

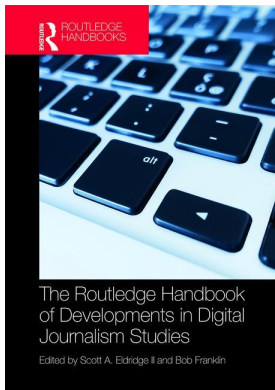
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Tal Montal, Zvi Reich

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THE DEATH OF THE AUTHOR, THE RISE OF THE ROBO-JOURNALIST

Authorship, bylines, and full disclosure in automated journalism

Tal Montal and Zvi Reich

Introduction

The rise in recent years of “automated journalism” (Carlson, 2015; Weeks, 2014) or “robot journalism” (Clerwall, 2014; Van Dalen, 2012) is based on a new and exceptional use of algorithms, artificial intelligence software platforms, and natural language generation techniques. These algorithms are able to generate textual and visual journalistic content automatically and (to some extent) autonomously, and their output “can be fully customized to fit a customer’s voice, style and tone” (Ghuman and Kumari, 2013: 205). Automated journalism allows media organizations to address the areas of interest of their “long-tail” readers with virtually no additional marginal costs. Presented as a promise to release human journalists from routine reporting, it allows them to focus on more complex tasks, in light of the financial difficulties these organizations are experiencing.

Currently, few media organizations employ automated journalism in the way of publishing new stories that are automatically generated by algorithms. Despite their scarce number, they include prominent news players such as Associated Press, *Forbes*, ProPublica, and the *Los Angeles Times*, along with a small number of prominent software companies such as Narrative Science and Automated Insights. Typically, algorithms characterize stories that use numbers and statistics (Carlson, 2015), such as sports recaps, real estate market analysis, weather, and earnings previews. It is predicted to expand to additional domains while performing as a stopgap for understaffed media organizations.

One of the most fascinating challenges of “robot journalism” that has scarcely been addressed is the authorship of algorithmic news – who should be acknowledged as the author of automated items? Contrary to first impressions, algorithmic authorship raises exceptionally broad theoretical issues while attempting to illuminate the dark side of the rising technology of algorithms and its social and cultural roles. The few existing studies in this domain primarily explore the effect of automated journalism on human journalists’ practices and relations with the robot journalists (Carlson, 2015; Van Dalen, 2012; Young and Hermida, 2015) and the effect on readers’ and journalists’ perceptions (Clerwall, 2014; Kaa and Kraemer, 2014).

Automated news has potential implications for both journalists and readers, highlighting the importance of transparency in both following facets. One is *disclosure transparency* (Karlsson, 2010), or the levels at which media organizations reveal how a specific news story was selected and produced. More important is the *algorithmic transparency* – the methodology, construction, and limitations of the algorithm (Coddington, 2015; Diakopoulos, 2014). Disclosing how information is produced in terms of collection, interpretation, analysis, or the methodology used to produce the output is considered an inherent component of information transparency and a crucial criterion for evaluating “whether such information is the product of an ethical practice” (Turilli and Floridi, 2009: 109).

There are five major justifications for thoroughly exploring the innovative domain of automated journalism: first, the *practical* ramifications automated journalism might have on readers’ practical decisions in fields such as real estate, health, and securities; second, the *sociopolitical* implications stemming from the algorithmic potential to affect the visibility of political and social actors while maintaining a predetermined agenda (Diakopoulos, 2014; Gillespie, 2014; Katz, 2012; Stavelin, 2013; Tufekci, 2014; Young and Hermida, 2015); third, the *psychological* effect of the perceived objectivity and credibility of algorithms among news audiences (Carlson, 2015; Gillespie, 2014; Kaa and Krahmer, 2014), as “stabilizers of trust, practical and symbolic assurances that their evaluations are fair and accurate, free from subjectivity, error, or attempted influence” (Gillespie, 2014: 179); fourth, the *legal and ethical* vicarious liability held by journalistic organizations toward the readers, which is especially relevant when algorithms act as agents whose actions are within the scope of “employment” by the journalistic organization (Vladeck, 2014); and finally, the threatening occupational implications the technology has on the employment of human journalists, perceived as “constrained authors” (Reich, 2010), and their autonomy over their domain (Abbott, 1988; Baluja, 2013; Reich, 2013; Van Dalen, 2012).

Studying specifically the authorship of algorithmic news is consequential since behind the allegedly technical attribution of this entity or another, authorship indicates deep sociocultural perceptions of algorithms and their potential and actual roles in journalism, challenging the traditional dominance of ethnocentric perceptions of journalistic authorship that led the rise of bylines, mainly across the twentieth century (Reich and Boudana, 2014; Reich and Klein-Avraham, 2014). Explorations of different attribution regimes showed their capacity to trace historical trends and their adjustment to changes in the news environment.

This chapter will provide a multidisciplinary theoretical integration that is required in policy research (Sola Pool, 1974). Then we will offer a new comprehensive and consistent policy – an initial framework for understanding and treating algorithmic authorship in ways that satisfy public interest.

Literature review

Automated journalism algorithms

The increasing use of algorithms and software, and in particular artificial intelligence (hereafter: AI), was recently dubbed the “algorithmic turn” (Napoli, 2014; Uricchio, 2011). Algorithms are no longer “step-by-step procedures for calculations that consist of instructions and follow a finite set of rules” (Bunz, 2013: 6) nor a “precise recipe” (MacCormick, 2012: 3). They are now considered as a series of computational actions performed concurrently to decision-making at various levels of uncertainty (Latar and Nordfors, 2009). AI algorithms can replace humans in a large variety of cognitive tasks and present self-learning and autonomic decision-making abilities (Diakopoulos, 2014; Latar and Nordfors, 2009).

Following Carlson (2015: 417), automated journalism is conceptualized here as “algorithmic processes that convert data into narrative news texts with limited to no human intervention beyond the initial programming”. It is another link in the chain of technological developments

that has accelerated changes in news production processes, organizational structures and journalistic practices (Gynnild, 2013; Primo and Zago, 2015). Algorithms are seen as the “future of journalism” (Anderson, 2013: 1009), contributing to the different stages of content production (Napoli, 2014) and performing most traditional journalistic functions (Dörr, 2015).

The automated journalism algorithms, rooted in TaleSpin software (Meehan, 1977), perform tasks that were originally exclusive to humans, hence (*ro*)bots, on the basis of AI software platforms and natural language generation (hereafter: NLG) techniques that allow the transformation of raw data into intelligible language. The essence of the algorithmic process of robot journalism is an automation of *storytelling* (Baluja, 2013; Bunz, 2013), adapted to the human understanding of life as a sequence of continuous narratives (Ghuman and Kumari, 2013). Automated journalism algorithms perform a series of steps: (a) locate and identify relevant data in databases and other data sources; (b) “clean” and categorize the raw data; (c) identify key facts while prioritizing, comparing, and aggregating the data; (d) organize it in a semantic structure of a narrative; and (e) distribute and publish journalistic output of textual (and occasionally visual) content, available in various styles, languages, and levels of grammatical complexity (Bunz, 2013; Dörr, 2015; Ghuman and Kumari, 2013; Weiner, 2014). These algorithms make a substantial commercial contribution, considering the financial difficulties of media organizations and the fact that they help these organizations address their “long-tail” readers, interested in niche coverage domains, with negligible additional marginal costs.

Bylines and full disclosure

Bylines, or credits, are relevant for almost any creative domain (Fisk, 2006), reflecting labor relations and employment considerations (Reich and Boudana, 2014), making them a highly interesting lens through which to observe “robot journalism”. Their historical emergence in journalism involved significant organizational, legal, political, and literary implications, reshaping hierarchy inside news organizations and leading to journalistic stardom (Reich, 2010; Fisk, 2006). Their growing proportion throughout the years functions as “a simple, measureable and comparable indicator for changes in their [the journalists’] status, professionalism, creativity and authorship” (Reich and Klein-Avraham, 2014: 619).

Bylines reflect the hominid and erratic nature of human journalistic content (Reich, 2010), which is already suffering from diminished credibility (Maier, 2005). Studies show that the mere presence of bylines has a measurable impact on readers’ perceptions regarding the meaning, authority, and credibility of texts (Burkhart and Sigelman, 1990; Das and Pavlíčková, 2013). However, prevailing byline policies tend to be anthropomorphic; because almost every news story is bylined and attributed to a human journalist (or news agency), stories without bylines are perceived as dubious and suspicious (Reich, 2010).

The emergence of bylines coincided with their similar though somewhat earlier development in literature, where the author’s position is still debated. The mere idea of an author reflects evolving trends of commercialization (Rose, 1993) and individualization (Foucault, 1980), based on the romantic notion of the author as a genius capable of creating something new and original (Woodmansee, 1991). The author is considered capable of “closing” the content in terms of giving it a final and conclusive meaning (Barthes, 1977; Hirsch, 1978), which may seem less relevant in the quantitative domains of coverage for which robot journalism algorithms are used.

Against that backdrop, a *full disclosure policy* is defined as one type of the “information policies that require firms to provide information about their product [. . .] and service” (Winston, 2008: 705). Full disclosure of information is considered an integral part of modern public life (Schudson, 2015), in which organizations are “conveying information [. . .] that is complete and timely” (Kaufmann et al., 1994: 29). In our case, it is an additional way of providing details about

the characteristics of the automated content and its author, its data sources, and its methodology and identifying the particular story as automated.

Full disclosure can also respond to ethical challenges such as transparency and accountability, expressed in the different stages of automated journalistic content production (Dörr and Holnbuchner, 2015), in addition to “establish[ing] acceptable risk levels” (Fung et al., 2007: 38), as for the previously mentioned vicarious liability.

Legal views on computer-generated works

Computer authorship was identified decades ago as a major problem by the U.S. Register of Copyrights (1965), distinguishing between cases of using the computer merely as an assisting tool and cases in which “traditional elements of authorship [. . .] were actually conceived and executed not by man but by a machine” (Register of Copyrights, 1965: 5). Computer authorship was recognized slowly, notably because of the “slow maturation of AI research” (Bridy, 2012: 22), with an appropriate legal status (Davies, 2011).

In 1988, almost two decades after the Berne Convention, which recognized computer programs as literary works eligible for protection (Rajan, 2011), the Copyright, Designs and Patents Act (hereafter: CDPA) was legislated in the UK, presenting, *inter alia*, a framework for copyright protection of computer-generated works (hereafter: CGW) – “works that are created in total absence of any human intervention at the time of the creation of the work” (Perry and Margoni, 2010: 3), hence protecting the output of software. These automated works are differentiated from those in which the computer was merely a tool, from intermediate works, and from expert systems (Bainbridge, 1997; McCutcheon, 2013a; Stokes, 2009). While legislators “felt the necessity to state [. . .] the author” (Perry and Margoni, 2010: 2) in various jurisdictions such as the UK or New Zealand (McCutcheon, 2013a), the U.S. legislative framework “has yet to define the author for computer-generated works” (Glasser, 2001: 25) and in case of automated journalism “will have to choose between ruling on correspondent questions case-by-case or picking a conceptual structure to follow” (Weeks, 2014: 94).

Nevertheless, the author of these works was defined by the CDPA as the “person by whom the arrangements necessary for the creation of the work are undertaken” (Bainbridge, 1997: 222), leaving room for different author candidates. Can authorship be delegated to the algorithm programmer, whose intuition and transitivity (being the author’s author) suggest he/she be recognized as the author (Bridy, 2012), or to the user/operator (Perry and Margoni, 2010; Rajan, 2011)? Can the algorithm itself be recognized as author (Weeks, 2014), or can both human and algorithmic factors be considered co-authors? Is it the output designer, initiator, or the customer buying the software (McCutcheon, 2013b)? Is it the data provider (Weeks, 2014)? Or should the work perhaps be seen as authorless, belonging to the public domain (Davies, 2011; Perry and Margoni, 2010)?

Numerous criteria may provide a way to resolve the author question. The *originality* criterion, referred to as “the overarching standard of authorship” (Ginsburg, 2002: 1077), was used to allow rights protection for works that are not copied from previous works and made with minimal effort and expertise. The author is, therefore, considered “the source of originality” (McCutcheon, 2013a: 935). However, the authorship–originality correlation may be inadequate in the case of contemporary generative algorithmic methods such as “robot journalism”, where the minimal effort is presented merely in the decision to generate content rather than a true intellectual effort. Other criteria might involve the *intention* to generate the work, whether it is algorithm-initiated or merely scheduled by the programmer (McCutcheon, 2013b), the ability to *predict* the output (Bridy, 2012), or the *functional proximity* to the actual creation process (McCutcheon, 2013b).

One of the most controversial criteria is the *creativity* criterion, defined as the “ability to generate novel and valuable ideas” (Boden, 2009: 24) and characterized by *human action* – which

is positioned “at the core of the creative process” (Davis, 1991: 4). The notion of creativity has been discussed thoroughly by philosophers and historians who presented diverse views – from an inspirational, imaginary, and free-of-rules process, to a rational goal-directed one (Paul and Kaufman, 2014), and is considered an elementary aspect of modern journalism (Berglez, 2011; Markham, 2012). Boden (2009) identified three types of creativity: *combinational* – the “unfamiliar combination of familiar ideas” (Boden, 2009: 24) such as painting creating a collage; *exploratory* – the research of potential and limitations in a conceptual space, such as a inventing a new cuisine; *transformational* – the transformation of a perceptual space by “altering (or dropping) one or more of its defining dimensions” (Boden, 2009: 25), hence “giv[ing] rise to ideas that are not only new but fundamentally different from any that went before” (Boden, 2009: 25). However, some scholars, including Boden herself, are divided on the question of algorithmic authorship over several aspects, such as the ability of AI algorithms to ever be truly creative or the need for incentives such as rights protection to be given to machines (Clifford, 1996; Samuelson, 1985). Scholars argue that while technology is rapidly evolving, the legal domain requires a progression, since there is no universal formula for dealing with CGW (Rajan, 2011).

Discussion

Automated journalism, therefore, challenges the most fundamental questions underlying computer authorship. The scholarly literature raises expectations for the acceptance of *algorithmic authorship* in the light of the evolving autonomic capacities of AI algorithms, their growing involvement in media content production, or the progress of attribution policies in journalism. On the other hand, it also raises expectations for the acceptance of *anthropomorphic authorship*, since bylines and their underlying principles regarding authorship, full disclosure, and transparency remain tailored to the contours of a human journalist. Both views are reflected in the ongoing legal debate regarding computer-generated works and algorithmic authorship. We detect numerous discrepancies between challenges and suggestions available in the scholarly literature, as well as common journalistic practices (Montal and Reich, 2016).

The first discrepancy between the scholarly literature and common perceptions and byline policies is the *human-bot attribution gap*. Boden (2004) expresses reservations regarding the agency of algorithms, such as their lack of intention, while other scholars like O’Hear (1995) provide a solid negative response to the debate on whether computers can really be creative. These scholars suggest that it is the human factor, in terms of imagination (Baluja, 2013) or consciousness (Clifford, 1996), that constitutes the core of the creative process. While there is some consistency of these views with the anthropomorphic author perceptions reflected in practice by attributing bylines to human entities – some news organizations and media organizations (e.g., *Los Angeles Times*, Wikipedia) currently attribute the algorithm itself as the author, which might imply an initial process of deviation from traditional perceptions of human authorship.

The second discrepancy is the *transparency gap* between the consensus on the importance of transparency regarding the origins of content as viewed by scholars (Coddington, 2015; Diakopoulos, 2014; Karlsson, 2010; see Coddington, Ferrer-Conill and Karlsson, and Koliska and Diakopoulos, this volume, Chapter 19) and day-to-day journalistic practice, where organizations’ bylining policies tend to ignore the unique nature of the automated stories and employ a haphazard and inconsistent crediting policy – in contrast with the unanimous support of the readers’ right to transparency expressed in the literature.

Substantial gaps also emerged between the different views in the scholarly literature, one of which is the debate regarding the true ability of generative algorithms – the *artificial intelligence gap*. Scholars from various disciplines insist that algorithms “have become performing entities: actualities that select, evaluate, transform and produce data” (Parisi, 2013: IX), with self-learning

abilities. Automated journalism algorithms, in particular, are not only constantly evolving but already considered “a form of artificial intelligence” (Weeks, 2014: 87). On the other hand, many scholars still regard the human entity behind the algorithm as the true author (Bridy, 2012; Perry and Margoni, 2010; Rajan, 2011) and therefore frame the algorithms’ autonomous capabilities in a limited scope.

A similar debate can be found in the legal domain, where one can find suggestions to attribute creations of AI systems to fictitious entities, such as a fictional human author (Wu, 1997), corporate bodies (Davies, 2011), or to special legislative entities especially constituted to bear authorship (McCutcheon, 2013b). Samuelson (1985), in contrast, suggests referring to the human user of the software as the author, for being the closest to the position of traditional author. Others suggest a special ‘delayed authorship’ received after the work’s completion (Bainbridge, 1997), adopting the work-made-for-hire doctrine and referring to the algorithm as an employee (Bridy, 2012), and even to classify CGW as public domain (Davies, 2011; Perry and Margoni, 2010), a solution bearing little relevance for commercial organizations, and for news organizations in particular. This exposes the *legal-journalistic gap* between the repertoire of legal solutions for addressing the uniqueness of automated content and the common journalistic approach not to treat algorithmically-created content differently than other kinds of human authorship.

The *attribution norm gap* refers to another discrepancy between the common use of bylines seen among organizations’ output that reflects the variety of byline and full disclosure policies (Montal and Reich, 2016), and the almost universal anthropomorphic attribution norms that prevail in Western news organizations today (Reich, 2010; Reich and Boudana, 2014). This may indicate a conceptual vagueness probably due to the unprecedented and enigmatic nature of algorithmic authorship, while ignoring the author’s “key role in media users’ ability to critically use [. . .] and evaluate [. . .] media content” (Das and Pavličková, 2013: 381). Common journalistic perceptions that are consistent with the views of some scholars according to which creative processes are collaborative by nature (i.e. Barthes, 1977; Foucault, 1980) are fixed on human authorship and hardly applicable to algorithmic authorship.

One of the most significant discrepancies, the ‘*unbiased bias*’ gap, is evident between the critical positions of scholars from various disciplines regarding the seemingly unbiased nature of algorithms, and the naive positions known to be held by journalists who tend to perceive raw data as more objective, accurate, and neutral. These scholars argue that not only algorithmic processes but any “elaboration processes of information are not ethically neutral” (Turilli and Floridi, 2009: 109). Algorithms, and AI algorithms in particular, have the ability to change in accordance to business decisions while hiding their underlying assumptions, ideologies, and premises (Diakopoulos, 2014; Katz, 2012; Stavelin, 2013; Tufekci, 2014), position themselves as free of interest, errors, or subjectivity (Chung-Yan, 2012; Gillespie, 2014; Shirky, 2009), and affect perceptions of both journalists and readers.

This series of discrepancies emphasizes the need for a consistent and coherent policy for maintaining authorship and full disclosure, due to the diversity of entities that are subject to attribution, such as a human programmer, software companies, news organizations, or even a bot, as well as the incompatible perceptions presented by scholars, journalists, and the audience of readers.

Conclusion

Our research shows that algorithmic authorship is not only a novel and unexplored issue but is also complex and enigmatic, involving crucial theoretical matters from various disciplines, such as algorithmic creativity, computer-generated works’ legal views and attribution, and full disclosure policies. Though only a minority of pioneering organizations already uses automated journalism, it arouses enormous interest and seems to have great potential, especially considering the

mounting financial pressure on media organizations and their quest for rapid content generation with lower marginal costs.

This chapter delineates the crucial need for consistent and comprehensive byline and full disclosure policies, given the abundant and substantial discrepancies between how current users of the technology approach algorithmic authorship and their actual attribution policies and between our empirical findings and the scholarly literature.

A systematic policy for bylining algorithm-generated news consisting of full disclosure is needed not only in order to adjust to the universal norms of attribution that have become an integral feature of modern journalism (Reich, 2010; Reich and Boudana, 2014) but mainly to minimize the dangers of ambiguous authorship and demystify the naïve perceptions shared by audiences and journalists regarding the seemingly unbiased nature of algorithms (Chung-yan, 2012; Gillespie, 2014; Stavelin, 2013) and the possible decline in readers' judgment and evaluation processes (Carlson, 2015). The departure point for such policy is our assumption that full disclosure containing information regarding methodology, data sources, etc., is a mandatory apparatus to mitigate the seemingly 'unbiased bias' toward algorithm-generated news. Our proposed policy identifies the uniqueness of the new technology and the questions it raises, based on the core debate regarding algorithmic authorship and the need for a policy centered on sponsoring public interest.

The proposed attribution policy for automated news demarcates two major levels of algorithmic involvement in journalistic content creation that cover the range of common possibilities in automated journalism. First is *algorithmic content generation*, in which the textual (or visual) content is produced without the involvement of a human journalist/editor. Second is *integrative content generation*, in which the textual (or visual) content is produced through collaboration between one or more human journalists and a generative algorithm. This demarcation is consistent with views in the legal literature that highlight the importance of identifying the degree of algorithmic involvement in the creative process (Bainbridge, 1997; McCutcheon, 2013a; Stokes, 2009) and the journalist-machine relations they form (Van Dalen, 2012).

To formulate the crediting policy we must consider factors such as data sources, preliminary natural language patterns, and of course – the algorithm code, which are, after all, created and maintained by humans (Bunz, 2013), hence leading to crediting a human entity, while disclosing the unique characteristics of each automated story. Additional factors are the resulting liability of the journalistic and the software organizations toward the readers and the fact that these algorithms are still not fully autonomic, or still do not present truly AI capabilities, in the sense of expressing a transformative creativity (Boden, 2009).

Our suggested attribution policy for *algorithmic content generation* is as follows:

- The *byline* should be attributed to the software vendor or to the programmer, in the case of an individual in-house programmer.
- The *full disclosure* should clearly state the algorithmic nature of the content (while describing the software vendor or the programmer's role in the organization) and detail the data sources of the particular story and the algorithm methodology.

In the case of *integrative content generation*, our suggested policy is as follows:

- The *byline* should be attributed to the human journalist(s) as the representative of the collaborative work done with the algorithm, in accordance with the anthropomorphic characteristics of the modern journalistic credit.
- The *full disclosure* should declare the objects created by an algorithm in the particular story (a chart, map, specific paragraph, etc.), as well as the content's algorithmic nature (describing

the software vendor's business domain or the programmer's role), data sources of the story, and the algorithm methodology.

The suggested attribution policy provides a comprehensive and consistent method for handling automated news stories, contrary to the haphazard and inconsistent prevailing policies, taking into account public interest, journalistic values and practices, and the need for transparency toward audiences (Karlsson, 2010) but without violating trade secrets or revealing the source code of the algorithm(s).

Our policy accepts the notion of the human author of automated content, as argued by most scholars, as the representative of the collaborative work for integrative content generation and as the programming entity (programmer or software vendor) for algorithmic content generation.

The policy highlights the importance of identifying the author and crediting each piece of automated journalistic content in accordance with the norms of modern journalism (Reich, 2010; Reich and Boudana, 2014) and the author's key role in the readers' evaluation process (Das and Pavlíčková, 2013). This combined disclosure is essential not only due to the inability of audiences to distinguish between human and algorithmic news stories (Clerwall, 2014), but also due to the expected decline of the capability of audiences to judge and evaluate algorithmic content (Carlson, 2015; Kaa and Krahmer, 2014) with the increasing sophistication of generative algorithms.

Our suggested policy is tailored to the current level of technological development of robot journalism algorithms. Any significant development that enhances the autonomic capabilities and expertise level of these algorithms, such as autonomously identifying and locating potential data sources, finding patterns and trends or developing speech patterns, will affect the core question of the algorithmic authorship. Legislative progress regarding computer-generated works may invite respective adjustments of the policy as well.

The domain of automated journalism is constantly expanding in terms of organizations that use the new technology, domains of coverage, and the creativity of the algorithms. As algorithmic news becomes more prevalent and 'normalized', with broader access to the actors in the field, the authorship question may become even more crucial. Hence the importance of implementing a consistent and comprehensive byline and full disclosure policy such as our suggested one at the earliest stage possible.

Further reading

This chapter has tremendously benefitted from Tal Montal and Zvi Reich's (2016) article "I, Robot. You, Journalist. Who Is the Author? Authorship, Bylines and Full Disclosure in Automated Journalism", which provides an integration of multidisciplinary theoretical framework of algorithmic creativity, bylines and full disclosure policies, legal views on computer-generated works, and an empirical study of attribution regimes in automated journalism. Arjen van Dalen's (2012) "The Algorithms Behind the Headlines: How Machine Written News Redefines the Core Skills of Human Journalists" and Matt Carlson's (2015) "The Robotic Reporter: Automated Journalism and the Redefinition of Labor, Compositional Forms, and Journalistic Authority" enhance the discussion over the influence on the practices of human journalists. Christer Clerwall's (2014) "Enter the Robot Journalist: Users' Perceptions of Automated Content" and Hille van der Kaa and Emiel Krahmer's (2014) "Journalist Versus News Consumer: The Perceived Credibility of Machine Written News" further examine the effect automated content has on readers' and journalists' perceptions, and Michael Karlsson's (2010) "Rituals of Transparency: Evaluating Online News Outlets' Uses of Transparency Rituals in the United States, United Kingdom and Sweden" highlights the importance of transparency in contemporary journalism.

Regarding the legal aspect, Jani McCutcheon's (2013) "The Vanishing Author in Computer-Generated Works: A Critical Analysis of Recent Australian Case Law" and "Curing the Authorless Void: Protecting Computer-Generated Works Following IceTV and Phone Directories" provide an extensive image of the challenges and possible solutions in the legal domain for this innovative technology. Finally, the chapter has benefitted from Zvi Reich's (2010) "Constrained Authors: Bylines and Authorship in News Reporting" and Zvi Reich and Sandrine Boudana's (2014) "The Fickle Forerunner: The Rise of Bylines and Authorship in the French Press" as well as Zvi Reich and Inbal Klein-Avraham's (2014) "Textual DNA: The Hindered Authorship of Photojournalists in the Western Press", all of which provide a comprehensive background on the development of the journalistic byline and its relations to authorship as a concept.

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