Contents

1 "'A Melon, an Emerald, a Fox in the Snow': Quantifying Gender in Virginia Woolf's *Orlando: A Biography*"

1.1 Abstract

This chapter explores how the analysis of gender in text might leverage gender theory to create a distant reading methodology. Critiquing quantitative methods in Literary Studies that perpetuate assumptions about gender as binary, this paper explores an experimental approach that deconstructs social categories. It proposes its own method for text analysis by drawing connections between computer programming and gender theory. First, it delves into python programming, focusing on the principle of iteration that drives cleaning and regularizing tasks, as well as the transformation of words into numerical representations for quantitative processing, with the goal of bringing out the iterative quality of working with python code. It then moves to Judith Butler's concept of gender performativity, which posits how gender expression might subvert traditional social structures through repeatedly "performing" gender constraints in ways that deviate from the norm. Taking this shared quality of iteration between python and gender, it proposes a text analysis methodology that interweaves, or iterates through, distant and close reading. It then concludes by considering the limitations of this method, which poses gender as a discursive phenomenon, and its place within a larger trajectory of Gender Studies since Butler's text inaugurating the field.

1.2 Introduction

The novel *Orlando: A Biography* (1928), by Virginia Woolf, famously opens with an assertive gender designation followed by an immediate qualification:

"He-for there could be no doubt of his sex, though the fashion of the time did something to disguise it—was in the act of slicing at the head of a Moor which swung from the rafters" (11). When performing quantitative text analysis on this text, a fictional biography of a 16th-century English nobleman who undergoes a sex change, the standard tasks of "pre-processing" text evacuate the ways that gender is unsettled in this sentence. In order to computationally analyze a text, a process known which involves calculating and visualizing textual patterns, the text must first be transformed into a computable format. This task of pre-processing (also called "cleaning" or "normalizing") strips the original text of capitalized words, punctuation, "stop words" (such as articles and prepositions), and inflections in word endings, all of which are deemed to be semantically minor, in order to make the text amenable to quantitative analysis. Afterward, the following list of computable words, or "tokens," remain in the first sentence:

> 'could', 'doubt', 'sex', 'though', 'fashion', 'time', 'something', 'disguise', 'act', 'slicing', 'head', 'moor', 'swung', 'rafter'.

Cleaning this text not only strips it of its pronouns, including the gender assertion in the first word, "He." It also cuts the em dash immediately following this "He," which signals the entrance of a narrator that layers this assertion with conspicuous certitude: "—for there could be no doubt of his sex. . . ."

This chapter examines how quantitative text analysis works with gender, using Woolf's *Orlando* as a test case. Text analysis borrows from natural language processing methods to do analyses like topic modelling and sentiment analysis and machine learning methods like logistic regression and word embeddings (discussed below), which involves counting, classifying, and predicting textual patterns. Though these methods differ in important ways, they share a faith in using the speed of computation, which can process very precise elements like word frequency or syntactic patterns, to analyze large collections of textual data.

1.3 The Fantasy of the Falsifiable

Because computers can process hundreds of texts at a time, "reading" at much faster rates than humans, attract critics who are interested in the problem of scale in studying literary history. Critics like Franco Moretti, Matthew Jockers, Ted Underwood, among others who pose ambitious questions about literary history, led the development of "distant reading" within Literary Studies. Moretti, who is largely responsible for popularizing the practice

of "distant reading" in English Studies contexts, explores how social and economic forces impacts literary form in the development of the modern novel. He explains that the process of quantification involves steps that reduce or abstract textual elements into computable form in ways that open the potential for analysis: "fewer elements, hence a sharper sense of their overall interconnection" (*Graphs* 1).

While critiques of Moretti abound (see Lauren F. Klein, "Distant Reading After Moretti"), I want to focus on an early moment in his career which anticipates a movement toward what I call "the fantasy of the falsifiable." This moment, from Moretti's early essay "The Soul and the Harpy" (1983), lays out the reasoning behind developing a new methodological approach for literary criticism, which will eventually flourish into "distant reading." Moretti in this essay betrays a deep suspicion about the role of critical subjectivity in literary analysis, which he calls "a sort of cultivated accompaniment to reading" (21). By this, he means that the analytical practices of contemporary literary critics, whose readings "revolve around concepts such as 'ambiguity' and the like" will "always be pushed into multiplying, rather than reducing, the obstacles every social science encounters when it tries to give itself a testable foundation" (22). Moretti likens the literary critic to a kind of Narcissus, "whose only pleasure lay in contemplating his own reflection" (14). The critic, he explains, focuses "on what has been lost and become irretrievably unfamiliar, and which we can 're-familiarize' only by doing such violence to it that we distort the objective, material consistency of every work which it is the task of scientific knowledge to reconstruct and 'salvage'" (14). Moretti's alternative methodology grounds the critical process on a more solid foundation, a "falsifiable criticism" that can "test" literary interpretations (21). *Falsifiable* here means that it must be contestable–one must be able to imagine and carry out an alternative, ensuring the "hypothesis" can be meaningfully tested–and falsifiable criticism pursues answers that are "coherent, univocal, and complete" (21). This kind of literary criticism would steadily progress toward irrefutable knowledge. According to Moretti, "The day criticism gives up the battle cry 'it is possible to interpret this element in the following way', to replace it with the much more prosaic 'the following interpretation is impossible for such and such a reason', it will have taken a huge step forward on the road of methodological solidity" (22).

As Moretti's falsifiable criticism eventually grows into "distant reading," he streamlines his critical method into a recursive process of posing hypotheses, collecting and assembling data, and making inferences. The results are often unexpected, and sometimes bring Moretti to reframe his hypotheses.

This move relegates the literary critic to the role of explaining results. For example, in "Style, Inc.: Reflections on 7,000 Titles (British Novels, 1740-1850)," Moretti plots book titles on a series of graphs in order to explore how market forces influence the size and content of the titles. He finds that titles are quite sensitive to the market: "As the market expands, titles contract; as they do that, they learn to compress meaning; and as they do that, they develop special 'signals' to place books in the right market niche" (204). However, a closer look at his language betrays the extent to which he makes interpretative moves at every step:

> in what follows, I focus on three moments of this history: first, I *describe* a major metamorphosis of eighteenth-century titles, and *try to explain* its causes; next, I *suggest* how a new type of title that emerged around 1800 may have changed what readers expected of novels; and finally, I *make a little attempt* at quantitative stylistics, *examining* some strategies by which titles point to specific genres. Three sections, three pieces in the large puzzle of the literary field. (181-2; emphasis mine)

Moretti's word choices here diminish the subjective work of critical analysis– he *describe[s]*, *suggest[s]*, *examin[es]*, etc. As Stephen Ramsay points out, this language presents the literary critic's work as an objective description of unproblematic reality, as if his conclusions are supplementary to the graphs and other visualizations. According to Ramsay, Moretti operates as if "data is presented to us... not as something that is also in need of interpretation" (*Reading Machines* 5). The computer's ability to quantify textual data emboldens Moretti toward making seemingly objective claims about literary history, all the while diminishing his role as in analysis.

Ironically, the faith in the falsifiable gets its strongest expression in a famous detraction by Nan Z. Da, published in the *Journal for Cultural Analytics*. Da argues that quantitative methods, which trade "speed for accuracy, and coverage for nuance," reveal a "fundamental mismatch betwen the statistical tools that are used and the objects to which they are applied," (620, 601). Da emphasizes her point with an experiment in "topic modeling," a deep learning method that generates a number of "topics," or keywords, from large collections of text. Da attempts to verify the results of a topic modelling experiment by replicating the process on her own machine, a replication which fails. She concludes that, "if the method were effective, someone with comparable training should be able to use the same parameters to get basically the same results" (628-629). As Ben Schmidt points out, however, Da in fact uses different parameters and software to run her experiments,

which explains her results. His critique points out that Da, in disqualifying quantitative methods for literary studies, reinforces its role in positivist inquiry: "Far *more* than anyone I've seen in any humanities article, she asserts that scientists do something arcane, powerful, and true.[1] Despite their vastly different views on the role of quantitative methods for studying literature, Da and Moretti align on the value that they place on the computer as a tool for a falsifiable kind of inquiry.

As Ted Underwood points out, "Both sides seem to be restating the twentieth-century consensus that numbers are useful for measuring objective facts but not for interpreting perspectival differences" ("Machine Learning" 93). Contrasting these approaches, Underwood uses quantitative methods to offer "perspectival models" on literary data. As Underwood himself explains, "Machine learning algorithms are actually bad at being objective and rather good at absorbing human perspectives implicit in the evidence used to train them" ("Machine Learning and Human Perspective" 92). First, Underwood "trains" a machine learning algorithm with sample data, for example, by marking up character descriptions in text according to the gender of the character being described. Then, this data is fed into the algorithm, which "learns" which words are typically associated with women and which words are typically associated with men. At the end of this training process, the resulting "model" can be used to analyze gender in new data by being given new text. Underwood describes this approach as "perspectival modelling," because he can analyze the resulting model only represents a single, rather than objective or universal, perspective of the data. According to Dan Sinykin, this perspectival method enables Underwood "to leverag[e] the human prejudices built into modeling toward humanistic ends" (par. 4). For one of Underwood's projects, which examines gender markers in novels, he uses a model that predicts the the sex of a fictional character based on the words associated with that character:

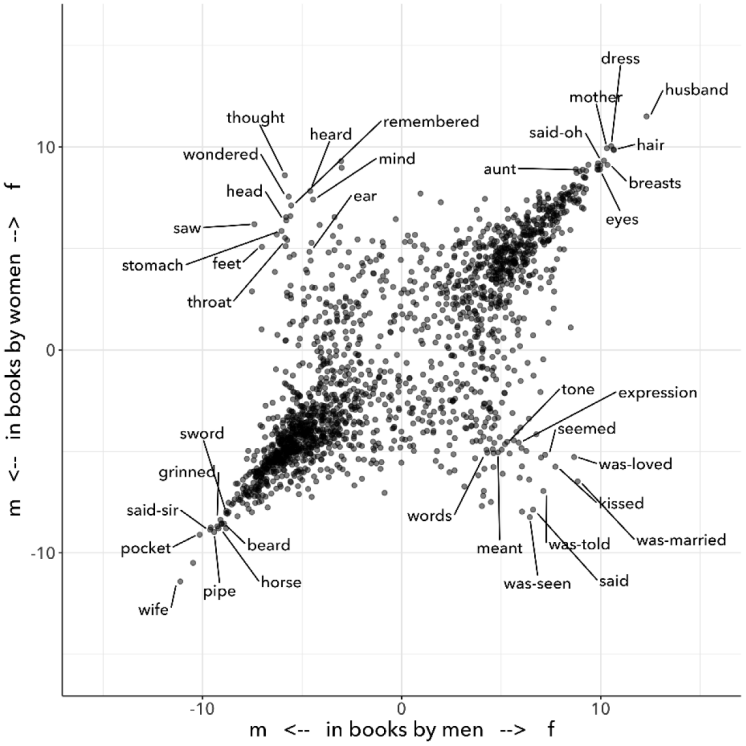
> We represent each character by the adjectives that modify them, verbs they govern and so on–excluding only words that explicitly name a gendered role like *boyhood* or *wife*. Then, we present characters, labeled with grammatical gender, to a learning algorithm. The algorithm will learn what it means to be 'masculine' or 'feminine' purely by observing what men and women actually do in stories. The model produced by the algorithm can make

[1] For a more thorough critique of Da's aims and methodology in this article, please see Ben Schmidt's "A computational critique of a computational critique of computational critique,"

> predictions about other characters, previously unseen. *Distant Horizons* 115

This particular model reveals that that, over time, gender roles in novels become more flexible while the actual number of female characters declines (*Distant Horizons* 114). To explain this result, Underwood conjectures that the practice of writing becomes more commonly pursued as a male occupation in the middle of the 20th century than it was previously (*Distant Horizons* 137). This fact, coupled with the tendency of men to write more about men than women, explains why less women writing would led to a decline in female characters.

However attentive to differences across male and female "perspective," Underwood's methodology nevertheless reinscribes the same binary that it attempts to historicize. This becomes most clear in his study that measures the "gendering of words used in characterization" ("Machine Learning and Human Perspective" 95). Here, Underwood uses uses logistic regression analysis, an entry-level machine learning algorithm, to see whether words align with masculine or feminine characters. This algorithm uses statistical reasoning to make predictions on a scale of probability, from 1 to 0, for example, between yes/no, pass/fail, win/lose, etc. In Underwood's case, the probability is male/female (See Fig. 2). Here, Underwood admits that "gender theorists will be frustrated by the binary structure of the diagram" which "reduce[s] the complex reality of gender identification to two public roles: men and women" ("Machine Learning" 98).



Caption: Underwood's logistic regression model. The verticle axis visualizes the representation of words by women, and the horizontal by men, with positive numbers signifying overrepresentation of these terms. The terms on the left side of the graph describe men, with the top-left corner and bottom-left corner denoting books by male and female authors, respectively. The terms on the right side of the graph describe women, with the top-right corner and bottom-right corner denoting books by female and male authors, respectively.

Collapsing of gender into a graph like this one brings to the surface binary perspectives on gender markers across time. However, the probablistic computations underlying this analysis reify gender as either/or, in other words, as a binary opposition, a structural tension that Underwood admits himself (*Distant Horizons* 140). Here, the concept of femininity is deliberately consolidated and computed against that of masculinity, and the dual nature of the graph constrains a reading of similarity or difference between the two terms of analysis. Such is the purpose of Logistic Regression analysis which collapses all possible answers to a yes or no probability. Asking a machine

to compute the conscription of gender as male or female for the purpose of seeing how male and female roles in novels change over time only *reproduces* a model of gender that is "simple" enough to be computed.

Without a doubt, reproducing conceptions of gender is useful for historicizing gender identities and ideologies over time. In my view, however, these approaches fail to harness the potential of both computation and gender. It seems that the goal of establishing some kind of knowledge about literary history, whether that be a "distant horizon," or "the great unread," side-steps some of the more novel and insightful processes a computer might undertake. Distant reading methods might, for example, harness what Stephen Ramsay calls "the objectivity of the machine," to destabilize the binary, readings that are inescapably partial and speculative(x). Drawing from the deformative critical methods of Jerome McGann and Lisa Samuels, Ramsay proposes that researchers harness the enabling constraints of computation to "unleash the potentialities" of the text, offering opportunities for new readings (33).

Resisting the temptations of falsifiable criticism, work by critics like Susan Brown and Laura Mandell apply distant reading methods toward deconstructing gender as a historical concept. In their introduction to *The Journal for Cultural Analytics*'s "Identity Issue," Brown and Mandell situate feminist debates around identity politics as a necessary context for understanding how computational processes engage gender identity. They explain that, "The goal is to acknowledge the subjective effects of belonging to an identity constituted historically through oppression without believing that the identity itself exists independently from historical conditions" (Mandell and Brown 6). In other words, because identity labels are historically constructed, the computer can be used to study this construction as a historical phenomena. Crucially, this position places computational methods within a discursive frame, aligning it with debates from post-structuralist feminist theory that explore and provoke the representative capacities of language. In other words, the computer can become a tool, not for verifying/reifying what we know, but for exploring how language constructs (and can deconstruct) categories.

In another project, Mandell uses distant reading to deconstruct what she calls the "M/F binary." In her critique of distant reading methods, Mandell illustrates how the study of gender often reifies gender stereotypes, by "presenting conclusions about 'male' and 'female' modes of thinking and writing as if the M/F terms were simple pointers to an unproblematic reality, transparently referential and not discursively constituted" (par. 5). Mandell's examination marshalls key findings from feminist theory, drawing from Judith Butler, among others, to assert that gender is a socially constituted

category which is "constructed both by the measurer and the measured" (par. 38). Computation offers, in Mandell's words, "parallax, multiple perspectives for viewing a very complex reality" (par. 38). To deconstruct gender, Mandell turns to genre, another category which will allow scholars to see the reductive constitution of categories generally. Here, Mandell uses the popular stylometry measurement, "Burrow's Delta," which visualizes the "distance" between writing styles by creating branches (or "deltas") between different texts. Her experiment finds that the stylistic qualities of a female writer, Mary Wollenstonecraft, shares with those of comparable male writers: "Wollstonecraft's sentimental anti-Jacobin novels most resemble [William] Godwin's sentimental anti-Jacobin novels... whereas her essays most resemble [Samuel] Johnson's writings" (par. 29). By drawing gender into conversation with genre, Mandell can "break the strength of the signal," creating categories such as "'men writing as men,' 'women writing as women,' 'women writing as men,' 'men writing as women,' 'unspecified (anonymous) writing as men,'" and so on (par. 35).

Just as quantification can be harnessed to deonstruct the M/F binary, so it can deconstruct what Edwin Roland and Richard Jean So describe as "the machine's initial binary understanding of race" (68). Roland and So deconstruct racial categories by experimenting with an algorithm that evaluates whether an author is white or black based on diction. Analyzing a large corpora of novels by white and black authors, they find that, black authors generally display more varied vocabulary than white authors (66). From this they infer that white authorship, as a category, only coheres against the variance of black authorship. Whiteness, in other words, *depends* on the characterization of blackness.[2]

This quantitative exercise, rather than draw So and Roland toward making general conclusions about race and authorship, points them toward a peculiarity in the results: that the algorithm wrongly categorizes James Baldwin's novel *Giovanni's Room* (1956) as being written by a white author. Apparently, the computer reads Baldwin's use of the term "appalled" as proof of white authorsip. Going back to the text, So and Roland discover that this term occurs only once, in the early scene where David (the narrator) describes his strained relationship to his father: "I did not want to be his buddy. I wanted to be his son. What passed between us as masculine candor exhausted and *appalled* me" (my emphasis; Rpt. in So and Roland 71). Noting

[2]Tie this relationship on the white/black binary to Eve Sedgwick's points about binaries containing an oppostional dynamic in which the subordinated term props up the dominant term.

the connotations of whiteness in "appalled," which has the middle French root, "apalir," meaning "to grow pale," So and Roland insightfully conclude that this term indexes an intersection of gender with race: "the moment David develops a troubled relationship to normative masculinity [as] also the moment he becomes 'white'" (71). The computer's misclassification, as they point out, reinforces this text's notorious elision of explicit references to race, whereby racial markers are displaced in favor of an implicit whiteness, as critics have observed in the scholarship on this novel. Taking the computer's mistake as a starting point, So and Roland's analysis thus contributes to the ongoing debate about the complex relationship between race and sexuality in the novel.

Rather than "fixing their results as stereotype," as Mandell describes, the computer enables researchers to "animate numerical processes" (Mandell par. 7). In direct opposition to the "falsifiable" position, computational error becomes a starting point for analysis. Because race is a social construct, and machines only impute meaning that is encoded into them, So and Roland reason that machines are be ideal instruments for studying the construction of race (60). The machine errors surface a yet unexplored fulcrum around which the binary of race turns, that of queerness:f

> Our reading's destabilization of the machine's logic of white and black arises directly from the novel's expression of queerness. By queering the machine's color line, Baldwin's novel challenges our initial classifications of the novels as white or black, which had necessarily effaced a more sophisticated, intersectional view of social identity. In their current form, our data and model are not robust enough to handle this kind of intersectionality. 72

Like Mandell, So and Roland move beyond historicizing gender. In this case, a single computational error opens a site for more daring leaps of speculation about how whiteness gestures toward a troubled understanding of sexuality, where queerness operates as an articulation (both structurally and semantically) of race.

1.4 Iteration

As Mandell points out, both gender and genre "are... highly imitatable," so that "anyone can adopt gendered modes of behavior, just as anyone can write in genres stereotypically labeled M/F" (par. 30). While this interpretation of gender performativity echoes a common misunderstanding which Butler is careful to explain in her writings since *Gender Trouble*, gender performativity

does offer a useful heuristic for quantitative text analysis. In what follows, I bring gender theory and quantitative processes into alignment, tracing the process of "cleaning" text, popular text analysis tasks, through "deep learning" methods for encoding semantic information. As I will demonstrate, Butler's theory has a lot to lend to the study of computational text analysis.

First, the common misreading of Butler's theory is that gender performativity denotes an act or series of acts that can be imitated at will, to be put on and off like clothing. As Butler emphasizes in her follow up book, *Bodies that Matter: on the Discursive Limits of Sex* (1996), performativity is compulsory and habitual, a process that precedes and constitutes the subject.[3] Butler explains that gender is a mechanism that allows the subject to emerge: "construction is neither a subject nor its act, but a process of reiteration by which both 'subjects' and 'acts' come to appear at all" (*Bodies* xviii). This process of "reiteration" is fully delineated in her concept of "performative citation," whereby what is experienced as the physical body, its boundaries and its sexuality, only materialize through the repetition, the "citation," of gender norms, whereby each act signals an authorizing norm.

Common critiques of Butler point out the limits of this theory for posing gender and sexuality as discursive.[4] Jay Prosser, coming from the field of Trans Studies, problematizes Butler's "deliteralization of sex," a critique that he applies to Queer Studies more generally. Prosser explains that because Butler's analysis attends to performativity as a discursive phenomenon, it elides the real-world concerns of the body's materiality. Prosser offers the example of Butler's reading of *Paris Is Burning*'s Venus Xtravaganza who, Butler argues, occupies a space of transgression due to her inability to attain her sex change. According to Butler, a sex change that would "make [her]self complete" would also fulfill the desire for a masculine body would

[3] In her groundbreaking book, *Gender Trouble: Feminism and the Subversion of Identity* (1990), Judith Butler famously disrupts two essentialist views of sex and gender in contemporary feminist thought: first, that sex is biological while gender is constructed; and second, the gender, as a construction, is a self-expression of the subject. Because sex and gender are both constructions that exist prior to identity. According to Butler, there is no such thing as a subject that exists prior to gender expression, as a subject only comes into being by participating in a gender norm.

[4] Another popular critique comes from Political Philosophy, and concerns a logical inconsitency in the way that Butler theorizes subjectivity. If the resistance to signification comes from outside the cycle of signification, from where does that external resistance emerge? Does it not imply a pre-discursive identity or at least desire for resistance? Geoff Boucher writes that Butler locates the potential for subversion "in a disembodied intentionality that appears to stand outside of the culturally-scripted subject positions that the individual occupies" (115). He aptly questions: "Who (or what) decides 'how to repeat'? On what basis is the decision to subvert power made?" (119).

reinscribe heterosexual hegemony (45). Prosser points out that this reading fails to reckon with the material body and its precarious existence, as Venus's death illustrates (55). Butler's "metaphorization of the transgender body" demonstrates one crucial way that Queer Theory has subsumed, without fully accounting for, transgressive desires in cross-gendered identifications. This thread of discursivity and its implications is picked up in the conclusion, where it instigates the next move within a larger trajectory of Queer Studies presented in this dissertation.

To understand the constraints of performativity as a discursive phenomenon, it is helpful to situate Butler's work within the context of second-wave feminism and its post-structural approach toward gender binaries. Here, Butler draws from the work of feminist theorist Luce Irigaray, who asserts that influential Western thinkers, like Plato, Aristotle, and Freud, for example, have defined women and feminity "on the basis of masculine parameters" (Irigaray, *The Sex Which Is Not One* 23).[5] The resulting binaries that associate "woman" with "matter" (such as "rationality/emotion" and "mind/body"), and set it subordinate to male "form," effectively erase the possibility of representing woman at all. Rather, the binary actually "*produces* the feminine as that which must be excluded for that [gender] economy to operate" (10; my emphasis). The produced "domesticated" feminine term contrasts the excessive feminine which cannot be expressed within the terms of the binary (13). This "necessary outside" of the excluded feminine, which is in fact is the enabling condition of the binary in the first place, creates a "field of disruptive possibilities" (13). However, this "unspeakable" element cannot be invoked directly, "through the figures that philosophy provides," without subscribing itself to the ruling structure (12). Butler illustrates this quandry with a hypothetical: "how can one read a text for what does *not* appear within its own terms, but which nevertheless constitutes the illegible conditions of its own legibility?" (11). For Butler, this question–how to express what is not there, what is refused by the system of the visible–will guide her theory of gender subversion.

For Butler, theorizing subversion begins by positing the origin of signification, which leads her to the performative quality of language. Butler wonders, "Can language simply refer to materiality, or is language also the very condition under which materiality may be said to appear?" (6). Butler finds that, in order to refer to a body, language must first assume a body.

[5] Irigaray's critique of gender undermines what Jacques Derrida famously defines as "phallogocentrism," the idea that man, symbolized by the phallus, is the center and focus of knowledge.

Therefore, she reasons, the signification of the body actually creates the body which it appears to reference: "signification produces as an *effect* of its own procedure the very body that it nevertheless and simultaneously claims to discover as that which *precedes* its own action" (emphasis original; 6). This reasoning leads Bulter to a major realization: "the mimetic or representational status of language.... is not mimetic at all. On the contrary, it is productive, constitutive, one might even argue performative" (6). This point, that language produces the reality that it seems to merely reference, means that subjects are always interpellated, and in fact brought into subjectivity, by a discourse prior to their their participation in it.

However, within this regulatory structure, this significatory circle, lies the possibility of resistance, the possibility of *resignifying* meaning. Because language transcends a merely representative function, because it works to *produce* meaning, language can be resignified toward subversive usages by "citing" what Bulter calls the "repudiated" meaning implied by signification. Butler offers the famous example in the resignification of the term "queer," which has been transformed from a term of abjection to one of empowerment. "Queer" achieves this resignification by harnessing its own repudiation, which is an implied but "disavowed abjection [that] will threaten to expose the self-grounding presumptions of the sexed subject" (3). In other words, each time the term "queer" is used, it draws from that abjection which is repudiated in every identification with heterosexuality. Butler proposes that one "cite" this repudiation as a resource for resignification: "to consider this threat and disruption... as a critical resource in the struggle to articulate the very terms of symbolic legitimacy and intelligibility" (3). Here, the concept "citation" indicates an act of signification that draws from the authorizing power. By citing the repudiated meaning, the term "queer" "resignifyi[es] the abjection of homosexuality into defiance and legitimacy" (xxviii). The resignification works because this "performative citation" takes on the repudiation as its signification.

Here, repetition is key, enabling the introduction of what is external to the binary into the system. Irigaray achieves this resistance by performing the phallogocentric language of the thinkers that she criticizes. Butler explains, "she mimes philosophy... and, in the mime, takes on a language that effectively cannot belong to her" (12). Irigaray uses performative citation as a strategy of undermining authority through repetition: "She cites Plato again and again, but the citations expose precisely what is excluded from them, and seek to show and to reintroduce the excluded into the system itself" (18). Through repetition, Irigaray displaces the logic of phallogocentrism, introducing something external to the system while remaining within its

terminology. Butler narrates what she imagines to be Irigaray's thought process on resiting this logic:

> I will not be a poor copy in your system, but I will resemble you nevertheless by miming the textual passages through which you construct your system and showing that what cannot enter it is already inside it (as its necessary outside), and I will mime and repeat the gestures of your operation until this emergence of the outside within the system calls into question its systematic closure and its pretension to be self-grounding" (18).

Here, deception emerges from resembland, and insubordination through subservience. The key is iteration, a continual activity, the miming of the authorizing norm, which displaces it by introducing what is outside the logic of phallogocentrism. In the next section, I examine how this process of iteration, drawing from abjection, engages with text analysis.

Recalling the opening example in this chapter, the process of preparing or "cleaning" a text for text analyis always requires a reduction of data in which some semantic value has escaped. In this example, the first sentence of Woolf's novel, *Orlando*: "He–for there could be no doubt of his sex, though the fashion of the time did something to disguise it—-was in the act of slicing at the head of a Moor which swung from the rafters" (11), is striped of pronouns and punctuation which has the effect of surpressing the gender qualification. After processing, the following words remain:

> 'could', 'doubt', 'sex', 'though', 'fashion', 'time', 'something', 'disguise', 'act', 'slicing', 'head', 'moor', 'swung', 'rafter'.

In what follows, I deconstruct the cleaning and text analysis processes to surface how computational syntax evokes the quality of iteration that constrains gender performativity.

To do common text analysis tasks, many distant reading projects use the Python programming language, which offers a number of custom "libraries," or collections of code for specific tasks, such as the Natural Language ToolKit (NLTK). This library contains useful computational "methods" and "functions" that count, categorize, and visualize textual patterns.

Before moving forward with NLTK and text cleaning, it is necessary to explain how Python handles text-based data. When analyzing text, Python works with data in the form of words, or `strings`, contained within groupings called `lists`. Then, Python *iterates* through the list, to perform a task to each item in the list. The expresion for this functionality, called the `for`

`loop`, repeats a single action to each item, like a `string`, over a collection of data, like a `list`. Also known as "looping" or "iterating" through the `list`, the instructions specify some action to each item in the `list`. The syntax of the for loop contains two lines: the first defines the data to be iterated and the second contains an instruction. In the code below, for example, the expression `for word in sentence:` specifies each `string` in a `list`, and the second line `print(word)` instructs the computer to display each `string`, one by one, in the sentence. Essentially, this loop will go through each item in the data and it will display that data:

sentence = ['He', '–', 'for', 'there', 'could', 'be', 'no', 'doubt', 'of', 'his', 'sex', ',', 'though', 'the', 'fashion', 'of', 'the', 'time','did', 'something', 'to', 'disguise', 'it', '–', 'was', 'in', 'the', 'act', 'of', 'slicing', 'at', 'the', 'head', 'of', 'a', 'Moor','which', 'swung', 'from', 'the', 'rafters']

for word in sentence: print(word)

['He', '–', 'for', 'there', 'could', 'be', 'no', 'doubt', 'of', 'his', 'sex', ',', 'though', 'the', 'fashion', 'of', 'the', 'time', 'did', 'something', 'to', 'disguise', 'it', '–', 'was', 'in', 'the', 'act', 'of', 'slicing', 'at', 'the', 'head', 'of', 'a', 'Moor', 'which', 'swung', 'from', 'the', 'rafters']

These kinds of iterative computations are a core component of working with text. At a very basic level, much of text analysis consists of iterating over bits of text and doing something to each word in the text, performing actions that will prepare and standardize the text for analysis. In preprocessing text, such main tasks include tokenizing, cleaning, and regularizing, which help to eliminate pieces of text that will skew the results of analysis due to their high frequency and low semantic value. Tokenizing the text means separating the text into workable units, or `tokens`, that are easier to clean and regularize. Once the text is tokenized, it can be stripped of capital letters, punctuation, and what are called "stop words," which consist of prepositions, articles, and related terms, such as "he," "for," "there," "be," "of," "the," and "did" in the above example. The following code block loops through the text to remove punctuation and capital letters:

```
normalized = []
for word in full-text:
if word.isalpha():
normalized.append(word.lower())
```

Here, it begins by creating an empty list, `normalized`, where words will be dropped after filtering through them. The next line begins the `for loop`, which iterates through each word in the `full-text` list of words. The third line, an `if statement` creates the condition specifying alphabetic characters (containing no numbers or punctuation), and if the word fulfills

that condition, then it passes to the fourth line, which will add that word to the `normalized` list. At the moment that this word is added to the list, its letters will be transformed to lowercase format. The final list, therefore, will contain words that are all lowercase and contain no punctuation.

The next step involves removing stop words, then stemming/lemmatizing. For this process, the `for loop` can be compressed into a `list comprehension` format:

no-stops = [word for word in normalized if word not in stops]

This expression takes each word in a list, in this case, `normalized`, and checks to see if that word is also contained within the list of stop words in `stops`. If the word is *not* a stop word, then it will be added to a new list, `no_stops`. Once this filtering is done, the final list contains all lowercase words without punctuation or stop words. For example:

['could', 'doubt', 'sex', 'though', 'fashion', 'time', 'something', 'disguise', 'act', 'slicing','head', 'moor', 'swung', 'rafters']

After cleaning the text in this way, the next step involves stripping the grammatical structure to get the word root. There are two options, which differ in how much computational processing each requires. The first of these processes, called "stemming", involves cutting off the endings from the word. For example, "rafters" will be stripped to "rafter." In the other process, called "lemmatizing," the computer will look up each word, one by one, find its appropriate root, and then revert to that root. Because this process requires verifying the root for each word, it takes longer and is more computationally intensive than stemming.

clean = [WordNetLemmatizer.lemmatize(word, word) for word in no-stops]

These tasks of preprosessing text force words into existing boxes, so to speak, in order to make them amenable to analysis. The effect of this preprocessing therefore strips text of some of its semantic meaning, which can be contained in capitalized words, rhythms of language in stop words, inflections in word endings, and so on. This is not to say that preprocessing ought to be avoided, but that the researcher should be aware of how certain textual reductions have the potential to affect meaning.

At this point, the text is ready for analysis. At the root of many text analysis tasks are word frequencies which also includes the frequency of words surrounding a given word. For example, `concordance()` method returns the context, that is, the immediate words surrounding the word "woman" from the text of *Orlando*:

alities which the old woman loved the more the mo

scarlet . For the old woman loved him . And the Q

les . The old bumboat woman , who was carrying he
h , whether boy 's or woman 's , for the loose tu
boy it must be – no woman could skate with such
eadth off . She was a woman . Orlando stared ; tr
, until now ? An old woman , he answered , all s
and some old country woman hacking at the ice in
and pity the poor old woman who had no such natur
man 's beard and that woman 's skin ; of a rat th
the sight of the old woman hobbling over the ice
ght coming or the old woman or whatever it was ,
tainly not those of a woman bred in a cattle-shed
e world for a Cossack woman and a waste of snow -
erating . There was a woman in white laid upon a

Building from the same concept as the `concordance()` method, another method, called `similar()` calculates words which are used in similar contexts as the target word. To compute the results of `similar()`, NLTK first takes the context of the term from `concordance()`, then it searches the text for other terms which contain the same surrounding words. The result for running `similar` on the word "woman" is the following:

man moment night boy word world child pen ship door one room window light little lady table book queen king

By searching the text for words that appear *similarly* to the chosen word, this method reveals words that function in semantically similar ways across the text. It is important to point out, however, that the text itself does not impute meaning to the words. Rather, it can only count words as "strings," that is, bits of data composed of alphanumeric sequences. It takes the string "woman," takes notes of all of the strings in proximity to "woman," and then searches the rest of the text for *other* strings that have similar proximities. This method is based on counting frequencies of characters that occur near each other.

Basic natural language processing tasks offered by libraries like NLTK often lead to algorithmic and "deep learning" methods that work in more sophisticated ways to count and analyze language. Many of these methods use the concept of "word embeddings" to ascribe machine-interpretable meaning to `strings`. Like `similar()` and `concordance()`, word embeddings build off patterns of word similarity based on context. Unlike the NLTK methods, however, word embeddings encode a value to a given word based on its context. The value of any given word is a numerical representation, actually a list of numerical representations, known officially as a "word vector." A vector for a single word, "woman," for example, will contain a list of numbers

which represent "woman." Specifically, each vector in this list represents a similarity score between "woman" and a related word. As numerical representations, these values enable quantitative processes that can analyze the relationship between "woman" and other words. The classic example for introducing the power of word embedding methods is the formula, "King - Man + Woman = Queen" (Mikolev et al. 2). Here, gender (between "Man" and "Woman") is isolated as a computable component which enables one to derive the difference between "King" and "Queen".

The vector which represents "woman" contains a list of numbers that score "woman's" similarity to related words. Here, the word "woman" is most closely associated to the word "child," with a similarity score, or "weight," of .93, or 93%, then with "mother," with its weight being .92, then "father," which has a weight of .90.[6] Below is a full list of word vectors calculated as most similar to "woman":

[('child', 0.9371739625930786),
('mother', 0.9214696884155273),
('whose', 0.9174973368644714),
('called', 0.9146499633789062),
('person', 0.9135538339614868),
('wife', 0.9088311195373535),
('being', 0.9037441611289978),
('father', 0.9028053283691406),
('guy', 0.9026350975036621),
('known', 0.8997253179550171)]

Commonly, word embeddings are organized into a "matrix," that is, a tabular format"

Target Word	child	mother	whose	called	person	wife	...
Woman	.937	.921	.917	.915	.914	.909	...

Given this tabular representation, numerous mathematical operations are possible using principles from statistics, linear algebra, and calculusl, as well as "deep learning" methods, like neural networks, in which the labels of the numerical representations do not matter. In deep learning, the only thing that matters is the list of numbers themeslves, which together represent the word. The word "woman," therefore, would be represented with the following vector: .937. .921, .917, .915, .914, .909, and so on. Deep learning methods demonstrate that, even when removing semantic labels, *words are*

[6]The language model for this computation comes from Word2Vec's "glove-twitter-25" dataset.

assigned meaning by their relation to other words. Even with each of these words represented as a vector with the labels removed, the sexism of the formula remains obvious: the woman is computed according to her relation to a man.

1.5 Queer Distant Reading

I now turn to Virginia Woolf's novel, *Orlando: A Biography.* This novel is ideal for a computational study of gender for two reasons. First it is perhaps the most salient example of transgender narrative in the modernist era. Second, as many critics have noted, its characterisitic modernist experimentation with limits of language work toward destabilizing gender norms.[7] In what follows, I draw from aspects of gender performativity to pursue an *iterative* text analysis based on the word embeddings of the gender markers, "woman" and "man," of this text. I call this method "iterative" because it moves between close and distant reading, what Andrew Piper calls "bifocal" reading, in a way that iterates over the output of previous computations. This method, as Piper explains, "no longer us[es] our own judgments as benchmarks... but explicitly construct[s] the context through which something is seen as significant (and the means through which significance is assessed)" (17).

First, I begin with a list of terms computed similar to woman and man, respectively, in the text. Unlike the word embeddings from my previous section, which were trained on Twitter data, the language model here is trained on Woolf's novel, and therefore reflect an understanding of gender markers based on how words are used in this specific text.

The following are words associated with "woman":

[7] Much of the scholarship on this text explores its resistance against normative concepts of identity and gender. The experimental use of language and narrative form creates a narrative that is recalcitrant against coherent understandings of gender and identity. Jane de Gay, Jill Channing, and Christy L. Burns, for example, assert that Woolf deploys imaginative elements, magical realism, and parody, respectively, to resist realism and narrative expectations in her fictional biography. De Gay aligns Woolf's writing with that of Walter Pater and Vernon Lee as a "feminist historiography" that "rejected Victorian patriarchal metanarratives" and instead "used the strategies of fiction to bring history alive and make it live in the present" (de Gay 71). In a similar vein, Burns and Channing both point out that Woolf uses fantastical elements, in the former in the service of parody, and the latter as part of magical realist writing, that disrupt expectations of plot and narrative to challange the stability of gender and identity. Doubling down on the role of langauge, some critics emphasize that the narration purposefully obfuscates any resolution about concepts like gender, identity, and even race and nationality. Victoria L. Smith asserts that "The fantastic content in the novel is directly linked to the undecidability/impossibility of the form of the novel and of the protagonist" (58).

[('would', 0.5118660926818848),
('hand', 0.5049053430557251),
('night', 0.4855204224586487),
('though', 0.4815906882286072),
('way', 0.476143479347229),
('foot', 0.4528403580188751),
('orlando', 0.433744877576828),
('said', 0.43140658736228943),
('like', 0.41121190786361694),
('life', 0.4069981873035431)]

And the following are words associated with "man":

[('would', 0.6174017786979675),
('orlando', 0.6018419861793518),
('night', 0.5755824446678162),
('way', 0.5710440874099731),
('great', 0.5492382645606995),
('long', 0.5454811453819275),
('could', 0.53724604845047),
('table', 0.5338666439056396),
('thus', 0.533319354057312),
('said', 0.5238105058670044)]

The lists reflect commonly used words, and appear somewhat similar, sharing terms like "would," "orlando," "night," and "way." To get more distinctive results for each gender, I modified the code to remove any words with strong associations to the opposite gender. Recalling Butler, this moves takes the *repudiated* term, either "woman" or "man," and feeds it back into formula. The results revealed more distinctive words associated with each gender:

> $\text{distinct}_{\text{w}}$ = model.wv.most-similar(positive="woman", negative="man")

[('soft', 0.3692586421966553),
('named', 0.34212377667427063),
('sciatica', 0.3223450779914856),
('frilled', 0.3187992572784424),
('despaired', 0.31375786662101746),
('friend', 0.31238242983818054),
('delicious', 0.30853813886642456),
('winked', 0.30514153838157654),
('notion', 0.3047487139701843),
('seductiveness', 0.30290719866752625)]

> $\text{distinct}_{\text{m}}$ = model.wv.most-similar(positive="man", negative="woman")

[('chequered', 0.4025157392024994),
('fact', 0.3394489586353302),
('denounced', 0.3346075117588043),
('house', 0.33423593640327454),
('curiosity', 0.33144116401672363),
('defend', 0.3284823000431061),
('dancing', 0.3282632827758789),
('marbling', 0.3184848427772522),
('cynosure', 0.3057470917701721),
('rather', 0.3024100363254547)]

At first glance, the top terms for each list appear to align with existing conceptions of femininity and masculinity, such as "soft" for "woman," and "chequered" for "man." The rest of the terms also appear to uphold a binary understanding of gender, with words like "frilled," "delicious," and "seductiveness," associated with "woman," and "fact," "defend," and "denounced" associated with "man."

Beyond these general patterns, however, the results complicate an easy understanding of gender as binary. In what follows, I use some of these words as starting points for close-reading analysis of the text. I begin with unique words from both lists which, appearing only once in the text, carry significant semantic weight in their relation to gender. Then, I examine words that co-occur in certain passages of the texts–moments which are provocatively indicative of the relationship between gender and language in the text.

Interestingly, while the top term for the "woman" category, "soft," is used 9 times throughout the text, the top term for the "man" category, "chequered" is only used once, at the very beginning of the story, when Orlando makes his entrance, stepping "the yellow pools chequered by the floor" (Woolf 12). This moment is the first of many in which the narrator casts doubt his credibility as a biographer, the self-described "scribe." Soon after Orlando makes his appearance, the narrator distinguishes his role as a biographer from that of the poet, who works to embellish and exagerrate through figurative language. However, the narrator's committment to straightforward and solemn description soon unravels when he attempts to describe Orlando's beauty. Here, the language swells to full-fledged figuration:

> Directly we glance at Orlando standing by the window, we must admit that he had eyes like drenched violets, so large that the water seemed to have brimmed in them and widened them; and a brow like the swelling of a marble dome pressed between the

> two blank medallions which were his temples. Directly we glance at eyes and forehead, thus do we rhapsodize. Directly we glance at eyes and forehead, we have to admit a thousand disagreeables which it is the aim of every good biographer to ignore. 12-13

Here, the narrator's evocative language undermines the pretense to objectivity which he feels compelled to produce. This doubt grows into a crisis of signification that occurs persistently throught the novel. That the usage of "chequered" in this passage suggests that gender may have something to do with this crisis.

The crisis of signification also occurs within Orlando's experience itself. From the "woman" list, I take a term, "despaired" which, like "chequered," occurs only once in the novel. It appears at a point when Orlando, deep in a depression following his desertion by his first love, Sasha, struggles to understand the role of figuration in language:

> So then he tried saying the grass is green and the sky is blue and so to propitiate the austere spirit of poetry whom still, though at a great distance, he could not help reverencing. 'The sky is blue,' he said, 'the grass is green.' Looking up, he saw that, on the contrary, the sky is like the veils which a thousand Madonnas have let fall from their hair; and the grass fleets and darkens like a flight of girls fleeing the embraces of hairy satyrs from enchanted woods. 'Upon my word,' he said (for he had fallen into the bad habit of speaking aloud), 'I don't see that one's more true than another. Both are utterly false.' And he *despaired* of being able to solve the problem of what poetry is and what truth is and fell into a deep dejection. 75; emphasis mine

Like the narrator from the previous passage, Orlando here interrogates the truthfulness of figurative elements. First, he attempts plain language, "the sky is blue", "the grass is green," but these prove insufficient for describing an animation that characterizes nature, with a sky "like the veils which a thousand Madonnas have let fall from their hair" and grass that "fleets and darkens like a flight of girls fleeing the embraces of hairy satyrs from enchanted woods." Orlando, who has just been abandoned by his first love, a woman named Sasha, sees movement and modesty in nature, which he nontheless finds "false." It seems that, for Orlando, gender has something to do with the authority of language to convey truth in plain terms, of "say[ing] what one means and leav[ing] it." This state of despair recalls, in Victoria L. Smith formulation, "how representation or, rather more particularly, how literary language finds itself at a loss" (Smith 68).

One of the words from the list of terms associated exclusively with "woman" is "delicious," which occurs only five times, all in the second half of the novel, after Orlando has transitioned into a woman. Three of the five occurances appear in a single passage, when Orlando is on the ship back to England soon after her transition. She is dining on the ship, being offered meat by the Captain, which sends her into an rapturous debate on the joys of womanhood:

> 'A little of the fat, Ma'm?' he asked. 'Let me cut you just the tiniest little slice the size of your fingernail.' At those words a *delicious* tremor ran through her frame. Birds sang; the torrents rushed. It recalled the feeling of indescribable pleasure with which she had first seen Sasha, hundreds of years ago. Then she had pursued, now she fled. Which is the greater ecstasy? The man's or the woman's? And are they not perhaps the same? No, she thought, this is the most *delicious* (thanking the Captain but refusing), to refuse, and see him frown. Well, she would, if he wished it, have the very thinnest, smallest shiver in the world. This was the most *delicious* of all, to yield and see him smile. 'For nothing,' she thought, regaining her couch on deck, and continuing the argument, 'is more heavenly than to resist and to yield; to yield and to resist. PAGE NUMBER

Here, "delicious" describes a tremor, a refusal, then a yielding–the vacillations of a passive form of pleasure that is opposed to the active form of pursuit which Orlando enjoyed as a man. She settles on this distinctly feminine form of pleasure as the superior one.

To probe some of the more distinctive usages of these terms, I turn back to distant reading, to run additional keywords through the similarity function. In filtering the shared contexts between "woman" and "man," coming closer to a sense of gender distinctiveness in this text, it is important to emphasize that gender still descends from a binary system–from the initial analysis of "woman" and "man." However, by *iterating* through distant and close reading, the terms swell with significations that pluralize the binary and like Butler's account of gender subversion, work toward resignifying the initial understanding of "woman" and "man." Despite the tight constraints of the computational component, to the formulas like `model.wv.most_similar(positive="woman", negative="man")` which I used to compute the words similar to "woman," there is a freedom in the possibility of re-running the computations and in turning between close and distant reading analysis. The rule here is iterativity which, as Butler suggests, opens up the opportunity for subversion:

> The compulsion to repeat an injury is not necessarily the compulsion to repeat the injury in the same way or to stay fully within the traumatic orbit of that injury. The force of repetition in language may be the paradoxical condition by which a certain agency—not linked to a fiction of the ego as master of circumstance—is derived from the impossibility of choice. 83

Butler explains that the repetition of language is the condition enables a certain agency to emerge. Through repetition, dominant or established meaning can be resignified. Taking Butler's concept of "performative citation" as guidance, then, one may repeat the same computation over and over again, with each new result expanding and resignifying the initial understanding of binary gender.

Taking iterativity as a method then, I then run another similarity search passing "delicious" as the keyword, in the hopes of gaining a deeper understanding of feminine pleasure in this text. The top result, that is, the word most similar to "delicous," is "culpable." I then turned back to the text to examine when this word appears, which only happens two times, both occuring soon after the above passage on the ship when Orlando is weighing the different pleasures between the sexes. The first instance occurs when Orlando is considering the nature of her sexual desire: "And as all Orlando's loves had been women, now, through the culpable laggardry of the human frame to adapt itself to convention, though she herself was a woman, it was still a woman she loved; and if the consciousness of being of the same sex had any effect at all, it was to quicken and deepen those feelings which she had had as a man" PAGE NUMBER. Here, "culpable" modifies "laggardry," which describes the obstinacy of Orlando's romantic desire that persists in loving women, despite that she is now a woman herself. "Culpable," from the Latin "culpa," meaning fault or blame, here denotes a particular kind of homosexual guilt. The next usage of this term occurs soon after, when Orlando enacts a reprise of her earlier ruminations:

> 'To refuse and to yield,' she murmured, 'how delightful; to pursue and conquer, how august; to perceive and to reason, how sublime.' Not one of these words so coupled together seemed to her wrong; nevertheless, as the chalky cliffs loomed nearer, she felt culpable; dishonoured; unchaste, which, for one who had never given the matter a thought, was strange. PAGE NUMBER

Here, Orlando rehearses the conventional roles of the sexes, which seem to her to be correct. Nonetheless, Because Orlando fails to fall into the convention,

she feels "culpable," with parallel feelings "dishonour" and "unchaste," which work to distinguish this kind of guilt as a kind of feminine one. The word "culpable" links guilt to queerness, which seems to be a distinctive experience associated with femininity in the novel.

In a final example, I examine how the two genders might converge in the story. To do so, I examine the co-occurance of words from both lists which happen to occur within a single passage. The words, "curiosity," which is associated with "man," and "seductiveness," which is associated with "woman," appear in a passage that portrays desire as driven by gender incomprehensibility. Together, the terms characterize gender as intimately coordinated to language. The drama begins when Orlando, upon seeing Sasha for the first time, cannot tell whether she is a man or a woman:

> He beheld, coming from the pavilion of the Muscovite Embassy, a figure, which, whether boy's or woman's, for the loose tunic and trousers of the Russian fashion served to disguise the sex, filled him with the highest *curiosity*. The person, whatever the name or sex, was about middle height, very slenderly fashioned, and dressed entirely in oyster-coloured velvet, trimmed with some unfamiliar greenish-coloured fur. But these details were obscured by the extraordinary *seductiveness* which issued from the whole person. Images, metaphors of the most extreme and extravagant twined and twisted in his mind. He called her a melon, a pineapple, an olive tree, an emerald, and a fox in the snow all in the space of three seconds; he did not know whether he had heard her, tasted her, seen her, or all three together.... A melon, an emerald, a fox in the snow–so he raved, so he stared. When the boy, for alas, a boy it must be–no woman could skate with such speed and vigour–swept almost on tiptoe past him, Orlando was ready to tear his hair with vexation that the person was of his own sex, and thus all embraces were out of the question.

For Orlando, the problem of language and gender has to do with expression. He uses seemingly arbitrary metaphors, "a melon, a pinapple, an olive tree, an emerald, and a fox in the snow," indicating that at the same time which he cannot place Sasha's gender, he also cannot find the right words to describe her.

As Sasha's probable gender oscillates between male and female throughout passage, Orlando's desire crescendos. The narrative voice and form of the sentences in this scene also shape the building tension: the narration alternates interiority and description a in free indirect discourse that jumps abruptly

between narration and interjections, to express a cyclical quality about Orlando's confused mental state. The effect is to mirror with language the tortuous thought process that Orlando undergoes as he guesses then doubts the reality of Sasha's gender. While the tension thus mounts throughout the passage, the relationship between gender and language comes to a climax:

> But the skater came closer. Legs, hands, carriage, were a boy's, but no boy ever had a mouth like that; no boy had those breasts; no boy had eyes which looked as if they had been fished from the bottom of the sea. Finally, coming to a stop and sweeping a curtsey with the utmost grace to the King, who was shuffling past on the arm of some Lord-in-waiting, the unknown skater came to a standstill. She was not a handsbreadth off. She was a woman. 27-28

Athough the tension finally ebbs as Orlando settles on Sasha's gender, "She was a woman," the use of figuration and form in this passage situate gender as something difficult, if not impossible, to grasp. The lessson seems to be that if gender is ambiguous, then language is also imprecise.

Language is used to produce (and and reproduce) gender identity. In other words, a *discursive* understanding of gender is one that can be destabilized, distorted, and/or reformulated through language. Pamela Caughie attributes the emergence of gender transgression in this novel to experiments in figuration and narrative form:

> Woolf brings out the arbitrariness of [sexual] identity, the arbitrariness of language itself, through Orlando's switching from one sex to the other, and from one poetic language to another, as well as through the shifting of her own rhetoric in this novel. 42

This text, with its "switching" and "shifting" discourse, which at once asserts that language is deficient and that it overshoots the mark, that it conveys plainness and poetry, implies that gender is also a transformative, formal phenomenon.

The performative approach to language–the idea that language can produce meaning seems to hit its own limit at a specific point in the novel. At this point, the crisis of signification comes to a climax, when the biographer increasingly drops his pretension toward accuracy and boldly speculates:

> 'Shel, my darling,' she began again, 'tell me...' and so they talked two hours or more, perhaps about Cape Horn, perhaps not, and really it would profit little to write down what they said, for

> they knew each other so well that they could say anything, which is tantamount to saying nothing, or saying such stupid, prosy things as how to cook an omelette, or where to buy the best boots in London, things which have no lustre taken from their setting, yet are positively of amazing beauty within it. For it has come about, by the wise economy of nature, that our modern spirit can almost dispense with language; the commonest expressions do, since no expressions do; hence the most ordinary conversation is often the most poetic, and the most poetic is precisely that which cannot be written down. For which reasons we leave a great blank here, which must be taken to indicate that the space is filled to repletion. PAGE NUMBER

The use of the space break, which is meant to signify everything that passes between Orlando and Shel and more ("it is filled to repletion") functions by signifying nothing. According to critics like Katheryn N. Benzel, this moment creates literal space for the reader to fill in with her own interpretation of the scene. The text paradoxes, for the reader to resolve, such as "the most ordinary conversation is often the most poetic, and the most poetic is precisely that which cannot be written down." As a formal device, the space break, in Smith's words, "bemoan[s] the inadequacy of language" (Smith 68).

Here the narrator is saying that language doesn't execute – it does not enact. It's pithyness, just four words which begins with the conditional "since" and the enactive "do," evoke a kind of programmatic logic. And this programmatic logic hits its own limitation, it can mean, it can even produce meaning, but it cannot do. Caughie sums up this intervention, which purposefully precludes a straightforward understanding of sex and gender, where "sex cannot be separated from text, the grammatical from the gendered" (Caughie 51). According to Caughie:

> "Orlando works as a feminist text not because of what it says about sexual identity but because of what it manages not to say; not because of what it reveals about the relation between the sexes but because of what it does to that relation; not because its protagonist is androgynous but because its discourse is duplicitous" (Caughie 41).

This argument, that *Orlando*'s subversiveness is a discursive one, opens the text to numerous critiques[8], none more situated on the body than the critique from Trans Studies. According critics like Jay Prosser, Woolf's

[8] Jamie Hovey and Jessica Berman both explore how the text challenges the boundaries

experimentation with language and narrative form belies the physical the embodied reality of transsexuality. He explains: "Orlando is not about the sexed body at all but the cultural vicissitudes of gender. As h/er narrative propels h/er through four centuries of history, Orlando is free to move beyond h/er body–quite queerly, to break through the limits of the flesh" (Prosser 168). By "the sexed body," Prosser means the physical body, the "literal, the real, the intractable flesh" which is bound by the rules and boundaries of the physical and social world (Halberstam 314). *Orlando's*'s transgressiveness results from a play of *language* and *literary form* that elides the specificity and the lived reality of the "sexed body." Rather, due to its "ambivalence, a wavering around transition", "a transformation of transition into new identity," its "easy androgyny," this text is transgender (Prosser 169). As Caughie asserts, *Orlando*'s transgressiveness comes from its discursive moves: "Far from defeating sexual difference, as many feminist critics claim, Orlando enacts it, enshrines it, exploits it, makes a spectacle of it, but as a playful oscillation not a stable opposition" (Caughie 48).

A decade later, Omise'eke Natasha Tinsley writes about this problem in her famous essay, "Black Atlantic, Queer Atlantic: Queer Imaginings of the Middle Passage." In line with the spirit of Queer of Color Critique, Tinsley's main argument is that the imbrication of sexuality and race have been overlooked: "the black atlantic has always been the queer atlantic" (191). By sexuality, however, Tinsley does not necessarily mean "same-sex" desire, though this is certainly relevant, but relationships more deeply, in "the sense of making disruption to the violence of the normative order... connecting in ways that commodified flesh was never supposed to" (199). Reading for relation rather than desire, her critique pursues a reworking of Queer Theory tropes, like that of fluidity which, drawing from the ocean, "is not an easy metaphor or queer and racially hybrid identities but for concrete, painful, *and* liberatory experience" (192-193). For Tinsley, fluidity is an

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of national identity through an implicit critique of imperialism, a critique that emerges from the privileged position of the white, British persective. Hovey remarks that *Orlando* is "an ambivalent articulation of English nationalism," a nationalism that intersects with (and depends on) gender and race (Hovey 394). Displacing the oppressive effects of nationalism to racialized and sexually transgresive subjects, the novel "allows the protagonist to pass as respectible and heterosexual" (Hovey 398). Bringing the question of transsexuality to the fore, Berman argue that as a "trans text," *Orlando* utilizes methods of marking and categorizing bodies to interrogate the structures and boundaries of nationality (Berman 218). According to Berman, "The transnational situation as also intrinsically transgender" (Berman 218). Berman's account harps on "the disruptive, critical energy of the prefix 'trans'" to unpack the concept of "nation" and "nationality" (Berman 220).

opportunity for "a return to the materiality of water to make its metaphors mean more complexly, shaking off settling into frozen figures" (212). Tinsley here theorizes fluidity as a "social liquidation," being stripped by the water, particulars of identity washed away in the current. Reading from Dionne Brand's book, *Map to the Door of No Return* (2001), on the Middle Passage, Tinsley describes: "Their brown bodies are gender fluid not because they choose parodic proliferations but because they have been 'washed of all this lading, bag and baggage'" (209).

Tinsley's critique surfaces the ways that fluidity, as a trope for queerness, obscures the very real and physical implications of the powerfully corrosive effects of water. While this chapter, following Butler, has proposed queer gender as a kind of enabling constraint that precedes and constructs the subject while also creating a possibility for resistance, I wonder how Tinsley's evocation of materiality of the metaphor might deepen this analysis. Here lies the real potential of Queer Studies inflected frameworks for using digital tools like text analysis. One might think more deeply about the concept of computational iteration, for example, as a process of repetition which can be coopted and redeployed toward subversive ends. In the ways that we count, compute, visualize, one might draw from thinkers like Tinsley, who attend to what has been submerged, washed away "in the process of unmarking whiteness and global northernness" (206).

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