must also be contextualized to reflect the rhetor's native language, which can heavily influence a rhetor's emoji practices.

Communities of Practice

Practice, I suggest, is the site at which decorum reveals itself in rhetorical action. Outside of rhetoric and Brooke, many in composition studies are familiar with a related, distinct, and highly relevant notion of practice coined by the educational theorist Etienne Wenger (2008). Wenger coined the term "community of practice" to argue that our individual forms of knowledge are produced through our concrete practices in a community of other practitioners. As individuals act within a given community of practice, the behavior of other members begins to shape these actions. Wenger argues "Identity is a locus of selfhood and by the same token a locus of social power. On the one hand, it's the power to belong, to be a certain person, to claim a place with the legitimacy of membership; and on the other it is the vulnerability of belonging to, identifying with, and being part of some communities that contribute to defining who we are and thus have a hold on us" (p. 207). Simply put, identity, the locus on individual practice, is ecological in nature depending upon a particular localized community of practice as well as an

individual's history of experience with different communities of practice and their corresponding norms of decorum.

To offer an illustration, one with implications for how US Senators do not use emoji effectively as I describe below, consider a new reddit user who has employed emoji like the bread emoji for a variety of rhetorical purposes will not earn many upvotes for emoji in reddit. As the subreddit on this subject in /explainlikeimfive, which is devoted to answering complex questions in ways that are understandable by lay individuals, explains in response to the question, "Why don't people use emojis on reddit?" it turns out the dedicated redditors whose practices help to shape rhetorical choices in reddit mostly use computers to post and read reddit content. As the comment moderator posts, "They can't be displayed without special browser plugins. So if you were to add an emoji to your comment, most people would just see a blank square. That discourages people from using them" (AnteChronos, 2014). Another user notes that reddit was around before smartphones and so the older (by internet standards) generation of redditors didn't have the option of using emoji. As a result, a new redditor who wishes to earn upvotes is likely to discover that effective emoji usage in reddit—unlike in Instagram or Twitter—is not a major or important part of reddit's community of practice with respect to emoji.

Thus, communities of practice confirm how individual rhetorical practice for emoji are bound up with these forms of communal identification. Participation, as per Wenger's (2008) discussion, is "not just to local events of engagement in certain activities with certain people, but to a more encompassing process of being active participants in practices of social communities (p. 4). A new redditor doesn't just observe that individuals in reddit don't use emoji very often. Rather, she/he/they might learn this informal rule through practice by intuiting a lack of upvotes for emoji heavy posts. In any community of practice, users start with a limited set of knowledge about how a community of practice operates and this limitation can thereby limit their initial

abilities to participate. So too is the way that communities of practice shape individual rhetorical choices by emoji users.

As a new redditor internalizes the emoji-less norms of the reddit community, and its expected behaviors and discourses, they begin to shift from the periphery to what Wenger labeled, "legitimate peripheral participation." For clarification, this shift is not a clean break from previous modes of emoji use. New individuals still bring with them the existing rules and norms and behaviors and language of the other communities of practice to which they also belong. In turn, newer redditors, who did, in fact, grow up with smartphones and emoji, are starting to subtly push back on the older generation of emoji-less users and hoping to re-define something like "competent participation" (Wenger, p. 137) for what makes reddit posts with emoji upvoted. In other words, a community of practice exists in this always evolving and continual reshaping and renegotiating of what these norms are and, in turn, highlights the provisional nature of these communities of practice to begin with. Wenger writes that new members will "transform their experience until it fits within the regime. But old-timers, too, need to catch up as the practice evolves" (Wenger, p. 138). He continues, "Negotiation refers to the ability, facility, and legitimacy to contribute to, take responsibility for, and shape the meanings that matter within a social configuration" (Wenger, p. 197). Communities of practice—like ecologies of scale in Brooke's new media trivium—depend upon local forms of redditors' competencies that, in turn, are negotiated within and against a broader ecological array of other overlapping communities' respective practices. Not all reddit forums are identical despite possessing certain genre features, such as satire, in common.

Case Study: The Emoji Practices of U. S. Senators on Twitter

Introduction

Equipped with a revised notion of Bitzer's constraints and where they might lurk in overlapping digital ecologies, I turn now to a case study to help digital writers understand some of the ways in which these conceptual paradigms can produce new insights for research and analysis. While one can easily study the emoji habits of individual users, researchers in digital writing and rhetoric (Omizo & Hart-Davidson, 2016; Gallagher & Holmes, 2019) and communications (Bruns & Burgess, 2011) have also suggested that studying digital writing—particularly Twitter and social media-based approaches—can also benefit from by picking a large textual corpus, which it what I set out to do with emoji. In this section, I outline a brief study of emoji frequency analysis among members of the 115th United States Senate to start to generate data on a relatively basic starting point: how and in what ways do US Senators use emoji? In turn, I'll connect this initial data collection (a sort of loose grounded theory approach) to a frequency analysis to some of the conceptual ideas for rendered ecologies and practice that I have been outlining thus far in the dissertation. My hope was that identifying common practices and patterns among Senators would reveal a link between how ecologies of code and culture structure practice through decorum. That is, my operating assumption is that most senators would probably use emoji in a more restrained fashion. Decorum, as Cicero reminds us, can be seen in the "gait" of the speaker. Updated for emoji practice, my hypothesis was that senators might similarly reflect a more limited use of emoji.

Overview

Since 2013, each Senator has had at least one Twitter account, though many currently have at least two. For this reason, and because the Senate has fewer members and longer terms, more research has been done on Senators' social media use than on members of the House of Representatives. Communication scholars have examined how candidates and their advisors leverage the affordances of different social media platforms (Kreiss, Lawrence, & McGregor, 2018); how candidates concede and claim victory on Twitter (Mirer & Bode, 2015); and how the personalization—that is, the inclusion of more details from one's personal life—of a candidate's Twitter account affects voters' perception of that candidate (McGregor, 2018). And yet, not one of these studies mentioned emoji. In other words, there is plenty of room for studies that explore how politicians employ emoji.

Method

Frequency

Frequency is a well-established data analysis method designed to establish patterns of, well, frequency of different words, phrases, topics, and, now, emoji across different datasets. There is a wealth of literature across different fields that have drawn on this methodology, and so I will frame my use of this method by scholars in digital rhetoric who have employed it recently. As a case in point, Madjik (2019) has used computational methods to study the diachronic tracking of textual expressions, sequential structuring of semantic contexts, and semantic parsing of unstructured text in the context of congressional reports on climate change. Madjik sought to track how agency framing

descriptions (active or passive) were or were not adopted over a 22-year period of the Congressional Record, which is the daily publication Congressional proceedings for the House of Representatives and the Senate. As part of frequency, the use of computational means to parse semantic elements has been performed by computational linguistics (Mann & Thompson, 1988; Gabrilovich & Markovitch, 2007), and, more recently, by rhetoricians (see Ridolfo & Hart-Davidson, 2015 for an overview). When studying rhetorical expressions, scholars have focused on metaphor (David, Lakoff, & Stickles, 2016; Dodge, 2016; Hong, 2016; Weber, 2008), figures of speech (Gawryjolek, Dimarco, & Harris, 2009; Kelly, Abbott, Harris, DiMarco, & Cheriton, 2010). In technical communication, Graham et al. also employed "statistical genre analysis." which is a more complex form of frequency analysis related to identify not just individual word frequency, but patterns or groupings of words that occur frequently in particular documents. Suffice to say, there is a growing body of work in digital rhetoric studies.

While these studies I've cited offer their own rationale for employing frequency, I'll just mention one that I feel is more germane to my study of emoji. I believe that one common *rhetorical* use for frequency analysis—even if the researchers who make these claims do not always use the term rhetoric—lies in improving individual communication effectively, which is precisely the point of ecologies of practice. As a case in point, Ryerson University's Social Media Lab in 2014 ran a data-collection partnership with Mining Biodiversity Digging Into Data project to help the non-profit Biodiversity Heritage Library (BHL) improve its social media posts by identify common posting patterns and features that were not receiving as much interactivity or views as others (Gruzd, 2014). Of interest to researchers in the hard sciences, the BHL offers an online repository of non-paywalled academic biodiversity

research articles to the public. Using the free app Netylitic, which can do textual frequency in social media through platforms with public APIs, Gruzd (2014) used Netlytic to capture conversations that mentioned BHL or that originated through its organic Twitter posts from September 22, 2014 to October 2, 2014. The data revealed frequent keywords and findings that were unsurprising giving the subject matter; *biodiversity* and *species* were two of the most popular words occurring in recent BHL-related conversations. Also not surprising were the terms *open access* and *smsociety14* (the hashtag for the *Social Media and Society* conference). Intriguingly, however, the number of user references to posts with *images* (re-posted from Flickr) helped communicate to the BHL social media content moderation team that one way to grow their followers and increase interactivity was to post more illustrations, photos, and other image-based content.

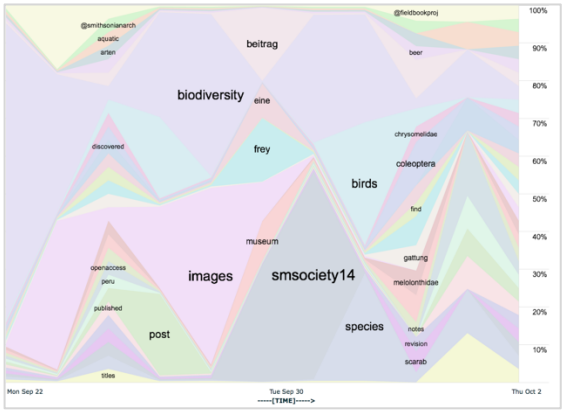


Figure 40 Screenshot of Netlytic frequency analysis (Gruzd, 2014)

As I'll note below, rhetoric is often discussed as *praxis* (Miller, 1989), or the point at which the identification or study of effective or ineffective forms of rhetorical expression can be used to improve (ecologies) of practice. Thus, my goal in using

frequency is something similar. I want to locate new patterns and, particularly, be able to note strengths and weaknesses in how senators use or do not use emoji. At the end, then, I want to gesture toward how the conceptual framework of rendered ecologies can play a role in connecting my data to decorum.

Time Frame

Over a four-month period—from November 15th, 2017 to March 15th, 2018—I collected every tweet posted from a current U.S. Senator's account that included an emoji. To clarify, on January 3rd, 2018 I stopped collecting tweets from Luther Strange (R-AL) and Al Franken (D-MN) and started collecting tweets from Doug Jones (D-AL) and Tina Smith (D-MN), who were sworn in to replace the former, respectively, on that day.

Collection

Due to the tool constraints I discuss later in this chapter, I went through each feed manually and took screenshots of the tweets that included emoji. I did not count hashflags, or hashtag-generated emoji in this study because it's not always possible to know if the hashflag was active at the time the tweet was posted. Additionally, I excluded Unicode symbol characters that are not emoji. For example, the heavy check mark (✔) is an emoji; its codepoint is U+2714. Unicode also supports another check mark character (✓) with the codepoint U+2713. Though visually similar, the second check mark is not part of what Unicode classifies as emoji; in other words, the second check mark example is not in Unicode's official emoji charts of part of any of its Emoji releases (e.g. Emoji

1.0). There are also certain arrow symbols that are not technically emoji, so while the "right arrow" emoji (➡️) was included, other non-emoji arrows (→) were excluded.

I used Twitter's Advanced Search feature to pull up every tweet posted from a Senator's account during the time period explained above. The majority of Senators, 85% to be exact, had more than one official Twitter handle, with two being the most common. However, there were fourteen Senators who had three accounts. It was common for a Senator to have one account that included "Senator" or "Sen" in the handle and another that listed the Senator's name without a title (e.g. @SenatorLankford and @JamesLankford). Additionally, some Senators had designated press accounts (e.g. @SenRubioPress), accounts that include the state they represent (e.g. @MarkWarnerVA), and accounts that were created for a campaign (e.g. @AngusKing2018). While some account bios specified that tweets were written by staff members unless otherwise noted or signed a certain way, most were vague about authorship. Initially, I debated whether or not to code for "authorship," but I ultimately decided against it. A politician's voice is often an assemblage of sorts—speeches, statements, and slogans are all carefully written, revised, and debated by a team of advisors. Essentially, a politician's meticulously crafted ethos is hardly a one-person job. Thus, I included every tweet from an official account, even if the handle included words like *press*, *staff*, or *team*. In total, I collected tweets from 203 different Twitter handles, and 645 of those tweets included one or more emoji.

Findings and Discussion

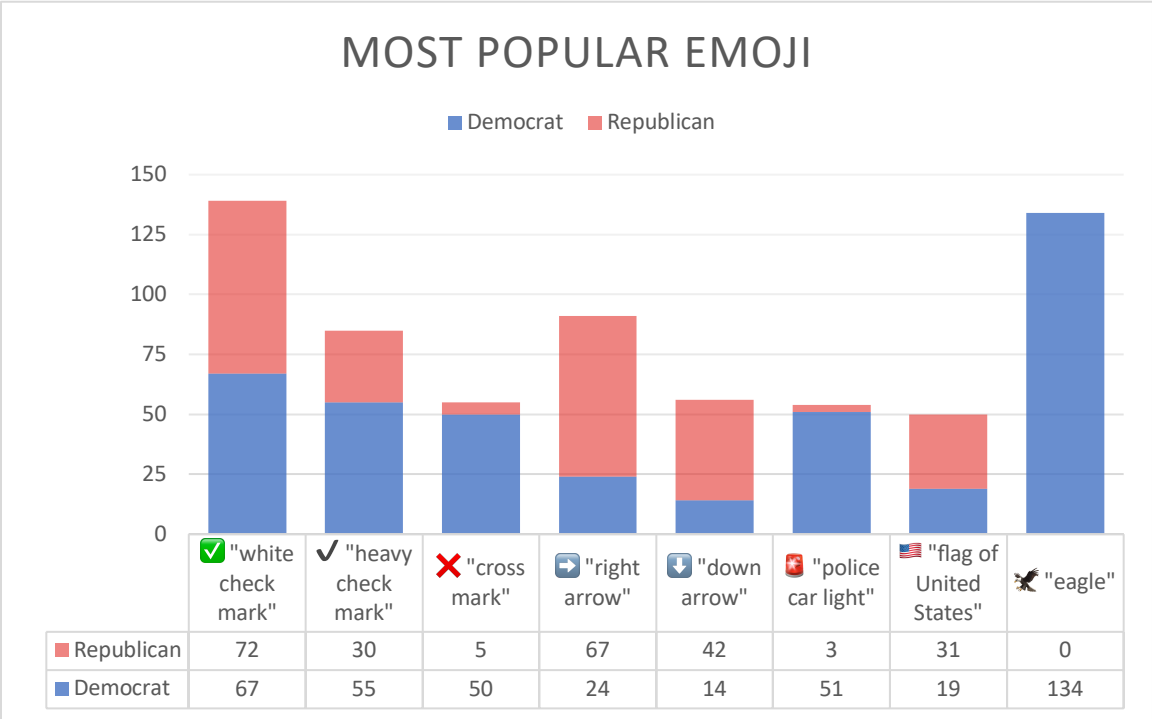
Over the four-month time period, 70% of Senators used emoji in one or more tweet(s) (see Table 3). I grouped Democrats and Independents together because both of the Independent Senators in the 115th Senate, Senator Sanders (VT) and Senator King (ME), caucused with Democrats.

Table 3 Senators who used emoji

Political Party	Party Total	Female Senators	Male Senators	Military Service
Democrats & Independents	84%	88%	82%	57%
Republicans	56%	60%	55%	58%
Totals	70%	82%	66%	58%

Figure 40 (below) displays the emoji with the highest overall counts. The five emoji with the highest counts gesture toward two common emoji practices that I noticed among Senators from each party: the practice of using emoji for indexing and for listing.

The "right arrow" and "down arrow" emoji were the most popular emoji used in an indexical capacity—that is, they were used to show direction. As Figure 41 (below) illustrates, the most-used indexical emoji among Republican Senators was the "right arrow" emoji while Democrat and Independent Senators used the "backhand index finger pointing down" emoji to show direction more than any other emoji.



	✅ "white check mark"	✔ "heavy check mark"	❌ "cross mark"	➡ "right arrow"	⬇ "down arrow"	🚨 "police car light"	🇺🇸 "flag of United States"	🦅 "eagle"
Republican	72	30	5	67	42	3	31	0
Democrat	67	55	50	24	14	51	19	134

Figure 42 Chart with highest overall emoji counts

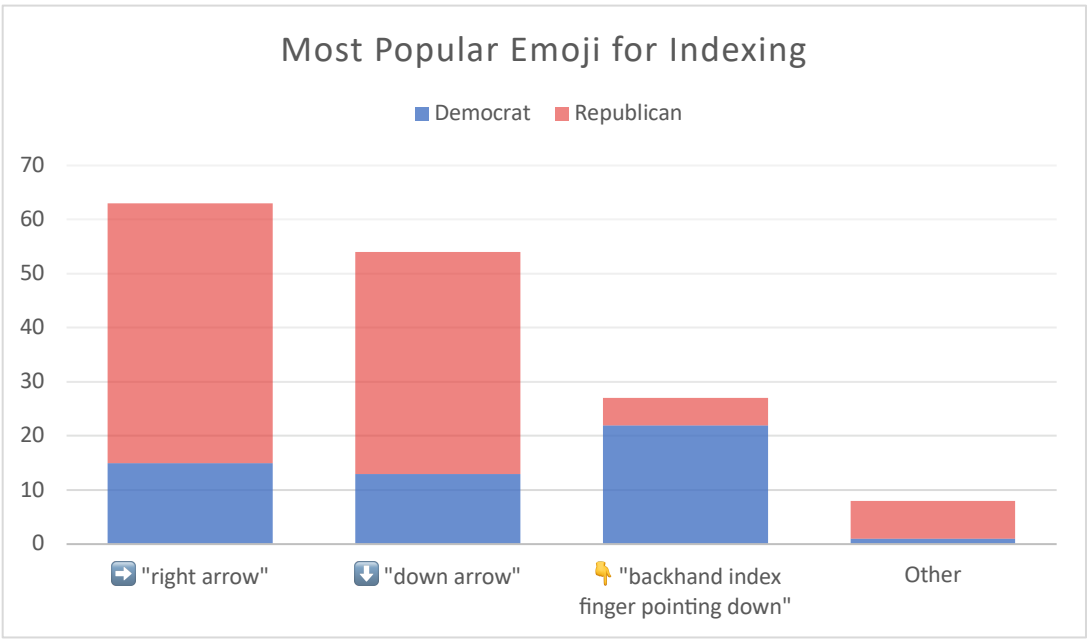


Figure 41 Chart with highest indexical emoji counts

Figures 43 and 44 show examples of tweets in which Senators used emoji to index linked content.

Figure 43 Examples of tweets with arrows (Hirono, 2018; Inhofe Press Office, 2018)

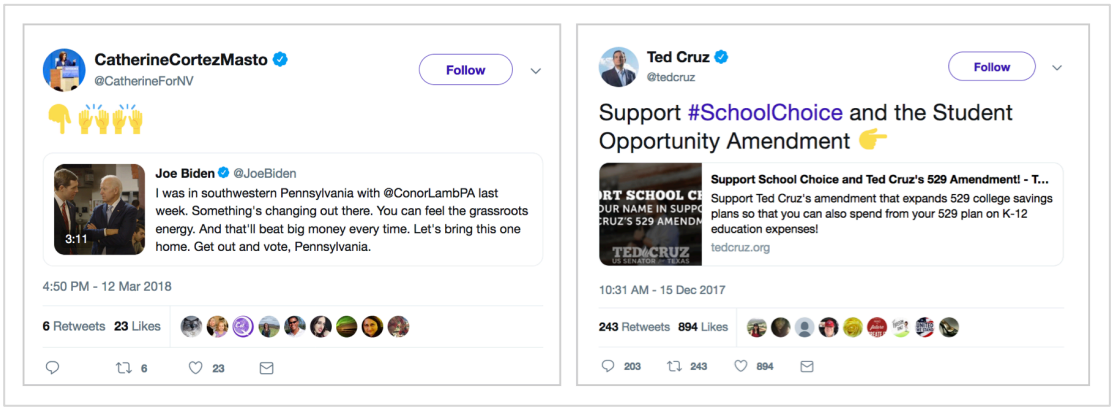


Figure 44 Examples of tweets with hand gestures (Cortez Masto, 2018; Cruz, 2017)

As shown in Figure 45 (below), most popular emoji for creating lists were the "white check mark," "heavy check mark," and "cross mark" emoji. Interestingly, the "white check mark" emoji, which was the most-used emoji overall, was the only "popular"

emoji that saw equal usage among senators from different parties.

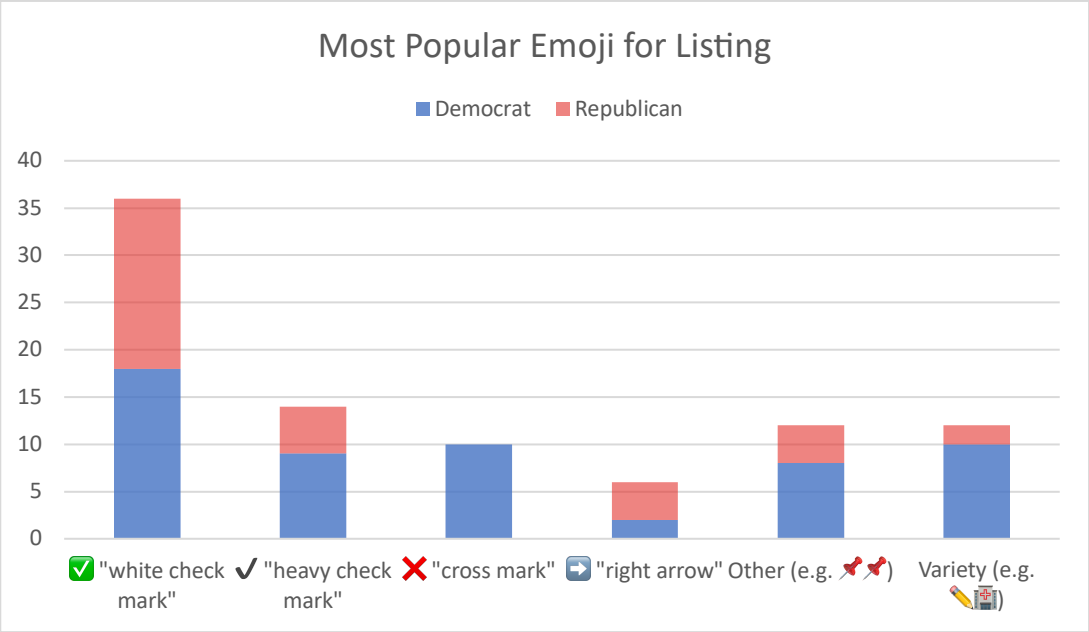


Figure 45 Chart with total counts for emoji used to create lists

Figure 46 (below) includes examples of how Senators used emoji to create lists with check marks and arrows. Figure 47 (below) includes examples of tweets with lists that fall under the "Other" and "Variety" categories. I used "Other" to describe tweets included lists made with a single emoji other than those included in the table, such as Senator Murray's use of the pushpin emoji. "Variety" refers to lists that were created using multiple emoji, such as the examples from Senator Durbin and Senator Fischer.

Figure 46 Lists created with check mark and arrow emoji (Tillis, 2018; Heller, 2018; Tester, 2018)

Figure 47 Other lists created with emoji (Murray, 2017a; Durbin, 2018; Fischer, 2018)

Among the remained most-used emoji from Table 4, the “police car light” emoji yield one of the more interesting findings about the emoji practices of US Senators. The “police car light” emoji was used almost exclusively by Democrats, who consistently employed the emoji to convey urgency and to motivate readers to act (see Figure 48).

Figure 48 Democrats' use of the "police car light" emoji (Booker, 2017; Harris, 2017; Baldwin, 2017; Wyden, 2017; Carper, 2017; Merkley, 2017; Smith, 2018a; Murray, 2017b)

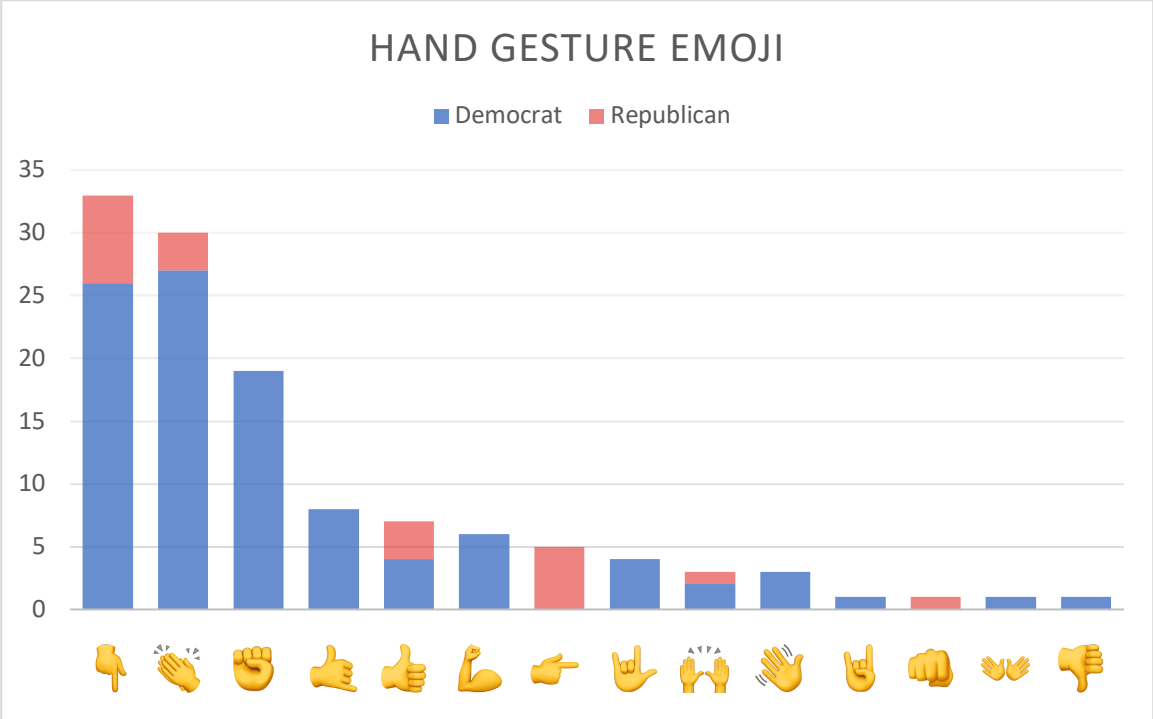


Figure 49 Total counts for hand gesture emoji

Figure 49 (above) provides counts for the hand gesture emoji that Senators used during the four-month period of study. The most popular were the "backhand index finger pointing down" and the "clapping hands" emoji.

As I explained earlier in this chapter, hand gestures are examples of kinesic signs, and they can be interpreted very differently from one culture to the next, such as the "thumbs up" emoji I discussed in chapter 1. Several Senators' uses of the hand gesture emoji serve to illustrate why emoji literacy is critically important to emoji decorum, especially for high-profile politicians. For example, I highly doubt that Senator Perdue would have used the "thumbs up" emoji in a tweet welcoming an international auto manufacturing company to Atlanta if he had known that in many parts of the world, the "thumbs up" emoji is essentially the equivalent of the Western middle finger (Figure 50).

Figure 50 Senator Perdue's use of the "thumbs up" emoji (Perdue, 2018)

A similar example is Senator Scott's use of the "clapping hands" emoji in a tweet responding to Senator Smith (Figure 51).

Figure 51 Senator Scott's use of the "clapping hands" emoji in response to Senator Smith (Smith, 2018b; Scott, 2018)

Senator Smith's tweet was not-so-subtle jab at Politico for referring to her as "Franken's replacement." Senator Scott's tweet was likely meant to sympathize with Senator Smith's frustrations over being identified solely in relation to her white, male predecessor and referred to as a "replacement" rather than by her name and position. Politico tokenized Smith with its #WomenRule hashtag in a manner that was likely antithetical to the essence of the hashtag and, in what was probably an expression of solidarity, Senator Smith conveyed that he too could identify with being labeled in relation to white, male senators—in this case "Black Republican"—rather than by name. However, even before Nancy Pelosi's clap-back during the 2019 State of the Union Address went viral, the "clapping hands" emoji was often used in a sarcastic manner to suggest that someone was "not deserving of real applause" ("Clapping Hands Sign," 2017). The connotations associated with the "clapping hands" emoji could *also* suggest that Scott was not impressed by Smith's reply to Politico because she merely addressed one instance of an issue that other populations, such as people of color, have to contend with regularly. While Senator Perdue's tweet suggested an indecorous emoji practice that failed to account for cross-cultural connotation, Senator Scott's tweet demonstrates that even within one national cultural, there are sub-cultures and generational gaps to account for.

Implications

What are we to make of this data? I fully realize that this pilot study needs more data. However, finding more data, as my own experience taught me, would require the use of analytical tools for emoji mining in social media. For reasons related to how

rendered ecologies function, however, I'll discuss a form of inartistic constraint in the next section that strongly limits social media analysis to text. In other words, I don't currently have access to any tools that can easily scan social media data that I've pulled with R or Python (or MassMine). Furthermore, I fully acknowledge that I do not have enough data collected to be meaningfully significant. However, the fact that senators do *not* use emoji very often is actually quite suggestive from the perspective of rendered ecologies.

Let me offer two comparison to other counting studies. First, in my forthcoming *Computers and Composition* article, "Tracing Emoji Ecologies," I and Steve Holmes were interested in whether Apple's 2016 decision to change the pistol emoji (Figure 52) from a realistic weapon to a non-sensical plastic squirt toy would have a measurable impact on the frequency of how gun rights posts on Twitter would use the emoji.

Figure 52 Evolution of pistol emoji designs (Burge, 2018a)

We counted over 50,000 tweets for emoji frequency that used the #NRA hashtag on Twitter and found that there was a drop in "pistol" emoji frequency use after Apple

released the toy squirt gun design as part of iOS 10.0 (Gray & Holmes, forthcoming in 2019). As is the case with my analysis of Senators, there is not enough data here to argue anything statistically significant. However, I mention this contrast example because of something we discovered that wasn't part of our study: neither of the most followed social media accounts related to the NRA (@NRA and @NRA_Tv) used any emoji at all in a single post. I have long thought that this moment was indicative of a range of possible explanations, but decorum may play an explanatory role. Just as Mitt Romney refused to respond to questions from an animated snowman on live television because it wasn't "appropriate,"[5] perhaps the NRA similarly view emoji as nonserious or juvenile.

While I would need much more data to prove it, as well as comparative case studies, there is actually enough generalized data out there related to the average Twitter users' emoji posting habits to offer a loose interpretative guess as to this built in constraint on Twitter among politically-facing social media accounts. In the Introduction to this dissertation, I cited a research study about how nearly half of all Instagram posts used an emoji. While I could not find this same information available for Twitter, let me speculate for a moment. Let's say that a mere 25% of all Twitter posts use an emoji. Senators would still be far below this average. Anecdotally, my cursory glances at senators' Instagram posts, which heavily duplicate content posted to their Facebook and Twitter posts, confirm that they are not even close to including emoji on half of their posts. In other words, it likely is not much of a stretch to suspect that senators are not using emoji as frequently as other Twitter users.

[5] See chapter 4, page # for a longer explanation

However, let's forget about total percentages of posts that include an emoji and think about the effective use of emoji in Twitter since I do have access to that information thanks to Emojitracker. Senators would do well to consult tools like Matthew Rothenberg's Emojitracker, which has documented and counted the most popular emoji posted in Twitter since July 2013. He has tracked over 25 billion tweets as of April 2019. Although Rothenberg does not post a running total of all emoji counted, the counts for the most popular emoji suggest the magnitude. Figure 53 is a screenshot of the first line of Emojitracker taken on April 25, 2019.

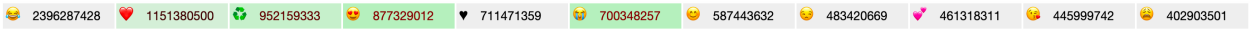


Figure 53 Emoji with the highest counts on Emojitracker (Emojitracker)

This list is useful because it demonstrates that the most-used emoji among senators do no correlate with the most-used emoji among all Twitter users. To demonstrate, Figure 54 is a screenshot from Emojitracker that features three emoji that were popular among senators. Their most popular means of communication—the "white check mark" emoji (#87) doesn't even crack the top 50 emoji that most frequently used. The "heavy check mark" and "right arrow" emoji were ranked #77 and #78 respectively.

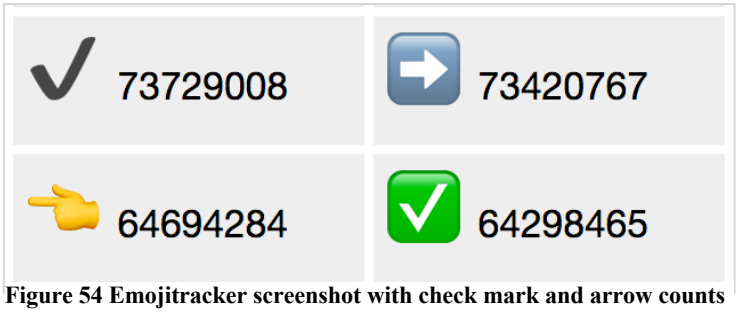


Figure 54 Emojitracker screenshot with check mark and arrow counts (Emojitracker)

Despite the fact that emoji are not just substitutes for missing facial cues, it is telling that Emojitracker data typically corroborates SwiftKey's (2015) findings, which I discussed earlier in this chapter. The screenshot from Emojitracker in Figure 53 includes primarily happy face, which "comprised nearly 45 percent of emojis sent" (SwiftKey, 2015), sad faces, and hearts.

I do not believe it is much of a stretch to claim that senators are therefore missing a human point of empathy and identification achievable through emoji. Such is basic "Intro to Rhetoric 101" material. Kenneth Burke, for example, writes about "identification" as how everyday rhetoric works by making individuals more likely to accept a new point of view if they identify (or feel "consubstantial") with the individual delivering the message. Identification is grounded in *pathos* (emotion). Politicians, I'd argue, already use identification—just not with emoji. While still in office, President Bill Clinton loved to be photographed in *Time* magazine stopping at MacDonald's when running. This very human impulse—I mean, who wouldn't rather be eating a veggie- or cheeseburger than running—helped make the most powerful statesperson on the planet seem human and more likeable. Why do most American presidents have a family dog? The answer is always "identification." If politicians already use identification in so many ways, from being televised in bars "like an average joe" to appearing on *Sesame Street* to going on hunting trips in order to disguise their multimillionaire status and privilege, *why not do the same for emoji*?

If I were to make recommendations to the social media content moderators of staffers who post on senators' behalf, my relatively humble recommendation would be to use emoji more strategically to engage more user interactivity. Many online social media content creation columns' advice for those wishing to create more user interactivity is to simply use more images. For example, facts like "Humans process images 60,000 times faster than text" and "93 percent of the most engaging posts on Facebook include images" (Kingdom Training, 2019) can be found across numerous such advice columns. Facebook's decision to change their Newsfeed a decade ago to incorporate larger image thumbnails on user posts is another illustration (Finn, 2017, p. 152).

Again, I admit fully that my data collection and analysis is limited. I still view this as a starting place for a larger comparative study in the future. However, I maintain my suspicion that the lack of diversity in emoji frequency as well as the abject failure to understand how emoji ecologies of practice and culture operate, offers a compelling reason for senators to better learn how emoji work in order to grow their brands. As an anecdotal case in point, Representative Ocasio-Cortez is known as a social-media savvy congressperson and for good reason. Most congresspersons have an Instagram account, but she was one of the first to use Instagram as users who *understand* the platform use it. She notably used the story feature to document her experience cooking dinner, and her excited-but-tired demeanor resonated with anyone who's struggled to throw a meal together for their family after a long day of work. In fact, I'd argue that her "decorum" fits what an Instagram audience knows and understands, while the vast majority of senators on Twitter largely fail to use the medium to its full rhetorical capacities, thereby

illustrating not an inartistic constraint like an ecology of code, but a self-imposed and arbitrary artistic constraint on their ecologies of practice. Again, while I am not claiming that it is generational decorum or lack of social media literacy that is causing this pattern in Senators' social media posts, the parallels to this communication oversight alongside the historic mistrust of emergent communication forms, such as Plato's fear of writing as artificial memory storage, that makes me suspicious. In any case, even if the cause is uncertain, the lack of potential *effects* for senators' social media audiences definitely worth investigating.

And rhetoric at the end of the day—regardless of how we define it (instrumental, persuasion, epistemic, ambient)—does come down to *praxis*. Miller (1989) describes *praxis* as the study of the communicative "goods" that offer researchers a "locus for questioning, for criticism, for distinguishing good practice from bad" (p. 69). These norms are interconnected with decorum and particular audiences and cultures. Therein lies the payoff to the use of frequency to locate patterns of non-identification that may respect one decorum (senators should use serious mediums like text in social media) rule but that is ill-suited for identification in relationship to actual decorum practices in social media, such as drawing on the most frequently used emoji.

Tool Constraints

While the data I collected did shed light on some interesting patterns, the research process exposed something arguably more interesting: the inconsistences and shortcomings of the algorithmic text mining tools I was using. As I grappled with how to read emoji in social media through these tools, the final constraint of code emerged.

First, I can only code relative to the platform that I perceive Tweets in. In other words, I can infer, but as my example of Jessica Chastain's tweet in chapter 2 demonstrates, I can't always be sure that the emoji on my screen is what the user intended. But even when emoji *do* appear as the user intended, there exists a bit of logocentrism built into the current digital research tools available to study emoji. Indeed, one possible explanation for the exclusion of emoji in previous studies could be that the emoji did not display accurately or consistently in the data collection tools that researchers were using. For example, Senator Amy Klobuchar included the Swedish Flag emoji in a tweet she composed on March 6, 2018 (Figure 55).

Figure 55 Klobuchar tweet with Swedish flag from Twitter

When I use TwitteR to pull the Senator's tweets, I can tell there's an emoji in the tweet (see Figure 56), but it is a hassle to figure out which emoji was used in the tweet.

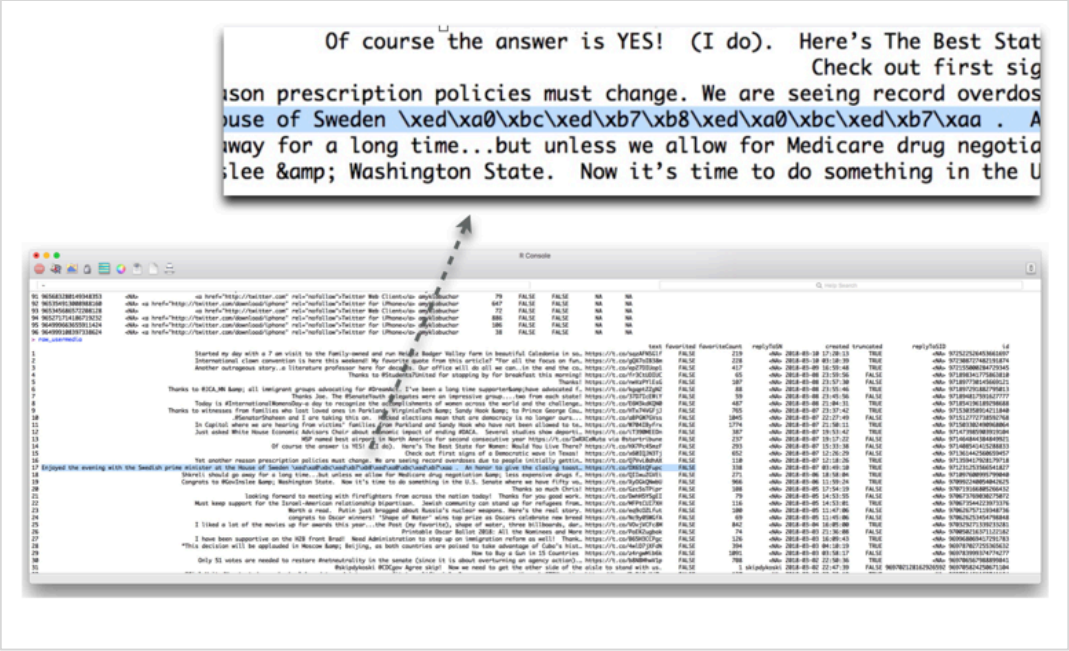


Figure 56 Klobuchar tweet in R Console

While other emoji functions in TwitteR are incredibly useful, the language falls short in its capacity to render the emoji in line with the text as it originally appeared on Twitter. In other words, I cannot see the rendered emoji in the tweet as it was originally composed and posted.

Another tool I employed for this project is Nvivo, a popular software program for qualitative data analysis that I've been using for several years now. One of its many useful tools is the nCapture browser extension that lets users import and code new sources with ease—including tweets. Users have the options of "capturing" tweets as

PDFs or as datasets. I used both for this tweet. When I view Klobuchar's feed as a webpage PDF, the graphics display accurately because it's an image of the Senator's feed, but I sacrifice the automatic inclusion of the metadata. I would have to manually code a lot of information—such as the time, date, and retweets, to name a few—that would already be accounted for if I'd captured the feed as a dataset. Figure 57 shows how Klobuchar's' tweet appeared as part of a dataset. I imported more information, but the Swedish Flag emoji is problematically absent.

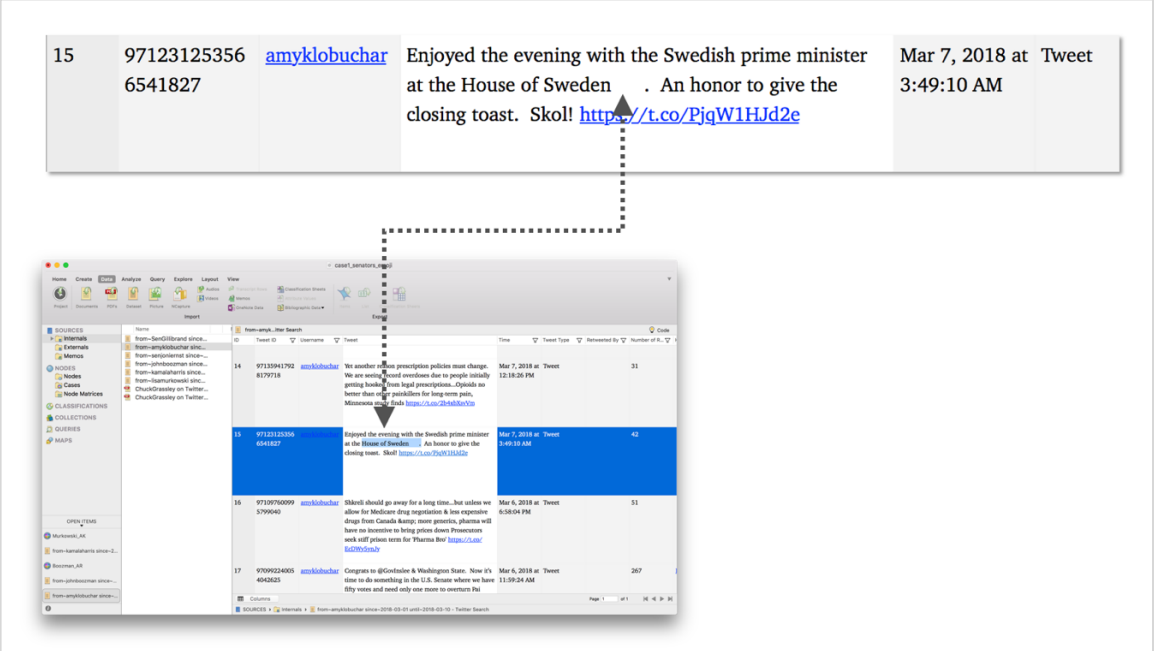


Figure 57 Klobuchar's tweet as part of an NVivo dataset

When I view Klobuchar's tweet as part of an Nvivo dataset, I can at least see that something is missing because of the extra space before the period, but that isn't always

possible. On March 2, 2018, Senator John Boozman composed a tweet that included two emoji: an American flag and an arrow pointing downward (see Figure 58).

Figure 58 Senator Boozman's tweet with an American flag emoji

When viewed as part of an NVivo dataset (Figure 59), Senator Boozman's tweet includes the arrow pointing down, but not the American Flag. Furthermore, there's no indication than an emoji is missing.

32	969610008169205760	JohnBoozman	I recently sat down w/ @gotursixtv to discuss some of the things I'm working on to support #veterans. We must live up to the promises that were made to those who answered the call to serve our nation You can WATCH our conversation here ⬇️ https://t.co/SPurZgujl9	Mar 2, 2018 at 4:26:55 PM	Tweet

Figure 59 Boozman's tweet as part of an NVivo dataset

Consider yet another example. On March 4th, 2018, Senator Kamala Harris tweeted in support of West Virginia teachers, and in this particular tweet, she included a raised fist emoji with a skin tone modifier (Figure 60).

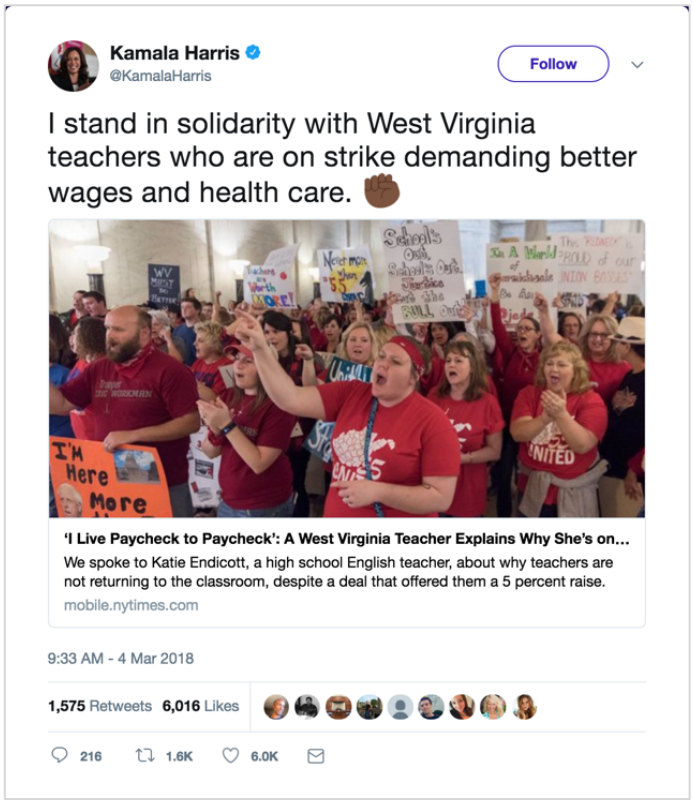


Figure 60 Senator Harris's tweet in support of West Virginia teachers (Harris, 2018)

When this same tweet appears as part of a dataset in NVivo, Harris' raised fist has reverted to its default, "general purpose" form because NVivo doesn't process the skin tone modifier (Figure 61).

30	970351446121242624	KamalaHarris	I stand in solidarity with West Virginia teachers who are on strike demanding better wages and health care. ✊ https://t.co/QZw76UmC6U	Mar 4, 2018 at 5:33:07 PM	Tweet

Figure 61 Senator Harris's tweet in NVivo

Unicode advises that "General-purpose emoji for people and body parts […] not be given overly specific images: the general recommendation is to be as neutral as possible regarding race, ethnicity, and gender" (Unicode Consortium, 2019d). The orange skin tone presented here is Apple's interpretation of a "neutral choice."

Harris is not the only Senator who uses skin tone modifiers to more accurately reflect her sense of identity, and consequently, hers was not the only rhetorical choice lost to a rendering engine.

Figure 62 Senator Schatz' tweet with the "call me" emoji (Schatz, 2017)

Senator Brian Schatz used a tan "call me" emoji to congratulate surfer and fellow Hawaiian, John John Florence (Figure 62). Senator Mitch McConnell used a skin tone modifier to ensure that Santa Claus appeared Caucasian (Figure 63).

Figure 63 Senator McConnell's holiday tweet (McConnell, 2017)

It is not difficult to see how, in cases such as these, default presentations diminish the richness of the message and avert inquiry into choices that are well-worth analytical attention.

But the question remains: how can non-coders count data for such a project? The answer, unfortunately, is *very inefficiently*. I had to take screenshots to make sure I collected all of the necessary information from each tweet. Because the Ncapture browser extension doesn't always work with emoji and PDFs of the entire feed leave out important information like the time and date, I found it was easier to use Twitter Advanced Search, scroll through feeds, take screenshots of the individual tweets that included emoji, and then tally the counts in Microsoft Excel. Relatively speaking, emoji are new; it takes time to develop good methods to study new things or to update existing

tools to accommodate them, but I think it's important that we do. It seems a bit ridiculous that data collection tools—especially those that require a yearly subscription like NVivo—cannot handle emoji.

The irony, here, is that emoji are designed to scale across devices and operating systems, but their encoding, which makes this possible, is not always supported by the tools designed for big data. My study of Senators' tweets highlights how we must not only consider the scale of our research, but how the programs we use scale and constrain our units of analysis; how those programs and algorithms might sometimes squander users' preferred representations; and how well-designed, innovative research tools might be operating with outdated understandings of "text."

Conclusion

These constraints serve to highlight the need to develop visual-based interfaces alongside textual ones, lest our field reinscribe far older logocentric biases over textual ones (in other words, the realm of the familiar over the realm of the emergent). Furthermore, for those who might wave off emoji as a passing fad doomed to go out of fashion eventually, I would, in part, agree that emoji are but a recent instantiation in a history of visuals used to annotate, accent, and occasionally replace alphabetic script (e.g. AOL smileys, GIFs, emoticons, rebus writing). However, I would argue that this fact only emphasizes the need to develop better methods and tools to study encoded visuals—not because I think emoji are going to stay in vogue forever, but because I believe that another type of encoded graphic will replace emoji when they fall out of favor. Vyvyan Evans (2017) echoes a similar idea in *The Emoji Code*, explaining:

> While Emoji will surely continue to evolve, and other systems and codes will be developed that will complement and, doubtless, replace Emoji as it currently exists, its emergence provides the beginning of a more or less level playing field, between face-to-face interaction and digital communication—better enabling effective communication in the digital sphere. (p. 103)

As a field concerned with communication in myriad forms, it's critical that we attend to emergent forms like emoji; that we let research pitfalls drive us rather than deter us; and that we publicize the research constraints we face in order to develop better tools and expand existing methods.

CHAPTER FIVE: ENCODING EMOJI, CODIFYING PUBLICS

As I explained in chapter 2, of Brooke's three ecologies for new media, my use of ecologies of culture aligns most consistently with his original description in *Lingua Fracta*. Brooke (2009) emphasizes that ecologies of culture "operat[e] at the broadest range of scales" and he further posits that "[a]ny act of discourse is going to be constrained in various ways by cultural assumptions" (p. 49). Ecologies of culture force us to grapple with the "various constituencies, competing ideologies, and multiple contexts" (Brooke, 2009, p. 49) that influence and are influenced by ecologies of code and practice.

While emoji development is inherently recursive—as I demonstrated with the dancer emoji example in chapter 2—the locus of emoji production is the Unicode Consortium: the nonprofit through which all emoji are selected, encoded, and supported. Simply stated, any account of rendered ecologies that does not address Unicode's gatekeeping function would be woefully inadequate. Without Unicode's standardization, there are likely no pervasively used cross-platform emoji-like icons that are widely adopted by digital writers around the globe.

While the adoption of a new emoji is in many ways the result of collaborative public effort and social pressure (and social data, as chapter 3 demonstrates), Unicode ultimately serves as the emoji gatekeeper, so to speak. In other words, the decisions of a

single committee affect the representational affordances of a diverse, global community. Given the proliferation of emoji in everyday communication around the world, it is not difficult to imagine the myriad ways in which various cultural groups are privileged, marginalized, stereotyped, and appropriated through the decisions of the Unicode Technical Committee. In an article for *Wired*, Collete Shade (2015) gestures towards the magnitude and underlying complexity of Unicode's decisions:

> [W]ith each new vote and following induction, emoji are becoming increasingly politically charged. The presence or absence of emoji both hints at and contributes to cultural visibility and erasure. The emoji selection process must contend with delicate geopolitical issues, like nationhood, ethnicity, religion, and war. (para. 2)

While emoji might be considered the current poster child for visual, cultural critique, images have long since been understood as political/politicized artifacts. As such, one entry point for thinking through the rhetorical and political stakes of rendered ecologies lies in a more thorough examination of Unicode's role in maintaining a strong structure of possibility for emoji rhetoric.

Building on my explanations of the distinctiveness and utility of emoji at the levels of code (chapter 3) and practice (chapter 4), I use chapter 5 to discuss the cultural significance of emoji, with particular attention to the ways in which Unicode's decisions have come to symbolize social affirmation or exclusion on a broader scale. In order to underscore the significance of the larger cultural implications of Unicode's decisions and procedures, I begin this chapter by discussing the ways in which images are always already politicized. Next, I provide an overview of the Unicode's procedures and

guidelines for proposing new emoji. Finally, I examine some of the contours of constraint through the Unicode Emoji Subcommittee's and the Unicode Technical Committee's publicly available commentary on and regarding proposals for new emoji, and the developments and discussions related to several specific emoji proposals in order to better illustrate those constraints for rendered ecologies.

The Cultural Politics of Emoji Ecologies

So far in this dissertation, I've implied strongly that emoji (images more broadly speaking) are political. Given that my analysis in Chapter 4 claims that the unalterable design by users of certain racialized emoji like Senator Mitch McConnell's white-skinned Santa emoji Tweet is an ethical issue, I would like to directly engage the issue of emoji as part of the ideological construction of cultural identity before I continue my analysis in this chapter. I want to situate this chapter's analysis of ecologies of culture by better connecting emoji rhetoric to past and present work on the politics of images both in visual rhetoric as well as the work on critical visual studies (and critical race and gender theory) outside of it.

My claim here is that emoji function as part of representations. They are not mimetic or realistic substitutes for missing facial expressions alone but are instead symbolic, and their meaning depends upon how users are situated differently across interpenetrating ideological systems of capitalism, race, class, gender, and sexuality as numerous critical theorists have observed over the past few decades. One primary route toward seeing visual rhetoric per se as ideological began with efforts to reverse the 20th century's focus on language and discourse, or, more simply, to initially extend

poststructuralist semiotics and other related conversations in the twentieth century to include images. With WJT Mitchell's (1987) work on iconology as a well-known example, part of understanding how emoji function to shape ideological orientations lies in claiming that images are not secondary to speech or writing. He noted a common problem in the west was that the goal of visual representation in painting and early photography was to mimetically present reality instead of to communicate it symbolically (or rhetorically). In many ways, images were treated as an inferior form of meaning-making to speech in a parallel sense to how rhetoric was dismissed by Plato. Mitchell writes that images have become "a sort of sign that presents a deceptive appearance of naturalness and transparency, concealing an opaque, distorting, arbitrary mechanism of representation, a process of ideological mystification" (Mitchell, 1986, p. 8). As an aside, visual rhetoric scholars had a different but related form of *logocentrism*. As Bogost (2005) noted, early visual rhetoric work such as Hill (2004), while commendable, tended to privilege speech, for example (p. 21-22). In other words, early forms of visual rhetoric did not always view images as a unique and not lesser form of rhetoric that capable of independently creating unique—but neither superior nor inferior—forms of non-discursive forms of affect.

Treatments of visual rhetoric have improved on these early efforts by drawing in part on visual and media studies theorists who treat visuals as equally as important to text in terms of their capacity to create meaning. As a case in point, one way to make sense of emoji (and to further highlight some of the contributions of my dissertation) lies in Mitchell's discussion of the politics of *iconology*. For context, *iconology* was initially

considered distinct from *iconography* in the early canonical work by Erwin Panofsky. Iconology was a form of interpretation used by art and cultural historians to situate themes in visuals arts within and against the cultural milieus, such as an artist's historical context or oeuvre. If *iconology* looked at "symbolic meaning," then *iconography* tended to look more at formal features (i.e., brushstroke or photographic techniques) as the prime mover for interpretative analysis. In later thinkers like Mitchell, the lines blur. However, Mitchell tends to be more interested in the symbolic aspect of images—that is, in how social-cultural contexts inflect meaning in images.

Responding to the aforementioned discursive focus of (then) a great deal of 20th century critical and literary theory, Mitchell sought to tease out the ideological presuppositions that maintained a distinction between image and text despite us living in the era of the *pictorial turn*. Of the very title of his later book, *Picture Theory*, Mitchell explains that his aim in the book is *to picture* theory—that is, to analyze multiple forms of the ideology of the image—rather than to offer a totalizing or comprehensive definition of something called *picture theory*. Images do not merely turn on a binary: fated to mimetically represent the world or to be open to criticisms of manipulation. Rather, all images are things of this world; "the senses, the aesthetic modes, and the act of representation itself continue to fall back into the history from which we would like to redeem them" (Mitchell, 1994, p.149). To reference the analogy between rhetoric and philosophy again, Mitchell's goal in overturning the Truth/manipulation binary finds an analogy in how 20th century rhetorical theorists overturned the Platonic reduction of rhetoric by arguing that all language was rhetoric.

While a major figure, Mitchell, of course, is hardly the only visual theorist to make these sorts of claims. In addition to Mitchell's "iconography," countless 20th-century cultural theorists have argued persuasively for the political relationship between culture and images, such as Walter J. Benjamin's (2008) famous discussion of the "aura" and Jean Baudrillard's (1994) analysis of simulacra. In defining the "culture industry," for example, Horkheimer and Adorno (2002) might instruct us to see the currently popularity of emoji on social media as only one more way in which popular culture is made more enjoyable or easier to consume. Emoji could be considered just another standardized image commodity that users cannot actively compose on their own for use in cross-platform communication. One of the reasons why Horkheimer and Adorno offered a stern criticism of mass cultural consumption of this nature is because it encouraged individuals to consume objects rather than create them (and understand how they came into being through economic relationships).

Naturally, individual rhetorical practices can and do deploy emoji in creative ways and repurpose them for rhetors' own rhetorical ends. However, and while I have gestured toward the popular use of emoji in social media protests in my "Introduction," such as the raised fist emoji, Horkheimer and Adorno (as well as Nick Dyer-Witheford's (1999) subsequent discussion of "cyber-Marxism") could also observe that the corporate owned distribution mechanisms of social media communication can have a co-opting function. This function can work to channel activist energy through emoji back into means of constrained expression that do not overturn the neoliberal order of things.

It is from this sort of need to at once acknowledge that images are not inferior to text but, in doing so, to also observe that they therefore need to be scrutinized as important forms of political production that unsurprisingly lead visual rhetoric scholars to raise similar connections between images and politics. In one notable example, Bradford Vivian (2007, p. 476) notes that a great deal of visual rhetoric is rightly interested in symbolic iconography and critique. Pictures carry representational context that critics can critique by treating images like texts to be read.

How then do such ideological orientations relate to emoji? First, such views are useful in pushing the job of scholars from studying the concrete use of signs like emoji as they are actually used by rhetorics—not merely as a value-neutral means of sender-receiver communication, but how their situated deployment helps to active create meaning between subjects, audiences, and their cultural milieus. In other words, the meaning of skin-toned Santa emoji is political since we have to draw on these cultural contexts to determine their meaning in use. Thus, *it matters* when a white senator in a racialized American networked public sphere Tweets a white Santa emoji. In summarizing work in this area, Gries (2015) noted a connection between this representational approach and Charles Peirce's semiotics. Where Saussure studied semiotic signs (signifiers + signifieds) to argue that language is constructed through signs (and poststructuralism followed by arguing these sign systems were arbitrary), Peirce's semiotics explored indexes, icons, and symbols to reach a similar conclusion for images. Visual signs do not have intrinsic or stable meaning, but rather *immediate objects* (denotative referents) and *dynamical objects* (myriad connotations). To sum up, rhetorical

scholars, as Vivian summarizes, have internalized a similar logic: we study visual signs in order to determine how hidden power dynamics inflect their meaning.

To be sure, there is plenty of excellent work on critical race theory and visual culture by this point in time. However, I have always enjoyed teaching my students Stuart Hall's (1997) still highly relevant discussion between the "relations of representation" and the "politics of representation." Hall discusses how the first battle for minority and repressed groups is often just to establish mere presence, such as when Katie Couric became the first major female television news caster. The second move lies in then determining how and in what way a formerly marginalized body is allowed to enter. Are homosexual male characters permitted on television only in the essentialized and stereotypical form of lisping, feminine (historically coded), and comedic sidekicks in *Sex in the City* or *Family Guy* or are they allowed singularity and complexity? To draw an analogy to emoji, issues such as which emoji are allowed cultural presence is part of what Hall described as part of the ongoing cultural struggle for representation. How and in what way different cultures are or are not granted representational legitimacy by Unicode and emoji's major multinational corporate venders like Apple fit into the politics of images.

Hall is working out of British Cultural studies and a post-Marxist intellectual tradition. I want to add to this idea a related but more narrow focus to highlight some of the ways in which digital rhetoric scholars can better understand the ethical stakes of ecologies of culture for emoji. I want to turn to the aesthetic political theory of Jacques Rancière. Rancière has been connected to rhetoric and writing studies (Colton & Holmes,

2014, 2018; Stoneman, 2016) in recent years, but these engagements have not really explored the implications of his thinking for visual rhetoric, which is a strange oversight considering how much he has written about images. In *Dissensus*, Rancière describes how what he calls "partitions of the sensible," or the "police order," function to maintain inegalitarian political communities. As Colton and Holmes (2018) summarize, the police order is not (only) the police with badges who pull over speeding drivers and disproportionately harass and kill young African-American males (p. 178). The police order also does not mean Foucault's institutionalized gaze in the panoptical prison. Rather, Rancière means to describe any and all forms of cultural practices that actively participate in producing inequality, including images. Rancière (1999) writes:

> [T]he police is thus first an order of bodies that defines the allocation of ways of doing, ways of being, and ways of saying, and sees that those bodies are assigned by name to a particular place and task; it is an order of the visible and the sayable that sees that a particular activity is visible and another is not, that this speech is understood as discourse and another as noise. (p. 29)

It is the police order that are at stake in assessing how ecologies of culture shape individuals' rhetorical subjectivities.

This analysis point is not just theoretical speculation. The new found customizable skin-tone emoji were undoubted a step forward in terms of relations of representation. However, the politics of representation remained an issue for re-partitioning the sensible in different ways. As one African-American *New York Times*

columnist Tutt (2015) rightly complained, these new customization options also offered complex rhetor and audience dynamics for non-white users:

> Because I'm black, should I now feel compelled to use the "appropriate" brown-skinned nail-painting emoji? Why would I use the white one? Now in simple text messages and tweets, I have to identify myself racially.

Tutt, like many African-American users, details how she began to scrutinize white friends' rhetorical decisions (practice) to send her a "black angel" at Christmas instead of neutral or white-skin tone angel. Furthermore, while the iOS 8.3 update did offer more diverse options for human emoji, the Western-centric bias for popular food, clothing, religion, and transportation emoji remained (Shade, 2015; LaFrance, 2017). As Tutt's opinion piece in the *New York Times* argues, making non-white Americans visible in emoji form also opens up new forms of racial silencing, such as white senators tweeting white Santas.

In the case of the token handful of accepted culturally diverse emoji like the hijab and dumpling emoji, we can also see police orders maintained by further highlighting the ways in which Unicode and technology venders participate in structuring partitions of the sensible. Images place a central role in police orders. Rancière writes, "The visible can be arranged in meaningful tropes; words deploy a visibility that can be blinding" (p. 7), which is related to Mitchell's semiotic influenced suggestion that images mean more than just what they represent. It matters how emoji are enacted or, in turn, how constraints fail to let certain emoji signs become visible and count or discount them as participating actors. Rancière is interested in whether relations of representation allow individuals to

see themselves as equal to other individuals in a society. Thus, images that reproduce racism fit into inegalitarian partitions of the sensible.

There is an analogy here to explain why emoji representations matter in relationship to image politics. For Rancière, the ancient post-Marxist debate over the politicization of art is pointless. There is no need to politicize art because art's very existence gives form to and alters the police order, or the distribution of who counts as a speaker (voice) or a body within a given society. It is at this level, where I see ecologies of culture participate in shaping the political dimensions of emoji, that I ultimately see some of the major contributions of this dissertation. To take a step back from the chapter 5, merely challenging sender-receiver mores or the implication that emoji are ephemeral, non-serious, or, historically, inferior to text[6] *grounds emoji in its always already political nature*.

It is not *clear* to many everyday users (except, ironically, McConnell) that the use of emoji *is* political and carries great consequences for reinforcing symbolic hierarchies of race or gender. Most who have read critical theory in the past few decades are familiar with Judith Butler's (1990) work on gender performativity in *Gender Trouble* by now. Many of us understand that gender is not fixed, but fluid and contingent. Queer, Theresa de Lauretis (1991) tells us, is also singular. Identities are inexhaustible and impossible to fix as Platonic essences, or definitions which are invariable for all time. Thus, the payoff to studying how ecologies of code work lies in helping to tell us the different scales and

[6] As per Mitchell's repeated desire to deconstruct the figure/ground relationship. See also Lyotard, *Discourse Figure*

levels at which America and global networked communication through emoji is and is not participating in enacting partitions of the sensible.

From Laura Mulvey's (1999) discussion of male gaze, which can force females to be present on screen only as objects of heterosexual male desire, to the Bechdel test, to the Scully Effect, which demonstrated that having smart non-sexualized female characters inspired young women to pursue careers in the sciences, there is an overwhelming amount of evidence that the cultural ecologies for individual rhetorical practice through images matter. It matters, therefore, when Floriane Hutchinson (2017) proposed the woman's blue flat shoe emoji in 2017 so that she was able to alter gendered partition of the sensible for emoji. Those who self-identify as women symbolically were limited to expressing their shoe choices in emoji to a sexualized red high heel shoe (the male gaze). Those who subscribe to gender performativity or sexuality as fluid and multifaceted *are symbolically unable to recognize their equality when their options for representation aesthetically in emoji are non-existent.* They are invisible. They have no voice and, therefore, Rancière's basic framework offers us one—and by no means the only—way of thinking through the significance of something like culturally-diverse emoji proposals which strive, in my reading, to alter the partition of the sensible of emoji for more egalitarian forms of inclusion and cultural difference.

Yet, partitions of the sensible are relative to specific marginalized groups. They are multiple and diverse. Where heterosexual women gain a shoe emoji, non-binary genders and sexualities still struggle for representational equality. In response to Unicode's attempts to improve gender representation in Emoji 4.0, another public emoji

advocate Charlotte Buff (2018) wrote a letter to Unicode explaining that Emoji 4.0 had "cemented gender as a fundamental and intrinsic property of all human-form emoji, much like the concept of skin tone," and that Unicode's attempt at gender inclusiveness had actually resulted "in an insulting mess of a specification that not only completely omitted non-binary people, but left many binary identities in the dust as well for no reason given." Unicode posted her letter in their public document archive, but still continued to subscribe to binary identities for the most part.

I include these examples to shift the role of emoji proposal authors from Horkheimer and Adorno's concern with passivity toward active forms of composition and intervention, which simultaneously confirms why I am arguing for the need to study emoji through multiple ecologies. If we just studied code and practice alone for emoji use, we'd be missing this important site where partitions of the sensible can be negotiated (if unevenly and incompletely). This is what I see Emojination doing: trying to change police orders of image politics that continue to reinforce inegalitarian partitions of the sensible. To clarify one thing in closing this section, it is not clear to me that merely proposing new emoji is what Rancière has in mind in his notion of politics as "dissensus." While I do not have the space here to adequately tie his political views toward activism, I will try to gesture toward these possibilities in the "Conclusion" section. Indeed, by better understanding how images like emoji participation in relations of representation or police orders, Rancière might tell us to consider the requisite means of dissensus. Dissensus in his thinking is an act born out of a presupposition of equality that makes visible a partition of the sensible. However, dissensus, as Colton & Holmes

(2018) note, is more like direct activism like when African-American activists in the segregated south sat down at a "white's only" Woolworth's counter and asked to be served. There are not any "legal" prohibitions on emoji to be analogously disturbed and nor is it is clear how dissensus (like in the form of hacking, say, Apple's mobile phone iOS to display new culturally diverse emoji) would be a readily available option for emoji at this point. And, by the way, this isn't a limitation. As May (2008) noted, Rancière is very clear that "politics" (dissensus) happens very rarely. A more just society will always need more attention to how police orders of images function.

There is much more that can be said on this particular topic of emoji and politics. For example, Gries (2015) notes how new materialism can help visual rhetoric scholars move beyond critique to see what other affective and emergent range of effects and affects a concrete material image creates in the world as it circulates often far beyond the intentions of its creator. As Gries (2015) argues (in part via Carole Blair), we should also study visual rhetoric in terms of its material consequences that, not just examine what a text *means*, but what it *does* (2015, p. 47-48). However, again, my intention here is to offer some useful explanatory frameworks—ones that I hope to develop as I continue to refine my thinking of the politics of emoji.

A Quick Distinction

Because several of the examples I use in this chapter tie into issues I raised in the previous section and illustrate the affordances and deficits cultural representation via emoji, I wish to first emphasize the limitations of Unicode's agency in producing

inclusive emoji. While Unicode is responsible for adopting, encoding, and supporting emoji, it is still up to vendors to interpret the emoji characters and design them accordingly. I bring this up because, as I've demonstrated with previous examples, vendors' designs for the same emoji can vary. This is, perhaps, especially problematic for emoji in Unicode's "People and Body" category.

Although new emoji are meant to expand users' communicative affordances and are often met with enthusiasm, some people associate increasingly specific representation options with ostracization—either due to prescriptive ideological underpinnings tied to availability or to unforeseen technical issues[7] that mark diversity as "other." With the release of skin tone modifiers in 2015, Unicode included a "neutral," default skin tone in an effort to avoid privileging lighter skin tones as past emoji had. As with all emoji, vendors took slightly different approaches in designing their "neutral" emoji. Figure 63 shows each vendor's default design for the "woman" emoji (U+1F469).

Figure 64 Vendor designs for "woman" emoji (Unicode Consortium, 2019k)

While Google, Emoji One, Facebook, Samsung, and Microsoft all opted for a neutral design with brown hair, Apple and Twitter used a lighter hair color and skin tone. This example of design inconsistency is similar to others I've drawn attention to

[7] See discussion in chapter 4 re: diverse emoji requiring more characters on twitter.

throughout this dissertation, but it also serves to expose Unicode's limited agency when it comes to vendors' interpretations. Furthermore, it sheds light on the fact that Unicode sometimes takes the fall for vendors' design choices. In her episode of Netflix's series, *The Standups*, comedian Aparna Nancherla (2018) described Apple's "neutral" diverse family emoji as "heartwarming" before likening them to an "Aryan nation starter kit" (12:30). She went on to critique perceived priorities of what she called "the Emoji Corp," asking, "Why does Emoji Corp think it's so much more important to represent, like, a multicultural boy band than a beautiful, diverse family?" (12:50) in response to the blond emoji modifier options (see Figure 65) and positing, "Why don't we work on representing black women in real life, and then we can work on elves" (17:02) in response to the fact that while there are no black family emoji, there is a black elf emoji. The blond emoji was released in 2016 as part of Emoji 4.0, and Apple was the only vendor to design all of its blond emoji with blue eyes and one of three vendors to design the blond woman emoji with a ponytail (see Figure 65).

Figure 65 Apple's blond emoji designs

Unicode never specified that the "woman: blond hair" and "man: blond hair" emoji should have blue eyes, nor did Unicode specify that the "woman: blond hair" emoji should feature a pony tail. Thus, critiques of the assumption that blond hair should be paired with blue eyes for each skin tone shouldn't necessarily be directed at Unicode. However, Nancherla's complaint about the lack of diverse families does is an issue for Unicode to address. Vendors cannot offer designs for diverse family emoji unless Unicode assigns unifying hex codes to support diverse family emoji. In sum, it's important to differentiate between representational limitations created by vendors, as is the case with Apple's blue-eyed blond emoji, and limitations created by Unicode, as is the case with the lack of skin tone variations for families.

Introducing Emoji Proposals

Unicode's emoji proposal system allows users to suggest new both emoji and modifications to existing emoji that will—at least from the perspective of the proposer—provide more accurate or comprehensive means of communicating through a form of hybrid writing that's increasingly popular around the world (Danesi, 2017). Beyond their general communicative function, new emoji reflect the issues, debates, and pop culture phenomena that are prevalent in everyday public discourse; it is not surprising, for instance, that proposals for dinosaur emoji were submitted around the time the Jurassic Park film franchise released a new movie.

Despite the control that Unicode exercises over which emoji are adopted, the Consortium's original charter actually indicates a desire for Unicode to function as a universal language, of sorts. Founded in 1991 as the brainchild of engineers from Xerox

and Apple, Unicode's initiative has been "to unify the many hundreds of conflicting ways to encode characters, replacing them with a single, universal standard" (Unicode Consortium, 2015b). In comparison to other programming languages, Unicode had a sort of global lingua franca in mind as its functional and cultural purpose. Consider the following laudatory description by Brandan Kehoe, the author of Zen and the Art of the Internet:

> The development of Unicode has underscored the Internet's *truly global character*. The recorded history of every nation and *culture can travel in its natural form across Cyberspace* for the use of anyone, anywhere. Through the power of Unicode, *a worldwide audience is finally able to share in the breadth of human creativity*. (Unicode Consortium, 2017b)

I highlight this quote not only to emphasize the magnitude of Unicode's endeavor, but to indicate the gravity/hint at the implications of Unicode's decision to accept or reject any given character. In theory, the emoji proposal system embodies Unicode's inclusive values by offering everyone the opportunity to suggest new emoji. The official proposal form is available on Unicode's website. The form first asks users to provide general information about the proposed emoji, including a suggested name, a few sample images, a proposed sort location, and a data comparison between the proposed emoji and a reference emoji (Unicode Consortium, 2019h). Next, users must provide an in-depth explanation and evidence to prove that the proposed emoji satisfies each selection factor for inclusion and exclusion. Lastly, proposers are given the option to provide any additional information. The selections factors are intended to ensure that new emoji align

with Unicode's aim of universality and that they will be widely used. For the sake of readability, I've included a table below (Table 4) that lists each selection factor and, when it seemed necessary, the clarifying questions provided by Unicode.

Table 4 Unicode Emoji Selection Factors (Unicode Consortium, 2019h)

Selection Factors for Inclusion	Selection Factors for Exclusion
A. Compatibility ("Are these needed for compatibility with high-use emoji in popular existing systems, such as Snapchat, Twitter, or QQ?") **B. Expected usage level.** 1. Frequency 2. Multiple usages ("Does the candidate emoji have notable metaphorical references or symbolism?") 3. Use in sequences 4. Breaking new ground ("Does the character represent something that is new and different?") **C. Image distinctiveness** ("Is there a clearly recognizable image of a physical object that could serve as a paradigm, one that would be distinct enough from other existing emoji?") **D. Completeness** ("Does the proposed pictograph fill a gap in existing types of emoji?") **E. Frequently requested**	**F. Overly specific** **G. Open-ended** ("Is it just one of many, with no special reason to favor it over others of that type?" **H. Already representable** **I. Logos, brands, UI icons, signage, specific people, specific buildings, deities** **J. Transient** ("Is the expected level of usage likely to continue into the future, or would it just be a fad?") **K. Faulty comparison** ("Are proposals being justified primarily by being similar to (or more important than) existing compatibility emoji?") **L. Exact Images** **M. Region Flags Without Code**

As this list of factors illustrates, Unicode is especially discerning when it comes to accepting new emoji. Even if an emoji candidate satisfies all of the selection criteria, the Unicode Technical Committee still has to consider whether or not major vendors (e.g. Apple, Microsoft, Twitter, etc.) will support it. Unicode (2019h) explains that "the cost

and complexity to support new emoji characters is much higher than for most other Unicode characters," and that "support for more than about 50-100 new emoji a year is problematic for vendors." When considering the vendors' limitations and the popularity of emoji in general, it makes sense that Unicode opened the proposal system to everyone, essentially giving those who helped popularize emoji a say in which emoji should be added.

A desire for recognition or representation is often at the heart an emoji proposal. Individuals and groups alike want to see themselves or their passions in the set of variant glyphs that comes standard on their mobile devices. Unicode helps users to stay up-to-date with current emoji proposals by making documents publicly available online. As such, anyone can see the various versions of a specific proposal, the date of submission, and any feedback the Emoji Subcommittee provided to the author(s).

This extensive documentation makes it easier to understand the procedure through which new emoji are proposed and accepted, but as Ian Bogost (2007) argues in *Persuasive Games*, such procedures are rarely benign; a procedure's "arguments are made not through the construction of words or images, but through the authorship of rules or behavior, the construction of dynamic models" (p. 29). While Bogost is chiefly concerned with the procedures in software and video games, the Unicode Consortium is making an argument about emoji through the proposal process and the tactics at the committee's disposal should issues arise at any point in the proposal process. In appearance, the system is fair and democratic, but as Burke (1969) warns, "whenever you find a doctrine of 'nonpolitical' esthetics affirmed with fervor, look for its politics" (p.

28). Indeed, anyone can submit a proposal so long as they follow the guidelines, answer the questions, and submit any necessary supporting evidence. However, Unicode has still denied and modified proposed emoji for reasons that are questionable and warrant further examination.

Emoji Proposal Examples

In the second part of this chapter, I'm going to examine a few specific proposals and the discourse they generated among members of Unicode's Emoji Subcommittee. My goal here is to demonstrate some rhetorical means through which individuals and activist entities, like Emojination, are trying to use the available means of persuasion to try to alter partitions of the sensible for emoji rhetoric. The first set of proposals all argue for new emoji on the grounds that they support public health awareness and literacy. These examples help demonstrate how proposals with similar exigencies elicit different reactions from Unicode. The second set of proposals all request emoji that represent important aspects of non-Western cultures.

PSAE: Emoji and Public Health

In 2016, Unicode received proposals for a condom emoji, a mosquito emoji, and emoji that could represent menstruation. Each proposal included some explanation for how the emoji could be used to discuss public health matters. Svenska Cellulosa Aktibolaget (SCA), the company that proposed the set of "menstruation characters (femojis)," argued that the new emoji would "help educate and normalise the subject of women's health for young people" (SCA, 2016, p. 1). Tamara Greene (2016), who submitted the proposal for a condom emoji on behalf of Havas London, explained,

"There is currently no emoji that can be used to suggest safe sex. At the same time, sexual health is a serious problem facing young people today around the world today" (p. 1). Finally, there were two separate proposals for a mosquito emoji, which Shaivitz & Chertack (2017) argue "could be used for public health campaigns and for conversations among the general public about one of the most prevalent and dangerous creatures on earth" (p. 1). Each proposal emphasized that emoji could be used to facilitate public health discourse and as part of public health campaigns. Of the three emoji described here, only the mosquito proposals were successful. Unicode announced in 2018 that a mosquito emoji would be included in Emoji 11.0.

While the danger of mosquito-spread illnesses is undeniable, and the evidence provided by Mackay (2017) and Shaivitz & Chertack is convincing, Svenska Cellulosa Aktibolaget (SCA) (2016) and Greene (2016) made similar arguments in support of the menstruation and condom emoji, respectively. SCA includes a quote from Chris Williams, the Executive Director of the United Nation's Water Supply and Sanitation Collaborative Council, who said, "The average women[sic] menstruates for 3000 days in her lifetime, however the subject is constrained by taboos that prevent girls from learning how to manage their periods hygienically and safely" (p. 4). Greene (2016) highlights the severity of widespread problems related to sexual health around the world, including the fact that "35 million people are living with HIV in the world and half don't know it," that there are "1 million new STI infections per day," and that "over 100 million new [STIs] occur each year among young people under 25" (p. 1). Furthermore, both authors demonstrated that emoji were already being used to discuss menstruation and sex

euphemistically—so much so, in the case of the latter, that the peach emoji was actually redesigned to lessen its resemblance to a buttocks and then redesigned again when users were outraged over the missing "peach butt" (Dillet, 2016). Greene (2016) goes on to argue that a condom emoji "would suitably fit within the health emojis (pill, syringe, etc.) and the more grown-up emojis (lit cigarette, gun, bomb, alcohols, etc.)" (p. 1). Even so, the condom emoji wasn't "prioritized" as the mosquito emoji was.

While there's not a thorough explanation for why the menstruation and condom emoji were denied, both proposals were mentioned in an Emoji Subcommittee Report from May 2016. In reference to the two emoji, the report reads "ESC determined the latter [menstruation emoji] was well-formed, too late for further review. Further action on both may depend on any decisions related to L2/16-128" (Emoji Subcommittee, 2016, p. 2). The document referenced, L2/16-128 is titled "Additional Emoji Selection Factor," and it turned out to be the first iteration of the "UTC Consideration" section on Unicode's main "Submitting an Emoji Proposal" page. In the "Additional Emoji Selection Factor" document, Constable, Edberg, and Davis (2016) communicate Unicode's concerns about cost and vendor support for the proposed emoji, but they also explain that, more so than with other Unicode characters, "there is more public pressure to implement them [emoji]" and "more public scrutiny of them" (p. 1). Furthermore, they write, "before approving a new emoji character, the Unicode Technical Committee needs to expect wide deployment" (Constable et al., 2016, p. 1). Interestingly, the exigence for this additional selection factor appears to have stemmed, specifically, from SCA's proposal for menstruation emoji and Greene's proposal for a condom emoji.

In June of 2017, Francis Mason of Plan International UK submitted a similar proposal for a period emoji. Mason argues that "not having an emoji that represents periods as part of our visual language could contribute to the silence and shame around menstruation" (Mason, 2017, p. 1). She goes on to highlight other recently accepted emoji (e.g. same-sex couples, breastfeeding emoji) that promote inclusion, reflect changes to cultural norms, and work toward destigmatizing actions and identities once marked "other" or "inappropriate" (Mason, 2017, p. 2). As with the SCA's 2016 menstruation emoji proposal, Mason's period emoji was "not prioritized for support by the ESC at this time" (Emoji Subcommittee, 2017a, p. 4). Additionally, the Emoji Subcommittee commented, "prefer encoding a separate character for blood drop; would be more general usage, and could be used in sequences" (Emoji Subcommittee, 2017a, p. 4). Unlike some of the proposals Unicode rejects each year, there really isn't an existing emoji or emoji sequence that can be used in place of the period emoji.

The condom emoji was also proposed in 2016, and it too provided a rationale for emoji that support and destigmatize matters of public health. Despite the data Greene provided about HIV and other sexually-transmitted illnesses, her proposal was addressed in the same note as SCA's menstruation emoji; the ESC referred to the newly added (at the time) "Additional Selection Factor" document (described above) and moved on to the next item on the agenda.

Regardless of which emoji were accepted, every author mentioned in this section is correct in noting that emoji are used to discuss a variety of topics related to public health and scientific knowledge in general. One Twitter account, @bioloijical, tweets

only about biology using primarily emoji, and many posts are relevant to public health concerns (see Figs. 66 and 67).

Figure 66 Biolojical tweet with public health information (Biolojical, 2017a)

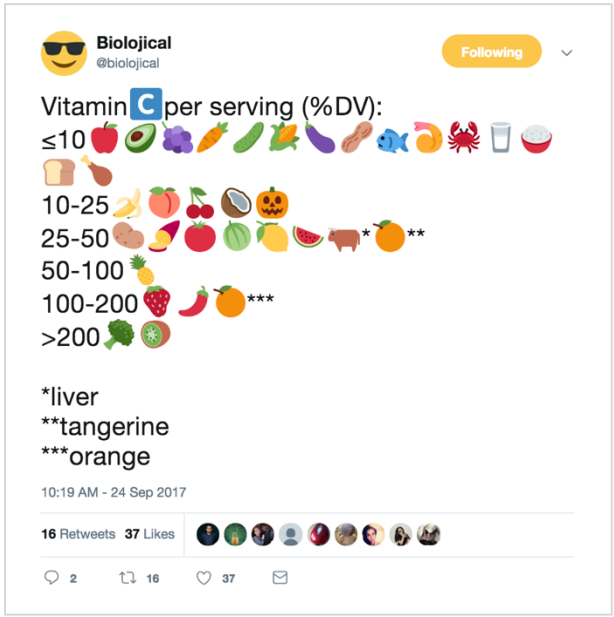


Figure 67 Biolojical tweet with public health information (Biolojical, 2017b)

Nevertheless, the fact that there's still no condom or menstruation[8] emoji suggests that Unicode did not expect either emoji to be widely deployed. After all, there's no point in encoding an emoji if no vendor wants to include it, and vendors do have that right. Any vendor, such as Apple or Google, can opt to hide a certain emoji from the keyboard(s) on its device(s). In fact, there are cases where Unicode has agreed to encode a valid emoji sequence but not to designate it RGI, or "recommend it for general interchange" (Unicode Consortium, 2019d, "1.4.6. Emoji Sets"). The Tibetan flag, for instance, has a valid sequence that no vendors currently support. Worth mentioning is that while Unicode doesn't answer to any one company or corporation, many of the vendors whose support the UTC must consider (e.g. Apple, Google, Microsoft, Facebook, etc.) are, in fact, voting members of the Unicode Consortium—meaning that in determining how vendors will react to a new emoji, they're largely synthesizing their own opinions of the emoji.

As it turns out, there's not much disparity between the UTC members voting on new emoji and the companies whose devices or platforms will include them—a fact that didn't sit well with some users who felt underrepresented by the large tech companies of Silicon Valley. While users to have the opportunity to participate in the process by submitting proposals, the model hardly represents a level playing field. Zwick (2008) points out that while many "co-creation model[s]" emphasize "social communication and cooperation" (p. 172), the "autonomous creativity of the masses" (185) is ultimately

[8] In February of 2019, Unicode announced the addition of a blood drop emoji, which should be available from vendors towards the end of the year.

leveraged or dismissed by the major players within the tech industry. Jenkins (2006) makes a similar claim about situations in which users are afforded the opportunity to participate in production; he explains that "Corporations—and even individuals within corporate media—still exert greater power than any individual consumer or even the aggregate of consumers" (p. 3). This is especially true when it comes to the design of emoji. For example, Warzel (2016b) has criticized Apple's new "hyper-realistic" emoji designs, writing, "From a design standpoint, emoji's realistic evolution feels corporate—another example of the technology's evolution from grassroots art toward more professional, marketing department-approved image" (par. 13). Emoji are popular enough that major tech companies continue to facilitate and promote their circulation; however, the everyday users who made emoji popular to begin with have little to no say when it comes to the direction of their aesthetic development. Just as some users feel underrepresented by the current set of emoji, others feel misrepresented by emoji that are designed with a Western bias.

Dumplings, Diyās, and More Discerning Diverse Emoji

Users Jennifer 8. Lee and Yiying Lu fell into both of categories of under- and mis-representation and decided to do something about it. Over a casual conversation via text message, Lee and Lu discovered that there was no dumpling emoji, and Lu—the illustrator behind Twitter's fail whale—quickly drew a dumpling emoji to send to Lee (Kleeman, 2015). The two quickly realized that the lack of a dumpling emoji was indicative of a larger problem and that, as a journalist turned co-founder of a digital publishing company (Lee) and a designer (Lu), they were in a unique position to do

something about it. Lee and Lu's widely publicized campaign for a dumpling emoji doubled as a critique of the emoji proposal system more broadly. Curious about the emoji process, Lee made a $75 donation for a basic, nonvoting Unicode membership, which allowed her to take part in the Unicode Technical Committee (UTC) meetings (Warzel, 2015), and she eventually made her way onto the Emoji Subcommittee (ESC). After realizing the intense scrutiny that each emoji proposal undergoes, Lee commented:

> It's crazy how labor intensive these proposals are […] It's definitely more than a day's work. Not only is it hard to write them, but I don't think everyone could do it. Like, I know very educated Ivy League people who probably can't write an emoji caliber proposal. It's a very specific voice. (Warzel, 2015)

Lee also noted the lack of diversity among members of Unicode, and the dumpling emoji website includes a description of the emoji "decision makers" as "overwhelmingly male, overwhelming [sic] white and overwhelmingly engineers" and further posits that "such a review process certainly is less than ideal for promoting a vibrant visual language used throughout the world" (Who controls emoji? 2015). Thus, Lee and Lu, along with Jeanne Brooks, founded Emojination, an organization with a mission "to make emoji approval an inclusive, representative process" (Emojination, 2016). The organization allows people to suggest new emoji and collaborate with others to develop ideas and designs. Emojination's aim is not "to circumvent established guidelines for encoding emoji," but rather to help "coorindat[e] efforts to propose emoji" and help users put together stronger proposals (Fine Print, 2015). The group also provides the current status of each emoji it's working on, noting if it's still in development, if it's

been submitted to Unicode, or if Unicode has responded to the proposal. Emojination has successfully petitioned for not only the dumpling emoji, but the hijab emoji, the sauna emoji, and more recently, the bubble tea, boomerang, and coin emoji, which the ESC (Emoji Subcommittee) recommended to the UTC (Unicode Technical Committee) for inclusion in 2020[9] (Unicode Consortium, 2019c). Emojination's work is important not only because it helps users craft rhetorically savvy proposals, but because many of those users are advocating for culturally diverse emoji that counter the UTC's unconscious Western bias.

Despite emoji's Japanese roots and the ESC's earnest efforts towards more inclusive emoji, it's not uncommon for new emoji—or the ESC's feedback on emoji proposals—to exhibit a Western bias. For her May 2017 article in *The Atlantic*, Adrienne LaFrance interviewed Yiying Lu, who, in addition to the dumpling emoji, also designed the fortune cookie, takeout box, and chopsticks emoji. When asked about the new emoji, Lu, who was born in Shanghai, explained the irony "that two of the four new Chinese-themed emoji—the fortune cookie and the takeout box—are not *Chinese* Chinese, but instead reflect Westernized elements of Chinese culture" (LaFrance, 2017, par. 5). Christina Xu, who researches the social effects of new technology, remarked that even the concept of diversity is essentially American and that these new emoji are "almost a disguised form of American cultural dominance" (LaFrance, 2017, par. 13). Essentially, "diverse" emoji run the risk of illustrating a Westernized ideal or understanding of what

[9] The UTC still has the final say but getting an emoji through the ESC is not easy.

diversity ought to look like instead of accurately representing a global community filled with unique cultural identities.

A more recent example of "American cultural dominance" was the ESC's response to Anshuman Pandey's proposal for a diyā emoji. Pandey (2017) explains that the diyā, "a small, round lamp made of fired clay," is "a popular symbol to 1.2 billion people from the Hindu, Sikh, Jain, and Buddhist communities worldwide" (p. 1). Furthermore, Pandey (2017) points out that currently, there's no "emoji or other symbol in Unicode that conveys the graphical and semantic concepts of [a diyā] for representing Diwali and related holidays, a clay lamp, and associated metaphors" (p. 1). Using the diyā hashflag that Twitter created for Diwali in 2015 and 2016 (see Figure 67) and the 'tealight' emoticon shortcut on Skype, Pandey provides ample evidence to demonstrate public demand for such an emoji.

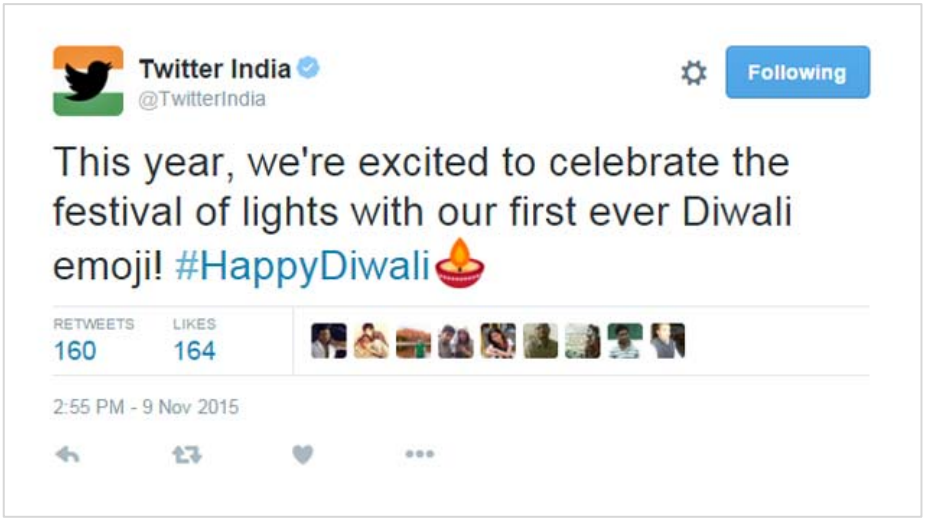


Figure 68 Twitter India announces Diwali emoji (Twitter India, 2015)

The ESC's October 2017 quarterly report indicated that the emoji would be recommended as a candidate for the 2019 update, but with one significant change. The ESC listed the emoji as "OIL LAMP (Proposal to encode the DIYA emoji" with the note, "Add as OIL LAMP for generality" (Emoji Subcommittee, 2017b, p. 2). This recommendation to encode the diyā as a more general oil lamp was not well-received by some of the billion or so followers of Hindu (Pew, 2016)—or any other religion that originated on the Indian subcontinent, for that matter— who use diyā lamps in traditional ceremonies. The ESC received two letters of feedback rebuking its decision to change the name. The first letter, from Shriramana Sharma on January 16th, 2018, argues that the name DIYĀ is not "overly specific" (Sharma, 2018, p. 1). However, it's Sharma's primary concern that accentuates the weightier problem, "Our more important concern as the user community is that the term OIL LAMP in fact is associated more with the glass-metal type of mundane practical lamps" (p. 2). In other words, most vendors would not use a diyā to represent a general oil lamp. Sharma uses Google image results to support this argument (see Figure 69).

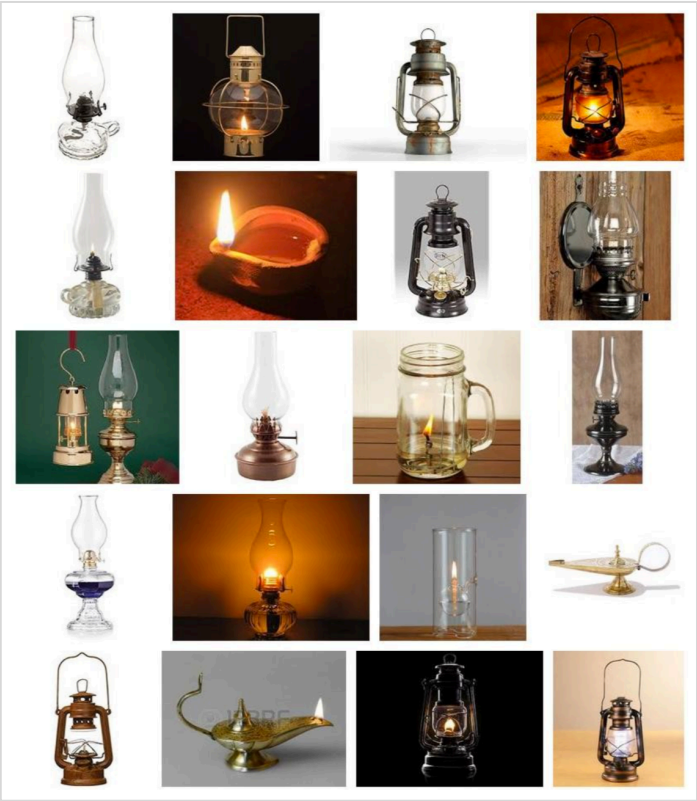


Figure 69 Google Image results for "oil lamp" included in Diyā emoji feedback (Sharma, 2018)

An oil lamp emoji that resembled most of the images in Figure 69 would "defeat the purpose of encoding the character which is intended to be used in traditional/festival/spiritual contexts" (Sharma, 2018, p. 2). The second letter of feedback, from Srinidhi A and Sridatta A, was sent on January 17th, 2018 and voiced similar concerns about how a generic oil lamp emoji would be represented by most vendors. Both letters outline differences between types of lamps that use oil. A westernized representation of "oil lamp" would not only neglect diyās, but also the Aladdin lamp of Middle-Eastern tradition, the traditional menorah of Hebrew tradition, and the oil lamps used in Orthodox branches of Christianity (to name a few). Furthermore, there's already a

menorah emoji, and while not all menorahs are oil lamps, there was no suggestion to create a more "general" oil lamp emoji for those celebrating Hanukkah as there was for those celebrating Diwali. Thus, while it's easy to appreciate the egalitarian intentions of the emoji proposal process, the reality is that the committee is largely Western-centric, as evidenced by the prevalence of English as the default language for Unicode communications.

Conclusion

If we needed any further illustration of how Unicode structures partitions of the sensible of the visible, then consider how such implications have even been penned by more industry friendly media journals. Charlie Warzel (2015), the lead emoji journalist at *BuzzFeed*, observes:

> From one perspective, the consortium, specifically the UTC, is like an Emoji Council of Elders, a group of adults presiding over some largely silly symbols and advanced emoticons. But for those who really use emoji, the consortium's role is far more important as steward of an evolving, near-universal means of expression. And with that role comes a great responsibility to make sure an emoji's growth reflects the needs of those who use it.

In other words, while my examples in this chapter have touched on race and gender, Warzel confirms that the politics of emoji (ecologies of culture) incorporate any type of emoji. It is possible, I acknowledge, for readers of serious political and critical theory to potentially respond to what I am arguing here with proverbial eyerolling. *Do* which emoji are admitted really matter?

They do, especially once we connect emoji adoption and representation to examples such as which *nations* have flag emoji. The Palestinian emoji flag took until 2015 to be added by Unicode and adopted by major technology vendors. Interestingly, it was added as part of a "sub-regional flags" update along with countries like Scotland and Wales, rather than initially added as a country in its right. I doubt that I even need to explain what conclusion the reader should draw from these implications. Israel did not need a flag emoji adopted in 2015 as it already had one as part of the regime of the sensible. Palestinian Territories was added to Emoji 1.0 in 2015. Brock and Shepherd (2016) discuss procedural enthymemes, such as how Google search rankings for internet searches communicate hierarchy and value. Similar to the late emoji addition, Google Maps took until 2013 to acknowledge "Palestine" as a country instead of referring to the region as "Palestinian Territories" (al-Wazir, 2015). Perhaps my earlier commentary was mistaken, and there *is* a bit of "dissensus" in getting an emoji added. al-Wazir (2015), a journalist covering the story for the popular middle eastern news site *Al Arabiya* declares:

> Introducing the Palestinian flag as an emoji is more than just a symbolic gesture. It's not simply about Palestinians being able to show patriotism by putting their countries flag next to their name – it's deeper. The Palestinian flag being recognized by one of the world's largest companies is an acknowledgement of how far the Palestinian cause has come in recent years. It's an acknowledgement, that the Israeli lobby will not intimidate Apple any more. This is especially symbolic, considering that in 2013, Apple was forced by the Israeli lobby to reinstate Jerusalem as the capital of Israel in the iOS7 release.

If Rancière's politics of the image theory has a potential blindspot—in my admittedly less-than-expert reading— it is that he is not always thinking about how technologies mediate political activism differently. I admit that I am still wrestling with trying to understand and apply his thinking, but my sense is that he tends to think more—and productively—about bodies in the streets. However, as more and more partitions of the sensible are waged in Mitchell's world of picture theory in networked spaces, it is possible that we will eventually have to re-think what dissensus in these spaces consists of. In my humble opinion, I think Emojination and their challenge to Unicode's ecologies of culture may be as good of a starting place as anything right now given the stranglehold that Unicode currently has on which emoji can be used.

CHAPTER SIX: CONCLUSION

In this dissertation, I have defined a scalable conceptual framework for emoji rhetoric that I call "rendered ecologies," which privileges the iterative flux of code, practice, and culture at the site of emoji rendering. To illustrate how this concept works, I have drawn upon Brooke's ecologies of practice, code, and culture as well as Bitzer's constraint to explore the multifaceted rhetorical factors that go into the reader's experience of rendered ecology as well as the ways in which actors like Emojination try to develop new proposals to alter the code itself.

I want to reiterate in closing that rendered ecologies is a conceptual framework and not a formal method for image study, such as Gries' "iconographic tracking." Instead, I see rendered ecologies as a concept. As this is the conclusion, it's as good a time as any to ask a more philosophical question to highlight the purpose of my dissertation: "What is a concept?"

As it turns out, Deleuze and Guattari in *What is Philosophy?* offer one illustrative example. Previously, Jacques Derrida (1988) endeavored to think on the notion of "concept" relative to "différance" and took issue with John Searle's attempt to define speech acts (p. 118). While Searles conceded that no speech act was identical to another, he nevertheless argued that certain conditions or structures can be repeated in different cases. Take the example of a promise between two individuals to get married. Even

though vocal dialects, clothing, locations, spoken inflections, specific phrases, and so on differ from couple to couple, Searle would posit a structural similarity behind each promise.

In reality, each couple makes a performative utterance (e.g. the words “I do”) at a marriage ceremony and they are then married by an officiant. Searle acknowledges that this universal category of promises (as with any universal category of speech act) had a small qualification. When I was in high school, I was in a production of Cole Porter’s *Anything Goes*, a musical in which there are two weddings. Two characters were “married” on stage, but this was clearly a nonserious form of marriage despite pronouncing the same words. Searle sets such nonserious examples aside as secondary. Naturally, Derrida, who is always interested in how minor elements are excluded by a center or structure, argues that nonserious examples are much more central to the original concept of speech act in the present. If both serious and nonserious speech acts can be repeated, then Derrida suggests that it is the possibility of repeatability with different results where we should begin to think about what a concept means.

In Derrida’s (1988) thinking of iterability, “iterability' does not signify simply ... repeatability of the same, but rather alterability of this same idealized in the singularity of an event, for instance, in this or that speech act" (p. 119). Back to my example of wedding vows (promises), iterability means that if each promise is singular when enacted, then the concept of a promise can always be altered anew each time. Différance, then, was his subsequent attempt to "think or deconstruct the concept of concept otherwise" (Derrida, 1988, p. 117). Concepts thus can only be rules which we try to make

as universal as possible, but then we can only really apply and compare to a particular and singularity enacted; indeed, in *Différance* Derrida (1968) described concepts as "temporalizing" (p. 228). The basic gist is that any concept is not self-identical or consistent and it (a wedding promise) cannot ultimately describe *all* enactments of its class of objects (weddings).

I have a point about my dissertation that I'm getting to with this brief theoretical detour (I *promise*: 💍). Deleuze and Guattari, who clearly read their Derrida, similarly say of concepts (as Deleuze paraphrases in the introduction to *Dialogues*) that the purpose is "not to rediscover the eternal and the universal, but to find the conditions under which something new is produced" (Deleuze, 1986, p. vii), which involves, "analyzing states of things, in such a way that non-preexistent concepts can be extracted from them" (p. vii). I mention this by-no-means comprehensive summary of their work on the concept because I think it has helped me to think through, at the end of my project, what it means to call "rendered ecologies" a concept. As my dissertation committee is well aware, I was a bit reluctant to name a specific method or theory for studying emoji, but I am perfectly comfortable putting forth "rendered ecologies" as a concept for other digital and visual rhetoricians to put "to strange new uses" (Deleuze & Guattari, 1987, p. 15).

I like this idea of a concept as a provisional *attempt* to express a new event but that never really fully captures all of the particular enactments, which is what I've tried to do with rendered ecologies. What are emoji? To be honest, I'm no longer sure that they can be adequately defined. Are they Peircean icons, as I've gestured chapter 5? Are they part of the ever-reinventing-itself culture industry that Horkheimer and Adorno might call

the ongoing project to blunt our anti-capitalist revolutionary impulses through enjoyable media consumption? Are Western- and white male-centric emoji partitioning the sensible? I've taken to calling what I'm talking about in this dissertation a *conceptual* framework to get at this very provisionality. Emoji are many different things and what they mean depends on so many overlapping yet distinct factors that a loose conceptual framework is the most ethical one that I can offer at this point.

To recap, my attempt to define "rendered ecologies" should be taken as similarly provisional. It does not attempt to be a universal abstract heuristic. Rather, just as Brooke defines ecologies of code, culture, and practice as set of what he called fluid ratios, I have tried to leave this concept open, which is why I do not see it as a full method. It's not exactly like actor-network theory, which sees each network of human and nonhuman actants as singular and in need of empirical tracing in order to build a concept. Rather, rendered ecologies has sought to account for the conditions of possibility—the multiple structures, embodied affects, technologies, individual decisions, etc.—that go into the individual moment when a user encounters an emoji on a screen on a particular device. I think what Derrida is thinking about with iterability *is literally foregrounded* by the way in which emoji can display differently than an Instagram-er or Facebook-er intended in their original post. Emoji's lack of one-to-one technical execution between visualized intent and visualized delivery requires digital rhetoric and writing scholars to contemplate that invisible "always already" of speech and writing difference in itself (if you will).

The status of the concepts that we use to define emoji carry profound consequences for how we, as scholars, understand the rhetorical work of emoji, but also

for the ways in which everyday, non-academics understand emoji. Are emoji just subordinate—like Searle's nonserious speech acts—replacements for missing facial cues or is their visual nature instead something more rhetorically salient? Are they nonserious or are they shaping rhetorical and political subjectivities to a far greater extent than we may imagine? As a case in point, I will highlight again my findings in Chapter 4 on the ecologies of practice and US Senators' use of emoji. Senators' implicit or explicit failure to see emoji as an authentic form of rhetorical expression in comparison to how the majority of social media users employ them is akin to a typesetter in the Gutenberg press era only using half of the alphabet. Senators are Tweeting with one rhetorical hand tied behind their backs. This default understanding of emoji as somehow secondary or unimportant means that they are missing a clear opportunity to create more lasting rhetorical forms of identification with their bases, whose experience of reality—for better and for worse—is mediated by images.

As I noted in Chapter 5, it isn't just helping individuals improve their own ecologies of practice that is at stake. Rendered ecologies also strives to help both rhetors and audiences understand rhetorical uses of emoji through the broader terrain of how visual mediation technologies through networked communication continue to "work us over" as Marshall McLuhan memorably wrote decades ago. If we only see emoji, let alone digital rhetoric, as a neutral means of communicating denotative or literal thought (which is the old rhetoric versus philosophy divide), then we are placing an outdated pre-technological human at the center of rhetoric (similar to how WJT Mitchell pushed back on logocentrism).

I will confess that I am not really a rhetorical theorist, though, as I hope my discussion of concepts indicates, this is an area I'm trying to work on. As part of writing this dissertation, I am beginning to see more connections between the ideas that I was finding with emoji and certain theoretical positions about technology. As the committee's feedback on this project pushed me to more strongly to consider the stakes of this project, I picked up—especially in revisions to Chapter 5—a figure—Rancière—that I had only glanced at in my Public Rhetorics PhD seminar course three years ago. In chapter 5, I noted that the stakes of which emoji are available for users to employ follows Hall's relations of representation and Rancière's partitions of the sensible by acknowledging and disqualifying certain cultures from visibility and sayability. I'll fully admit that this chapter only scratches the surface of what a more full-fledged theoretical analysis of emoji visuals could involve, which is something I plan to engage more fully in future work. As part of writing this dissertation, I have started to realize that what makes emoji rhetoric important to study is precisely the fact that any definition of what emoji rhetoric *is* or what emoji *are* is political.

With work like the new literacy group (Street, 2003; Eisenstein, 1980), we've long known as a field that forms of literacy are tied to politics and rhetoric. As a case in point, Danesi's *The Semiotics of Emoji*, which is the one first full-fledged study of emoji to date, ties emoji to social practices. "[I]n a way," Danesi (2017) writes, "hybrid writing is (arguably) an unconscious social evolutionary reaction to the rigidity of linear phonetic writing and, especially, of the power relations that print literacy has entailed in the past" (p. 131). In the next sentence, he cites a familiar theorist: Derrida. Highlighting my

earlier reference to concepts, Danesi (2017) writes, “According to [Derrida]… print literacy practices have misguided us in answering existential questions by crafting linguistic categories and precise definitions for this task, etching them into the vocabulary and gramma used to create texts” (p. 132). Once again, he affirms that to view language as a “tool that encodes ideas without distortion” does a great violence to the ontological status of the human. By contrast, in what could be considered a definition of rhetoric by another name, “writing, therefore, is hardly a tool for seeking truth, which is elusive by its very nature, but [a] means for encoding it in a specific way” (Danesi, 2017, p. 132).

For future research in this area, I firmly believe that I and others need to better connect conceptual frameworks for emoji, such as rendered ecologies, to conversations among visual and media theorists who examine how technologies shape subjectivity. I also feel as though future research can take up my and others’ analysis of how the structures that produce emoji work and start to theorize practices of intervention. As a case in point, absent from my dissertation has been any conversation about the excellent work on “visual regimes of navigation” by scholars like Nanna Verhoeff (2009) and Heidi Rae Cooley (2014).

Cooley (2014) gestures toward how the uncritical use of technologies can cultivate patterns of mere consumption instead of critical reflection. In a clear nod toward the importance of habit, she draws on Charles Sanders’ Peirce’s discussion of habit to think through the creation of her gamified Augusta app, an experiment in making participants reflect on habit formations within data collection on GPS units in mobile phones. Our habits of sharing GPS data on our habits of location enable governance in

Foucault's sense (they turn a population into a measurable population). She looks straight to algorithms in Google's PageRank algorithm. Since we only get relevant results in a search when enough users choose links to solidify the top choices, the fact that "we readily input keyword terms and click 'Search' is indicative of our having become habituated to the Google way of thinking" (Cooley, 2014, p. 17). Habit is a commonsensical characteristic of human behavior for Peirce because it materializes a readiness to act. It is socially oriented and reflects a community's normative principles, which shape individuals' reason/rhetorical beliefs (*phronesis*). In other words, rendering technologies matter. They habituate us in so many ways.

From Wendy Chun's *Updating to Remain the Same* to Steve Holmes' *Procedural Habits*, there is a wealth of media studies literacy documenting how developing technologies dispositions, including of emoji use, while failing to connect our own ecologies of practice to ecologies of code and culture. There's a much broader way in which technological mediation structures subjectivities. Zizi Papacharrisi (2011) via Bourdieu's *habitus*, for example, notes that the way social media interfaces habituate us to scrolling and providing constant self-updates slowly shapes the ways in which we consume and produce digital writing in these spaces. In digital rhetoric and writing studies, Rebecca Tarsa (2015) and John Gallagher (2015), respectively, have testified to the procedural rhetoric power of "interfaces" and "templates" that structure our agentive capacities to think and write in digital spaces. If we Tweet or Instagram post with an emoji, we're partaking in the algorithmic logics of this system. Like Rancière, another theorist I encountered, put down, and then started reading again was Bernard Stiegler

(2008) and his discussion of *technics*. Technics are not mere instruments but rather what constitutes human culture. As I understand Stiegler's argument, technologies do not *cause* cultures. Rather, the ways in which we use the prosthetic or exterior technologies (as well as other forms of artifacts or inorganic matter) in the world around us to communicate, reason, and think that produce human culture in the first place.

Highlighting again some of the stakes of thinking of emoji through an ecological view, viewing emoji through rendered ecologies isn't just a matter of mere definitional accuracy or parsing: rather, as Stiegler suggests, what we define technologies as has an impact on how we understand (or misunderstand) the human. What he calls "mneunotechnics" are literally memories for writing, which is the artificial storage of thought through inscription—a process that began with the invention of writing but that now includes emoji. This, I promise yet again, isn't just a "theory to add some political theory" discussion. Stiegler writes about a "loss of individuation" through the industrialization of memory. He contends that the invention of new "othothetic" analogue and digital means of recording thought is a break with orthographic writing. Indeed, a cynic might agree with Stiegler in calling emoji "temporal industrial objects."

The society of industrial temporal objects thus transforms our existences into a prefabricated series of clichés that we string together without perceiving very much. The coincidence of the time of the industrial temporal objects' flow with our consciousnesses has the consequence that, in making them our objects of consciousness, that is, of attention, we embrace and adopt their time: we adhere to them in such great intimacy that they come to substitute themselves for the proper temporalities of our consciousnesses.

Building (implicitly) on ideas about the passivity of modern industrialized culture (like Horkheimer and Adorno), Stiegler privileges forms of networked participation that bring about more possibilities to bring about a new type of sociality grounded in more egalitarian forms of individual and collective individuation.

Where I see more research needed to be performed on the topic of rendered ecologies and emoji rhetoric in general lies precisely in trying to determine how and in what way we can build a more ethical emoji system that isn't so predicated upon the Faustian bargain between cross-platform compatibility and Unicode-corporate gatekeeping. Indeed, I see some of the most important implications of my dissertation lying in trying to signal the need to move from analyzing how these networks function toward active forms of re-envisioning the ecologies of code, culture, and practices that we use to create and receive emoji in order to challenge negative constraints.

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BIOGRAPHY

Kellie M. Gray received her Bachelor of Arts in English from Lynchburg College in 2011. She went on to receive her Master of Arts in Rhetoric and Composition from Auburn University in 2013.