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## Actor-Network Theory and Journalism

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### Summary and Keywords

Actor-network theory (ANT) is a sociological approach to the world that treats social phenomena as network effects. This approach focuses on the evolution of interactions within networks over time and is useful for studying situations of change, unsettled groups, and evolving practices such as current developments in the world of journalism. Journalism is a messy and complex social practice involving various actors, institutions, and technologies, some of which are in a state of crisis or are undergoing rapid change due to digitization. ANT has gained momentum in journalism studies among researchers analyzing journalists' relationships with the diverse agents they in contact with on a daily basis (e.g., technologies, institutions, audiences, other news producers) and the relationships between news production, circulation, and usage.

ANT practitioners use a set of simple concepts referred to as an infra-language, which allows them to exchange ideas and compare interpretations while letting the actors they are studying develop their own range of concepts (i.e., to speak in their own words). These concepts include actants, actor networks, obligatory passage points, and translation. ANT also proposes a set of principles for researchers to follow. These include considering all entities as participants in a phenomenon (e.g., people can make other people do things, and objects, such as computers or institutions, can as well) and following actors as they trace associations with others. Therefore, journalism scholars who use this approach conduct qualitative studies focusing on the place of a particular technology within a network or situation by following who and what is involved and how entities connect. They collect data such as the content produced, direct observations of news production, or statements from interviews during or after the case is over.

Using ANT, journalism scholars have extended their comprehension of news production by highlighting technology's role in journalistic networks. Although journalists naturalize technologies through daily use (e.g., search engines, content management systems, cell phones, cameras, email), these tools still influence journalistic practices and outputs. ANT practitioners also consider the diversity of agents participating in news production and circulation: professional journalists, politicians, activists, and diverse commercial and noncommercial organizations. If this diversity is becoming more active and connected in

this networked environment, it seems that legacy media is still an obligatory passage point for anyone willing to bring information to the general public. Recent societal changes, such as the generalization of news consumption on smartphones and the rise of platform journalism on multiple apps, indicate that ANT may be useful in the collective endeavor to provide a clear picture of what journalism is and what it will become.

Keywords: Actor network, rhizome, agency, technology, innovation, journalism, diversity, complexity, journalism studies

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## Introduction

The origins of actor-network theory (ANT) can be traced back to the end of the 1970s when scholars such as Michel Callon, John Law, Bruno Latour, and Madeleine Akrich studied the processes leading to the establishment of “scientific facts” in modern laboratories (Callon, 2006, p. 268). They explained that scientific facts are the output of complex networks made up of scientists, funding providers and research teams and are the result of experiments, papers, and competition (Latour & Woolgar, 1979). ANT then evolved in a scientific paradigm to study complex dynamic systems and considered how the associations among various entities made them stable. Scientists often focus on the power of technology in these systems and the rapid societal and technological changes in all areas of social life have motivated researchers to use ANT as a research strategy in many disciplines, including sociology, philosophy, geography, and political science (Tollis, Créton-Cazanave, & Aublet, 2014).

ANT quickly became popular in journalism studies for two main reasons: (1) its focus on technology as a part of the network allows the analysis of digitization and (2) the fluid nature of journalistic practices and actors, which demands research strategies that make no judgment on who or what participates in the journalistic process prior to the investigation. Technology has always played a major role in journalism, from the source (e.g., postal service, telegraph, telephone, email) to the transmission method (printing press, radio, TV). However, the general digitization of society that began in the 20th century led to the digitization of journalism, which naturalized the use of technology by journalists at every stage of journalistic production, diffusion, and consumption. This created the need for scholars to study the ways in which technology influences journalism. ANT provides a framework for assessing the active role of technologies in newswork. In addition, technological developments have made journalism much more fluid. It occurs on multiple platforms whereby journalists are increasingly connected and operate in an network-like fashion. It also involves a variety of actors, including journalists, politicians, activists, citizens, bloggers, and programmers as well as institutions, organizations and objects.

Actor-network theory focuses on the interactions that make networks stable and provides an open framework to approach the power struggles shaping them. ANT is agnostic in nature; that is, its methodological situational approach focuses on controversies and moments of uncertainty. Therefore, researchers using ANT make no a priori decisions or cat-

egorizations about who or what is involved in a course of action. ANT views journalism as a social practice and decentralizes it, which allows it to complement approaches that are more centered on professional journalists and their products.

## ANT and Its Main Concepts

In short, actor-network theory (ANT) can be defined as a scientific approach to the world, which treats anything from social relations to organizations as network effects (Law, 1992, p. 381). ANT considers society to be the outcome of interactions performed within complex systems called *actor-networks* (Callon, 1987, p. 93). “The actor network is reducible neither to an actor alone nor to a network” as it is “simultaneously an actor whose activity is networking heterogeneous elements and a network that is able to redefine and transform what it is made of” (Callon, 1987, p. 93). Actor-networks are composed of diverse entities called *actants* (Latour, 1996, 1999). An actant can be defined as “any element in the network that acquires strength in association with others” (Hemmingway, 2008, p. 24), which implies that “people, ideals, symbolic constructions, and material elements are seen as equally important elements to analyse” (Plesner, 2009, p. 606). A journalist, a newsroom, a group of activists, and objectivity are therefore elements to be considered in the analysis, as much so as a computer or social media. This does not mean that objects have intentionality but that ANT researchers recognize that all entities involved in a course of action can influence it. For example, cell phones do not have the “intention” of making people mad, but they are *actants* of newswork (Plesner, 2009); that is, they exert a certain power to make someone mad when they break down or when no service is available. The concept of a *black box* is also at the core of ANT. If a network of actants stays constant over time, it can appear as one natural entity and render the networked structure invisible (Latour, 2005). This concept explains how certain collectives (objects, groups, institutions, associations) appear natural(ized), stable, and homogeneous (Domingo & Wiard, 2016). Black boxes are actor-networks that appear to be a single entity; as “most objects, concepts, and organisations are experienced in everyday life as holistic, unified actors” (Anderson & Kreiss, 2013, p. 368). Another concept that describes entities in an actor-network is *obligatory passage point*, which is an actant through which other actants must pass to connect to other parts of the actor-network, or to act on itself or the network (Callon, 1986).

For ANT, actor-networks are assembled, stabilized, and dismantled through *translations*. By way of strategic practices, actants exert authority over others by modifying their position in the network. Each relationship in an actor-network is the result of a translation because information exchanges always involve interpretation by both communicating entities. Callon (1986) divided the translation process into four phases: problematization, interessement, enrollment, and mobilization. These translations happen within actor-networks during moments of uncertainty, which are referred to as *controversies*. A controversy can be defined as a complex collective situation in which a topic or a theme does not reach consensus (Domingo & Wiard, 2016). Controversies have four main characteristics: they involve a variety of actors, they reflect social dynamics and change, they are de-

bated because they are contradictory, and they are resistant to reduction. In ANT terms, a controversy, also dubbed “matter of concern” (De Maeyer & Malcorps, 2015; Latour, 2005, pp. 87–120), describes everything that is not yet stabilized, black-boxed, or closed (Venturini, 2010, pp. 260–262).

To study the evolution of actor-networks, ANT theoreticians propose to “simply” follow these actants and trace the network-building associations during a course of action (Latour, 2005). This often involves a mix of qualitative data-gathering techniques, such as observation, in-depth interviews, and analysis of the content produced during the controversy. There are two main goals of this research strategy. First, the use of infra-language (i.e., the concepts highlighted in this section) allows actants of an actor-network to deploy their own language and their own concepts and to speak in their own terms. Second, following the actants during controversies allows them to freely associate within the actor-network and forces the researcher to abandon preconceived notions of who the actors are or of what they do in specific environments.

## ANT and the News

The previous section highlighted the main concepts ANT proposes to use for a sociological enquiry. The following section shows how, pragmatically, researchers in journalism studies have used the concepts and principles of the approach to study (1) the influence of technology on journalistic practices, (2) and news production in current complex news environments.

### Embedded Meanings of Objects and Technologies of Journalism

Scholars have appliedm ANT principles and concepts to journalism in an effort to understand technological innovations (Domingo & Wiard, 2016). Digital technology use has become naturalized in the daily routines of journalists and researchers consider new technologies to be an important actant within newsrooms (Primo & Zago, 2015). Studies by Paulussen (2016), De Maeyer (2016), and others used ANT’s sociotechnic ontology to explore if and how technologies influence journalists in specific settings.

Fred Turner (2005), studied how the current media environment has created “hybrid actors” (p. 323). He analyzed the relationship between Jim Romenesko and the Poynter Institute’s website, sources, and audience. Turner argued that the traditional analytical categories of source, journalist, and audience do not apply for Romenesko’s columns on the site. Considering Romenesko and his website as an actor-network, Turner (2005) showed that Romenesko translates a variety of news articles into a representation of the network itself, in this case the media industry (see pp. 321–324). Building on this idea, Plesner (2009) analyzed how journalists naturalize the use of information and communication technology (ICT; phones, email, and search engines) in journalistic actor-networks during news production. She found that newer ICTs do not replace older technologies and that ICTs do not destroy journalist-source relationships but strengthen them, such as provoking encounters with researchers, interviewing experts, and extending the network of

actors linked within a newspaper (Plesner, 2009, pp. 604–626). Google is a key journalistic actant and influences journalistic content during the writing phase because journalists now negotiate online news at a technical and editorial level by accepting some of Google's constraints. In other words, they adopt strategies to influence or even trick Google (Sire, 2013). For example, the way indexation works on Google News has popularized the production of short optimized titles and the quick publication of press releases to be verified, enhanced, and reworked later (Sire, 2013, pp. 96–98). Following Nick Couldry's (2008) reflections on how ANT could feed debates within media studies, Emma Hemmingway used ANT as a general research strategy to orient her ethnographic work.<sup>1</sup> Throughout her inquiry, Hemmingway traced the associations within and outside BBC's regional newsrooms in the United Kingdom. Hemmingway analyzed the networks built by three technologies: the "media hub" (2008, 39–69), the "PDP" (2005, pp. 8–27, 2008, pp. 70–114), and the "SNG" truck (2008, pp. 142–174; Hemmingway & Van Loon, 2011, pp. 142–174). Hemmingway first showed how the media hub—BBC's local server and content aggregator—acted as an obligatory passage point through which journalists had to pass to access or share material for their broadcasts. This role was also taken by the satellite newsgathering vehicle (SNG) during live events, where it acted as a technological gatekeeper between interviewees, field reporters, technicians, and the media hub. Finally, the personal digital production (PDP) tool, which allows journalists, cameramen, or editors to shoot and edit their own footage, faced difficulties in finding a place between the hub and complex news routines. All of this demonstrates that technological domination should not be presumed when it comes to newsroom innovations.

Focusing on Catalan public television, radio, and online newsrooms, Micó, Masip, and Domingo (2013) found that convergence and producing news content for the web are influenced and hindered by bad management, power struggles among diverse competing groups of workers with different definitions of what convergence should look like, and by individuals with little critical knowledge of the entire process. Rodgers (2015) also acknowledged these struggles and saw that the content management system (CMS) of the *Toronto Star* interacted with humans in three particular sites: at the desks of the web operation, in the developers' office, and on the computers of senior newsroom managers. CMS technologies have partial autonomy and the ability to mutate, and, as research found, encourage computational thinking (Rodgers, 2015). Anderson and Kreiss (2013) found that CMS technology is a site of struggle between "commercial concerns versus professional norms, local autonomy versus national control" (p. 379).

Through their use of ANT, these studies demonstrated that technologies play an active role in news production and should not be overlooked as simply instrumental. Technologies (often acting as black-boxed obligatory passage points) influence which actors journalists connect to, which often makes their network of sources stronger. However, other technologies, such as the CMS or SNG vehicles, limit news production possibilities. Technologies that stand the test of time do not always replace older technologies, but rather supplement them by creating new uses and connections. Researchers have also described the difficulties encountered in specific cases with some of the technologies, such as the PDP. If anything, ANT complements more technodeterministic approaches, such as the

diffusion of innovation theory as it counters its deterministic (and often overtly positive) understanding of innovation (Micó et al., 2013).

### News Production in a Networked Environment

Considering journalistic actors and institutions as part of actor-networks provides possibilities to study how they are connected to other actants. Therefore, a second contribution of ANT to journalism studies is that it shines a new light on the “dynamics of news coverage” (Domingo & Wiard, 2016) by including all the actors revolving around professional journalists in the analysis. Studies of controversies such as local public debates explore how and by whom news is produced. These situational approaches demonstrate that diverse actants (journalists and technologies as well as activists, politicians, etc.) play an active role in news production, not only as sources but as various stages of production, circulation, and uses. These actants develop strategies to influence the news narrative.

One such situational approach is to analyze content related to a certain issue. Frederico Neresini (2000) used ANT to analyze the coverage of the public debate on cloning in the Italian press. By analyzing the connections between actants in news articles of two Italian news outlets, the researcher argued that actants hold different positions within the “media arena” (Neresini, 2000, p. 379). Though very constructive, the study’s central focus is on the actor-network created around the scientific controversy, as in traditional ANT works. However, it showed that it was possible to use news items to trace relationships among actants and that it can be fruitful to consider the media ecosystem at the same time as an actor involved in building the network around a scientific controversy and as the network itself, the public arena in which various actants can be put in relation. During this controversy, the media arena created a network in which journalists, a cloned sheep, politicians, scientists, or the Catholic Church competed to publicize their version of the controversy (Neresini, 2000, pp. 377–379).

Another way to approach news coverage in networked environments is to interview different types of news producers with a sensibility to their networks and how they associate with other actors. Research in this line found that production is influenced by the local context of production and the background of the producers and their network. Focusing on “programmer-journalists,” Parisie and Dagiral (2012) have found that the introduction of these new actors in newsrooms (along with their technological artifacts, skills, data sets, and relationships to the open source community) challenges epistemologies of what journalists believe to be the purpose of data-driven reporting. By embedding political considerations in the technologies they produce, programmer-journalists assert that “rather than revealing truths” in data, “truths are disclosed through the accessing, combination and processing of complete data” by citizens (Parisie & Dagiral, 2012, p. 869). Archetti (2014) analyzed foreign correspondents’ practices in relation to the places they work. Her research shows that even though foreign correspondents do not rely on fixed physical locations such as workplaces, and even if they use social media and ICTs on a daily basis, location still matters for news reporting. Even in the “globalized” era of journalism, foreign correspondents still have an added value not only in explaining what hap-

pens in other countries, but also in “being able to access a network of trusted sources” there (Archetti, 2014, p. 593). These sources include locals, politicians, foreign correspondents, and local journalists. Anderson (2013B) also worked with ANT to compare old-fashioned reporting with aggregation. In doing so, Anderson proposes that aggregation is a set of skills and routines, which are in some ways similar to traditional journalists, such as compiling diverse material to create narrative-driven news pieces. However, aggregators and journalists have a conflicting relationship over expertise. They have constructed and evolved distinct news networks to validate their authorities (Anderson, 2013B).

A third situational approach to the networks of journalists is to start from a public issue and produce a networked inquiry by describing how actors participating in the news production process connected offline and online. In his seminal study of the eviction of a group of homeowners in Philadelphia and the arrest of Daniel Moffat, Anderson (2010) identified multiple actors participating in news production such as news media companies, local activists, politicians, and bloggers. In that particular case, the diffusion of the news was not random. It was part of a campaign organized by activists and political allies that involved press releases, a press conference, and the use of contacts to get the word out (Anderson, 2010, 2013A). In a similar fashion, the study of the arrest of a Muslim woman in Brussels showed that the same type of actors participated in the construction and stabilization of this particular news network. Even though mainstream media still acted as an obligatory passage point in many cases, some actors managed to circumvent it through social media. Taking aside the relative success of each type of actor in these particular cases, these studies show that they all tried to influence public opinion through conscious strategies involving but not limited to the intention of having mainstream media translate journalistic voices into news items (Domingo & Le Cam, 2015).

As stated previously, journalism is the result of diverse actants: in addition to CMS technology and digital news desks are journalists, senior editors, and interns who interact with politicians, activists, and citizens in the streets and on social media through telephones, computers, and face-to-face interactions. These studies are interesting in that they show the contingent nature of news production in various cases. These researchers have also compiled evidence (at least in local contexts) that legacy news is still very much hegemonic when it publicizes a public debate.

## Methodological Issues with ANT and Societal Challenges

ANT often lacks methodological rigor. Simply following the actors is an attractive but vague proposition for several reasons. First, ANT’s creators have not provided details on the methodology. Latour (2005) proposed keeping four notebooks to document observations but provided little direction on what to look for. Second, most practitioners of ANT in journalism studies are ethnographers and qualitative researchers who are less interested in providing methodological tips and normative instructions than describing their observations and sharing their reflections. They use the actor-network ontology as a framework for thinking about their object of study. Third, the constant evolution of digital technologies causes a general lack of methodological tools and practical difficulties in gather-

ing ephemeral online data. The latter challenge is not restricted to ANT practitioners alone, as data gathering for online content analysis is often a problem in journalism studies (Karlsson & Sjøvaag, 2016). However, using the material traces left online makes the Internet a suitable place to access data. In this regard, previous research indicates that tracing the connections between blogs or webpages through hyperlinks is an appropriate methodology to map the “issue networks” of metajournalistic discourses (De Maeyer & Malcorps, 2015, p. 175). Multiple online tools exist (such as crawlers and scrapers) for gathering data on the web. These can be combined with online media monitoring and content analysis to identify actants participating in controversies and examine their discourses (Wiard, 2015; see also Karlsson & Strömbäck, 2010).

De Maeyer (2016) has made significant contributions regarding the methodological possibilities to study materiality and offers three methodological proposals: (1) to shadow objects and technologies through the traces they leave online, (2) to closely search for those traces in metajournalistic discourses, and (3) to write reflexive accounts sensitive to non-humans. In this regard, Archetti (2015) argues that complementary and alternative nonacademic writing techniques (such as poetry) have methodological benefits for journalism scholars.

A second issue is that a case-based situational approach that simply follow actors is overdescriptivist and does not produce explanation (Benson, 2014). In this line of argument, ANT researchers do not produce anything other than descriptions of particular cases and are therefore unable to provide the normative analyses that society and journalists need (Benson, 2014). This critique has been echoed by other researchers alluding to the lack of theory to explain “power” in ANT (Anderson & De Maeyer, 2015). One response is to set up research designs that combine ANT and other approaches. De Maeyer and Le Cam (2015) combined ANT with Bakhtinian dialogism to understand the sociohistorical nature of the traces of news online. Schmitz, Weiss, and Domingo (2010) also analyzed online newsroom innovations and combined ANT analysis with a “community of practice” approach (p. 5). Westlund and Lewis (2014) tried to answer the *explanation* issue by setting up the “agents of media innovation” model, which combines ANT concepts such as actants (understood here as technological artifacts) with the more traditional notion of (journalistic) actors, audiences, and activities (see also, Lewis & Westlund, 2015). More profoundly, this argument does not hold when norms and values are considered as actants that are negotiated by the actors of the journalistic networks (journalists, audiences, controlling institutions, political authorities) during news production processes. By tracing the power struggles among actants, it is possible to assess how these groups define what journalism is or should be. Furthermore, the use of concepts such as translation and obligatory passage point can help to explain how power is performed within actor-networks during controversies (Domingo & Wiard, 2016, pp. 403–406).



## Conclusion and Future Research

Actor-network theory has gained recognition in journalism studies as a set of heuristic tools that help scholars to reflect on the current challenges and opportunities that journalism faces, mainly the digitization of all aspects of news production, circulation, and uses, as well as its fluidification and diversification.

First, ANT practitioners strove to denaturalize the presence of digital technologies in newsrooms. By showing how technologies translate journalists' daily routines, researchers opened the technological black boxes present in newsrooms in the hope of empowering them in their production (Domingo, 2014). Furthermore, the actor-network ontology pushes researchers to assess their own positions within the actor-networks they trace and the normative ideals they carry. Journalism scholars have shown how new elements in news institutions have changed journalistic practices and outputs. Future research can benefit from an ANT perspective on analyzing the influence of new social media platforms and apps on platform journalism and understanding how upcoming technologies influence the way news is produced and consumed.

Leaving the newsroom and following how journalists connect to other actants during controversies has allowed ANT scholars to understand contingent network configurations. They have shown that news is, and arguably always has been, the product of diverse competing actants in specific contexts. However, actors are now involved in news production at multiple stages and they implement conscious specific strategies to create and dismantle associations within actor-networks. Further research could therefore build on previous case studies (Anderson, 2013A; Domingo & Le Cam, 2015) to analyze how specific news networks are activated within various news ecosystems. Exploring the production and diffusion of news in various contexts could also assess the apparition and disappearance of new actants as well as the power struggles among them, which would foster a rich discussion on the diversity of news coverage in various contexts.

While there is no consensus on the best research methods and instruments to implement when conducting an ANT inquiry, original ideas such as shadowing objects or multisited ethnography have emerged in the field of journalism studies and aid in the analysis of journalistic practices. Technological innovations can be used to gather, compute, and analyze data. Future research at the methodological level should continue to assess online methodologies and (in an ANT fashion) be critical regarding how these tools shed a certain light on journalism and the world.

Finally, future research could also combine an ANT perspective or a material sensitivity with other theories. As Latour (2013) pointed out, ANT studies in various disciplines often arrive at similar conclusions. Each social phenomenon is a network effect; the result of complex and evolving relationships among heterogeneous actors. Latour (2013) argued that ANT in its purest form "does not qualify value" and is not normative (pp. 27–46). Latour's research therefore uses ANT as a strategy to detect and compare so-called modes of existence of various actor-networks (Domingo & Wiard, 2016; Latour, 2013). As

Latour has done for politics, religion, and law, future research should reflect on the true essence of journalism and investigate what could be the modes of verification of journalism, (Latour, 2013) regardless of who or what performs it in specific situations.

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### Notes:

(1.) In a Latourian fashion, Hemmingway (2008) also produced an inspiring glossary at the end of her book *Into the Newsroom*, which should be of interest to anyone interested in using ANT (see pp. 223–227).

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