The Materiality of Ideology: Cultural Consumption and Political Thought
after the American Revolution

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Abstract

Political polarization in America dates to the turn of the 19th century, when divisions over finance and the ideal structure of governance led to bitter battles between the first political parties. These party affiliations have traditionally been treated as emerging from either material interests or ideological commitments, a dispute that has proved unresolvable on empirical grounds. The dichotomy between materiality and ideology, however, is false: for ideas to have life, they require referent. For most of the early modern period, books, newspapers, letters and magazines were the material referents of ideas, furnishing the intellectual resources for the assemblage of ideologies. This paper uses reading patterns of America’s earliest political and economic elites, including a significant portion of the founding fathers, who checked out books from the New York Society Library (NYSL), to evaluate the extent of political polarization in the years between the ratification of the Constitution and the War of 1812. The reading data come from two charging ledgers spanning two periods –1789 to 1792, and 1799 to 1806 – during which a new country was built, relations with foreign nations defined, and contestation over the character of a new democracy was intense. Using novel combinations of text and network analysis, I explore the political nature of reading and the extent to which social, economic, and political positions overlapped with what people read. In the process, I identify the key intellectual dimensions on which New York, and by extension, American, elite society was politically stratified in its early years.
Introduction

On March 4th, 1801, Thomas Jefferson was sworn in as the third president of the United States of America. His electoral victory, in which he defeated his once friend, now foe, John Adams, in a highly contentious election, would mark a new era in American politics. The Federalist party would never win another national election, Jefferson would rid the presidency of the trappings of monarchy, and elections would be increasingly determined by national political parties and the popular vote (Wood, 1991). For this reason, Jefferson, Madison and many historians thereafter, would refer to his victory as “the Revolution of 1800”\(^1\); for Jefferson, it was "as real a revolution in the principles of our government as that of 1776 was in its form."

The historical literature concerning the ascendance of Jefferson's Democratic-Republican party is traditionally divided between material and ideological explanations. Material explanations, epitomized by Charles Beard's landmark study, *The Economic Origins of Jeffersonian Democracy*, argue that economic interest drove political ideology and by extension party affiliation in the years following the ratification of the Constitution (Beard, 1915). They point to remarks made by Jefferson and Madison about the influence of “paper men” – speculators and stock holders – on Federalist policy and they show that states with strong financial centers – many, but not all, Northern states – were far more likely to support Federalist pecuniary measures than agrarian states (Beard, 1914).

Ideological arguments stress instead the incompatible fundamental beliefs of Federalists and Democratic-Republicans (Banning, 1980; Adair, 1943). Rather than dismissing references to monarchy and nobility as post-hoc rationalizations of their political, and ultimately economic, opposition to Federalists, they take the ideas of Democratic-Republicans seriously as sources of political motivation (Adair, 1943; Appleby, 1982; Banning, 1986; Schoenbachler, 1998; Wood 2018)\(^2\). Under this view, stark and

\(^1\) If, as historians increasingly claim, the Constitution was a counter revolution against the democratic spirit unleashed by the Revolution, designed to check the worst tendencies of the democratic masses (Klarman, 2016), then, from the perspective of the Democratic-Republicans, “The Revolution of 1800” was the counter, counter revolution; a victory for the common man and the culmination of the Revolutionary Era.

\(^2\) Democratic ideology, and a “contagion of liberty”, were everywhere during the “Age of Revolution” (Palmer, 1959). Material arguments struggle to sufficiently explain the speed and force with which it swept not just in the new
irreconcilable ideological differences about both human nature and philosophies of rule, latent in the populace following the American Revolution, emerged as the basis of party difference, activated by the debates over the Constitution and the French Revolution (Banning, 1980; Appleby, 1982). Historians have increasingly emphasized in particular the relative influence of classical republican and modern liberal traditions on Federalist and Republican thought (Appleby, 1982; Banning, 1986) with liberal ideas specifically seen by some as driving the parties apart (Appleby, 1982). Under this view, the Democratic-Republicans formed not just as a result of a widespread, and ultimately republican, fear that liberty was being threatened by Federalist designs, but in service of specifically liberal ends: the securement of natural and equal rights (Schoenbachler, 1998) and the opposition of mercantilism (Appleby, 1982).

Critics of materialist arguments argue that economic positions only partially overlapped with political positions. Beard himself notes that a large number of stock holders voted against Federalist financial policy (Beard, 1914 pg. 299). Relatedly, materialist arguments, specifically those that focus on the division of town and country, cannot account for the large number of non-slave holders, artisans and mechanics, who supported the Republican party in places like New York City, one of the centers of Democratic-Republican political organizing (Young, 1967; Wilentz, 2004). Finally, adopting a materialist position, forces one to ignore most of what contemporary observers of the period said about their time: that an ideology of democracy, and a fear of monarchy in America, were widespread.

Classical ideological explanations for the emergence of Jeffersonian Democracy suffer pitfalls too, however. First and foremost, they center on a select few leaders – Jefferson, Madison, Adams and Hamilton – who dominated political discourse (Banning, 1980; Appleby, 1982; Adair, 1943). This focus is defensible American nation, but England and France too. It is no coincidence that ideology was first used as an epithet during this period – and by Napoleon Bonaparte no less! – in chiding the champions of that great democratic spirit, which had swept France during its own revolution, but which seemed to him an affront to human nature (Williams, 2009, pg. 59).

For brevity’s sake, I left out any progressive or material critiques of ideological arguments that center on the inability of ideological arguments to link ideology to human emotion. Such critiques tend to essentialize ideological arguments. Rarely do ideological arguments posit ideas as the sole explanation for events. Ideas instead are seen as switchmen (Weber, 2013) or switchboards (Bailyn, 1967), which make visible certain lines of action, close opportunities for taking other lines of action, and make action meaningful. Further, as sociologists well know, sharing interest does not guarantee collective action. Collective social action requires the emergence of shared conceptions of the social situation, for a group to see clearly and agree on their collective interests (Marx, 1898).
during the Constitutional period, as most of the debate around the Constitution happened behind closed doors in secret (Davidson, 2004). But as we try to understand the emergence of parties and the broader intellectual contours of the politically-engaged elite public in the years after the ratification, a focus on the founding fathers leaves out a number of significant actors. Relatedly, in ideological arguments, single texts – such as Locke’s *Two Treatises of Government* or Montesquieu’s *Spirit of the Laws* – often act as representatives of entire intellectual traditions or for “cultural milieu” (Adair, 1943). The ideas of Locke and Montesquieu, however, were represented in a wide range of texts during the Revolutionary era, not just in works of philosophy, but in novels and poetry and pamphlets (Bailyn 1967; Wood, 2011). Further, many non-philosophical texts imparted, whether passively or actively, radical ideas of their own (Davidson, 2004). As today, people were reading and consuming ideas widely; by focusing only on a select set of philosophical texts, we impoverish our ability to understand the broader intellectual contours of the period. Last, but not least, traditional ideological explanations lack a clear empirical basis for their evaluation, especially when compared to material explanations. In particular, they lack a meaningful strategy for identifying the political ideology of individuals and the relationship of individual ideological commitments to politics, particularly for those groups whose members never held political office or publicly declared their political affiliation. If an attempt is made to attribute a political ideology to these groups of people – whether merchants, slave owners, artisans, or women – it is done either using direct references from a limited set of newspapers (Banning, 1980; Zagarri, 2011), or by tracing, somewhat haphazardly, the use of particular phrases and terms in people’s correspondences, writings, and speeches (Adair, 1943; Banning, 1980; Appleby, 1982; Wood, 1991). As a result, ideological explanations act as a boogeyman, always lurking in the background of every argument about the emergence of Jeffersonian Democracy, unable to be proved or disproved.

This paper uses reading patterns of America’s earliest political and economic elites, including most prominently a significant portion of the founding fathers to evaluate the extent of political and ideational polarization in the years of the rise of the Democratic-Republican party. The data used in this article – the complete circulation records for all books held in the New York Society Library (NYSL) – are highly unusual. The readers who checked books out are not the typical residents of colonial New York. They are
revolutionary leaders – the authors of the constitution – people like Alexander Hamilton and John Jay and Aaron Burr. They are also the leading merchants of the time, individuals like John Jacob Astor and Willett Coles, who solidified old markets in Europe and built new markets in the Far East. The books the readers read include not just the classics – Burke’s *Reflections on the Revolution in France*, Rousseau on *The Social Contract* – but more than 2,500 books: magazines, novels, romances, travelogues, self-help books, poetry collections, textbooks (some written for men, others explicitly for women), translations, and gardening advice.

For two brief, but critical, moments in time the data enable us to know precisely what books members of New York elite public were reading, how long they held those books, what they read immediately before (and after), and who read the book immediately before and after them. If today we might be able to infer something about the nature of political ideology from one’s consumption of a range of cultural goods, for the New York elite in the years immediately after the revolution, books were the key cultural goods with which they could work to shape their thoughts, signal their orientations, and build identity. The data here then provide an exceptionally clear window into the ideational and cultural influences circulating amongst the American state-building elite, at a critical moment in our history.

I exploit the unique nature and timing of the reading data to subject ideological arguments regarding the nature of the First Party System to a real empirical test. I evaluate three tenants in particular – that 1) ideological polarization between the political parties was stark, 2) that it consolidated over time, and 3) that ideological divisions emerged from competing economic interests.

Any proper test requires avoiding an *a priori* conflation of ideology and social position common to material arguments. However, this does not necessitate abandoning an empirical orientation to ideology. The key, which is the approach that I take here, is to ground political ideology within its real human activity, to put forward a foundation for thinking about the material bases of ideas outside of their relation to economic position. Ideas, after all, do not emerge naturally and spontaneously out of processes of labor (Williams, 1977). They are collectively configured and reconfigured by groups of actors. That they are then capable of being transmitted and translated between people of different social positions and that they often
diffuse far more rapidly and widely than changes in material circumstances would permit, signals that they have, at the very least, semi-independence from economic and social position. It follows that their materiality cannot possibly be rooted solely in the social or economic position of the user, even if position informs both what and how one will consume or produce (Darnton, 1982; Bourdieu, 1984). Rather, as this paper argues and shows, the materiality of ideas can be more naturally and fruitfully rooted in the ways in which they become, or we make them, available to others – i.e. through material and physical means – speech, symbols, and printed text – and institutions – libraries, TV stations, publishing houses, etc. – that facilitate their diffusion (Williams, 1977). At the turn of the 19th century, books (and pamphlets and magazines) were the primary *material* means through which ideas – about one’s interests, position, government, needs, or desires – were transmitted (Wood, 1977; Davidson, 2004). It was through their availability as intellectual resources to much of the elite and middle-class populations, that books, newspapers, magazines and pamphlets provided the material basis for the flourishing, diffusion and persistence of ideologies; and people through their consumption (and production) of books, were brought into relation with ideas, and through this process, could both align and become aligned with systems of ideas.

By studying the reading habits of more than a thousand 18th century New York elites, I will show that we can trace the crystallization and consolidation of party thinking and ideologies through the alignment of kinds of literatures and ideas with kinds of people. Thinking of material culture, and material ideology, in this way promises to unite a burgeoning literature in sociology and economics, which seeks to elucidate how cognitive substructures, like schemas, are diffused across populations (Sewell, 1991; DiMaggio, 1997; Foster, 2018), the role of new information and new ways of thinking in creative and scientific process (Murdock, Allen and DeDeo, 2017) and to operationalize terms like “human capital”, which are often crudely reduced to kinds and distribution of educational degrees in a population, and are therefore unable to account for the latent availability of intellectual capital within a culture (Buringh and Van Zanden, 2009). By studying the consumption of texts, we can trace the processes through which people
become attached to words, and by proxy, to ideas, and thereby, how ideologies are assembled to motivate large-scale changes in crucial moments in history.

To do so, I model the change of the reading patterns of the library members alongside the inventory of the library, i.e. the opportunity structure of reading. This involves two distinct analyses. The first, now popular in the digital humanities, concerns how books are written: what is their content and how does that content differ from other books? I evaluate the semantic similarity of all books in the library and map their similarity as a network at two different moments in time (Rule et al. 2015; Bail, 2016). Clusters of books in this semantic space accord with broad textual genres and topics: Novels and Romances, History and Biography, Geography and Commerce to name a few. The result is a directly interpretable, and dynamic, macro-image of reading and writing after the Revolution.

However, as sociologists we should not be satisfied with simple mappings of the content of texts. Texts do things: they mark group boundaries, communicate ideas, and they are used as cultural objects and political signifiers by virtue of their relation to other texts (Hoffman et al., 2018). Thus, the second set of analyses, derived from a growing body of work in the sociology of culture, explores how cultural forms generally, and books specifically, are used (Breiger, 2000; Uzzi and Spiro, 2005; Lizardo, 2006; Rule et al., 2015; Hoffman et al., 2018). Using the reading choices of politicians and other elite actors, I identify books that were markers of political boundaries, evidenced by having been read by one political group and not another. The themes and content of these boundary books reveal the cultural bases of political polarization after the Revolution.

They can also be used subsequently to evaluate the political nature of reading habits. If we know that only Federalists read Hume, for example, then we can in turn use Hume to understand the politics of all of the non-politicians who read him. I exploit this simple idea to explore the political ideologies of various demographic groups important to early American society, most of whom never held political office and therefore left little historical record as to their political affiliations and beliefs. In doing so, I am able to evaluate the social conditions associated with party ideologies.
To anticipate my findings, members of different political parties increasingly read different kinds of books and the cultural axes of politics shifted from centering around modern European vs. ancient Roman and Greek political philosophies in the first period to the division between modernism and traditionalism in the second, a shift exemplified by the emergence of the novel as a particularly divisive and democratic form, most heavily associated with the Democratic-Republican readers. I find evidence of a social basis for ideological positions in both periods. In the first period, economic interest dominates, but by the second, political privilege becomes the central, with those most lacking in status and title – women and artisans – increasingly reading Democratic-Republican books, and those with nobility-like privilege and leisure time, lawyers and members of the clergy, increasingly reading Federalist books.

**American Politics after the Revolutionary War**

American electoral politics following the Revolutionary War were surprisingly similar to electoral politics of the colonial period (Tully, 2003). The lower classes still deferred to the aristocratic classes on matters of politics; elites continued to win elections and party nominations each year (Formisano, 1974). And despite the language of equality which pervades the founding documents, in many ways, the American aristocracy in the years after the ratification of the Constitution was not much more open than that of Europe. But while the extent of inequality did not change, American civic life changed over the course of the long 18th century.

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4 Slaves could not vote or participate democratically, could not determine when, for whom or on what they worked, could not legally marry, nor decide when and how to spend their free time or where they lived. Even free black men and women were disenfranchised, free only with regard to a legally delimited set of economic and social matters. Women were also disenfranchised, and rarely engaged in economic activity. Those women who did participate in the economy were part of the upper middle classes and elite, including wealthy widows who took control of their deceased husbands’ estates and members of a limited set of professions open to women, including nursing, care-taking, writing and philanthropy. It follows that, at the time of the ratification of the Constitution, most of the US population was disenfranchised and inactive in matters of economy, including most un-propertied white men (though this depended on state of residence), all women, and all black men and women, whether slave or free. For these reasons, the American Revolution has been characterized by some scholars as a fairly conservative revolution, one which overthrew an unjust foreign ruler, yet preserved other forms of unjust domestic rule (Palmer, 1959).
The colonies underwent a series of changes in intellectual and political life, which saw the foundation and reformation of colleges (Geiger, 2014), widespread distribution and discussion of Enlightenment ideas via print and the emergence of large readerships of newspapers, such as Franklin’s The Pennsylvania Gazette and Hugh Gaine’s Mercury (Botein, 1975; Clark and Wetherell, 1989), and the growth of liberal and republican ideals among the intellectual and political elites, most notably among the group of men who would become founding fathers (Warner, 1986; Warner, 2009). As dissatisfaction with colonial rule rose, robust public discourse developed around critique of the British government’s goals and practices in the colonies, critique facilitated by pamphlets, magazines and newspapers (Bailyn, 1967; Nash, 2006) – Thomas Paine’s Common Sense reportedly famously sold 100,000 copies in 1776 alone during the lead up to independence (Loughran, 2006; Nash, 2006). Changes in intellectual consumption were accompanied by changes in the structure of civic society. Over a twenty-year period leading up to independence, colonists built networks of association and communication among like-minded patriots, which would serve as the backbone of the revolutionary movement. They founded political societies in response to British oppression, most famously the Sons of Liberty, which relied on informal networks of relation and communication to mobilize opposition to British rule (Ramsbey, 1987). These networks of communication, association, and political activity led disaffected colonial subjects to see their shared plight and thereby to the widespread crystallization of anti-colonial sentiment (Bailyn, 1967; Nash, 2006).

The Revolutionary War ended in 1784, but the work of creating a new nation did not. The networks of association and communication which served the revolutionary purpose, came to serve a new purpose, one of political dialogue and civic engagement to inform the direction of the new national project (Schoenbachler, 1998). In the decades following the revolution, a public sphere, similar to that which characterized British civic life, flourished, centered in reading societies, coffee houses, libraries and newspapers. Northern industrial cities were stitched together by urban organizations that served as the loci for political and cultural activity (Shields, 1997; Schoenbachler, 1998; Warner, 2006; Waterman, 2007), organizations which would evolve into major 19th century institutions, including the Society of the
Tammany – the origins of Tammany Hall – and Tontine Coffee House, the basis for the New York Stock Exchange. American civil society has its origins in these early post-Revolutionary years.

As in Europe, in the public sphere of 18th century elite urban America, “equal and rational” (Habermas, 1991) men would gather in informal settings to read and debate political and social matters and to critique the state, a state that now consisted of friends and neighbors. To critique required one to have an opinion, which in turn required one to be informed on the matters related to that opinion, whether political, economic or cultural (Habermas, 1991). Clubs and societies which served political purposes also dually served literary purposes (Schoenbachler, 1998; Waterman, 2007; Eastman, 2009) and the politically engaged elite public was assumed to be a literate one. In the process, these new organizations – coffee houses, reading societies, subscription libraries, and associational clubs – cultivated a reading public to provide the intellectual tools to interpret, critique and reshape politics and art (Warner, 1990; Eastman, 2009; Haberman, 2009).

Other than the halls of Congress, it was in this emergent public sphere that new political identities, orientations, and ideologies emerged – as cleavages between old friends and acquaintances, and as divisions between an elite class once united in opposition to Britain, but now divided over matters of rule, and philosophies of ruling. These battles took two forms – from 1789 to 1791, between Federalists and Antifederalists, whose opposition emerged out of the debate over the ratification of the Constitution (Slez and Martin, 2007); from 1792 to 1806, between Federalists, those in favor of increasing centralization of government powers, a federal banking system, and pursuing relations with Britain over France, and Democratic-Republicans, who, more democratic in their orientation and more influenced by the ethos of

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5 This was of course only in principle. Debate in this emergent public sphere was at least as passionate as it was rational (Smelser, 1958). And despite idealizing equality, the public sphere was not equally accessible to all; rather, it legitimated forms of class rule – white over black, propertied over un-propertied, man over woman (Fraser, 1992).

6 The American public was divided over independence, between Patriot and Tory, prior to the American Revolution. After the war, many Tories were forced to flee their homes and country, and had their lands seized by state governments. Even those who were allowed to remain in the country lost much of what they owned. This led to the exodus of the much of the Tory population, who returned either to England or took root in Canada.
the French Revolution, favored states’ rights over federal powers, more direct forms of democracy and forging relations with France over Britain, and opposed a federal banking system (Estes, 2006).

The second of these two eras in party formation is generally referred to as the First Party System. In the historical literature, the opposition between Federalist and Republican is distinguished from the initial division between Federalist and Antifederalist by being more defined (Ryan, 1971) and for instilling greater partisan passion in its participants (Smelser, 1958). It is in this period that Burr shot Hamilton.

The emergence of partisan passion was a source of great consternation for members of both parties, and especially for the founding fathers. As is the case today, both sides blamed each other, but for different reasons. For Democratic-Republicans, the cause of the intense differences in political ideology arose from the divisive nature of the policies of the Federalists, the party in power until 1800. Hamilton’s financial policies – the formation of a national bank and the implementation of an excise tax – were ominously similar to monarchic and European court policies (Schoenbachler, 1998). They argued that Federalists were aristocrats, who sought to become landed gentry and to centralize the nascent American state so that it resembled a European monarchy (Wood, 1991). Federalists, on the other hand, blamed the emergent democratic ideology, its origins in the American and French Revolutions, for the ideologically-charged political atmosphere. Direct democracy, and even popular participation in politics, raised for them the specter of mob rule, and the tyranny of the many over the few (Wood, 1991; Davidson, 2004). Their trepidations led them to adopt a series of largely anti-democratic policies, which further stoked partisan passions. They heavily critique, and eventually drive into obscurity, Democratic-Republican societies, which had sprung up during, and in support of, the French Revolution (Schoenbachler, 1998), and which Federalists saw as a threat not only to their power, but to the liberty and stability of the nation as a whole (Schoenbachler, 1998; Wood, 1991). Further, in 1798 during the Quasi-War with the French Republic, the Adams’ administration passed the infamous Alien and Sedition Acts, which targeted immigrants to the US, a group that largely supported Democratic-Republicans, making them easier to deport, and limited freedom of the press and criticism of the government in response to Democratic-Republican critiques of the his administration (Davidson, 2004). The Acts had the unstated intent of destroying the Democratic-Republican
party and its associated movement (Davidson, 2004), but ended up having the opposite effect: their tyranny generated outcry and mobilized public sentiment against the Adams administration, forever damaging perception of Adams’ character, and leading eventually to the victory of Jefferson over his former friend in the election of 1800.

Reading, Politics and Ideology

The history above shows that books and newspapers were the primary cultural resource for political engagement in post-Revolutionary America and that the country politically polarized in the years leading up to the War of 1812, a period characterized in particular by the emergence and crystallization of a Democratic-Republican ideology in opposition to the previously dominant Federalist one. It is within this political context that the readers of the New York Society Library checked out books from a wide range of genres and topics, many of which engaged directly or indirectly with the dominant lines of political and cultural contention of their time.

Even a single reading history can reveal much about a person’s inner life. In Figure 1, I plot Aaron Burr’s sequence of reading from when he first checked out a book from the library on August 24th, 1789, around the time when he first became seriously involved in politics after being appointed New York State Attorney General by governor George Clinton, to his last check out on January 8th, 1803, a little over a year before he shot Hamilton. It centers around “The Works of Jonathan Swift”, the first text he checked out from the library in 1789, and again in 1801. From there, Burr reads political philosophy, including Gibbon’s Decline and Fall of the Roman Empire and The Works of Voltaire; geography and world affairs such as The Modern Gazetteer, a multivolume series concerning the matters, governments, families, and histories of the various nations of the world; biographies, including that of Edmund Burke, written by Robert Bisset; and views on the French Revolution, including The Anti-Jacobin, an English magazine that largely denounced the radical ideology of the French Revolution, and The Late Picture of Paris, a description of its events.

Historians and contemporaries alike accused Burr of being philosophically disinterested and unscrupulous, because he lacked the high-minded demeanor of his more famous contemporaries, Jefferson,
Adams and Hamilton (Wood, 1999). His reading history reveals at the very least that he was anything but disinterested in political affairs and philosophy. Moral philosophy, political satire, and world affairs feature prominently, as do the writings or biographies of some of the most prominent statesmen, critics, and philosophers of his era: Voltaire, Gibbon, Swift and Burke.

But whether he was unscrupulous is harder to establish. His reading history, particularly the inclusion of Burke and *The Anti-Jacobin*, hints that he may have been more conservative than the average member of his political party, the Democratic-Republicans, at least towards the French Revolution. And if he was indeed more conservative in private than he was in public, this may have given contemporaries cause to call him unscrupulous. But this specific fact – his conservativeness – is difficult to discern using a single reading history. It requires an extensive knowledge of the texts and the political positions they signaled in late-18th century America. Using only a single reading history would lead us implicitly to focus on the books, authors, and figures who were well-known and who put forward clear cut positions on specific issues. It would force us to ignore the large number of texts, which make up the vast majority of any library’s collection, whose content and meaning have been lost to us over the past 200 years.

Ideally, we could generate a view of the ideological and cultural space of American intellectual life and situate Burr within that space, along with all of his contemporaries. We may find, for example, that Burr’s reading history, as conservative as it first seems, was actually fairly typical of Democratic-Republicans from that period: we know historically that the violence of the French Revolution led even some Americans who held steadfast to its general democratic principles to distance themselves from its more radical elements (Nash, 1965). Which is to say, with the right analytical approach, we could better

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7 We will in fact find that Burr’s reading habits accorded more with those of Federalists than those of Democratic-Republicans, centered as they were around moral philosophy, periodicals, and the works of well-known English authors and historians, rather than novels.
distill the ideological meaning in Burr’s winding, haphazard, but philosophically and politically rich, reading past. And the goal of this paper is not just to do so for Burr, but for all kinds of elites who lived in New York in the early American period, many of whom – women, artisans, merchants, doctors, and clergy members – left little historical record for understanding their ideological positions.

Network analysis provides the tools for both mapping the structure of ideology (Goldberg, 2011; Baldassari and Goldberg, 2014; Boutyline and Vaisey, 2017; DiMaggio et al., 2017; Lee, 2017) and relating it to the beliefs and behaviors of people (Mohr, 1998; Bearman, 1999; Breiger, 2000; Rule et al. 2015; Bail, 2016). Ideas, concepts or beliefs become nodes in networks where relations between nodes symbolize intellectual or compositional proximity or being held in concert (Goldberg, 2011; Bail, 2016; Boutyline and Vaisey, 2017; Lee, 2017). Scholars have used bipartite network analysis in particular to show that culture and structure are co-constitutive (Breiger, 1974; Breiger, 2000; Breiger and Mohr, 2004; Mohr and White, 2008; Pachuki and Breiger, 2010) and that “meaning” is fundamentally relational (Mohr, 1998; Bearman, 1999; Kirchner and Mohr, 2010; Rule et al., 2015; Hoffman et al., 2018), formalizing ideas that underpinned early sociological and anthropological thinking on culture and linguistics (Simmel, 1950; Nadel, 1957; Saussure, 1916).

Most of the contemporary literature on mapping the structure of ideas, however, relies on public opinion surveys to both identify the set of ideas available to the population and to identify the kinds of ideas that are held together (Goldberg, 2011; Baldassari and Goldberg, 2014; Boutyline and Vaisey, 2017). Opinion surveys, and surveys in general, suffer from two problems which make them unsuited for this purpose. The first is the problem of boundary specification. Surveys ask only a limited set of questions from respondents about a highly selective set of opinions and beliefs. Analysts exacerbate this problem by further selecting a smaller set of variables to analyze from the superset of survey questions. This results in highly incomplete views of the structure of ideas or beliefs. Second, surveys, like most ideological theories of historical processes and contemporary forms of text analysis, dis-embed actors (survey respondents) from material social context and relations (Jerolmack and Khan, 2014). Mapping the structures of beliefs (or of texts) attempts to reinsert relations into a purified analytical space, but the relations are necessarily artificial.
Both of these problems can be overcome by embedding political ideology in material relations and material social processes. This dovetails with cultural materialist approaches, which locate material sources for the production and diffusion of ideology outside of underspecified and imprecise theories about their emergence from economic positions (Williams, 1977; Althusser, 2001). The source of an alternative, non-economic, materiality has generally been given two forms. The first is institutional, emphasizing the ways that institutions structure our beliefs and afford particular constellations of practice and thought (DiMaggio, 1982; Friedland and Alford, 1991). In a negative sense, institutions structure the possible beliefs that can be had about the social world and thereby the types of actions that actors can conceive of taking (Althusser, 2001); in a positive sense, they impart the ideology of a particular group (Abercrombie and Turner, 1978).

An alternative school of thought (Williams, 1977) argues that the materiality of ideology is rooted in the social processes which bring individuals into relation with ideas, in particular the production and consumption of cultural and intellectual goods. This orientation therefore emphasizes the role of creativity, both in what people write and in terms of how people assemble written materials into distinct constellations of ideas and beliefs. It also emphasizes the physical mediums through which ideas and culture are instantiated – books, movies, and media – referents which give ideas life and durability and the capability of being disseminated.

These orientations are not necessarily opposing. Institutions structure much of our lives, but they do so in loose ways, providing space for ideological expression and creativity (Schudson, 1989). Members of the New York Society Library constrained the kinds of ideas available through the collective choices they made of bringing certain books, and not others, from Europe. But even so, and especially in a less rigid institution like a library, whose goal is to make available to members as much written material as possible, the number and variety of texts in the library was enormous, far exceeding the number of people and the amount of time any given person had to read. In such a space – one that mirrors many modern institutions, especially the internet, but also markets in general – the structure, diffusion, and crystallization of ideologies cannot be reduced to the ideas available within the institution. Choice was central to the library experience with the library providing the potential for individual expression within the bounds of its enormous cultural
content as institutional resources were repeatedly configured and reconfigured by actors. We can trace the process through which members of an institution cobbled together, within the bounds of that institution, intellectual and cultural resources to form new and different ideological configurations, which in turn acted on the world, by defining social categories and challenging political consensus.

Practically, this means analyzing how 1) changes in the availability and composition of texts (what are the books, and kinds of books, available to readers at any given moment) related to 2) changes in consumption (what books do people read and in what patterns). To do so requires at least two bipartite matrices: one linking books to words, revealing the kinds of ideas that library members could conceivably encounter; a second linking people to books, revealing the agentic process of reading and of self-positioning in the linguistic space of the library. Analyzing one or the other matrix alone will only reveal part of reading’s meaning. Analyzing the book-to-word matrix alone would only reveal the content of the books in the library. We could evaluate this over time, but the insights would be limited to changes in writing and/or in the broad interests of the library patrons in terms of what kinds of books were procured. Analyzing only the person-to-book matrix, on the other hand, would reveal patterns and habits of reading, but not how they map to a space of ideas. People might be reading different books about similar things, but analyzing a person-to-book matrix in isolation will never tell us that. Thus, it is by relating these two analytic orders that we can come to understand not only the content and structure of reading, and by extension ideology,

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8 Both of these matrices have found widespread use in the social sciences for revealing the construction and evolution of meaning. The first – commonly referred to as a document-to-term matrix – undergirds much of modern text analysis. For example, Rule et al. (2015) use a document-to-term matrix, where documents are State of the Union addresses and terms are noun phrases they contain, and its transformation into a term-to-term matrix, to map the changing political discourse over American history. Bail (2016) also uses a document-to-term matrix to compare the content of social media messages put out by autism advocacy groups, relying on its transformation into a document-to-document matrix to build cultural networks. The book-to-word network is therefore an intuitive formalization of “content” – as it pertains to directly to the relationship between the cultural items in question – books – and the concepts and symbols they contain – words. The second matrix links people to the books that they read. Such matrices undergird much of the quantitative study of culture (Breiger, 1974; Mohr and Duquenne, 1997; Breiger, 2000; Bearman and Parigi, 2004; Mohr and White, 2008; Goldberg 2011) and modern recommendation systems, which use decompositions of bipartite graphs to recommend new items or articles to users (Goldberg et al., 1992). All of these analyses share a similar underlying logic – through a set of simple transformations, they are used to identify people with similar patterns of use or reading which is then theorized as a “structure” in the relational sense, or as an opportunity space for recommendation.

9 This is because, in the case of reading, people do not interact with words except through the medium of a book or document. If people interacted directly with words, we would need a third a matrix, that links people directly to words.
but their meaning as they change over time (Mohr and White, 2008; White, 2012). In the analyses that follow, I do just that over the two periods of reading. I first explore the content of the library’s catalogue by transforming the book-to-word matrix into a semantic similarity mapping of all of the texts in the New York Society Library at a given moment in time. I then map how members of different political groups traversed the semantic space to identify their different and changing cultural bases.

**Data**

The data for this paper come from two charging ledgers of the New York Society Library – the first spanning 1789-1792 and the second spanning 1799-1806 – which were digitized and made freely available to the public online by historians and librarians at the NYSL in 2011. The NYSL was the only library, and one of the largest cultural institutions, in New York during this period. It was located, for many years, in Federal Hall, which also served as the United States capitol building from 1789-1790 and the building of the government of New York City from 1791-1812. This made the library the de facto library of Congress in the early period, and an institution frequently visited by New York, and more broadly American, political and economic elites for the years that the data cover. Overall, the ledgers include 140,000 transactions made by 1058 unique readers checking out 2701 unique books.

Historical data is rarely statistically representative. The nature of how it is recorded and preserved ensures its particularity. In the case of this paper, the data from a single library in a single city cannot reveal the average reading habits of the American public at this time (most people were either illiterate or rarely read), or even the average reading habits of the American elite (elite culture varied regionally). Still, as historians of early America have often argued, understanding the relationship between ideology and politics in New York specifically is essential to understanding its evolution in the United States as a whole.

The structure of New York society from 1790-1800 was unlike every other state in the Union and yet at the same time most reflective of the emergent national political field. New York, unlike other regions, was characterized by a great diversity of economic interests (Bonomi, 2014). While the South was economically limited in its commitment to plantation farming and slave labor and New England to whaling,
sea trading, shipbuilding and early forms of industrial labor, New York was the only state with a dual-economy, where agricultural and commercial activity contributed equally to productivity (Bonomi, 2014). All of the major economic classes – landowners, tenant farmers, slaves, merchants, and artisans – were represented in New York. Unlike Virginia and Massachusetts, whose elite castes were dominated by members of single economic classes – planters and merchants respectively – the New York elite were economically and politically diverse. New York’s aristocratic families – the Livingstons, Van Cortlandts, DeLanceys, Schuylers and Van Rensselaers – dominated agricultural and commercial interests, using their economic sway to shape New York politics and institutions well into the 20th century, fighting bitterly over the direction and contours of their shared society (Bonomi, 2014). American politics and economics, for most of the ensuing decades, would share this broad division between town and country already present in 1790 in New York.

Further, political processes and developments occurring in New York during this period foreshadow national political developments of a couple decades later. New York was the center of political and economic institutionalization (Young, 1967). New York was the seat of Federalist power, home to the party’s leader, Alexander Hamilton. Federalists, at the direction of Hamilton, established and used banks and societies in the city to cement their power and ensure electoral victory. At the same time, the Society of St. Tammany, later known as Tammany Hall, was founded in New York in 1786, and through the political organizing of Aaron Burr and others, would eventually become the first political machine, supporting Democratic-Republican causes across the country (Paulson, 1953). In addition to political machines, clubs, societies, interest groups, and early forms of social movements served as the backbone of one of the most sophisticated civic societies in the nation, linking political and economic actors throughout the region. The combination of interests, families, institutions and networks of civic association facilitated a climate of political contention that lasted well into the 20th century and was especially pronounced in the decades following the ratification of the Constitution. Gubernatorial elections were particularly contentious, rife with slander, back-dealing and backstabbing, and allegations of miscounting, at least a decade before the first contentious presidential election in 1800 (Young, 1967).
Finally, many New Yorkers were important players in the larger political field. New York City was, from 1788-1790, the nation’s capital and George Washington spent the first two years of his first term in office in the city’s Federal Hall. Many of the leaders of the Federalist and Democratic-Republican parties – with the Virginian Republicans Jefferson and Madison the notable exceptions – based their political operations out of New York. Even after the capital moved to Philadelphia at the end of 1790 and Washington D.C. in 1800, many current and former political actors remained. In short, the data from the New York Society Library records the reading histories of many of the elites who shaped the Revolutionary generation, including many of the founding fathers and political leaders of the post-ratification period, members of the commercial and merchant classes, and the manor lords and ladies who dominated American agriculture, all who lived New York during the nation’s early years.

I added to the reading data additional information about patrons’ professions, taken primarily from New York City directories published from 1786 through 1807 by David Frank and Thomas Longworth. For patrons of the library who resided in New York, a variety of source documents were used to identify their profession, including wills, contracts and court documents. A full list is available upon request. I have data on profession for roughly 70% of the sample.

For all politicians, information on political affiliation was identified using election returns from the 1789-1807 period. These election returns have been aggregated and provided by Philip J. Lampi, with assistance from the American Antiquarian Society and Tufts University (data and more information can be found at http://elections.lib.tufts.edu/). This data was supplemented with primary source data from newspaper articles of the same period, which often referenced the political positions and goals of lesser known local politicians and with information on political affiliation and position from Alfred Young’s *The Democratic Republicans of New York: The Origins, 1763-1797*, the premier history on political organizing in New York after the Revolution. While political affiliation was fairly stable over time, temporally resolved election returns and historical narratives allowed for recording changes in political affiliation for those members who were politically active throughout the entire seventeen-year period. Political affiliation was recorded for every notable politician, local or national, from this period.
Various other demographic and affiliative variables were collected using a vast array of historical records. The full list is provided in Appendix A. Data on residence and property holdings, including slaves, was collected from the 1790, 1800, and 1810 Censuses. Club and society memberships, for the most popular societies, were collected from manuscripts of club and society minutes. Gender was largely discernible from name, but also coded by the librarians who provided the original data. In terms of its distribution, 97% of readers were men. However, a handful of women, some of whom were merchants or philanthropists, subscribed to the library – 57 in all, 20 to 40 at a time, depending on the year. Many were prolific readers, consuming books ranging from natural philosophy to novels. Famous female readers include: Elizabeth Ann Bailey, the first Catholic saint to have been born in America, and founder of The Society for the Relief of Poor Widows with Small Children; Isabella Graham, educator and founder of numerous philanthropic societies in New York including the Society for Promoting Industry among the Poor; and Henrietta Marie Colden, correspondent of Thomas Jefferson, and friend of the Hamiltons and Burrs. Descriptive tables can also be found in Appendix A.

As for the books, titles in the ledgers were written in shorthand, so historians at the NYSL went through the laborious task of matching shorthand titles across entries to their proper full title in the library catalogues. Many inconsistencies remained, which I cleaned by hand. To obtain data on author and book content, I used two different services – Gale Artemis and the HathiTrust Digital Library – both of which host the metadata and digitized texts of the majority books from this period. I identified metadata for over 95% of the books and text for 85% of books across both sources. Advances in OCR have greatly improved the quality of digitization over the past years, but it remains highly inconsistent, especially for texts published during the 18th century. To correct for inconsistencies, I employed a series of OCR correction scripts, written by Ted Underwood, Professor of English at the University of Illinois. The scripts use a set of dictionaries to identify words for correction, fixing the "long S" problem typical of 18th century English

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10 Scripts can be found online at: https://github.com/tedunderwood/DataMunging
Methods

In the results that follow, three kinds of analyses are pursued. The first compares how books are written, relating books directly to each other on the basis of their composition. The second identifies books that were more or less likely to be read by members of different political parties and by extension, the people and kinds of people who read Democratic-Republican or Federalist books. Finally, the third compares people’s reading habits and evaluates the overlap of their reading habits to their political ideology. I perform each of these analyses for each of the ledgers and compare the results to evaluate not only the ideological structure of reading and cultural bases of political parties, but how they changed over time. Before turning to the results, I discuss the methods underlying each analysis in turn.

I. Semantic Network Analysis

In order to analyze and compare the texts of each book in the library, I followed a series of steps outlined by Rule et al. (2015), Bail (2016) and Hoffman et. al. (2018) for producing semantic similarity networks. First, books not in English, French or Latin were removed from the dataset – this includes a very small number of texts in a heterogeneous set of languages: Greek, German, Persian, Arabic, and Italian. Books were then tokenized, which involved chopping books up into their individual words. For example, the translated sentence from Rousseau – “Man is born free, and everywhere he is in chains.” – became a list of words [Man, is, born, free, and, everywhere, he, is, in, chains], commonly referred to as a “bag” of words. Words within each bag were then stemmed, which involved stripping them of their suffixes and reducing them to their root. The words “chains”, “chaining”, “chained”, for example, all became “chain”. Stop words – the most common words in a language, which for English include words like “he”, “is”, “and”, “in” and “everywhere” – were removed from each book’s list of tokens, as were punctuation, numbers, and Roman
numerals. Finally, all words were made lowercase. Thus, at the end of the initial text processing routine, Rousseau’s sentence would become [man, born, free, chain]. Every book was then transformed in this way. I compared the bags of words for all books. The first step of comparison involved building a so-called document-to-term matrix, \( D_t \), for each period \( t \), where the rows in the matrix refer to the books in the ledger and the columns are counts of the words those books contain. Rousseau’s sentence would have a 1 in the columns for “man”, “born”, “free”, and “chain” and a 0 for all other words, such as “woman”, “rights”, and “serf”. Unlike a single sentence, a given book might have as many as a million words before processing and hundreds of thousands after: Gibbon’s magnum opus *Decline and Fall of the Roman Empire, vol. 1-6*, for example, has 43,113 unique words and 1,543,676 total words. This is reflected in the document-to-term matrix, where *Decline and Fall* has non-zero entries across a wide number of words (many of them highly specific to Roman history).

Document-to-term matrix for each period was transformed using tf-idf. Tf-idf stands for “term frequency, inverse document frequency” and serves to quantify the importance of a given word to a document in relation to the overall corpus. It involves multiplying how frequently a term occurs in a document by the inverse of the number of documents it occurs in within the corpus. Thus, words that are rare in the overall corpus, but occur frequently in a document, are given the largest weights. These tf-idf weights are document specific in the sense, that “man” will have a document-specific weight depending on how frequently it occurs in each document. I use this new tf-idf matrix, \( T_t \), in two ways. First, I use it to select the set of words to be included in the final analyses with the idea that we want to include those words that most discriminate between texts, but are still reasonably frequent overall. I use a global tf-idf measure outlined in Wang and Blei (2011) to do so, which simply involves averaging the tf-idf score of each word over the entire corpus. I order these global scores from highest to lowest and, again following Wang and Blei (2011), select the top 10,000 words for inclusion in the final matrix. I subset matrix \( T \) so that it only includes columns for these 10,000 words.

The resulting tf-idf matrix was transformed into a square book-to-book matrix using cosine similarity, where the similarity between book \( i \) and book \( j \) is the cosine of the angle of their tf-idf vectors.
over words. Cosine similarity ranges from -1 to 1, with 1 signaling two vectors are highly similar and -1 signaling they are highly dissimilar. In the case of this analysis, values less than 0 are never observed since tf-idf values cannot be less than 0\(^{11}\). The similarity matrix was sparsified using a quantile cut-off to include only those cosine values in the top 5% of the distribution.

Finally, the matrix was graphed and analyzed as a weighted network, where nodes in the network represent books and ties are weighted by their cosine similarity score and represent similarity in composition. The Louvain clustering algorithm was used to identify groups in this network, and nodes were subsequently colored according group membership (Blondel et al., 2008). The modularity of this group partition was high – .75 – signaling a strong semantic differentiation between textual clusters.

Text clusters were manually assigned names, which accompany the network visualizations. This was accomplished by identifying the top texts associated with each topic, defined as the most degree central texts to each topic, and using that information to interpret the topic’s content. The top ten texts for the two periods I visualize (1789-1793 and 1799-1806) can be found in Appendix C.

**II. A. Political Valence and Ideology**

To understand reading and its relation to politics, I performed three complimentary analyses. The first identifies books most associated with politicians of one party or the other. To do so, for each book I construct a vector \(X\) of length \(n_t\), where \(n_t\) is the number of readers in period \(t\). \(X_i\) is a binary value, which equals 1 if person \(i\) checked out book \(X\) in time \(t\), and zero otherwise. I tabulate this vector against another binary vector \(F\), again of length \(n_t\), where \(F_i\) is 1 if person \(i\) was a Federalist in time \(t\) and 0 otherwise. This results in a 2x2 contingency table, like the one presented in Table 1.

![TABLE 1 ABOUT HERE]

\(^{11}\) To be clear, term frequency and inverse document frequency are both non-negative values. If both are at their lowest value – zero – after multiplication, tf-idf will also be zero.
I use $G^2$, also known as the likelihood-ratio test, to evaluate the extent to which having read book $X$ and political affiliation overlapped\(^\text{12}\). The $G^2$ statistic, much like the $\chi^2$, is an independence test, where higher values provide more evidence against the null hypothesis that row and column classifications are independent. This is achieved by comparing the observed value to the expected value for each cell in the contingency table. The precise equation, as presented in Agresti (2007), is:

$$G^2 = 2 \sum n_{ij} \log \left( \frac{n_{ij}}{u_{ij}} \right)$$

A $G^2$ statistic is produced for every book checked out in a given period, resulting in a vector $G_{Xt}$. However, on its own, the $G^2$ statistic does not tell us whether Federalists or non-Federalists were more likely to read book $X$. I therefore sign $G_{Xt}$ by multiplying it by a second variable, $\lambda_{xt}$, which equals 1 if a higher percentage of Federalists read book $X$ in time period $t$ than non-Federalists, and -1 otherwise. The final vector $P_{xt}$ thereby captures both the extent to which having read book $X$ overlapped with political affiliation and whether Federalists or non-Federalists were more likely to have read it.

The resulting values can be studied on their own to identify the books most associated with one political group or another. But I also project them onto the semantic networks, coloring nodes by their value. The higher the value the bluer it is colored; the lower, the redder. Many books were read only once or twice, making their political salience hard to interpret directly, so values were interpolated across nodes in the network in accordance with the political salience of their network neighbors (Hoffman et al., 2018). This is conceptually similar to smoothing lines in regression plotting and makes the coloring of the network akin to a heat map – revealing the relative distribution of political salience across the network space as opposed to directly reflecting the political salience of each book (Hoffman et al., 2018).

The $G^2$ values have another use as well. The large majority of the New York Society Library members held no political office in their lifetime and they therefore left little to no historical record of their formal political affiliation or their beliefs on matters of politics. As I will demonstrate, we can look at the

\(^{12}\) That said, many different measures could be used to identify books with strong political association. A full exploration of these measures and their effect on the results can be found in Appendix E, part I, though suffice to say that they are remarkably robust to measure choice.
reading choices of a given reader, identify the political valences of their reading choices, and then use the average valence of those choices, at a given moment in time, to learn something about their political orientation (as long as their own reading habits and political affiliation are held out from the sample we use to calculate the initial valences of books.) That is to say, I can use the information about which books were most politically salient for each party to determine the political ideology of each library member’s reading habits. I express an individual’s reading ideology as:

\[
I_j = \frac{\sum_i r_i G_i}{\sum_i r_i}
\]

where \( b \) is the total number of books in the data, \( r_i \) denotes whether the actor in question read book \( i \), \( V \) is the vector of political saliences for each book in the data, and \( G_i \) is the political salience (\( G^2 \)) of book \( i \). \( I_j \) can range from negative to positive one\(^{13}\). By averaging \( I \) over some aspect of the people in the library, we can also learn something about the reading habits of groups and demographics during this time.

\(^{13}\) In effect, this allows me to expand the political differences in reading of politicians to the full set of library patrons. It is functionally the same – and thus yields similar results – to treating an actor’s political status as the proportion of Federalists and Antifederalists who are \( N \) steps away from them in a bipartite network. Hence, this method bears similarity to “seed expansion” methods, which attempt to identify groups in a network by starting from known members of those desired groups and expanding outwards (Kloumann and Kleinberg, 2014). The analyses here also bear similarity to Amazon recommendation systems and also with GWAS/PGS methods in genetics, which identify SNPs correlated with some outcome (here, books associated with political affiliation) in one population (politicians) and uses that information to construct a risk score (political ideology) in a second population (non-politicians) (Sotoudeh, Conley and Harris, 2018).
Results

The Semantic Structure of the New York Society Library Collection

While other scholars have run topic models on similarly sized corpuses for the same period, inclusion into the corpus is usually determined either by the researchers’ interests in particular literary or scientific fields or by sampling, randomly or not, from all written texts from the period (Jockers and Mimno, 2013). I visualize a corpus that reveals what 18th century elites in New York cared to read at two different moments in time. The results of this effort can be found in Figures 2 and 3. As in topic modeling, clusters accord with interpretable, higher-level topics or genres, in which similar kinds of books are nested. The advantages of the analysis strategy used here over topic modeling, however, are many. Most importantly, the network visualization gives a sense of the overall structure of the semantic space: certain topics are far apart – poetry is opposite natural philosophy; mercantile and political topics are opposite novels and romances. To achieve this kind of intuitive representation of the topic space, topic modelers often resort to constructing network plots of the topics anyways (Rule et al. 2015) – here, intuitive representability is built directly into the method.

[FIGURES 2 AND 3 ABOUT HERE]

It is first worth noting how structurally similar the semantic networks are for the two periods. The second period includes 1,300 more books than the first, all procured at some point between 1792 and 1806, and yet most of these new books fit into semantic clusters already defined and established in the first period. Three exceptions can be made: 1) a distinct cluster of books about Moral Philosophy & Education forms to link Works, Reviews & Periodicals and Religion, the traditional source of moral authority of thinking, 2) a cluster consisting of literature, letters and biographies concerning women and their role in society emerges.

14 All of these results have been replicated using topic models. Topic models produce more topics – but the broad substantive findings are remarkably robust to how the data is analyzed. Topic model results can be found in Appendix E, part IV.
out of the broader Romantic literature, and 3) a distinct literature on law is added to the library collection. The beginnings of both Moral Philosophy and Women, Letters, & Biography can be seen in the first period, but they have not achieved sufficient size or distinction to be identified as unique clusters by the modularity algorithm.

Thematic similarity between the two periods can be formally assessed using a Rand index, a measure of the overlap between two clustering solutions. For every pair of points, the Rand index evaluates the extent to which they were assigned to the same cluster in both solutions. The index ranges from 0 to 1, returning 0 when the two clustering solutions disagree on the assignment of every pair of points and 1 when the two solutions are precisely the same. I apply the Rand index for the set of books that were present in the library in both periods, to see if books assigned to the same cluster in the first period were also assigned to the same cluster in the second, despite changes in the semantic network. The index returns a value of 0.93, signaling remarkable consistency in topic assignments despite significant growth in the library collection.

Both semantic networks resemble hub and spoke networks, with a large orange cluster at the center serving as a bridge between clusters on opposite ends of the network. Texts in this cluster have by far the largest average betweenness centrality and they become more between central over time. In the first period, they have an average betweenness centrality that is 1.4 times larger than that of the next most between cluster in the network; in the second period, their average betweenness centrality is nearly twice that of the next most between cluster. These central clusters, which I have named Periodicals & Works and Works, Reviews & Periodicals in the first and second period respectively, include anthologies, and criticisms and celebrations of great writers and philosophers, such as Rousseau, Locke, Gibbon, Pope. Genius and criticism, then, bind the many disparate fields of human endeavor.

Moving up from the center cluster is a set of texts about Ancient Rome, including books by Cicero and Titus. In the first period, this cluster also includes contemporary political philosophy, which was, for

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15 Thanks to Ramina Sotoudeh for suggesting this measure.
much of the early modern period, heavily reliant on Ancient Roman and Greek political writing. Works by Montesquieu, Voltaire, and Gibbon can be found here.

Moving clockwise, we find texts about *History and Biography*, a cluster that increasingly becomes about British and French history specifically, with world history moving into the neighboring cluster, *Geography, Travel & Commerce*, a broad cluster encompassing histories and descriptions of foreign, primarily Eastern, countries, travelogues from both the ancient and early modern periods, including long distance voyages and land expeditions, and general descriptions of trade routes and international commercial practices. A tiny cluster of texts about *law and legal theory* are loosely tied to these two larger clusters. *Agriculture* – which combines both botanic and agricultural practices as well as, and especially in the first period, a range of descriptions of the European countryside – and *Natural Philosophy* – including physics and chemistry, but also medicine in the second period – are disjoint from the overall network, tied loosely to *Geography & Commerce* and the center cluster. Continuing clockwise, we find a large structural hole, filled slightly by a distant clustering of *French Language* texts.

We then encounter two clusters of novels – one with a focus on the lives and experiences of famous women and female characters, including feminist fiction by the likes of Mary Robinson, and a second including most British fiction and romances from the period. These two clusters are structurally disparate from the rest for two reasons. First, unlike most of the other topics, novels, romances, and letters detail the intimacies of private, rather than public, life (Davidson, 2004). This accounts also for their stronger association with women, whose were confined to domestic roles in the early modern period (Armstrong, 1987). Further, the novel specifically was the most modern literary form at the turn of the 19th century and contained a host of themes and archetypes unlike, and that often challenged, traditional literary forms (Davidson, 2004). Its subversive nature is well-documented by historians (Baikhtin, 1981; Davidson, 2004), and can be seen in the anxiety its popularity evoked from social authorities (Davidson, 2004).

The next cluster is poetry, ranging from Horace to Chaucer to Freneau, the “Poet of the American Revolution”. Finally, we find *Religion*, including both theology and published sermons, nestled with *Moral Philosophy* in the second period.
Equally informative are the topics that are missing. No single cluster pertains to America or American history, unlike British and French or Roman history, because the American story had not yet been written. Books about American history, such as William Robertson’s *The History of America* or William Gordon’s *The History of the Rise, Progress, and Establishment of the Independence of the United States of America* are assigned to either *British & French History* or *Geography & Commerce*. Likewise, many aspects of the economy which are now taken for granted are not assigned distinct topics. Industry, which would become a dominate theme of the literature, science and imagination of the 19th and 20th centuries, is subsumed in *Geography & Commerce* as well. Books in the *Women, Letters and Biography* cluster discuss the roles and nature of women, but no cluster (or book) discusses the attributes or character of men. This is because all other clusters are ostensibly the dominion of men. It is telling that a new and distinct literary form was necessary to tell the tales of women.

Beyond its clusters, the dimensions of the network space and the position of texts on those dimensions, is informative of the larger literary field. The left-right dimension, for example, moves from poetry and religion on one end to industry and natural philosophy on the other, which could be characterized as a general opposition between the ineffable and the empirical. The top-bottom dimension moves from religion, Ancient Rome, and history on the one hand, to novels and romances on the other, an opposition that could be broadly construed as separating traditional and modern literary genres.

**II. The Political Salience of Books**

In the following set of analyses, I turn to analyzing the relationship between political affiliation and reading choice, for the set of actors whose political affiliation were publicly declared\(^\text{16}\). If we were to follow the analytic strategy of most histories of this period, we would focus on those set of texts which had explicit political philosophical messages. Such a strategy would produce Figure 4, in which I plot the political salience of famous texts from Enlightenment social philosophy and economics in each period. It serves as

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\(^{16}\) Political affiliation is known for roughly one third of the library members.
both proof of concept and an illustration of the social philosophers and philosophies most characteristic of each political party.

In the both periods, Federalists read more English philosophers while Democratic-Republicans read more French ones. In the first period, Federalists were significantly more likely to read David Hume than Antifederalists. Antifederalists, on the other hand, favored Montesquieu, who has two texts significantly associated with Republicans. The association between Hume and Federalists is well-known historically: Hume was the quintessential federalist, having written federalism’s most famous philosophical justification until the publication of The Federalist Papers. Likewise, the relationship between Montesquieu and Democratic-Republicans, in particular the thought of Madison and Jefferson, has been previously argued (Adair, 1943). In contrast to Hume, Montesquieu argued in favor of a confederacy, in which states were equal members who pooled resources for their joint security but were otherwise largely autonomous – as opposed to a federation in which a nation with a centralized national body that deliberates laws with input from member states but maintains always the right to overrule them (Føllesdal, 2016). Montesquieu then provided a framework for balancing powers without depending on a centralized state, hence the attraction of his ideas to those wary of the development of monarchy in America. That Gibbon’s History of the Decline and Fall of the Roman Empire and Montesquieu’s Considerations on the Causes of the Greatness of the Romans and their Decline are both significantly associated with political affiliation (though at different moments) highlights the general centrality of Ancient Rome to political thinking and planning in that period: the explanation a politician was most likely to read depending on whether one was Federalist or Democratic-Republican, respectively.

The favored philosophers changed over time, but the general British vs. French axis remained. In the second period, The Works of Edmund Burke becomes highly associated with Federalists, while Rousseau’s Emilius is the only text significantly associated with Republicans. Hume remains for Federalists. This signals that the content of political debate may have shifted to being about the French Revolution, and its radical ideals: Burke provided, after all, the most influential conservative critique of the French
Revolution in *Reflections on the Revolution in France*, while Rousseau was one of the great philosophical influences of the French Revolution.

**[FIGURE 4 ABOUT HERE]**

This exercise is informative, but incomplete. It ignores the hundreds of other books in the library, all of which may have contained political valences of their own and limits our ability to fully reveal and understand the bases of political difference. I therefore turn to a more general look at differences in reading between members of political parties across time by mapping political valence to the semantic networks presented in the previous section\(^\text{17}\). This provides a more detailed view into the concerns and interests of members of the two parties and of the possible ideological bases of opposition along which party division was constructed. The results are visualized in Figure 5 and Figure 6. Exact cluster means can be found in Appendix D, where the robustness of the finding to alternative modeling choices is also explored.

**[FIGURES 5 AND 6 ABOUT HERE]**

In the first period, Antifederalists were more likely to read about Ancient Rome, Agriculture, and books in French, while Federalists were more likely to read History and Biography. This portends subtle differences in their political philosophies – recall that Rome represented not only republicanism, but also Jacobin belief and dress, as noted by Marx in the Eighteenth Brumaire (Marx and De Leon, 1898); History and Biography, including Hume’s *History of England*, in contrast expressed the tenants of British mercantile policy. These differences are reflected in the debates over the Constitution and the French revolution, both of which coincide with this period.

\(^\text{17}\) In the first period, 87% of books in the library’s collection were read by at least two readers with political affiliations and were therefore able to be assigned political valences. Likewise, in the second period, 88% of books in the collection were read by at least two readers with political affiliations and assigned political valences.
The second period is markedly more polarized than the first with respect to the overall semantic structure. The top half of the semantic network is dominated by Federalist reading, the bottom half by Republican reading. Republicans moved from Rome to the newer literary forms, novels, romances, letters, and biographies of women, while Federalists stuck to traditional ones – Religion, Moral Philosophy, and Geography & Trade, signaling that the division between Federalist and Republican was broadly cultural, as much about modernism and traditionalism as it was about specific political forms, democracy and aristocracy. It also systematically affirms the findings of the historical literature that argues for an affinity between the democratic and romantic movements in the United States (Davidson, 2004; Waterman, 2007; Warner, 2009), in which the novel figures prominently for both literary and social reasons. The novel had a specifically democratic character (Davidson, 2004), portraying a far wider set of characters and classes than traditional forms: orphans, beggars, widows, slaves, spinsters, aristocrats, explorers, laborers and adventurers (Davidson, 2004). It was often used as a vehicle for the articulation of radical social critiques of polite bourgeois society (Bakhtin, 1981; Davidson, 2004). At the same time, by using stories to express those critiques, it expanded the audience who could hear them beyond the political and educational elite (Davidson, 2004). Many of the earliest Democratic-Republican societies even began as reading groups following the ratification of the Constitution, discussing not just the latest news from France, but the latest literary developments in Europe and the US (Waterman, 2007).

Not all topics can be so definitively associated with political affiliation. Poetry, Periodicals, Works, and Reviews, and French Language were read by members of both parties in the second period. Further, a couple topics (British and French History and Natural Philosophy) show marked within-cluster polarization. In British and French History, for example, Federalists read British history, while Republicans read French history, confirming the national orientations of the two groups first apparent in the analysis of famous philosophical works.

The extent to which semantic structure and political ideology overlap can be formally assessed using a modularity-based measure. Modularity is a goodness-of-fit measure for network group detection algorithms that compares the number of ties between nodes of the same group to the number of ties between
nodes of different groups (Newman, 2006). The higher its value, the more modular the network and the more successful the group detection algorithm is at identifying distinct groups (Newman, 2006; Shwed and Bearman, 2010). I first identify clusters of books using a Louvain group detection algorithm (Blondel et al., 2011), which tells us the most likely group structure given a state-of-the-art group detection algorithm (this is the same measure used to cluster texts into topics). I treat the modularity value attained under the Louvain algorithm as the maximal modularity value, $M$, of the semantic network. I then classify books according to their political valence, such that if a given book has a political valence greater than 0 I assign it to group 1 (Federalist), while if it has a political valence less than 0, I assign it to group 2 (Republican/Antifederalist). I evaluate modularity for this group classification scheme, returning a political modularity value of $P$. I divide $P$ by $M$ to get an estimate of the extent to which the political valence of texts overlapped with the topic structure of the semantic network$^{18}$.

Politics increasingly conformed to the semantic structure over time, by nearly threefold. In time period 1, the proportion of group structure associated with political valence is 0.12, while in time period 2, the proportion is 0.36. To evaluate whether either of these values are significantly different from what we should expect by chance, I used a bipartite rewiring procedure (Gobbi et al., 2014) to randomly rewire the underlying politician to book networks, while preserving, for each reader, the number of books that they read, and for each book, the number of times it was checked out. I then recalculate the political valences of books, reclassify books according to political valence, and reevaluate the modularity measure outlined above. I perform this procedure 1000 times producing a distribution of modularity-proportion values and evaluate where the observed modularity-proportion value falls in the distribution of simulated results. The results of this exercise for each time period can be found in Panels T1 and T2 of Figure 7. In the first period, the observed value falls near the median of the simulated distribution, while in the second period, the

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$^{18}$ This exercise can be thought of as evaluating the extent to which group structure is accounted for by political ideology. From a theoretical standpoint, in contrast to assortativity which is captured at the dyadic level, this measure is more in line with the concept of a “catnet” proposed by White (2008) and taken up by Tilly (1978), since it evaluates the overlap between categorical identifications and network morphology.
observed value lies far outside of the 95% interval. In fact, only a single simulation produced a modularity-proportion value as large as that observed in the second period\textsuperscript{19}.

[FIGURE 7 ABOUT HERE]

III. The Political Ideology of Readers

Overall, these results show that not only were Federalists and Republicans reading different books, but they were reading different kinds of books; and that the content of political difference became more marked and coherent, in relation to the semantic space, over time. This confirms ideological arguments for the emergence of Jeffersonian Democracy, but in an unusual way: political ideology became rooted more in the cultural division between the novel and traditional literary forms than in political philosophy. This cultural division was of course political, in that it divided members of political parties, but not purely so, since its content was not politics.

In the final set of analyses, I explore the social bases of ideology, by evaluating the extent to which members of various social groupings were likely to read Democratic-Republican or Federalist texts. This allows us to understand the political leanings of a range of groups for whom there exists little historical record, beyond scattered newspaper resorts, of their political beliefs. In turn, I examine the extent to which the social bases of ideology were largely economic, or if they fell along other social or affiliational lines.

To do so, I take the average political valence of the books a library member read in a given period of time for every reader in the data. I then compare the average valence for readers of different demographic and affiliation groups at each period in time. These results are in Figure 8. In this plot, the dotted red line marks zero, which is the threshold for tending to read in a more Antifederalist/Republican or Federalist direction. The dot labeled “Population” refers to the average political valence of all readers during the

\textsuperscript{19} A range of other robustness checks regarding this result, specifically whether it is robust to how the data is periodized, to the potential miscoding of politician’s political affiliations, and to using topic modeling instead of semantic network analysis, can be found in Appendix E, parts II through IV.
specified period – the population of readers skews slightly Federalist in the first period and Republican in the second, a shift also revealed in voting behavior (Lampi, 2007). Other groups include slave owners, shareholders of major banks, those born outside of the United States, women, members of the clergy, members of various professions – including “Commerce” (commercial trades), politicians, overseas merchants (divided by the location of their shipping interests\(^\text{20}\)), artisans, and medical professionals – and members of New York’s foremost political and activist societies: the Manumission Society, founded by John Jay with the express goal of freeing slaves in New York and the United states, the Society of the Tammany, which would become Aaron Burr’s political machine, and the Society of the Cincinnati, the most prominent hereditary society in the United States consisting mostly of Alexander Hamilton’s allies.

Which demographic predictors characterize the political divide? In the first period, the most Federalist readers are members of the commercial classes, including Western merchants, shareholders, and those with commercial interests. Foreign born New Yorkers are politically aligned with the commercial classes, perhaps due to their pronounced role in the development of financial policy and markets in the early republic, Hamilton being their most famous example (McCraw, 2012). Antifederalists on the other hand include mechanics, artisans and lawyers – groups without major capital holdings, whose work was service oriented. Major slave owners, individuals in the top quartile of number of slaves owned, also lean Antifederalist in this period, while manumissionists lean Federalist, signaling that both economic background and opinions of slavery played roles in determining one’s political affiliation.

In the second period, the capital class moderates. Women, artisans, mechanics, and members of the Tammany Society are pitted against lawyers, clergy members, and members of Society of the Cincinnati, signaling that issues of nobility played a larger role in determining political ideology in the second period than the first. Lawyers were one of the only groups in early America that held a formal, institutionalized

\(^{20}\) I identified the shipping interest of merchants using their reading habits. Those who read more about “voyages and travels” are classified as Eastern merchants, those who read more about “tours” are classified as Western merchants. This was empirically verified using membership lists of the Marine Society, membership to which required ownership of a commercial vessel. Further, I checked that well-known traders with Asian and European markets respectively were classified into the proper group. Further details can be found in Appendix F.
title: esquire. In a society that associated leisure with gentleman status (Wood, 1991), clergymen and lawyers were among the most privileged, maintaining professions that required little if any physical exertion, even in comparison to other professionals like doctors and military officers. Society of the Cincinnati was a hereditary society, the first and most significant such society in the United States, providing special status and connections for those who had either served as officers in the Revolutionary War or descended from such an officer. The titles of lawyers and clergy and the hereditary structure of the Society of the Cincinnati were both targets of populist ire for their exclusionary nature and their similarity to European titles of nobility (Wood, 1991, pg. 207). Beyond their aristocratic associations, lawyers, clergy members and members of the Society of the Cincinnati had group-specific causes for their Federalist leanings too. The clergy was initially in favor of the French Revolution, and the most radical dissenters such as Joseph Priestley remained so throughout much of its events; however, after the emergence of the party system, most clergymen sided with Federalists, both because of their association with tradition and law and order and because of Republican support for the French Revolution, which in had become increasingly associated with anti-clericalism (Robinson, 1916). The Society of the Cincinnati, on the other hand, became increasingly used by Hamilton as a political counter to the Tammany Society. Hamilton fostered relations of patronage and affiliation with former Revolutionary War leaders and soldiers to ensure their political support, turning them into reliable electoral votes and party mobilizers (Wood, 1991).

On the other end of the spectrum are artisans and mechanics, women, and members of the Tammany Society, who all become more Republican over time. This shift is most significant for artisans and mechanics, who start by leaning slightly Federalist, but end as the most Republican group of all. Artisans and mechanics shared many of the attributes of the professional and capital classes – they had specialized skills and could often turn a successful workshop into a lucrative factory. However, they worked long hours, often with their hands, and thus, no matter their wealth, even if they could afford entrance into social and cultural societies, were viewed as having lower status (Wood, 1991). Further, they often came from little to no wealth, putting them at odds with clergymen and lawyers, whose illustrious educational and family backgrounds served as the backbone of their professional legitimacy. In New York, winning the artisan and
mechanic votes often determined the outcome of elections, since as a group, they made up a sizeable portion of the city's workforce and electorate (Young, 1964). Their ideological swing, from Federalist to Republican, was consequential in the rise of the Republican party (Young, 1964).

The Tammany Society began as a reading society, but morphed into a political machine over time, largely at the directive of Aaron Burr. In its early days, which include the first period of reading data from the NYSL, the Society could count Federalists among its ranks, even if support for the French Revolution and radical ideas regarding social reform prevailed. However, as political polarization increased and Democratic societies came under attack by Federalists, nearly all Federalist members of the society withdrew (Paulson, 1953). This resulted in an increasingly Republican political machine, supportive of French Revolutionary ideals and opposed to Federalists at every turn.

These results also signal that women may have been a latent source of Republican sentiment in the United States, despite their exclusion from public affairs. A cursory glance at popular novels among women reveals some of their interests and how they might have related to wider Republican reading habits. Women were more likely to read Romantic novels than men. Especially popular among women were epistolary and sentimental novels which examined, and often critiqued, the role of women in aristocratic society, including Delphine, Madame of Stael, the publication and ensuing controversy of which led to exile of its author, Anne Louise Germaine, by Napoleon; and various novels by Mary Robinson, which contrast the relative stature of women in bourgeois and aristocratic cultures. Female readers also read the biographies of well-known women in British and French society, including Maria Antoinette and Hannah More. French novelists and philosophers also found many female readers, including, most prominently, Rousseau.

[FIGURE 8 ABOUT HERE]

Discussion

Following the American Revolution, reading among New York elites changed, becoming more politically polarized over time. Federalists and Republicans not only held different policy positions, as the historical
literature on this period points out, but they read different political theorists and they came to read entirely
different topics and literary forms. The argument of this article is that it is these deep cultural differences
that gave rise to the surface polarization that characterizes the formative years of the American democratic
experiment. Similar processes are at work today.

I find evidence of a qualitative change in the kind of books Republicans were reading over time:
from Montesquieu to Rousseau and from Roman political philosophy to romantic novels. The implication
is that the cultural basis of opposition, between Federalist and Republican, changed as well – centering
around different perspectives on rule – Roman vs. English – in the first period to different intellectual
cultures – modern (Romantic) vs. traditional (Enlightenment and Religion) – in the second. In the first
period, the grounds of the debate are the same; in the second, members of the two parties are in completely
separate cultural worlds. This may help explain why partisan passions in the second period were felt by
historical actors to be irreconcilable – there existed very little cultural material that could bridge the
emergent divide.

Republican readers increasingly came from groups outside of the main axes of political power –
including women and artisans – and became increasingly opposed to those groups whose power was most
institutionalized: lawyers, members of the clergy, and members of hereditary societies. This accords with
an historical literature that shows that the basis of Democratic-Republican power became more populist as
they wrested national political control from Federalists and with firsthand accounts of the period, whose
remarks that the issues of titles and nobility were central to party divisions have often been dismissed by
rigid materialists.

Artisans are well-known for having Republican politics. Less is known, however, about the politics
of women. Even the detailed literature on women’s participation in politics lacks the data to say anything
definitive about their average political ideology. There are reasons we would expect women to favor
Republicanism – most obviously, because Republicans preached universal suffrage, which on its surface
should include women. That said, Republican party leaders were not openly pushing for women’s suffrage.
Jefferson, for example, notoriously disdained female participation in politics, even as he favored educating
his daughter in philosophy, Latin and mathematics, in contrast with friend and contemporary Adams. Over time, then, it would become clear that “universal suffrage”, referred only to white men (Zagarri, 2011).

I find that clubs – the Society of the Tammany, the Manumission Society, and most of all, the Society of the Cincinnati – became increasingly politicized over time. This accords with the historical institutional literature on the increasing politicization and weaponization of non-governmental institutions and organizations for political gain (see Hall, 1987 for an overview). Following the American Revolution, Aaron Burr\(^2\) and Alexander Hamilton – the famed leaders of the Society of the Tammany and the Society of the Cincinnati – began using the societies, banks and organizations under their control to enact their political agendas and to organize the vote. As a result, organizations and institutions became seen as non-state actors, who wielded resources and influence to shape governmental and social outcomes. An analysis of the political use of banks and cultural institutions for pursuing political goals are a possible starting point for a history of American institutions.

Polarization in reading habits occurred to such great extent that, by the second period, the semantic network conforms almost perfectly with political ideology. The network plot from the second period looks identical to one’s that result from the analysis of modern reading data – whether of newspapers, blogs or books– signaling that reading habits may have been as polarized in 18\(^{th}\) and 19\(^{th}\) century America as they are today. This finding has implications, first, for the historical political science literature on whether there was a “party in the populace” during the First Party System (Formisano, 1974). While historians have argued for decades now that party sentiment among the populace was particularly extreme following the Revolution, political scientists have been unable to find evidence of this in any empirical matter. Today political parties are large-scale institutions which work to organize the vote, but at the turn of the 19\(^{th}\) century, voting was largely deferential, dependent on relations of patronage in which elites would exchange alms for votes from local farmers and mechanics (Formisano, 1974). It would take decades for Americans

\(^2\) After comparing Burr’s reading habits to those of every other politician in the data, it turns out that his reading habits were, on average, fairly neutral with respect to political affiliation, leaning only slightly Democratic-Republican. He may have been politically unprincipled after all.
to conceive of the vote as an expression of their political identity, for elites to realize the instrumental value in mobilizing the masses for political gain, and for networks of patronage to evolve into large-scale political organizations (Martin, 2009). Instead of looking for political parties in the vote, this paper finds them in reading patterns. And while readers didn’t make up the populace, per say, they do compose the persons who had political sway.

The polarization findings also have implications for the current debate on “echo chambers” and “lifestyle politics”. Studies in this area tend to treat either echo chambers or lifestyle politics as new. As a result, scholars have reasoned that the Internet may be exacerbating existing political polarization (Bakshey, Messing, and Adamic, 2015). Further, scholars who have modeled echo chambers or lifestyle politics have tended to focus on the emergence of groups with different beliefs, behaviors and mores (DellaPosta et al., 2015). If polarization in cultural consumption and reading habits in particular can be traced to 1800, then the set of candidate mechanisms must be reconsidered. Anything hinging on socio-technical changes in the past decade or even century should be dismissed. Further, models of political polarization in consumption and lifestyle must explain persistence, as much as they should explain emergence; to understand why, despite the emergence of new parties and the structural reorganization of social life over the past 200 years from largely agrarian to industrial and then service based economy, the mass movement of Americans to the West and eventually into suburbs, that politics and consumption have remained intertwined. This challenges any contention that the current association between politics and cultural consumption is arbitrary (DellaPosta et al., 2015), highlighting instead their historical precedence and duration.

This leads to larger point – that cultural sociology needs a large-scale history of consumptions of all sorts. This kind of work is key to linking real cultural activity to identity over long periods of historical change. Further, it should improve our ability to understand cultural change and the emergence and decay of cultural epochs; and to model the internal dynamics of consumption and predict the trajectory of current cultural movements. In other disciplines, where the goal is to model the evolution of complex systems, such as climatology, the need for a long durée perspective is well appreciated; here I suggest a similar perspective will be beneficial for our understanding of culture. This paper shows how this kind of a descriptive,
historical mapping of people to the items they consume, as they relate to shifting social divisions and identities, might be achieved. By combining methods in statistics, text analysis and network science we can build richly textured objects that reveal new things about the past (Bearman, 1999; Hoffman et al., 2018). The implication is that we can provide the same kind of large-scale characterizations of ideological structures and positions without dis-embedding actors’ cultural activity from its social context (Williams, 1977; Jerolmack and Khan, 2014) as is so often the externality of cross-temporal survey analyses. Even though the data this paper relies on data may seem exotic, they share fundamental similarity with consumption data, ubiquitous now with the rise of Amazon, Netflix, and Goodreads, services which link people to objects, all of which contain categorical and political meanings of their own (Shi et al., 2017). It follows that observational data such as the kind used here can serve as a historical link between past moments of polarization and that of our own.

Finally, this paper provides a framework for a material text analysis, one rooted in the material social processes which make ideas and written culture available for consumption by groups of people who exist in relation. In the process, it challenges an emerging form of text analysis in sociology and the digital humanities which is truly ideological: texts are analyzed without reference to their role in social life, words are studied for their own sake, and ideas evolve without writers and without readers. I show instead that by linking actors to real cultural activity and relations (Williams, 1977) in a meaningful institution (Mohr, 1998), we can reveal the ever-shifting and contextually dependent meanings of texts.

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Table 1: An example contingency table

<table>
<thead>
<tr>
<th></th>
<th>Federalist</th>
<th>Non-Federalist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read</td>
<td>a</td>
<td>b</td>
</tr>
<tr>
<td>Did not read</td>
<td>c</td>
<td>d</td>
</tr>
</tbody>
</table>

Figure 1: The reading history of Aaron Burr

Books checked out on the same day are ordered according to the order in which they were checked out that day. However, this only occurs one time in Aaron Burr’s entire reading history – “Elements of the Philosophy of the Human Mind” and “Things as they are” were both checked out November, 14, 1801.
Figure 2: The Structure of Semantic Similarity in the New York Society Library Collection, 1789-1792
Figure 3: The Structure of Semantic Similarity in the New York Society Library Collection, 1799-1806
Figure 4: Republicans read Montesquieu and Rousseau; Federalists read Hume, Burke and Gibbon.

Note: Texts statistically significantly associated with a political party at a 0.05 level are bolded. Significance determined using the $G^2$ statistic value.
Figure 5: Content polarization was low from 1789-1792. Rome, Agriculture, and French Language are associated with Republicans; History and Biography with Federalists
Figure 6: Content polarization is high from 1799-1806. Republicans read novels and romances; Federalists read Theology and Moral Philosophy
Figure 7: Evaluating the significance of the association between semantic network group structure and political ideology using bipartite rewiring

T1: The observed modularity-proportion value falls well within 95% interval for the period 1789-1792.

T2: The observed modularity-proportion value falls outside the 95% interval for the period 1799-1806.
Figure 8: Women and artisans increasingly read like Republicans; major societies polarized along political lines.

Note: Significant changes in political valence, determined with a t-test that compares a group’s valences in period 1 to period 2 using a significance threshold of 0.05, are represented by solid lines, while insignificant changes are represented by dotted lines. Superscripts signify the periods for which a given group’s valence is significantly different than 0: 1 for the period 1789-1792, and 2 for the period 1799-1806.
Appendix A: Supplementary Data Sources and Descriptive Tables

Profession

*David Frank’s New York City Directory.* Published in 1786. Accessed from


Political affiliation

*For Members of US Congress:*


*For state-level political officials:*


Club affiliations


Shareholding


Slaveholding


Book data

Book data was collected using two online resources: Gale Artemis and HathiTrust Digital Library. Both contain book metadata – full title, author, year and location of publication – in addition to digitized book text. Gale Artemis’ digitized texts are derived from a set of historical literary databases, of which I included: Eighteenth Century Collections Online, Nineteenth Century Collections Online, Sabin Americana, 1500-1926, The Making of Modern Law, and The Making of the Modern World. HathiTrust’s digitized collection is derived from Google Books. Book titles were cleaned by hand before being inputted into Artemis’ and HathiTrust’s online search engines. If a match was found, metadata and book text were then collected.

[TABLE A-1 ABOUT HERE]
Appendix B: Are new members of the library driving the polarization findings?

In addition to the composition of the library’s catalogue changing, which the main text discusses, it is also possible that the composition of the library’s members changed over time. Analyzing this might help us account for what is driving the polarization findings. Two hypotheses that could explain why reading became more polarized present themselves: first, the library expanded over time and this might have brought more politically radical individuals into its membership; alternatively, people could have actually changed their politics and how and what they read over time as a result of the increasingly politicized environment. I assess these alternatives by rerunning the modularity-proportion analysis for the second period. I look specifically at the results that attain if only the original members of the library (those who checked out books in both periods) are included in analysis. I compare them to those that attain when only new library members (those who checked out books only in the second period) are included and those that attain when the entire politician sample (i.e. including both newcomers and original members) is included.

The results can be found in Figure B-1. Regardless of which sample we use, the observed modularity-proportion value lies outside of the 95% Interval. At the same time, the observed value for new members is higher than that for original members. This means that both hypotheses put forward above are likely true: original members’ reading habits became more political over time and new members had more political reading habits than original members. The observed modularity-proportion value reported in the paper reflects both of these factors.

Appendix C: How topics were named

To name topics I followed a procedure common in the text analysis literature. For each topic, I identified the ten most within-topic central texts using a weighted degree centrality measure. In essence, these will be the texts that are the most similar, on average, to the other texts in the topic, a simple measure of their representativeness. I then used the content and titles of those ten texts to understand what they are about.
and from there produced a name that seemed to capture their contents. The titles of the ten most central texts for each topic are presented in Table C-1 below and their content is available from the author upon request.

[TABLE C-1 ABOUT HERE]

Appendix D: Are differences in political valence between network topics statistically significant?

In Figures 5 and 6 of the main text, I show that political valence increasingly conformed to network structure. Throughout the discussion of the figures, I use the network clusters to understand how this polarization related to the broad topics and genres of the library’s collection. I assess the statistical significance of the overall network findings in Figure 7 of the main text. To justify the descriptions in the text, in this appendix, I also assess the statistical significance of the relationship between topics and political affiliation using two different methods.

Most simply, we can assess the mean and standard error of political valence for each topic and use that to both build confidence intervals around each topic’s mean and then assess whether the interval crosses zero or overlaps with the intervals of other topics. The results of doing so can be found in Figure D-1. They confirm that in the first period Federalists favored History & Biography, while Antifederalists favored Ancient Rome, and that the axis of cultural difference shifted, in the second period, to be being between Novels & Romances and Women, Letters, & Biography, on the one hand, and Religion, Moral Philosophy & Education, and Geography & Travel, on the other.

[FIGURE D-1 ABOUT HERE]

An alternative way to model the relationship between topic and political affiliation is using multinomial logistic regression. Multinomial logistic regression extends logistic regression to multi-class outcomes. Rather than estimating a single regression equation to predict a binary outcome, it runs $k-1$ regressions, where $k$ is the number of classes or choices in the outcome. A base class is selected and each
of the $k-1$ regressions models the odds a respondent will choose one of the other $k-1$ classes over the base class. It is therefore commonly used to model the option an actor will choose out of a set of potential other options.

Here, for each of the periods, I classify each of the books according to the semantic network cluster they are part of. I then model each reader’s reading as a function of their political affiliation. I performed these analyses using both a standard multinomial logistic regression model and a fractional multinomial model. The results are highly similar, both to each other and to the difference in means tests presented above. In the first period, Political Philosophy & Ancient Rome opposes History & Biography; in the second, Novels & Romances and Women, Letters, & Biography oppose Religion, Natural Philosophy, and Ancient Rome. The coefficients in Tables D-1 and D-2 come from the standard model.

[TABLES D-1 AND D-2 ABOUT HERE]

Appendix E: Robustness Checks

A number of robustness checks were undertaken to ensure the validity of the findings. The essential robustness checks are made available here. A set of more trivial checks – for example, ones that explore the relative power of similarity measures for detecting semantic, or ones that explore the effect of different text data munging routines, among others – are available from the author upon request.

The robustness checks in this appendix include: a comparison of possible measures of political valence, a verification that the results attained in the paper are not an artefact of the periodization of the data, a verification that results are robust to random miscoding of a proportion of the actors’ political affiliations, and a comparison of the results attained under the semantic network analysis to those attained under a standard topic modeling framework. All of these checks reveal the remarkable consistency of the findings, giving confidence in their validity.
I. Does using different measures of political valence affect the results?

To evaluate how choice in measure affected the assignment of political valence to books, I generated political valences using six different measures: correlation, logistic regression, chi-squared, Cramér’s V, a partial log-likelihood ratio measure outlined in Rayson and Garside (2000), and the \( G^2 \) statistic used in this paper. I then correlated the resulting political valences produced by each measure with those produced by every other measure. The correlation matrix is visualized in Figure E-1. At the book level, the results for all measures are very highly correlated, especially for \( G^2 \), correlation, Cramér’s V, and Chi-squared, signaling that the results are highly robust to measure choice.

[FIGURES E-1 ABOUT HERE]

II. Does breaking the second period into two sub-periods affect the results?

The second period, from 1799-1806, is twice as long as the first, from 1789-1792. There is consequently a large discrepancy in the number of checkouts covered by these periods – 24,348 in the first and 115,907 in the second. It is possible that the stronger degree of political difference in reading habits, found in the second period, is a function of the size of the data, which in turn provides a larger sample to identify patterns, rather than a function of polarization, per say. I therefore explore whether dividing the second period into two four-year periods affects the broader findings of the paper.

Plots E-2 visualizes the relationship between the semantic structure and political ideology in periods 1 and 2. It shows that the results are robust to periodization. Republicans and Federalists are polarized in their reading habits in both of subdivisions of the second period.

[FIGURE E-2 ABOUT HERE]
III. What if political affiliations were miscoded?

I next evaluated the robustness of the results to random error in the coding of political affiliation. This not only informs us of the robustness of the coding decisions, but also serves as a sensitivity analysis. I did so by taking X% of the politicians and randomly reassigning their political affiliation and then rerunning the results. After each run, I measured, the overlap between the semantic structure and political valence using the modularity-proportion measure outlined in the main text. I did this 100 times for five different randomization values – 5%, 25%, 50%, 75% and 100% – and visualized the results using a series of boxplots in Figure E-3.

[FIGURE E-3 ABOUT HERE]

The results show that the findings are remarkably robust to randomization of political affiliation. I would have to randomize somewhere between 25 to 50 percent of political affiliations for period two (1799-1806) to no longer be significantly different in reading polarization from period one (1789-1792).

IV. What if topic modeling were used instead of semantic network analysis?

To validate the semantic network method, I topic modeled the textual content of all books checked out during this period. Topic modeling endogenously identifies interpretable higher-level units of meaning within texts and to cluster texts in a reduced multidimensional space that succinctly summarizes their contents. Here, I describe only the basics of the method and its underlying intuition – formal treatments of topic modeling can be found in Blei et al. (2001) and Jockers and Mimno (2014). Topic modelling treats documents as combinations of a limited set of topics, the number of which is either defined by the user or optimized according to some set of criteria. Upon encountering a text, an analyst can easily count the frequency with which words appear in that text, but its many possible topics, i.e. whether it is about politics or economics or both, are not expressly given. That is to say, topics, which the method conceives of as
likelihood distribution of words, are latent and the goal is to learn them for each text through some statistical and computational process. Rather than characterizing texts by their word distributions, which becomes unwieldy when the number of words in the corpus exceeds a few hundred, topic modeling allows one to characterize texts using a much smaller set of latent features. Topic modeling therefore attempts to learn, using the distribution of words for a set of texts, the topics that generated their content by estimating jointly the distribution of word likelihoods in topics and topic likelihood distribution in documents.

Topic modeling identifies latent topics in a corpus of texts, which can then be used as interpretable and simplified representations of their content. The topic modeler chooses at the outset the number of topics to be discovered; selecting a different number of topics can return a very different result. I explored topic number and model fit in depth and settled on 100 topics as the best fit model for the data. I then extracted the top 30 words most associated with each topic and used those results to name topics according to the apparent theme or genre the are putatively gauging. The results in Figure E-4 show the topics that Federalists and Republicans were most likely to read, again using G^2 to evaluate political differences in reading. The number of topics is much larger than the number of clusters in the network; however, the broad contours of reading appear unchanged.

[FIGURE E-4 ABOUT HERE]

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23 Some topic modelers divide novels and longer texts into segments (chapters or paragraphs or arbitrary divisions) and run topic models on those segments. This allows for finer grained representations of books and how their themes evolve over the course of a text. There is no general rule for the best size of segmentation and choosing the ideal size is somewhat of an art, often involving ad hoc assumptions as to the length which captures meaningful variation in the text. To avoid such assumptions, and to preserve very general divisions in the kinds of texts available in the library, I opt to model entire books as opposed to segments. The topics that emerge represent something akin to genre, giving us a general idea of the kinds of books available in the library.
Appendix F: Identifying Eastern vs. Western Merchants

The titles of travel books communicate both the form of travel (voyage vs. tour vs. travel) and the destination of travel (Europe, Asia, Africa, West Indies). As the semantic graph in Figure F-1 reveals, travel terminology is highly concordant with destination – European people did not “voyage” to Europe, just as they did not “tour” the West Indies. I can therefore segment the travel literature book market into two different components – those concerning Europe and those concerning exotic locales beyond European shores – using just three terms: travel, voyage, when the locations are in the East, and tour when they are in Europe. By extension, I can segment travel book readers, who were disproportionately members of the merchant class, by the kind of travel literature – i.e. whether it concerned voyages, travels or tours – they most frequently read. I found that this produces a crisp partition between members of the merchant class. I then evaluated how this partition in reading related to their trading behavior, that is, whether readers of voyage literature were more likely to have stakes Asia, while readers of tour literature were more likely to have stakes in Europe, for the few prominent merchants whose trading patterns are well-documented. Although then N is very small, no more than a dozen merchants, I found that reading about voyages precisely signaled commercial stakes in the Far East. I therefore extrapolate to the entire merchant sample, classifying “voyage” readers as “Eastern merchants” and “tour” readers as “Western merchants”.

[FIGURE G-1 ABOUT HERE]
Table A-1. Proportion of people in each demographic category in each period

<table>
<thead>
<tr>
<th>Demographic Group</th>
<th>1789-1792</th>
<th>1799-1806</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federalist</td>
<td>0.24</td>
<td>0.15</td>
</tr>
<tr>
<td>Antifederalist</td>
<td>0.12</td>
<td>0.12</td>
</tr>
<tr>
<td>Founding Father</td>
<td>0.06</td>
<td>0.02</td>
</tr>
<tr>
<td>Congressman</td>
<td>0.05</td>
<td>0.02</td>
</tr>
<tr>
<td>Woman</td>
<td>0.03</td>
<td>0.04</td>
</tr>
<tr>
<td>Commerce</td>
<td>0.45</td>
<td>0.30</td>
</tr>
<tr>
<td>Artisan</td>
<td>0.02</td>
<td>0.03</td>
</tr>
<tr>
<td>Arts and Letters</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Law</td>
<td>0.15</td>
<td>0.10</td>
</tr>
<tr>
<td>Medicine</td>
<td>0.06</td>
<td>0.04</td>
</tr>
<tr>
<td>Slave Owner</td>
<td>0.52</td>
<td>0.30</td>
</tr>
<tr>
<td>Society of the Cincinnati</td>
<td>0.07</td>
<td>0.03</td>
</tr>
<tr>
<td>Tammany Society</td>
<td>0.08</td>
<td>0.09</td>
</tr>
<tr>
<td>Shareholder</td>
<td>0.10</td>
<td>0.09</td>
</tr>
<tr>
<td>Eastern Merchant</td>
<td>0.14</td>
<td>0.11</td>
</tr>
<tr>
<td>Western Merchant</td>
<td>0.16</td>
<td>0.11</td>
</tr>
<tr>
<td>N</td>
<td>476</td>
<td>809</td>
</tr>
</tbody>
</table>
Figure B-1: The original library members and newcomers both exhibited polarized reading habits above and beyond what we would expect by chance.

Table C-1: Top ten most central titles to every topic

<table>
<thead>
<tr>
<th>Topic Name</th>
<th>1789-1792</th>
<th>1799-1806</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Books</strong></td>
<td><strong>Book</strong></td>
</tr>
<tr>
<td><strong>Natural Philosophy</strong></td>
<td>1. <em>Cyclopaedia</em> or an universal dictionary of arts and sciences</td>
<td>1. The farmer’s calendar</td>
</tr>
<tr>
<td></td>
<td>2. Ferguson’s lectures on select subjects in mathematics</td>
<td>2. Letters and papers on agriculture and planting</td>
</tr>
<tr>
<td></td>
<td>3. The school of arts or an introduction to useful knowledge</td>
<td>4. The modern improvements in agriculture</td>
</tr>
<tr>
<td></td>
<td>4. A view of Isaac Newton’s philosophy</td>
<td>5. Annals of agriculture and other useful arts</td>
</tr>
<tr>
<td></td>
<td>5. A plain and familiar introduction to the Newtonian philosophy</td>
<td>6. Museum rusticum et commerciale or select papers on agriculture, commerce, arts and manufacture</td>
</tr>
<tr>
<td></td>
<td>6. A course of lectures in natural philosophy</td>
<td>7. The agricultural magazine</td>
</tr>
<tr>
<td></td>
<td>7. The chemistry of Gilbert</td>
<td>8. A synopsis of husbandry being cursory observations in the several branches of rural economy</td>
</tr>
<tr>
<td></td>
<td>8. An essay towards a system of mineralogy</td>
<td>9. A new system of husbandry from experiments never before made public</td>
</tr>
<tr>
<td></td>
<td>9. The gentleman farmer being an attempt to improve agriculture</td>
<td>10. The gentleman farmer being an attempt to improve agriculture</td>
</tr>
<tr>
<td><strong>Agriculture &amp; Country</strong></td>
<td>1. <em>The complete English farmer or a practical system of husbandry</em></td>
<td><strong>Ancient Rome</strong></td>
</tr>
<tr>
<td></td>
<td>2. <em>The modern improvements in agriculture</em></td>
<td>1. The history of Rome from the Foundation of the City by Romulus the Death of Marcus Antonius</td>
</tr>
<tr>
<td></td>
<td>3. The gentleman farmer being an attempt to improve agriculture</td>
<td>2. The history of the progress and termination of the Roman republic</td>
</tr>
<tr>
<td></td>
<td>4. Rural economy or essays on the practical parts of husbandry</td>
<td>3. The lives of the first twelve Caesars</td>
</tr>
<tr>
<td></td>
<td>5. A six months tour through the north of England</td>
<td>4. The method of teaching and studying the belles lettres</td>
</tr>
<tr>
<td></td>
<td>6. Minutes of agriculture made on a farm of 300 acres of various soils near Coweyton Surrey</td>
<td>5. An universal history from the earliest account of time</td>
</tr>
<tr>
<td></td>
<td>8. A six weeks tour through the southern counties of England and Wales</td>
<td>7. The history of the revolutions that happened in the government of the Roman republic</td>
</tr>
<tr>
<td></td>
<td>9. The farmer’s guide in hiring and stocking farms</td>
<td>8. The history of the Arts and Sciences of the Ancients</td>
</tr>
<tr>
<td></td>
<td>10. Essays relating to agriculture and rent affairs</td>
<td>9. The select orations of Marcus Tullius Cicero</td>
</tr>
<tr>
<td><strong>Geography &amp; Commerce</strong></td>
<td>1. A new geographical commercial and historical grammar</td>
<td><strong>British &amp; French History</strong></td>
</tr>
<tr>
<td></td>
<td>2. The annual register or a view of the history polities and literature for the year</td>
<td>1. The history of France from the earliest times till the death of Louis Sixteenth</td>
</tr>
<tr>
<td></td>
<td>3. Nova quaternion trige isin triumphus Bibliothecae</td>
<td>2. The history of modern Europe</td>
</tr>
<tr>
<td></td>
<td>4. A view of the history of Great Britain during the administration of Lord North</td>
<td>3. History of Great Britain from the Revolution to the accession of the House of Hanover</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. Montesquieu’s History of his own time</td>
</tr>
<tr>
<td>French Language</td>
<td>French Language</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
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<td></td>
</tr>
<tr>
<td>1. Manners of the French</td>
<td>1. Delphine, Madame de Stael</td>
<td></td>
</tr>
<tr>
<td>2. The works of Diderot</td>
<td>2. Paul et Virginie</td>
<td></td>
</tr>
<tr>
<td>3. Fables amusantes</td>
<td>3. Les aventures de Télémaque</td>
<td></td>
</tr>
<tr>
<td>4. Les aventures de Télémaque</td>
<td>4. The student of nature</td>
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</tr>
<tr>
<td>5. Gil Blas</td>
<td>5. Manners of the French</td>
<td></td>
</tr>
<tr>
<td>6. Contes de fées et de vers</td>
<td>6. The works of Molière</td>
<td></td>
</tr>
<tr>
<td>7. Short stories of de la Fervaile</td>
<td>7. Édouard de la torture</td>
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<tr>
<td>8. Oeuvres de Mme Scarron</td>
<td>8. La comte de Saint Miran</td>
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</tr>
<tr>
<td>9. Le pacifique paru sous le pseudonyme de madame la Marquise</td>
<td>9. Vattel</td>
<td></td>
</tr>
<tr>
<td>10. Les JEUNES AMUSANTS dédiés au roi</td>
<td>10. Fables amusantes</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td>Geography &amp; Travel</td>
<td></td>
</tr>
<tr>
<td>1. A Christian directory, guiding men to their eternal salvation</td>
<td>1. A new system of modern geography</td>
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<tr>
<td>2. Sermons by the late Reverend George Curr</td>
<td>2. Universal geography formed into a new and entire system</td>
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<tr>
<td>3. The works of the Reverend John Witherspoon</td>
<td>3. The American universal geography</td>
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<tr>
<td>4. Sermons on practical subjects</td>
<td>4. The new universal traveller</td>
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<tr>
<td>5. Expository notes with practical observations upon the New Testament of our Lord and Saviour Jesus Christ</td>
<td>5. Navigation atique et navigation de commerce</td>
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</tr>
<tr>
<td>7. The American preacher or a collection of sermons from some of the most eminent preachers</td>
<td>7. Travels through Turkey in Asia and the Holy Land and Arabia and Egypt and other parts of the world</td>
<td></td>
</tr>
<tr>
<td>8. The works of the late Reverend James Harvey</td>
<td>8. History and present state of all peoples</td>
<td></td>
</tr>
<tr>
<td>9. A collection of the letters of the late Reverend James Harvey</td>
<td>9. Travels in the two Sicilies</td>
<td></td>
</tr>
<tr>
<td>10. Rise and progress of religion in the soul</td>
<td>10. The law of bills of exchange</td>
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</tr>
<tr>
<td>Novels &amp; Romances</td>
<td>Law</td>
<td></td>
</tr>
<tr>
<td>2. Manners of Miss Sidney Randolph</td>
<td>2. Reports of cases adjudged in the Superior Court of the state of Connecticut</td>
<td></td>
</tr>
<tr>
<td>3. Female stability or the history of Miss Belville</td>
<td>3. An introduction to the law relative to banks</td>
<td></td>
</tr>
<tr>
<td>4. Celestina, a novel</td>
<td>4. Every man his own lawyer</td>
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<tr>
<td>5. The Sylph, a novel</td>
<td>5. A new institutes of the imperial or civil law</td>
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<tr>
<td>6. Zoraida or village annals</td>
<td>6. The painter’s guide: a didactic poem</td>
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<tr>
<td>7. Letters from Jullf Lady Cattyby to her friend Lady Hirstiriis</td>
<td>7. History of the English law</td>
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<tr>
<td>9. Aros</td>
<td>9. The Fredericksen code or a body of law for the dominions of the king</td>
<td></td>
</tr>
<tr>
<td>10. Moral tales of Marmentol</td>
<td>10. The law of bills of exchange</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poetry</td>
<td>Moral Philosophy &amp; Education</td>
<td></td>
</tr>
<tr>
<td>1. The speaker, or, miscellaneous pieces selected from the best English writers</td>
<td>1. Memoirs of science and the arts</td>
<td></td>
</tr>
<tr>
<td>2. Miscellaneous poems containing variety of new translations of the ancient poets</td>
<td>2. The elements of natural or experimental philosophy</td>
<td></td>
</tr>
<tr>
<td>3. Trifles by Robert Dodsley</td>
<td>3. Cyclopedia, or, an universal dictionary of arts and sciences</td>
<td></td>
</tr>
<tr>
<td>5. The lady’s poetical magazine or gazette of British poetry</td>
<td>5. Institutes of natural philosophy</td>
<td></td>
</tr>
<tr>
<td>6. The Beauties of Pepys</td>
<td>6. A view of Isaac Newton’s philosophy</td>
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</tr>
<tr>
<td>7. The works of Alexander Pope</td>
<td>7. History of the progress and present state of animal chemistry</td>
<td></td>
</tr>
<tr>
<td>8. Complete poems of Francis Thomson</td>
<td>8. The chemistry of Gilbert</td>
<td></td>
</tr>
<tr>
<td>9. The poems of Philip Freneau</td>
<td>9. Elements of chemistry</td>
<td></td>
</tr>
<tr>
<td>10. The works of Richard Savage Esq.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>History &amp; Biography</td>
<td>Natural Philosophy</td>
<td></td>
</tr>
<tr>
<td>1. Biographia Britannica or the lives of the most eminent persons</td>
<td>1. Colonia, a novel</td>
<td></td>
</tr>
<tr>
<td>2. The history of modern Europe</td>
<td>2. The fair Hebrew</td>
<td></td>
</tr>
<tr>
<td>3. The history of England by David Hume</td>
<td>3. Hamlet, or, the orphan sister</td>
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<tr>
<td>4. An historical and critical account of the life of Oliver Cromwell</td>
<td>4. The children of the abbey</td>
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<tr>
<td>5. Political magazine and parliamentary naval military and literary journal</td>
<td>5. A tale of the times</td>
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</tr>
<tr>
<td>6. The life and character of the most illustrious persons British and foreign</td>
<td>6. The officer’s tale</td>
<td></td>
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<tr>
<td>7. A collection of scarce and valuable tracts on the most interesting and entertaining subjects</td>
<td>7. Women as they are</td>
<td></td>
</tr>
<tr>
<td>8. The Frenchian miscellany</td>
<td>8. The house of Tyrone</td>
<td></td>
</tr>
<tr>
<td>10. History of my own time</td>
<td>10. The advantages of education, or, the history of Maria Williams</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Periodicals &amp; Works</td>
<td>Poetry</td>
<td></td>
</tr>
<tr>
<td>1. The New York Magazine</td>
<td>1. The speaker, or, miscellaneous pieces selected from the best English writers</td>
<td></td>
</tr>
<tr>
<td>2. Harriot’s British classics</td>
<td>2. The lady’s practical magazine</td>
<td></td>
</tr>
<tr>
<td>3. The London magazine or, gentleman’s monthly intelligence</td>
<td>3. Principles of elocution</td>
<td></td>
</tr>
<tr>
<td>4. The Beauties of history or Pictures of virtue and vice drawn from real life</td>
<td>4. Telfry by Robert Dodsley</td>
<td></td>
</tr>
<tr>
<td>5. The lady’s magazine or entertaining companion for the fair sex</td>
<td>5. A collection of poems in six volumes</td>
<td></td>
</tr>
<tr>
<td>6. The matrimonial preceptor a collection of examples and precepts</td>
<td>6. Miscellaneous poems</td>
<td></td>
</tr>
<tr>
<td>7. The works of Mr. Thomas Brown serious and comical</td>
<td>7. The British almanac, containing the poems of Della Crusca</td>
<td></td>
</tr>
<tr>
<td>8. The labours of Isaac Bickerstaff</td>
<td>8. The new founding hospital for sick</td>
<td></td>
</tr>
<tr>
<td>9. The rev. a magazine or library of Morals</td>
<td>9. The works of Alexander Pope</td>
<td></td>
</tr>
<tr>
<td>10. Emulius or an essay on education</td>
<td>10. American poems, selected and original</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Political philosophy &amp; Ancient Rome</td>
<td>Religion</td>
<td></td>
</tr>
<tr>
<td>1. The Roman history from the foundation of the city of Rome to the destruction of the Western empire</td>
<td>1. A paraphrase and comment upon the epistles and gospels</td>
<td></td>
</tr>
<tr>
<td>3. An universal history from the earliest account of time</td>
<td>3. Sermons on practical subjects</td>
<td></td>
</tr>
<tr>
<td>4. A defence of the constitutions of government of the United States of America</td>
<td>4. An examination of a book intitled the true gospel of Jesus Christ ascertained</td>
<td></td>
</tr>
<tr>
<td>5. The constitution of England</td>
<td>5. Christianity as old as the creation</td>
<td></td>
</tr>
<tr>
<td>6. Reflections on the revolution in France</td>
<td>7. The American preacher or a collection of sermons from some of the most eminent preachers</td>
<td></td>
</tr>
<tr>
<td>7. Reflections on the rise and fall of the ancient republics</td>
<td>8. Eleven select sermons</td>
<td></td>
</tr>
<tr>
<td>8. The history of the progress and termination of the Roman republic</td>
<td>9. No cross, no crown</td>
<td></td>
</tr>
<tr>
<td>9. The rise and progress of religion in the soul</td>
<td>10. A Christian directory, guiding men to their eternal salvation</td>
<td></td>
</tr>
<tr>
<td>10. History of my own time</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure D-1: Mean Valence by Topic for each period

<table>
<thead>
<tr>
<th>1789-1792</th>
<th>1799-1806</th>
</tr>
</thead>
<tbody>
<tr>
<td>History &amp; Biography</td>
<td>Religion</td>
</tr>
<tr>
<td>Natural Philosophy</td>
<td>Moral Philosophy &amp; Education</td>
</tr>
<tr>
<td>Geography &amp; Commerce</td>
<td>French Language</td>
</tr>
<tr>
<td>Periodicals &amp; Works</td>
<td>Natural Philosophy</td>
</tr>
<tr>
<td>Religion</td>
<td>Geography &amp; Travel</td>
</tr>
<tr>
<td>Novels &amp; Romances</td>
<td>Poetry</td>
</tr>
<tr>
<td>Poetry</td>
<td>Ancient Rome</td>
</tr>
<tr>
<td>French Language</td>
<td>Works, Reviews, &amp; Periodicals</td>
</tr>
<tr>
<td>Agriculture &amp; Countryside</td>
<td>British &amp; French History</td>
</tr>
<tr>
<td>Political Philosophy &amp; Ancient Rome</td>
<td>Agriculture</td>
</tr>
</tbody>
</table>

Women, Letters, & Biography

1. Female biography or memoirs of illustrious and celebrated women
2. The rival mothers or Calumny
3. Letters from Lord Rivers to Sir Charles Cardigan
4. Letters from the marquise of Sevigne to her daughter the countess of Grigny
5. Adelaide and Theodore or letters to education
6. Eccentric biography or memoirs of remarkable characters, ancient and modern
7. Lessons of a governess to her pupils
8. Memoirs of a baroness
9. Women their condition and influence in society
10. The fortunate country maid

Works, Reviews and Periodicals

1. The New York Magazine
2. Harrison’s British classics
3. The Edinburgh repository for polite literature
4. The annual review of history and literature
5. Winter evenings, or incursions on life and letters
6. The microcosm, or a peripatetic work
7. The monthly anthology and Boston review
8. The London magazine or, gentleman’s monthly intelligence
9. The works of Arthur Murphy
10. The critical review, or, annals of literature
### Table D-1: Grouped Multinomial Logistic Regression Results, Period 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1789-1792</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td>0.52**</td>
<td>0.17</td>
</tr>
<tr>
<td>History &amp; Biography</td>
<td>0.35***</td>
<td>0.09</td>
</tr>
<tr>
<td>Periodicals &amp; Works</td>
<td>0.19*</td>
<td>0.08</td>
</tr>
<tr>
<td>Natural Philosophy</td>
<td>0.11</td>
<td>0.14</td>
</tr>
<tr>
<td>Geography &amp; Commerce</td>
<td>0.01</td>
<td>0.07</td>
</tr>
<tr>
<td>Novels &amp; Romances (base outcome)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>French Language</td>
<td>-0.13</td>
<td>0.15</td>
</tr>
<tr>
<td>Poetry</td>
<td>-0.16</td>
<td>0.11</td>
</tr>
<tr>
<td>Agriculture &amp; Countryside</td>
<td>-0.23</td>
<td>0.27</td>
</tr>
<tr>
<td>Political Philosophy &amp; Ancient Rome</td>
<td>-0.39***</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Note: *p<0.05; **p<0.01; ***p<0.001

### Table D-2: Grouped Multinomial Logistic Regression Results, Period 2

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<thead>
<tr>
<th>Variable</th>
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<tbody>
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<td>1799-1806</td>
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<td></td>
</tr>
<tr>
<td>Ancient Rome</td>
<td>0.37***</td>
<td>0.09</td>
</tr>
<tr>
<td>Religion</td>
<td>0.29***</td>
<td>0.09</td>
</tr>
<tr>
<td>Natural Philosophy</td>
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<td>0.11</td>
</tr>
<tr>
<td>French Language</td>
<td>0.18</td>
<td>0.11</td>
</tr>
<tr>
<td>Geography &amp; Travel</td>
<td>0.13*</td>
<td>0.06</td>
</tr>
<tr>
<td>Moral Philosophy &amp; Education</td>
<td>0.13</td>
<td>0.14</td>
</tr>
<tr>
<td>Works, Reviews, &amp; Periodicals</td>
<td>0.07</td>
<td>0.06</td>
</tr>
<tr>
<td>Poetry</td>
<td>0.05</td>
<td>0.06</td>
</tr>
<tr>
<td>British &amp; French History (base outcome)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Novels &amp; Romances</td>
<td>-0.29***</td>
<td>0.05</td>
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<tr>
<td>Agriculture</td>
<td>-0.35*</td>
<td>0.16</td>
</tr>
<tr>
<td>Women, Letters, &amp; Biography</td>
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</tr>
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<td>Law</td>
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<td>0.35</td>
</tr>
</tbody>
</table>

Note: *p<0.05; **p<0.01; ***p<0.001
Figure E-1: Matrix of correlations between political valences produced by six different measures

Figure E-2: The results are unaffected by a different periodization.

1799-1802

1802-1806
Figure E-3: The results are robust to the miscoding of political affiliation.
Figure E-4: Significant Topics from topic modeling by party accord with semantic network findings.
Figure F-1: Eastern and Western mercantile interests can be differentiated using three travel words.