

Black Boxes as Capacities for and Constraints on Action: Electoral Politics, Journalism, and Devices of Representation

C. W. Anderson · Daniel Kreiss

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Abstract Actor-Network Theory, as a theoretical and methodological approach, is particularly insightful when applied to domains of social activity that are in flux, thus making it particularly useful for ethnographic research about unsettled socio-technical systems. Drawing from field research conducted over the last decade, this paper presents two empirical cases that reveal how ANT enables researchers to trace the associations that form the socio-technical objects of political and journalistic practice. We focus on “black-boxed” technical objects, exploring two distinct, yet complementary, analytical moments that emerged during our respective fieldwork. First, we detail the work that an electoral map performs in stabilizing networks of political representation and creating new capacities to act. We then go inside a journalistic organization to reveal a moment of breakdown when the black box of a content management system unravels and fails to do what it is seemingly supposed to do, throwing news production into a tenuous state. The paper concludes by interrogating our empirical findings through the lens of cultural practices, highlighting a few ways sociologists might need to supplement ANT-analysis with a more robust understanding of culture and symbolic belief systems.

Keywords Actor-Network Theory · Black-boxes · Campaigns · Communications · Ethnography · Journalism · Politics · Social theory · Technology

Introduction

In *Reassembling the Social*, Latour (2006) tells the story of Alice, a French citizen who reads the newspaper over breakfast before going into a voting booth and casting her vote for

C. W. Anderson (✉)

Department of Media Culture, College of Staten Island, Building 1P, 2800 Victory Boulevard,
Staten Island, NY 10314, USA
e-mail: heychanderson@gmail.com

D. Kreiss

School of Journalism and Mass Communication, University of North Carolina-Chapel Hill,
Chapel Hill, NC, USA
e-mail: dkreiss@email.unc.edu

president. That evening on television Alice's vote, aggregated with those of millions of other citizens, appears as a pie chart a few centimeters wide that stands in for the whole of France. For Latour, Alice's story of the newspaper and voting booth, the paper ballot and the box into which it is deposited, the tally that the individual vote becomes in tandem with other votes, and the news program that presents the results, reveals how information goes through "massive transformations without deformation" (223). This network of circulation, Latour argues, assembles France and holds it together as a nation.

This particular network has undergone significant and rapid technical, organizational, and economic changes over the last two decades. Today, if Alice were in the United States, she would likely be encountering election information from friends, journalists, and campaigns through social media on mobile applications, casting her vote on a touch screen, and watching her vote assemble with the rest of the nation in returns displayed on interactive maps on newspaper websites. Despite these sweeping technological, social, and cultural changes, however, detailed empirical studies of these political and journalistic actors as they are in-the-world have been few and far between. Much scholarly analysis of politics and journalism continues to view the objects through which Alice votes or consumes political news as the passive background context to the "real" political or communicative action occurring elsewhere.

In contrast, this paper argues that to act politically and understand the nature of citizenship and publics requires accounting for the socio-technical hybrids that mediate political representation in highly consequential and largely under-appreciated ways. Ballots, voting machines, census tracts, and the maps that gather and stabilize their work and enroll them in new networks make certain forms of political representation durable. Even more, these artifacts are performative, shaping the routine ways that citizens enact democratic processes. Meanwhile, journalistic technologies shape the work of and capacities for creating, addressing, and representing publics. Actors seek to enroll everything from printing presses and content management systems in larger networks, or decouple them from existing associations, with great consequence for the content produced for democratic citizens, their capacities for political voice, and the nature of participation in publics. Journalism, like politics, can be read in this vein as something that gathers, represents, and enacts a particular version of the social, an assemblage indebted to material artifacts, organizational work routines, and cultural understandings of which public representations matter and why.

This paper traces the socio-technical networks that assemble the polity and represent the public in our historical moment. In doing so, we not only counter the tendency to treat socio-technical devices as background context, we reveal the manner in which these objects *both facilitate and constrain particular practices and conceptions of politics*. We accomplish this by drawing on our respective ethnographic work conducted over the last decade in the domains of electoral politics (Kreiss 2012) and journalism (Anderson 2013). We show how Actor-Network Theory (ANT) and its principle of symmetry between the human and the nonhuman and attention to the work of assembling and disassembling can help ethnographers disclose the socio-technical processes that structure political power. ANT offers a set of conceptual tools for both analyzing the socio-technical actors that enact democratic processes and considering their normative implications.

At the same time, we argue that ethnographers can bring questions of culture to the fore in the study of socio-technical actants and their networks of associations. The role of culture in ANT is unsettled, despite the attention paid to it in other branches of Science and Technology Studies (STS) and in qualitative sociology more generally. Scholars utilizing ANT have focused their analyses on the processes of crafting actor-networks and the role of non-humans in social life, while often assuming narrowly instrumental action (for what is often taken as the epitome of a Machiavellian instrumental analysis, see for example Latour

1993). These approaches have generally been silent about the cultural presuppositions, values, and rationales according to which action is made worthwhile and directed towards particular normative ends. We argue for the need to couple the rich analysis of heterogeneous actants and associations with Michael Schudson's (2001) methodological advice to view "politics as a cultural practice." For Schudson, a scholar of political communication, "politics is a set of symbols, meanings, and enacted rituals" that are historically variable (423). At the same time, it is a practice that encompasses "technology, knowledge, and the skills used to apply it in particular settings" (423). To privilege looking at networks of associations is to elide, or at the very least de-emphasize, the historically and culturally contingent meanings of citizenship for the actors involved, the shifting cultural styles through which attachment to the polity is expressed, the meanings and ends of political and journalistic work, and finally the legitimacy of particular political practices.

Our case studies show how cultural conceptions of good citizenship and journalism can exist prior to the building of artifacts and networks. As we open the black box of a political map, we detail moments when reformers created new artifacts to create new kinds of citizens that fit with their cultural ideas about democracy and political representation. We show how actors created rival content management systems to settle debates about good journalism, the appropriate scale of publics, and corporate centralization. At the same time, technologies are not only society made durable (Latour 1991)—they are rationales, understandings, values, and beliefs made durable. We detail how political maps, by making certain forms of action more likely, socialize political actors into their particular cultural understandings of citizenship, and content management systems give rise to particular rationales for representing and participating in publics.

This paper proceeds in three parts. We begin by discussing some of Actor-Network Theory's key conceptual tools and detail how they apply to the study of politics and journalism. We then present two detailed case studies that illustrate how ANT afforded the tracing of associations in electoral politics and journalism. We focus here on the Janus-face (Latour 1987) of the "black-boxed" technical object, exploring two distinct, yet complementary, analytical moments that emerged during our respective fieldwork. First, we detail the work that an electoral map—a mundane, black-boxed political object—performs in stabilizing networks of political representation and engendering particular capacities to act. We then go inside a journalistic organization to reveal a moment of breakdown when the black box of a content management system unravels and fails to do what it is seemingly supposed to do, throwing journalistic production into a tenuous state. Finally, we return to a discussion of culture in ANT analysis and address the democratic implications of the black-boxing processes presented here.

Actor-Network Theory: A Conceptual Toolkit and the Question of Culture

While we lack the space to provide a full catalog of the ANT conceptual tools we draw on here, it is worth discussing the meaning of the terms *actants*, *networks*, *mediators*, and *black boxes*, as well as the importance of these concepts within ANT-inspired theory and research. This conceptual orientation, in turn, helps illuminate our argument about how ANT provides an analytical lens to view the socio-technical networks that constitute contemporary forms of political representation. Here we write from the perspective of what these conceptual tools offer ethnographers as a lens for observation.

Actor-Network Theory is concerned with the ongoing *process of becoming groups and objects* that act in the world, otherwise known as *actants*. In an ANT-informed ethnography, these "things that exist" (Latour et al. 2010) are not limited, a priori, to human beings. To take an example from our own work, actants include maps and content management systems. These associations and objects are enrolled in and stabilize larger networks of actors. In ANT, *network*

refers to the “work” through which actors draw the “nets” by which associations themselves are built and made durable. These networks are constituted through dynamic processes of translation, as *mediators* reshape, and transform these processes. Socio-technical objects that simply transmit this work and meaning from one network to another without change, on the other hand, are referred to as “intermediaries.” Black boxes are networks that have been stabilized to such a degree that they appear solid and thus act as intermediaries. As black boxes, most objects, concepts, and organizations are experienced in everyday life as holistic, unified actors (for a review of ANT’s key concepts, see Harman 2009).

Ethnographic observation sensitive to ANT would examine the processes through which actants construct and work to stabilize the world, black-boxing various objects in their creation of networks, and detail what happens when they fail. As Asdal (2012) has argued, while much contemporary ANT work features presentist accounts, ANT can be used to open up the networks that produce the context that many social scientists proceed from in their analysis.

To date, ANT has been generally absent from the literature on institutional politics, with a few noteworthy exceptions (see Barry 2001; Nielsen 2012), despite Latour’s own corpus of work (see Latour 2005). Much work within sociology, political science, and communication focuses on the *outcomes* of political networks rather than asking what makes the polity hang together in particular ways. Meanwhile, even as scholars have imported a range of Science and Technology Studies perspectives into communication research (Boczkowski 2004; Lievrouw and Livingstone 2006; Turner 2005a, b), we show how ethnographic research on newsrooms can benefit from a specifically ANT-inspired approach (see also Hemmingway and van Loon 2011; Weiss and Domingo 2010).

To show an ANT conceptual lens at work, we present two cases. The analysis of political maps is drawn from the second author’s fieldwork during the 2008 presidential primaries and general election. During the 2008 presidential primaries and general election, the second author conducted hundreds of hours of participant observation over months spent as a precinct captain in San Francisco, California, and weeks as a virtual precinct captain of a district in Laredo, Texas, and a field volunteer in Reno, Nevada. In addition, the second author conducted semi-structured interviews with over 60 campaigners active over three presidential election cycles.

The second case goes inside a journalistic organization to reveal the other side of Latour’s Janus-face, a moment of breakdown, when the black box of a content management system breaks down. We provide an ethnographic account drawn from the first author’s six months spent inside three Philadelphia newsrooms, and a longer period of five years spent conducting qualitative research and fieldwork across the Philadelphia media ecosystem as a whole. In sum, this entailed over 300 hours of newsroom specific fieldwork, along with more than 60 semi-structured interviews with journalists, editors, activists, bloggers, and media executives (for more details see Anderson 2013). The first author conducted follow-up research and secondary site visits from the fall of 2008 until 2010 and, specifically for the purposes of completing this paper, returned to the field in January 2012 to conduct six additional semi-structured interviews.

We paired our ethnographic cases on electoral politics and journalism because, quite apart from the democratic import of these field sites, they offered us an opportunity to explore the Janus-face of Latour’s black boxes, enabling us to look simultaneously at a stabilized political object and the ways that objects can become unraveled. These cases illustrate how adopting ANT’s conceptual lens illuminates the contemporary workings of core democratic processes in qualitatively new and powerful ways. That said, ANT is not without its limitations. In detailing these two cases, we seek to do more than simply appropriate the conceptual terms of ANT and apply them to particular empirical situations.

Does ANT, and Latour's body of work more specifically, have a theory of culture that might constitute a useful tool for field researchers? They do, but this theory is complicated by the fact that ANT is both the product of many minds and hands (Callon et al. 1986) and that Latour uses many different definitions, categories, and concepts in works developed over a 30 year period (compare, for example, Latour 1999 and Latour 2004; for a discussion see Bennett 2007a, 2007b; Brennen 2013). All theories change, of course, but ANT is particularly problematic insofar as it has deliberately adopted a confrontational attitude toward "traditional" sociology in general and what Latour sees as reified categories (such as "class," "culture," and the "state") in particular. Nevertheless, part of ANT's value lies in the fact that it is a *materio-semiotic* method that does not dismiss the importance of cultural symbols inasmuch as it argues that culture can only be understood as the continually generated and circulated hybrid of human and nonhuman interaction (Latour 1987). Culture for ANT is a performative outcome—one that has to be continually regenerated and renewed (for a discussion see Harman 2009).

We embrace Latour's argument that cultural meanings are embedded in objects and the networked relations they are a part of. However, we believe that ANT does not have a good answer to the question of what surrounds, lies in-between, motivates, and inspires the constantly acting, enrolling, and delegating actants (Callon 1991) that make society. Or, at the very least, it is a matter of emphasis. What place in ANT is there for questions about the thick belief systems, cultural webs, cultural structures (Alexander et al. 2006), practices, and institutions that shape, interact with, constrain, arise from, and legitimate the very types of networks that get built? And what questions can ANT ask regarding the ends towards which these networks are built? Other accounts of culture that encompass the meanings, values, rationales, and beliefs that are in people's heads and their practices, norms, and rituals are valuable precisely for getting at why people, acting as individuals or collectives, strive to build particular objects and networks to accomplish certain things—or at the very least explaining the particular accounts they provide of their actions.¹ The classic approach of ethnographers is to get close to the stories people tell themselves to make life meaningful and worth living, and the values that shape the ends of social action. While this approach may violate Latour's democracy of objects by privileging the accounts of humans, we hope that the empirical material presented below will show how the cultural objects of analysis typically developed by ethnographic researchers can provide a thicker view of social action than ANT alone.

The Actor-Network of the Political Map

Saturday, October 25th

Ian and I arrived at the Reno field office at 8:15 am. The office is in a stand-alone building just outside of what I take to be the city center, an abandoned lot next door to the right. The office looked much like the offices in San Francisco and Oakland—Obama posters and homemade supporter signs plastered everywhere on the glass doors leading inside and inside on the windows and walls. There were some desks with laptops, a bank of phones, and metal folding chairs. The people sitting behind the laptops appear to be staffers—about a dozen early 20-somethings, white, black, and latino, mostly men. In the back was a cavernous room with cardboard boxes piled high with Obama gear: lawn signs, car decals, rolled up posters. Volunteer clipboards were

¹ The very definition of culture and its causal capacities is still the subject of active debate within sociology and psychology. For an excellent recent review of these debates see Vaisey 2009.

stacked awkwardly around a small table in the middle of the room with a laptop on top. A large map of Reno and the surrounding neighborhoods hung on the left wall over the boxes. I talked to the tall, mid-20s, male staffer who was arranging “literature” (glossy color tri-folded brochures and stiff door hangers informing residents a volunteer came by) for the day’s canvasses. A two-person team, man and woman (older, maybe mid-40s) arrived at some point to pick up a walk list, VoteBuilder [the Democratic Party’s voter database and interface system] “turf” map, and literature for a canvass (as well as a few lawn signs). The staffer queries them about the day before while typing and printing the list and map. These get fixed on old, beat-up clipboards pulled from the top of the pile and the two set off.

[...] We arrived at our neighborhood to canvass around 3 p.m. It was hot, dry, and cloudless—we loaded up with water at the urging of the field staffers. The experience getting here was more chaotic than the offices this morning. We went to a temporary field office set up in an office park in the suburbs of Reno. It was clear that the campaign had more people from California than they really knew what to do with (I was glad I was wearing my Obama St. Patrick’s day T-Shirt instead of the Oakland Obama shirt—we were told not to offer up information about where we lived if we could help it): the lines were long, the staff were ornery from the volunteers constantly challenging the way staffers did things and comparing their experiences on former campaigns (I heard Kerry, Bradley, and Clinton come up). Luckily, as former precinct captains, we were able to skip the training, get materials, and go. The canvass neighborhood was sprawlingly large and quiet in a suburban way—dogs, air conditioners, and not much else. We parked, consulted the neighborhood map of voters with their bubbles for individual voter targets, plotted our walking routes, and moved the car to a central location for access to the hatch full of lawn signs if we needed it. We divided up the corresponding walk lists, read over our provided scripts (standard), and rang doorbells.

During the Obama campaign of 2008, field offices were sites for continual congress between the human and non-human. Maps, spreadsheets, computers, files, phones, mobile devices, boxes full of literature, and lawn signs filled nearly every inch of office space not packed with human bodies. These were among the many socio-technical objects that came into view in the course of months spent volunteering for the campaign in San Francisco, Oakland, and Reno, Nevada. Maps, in particular, were central to the daily life of campaign staffers and volunteers. They appeared on the walls of every campaign field office I visited. Staffers gathered around computer terminals that displayed maps and Excel files and databases that contained the data that composed them. I left offices with other campaign volunteers to canvass neighborhoods carrying clipboards with maps still warm from printers. Maps on My.BarackObama.com helped volunteers and supporters find, attend, and plan events in support of Obama.

Months in advance of any actual voting, the Obama campaign’s field staffers and volunteers spent much time crafting maps. Field staffers used these maps for electoral strategy and the deployment of volunteers and volunteers used them in carrying out their stewardship of “precincts” composed of voters they talked to at their doorsteps and called—sometimes weekly.

Interviews with staffers and consultants after the campaign revealed what I could not see during my time as a volunteer, when I used the campaign-provided databases and maps as a black-boxed interface that unproblematically enabled me to do work. All of these practices of creating maps were premised on raw data that allowed the campaign to plot voters in geographic space. This data included a mix of public, political party, commercial, and online data that staffers and consultants used to model the political leanings of the electorate. The

campaign and its consultants continually polled the electorate, developed algorithms that processed hundreds of data points to model particular types of voters, layered these models onto their expansive voter files, and updated their models based on feedback from the data that volunteers gathered by phone and conversations on the doorsteps of voters.

Algorithms transformed all of this data work into a black-boxed 0–100 numerical score that designated broad categories of voters (e.g.: likely supporters, those voters that could be persuaded, and those supporting another candidate). This score made data *actionable* for the local field staffer and volunteer like me. This was a significant technical achievement honed over a decade of work, as Democratic operatives discovered black-boxing the messiness of raw data made for far more effective field volunteers.

For example, during the 2008 cycle Obama’s field staffers sat at computers in offices and worked with these scores to generate target lists and create maps that they used to deploy volunteers to make voter contacts in priority districts. Volunteers, such as precinct captains, did not even need to see these scores: they used another black-boxed object—a search query—to automatically generate target lists. As Mark Sullivan, founder of Voter Activation Network (VAN), the firm that developed VoteBuilder, described in an interview in 2010:

And with the higher up people, they build these things called target universes on VAN so they will create a thing called a “target universe” which is defined by using all of the combinations of all these scores and stuff. And end users [volunteers] come in and they click GOTV [Get Out the Vote] or GOTV universe checkbox and it gives them all of GOTV universe people in the precinct or whatever to make their walk list. So the number of people who are using the micro data has shrunken over time to the people who are using it in the format by all that we have learned over the years about what is successful and what is not and how to use the models and which models are useful.

Graphically representing this data in the form of a map transformed hundreds of data points and complex processes of voter modeling into black boxes that enabled volunteers to unproblematically perform work. What are the practical effects of this mediator, what work does it perform? During the 2004 cycle, numerous field staffers cited that they had to work all night just to generate walk lists. This was a very labor-intensive and time consuming process. Staffers used the commercial application MapQuest to identify the streets to which they wanted to send volunteers. They then looked through databases to find the names and addresses of individuals living on these streets, and then plotted walk lists and “turf” for volunteers by hand using a Sharpie.

It was through these translations of data that maps became ready-to-hand tools that campaign staffers used to chart electoral strategy and deploy resources, and that volunteers used to canvass the electorate. These maps functioned, then, as what de Laet and Mol (2000) call “mutable mobiles.” This is a historical departure for the map as a mediator. Political maps are almost as old as politics in America itself and were generally stable as a printed record and graphical representation, well through the 2004 election cycle. By contrast, the Obama campaign’s political maps changed their form, evolving through the continual aggregation of data, refinement of the voter modeling algorithms that scored voters, and the work of staffers who determined daily voter targets based on resources and strategy. They changed their form as well with each successive movement up through the campaign’s organizational hierarchy. The senior leadership at campaign headquarters saw comprehensive multi-state maps. There were comparatively fewer categories of data and more narrowly defined maps at state headquarters. The maps at local field offices were narrower still, with modeled voters plotted across precincts that might encompass just a few neighborhoods. For the volunteer, the map was just a small area of defined turf (see Figs. 1 and 2) encompassing thirty or so priority voters that were printed and stuck on clipboards.

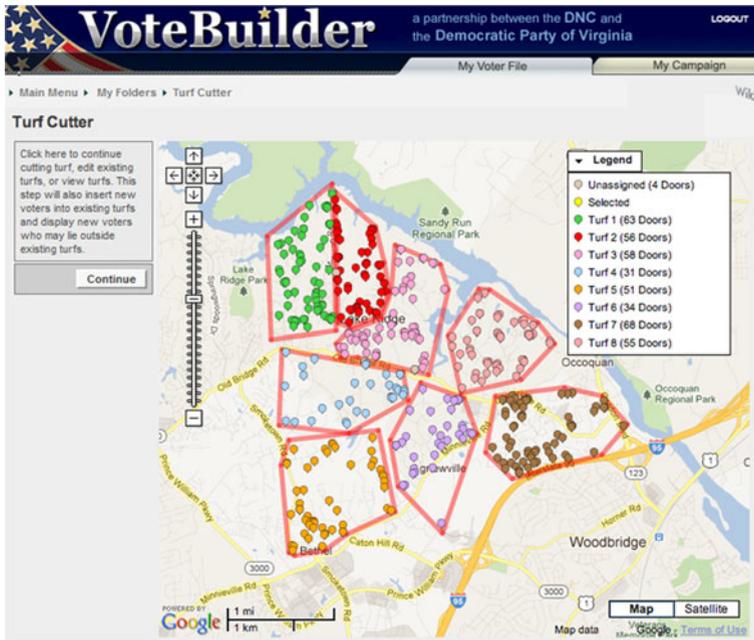


Fig. 1 Screenshot of the Votebuilder Turf Cutter application as the system looked in 2008. (Image provided by NGP-VAN)

The ability of maps to change form, in turn, provided staffers at all levels of the Obama campaign with an increased form of what McKenzie Wark (2002, 396) calls “vectoral power,” or “the capacity to receive and transmit information, the capacity to archive and analyze information, and the capacity to move resources to and from a given destination in a timely and accurate fashion.” Rendered on computer screens in field offices and volunteers’ computers in San Francisco and Reno, maps graphically represented the results of calculations performed thousands of miles away in Chicago and the offices of consultancies in Washington D.C. Staffers in these “centers of calculation” (Latour 1987) manipulated data and transformed it into composite voter targets, which appeared on the computer terminals of field staffers across the country, who deployed and monitored the progress of volunteers on the ground. Data from local field offices updated the national field staffers’ own projections and maps that displayed the shifting mood of the electorate in thousands of swing districts in dozens of battleground states.

In this sense, the Obama campaign was held together in the same way as Latour’s nation-state: through the networked circulation of information through many transformations. A mark on a paper on a volunteer’s clipboard became a graphic check on a form displayed on a laptop. These checks were aggregated in computer databases, which are linked across vast geographical space through networks, and ultimately interpreted, manipulated, and rendered in maps by staffers in Chicago to coordinate resources around the country.

Networks of Political Representation

The black box of the political map can be opened further if we turn from what we encountered in observation and interviews to look at elements of the map, which are the networks the map

“punctualizes,” that is, it “converts an entire network into a single point or node in another network” (Callon 1991). Political maps are the outcomes of the work of a heterogeneous network of laws, flesh, steel, and paper that hold citizens in place and define the ways that they are represented politically. Even more, they are the outcomes of historical controversies over the definition of “good citizenship” (Schudson 1999), which actors have contested through artifacts and laws. Maps became a key mediator through which candidates vie to become delegates of the public’s will through the institutions of the electoral system that actualize and make that will manifest in particular ways. Political maps take legal definitions of representative democracy, legislative districts, and states and bundle them together in graphical displays.

But legal rules do not explain the entirety of the information gathered in the political maps that were rendered on the computer screens of volunteers in VoteBuilder. These maps also encoded and performed a deeper set of electoral changes that took shape over the course of the last century. Beginning in the 19th and continuing through the 20th century, progressive reformers, a growing class of professional journalists, and a network of artifacts including penny press newspapers, ballot boxes, voting machines, and surveys helped produce a new type of individualized, rationalized citizen. It is this citizen, plotted on the map, to whom campaigns seek to appeal.

For example, a set of electoral technologies emerged in the late 1800s to enact a new form of political representation. Reformers created a standardized, government-issued ballot, which became widespread during the elections of 1888, as a political intervention to take power from the parties and invest it in the rational workings of the state bureaucracy and its citizens (Schudson 1999). These new “Australian” ballots were constructed to objectively and scientifically translate the political preferences of individualized citizens into a “vote.” Alongside the new ballot stood the voting machine, which began to be introduced at the same time and, as patent applications reveal, were explicitly designed as political interventions (Jones and Douglas 2006) to create a new autonomous individual citizen.

The census now forms the basis of political representation on the map, and lies at the center of all efforts to both represent and produce the electorate geographically. The census did not always play this role, however. The census was only enrolled in the legal network of political representation in the 1960s. In a series of cases the Supreme Court stipulated that legislative districts must follow an equal population standard, culminating in 1962’s *Baker v. Carr* that established the rule of “one person, one vote.” Meanwhile, the 1965 Voting Rights Act required that any changes to particular states’ legislative districts that may adversely affect minorities be “precleared” by the United States Department of Justice, a stipulation that required extensive data on districts (Grofman and Davidson 1992).²

The Work of Maps: Computational Campaigns

What is the work of these maps? What work do these artifacts perform? Maps gather these heterogeneous legal, partisan, and statistical networks of representation together. Maps not only make these actor-networks actionable for the purposes of campaigns, they make a particular form of political representation and democratic practice more *durable* by enfolding campaigns into their logic. Maps help fashion electoral politics into a knowable and stable enterprise, more reliably practiced than during the days of party patronage. In the process, electoral maps are actants that hold networks in place while actively and continually reordering both campaigns and voters. As a tool, the map “stores actions committed

² We thank Fenwick McKelvey for this insight. This applies to states with a history of discrimination. The specific formula for doing so was found unconstitutional in 2013 by the U.S. Supreme Court.

earlier/elsewhere/by others” (Latour 1994). This stored action, the technologies of political representation crafted over the last century, shaped the 2008 Obama campaign’s own data-driven logic (Kreiss 2012; Plouffe 2008). As Latour (1994, 804) argues, “It is through the commerce with nonhumans that the necessary social skills and properties are learned.” The skills and properties learned by the campaign are those that enabled it to function in a knowable and efficient way, outside of the politics of ideology, carnival, coercion, and patronage.

Maps, then, are very real manifestations of power, not just in terms of the data represented within them, but in the way they socialize their users into practicing a politics that is at once statistical and computational and bounded by legal systems of geographic representation. The campaign used the map as a tool, and oriented itself to its particular ways of representing the polity, voters, and state and non-state actors.

There were alternatives, even within the campaign. The social movement scholar and famed organizer Marshall Ganz and some field directors on the Obama campaign helped coordinate an organizing-model field operation in some states. They focused on leadership development and teaching volunteers to create shared narratives, articulate moral claims, and generate emotional commitments among voters (for an ethnographic account, see Alexander 2010). In an interview a few months after the campaign, Ganz (2010) contrasts this organizing model with a mentality that existed at the highest levels of the campaign and in many field offices. This mentality was, Ganz (2010) argues, a “marketing model” where the campaign used volunteer canvassers as “data generators” who received target lists of persuadable voters, showed up at their doorsteps, and tried to convince them to vote early and for Obama by reading targeted scripts, in essence delivering them for the candidate. This is the instrumental model of volunteerism described above, and in Ganz’s view, it might be effective in terms of the narrow confines of electoral strategy, but it leaves very little behind.

Data and the maps that are created from them do not determine actions, but they make certain actions such as narrowly instrumental data generation easier and more likely through their affordances. And, emphasizing the stakes here through an analysis of culture and ideology makes this more apparent. Latour (1999) uses maps to show how scientists make knowledge and manipulate the world through translations—representations that can be “manipulated, changed, and transported to provide scientists with a larger perspective on the environments they study” (Brennen 2013, 12). By contrast, Benedict Anderson (1983/2006) emphasizes that a map can serve a much more ideological function as a “model for, rather than a model of, what it purported to represent.” Anderson’s account has an essential connection to the signified, but the object of analysis is now on the ways that social actors make the map selectively represent so as to allow colonial power to work on its subjects.

Electoral maps model citizens in particular ways—as clusters of demographic, partisan, and attitudinal characteristics that can be worked upon through persuasive appeals—and plot them in given space. And, given that maps are embedded with certain cultural assumptions as to voting, campaigning, and more broadly, political representation, they work to socialize their users into particular logics, here the rational individualized voters that need to be delivered up to candidates.

Newswork Through the Actor-Network Lens

On June 20th, 2008 Anne d’Harnoncourt, Director of the Philadelphia Museum of Art and a leading figure in Philadelphia art and philanthropy circles, died suddenly at the age of 64 (Heller 2008). A relatively young woman with no recent public history of major illness, the two print newspapers in Philadelphia (the *Daily News* and the *Inquirer*) spent the morning of

June 2nd engaged in a frantic race to determine the cause and details of her death, and to “scoop” each other in reporting the story. In effect, they were both striving to be the first to report the news—a common enough aspect of a traditional deadline driven journalistic culture. What was different in 2008 was the fact that both newspapers could monitor their different story iterations in real time. What was even more unusual was the fact that both papers’ scoops competed for priority and space on a single news website, called [Philly.com](#). All three outlets are owned by the same company, but while the newspapers competed with each other on breaking news and maintained their own websites, [Philly.com](#) (which in 2008 was housed in its own building and had its own staff) aggregates the content of the two newspapers into a single, highly read website.

Over the course of June 2nd there was a running argument between the *Inquirer*, *Daily News*, and [Philly.com](#) about whose reporting on d’Harnoncourt’s death would be featured most prominently on [Philly.com](#). And as the story unfolded, it became clear that many *Daily News* reporters resented the online prominence of their digital rival. The *Daily News* reporters I was embedded with alternately attributed this to differences in capacity (the *Inquirer* has greater access to technology and is better staffed), random caprice by [Philly.com](#) or bias against the *Daily News*. It quickly became clear, however, that there were other factors at play as well.

Oddly enough, the four character “story slug” used by the *Daily News*, along with the complexities of its content management system, played a surprisingly important role in the way digital news in Philadelphia was produced in 2008, and it is this unusual object of journalism we examine here in our second case study. Looking at the slug as a socio-technical mediator may seem to be an odd choice; at first glance slugs and newsroom content management systems (CMSes), unlike political maps, are maddeningly obscure.³

“Slug” is one of those remarkable newsroom words that has existed for centuries to refer to a shorthand way of identifying particular news stories for organizational and production purposes. In the so-called “hot-type era,” the term slug designated a line of lead (moah.org 2011). In newspaper editing, slug refers to the shorthand, descriptive label a story carries as it travels through the editorial process (wikipedia.org 2011). In digital news production, the term “slug” is employed by users of the Django CMS to designate “a way of generating a valid URL, generally using data already obtained” (stackoverflow.com 2009). What all these definitions have in common is the notion that a slug *categorizes* and *links*, and definitional changes mark larger changes in the technological infrastructure of modern news production routines.

Few citizens outside a newsroom know what a content management system is, and even fewer have heard of a slug. And yet, these awkwardly integrated bundles of software, hardware, workflow routines, visual interfaces, and actual pieces of news content are the objects through which the news of the day (or, increasingly, the news of the hour or the minute) is assembled and displayed. The slug plays a vital, though often hidden, role as a technical mediator in the daily practices of newswork. Occasionally, this process of mediation breaks down, the black box opens, and the relationship between CMS and slugs (and dozens of other artifacts) becomes momentarily clear. The mediation work performed by the slug is not simply technological, however—it is a discursive and cultural mediator as well. This clash between the different mediation capacities of the slug, with the way it operates in the newsroom, and the way it is bundled into CMSes, drives the story that follows.

³ Quandt (2008) formally defines newsroom content management systems as “central production tools, offering (sometimes limited) word processing functionality, and access to archived information in a database ... layout, and some publishing functionality” (84).

“Slugs”: From Intermediaries to Mediators in the News Production Process

What happened with the content on [Philly.com](#) during the d’Harnoncourt reporting was the following. All Philadelphia *Daily News* stories entered into the Hermes production system (an older computerized content management system designed to facilitate the rapid and efficient production of a *print* newspaper) and were assigned a standardized four-character slug. To populate [Philly.com](#), these stories needed to “feed” from Hermes to the website (Citypaper 2000). A fixed number of four characters, however, limited the amount of descriptive data the slug could contain. This made the automatic categorization of *Daily News* stories difficult for staffers at [Philly.com](#), as only a certain level of category nuance could be contained in four characters. It also made turning *Daily News* stories into larger online packages difficult. As Vance Lehmkuhl, *Daily News* website manager from 2000 until 2010, described years later in his interview:

When the slugs were first conceived, they were conceived for the print product ... at that time, the slugs had four characters for the topic, or a standing slug for a columnist, for example, and then two characters for the day of the month, and then one character for the section of the paper. And that was it. So when they developed the online feed, they basically mimicked those newspaper sections, and had the suffix directed toward the different sections.

The *Philadelphia Inquirer*, by contrast, had a slug standardization system that allowed slugs to increase in length depending on the complexity of the information these labels needed to store. The increase in descriptive slug length allowed the production and packaging of *Inquirer* content to be more easily automated. During a routine day of fast-breaking news, such as the morning of the d’Harnoncourt death, the rigidity of the *Daily News* slug often resulted in the tabloid getting less prominence on the [Philly.com](#) homepage, in part because these stories required more post-feed production interpretative work from an already overworked set of [Philly.com](#) producers. The slugs used by the *Philadelphia Inquirer*, on the other hand, allowed its content to be moved around digital space more easily, to be packaged with other stories, and to quickly be bundled with artwork. Because the entire job of a [Philly.com](#) web producer involved packaging and bundling stories, in the opinion of these producers, the *Daily News* content simply took too long. Standardization decisions, made decades earlier for use in older content management systems, now had far reaching and unexpected digital ramifications. The manner in which these decisions refracted through the *Daily News*, *Inquirer*, and [Philly.com](#) also demonstrates the way that journalistic norms, such as the need to be “first” on a story, exacerbate these technological consequences in often apparently irrational ways.

The Content Management System as a Network of Power

If these were the extent of our findings, we would have discovered interesting evidence about how small pieces of technology often have large and unexpected ramifications for organizational processes, but we would certainly not have found anything that seems capable of shedding sociological light on the full panoply of changes engulfing the news industry. Actor-Network Theory, however, explicitly encourages us to go beyond analyzing things like the production slug, and prods us to follow the associational traces that connect the slug to the increasingly dispersed socio-technical elements of the journalistic field. One of these elements is the larger content management system itself, which mediates and incorporates the slug, and which itself can be followed even further outward, to news organizations and

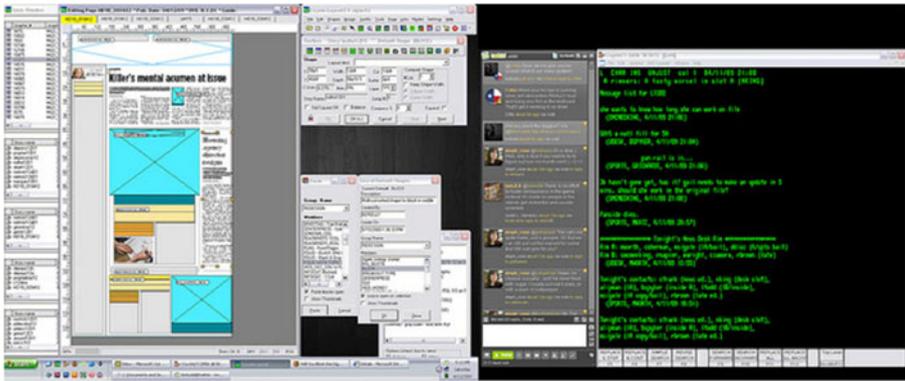


Fig. 2 A standard newspaper pagination system in 2012

the political, economic, and organizational processes that animate them. This step allows us to see the way that socio-technological mediations change their form and meaning as they advance up the corporate chain of command—much like maps in the 2008 Obama campaign.

Informants in Philadelphia newsrooms spoke of content management systems in both social and technical terms. In some ways, they practiced ANT implicitly. In an interview with Karl Martino, a particularly thoughtful programmer who had worked for Knight-Ridder (the company which owned the Philadelphia newspapers until 2006) and ran his own path-breaking hyperlocal blog in the early 2000s, Martino reflected on the struggles to build a well-functioning content management system for Knight-Ridder:

It's not a simple technology issue ... Content management systems model the process of how things get made in an organization, how they get published, and different organizations are different organizations.....They reflect the organization and its structure, who does what, and how it works. And they can act as homogenizers, and the CMS used by Knight-Ridder certainly was, but this was actually reflecting the structure of Knight-Ridder itself, and its desire for homogenized content.

Following the production slug back to the people and software with which it entangled itself opens up new vistas for understanding the digital transformation of journalism. The complexity of the digital news production process can be more fully grasped when we place technological decisions inside history and watch as they largely fail to fully integrate with larger and more complex content management systems. One example is Knight-Ridder's attempt to standardize the ways that their reporters blogged. Dan Gillmor, a columnist from the San Jose Mercury News (like the Philadelphia newspapers, owned by Knight-Ridder) was the only known blogger at Knight-Ridder in the early 2000s. Gillmor's evangelism of the blogging technology (called Moveable Type), would, in 2002, open the door to the Philadelphia newspapers adopting "journalistic blogging" in a more sustained way. As Vance Lehmkuhl recounted in his interview, "In 2002, there was a conference, out in California ... Dan Gillmor really gave a presentation that said, all newsrooms should get blogging. And so I actually convinced my managing editor that we needed to do something that was taking advantage of this and find ways to make it work." Journalists adopted these new tools and practice, blogging primarily off the primary newspaper webpage on commercial sites such as Blogger and Moveable Type.

The trouble began when blogging practices, once tightly integrated with the Moveable Type CMS system designed specifically for blogging, faltered when journalists tried to squeeze themselves into a company-wide CMS designed to do everything, but nothing particularly well. Karl Martino and Vance Lehmkuhl recount, in tones bordering on horror, their efforts to move already existing journalism blogs onto Knight-Ridder's content management system, called "Market Leader." In the process, archives were lost, links suddenly disappeared, and meta-data vanished: "Moving Dan Gilmor off Moveable Type and onto the Knight-Ridder system was one of the toughest things I've ever had to do," Martino said later. "He was remarkably generous about the whole thing, but it obviously didn't go well for anyone involved because of glitches in the system."

But why even bother to integrate the Knight-Ridder content management systems in the first place? Why not let newspaper bloggers continue to produce content on Blogger or Moveable Type, under the brand and banner of the news organizations that paid them?

As the very idea of a newspaper having a website moved from the periphery to the center of the journalistic field in the early 2000s, Knight-Ridder took several incredibly important steps to centralize digital production and create operating efficiencies between its multiple newspaper properties. It founded Knight-Ridder Digital, hoping to eventually turn the company into a Silicon Valley darling and spin the company off through an IPO (Shapiro 2006). Central to the Knight-Ridder digital mandate was Market Leader, which would power newspaper websites across the chain and offer standardized platforms for content such as journalistic blogging. Prior to Market Leader, a CMS designed by technologists in Philadelphia called Cofax (Cofax 2006) helped power the websites of multiple newspapers across the Knight-Ridder chain. Cofax was designed to encourage flexibility and diversity at the local newspaper level.

By contrast, Market Leader was designed to standardize and centralize. It was, in essence, designed to be a very large digital black box, run out of corporate headquarters in San Jose. CMS standardization would allow Knight-Ridder to sell advertisements across the entire chain and also easily move non-local content from one local site to another (Mansfield, 2012). It would also centralize web operations in San Jose and eliminate staffing redundancies.

The Market Leader decision was to have far reaching implications for Knight-Ridder's relationship to the internet, particularly in terms of company morale and journalistic attitudes towards the digital realm in general. Once Knight-Ridder digital assumed control of CMS design, "all negativity toward the web that already existed amongst journalists ... was magnified to ridiculous, cartoonish proportions inside the *Daily News* newsroom," Vance Lehmkuhl remembers. Karl Martino is even harsher in his assessment:

At first Knight-Ridder was investing in a lot of local web teams. But then, when they formed Knight-Ridder Digital, I think they were hoping to consolidate this in San Jose, and eventually move that CMS activity there, and build a single tech platform that would work for the entire country ... but we weren't far enough along for that, and we failed.

By tracing the movement of the slug and content management system up through the various newspaper hierarchies, we can glimpse the manner by which normative commitments to journalistic autonomy are part of a larger, deeply embedded journalistic culture valorizing the local control of news production. These commitments, as we have seen, eventually conflicted with the commercial imperatives of Knight-Ridder, a debate that took shape through socio-technical controversies over slugs and CMSs, even as these artifacts contained particular values in design and afforded particular types of journalistic expression. The story does not end happily, at least for Knight-Ridder; in the end they sold off their Philadelphia media holdings to a local ownership group. While there was much shop-floor level debate about the merits and flaws of local ownership, one sentiment was expressed by

reporters and editors across all three newsrooms: At last, Philadelphia would have local control over its website design and its content management system. “The days of Market Leader,” one journalist told the first author in 2008 with a happy sigh, “are over.”

We have seen the way that the roles and associations of the slug and content management system fluctuated as they worked their way through larger media organizations and ecosystems. This, in turn, helps shed light on the relationship between technology, practice, and culture in media organizations. What were, at one level, purely technological decisions about slugs and CMSs turned out to also carry with them contested ideas about what journalism was and what it was for.

Discussion: ANT, Ethnography, and Democracy

In detailing our cases, we have shown some of the ways that Actor-Network Theory, as a conceptual toolkit, can guide ethnographers to uncover sources of stability and contingency in political and journalistic practice. At the same time, ANT-inspired analyses, as a matter of emphasis, may simplify rich local cultures and the varieties of human motivation.

It is not clear, for instance, that ANT has a ready-to-hand conceptual vocabulary that accounts for, in Schudson’s (2001, 423) terms, the “symbols, meanings, and enacted rituals” that make up politics as culture, or the “knowledge (including cultural presuppositions)” that underlies practice. Or, to borrow the clear and concise statement of famous sociologist and field researcher, Howard Becker (1982/2008, 4), the “rationales” according to which “activities make sense and are worth doing.” This matters because as the discussion of the political map above revealed, particular cultural presuppositions of “good citizenship” existed prior to the creation of new technical mediators such as Australian ballots and voting machines to enact them, transforming social “partisans” into individual “voters.” The Supreme Court and Congress articulated their own normative visions of democracy in mandating equal population standards and stipulations for the protection of minority rights—decisions that were then enacted through socio-technical means such as district maps, census workers, survey data, geographic information software, and oversight bodies. To understand why particular modes of political representation are durable it is necessary, but not sufficient, to consider technical mediators and trace associations. Ethnographers must also seek to provide rich accounts of what it means to be a citizen or political operative and what these actors think they are doing, and the categories that are at play and contested in a political culture at a particular moment in time.

The ethnography of the Philadelphia news ecosystem also shows that the categories of ANT analysis should be supplemented by the rich accounting of meaning. Given technological change that is at once inside and outside the field, the last decade has witnessed the proliferation of new technical and social mediators, and with it the explosion of new capacities for making publics. These capacities are often housed in old journalism institutions, where actors have particular conceptions of newswork and newsrooms that are entangled in the socio-technical objects they use to produce the news. As our case detailed, commercial concerns versus professional norms, local autonomy versus national control, and appropriate journalistic practice were all contested *cultural* ideas inscribed in technical debates and artifacts. Struggles over those ideas could take the form of technical mediators, such as when journalists took up tools decoupled from their news organizations to create new publics or Knight-Ridder built Market Leader to centralize its control over local newsrooms. Mediators matter for what journalists do, in terms of their practices with tools, the types of publics they can address, and the voices they can give rise to—and so do culture and institutions. ANT refuses to discount the role of the slug that just will not fit existing practices or the content management platform that resists easy incorporation into new actor networks. At the same time, these mediators are also the site of

contention by human actors over the types of publics that we can imagine and consider as legitimate organs of public representation.

Coupling ANT together with a sensitivity to culture can provide a richer understanding of core democratic processes and the sources of their stability, as well as how to contest them when they fail us (and what “failure” means). ANT reveals how technical artifacts provide the black-boxed backdrop for much of mundane and durable democratic life. Cultural analyses show how these artifacts are embedded in, and help stabilize, assumptions as to the legitimate form of political representation, citizenship, and what that citizenry should know about the operations of their democratic systems. The conventions at the core of contemporary democratic consent have long been stabilized, such as private, individual, and rational voting, as opposed to the public, social, and affinity-based voting of an earlier era (Schudson 1999). This is due, in part, to the modes of representation that black boxes—such as electoral maps—make possible; modes of representation that extend in time through routine use by actors such as campaigns across electoral cycles. Occupy Wall Street can radically contest legitimate consent and gather in the streets, but ANT tells us that to achieve political power the movement would have to unravel the entire chain of associations that make particular forms of political representation durable and legitimate.

And this is where cultural presuppositions become particularly important. Durability is not immutability. The map may gather and hold networks for political representation in place, but movements can destabilize and reconfigure them through the articulation of new normative ideals and cultural practices, which the Women’s Suffrage and Civil Rights movements demonstrated. Networks can also be destabilized through the explicit design of artifacts to create new forms of political representation and participation (Marres 2012), like the ballots of a century ago. Or, as Latour (2005, 5) himself argued in his call for an “object-oriented democracy,” we can create new issues (or objects) to gather a “different assembly of relevant parties,” human and non-human alike. For Latour, object-oriented democracy requires a fuller conception of the actors of politics and journalism to reveal the entanglements that produce shared “matters of concern” (31). In doing so, object-oriented democracy makes it possible to build new spaces for politics, new matters of concern, and new collectives.

For our part, we want forums that support representation that is dialogic and dynamic, that reject the muteness of the map, the control it affords, the data gathering it encourages, and the individualized citizen it defines. We want forums that extend beyond the technical capacities of content management systems and support interaction and collaboration between journalists and networked publics. In other words, to understand power and reform social institutions, and even uproot them, requires attention not just to theories of participation, deliberation, and the public sphere, but the socio-technical engineering of democratic publics and the cultural presuppositions that guide it.

Conclusion

ANT offers a set of analytical and methodological tools that can, and should, inform ethnographic research in settings beyond the laboratory where it was first forged and applied. Collapsing distinctions between the human and nonhuman and retaining a commitment to following these actors as they move across and connect domains of social and technical activity can expand the sociological imagination. Even more, this approach is particularly insightful when applied in domains of practice that are deeply unsettled, such as politics and journalism. As our case studies revealed, in these two areas of social life technological and organizational change, economic pressures, institutional uncertainty, and

heterarchical organizing logics (Stark 2009) have unsettled much of what 50 years ago were the routine practices at the center of civic life. ANT offers a particularly powerful lens for understanding the contexts within which the very stuff of the social is made durable and torn apart.

At the same time, ANT's analytical approach should inform, not supplant, the well established cultural categories of ethnographers in the posing of new research objects. The deep emphasis on cultural contexts and meaning, long at the center of ethnographers' self-understanding across many disciplines, provides a rich window onto the processes of network building that help society hang together. Taking ANT and culture seriously means providing a fuller view of all the actors at play in political representation and the journalistic creation of publics, as well as detailing the cultural contexts within which they act. To do so enables a rethinking of the associations between people and things that make forms of political representation and sociality durable so as to be able to intervene in the creation of publics and networks of representation.

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C.W. Anderson is an Assistant Professor of Media Culture and the College of Staten Island (CUNY) and the Director of Research at the CUNY Graduate School of Journalism. He is the author of *Rebuilding the News: Metropolitan Journalism in the Digital Age* (Temple University Press, 2013).

Daniel Kreiss is Assistant Professor in the School of Journalism and Mass Communication at the University of North Carolina at Chapel Hill and the author of *Taking Our Country Back: The Crafting of Networked Politics from Howard Dean to Barack Obama* (Oxford University Press, 2012).