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CLOSE- AND DISTANT-READING MODERNISM: NETWORK ANALYSIS, TEXT MINING, AND TEACHING *THE LITTLE REVIEW*

Jeffrey Drouin

ABSTRACT

The digital humanities tends either to distant-read enormous data sets or to microanalyze the linguistic features of single works. "Big data" projects use software to visualize massive data sets of publishing information containing millions of volumes, revealing historic patterns that would be unobtainable by scholars. The main weakness of big data methodologies is their inability to read the works. The microscopic approach of text mining presents similar benefits and drawbacks. This article finds a middle ground by using these two techniques to read the September 1918 Little Review, *examining the combined use of human markup and automated statistical techniques.*

KEYWORDS: *World War I, network analysis, text mining, data visualization, semantic markup*

Literary study in the digital humanities tends either to distant-read enormous data sets or microanalyze the linguistic features of single works.[1] "Big data" projects use software to visualize massive data sets of publishing information or corpora containing millions of volumes, revealing historic patterns that would otherwise be unobtainable by scholars reading as many individual works as is humanly possible.[2] This macroscopic approach offers powerful insights that prompt new questions and invite the reevaluation of current scholarly claims. However, the main weakness of big

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data methodologies is their inability to read the works that their algorithms quantify, to see what they actually say or how they position themselves in context. The microscopic approach of text mining presents similar benefits and drawbacks: it offers near-perfect statistical analysis of usage patterns, revealing concepts that might have escaped a reader's experience, but without acknowledging the work's historical and discursive context. These blind spots raise uncertainty as to how we read—and trust—the intriguing graphs and tables that seem to offer objective evidence for our claims. This article attempts to find a middle ground by using various techniques in network analysis to read the September 1918 *Little Review*, and then to examine that number in its historical context by applying basic text mining to the entire 1914–22 corpus of the magazine. In so doing, this article examines the combined use of human markup and automated statistical techniques, suggesting new avenues for research and pedagogy in periodical studies.

Effective digital literary study requires the ability to process data, read well, and interpret both the numbers and the texts in light of each other. Network analysis, a method drawn from sociology, but now widely applied, maps connections among data in a structured set and offers the ability to execute thematic or bibliographic approaches that combine the macro and micro. Several contributors to this issue apply network analysis to large data sets or to the social connections that compose the institutions of modernist authors. This article will take a micro approach to network analysis, using it to read the September 1918 issue of *The Little Review*, and then expand to a macro analysis of that magazine's corpus in its historical and editorial context at the Modernist Journals Project (MJP).[3] Not only does the combination of micro and macro analysis provide a new way of reading *The Little Review*'s emphasis on life and vitality, but it offers a model for testing assumptions and suggests further avenues for research.

The occasion for this study of the September 1918 *Little Review* was a joint activity between graduate seminars led by Sean Latham and me. Quite simply, we were intrigued by the issue's rare mention of the First World War and thematic coherence around death, and decided to combine our groups for a week to see what came of it. Pedagogy and student engagement are essential to the network graphing procedures outlined below, since collaborative reading and markup are necessary for a comprehensive treatment of a digital corpus.

The MJP now contains enough data to perform a strong distant reading of modernist periodical culture, allowing scholars to examine historical

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trends we might not apprehend by reading the magazines alone. It has built, and continues to build, a corpus of digitized early twentieth-century literary magazines, ending at 1922, which is the current public domain cutoff date in the United States. At present the MJP features twenty-two titles plus the thematic 1910 Collection, for a total of around 1,850 individual magazine issues. The MJP offers several key advantages over most "big data" archives. First, it provides high fidelity digital copies of original, intact magazines, available in PDF and JPG format, for close reading of content and bibliographic coding. Second, magazine text files are marked up in TEI XML[4] and catalogued according to MODS library standards, making them searchable by author, title, genre, and other metadata categories.[5] Third, the XML files and MODS records are made available at the MJP Lab for analysis through digital tools.[6] This means scholars can work with a known corpus that facilitates both a macro and micro reading of its content. Though the data set for this article comprises the MJP's *Little Review* issues from 1914 to 1922, the techniques used here are applicable to both small and large corpora. In addition, the techniques in bibliographic and semantic markup laid out in the following discussion derive from teaching practices I developed in periodical studies courses over four years at three universities. The experiences described here serve as a model for developing undergraduate and graduate students into active scholars who can produce real primary research that contributes to the archive of modernist print culture.

The Little Review was an American little magazine that published criticism, art, and experimental literature from 1914 to 1929. It was spearheaded by Margaret Anderson and, beginning in 1916, her partner Jane Heap, who took over as sole editor in 1925. It was located first in Chicago and subsequently moved to New York City and Paris. *The Little Review* featured many now obscure authors as well as some who are lionized as the twentieth century's leading lights, including Sherwood Anderson, James Joyce, Ezra Pound (who became foreign editor in 1917), and Gertrude Stein. The magazine was critical of American literature, actively seeking an international contributorship in order to revitalize the national culture. In 1921 Anderson and Heap were famously prosecuted on grounds of obscenity for serializing Joyce's *Ulysses*, which got the novel banned in the United States until 1933. On several occasions, beginning in 1917, Anderson and Heap also skated dangerously close to prosecution for sedition, owing to some content that could be seen as critical of U.S. involvement in the First

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World War. Though the magazine's core emphasis was on art, many of its contributors were involved in radical politics of various kinds.

Along with the magazine's blend of transatlantic and national identity, it carried a central focus on life and vitality. The editorial announcement of the first issue, March 1914, claims that "close to Life—so close, from our point of view, that it keeps treading on Life's heels—is this eager, panting Art who shows us the wonder of the way as we rush along." Anderson pokes fun at the paternalistic critics who shake their heads at this attitude toward art, responding with a feminized trope of fertility. Even criticism "*is* creation: it gives birth!" The magazine's perennial emphasis upon life is established in this first editorial announcement: its mission will be "to print articles, poems, stories that seem to us definitely interesting, or—to use a much-abused adjective—vital."[7]

The magazine's continual focus on life is precisely what makes the September 1918 issue, which builds a thematic coherence around death, so interesting. Latham and I decided to conduct some joint activities with our two graduate courses at the University of Tulsa in spring 2012, my own on modernism and digital humanities and Latham's on modernism and new media. The two courses shared some overlapping interests and theoretical concerns. My course introduced students to basic digital tools for analyzing modernist texts and thinking with technology. Latham's course was interested in the ways that modernist literature embodies functionalities of twenty-first-century digital media. His group had been discussing Katherine N. Hayles's concept of emergence, from *My Mother Was a Computer*, through one of Latham's unpublished essays, "Unpacking My Digital Library: Programming Modernist Magazines."[8]

In "Unpacking My Digital Library," Latham describes emergence as "a particular kind of complexity that arises not from the individual elements of a system, but only from their interaction." The nature of a magazine is therefore ideal for examining emergence, since its bibliographic format requires the nonserial and idiosyncratic manipulation of content. In order to arrive at a dynamic readerly coherence, Latham uses Espen Aarseth's concepts, from *Cybertext*, of "texton," a string of information that exists in the text (i.e., a poem, an advertisement, a headline), and "scripton," their unique synthesis in the mind of a reader. Any reader of a magazine assembles the interactive system of textons into a scripton consisting of textual connections among content items and whatever idiosyncratic associations that reader might ascribe to them. For Latham, the excitement as

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well as the trouble with emergence is that it is "provisional, unstable, and sometimes even difficult to capture using our current theoretical and historical frames."[9] We began to wonder whether text analysis technologies could reveal thematic patterns in a corpus that might lead to the development of emergence.

The September 1918 issue of *The Little Review* is unusual in that it features one of the magazine's few direct references to the First World War, W. B. Yeats's poem "In Memory of Robert Gregory," about the only son of Lady Gregory, an Irish airman who was killed in action. The issue is also notable for serializing Joyce's "ULYSSES Episode VI," later known as "Hades," depicting the funeral of Paddy Dignam. These major contributions lend the issue a focus on death at odds with the magazine's normal emphasis on vitality. Two short stories by Sherwood Anderson and Ben Hecht, "Senility" and "Decay," explore conceptual valences of death's precursors and aftermath. Two of the four poems by T. S. Eliot, "Whispers of Immortality" and "Dans le restaurant," examine literary longevity, death, and redemption. Numerous items of criticism and correspondence rail against literary obsolescence as a kind of death, particularly Edgar Jepson's essay "The Western School," which decries the deterioration of literary production "as rancid as *Ben Hur*." Death is clearly the editorial focus of this issue, tantalizingly introduced by a reference to the war that is never again picked up.[10]

What to make of these developments, then? Why produce an apparently out-of-character issue on morbid subject matter so late in the war? Readers at the time must have had a sense that the war's end was approaching, since the Armistice was signed only two months later and speculation was rampant in the newspapers. Perhaps Margaret Anderson and Jane Heap made this tack as a way of keeping the magazine's resolution against complacency. Yet the subjects of death and war were hardly new in avant-garde print culture, since the Futurists, *BLAST*, and other little magazines had celebrated them even before the war began. Aside from the Yeats poem, the September 1918 *Little Review* resembles more closely certain postwar magazines such as *The Owl* that process the violence in hidden and neutral ways. Perhaps the inclusion of other death-related pieces is a way of processing the war indirectly while preserving an aversion to didacticism. To be sure, this focus on death is just one in a number of aberrances within the magazine's trajectory. Seen in the long arc of the magazine's tenure, the September 1918 issue might provide insight into its practices and, additionally, the history of modernism. Developing a

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sense of how this particular issue is structured would provide a microcosmic view into its operation within the *Little Review* macrocosm.

Any responses that might be made to queries about *The Little Review*'s thematic trajectory will need to address the generic nature of magazines and magazine reading. Magazines are not novels or narratives designed to be read from cover to cover, but rather organized containers of varied material with a table of contents to help the reader jump around. One major aspect of magazine reading is that it requires an active selection and assimilation of differently authored pieces. It is an accretive process of comparison, building an understanding of an issue's unity through an arbitrary sequence of genres and modes. This means that different readers' experiences of a given magazine will be more varied than those of a serial codex due to the differences in information collection and organization.

In the material sense, the editorial unity of a periodical combines a multivocal authorship with the more-or-less coherent vision of its editors. This allows for interpreting a certain amount of editorial intent and randomness in the relationships among pieces within an issue or across multiple numbers. In that way, a magazine can be understood as a network bound together by conceptual, political, and personal ties frozen in a historical moment. These merge together to form an assortment in which individual pieces and their larger relationships form a mutually constitutive whole. In such a condition, different writers who might not know one another could write on a similar theme and, for that reason, be juxtaposed in an issue by the editor, creating a point of comparison for the reader and lending thematic coherence to the issue. Resources like the MJP have generated a data set large enough to map these networks both within a single magazine issue or the entire corpus. If we are to produce material-historical research on modernist print culture, then analyzing the MJP corpus is a good way to start because its networks embody the mechanism by which literary history operates.

One way to deal with the seeming unpredictability of emergence is through a combination of computer- and human-generated scriptons. These would synthesize both close and distant readings of the corpus in order to approximate the features inherent in the texts as well as the human meanings they provide. The graphing of metadata such as authors, magazine affiliations, or genres will point us toward interesting patterns in modernism's original context that a small number of scholars cannot discover on their own. Interesting and provocative as metadata graphing can be, the techniques do not grant access to the semantic dimension of the

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material, of what the pieces actually say or, given their positioning within an issue, what they say *together*.

In the following discussion, I hope to show the potential for a hybrid of human markup and automated analysis that would enhance our ability to understand the archive of modernist print culture. It turns on pedagogical activities in bibliographic description, semantic markup, and informatics that not only allow students to do real and valuable groundwork in laying bare the networks of modernism, but also serve as a model for more efficient use of stages in the research process.

During the class discussion of the September 1918 *Little Review*, we became interested in the emergence of Death as a guiding concept for reading the issue. The Jepson essay is a particularly relevant case in point. It was only through comparison with the Anderson and Hecht pieces, which appear later in the issue, that we were able to read Jepson as part of the emergence of Death at all. In order to see how emergence works, it will be useful to describe the process by which the Jepson essay came into our purview.

Our conversation began with the irony of Yeats's memorial to Gregory, which can be read as a statement against the premature celebration of greatness in youth. The first half of Yeats's poem praises Lionel Johnson, John Synge, and George Pollexfen for their towering intellects and burning creativity, making no reference to Gregory until the middle of the sixth of twelve stanzas. Yeats is not unkind to Gregory, a well-rounded "Soldier, scholar, horseman" and painter for whom he had much affection, but he emphasizes rather his appreciation for "all things the delighted eye now sees."[11] These mild compliments are hardly the considered appraisals of character and work given to the other more prominent men. Therefore, the primary focus of the poem is arguably on the difficulty of sensitive men in a modern world and a war that consumes youth before it has a chance to mature. Though Gregory showed promise, the implication is that he was just such a curtailed youth who had not the accomplishments of older (read: more deserving) men, and as such Yeats's friend and collaborator Lady Gregory was angered. The poem's moral thrust focuses more on the fate of artistic creativity and literature in the modern world, with Gregory and the war almost as afterthoughts.

Discussion soon turned to the other headlining piece, Joyce's installment of *Ulysses* depicting Paddy Dignam's funeral, which appears roughly in the middle of the issue. With Yeats fresh on our minds, we began to

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notice the episode's critique of the hyperbolic praise and mythologizing of the dead in funeral rituals. Leopold Bloom and the other characters are full of reverence for Dignam, who was by all accounts a mediocre man given to drink, affable like Gregory and also stunted. The narrative places the reader at an ironic distance from the dialogue to suggest that Dignam was as much a casualty of the modern environment as anything else. At this point we began to speculate that "ULYSSES Episode VI," given the timing of the episode's composition and serialization, might embody Joyce's critique of the war and its shared basis with the ills of modernity, which include the failure of journalism represented by the mistakes in recording funeral guests' names for the evening newspaper. Given the close thematic similarity between the Joyce and Yeats pieces, which link literary and journalistic malaise with the decay of social standards, the general sense was that selection of the pieces to appear together was intentional on the part of the editors.

We then turned our focus to the Anderson and Hecht stories, which immediately follow the Joyce installment. Anderson's "Senility" depicts a lonely old man who incoherently narrates his life of missed opportunities, shortcomings, and sadness at his brother's incarceration. It links decay of the body and mind in old age with the moral decay of the wider world, implicating the war's senseless mass murder. At one point, the old man weeps at his brother's unrepentant bloodlust: "'I am not sorry. I would kill ten, a hundred, a thousand!'"[12] Some thematic overlap occurs with Hecht's "Decay," in which the hygienic decay of the modern urban environment mirrors the moral and mental decay of its working-class inhabitants, all of whom are presented as the living putrefaction of the dead.

From there we moved to a discussion of the Eliot poems, which immediately precede the Joyce installment with intimations of literary decay amid an environment dominated by animal vitality. "Whispers of Immortality" is a poetic essay about English poets who have achieved canonic longevity, with reference to Webster and Donne, similar to Yeats's rumination on his great peers. However, Eliot warns the anemic intellectual class with the figure of a Russian woman signifying life and fertility: she is associated with the vital jaguar, while her "friendly bust / Gives promise of pneumatic bliss."[13] "Dans le restaurant" contains one of Eliot's repeated uses of Phlebas the Phoenician sailor, who lies drowned and unredeemed on the ocean floor, swept past the scenes of his former life. Animal carnality and the closeness of sex and death are explored in the two Eliot poems as well as the Hecht

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story, while the anxiety over literary longevity (Donne, Webster) echoes the Jepson essay and the Yeats poem. "Dans le restaurant" also echoes the senseless, unredeemed death of the war and the past that is driving it.

As the end of our conversation ranged over the various reviews and small items that seemed to echo the themes of literary and social death, a last-minute comment sparked a wave of excited speculation. One member of the group noticed that the Jepson essay, which immediately follows the Yeats poem, similarly laments the mediocrity of modern literature and the decaying influence of modernity. Jepson's essay focuses on the creation of a uniquely American literary tradition, describing his search for an autochthonous poet—a poet of and for the United States with a new language that expresses the nation. He lambasts Walt Whitman, Vachel Lindsay, Edgar Lee Masters, and Robert Frost as symptomatic of the "rancid" and "fat-headed ruck" of the United States. However, Eliot's "Love Song of J. Alfred Prufrock" is the only autochthonous poem, because "never has the shrinking of the modern spirit of life been expressed with such exquisiteness, fullness, and truth."[14] As the meeting came to a close, this moment stood out as a clear example of emergence, something that becomes noticed only because of its interaction with other pieces in the issue.

The necessarily haphazard manner in which we constructed the emergence of literary and social death as linked themes led us to wonder which factors underlay the process. Our discussion showed clearly that emergence involved close reading and comparison of the pieces in the issue. A number of questions arise, then. Given the functionality of magazines vis-à-vis reading procedures, what characteristics of an issue might lead to emergence? What structures—thematic, generic—might play a determining role? In order to grasp the influence of the magazine's textual properties on reader reception, a map of the stable bibliographic categories along with semantic labels might help to answer these questions. It is possible to speculate that digital tools would allow us to identify or even predict emergence within a single magazine or a corpus, since the journals often interacted with one another and shared contributors. In an activity using digital analysis tools, the bibliographic properties and the historical context merge to form a common set of information for asking and answering questions about periodical discourse. The second class meeting that week consisted of a workshop aimed at getting a handle on just that.

Our workshop looked at social network analysis and text mining as ways of identifying scriptons that might emerge in the magazines. We worked with a data set prepared from information students had culled from the

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MJP. The data derive from a collaborative timeline project that was repeated in my periodical studies courses over four years at three different institutions: Brooklyn College, the University of Illinois at Urbana-Champaign, and the University of Tulsa.[15] Students curate content in the MJP by entering into a shared Google Drive spreadsheet the bibliographic data of items relevant to an assignment. The bibliographic data include the piece title, magazine title, author, genre, page numbers, and publication date, the latter of which places the item on the timeline. More importantly, students write a brief description and assign topic tags to each item—such as World War I, Gender, or Death—in order to provide a sense of its meaning. In the timeline, readers scroll back and forth through history to find items of interest. They click on an item to view the student-supplied description, topics tags, and bibliographic data, and follow a link to its location in the MJP (see figure 1). The timeline is surrounded by filters from the data types (author, genre, magazine, topic tag) that allow readers to refine their exploration of the data within the timeline itself, facilitating the discovery of historical, discursive, and social connections. The learning objective of the project is for students to gain proficiency in bibliographic description and semantic markup, with an eye toward thinking critically about the periodical content and research methods. Performing these steps online also creates a live, useful resource for the class and outside scholars. Codifying the metadata into the timeline allows for discoveries of thematic and institutional connections, provoking questions as more and more

FIG. 1

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content is entered. The accretion and labeling of data from the MJP onto an open resource instills in students a sense of responsibility toward one another, toward other researchers, and toward the field, while also modeling the kind of digital collaboration that enhances material-historical analysis. In terms of periodical studies, the timeline represents one possible technology for uncovering and articulating emergence within and across magazines. However, the timeline's chronological layout has a tendency to separate items spatially, which is not always ideal for noticing connections based on thematic or generic similarity.

Since the timeline interface separates items in time, and therefore also in space, it is helpful to reduce the visual representation of data to an achronological format that makes connections more readily apparent. Network analysis is an excellent method for highlighting connections. The network graphing tool Gephi presents data as nodes and edges in a two-dimensional, timeless space, making all connections apparent at once (see figure 2). In network graph parlance, a node is a piece of information (title, author, genre, topic tag), represented by

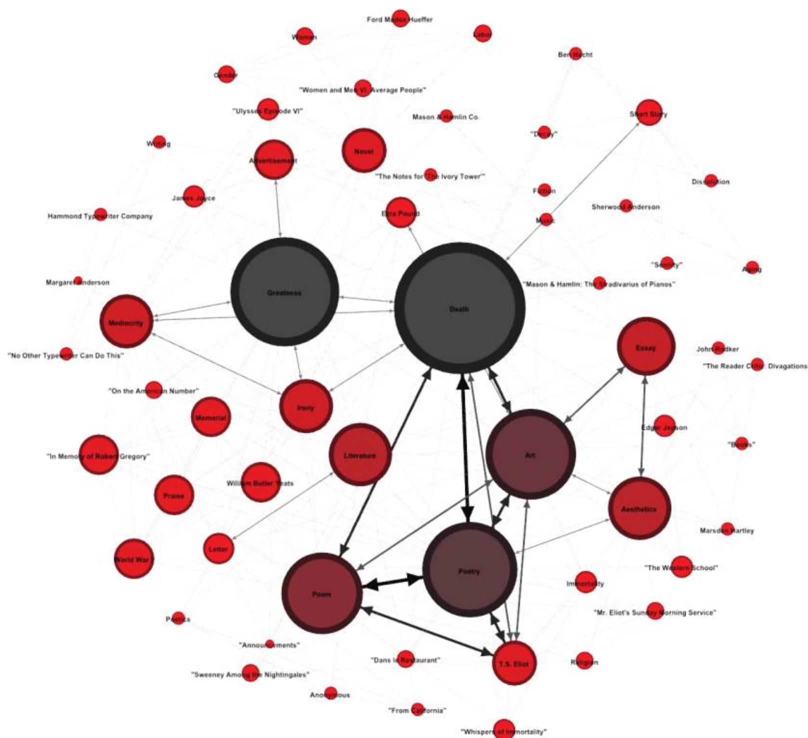

FIG. 2

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a dot, while an edge is a connection between two nodes, represented by a line. A node's degree is the number of connections it has with other nodes in the network. Using carefully massaged data from the timeline, I made comma-separated value (CSV) files to feed to Gephi for the generation of network graphs.[16] For our *Little Review* workshop, I saved the timeline spreadsheet from Google Drive to my computer as a CSV file, selected the September 1918 *Little Review* entries, and then deleted the columns that were not relevant to the network graph. As a result, the spreadsheet used for Gephi contains the item title, author, genre, and topic tags for every piece in the issue.[17] For instance, Yeats's "In Memory of Robert Gregory" is one node that connects with the nodes for William Butler Yeats, Poem, and the tags Mediocrity, Greatness, Death, Memorial, Praise, Irony, and World War I.[18] Other content items and authors connect with these nodes as well (see Appendix, table 2, for the nodes, the categories, and their counts). Following our first meeting, I added the Death tag and some other labels that reflect our discussion of the *Little Review* pieces from the first day. Some of the other tags include Greatness and Mediocrity, since we noticed that Yeats's poem takes pains to point out how much Gregory had in fact not accomplished relative to his more prolific peers, while several advertisements (discussed below) pick up that theme.

With these connections in mind, figure 2 displays a bibliographic and thematic overview of the September 1918 *Little Review*, as represented by our markup of its items and our conversation about them. The graph uses the Fruchterman Reingold layout algorithm to place the nodes of higher degree in the center, grouped by edge weight, which was calculated by Gephi's average degree tool.[19] That means the nodes that have more connections with one another will be in closer geographical proximity, as if pulled by gravity. Conversely, the nodes that have fewer connections will be forced apart as if by repulsion. One pattern that emerges is the relative distance of the genres Poem (bottom center) and Short Story (top right). They appear on opposite sides of Death and, aside from that, have nothing in common thematically or in terms of contributors. In Gephi, one can mouse over a node in order to view its nearest neighbors (a degree separation of 1) in the context of the larger graph (figure 3). This feature offers an interactive and intuitive way to begin finding some of the smaller connection sets within the data field. Since the data were not generated automatically, the set will only be as good as the thoroughness and

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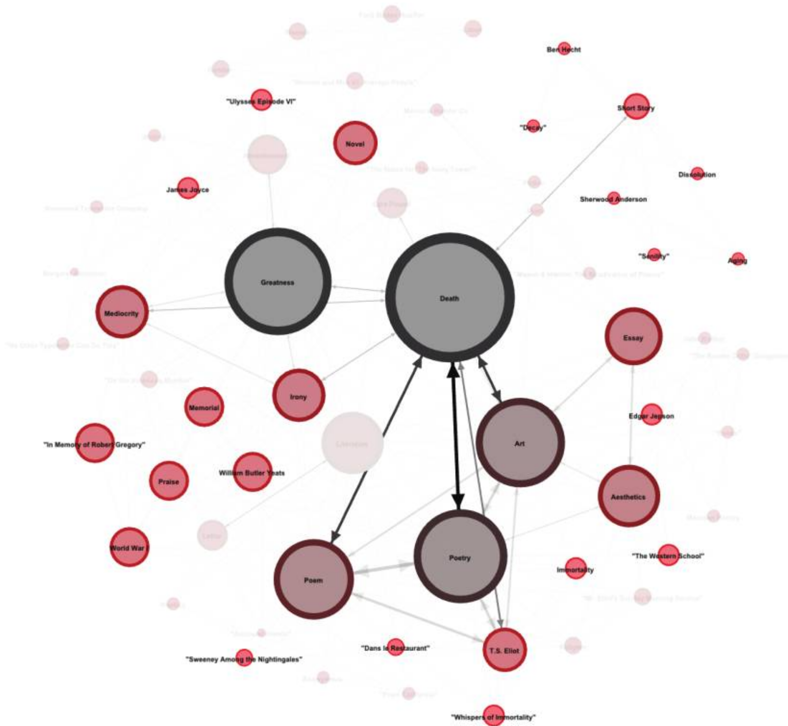

FIG. 3

consistency with which it was garnered manually. Thus, a situation in which items are curated through collaboration leads to fuller markup and greater discoveries. A smaller data set will be more reliable with this kind of approach.

The interactive exploration of small networks becomes even more interesting if we generate an ego network. An ego network is simply the immediate network surrounding a single node in the data set, seen in isolation. Gephi can use a topology filter to show an ego network and modify it to display a depth (degree of separation) between 1 and 3. While viewing an ego network in Gephi, with the node sizes reset to represent degree within the smaller context, we can again mouse over different nodes within it so as to highlight their immediate connections. Figure 4 shows us the ego network of Death, with the micronetwork that emerges when mousing over the Short Story node. The disparity between Poem and Short Story seen in figure 3 becomes even clearer in this graph, which shows that the Short Story genre has virtually nothing in common with any other content related to Death. Alternatively, mousing over the Poem node reveals a much wider micronetwork connecting Yeats's poem

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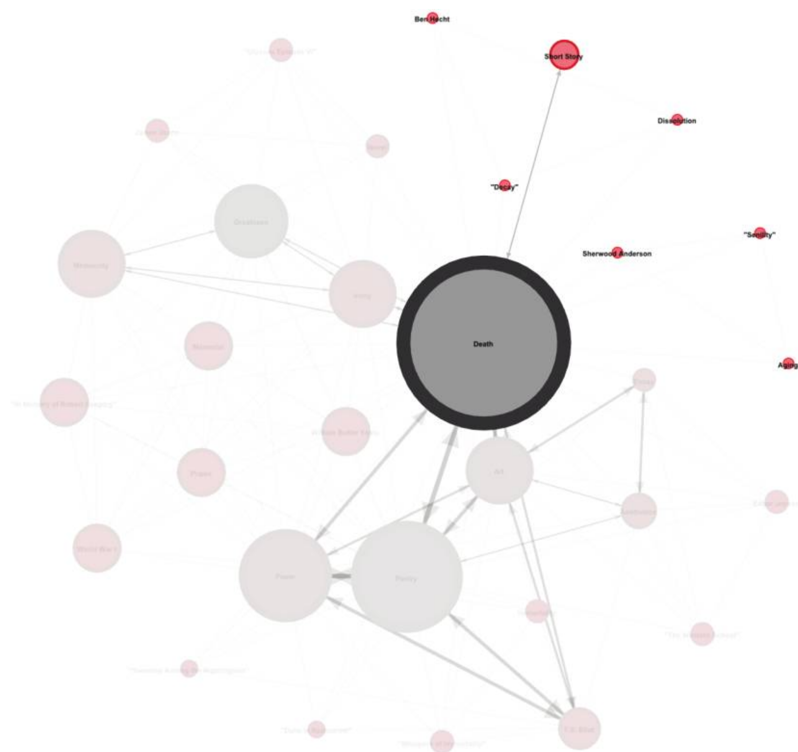

FIG. 4

with several works by Eliot, Jepson's Essay, and the triad of Greatness, Mediocrity, and Irony, plus many other points in common with the Novel node (figure 5).

The patterns in figures 4 and 5 suggest possible answers and further questions to the inquiry of whether genre figured into the editors' strategy. Why would Anderson and Heap use the short stories to carve out a separate space for the lowly and dissolute? Is it part of a strategy to explore different aspects of death and dying, using generic properties to present different facets? Do they deem the short story less suited than poetry and the novel to engage with the question of literary prosperity? What does that mean in the modernist context, then? Was the short story, or at least the samples we have in this issue, so modern that it exemplified the new literature without need for justification? Do short stories in other issues of this magazine, or in other magazines, fit the pattern of eschewing the subject of literary prosperity? These questions fall beyond the scope of the present article but suggest further avenues of inquiry that might be applied with network graphing. Indeed, many such questions are answerable

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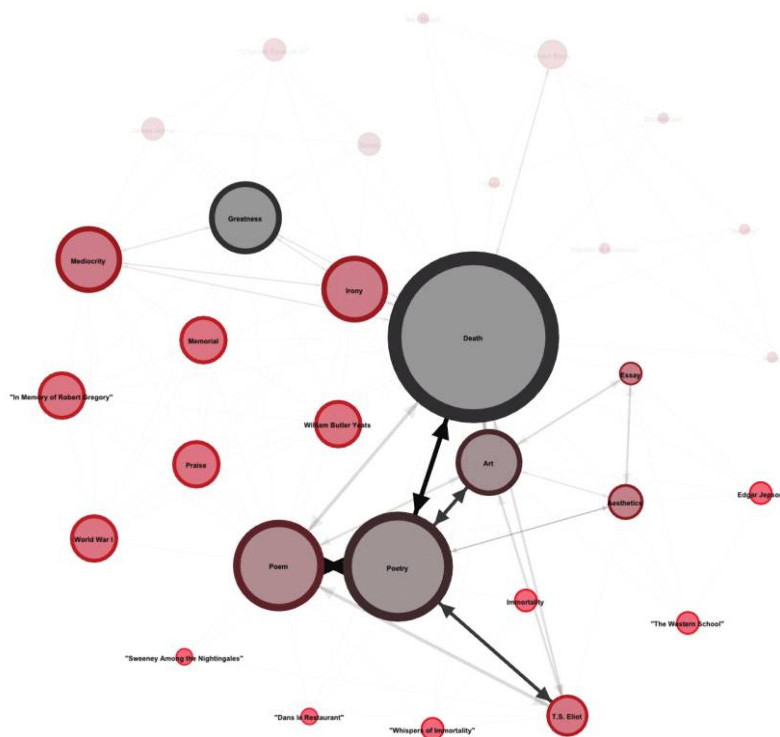

FIG. 5

through traditional research, and the graphs suggest where to focus our attention. At the very least, we are now presented with broader historical questions that can be addressed quickly and comprehensively through digital technologies.

The isolation of the Short Story group is even more pronounced if we change to the Yifan Hu Proportional layout algorithm, which calculates centrality and repulsion in a way that clusters related nodes together while emphasizing the differences in their connections as outlying branches. The bottom portion of figure 6 shows the two clusters of the Hecht and Anderson stories as they attach with Death, while the rest of the field bears no relationship to them. Likewise, Ford Madox Hueffer's installment of *Women and Men*, which was not discussed in class, bears little relationship with the rest of the issue, constituting an outlying branch of the Novel node. Conversely, Joyce's installment of *Ulysses* is quite well integrated with other memes in the issue, while Heuffer's is the only literary piece not connected to Death.

It is interesting to note what else is not connected to Death (figure 7). The advertisements at the back of the issue draw on many of the themes associated

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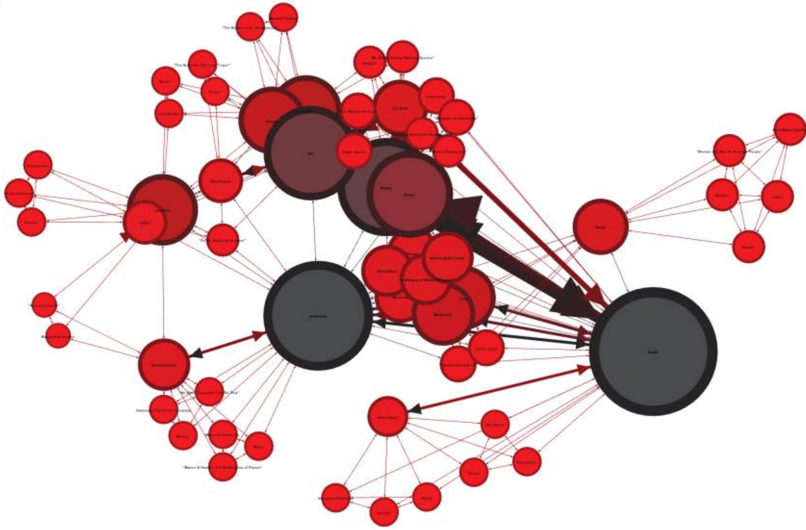

FIG. 6

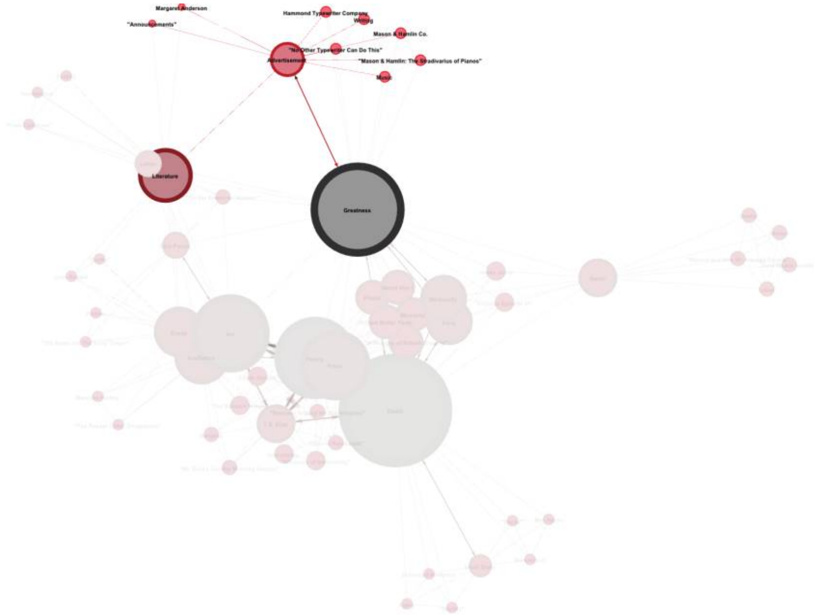

FIG. 7

with Death in the primary content, but without mentioning Death in any of its conceptual valences. The Hammond typewriter ad on the back cover emphasizes the Greatness of Literature, as if the tool could somehow make the buyer a great writer ("No Other Typewriter Can Do This"), but obviously without the Ironic representation of Mediocrity that characterizes much of

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the literary content. Above it, the ad for Mason & Hamlin, "The Stradivarius of Pianos," also emphasizes Greatness as a selling point. In thinking about these relationships, the ads lack the Ironic insight into Worthiness and Mediocrity that take front and center in Yeats's poetic argument.

I raise the latter issue about advertisements because they constitute a part of the emergence of Death that was not discussed in class. The connection occurred to me as I was completing the spreadsheet ahead of our workshop and looking at the September 1918 issue. It is in this way that collaborative markup, performed synchronously or asynchronously by a small working group or perhaps a larger one drawn from the members of our field, can aid in the discovery of emergence by utilizing artifacts we might not individually have noticed or deemed relevant. However useful, this method of manually entering the stable bibliographic data and the idiosyncratic scriptons assembled by readers is a reactive one. Its quality depends on the thoroughness and consistency of collaborators, which are subject to variation in content markup caused by different interests.

A predictive method for identifying emergence might be found in text mining. Using the Voyant Tools online suite for analyzing corpora,[20] we can see the chronological surges in word frequency throughout the entire *Little Review* corpus held at the MJP. A spike in word frequency for a given issue might mean that we are more likely to generate scriptons for concepts related to that word, though it is by no means a certainty. The Voyant Word Trends tool, which generates a chronological line graph of word frequencies, can suggest places to investigate more closely for emergence. As a brief example, see the Voyant corpus of *The Little Review* from its beginning in March 1914 through winter 1922 (the entire MJP holding).[21] Once the stop word list is applied, the raw frequency trends show "life," "new," "man," "art," and "great" to be the top five recurring words across the MJP's run (figure 8). The word "great" is the fifth most frequently used in the *Little Review* corpus, at 2,017 instances, which is interesting vis-à-vis the September 1918 issue, since so many of the pieces and advertisements were tagged with Greatness. It is also an interesting coincidence for this study's focus on death that the word "life" has the top overall frequency in the corpus, at 3,281 instances, and that its usage declines precipitously with the start of the First World War. What does the trend look like for the word "death," and is there a significant pattern around the September 1918 issue, as above, or perhaps at different key moments in the War?

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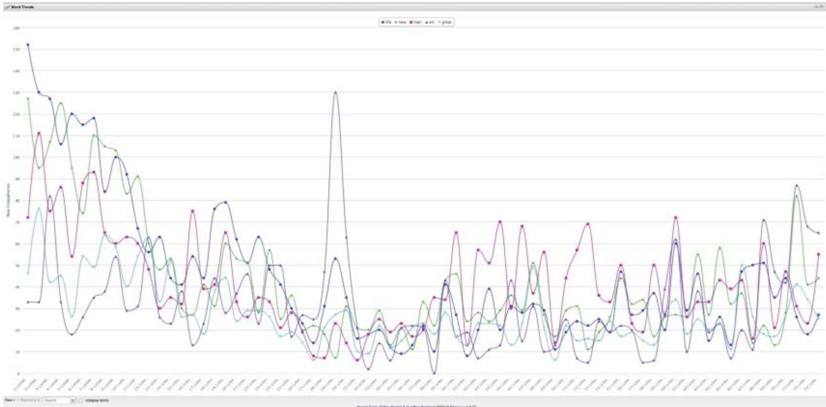

FIG. 8

The issues that contain a peak in the frequency of "death" suggest editorial interest and point to locations where emergence related to death can be found. We can use the search field in the Voyant Word Trends line-graphing tool to discover peaks and dips for "death" across the magazine's run at the MJP.[22] The larger peaks tend to occur in the fall (October 1914, October 1917, September 1918, September–December 1920, autumn 1921), or summer (August 1915, May 1919, June–July 1916). The largest peak, with a frequency of 35, occurs in the August 1915 issue, coinciding with the war's first anniversary. The coincidence is intriguing because of the magazine's American nationality and transatlantic aspirations. Since the United States had not yet joined the war effort in August 1915, what does the extreme peak of "death" on a European anniversary say about the magazine's identity? This is another question that can be addressed through further close and distant reading. The lowest peaks with a frequency of 4 occur in September 1916, July 1917, January 1918, and April 1920. Our September 1918 issue represents a modest peak with a frequency of 9, falling just under the average peak frequency of 11.11. Also, the line graph, as well as the data in Appendix table 1, indicate a general lull in usage of "death" between the March 1916 and December 1918 numbers, dipping to an average frequency of 6.75 for the mid- to late war period, just over half the average peak frequency of the entire MJP run, but with an unusual peak of 11 for the issue of October 1917.

Distant-reading the *Little Review* corpus in this way challenges the assumption that the magazine avoided morbid subject matter, which was one of the factors that initially made the September 1918 issue stand out as a point of interest. It turns out that the September 1918 issue is but one in a

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string of numbers dealing with death, and a modest one at that. But how are other issues representing peaks in "death" assembled? Do they embody a focused exploration of the subject, as in September 1918? Might these frequency figures be due to specific pieces that skew the results?[23]

The August 1915 issue, with by far the highest frequency of "death" at 35 instances, is nearly as unified as the September 1918 issue. It contains some of the same contributors, notably Ben Hecht, as well as some authors discussed in September 1918, including Edgar Lee Masters, the sentimental poet lambasted by Jepson. Many of the pieces refer to death and the war directly or indirectly, while other contributions explore related themes. "Patterns," a poem by Amy Lowell, presents a garden landscape personified with weeping, suddenly introducing a death notice for a Lord Hartwell killed in action. "War Impressions" is a series of poems by Florence Kiper Frank that explores the absurdity of war deaths and asks how to handle children responsibly in its midst. "Lawson, Caplan, Schmidt," a ranting essay by Alexander Berkman, expresses disillusionment in the concept of justice with reference to the Kaiser and the Czar, but focuses more on capitalism and labor conditions than mass murder. However, "The Ugliest Man," a sardonic essay about Nietzsche by George Burman Foster, equates a Greek metaphysical notion of justice with death, decomposition, and putrefaction. The Burman piece also claims that we only acknowledge life when dead, imagines walking among corpses in a festival of death (clearly an allusion to the war), and asserts that death is freedom. Thus, the Berkman and Burman pieces form an emergence around the war, death, and justice, with a suggestion of remembrance. Two "Have You Read—?" lists on page 46 and inside the back cover refer the reader to pieces on the war in allied periodicals such as *The Masses*, *The New Republic*, and *Poetry*, among others.[24]

Other pieces witness death outside the war, such as Masters's poem, "Father and Daughter," which narrates a tragic story about a girl who is accidentally killed in a crowded street, and "Death," by the pseudonymous author The Scavenger, which describes the experience of staying with an individual as he dies. These two pieces have a strong focus on the body, which accords with Will Levington Comfort's essay "Nudity and the Ideal," which treats classical ideals of beauty with a mock disdain at nakedness, and a series of poems translated from the Greek by Richard Aldington that eroticize the limbs and the heart, with a meditation on haunting and remembrance. The Aldington piece also explores the relationship between

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sex and death in a manner similar to Eliot's "Whispers of Immortality" in the September 1918 number. The poem "Rooming" by Helen Hoyt describes street scenes from a narrow, coffinlike room in which we realize the poet is "dead." A mock review of a movie adaptation of Henrik Ibsen's play *Ghosts*, titled "Emasculating Ibsen," by the pseudonymous author Mobbie Mag (likely an allusion to popular magazines and their sentimentality), "castrates" the playwright by nominating him as honorary president for a West Side Ibsen Prohibition Club. The semi-literate review suggests outrage, perhaps in light of the war deaths, at the crucial moment in which Mr. Alving, haunted by a hand that pulls his hair from the past, "crawled across the floor on his stomich [*sic*] and pulled the poison offn [*sic*] the icebox before he killed himself." The lead content item is Ben Hecht's "The American Family," which, as in his 1918 story "Decay," treats the "death" of the American family and the American mother's individuality: "The dead fingers of spent passions, spent dreams, spent youth clutch at the throat of the rising generation and preserve the integrity of the American family." The generational conflict characterized here, in "Emasculating Ibsen," and in "Decay" reflects a countercultural resistance to the war and its causes, with imagery that seems to come from the trenches.[25]

Taken together, the August 1915 issue focuses on death in a manner at once consistent with and divergent from September 1918. The earlier issue's concern with the war is more immediate than the later one, which is interesting given the magazine's American nationality and the United States' neutrality at that time. The two issues raise many overlapping inquiries: How shall we witness and honor the soldiers' (graphically) physical deaths? How shall we remember them and do justice to their loss? In what ways, perhaps, are we culpable for the war's causes? How shall we deal with this phenomenon of youth dying too early? The August 1915 issue is not as concerned with literary longevity and inheritance as the September 1918 issue, though a version of that anxiety appears in the pieces questioning Greek metaphysics and aesthetics.

It is important to recognize that when searching for "death," only two pieces directed Voyant Tools to the August 1915 issue, "The Ugliest Man" and "Death." Though many other pieces dealt with the same concept, they used different words to do so. The scripton that emerged resulted from the serendipity of finding pieces that were related, a consequence of the editorial unity usually crafted by Anderson and Heap. Traditional research methods might show, for instance, that Anderson and Heap had

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sought entries from contributors for a death-themed issue, or indicate some other piece of backstory that would explain the issue's stance. The point is not that digital methods in distant reading should replace traditional techniques, but rather that they should show us where to apply them or suggest answers where the print trail is inconclusive. For that reason, text mining for raw word frequency is a pointing technology to arrive at potentially rich places, where scholars can perform traditional periodical studies to elicit emergence and analyze discourses. The computer shows us interesting patterns that can shape our inquiry, prompt us to ask new questions, and test assumptions. If the magazines were all marked up thematically in a stand-off system tied to the MJP, human readings of the corpus and the automated text mining, network graphing, and other distant reading methods would mutually benefit one another.[26] It would result in an enriched analytic tool that makes the most of computer- and human-produced evidence.

Is it true, as Latham and Hayles claim, that the "interactions [of emergence] post a particular challenge, because they cannot be predicted or quantified and thus cannot be described or computed"?[27] The combined methods of network analysis based in collaborative markup and automated text mining can aid in prediction but do not remove the need for human reading of the material. Individuals as well as scholarly working groups could make great headway in marking up and annotating the corpus. We should not minimize the opportunities presented by digital humanities pedagogy in helping to conduct such efforts. Curatorial activities spearheaded by students and vetted by faculty and staff could do a great service to modernist studies. New technologies such as CWRC-Writer,[28] a browser-based markup tool, suggest great possibilities for collaborative markup of the MJP, or any modernist corpus, that can interface nicely with stable bibliographic records. There are other text mining methods in topic modeling, concept mapping, and stylistic analysis that might automate the prediction of emergence more accurately than raw frequency analysis. Those methods could form the subject of another methodological inquiry into periodical studies. Still, the possibilities shown here by basic automation and collaborative markup suggest a decent level of predictability for scriptons and emergence, however uneven or incomplete. Machines are not replacing the human factor in meaning making, but they can help us to look wider and delve deeper.

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APPENDIX

TABLE 1 Nodes, categories, and their counts.

Node Category	Node Label	Count
Author	Anonymous	1
	Ben Hecht	1
	Edgar Jepson	1
	Ezra Pound	2
	Ford Madox Hueffer	1
	Hammond Typewriter Company	1
	James Joyce	1
	John Rodker	1
	Margaret Anderson	1
	Marsden Hartley	1
	Mason & Hamlin Co.	1
	Sherwood Anderson	1
	Thomas Stearns Eliot	4
	William Butler Yeats	1
Genre	Advertisement	3
	Essay	4
	Letter	2
	Novel	2
	Poem	5
	Short Story	2
Topic	Aesthetics	4
	Aging	1
	Art	7

(*Continued*)

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Node Category	Node Label	Count
	Death	8
	Dissolution	1
	Fiction	1
	Gender	1
	Greatness	5
	Immortality	1
	Irony	2
	Labor	1
	Literature	4
	Mediocrity	2
	Memorial	1
	Music	1
	Poetics	1
	Poetry	6
	Praise	1
	Religion	1
	Women	1
	World War I	1
	Writing	1

TABLE 2 Frequency peaks for usage of "death" in *The Little Review*, March 1914 – Winter 1922.

Raw Frequency	Volume/Number	Date
13	1.1	March 1914
15	1.4	June 1914
18	1.7	October 1914
15	1.9	December 1914
16	1.11	February 1915

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Raw Frequency	Volume/Number	Date
35	2.5	August 1915
12	2.7	October 1915
13	2.9	December 1915
6	3.1	March 1916
9	3.4	June–July 1916
4	3.6	September 1916
8	3.9	March 1917
4	4.3	July 1917
11	4.6	October 1917
4	4.9	January 1918
7	4.11	November 1917
6	5.1	May 1918
6	5.2	June 1918
9	5.5	September 1918
7	5.8	December 1918
15	6.1	May 1919
8	6.5	September 1919
13	6.8	December 1919
4	6.11	April 1920
17	7.3	September–December 1920
14	8.1	Autumn 1921

NOTES

1. For an excellent example of single work analysis, see Tanya Clement, "'A thing not beginning and not ending': Using Digital Tools to Distant-Read Gertrude Stein's *The Making of Americans*," *Literary and Linguistic Computing* 23, no. 3 (2008): 361–81.
2. For an excellent example of big data analysis, see Ted Underwood and Jordan Sellers, "The Emergence of Literary Diction," *Journal of Digital Humanities* 1, no. 2 (2012): http://journalofdigitalhumanities.org/1–2/the-emergence-of-literary-diction-by-ted-underwood-and-jordan-sellers/.

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3. See the project's website at http://modjourn.org.

4. Extensible Markup Language (XML) is the standard document encoding language for electronic texts. The Text Encoding Initiative (TEI) is the body that governs the industry-standard guidelines for electronic text markup, which includes documental and semantic features.

5. The Metadata Object Description Schema (MODS) is a standard bibliographic element set used by many libraries and other archival entities. Metadata consist of labels that make primary content searchable by category. For instance, a poem in an MJP magazine will have its essential metadata—title, author, and genre—catalogued so that it may be discoverable by advanced search techniques. Metadata like these are critical for helping search engines distinguish between an author of a piece and the mention of an author, among other necessities.

6. The MJP Lab portal is located at http://dev.stg.brown.edu/projects/mjplab/. TEI, XML, and MODS records may be downloaded at the MJP's Sourceforge repository: http://sourceforge.net/projects/mjplab/files/.

7. Margaret Anderson, editorial announcement, *Little Review*, March 1914, 1, 2.

8. Sean Latham, "Unpacking My Digital Library: Programming Modernist Magazines," in *Editing Modernisms in Canada*, ed. Colin Hill and Dean Irvine (forthcoming).

9. Ibid.

10. William Butler Yeats, "In Memory of Robert Gregory," *Little Review*, September 1918, 1–4; James Joyce, "ULYSSES Episode VI," *Little Review*, September 1918, 15–37; Sherwood Anderson, "Senility," *Little Review*, September 1918, 37–39; Ben Hecht, "Decay," *Little Review*, September 1918, 39-47; Thomas Stearns (T. S.) Eliot, "Dans le restaurant," *Little Review*, September 1918, 12–13; and Eliot, "Whispers of Immortality," *Little Review*, September 1918, 11–12; Edgar Jepson, "The Western School," *Little Review*, September 1918, 8. All available at the Modernist Journals Project website.

11. Yeats, "In Memory of Robert Gregory," 3.

12. Anderson, "Senility," 38.

13. Eliot, "Whispers of Immortality," 12.

14. Jepson, "The Western School," 8, 9.

15. The timeline can be found at our course website: http://www.modernist-magazines.org/timeline.html. It uses the free SIMILE Exhibit Timeline script from MIT; information and download links for Timeline can be found here: http://simile-widgets.org/timeline/. The rest of the course website is located at http://modernist-magazines.org.

16. For more information about Gephi, see http://gephi.org/. Gephi generates network graphs from a variety of data types. The easiest to use is CSV, a spreadsheet format familiar to those who have worked with OpenOffice Calc or Microsoft Excel.

17. I removed the magazine title category because we were looking at only one magazine. However, it is very interesting to retain the magazine titles in the complete data set to explore networked connections among the entire MJP corpus.

18. The criterion for generating topic tags for a content item is thematic focus, whether explicit in the piece or inferred by a reader. For instance, the Yeats poem was tagged with Mediocrity because readers inferred Gregory's middling level of achievement in contrast to the accomplished men who dominate the piece; with Greatness because the poem meditates on the older men's superior qualities; and with Death and Memorial because these constitute the occasion and chief subject matter of the title. Irony might seem a misfit, since the term usually denotes a technique for implying a meaning opposite from what is literally stated or for distancing an audience such that it views dialogue or action critically. We felt that the Yeats poem and other pieces in the September 1918 *Little Review* used irony as a technique in such a way that they came to be *about* irony. In other words, Yeats's poem becomes a comment on the ironies of premature praise (which was also tagged accordingly). The following discussion should elucidate the ways in which other pieces use irony in a similarly reflexive way.

19. For information about Gephi layouts, see http://gephi.org/users/tutorial-layouts/.

20. For more information about Voyant Tools, see http://voyeurtools.org/.

21. See http://voyeurtools.org/?corpus=1329252640907.4758&stopList=stop.en.taporware.txt. Voyant Tools works best with plain text files. I created a plain-text corpus of the MJP's seventy-three *Little Review* issues by using a sed command with regular expressions to strip the TEI XML files of all tags and repeating page header content.

22. See http://voyeurtools.org/tool/TypeFrequenciesChart/?corpus=1329252640907.4758&stopList=stop.en.taporware.txt&type=death&mode=corpus.

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23. It would be worth conducting a thorough study of the "death" patterns in the *Little Review*, but since this essay is focused on method, we will look at one more issue in order to suggest further avenues of research.

24. Amy Lowell, "Patterns," *Little Review*, August 1915, 6-8; Florence Kiper Frank, "War Impressions," *Little Review*, August 1915, 11–12; Alexander Berkman, "Lawson, Caplan, Schmidt," *Little Review*, August 1915, 13–15; George Burman Foster, "The Ugliest Man," *Little Review*, August 1915, 31, 33, 34, 35; Margaret Anderson and Jane Heap, "Have You Read—?," *Little Review*, August 1915, 46, inside back cover.

25. Edgar Lee Masters, "Father and Daughter," *Little Review*, August 1915, 16; The Scavenger, "Death," *Little Review*, August 1915, 36–37; Will Levington Comfort, "Nudity and the Ideal," *Little Review*, August 1915, 23–26; Richard Aldington, "Poems from the Greek," *Little Review*, August 1915, 18–22; Helen Hoyt, "Rooming," *Little Review*, August 1915, 26–29; Mobbie Mag, "Emasculating Ibsen," *Little Review*, August 1915, 36; Ben Hecht, "The American Family," *Little Review*, August 1915, 1.

26. A stand-off system for semantic markup, separate from the magazine text files, would allow us to map reader responses onto the corpus while maintaining the integrity of its structural markup.

27. Latham, "Unpacking My Digital Library," 15.

28. A project of the Canadian Writing Research Collaboratory: http://www.cwrc.ca/projects/infrastructure-projects/technical-projects/cwrc-writer/.

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