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SUPERVISING AUTOMATED JOURNALISTS IN THE NEWSROOM: LIABILITY FOR ALGORITHMICALLY PRODUCED NEWS STORIES

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SUPERVISING AUTOMATED JOURNALISTS IN THE NEWSROOM: LIABILITY FOR ALGORITHMICALLY PRODUCED NEWS STORIES

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ABSTRACT:

Algorithmic processes that convert data into narrative news texts allow news rooms to publish stories with limited to no human intervention.[1] The new trend creates many opportunities, but also raises significant legal questions. Aside from financial benefits, further refinement could make the smart algorithms capable of writing less standard, maybe even opinion, pieces. The responsible human merely needs to define clear questions about what the algorithm needs to discuss in the article and in what manner. But how does it square with the traditional rules of publishing and editorial control?

This working paper analyses the question of authorship for algorithmic output and the liability issues that could arise when the algorithmic output includes inaccurate, harmful or even illegal content. The analysis of authorship and liability issues is performed by assessing the existing relevant Belgian legislation and case law regarding copyright and press liability. Furthermore, the paper answers the question as to how publishers should prevent the creation of inaccurate content by the algorithms they use. Parallels are drawn with the judgement of the European Court of Human Rights in Delfi v. Estonia[2]. The paper assesses whether an obligation of a responsible human to monitor all output of the automated journalist is feasible, or rather defeat the purpose of having the smart algorithms at his/her disposal.

KEYWORDS:

Automated Journalism, Legal liability, Authorship of Automated Journalism, Ethical responsibilities, Belgian constitutional cascade system

[1] M. Carlson, 'The Robotic Reporter', *Digital Journalism*, 2015, Vol. 3, Issue 3, p. 416.

[2] European Court of Human Rights (Grand Chamber), *Delfi AS. v. Estonia*, nr. 64569/09, 16 June 2015, available at http://hudoc.echr.coe.int/eng?i=001-155105.

I. Introduction

The emergence of Artificial Intelligence (AI) and automated decision-making raises serious liability concerns. The PageRank algorithm and autocomplete suggestions have already gotten Google into hot water.[3] However, we are merely scratching the surface. Recently, driverless car developers/ producers Volvo[4] and Google[5] have already stated that they agree to be held liable for the accidents involving their machines. Effectively, the companies agree to bear the consequences for automated decisions beyond their control. With driverless cars around the corner it is time to think about liability for 'writerless' journalism.

Convergent media challenges the traditional division between actors involved in media production chain. The blurred lines often make it difficult to clearly distinguish who is the author, editor and publisher of the content. Recently, the Grand Chamber of the European Court of Human Rights (ECtHR) considered an online news portal liable for defamatory user comments under one of their articles.[6] The judgement entailed that the portal was liable for content their journalists did not write. The Grand Chamber of the ECtHR found that the news portal should be considered a traditional publisher and not an internet intermediary. Consequently, the portal should delete illegal user comments without delay after publication and on its own initiative.[7]

This working paper focuses on the liability issues arising once newsrooms start using content-creating algorithms to write fully-formed articles based on raw data with limited to no human intervention.

The paper first addresses the concept of automated journalism, and the actors in the liability chain. The problem is analysed from the perspective of the Belgian liability regime for print publications. The Belgian constitution proclaims that the author is liable

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[3] For more information about this topic: S. Karapapa & M. Borghi, 'Search engine liability for autocomplete suggestions: personality, privacy and the power of the algorithm', *International Journal of Law and Information Technology*, 2015, pp. 1–29.

[4] X, 'Who is responsible for a driverless car accident?', *BBC News*, 8 October 2015, available at http://www.bbc.com/news/technology-34475031.

[5] The Associated Press, 'Google driverless car involved in first injury-causing accident', *CBS News*, 17 July 2015, available at http://www.cbsnews.com/news/google-driverless-car-involved-in-first-injury-causing-accident/.

[6] European Court of Human Rights (Grand Chamber), *Delfi AS. v. Estonia*, nr. 64569/09, 16 June 2015, available at http://hudoc.echr.coe.int/eng?i=001-155105.

[7] Opportunities and challenges of new media are a topic of the REVEAL research project (EU-FP7) (Official website: http://revealproject.eu/). The goal of the project is to develop a tool that could extract hidden modalities from the content of media items shared on social media platforms. Through the hidden modalities, the partners aim to provide a comprehensive view of the credibility of media sources and content on social media platforms. The legal research in the project focuses on privacy and data protection law, intermediary liability, as well as media law. Automated journalism is one of the focal points of the media law track of the project.

for his/her news story if he/she is known and resident in Belgium.[8] The paper therefore discusses the authorship of automated journalism. The analysis of copyright law is followed by an assessment of the relevant criminal and civil liability legislation and case law. Lastly, the paper provides recommendations for editors and publishers to avoid liability for the content created by algorithms in their newsroom.

II. Automated Journalism

A. Newsrooms, they are a changin'

News publishers increasingly experience pressure by their readers to publish content immediately after certain events, especially in a digital context. The expectations of media consumers result in a growing desire of publishers to develop fast content production mechanisms.[9] Moreover, the need of human presence in the newsroom is shrinking. Content farms already mine search engine data to precisely calibrate the user's news gathering and produce low-cost content to meet their individual demands and interests.[10] Algorithms can further be used to translate data into perfectly tailored news stories, employing traditional vocabulary and syntax.[11] Some technologies still need human presence to function, others fully function without human intervention.[12] Companies such as Narrative Science and Automated Insights [13] specialise in the algorithmic content creation. Via advanced Natural Language Generation Software, these companies can cater news articles for specific audiences in a very short period of time.[14] The software examines all the facts it has access to, filters and structures it in a specific way and eventually maps its ideas into language in a matter of seconds. The algorithm will convert big data regarding e.g. stock prices, sports statistics, and weather reports, into prose that resembles human news stories.[15] To date, the most common uses of this software have been in the field of sports and financial reporting, often creating niche content that would not exist otherwise in a narrative structure (such as

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[8] Article 25 of the Constitution: cf. *infra.*

[9] P. Bakker, 'Aggregation, Content farms and Huffinization', *Journalism Practice,* 2012, vol. 6, Issue 5-6, p. 627.

[10] P. M. Napoli, 'The algorithm as institution: toward a theoretical framework for automated media production and consumption', *Fordham University Schools of Business Research Paper Series*, 2013, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2260923, p. 16.

[11] M. Carlson, 'The Robotic Reporter', *Digital Journalism,* 2015, Vol. 3, Issue 3, p. 416; L. Weeks, *l.c.*, p. 73; A. Graefe, 'Guide to Automated Journalism', *Tow Center for Digital Journalism,* 7 January 2016, available at http://towcenter.org/research/guide-to-automated-journalism/.

[12] P. Bakker, *o.c.*, p. 631.

[13] In this paper, we focus on these two companies whenever examples are given.

[14] K. Hammond, *Practical Artificial Intelligence for Dummies,* Narrative Science Edition, 2015, Hoboken, New Jersey: John Wiley & Sons, Inc., p. 35.

[15] L. Weeks, 'Media Law and Copyright Implications of Automated Journalism', *New York University Journal of Intellectual Property and Entertainment Law,* 2014, Vol. 4, p. 69.

reports on 'Little League' games).[16] Kris Hammond, CTO of Narrative Science, however predicted in 2011 that a computer would win a Pulitzer Prize within five years.[17] Even though a software winning the prestigious prize by next year seems unlikely, the technologies are improving. Once the algorithms are optimised and allow newsrooms using robotic reporters to write and edit less *niche* news stories independently, serious liability consequences could come into play. Noam Latar highlighted that data-mining algorithms often provide news stories with very high statistical significance but that their results can be meaningless, or even lead to falsehoods or inaccuracies.[18] This can be a result of incorrect questions, inconsistent data or incorrect AI procedures. The algorithms do not fully understand human language and its intricacies, *"especially the context of ideas, metaphors, humor and poetry*."[19] Therefore, potential liability issues could be right around the corner.

B. Neutrality of Algorithms

Even though the basic anatomy of automated journalists will be comparable, the style, tone and editorial criteria that are coded into the algorithms can differ.[20] In other words, software is biased. The content-creating algorithms that Narrative Science and Automated Insights have developed can adjust the tone and structure of the output to the profiles of its readers.[21] As long as data is available, Narrative Science has already confirmed that its clients "*can get anything, from something that sounds like a breathless financial reporter screaming from a trading floor to a dry sell-side researcher pedantically walking you through it*."[22] In the future, automated journalism could create

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[16] J. Pinsker, 'Algorithm-Generated Articles Don't Foretell the End of Journalism', *The Atlantic*, 30 June 2014, available at http://www.theatlantic.com/business/archive/2014/06/algorithm-generated-articles-dont-foretell-the-end-of-journalism/373691/.

[17] J. Beck, 'Robot journalist will snag pulitzer by 2016, predicts robot-journalist programmer', *Popular Science*, 12 September 2011, available at http://www.popsci.com/technology/article/2011-09/software-automatically-writes-news-articles-and-theyre-actually-not-bad; T. Adams, 'And the Pulitzer goes to… a computer', *The Observer*, 28 June 2015, available at http://www.theguardian.com/technology/2015/jun/28/computer-writing-journalism-artificial-intelligence; J. Tracey, 'Will Rosetta Be the First Robot to Win the Pulitzer Price for Photojournalism?', *Outer Places*, 18 November 2014, available at http://www.outerplaces.com/science/item/6963-philae-might-be-the-first-robot-to-win-pulitzer-prize-for-photojournalism.

[18] N. L. Latar, 'The Robot Journalist in the Age of Social Physics: The End of Human Journalism?', in G. Einav, *The New World of Transitioned Media: Digital Realignment and Industry Transformation*, 2015, Cham: Springer, p. 76.

[19] Ibid.

[20] N. Diakopoulos, 'Diversity in the Robot Reporter Newsroom', *Nick Diakopoulos – musings on media*, 16 July 2014, available at http://www.nickdiakopoulos.com/2014/07/16/diversity-in-the-robot-reporter-newsroom/; T. Lokot & N. Diakopoulos, 'News Bots: Automating news and information dissemination on Twitter', *Digital Journalism*, 2015.

[21] N. L. Latar, *l.c.*, p. 76.

[22] J. Morris, COO of Data Explorers, which set up a securities newswire using Narrative Science technology via S. Levy, 'Can an algorithm write a better news story than a human reporter?', *Wired*,

multiple customised versions of a specific news story to better suit the taste, viewpoints or profile of every individual user.[23] This paper will not further explore the data protection issues that could arise once the algorithms start using personal data to profile each individual user.[24] Rather, we focus on the neutrality of these algorithms.

The content-creating algorithms are constantly refined, to combat the generic nature of their output. The use of metaphors in the Narrative Science algorithm is already confirmed by Kris Hammond.[25] Real use of metaphors would hover on the edge of the merely factual into more dangerous territories as regards liability. In addition, the use of metaphors is not even necessary to envision potential liability issues. The Narrative Science White Paper shows that companies can use its products to map how a salesperson is doing. They give the following example of what the algorithm would produce automatically:

> *"Dave Schmitt's overall sales performance is up a bit this month. He has been closing smaller deals at a higher than expected rate and still has larger deals in the pipeline. He remains in the middle of the pack in the Southwest Region."*[26]

This piece of text is merely factual and not defamatory. Yet, it could be less flattering for a salesperson with a lower performance rate. Once similar texts would surface in the newsroom and get published without any human intervention about salespersons or shareholders of a company, the situation could become worrisome if errors creep into the data.

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24 April 2012, available at http://www.wired.com/2012/04/can-an-algorithm-write-a-better-news-story-than-a-human-reporter/.

[23] P.J. Ombelet, 'Send in the Robots: automated journalism and its potential impact on media pluralism (part 2)', *LSE Media Policy Project Blog*, 17 August 2015, available at http://blogs.lse.ac.uk/mediapolicyproject/2015/08/17/send-in-the-robots-automated-journalism-and-its-potential-impact-on-media-pluralism-part-2/; P. Bradshaw, 'The 'Metajournalist' and the return of personalised news: research on automated reporting', *Online Journalism Blog*, 7 January 2015, available at http://onlinejournalismblog.com/2015/01/07/the-metajournalist-and-the-return-of-personalised-news-research-on-automated-reporting/.

[24] For more information on these aspects, see P.J. Ombelet, *l.c.*; E. Morozov, 'A Robot Stole My Pulitzer! How automated journalism and loss of reading privacy may hurt civil discourse', *Slate*, 2012, available at http://www.slate.com/articles/technology/future_tense/2012/03/narrative_science_robot_journalists_customized_news_and_the_danger_to_civil_discourse_.single.html; N.L. Latar & D. Norsfors, 'Digital Identities and Journalism Content – How Artificial Intelligence and Journalism May Co-Develop and Why Society Should Care', *The Innovation Journalism Publication Series*, Stanford University, 2006, 6:7, available at http://www.innovationjournalism.org/archive/INJO-6-7.pdf.

[25] S. Levy, *l.c.*

[26] Narrative Science, 'Narrative Analytics: From Data, To Insight, To Action, A Narrative Science Whitepaper, available for free download at https://www.narrativescience.com/narrative-analytics-white-paper, p. 8.

The goal of the working paper is to assess the responsibilities of the different actors involved in automated journalism by applying the Belgian copyright and liability regime.

C. Actors in the Liability Chain

Before delving into the Belgian liability regime for inaccurate or harmful content, we should first clarify that the paper addresses the situation of specific actors involved in automated journalism. It distinguishes four actors in the liability chain: (a) the software programmer (or company) who developed the content-creating algorithm, (b) the data source who provides the algorithm with sufficient raw data to translate the data into traditional prose, (c) the editor who works for the publisher, selects the data sources and supervises the work of the automated journalist[27] and (d) the publisher who uses the content-creating algorithm to deliver automated journalism to their readers.

It is important to emphasise that actors (a) and (c), and(c) and (d) (d) could be the same person. For example, Ken Schwencke, a journalist at the Los Angeles Times, developed an automated journalist called 'Quakebot' which allowed him to produce an article[28] on an earthquake only three minutes after the occurrence of the natural disaster. In this example, the editor and the software developer were the same person.

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[27]For the liability chain, it seems appropriate to refer to this actor as the 'editor'. He/she can encounter liability issues, for example when (s)he starts combining data sources in a specific way to get less generic, more interesting outputs from the algorithm.

[28] This is the article: *A shallow magnitude 4.7 earthquake was reported Monday morning five miles from Westwood, California, according to the U.S. Geological Survey. The temblor occurred at 6:25 a.m. Pacific time at a depth of 5.0 miles.*

According to the USGS, the epicenter was six miles from Beverly Hills, California, seven miles from Universal City, California, seven miles from Santa Monica, California and 348 miles from Sacramento, California. In the past ten days, there have been no earthquakes magnitude 3.0 and greater centered nearby.

*This information comes from the USGS Earthquake Notification Service and this post was created by an algorithm written by the author. (*source*:* W. Oremus, 'The First News Report on the L.A. Earthquake Was Written by a Robot', *Slate*, 17 March 2014, available at http://www.slate.com/blogs/future_tense/2014/03/17/quakebot_los_angeles_times_robot_journalist_writes_article_on_la_earthquake.html).

III. The Belgian constitutional regime for print publications

A. Cascade System

The Belgian liability regime for print publications can be found in the Constitution. Article 25 of the Belgian Constitution states that:

> "*The press is free; censorship can never be established; security from authors, publishers or printers cannot be demanded.*
>
> *When the author is known and resident in Belgium, neither the publisher, nor the printer, nor the distributor can be prosecuted*."

According to the second paragraph of the article, the author will be both criminally and civilly[29] liable for press offences, as long as he is not unknown or not a resident in Belgium. If the author is unknown, the other actors in the production chain will be held liable in the order defined by article 25: first the publisher, then the printer and finally the distributor (e.g. the bookstore).[30] This cascade system has been put into place to prohibit preventive censorship of an author by his or her publisher, printer or distributor.[31] Press freedom can only be restricted a posteriori.[32] For example in summary proceedings, a judge can order that a magazine must be taken from the market because it includes harmful content. The Belgian Court of Cassation does not consider such measures as censorship.[33]

B. Authorship of Automated Journalism

The first question that arises in the context of this working paper concerns the authorship of an algorithmically-produced news story. Article XI.170 of the Belgian Code of Economic Law states that the natural person who created the work should be considered original owner of authorship rights. The third paragraph of this article further emphasises that the publisher of an anonymous or pseudonymous work will be considered, with regard to third parties, as the author. So far there has been no case law determining who should be considered author of algorithmically-produced news articles. The creator of the algorithm enjoys the protection of copyright law on the

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[29] Belgian Court of Cassation, 31 May 1996, *AM* 1996/3, 362; Belgian Constitutional Court, 22 March 2006, nr. 47/2006, *AM* 2006/3, p. 290; D. Voorhoof, 'De regel van de getrapte verantwoordelijkheid van 19de naar de 21ste eeuw', *R. Cass.* 1996, p. 385-389.

[30] P. Valcke, M. Lenaerts & A. Kuczerawy, 'Who's Author, Editor and Publisher in User-Generated Content: Applying traditional media concepts to UGC providers', *International Review of Law, Computers & Technology*, 2010, Vol. 24, Issue 1, p. 122.

[31] S. Berbuto & E. Jacques, 'Pers', *Postal Memoralis*, 2013, Vol. 211, p. 21.

[32] P. Valcke & E. Lievens, *Media Law in Belgium*, Alphen aan den Rijn: Kluwer, 2011, p. 54.

[33] Belgian Court of Cassation, 29 June 2000, *A.M.* 2000, Vol. 4, p. 443.

computer program as such, as long as it is his or her own intellectual creation.[34] When asked about the encountered copyright issues James Kotecki, Head of Communications of Automated Insights, stated that the company owns the software but the client owns the content generated by the software.[35] The company does not claim authorship rights on the algorithmic output. So which natural person (if anyone) is the author of the output of the algorithm?

To benefit from copyright protection in Belgium, the output of the algorithm has to be original. This means that the output must express an intellectual contribution of the author. The mere display of known themes without the choice of a specific form that shows personality of a natural person is insufficient to achieve copyright protection.[36] There needs to be a clear connection between the protected work and its author.[37] A natural person has to express his creativity in an original manner and produce an intellectual creation by the choice, sequence and combination of words.[38]

In 1989, the Belgian Court of Cassation stated that the author had to leave his/her stamp on the work, and his/her personality had to shine through the work.[39] In a recent 2012 judgement, the same Court explicitly changed its tradition, and proclaimed that originality no longer entails that the work should be stamped by its author's personality.[40] However, the specific consequences of this judgement should not be overestimated, as the European Court of Justice shortly before the Belgian judgement had confirmed in the *'Premier League'* case that an intellectual creation should leave room for creative freedom for the purposes of copyright.[41] In a later judgement (*'Painer'*), the European Court of Justice even explicitly repeated that "*an intellectual*

[34] Article XI.295 of the Belgian Code of Economic Law, which transposed Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs.
[35] E-mail correspondence of 19 August 2015 between P.J. Ombelet and James Kotecki.
[36] Belgian Court of Cassation, 27 April 1989, *R.W.* 1989-90, p. 362; Belgian Court of Cassation, 2 March 1993, *Arr. Cass.* 1993, p. 243; Belgian Court of Cassation, 11 March 2005, *Arr.Cass.* 2005, Vol. 3, p. 585.
[37] H. Vanhees, 'Originaliteit in het auteursrecht', pp. 579-581, under Belgian Court of Cassation, 26 January 2012, *R.W.* 2012-13, Vol. 15, pp. 578-579.
[38] CJEU C-5/08, *Infopaq International A/S v. Danske Dagblades Forening*, 16 July 2009, available at http://curia.europa.eu/juris/document/document.jsf;jsessionid=9ea7d0f130d591c99a949d0546eb952c99502b1213f9.e34KaxiLc3eQc40LaxqMbN4Oc30Pe0?text=&docid=72482&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=433939, § 45.
[39] Belgian Court of Cassation, 25 October 1989, *R.W.* 1989-90, p. 1061.
[40] Belgian Court of Cassation, 26 January 2012, *R.W.* 2012-13, Vol. 15, p. 578, with annotation by H. Vanhees, 'Originaliteit in het auteursrecht', pp. 579-581.
[41] CJEU C-403/08 and C-429/08, *Football Association Premier League Ltd, NetMed Hellas SA, Multichoice Hellas SA v. QC Leisure*, 4 October 2011, available at http://curia.europa.eu/juris/document/document.jsf;jsessionid=9ea7d2dc30dd818e75bf5f0646f0b2d7952ef1dc4561.e34KaxiLc3qMb40Rch0SaxuRbxn0?text=&docid=110361&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=185139, § 98.

creation is an author's own if it reflects the author's personality''[42] and further that *''the author of a portrait photograph can stamp the work created with his 'personal touch'''*.[43] What the 2012 judgement of the Belgian Court of Cassation does prove, is that the concept of originality is a difficult one to fully grasp.

In the case of automated journalism, the algorithm is fed with raw data, sometimes automatically during the night (e.g. when a sport match ends in a different time zone), without a responsible human (the editor) being present. The ultimate content it produces in these circumstances is neither an intellectual contribution of the algorithm nor of its creator. It is also not a result of an intellectual contribution of the assigned responsible editor within the newsroom. Once the algorithm is fed with specific data by an editor within the newsroom, the naked facts included in the raw data as such will still not be protected by copyright law in Belgium.[44] The editor can express his creativity in an original manner, by the choice of the specific data and the questions[45], but the choice of vocabulary and syntax will be left to the algorithm. In the *'Painer'* case of the European Court of Justice, the Court concluded that a portrait photographer has a lot of creative freedom to exercise his creative abilities, by e.g. choosing the background, the subject's pose and the lighting, as well as the framing, angle of view and atmosphere.[46] His creative abilities are therefore not necessarily *'minor or even non-existent'*.[47]

Whether the choices made by the editor are sufficiently creative or rather minor is not clear. Two possibilities can however be distilled from the discussed case law: either copyright law does not apply to this merely factual content, or copyright applies and authorship comes to the natural person involved in its creation, i.e. the editor or publisher. In a third possibility, the developer of the algorithm works as a journalist, and in that case, he could become the author of its output.

In the US context, Weeks claims that, as long as there is no specific legislation or case law regarding this topic, the human input necessary for automated journalism will probably control the copyright.[48] Bridy agreed with this approach of finding a responsible human and used the U.S. work-made-for-hire doctrine.[49] Application of the

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[42] CJEU C-145/10, *Eva-Maria Painer v. Standard VerlagsGmbH e.a.*, 1 december 2011, available at http://curia.europa.eu/juris/document/document.jsf?text=&docid=115785&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=187392, § 88.

[43] Ibid., § 92.

[44] R.C. Vallés, 'The requirement of originality', in E. Derclaye (ed.), *Research Handbook on the Future of EU Copyright*, 2009, Cornwall: MPG Books Ltd, p. 115.

[45] CJEU C-5/08, *Infopaq International A/S v. Danske Dagblades Forening*, *l.c.*, § 45.

[46] CJEU C-145/10, *Eva-Maria Painer v. Standard VerlagsGmbH e.a.*, *l.c.*, § 91.

[47] Ibid., § 93.

[48] L. Weeks, *l.c.*, p.92.

[49] Under this doctrine, the employer or other person for whom the work was prepared is considered the author (17 U.S.C. § 201(b) (2011)). Article XI.296 of the Belgian Code of Economic Law also gives the employer the intellectual property (aside from the moral) rights for the computer programs created

doctrine, in our case, means that the editor or publisher is the owner of the property rights of a work they themselves did not write.[50] For the Belgian situation, a similar doctrine can be found in article XI.167 paragraph 3, which states that:

> *"When an author accomplishes works implementing a labour agreement or a statute, the reproduction rights can be transferred to the employer as long as the transfer of rights is explicitly foreseen, and the creation of the work has been done within the framework of the agreement or statute."*

The algorithm would be considered equivalent to an employee of the publisher, and grant its economic authorship rights to the employer. In Belgium however (as in the rest of the European Union), the moral rights, encompassing *inter alia* the right to waiver the future rights on the work and the *paternity* right, would remain with the algorithm.[51] Yet, since the algorithm is no natural person and cannot claim moral rights, this doctrine cannot apply.

Lastly, to come back on the earlier mentioned example of Quakebot (cf. *supra* footnote 28), the article on the earthquake stated in its final section that *"[t]his information comes from the USGS Earthquake Notification Service and this post was created by an algorithm written by the author."* One can assume that if the software programmer and editor are the same person, this person will be author, and therefore also liable, for the algorithmic output.

In the following sections, the assumption is that either the editor is author (when this actor's creative input was sufficiently original), or copyright law is not applicable to the algorithmic output and the cascade system shifts to the publisher. The paper analyses the liability regime for these two actors.

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by one or more of its employees. However in Belgium, this doctrine does not apply to the copyright on the articles that the algorithm produces, since solely a natural person can create original printed work.

[50] A. Bridy, 'Coding Creativity: Copyright and the Artificially Intelligent Author', *Stanford Technology Law Review*, 2012, Vol. 5, p. 26. Grimmelmann criticises this attitude, stating that *'the (human) programmer might be an author; the (human) user might be an author, but not the program that connects them (*J. Grimmelmann, 'Copyright for Literate Robots', *Iowa Law Review*, Forthcoming University of Maryland Legal Studies Research Paper No. 2015-16, p.20).

[51] Article XI.165 § 2 Belgian Code of Economic Law.

IV. Liability for print publications in Belgium

A. Criminal liability for defamatory statements in automated journalism

The specific place of the liability regime for press offences in the Belgian Constitution already hints at its rationale. The first section of article 25 explicitly prohibits preventive censorship. Article 150 of the Constitution further entitles a jury of citizens (the Court of Assize[52]) to decide on all criminal matters, as well as political *and press offences, with the exception of press offences motivated by racism or xenophobia.* Read together, the articles show the view of the legislators that the State should not be allowed to take any *ex ante* measures to censor certain opinions. Furthermore, each decision *ex post* related to a press offence should be taken only by the citizens, as they are deemed most fit to decide upon matters related to the freedom of expression.[53] Following a judgement of the Belgian Court of Cassation of 6 March 2012, offences in online publications are also considered press offences.[54] Article 25 and 150 of the Constitution are therefore not restricted to traditional printed press anymore.

Most cases in the end do not come before the jury of citizens, as public prosecutors are generally hesitant to bring a criminal press case before the jury. Since the Second World War, the public prosecutor has only twice brought a case before the Court of Assize. The first case did not lead to a conviction.[55] The second case, concerning online publications, is scheduled to come before the Court of Assize in November 2015.[56] Although this case could lead to the first conviction in Belgian case law history for a press crime by the Court of Assize, the extension of the definition of press offences to online publications will result in a broadening of the criminal immunity.[57]

Furthermore, as remarked by Voorhoof and Valcke, some aspects of this constitutional cascade system should be put into context. For this paper specifically, it should be highlighted that a press crime only constitutes the expression of (1) an opinion (2)

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[52] The Court of Assize is composed with both professional judges and a jury of citizens, which judges the most serious and delicate offences (P. Valcke & E. Lievens, *l.c.*, p. 51).

[53] Ibid.

[54] Belgian Court of Cassation, 6 March 2012, *AM* 2012, Vol. 2, Issue 3, p. 253.

[55] Court of Assize Bergen, 28 June 1994, *JLMB* 1994, p. 520.

[56] The Court of Appeal of Brussels has referred the case to the Court of Assize (Court of Appeal Brussels, 30 September 2014, nr. 2014/3197). This case concerned a number of insulting and defamatory e-mails and an open letter of Professor Marc Mawet to his colleague of the Université Libre de Bruxelles Fabrizio Bucella. This is therefore the first 'digital' referral in Belgian history to the Court of Assize. For more information on this case, see (in French) J. Durant, 'Une querelle entre deux profs de l'ULB finit devant les Assises de Bruxelles', 10 September 2015, *RTBF*, available at http://www.rtbf.be/info/regions/bruxelles/detail_une-querelle-entre-deux-profs-de-l-ulb-finit-devant-les-assises-de-bruxelles?id=9076065.

[57] P. Valcke & E. Lievens, *l.c.*, p. 53; D. Voorhoof, 'Weblogs en websites zijn voortaan ook 'drukpers'', *de Juristenkrant*, 21 March 2012, p.5; D. Voorhoof and P. Valcke, *Handboek Mediarecht*, Brussel:Larcier, 2014, p. 104-107.

punishable by law and (3) distributed towards the public (4) by means of print.[58] Conversely, automated pieces of journalism will often be merely factual, rather than express an opinion. If the news story is merely factual, no liability for press crimes can occur. Merely factual stories can, however, still give rise to a publication or printing crime before the criminal court, for example when unlawful factual information was spread.[59]

Once the content is not only factual, the author, publisher, printer or distributor can be held liable for his or her personal fault if he or she carries any responsibility for the content of the publication[60], for example if the publisher did not assign a human journalist to fact-check the algorithm's findings, or if the editor fed the algorithm with very biased data. A news outlet who would consider using content-creating algorithms to write more *humanesque* pieces will have to rethink the role of its human editors, to assure that a fact check of the automatically produced articles occurs before publication.[61]

Anyone, including a journalist, can become criminally liable for his defamatory allegations in Belgium if that person *"maliciously charges another person with certain allegations, that defame him and expose him to public contempt, and which cannot be proven"* (Article 443 of the Belgian Penal Code). Errors in the used raw data, maybe together with bold wordings and use of metaphors (cf. *supra* II.B), could lead to defamatory allegations and criminal liability for the software developer, data source, editor and publisher. According to Ghatnekar in her analysis of the Google autocomplete search suggestions, Google should be considered liable for this feature, "*once it directs users to searches that may be defamatory in nature, based on an algorithm it produces*."[62] In Australia, Yahoo! and Google were both convicted as a publisher for defamatory autocomplete suggestions because the companies knew of a complaint of defamation, and did not remove the offending material within a reasonable time.[63] In a

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[58] D. Voorhoof & P. Valcke, *l.c.*, p. 105; P. Valcke, M. Lenaerts & A. Kuczerawy, *l.c.*, p. 122; S. Berbuto & E. Jacques, *l.c.*, p. 17.

[59] D. Voorhoof & P. Valcke, *l.c.*, p. 105.

[60] E. Brewaeys, 'Aansprakelijkheid uitgever bij publiceren van privéleven van bekende personen', *NJW* 2015, Vol. 323, 414.

[61] M. Egan quoting A. Webb in 'Robots write thousands of news stories a year, but not this one', *CNN Money*, 11 June 2015, available at http://money.cnn.com/2015/06/11/media/robots-journalists-media-jobs/.

[62] S. . Ghatnekar, 'Injury By Algorithm: A Look Into Google's Liability For Defamatory Autocompleted Search Suggestions', *Loyola of Los Angeles Entertainment Law Review*, 2013, available at http://digitalcommons.lmu.edu/cgi/viewcontent.cgi?article=1581&context=elr, p. 202.

[63] Supreme Court of Victoria (Australia), *Milorad Trkulja v. Google Inc. LLC & Google Australia PTY Ltd.*, VSC 533, no. 10096, 12 November 2012, available at http://www.blogstudiolegalefinocchiaro.it/wp-content/uploads/2012/11/Trkulja_v_Google.pdf; News articles on this case: J. Castelan, '$200,000: Trkulja's Second Big Win to Send Google into a Frenzy: Trkulja v Google Inc [2012] VSC [2012] VSC 533', 12 November 2012, available at http://defamationwatch.com.au/?p=664; M. McGee, 'Google Loses Australian Defamation Case,

similar vein, publishers and editors should be worried about potential liability for algorithmic news output once the algorithm, due to errors in the data or sources, produces non-factual, defamatory articles.

In Belgium, criminal liability via article 443 of the Penal Code will still remain a long shot for the defamed individual. In the specific case of automated journalism, in order to charge a person with a criminal action based on article 443, the claimant will have to prove that the algorithm was written with, or the editor/publisher had, the malicious intention to damage.[64] One can assume that most programmers of content-creating algorithms, data sources, editors or publishers will generally not have the specific intention to defame or damage.[65] The claimant will have difficulties providing supporting evidence of the malicious intent. Furthermore, as stated above, most public prosecutors will not bring a case before the Court of Assize (jury of citizens). As a result, most cases regarding defamation by journalists will be brought before civil courts, based on the civil liability regime.

B. Civil liability for damaging statements in automated journalism

The occurrence of a fault of a data source, an editor and/or a publisher for automated journalism depends on the role these actors played in the spreading of the article. The publisher needs to watch over the content that is being produced on its news outlet.[66] Good faith does not exempt him from liability.[67] One could imagine circumstances where the raw data that is fed into the algorithm is inaccurate, false or contains sensitive information that needs anonymization, and the editor or publisher has not sufficiently checked the accuracy of this data. In these cases, the data source, editor and publisher could be accused of negligence. Publishers have editorial control over the information that is posted (in e.g. its newspapers), and will therefore be held liable if negligence is shown in its relaying of the information to the public[68], since such misconduct can lead to damages.[69]

Awaiting Decision On Damages', 31 October 2012, available at http://searchengineland.com/google-loses-australian-defamation-case-awaiting-decision-on-damages-138369.

[64] B. Van Besien, 'The liability of journalists for defamation and breach of privacy under Belgian law', *Newmedia-law*, 27 June 2013, available at http://www.newmedia-law.com/news/the-liability-of-journalists-for-defamation-and-breach-of-privacy-under-belgian-law/; L. Weeks, *l.c.*, p. 81.

[65] E. Van Der Mijnsbrugge, 'De aansprakelijkheid van schrijvers en uitgevers', *Jura Falconis,* 1968-69, p.230.

[66] First Court of Namur, 18 April 2005, *Journ. Proc.* 2005, 502, p. 26; H. Vandenberghe, 'Persaansprakelijkheid. De bijzondere zorgvuldigheidsnorm. Een glijdende schaal', *T.P.R.* 2010, Vol. 4, p. 1846.

[67] H. Vandenberghe, *l.c.*, p. 1846.

[68] S. Ghatnekar, *l.c.*, p. 185.

[69] T. Devolder, 'Journalistiek of Laster en Eerroof', *The Bright Side*, 10 June 2013, available (in Dutch) at http://www.b-right.be/nl/journalistiek-of-laster-en-eerroof-300.htm.

For Belgium, the general civil liability regime is enshrined in article 1382 and 1383 of the Belgian Civil Code:

> *"Article 1382: Any act whatever of man which cause damage to another obliges him by whose fault it occurred to make reparation.*
>
> *Article 1383: Each one is liable for the damage which he causes not only by his own act but also by his negligence or imprudence."*[70]

A person can become liable for his or her act, or by his or her negligence or abstention. Damaging a person's reputation can also arise when the responsible actor omitted his duty of prudence and monitoring.[71] Assuming that the developer of an algorithm cannot be held liable for all its output, the editor and/or publisher will be the responsible actors for the algorithm's prose. The courts will judge *in concreto* whether or not there is a fault which was the cause of the damage. To assess whether or not the defendant caused damage in a factual news story, the research and fact-checking of the journalist are taken into account.[72] Journalists have to prove that they carry out research thoroughly, and that they support the information with reliable, checked data.[73] In case of automated journalism, the responsible actor will have to prove that the damage was not caused by their fault. This causal relationship between fault and damage is found whenever the damage would not have occurred without the wrongful action of the responsible actor.[74] Lastly, the damage can be moral or material. In cases where harm is done to someone's reputation and good name, the nature of the damage will often be moral.[75] Repairing the damage in Belgium is done either by (a) a publication of a reply by the victim on the same news outlet, (b) the publication of the court judgement by the news organisation or (c) a pecuniary compensation.[76]

The Press Council in Belgium also strives to ensure truthfulness in all reporting. The Council developed an Ethical Code for Journalists (cf. *infra*), and decides on this matter. For the automated journalism use case, it is interesting that the Press Council's decisions often highlight truthfulness and fact-checking as key responsibilities of journalists. For example, the Council emphasised that every journalist should act prudent and reserved when considering the mentioning of persons involved in criminal or civil court

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[70] The translation was found in M. Bussani and V.V. Palmer (eds.), *Pure Economic Loss in Europe',* Cambridge: Cambridge University Press, 2003, p. xxix.
[71] S. Berbuto & E. Jacques, *l.c.*, p. 25.
[72] Ibid.
[73] Civil Court of Brussels, 16 November 1999, *A.M.* 2000, Vol. 1-2, p. 117.
[74] Court of First Instance of Charleroi, 9 December 1998, *J.L.M.B* 1999, p. 923.
[75] There has been Belgian case law where the damage was (also) material. Due to an article suggesting that the lawyer of Marc Dutroux, a notorious Belgian serial killer, had connections with the extreme right party, he lost a substantial amount of clientele. The nature of the damage *in casu* was considered to be material (Court of First Instance Liège, 24 June 1997, *A.M.* 1997, Vol. 3, p. 319.
[76] S. Berbuto & E. Jacques, *l.c.*, p. 26.

proceedings by their full name.[77] Furthermore, the depiction of data in an article that touch upon a person's private life, cannot unnecessarily provoke a sphere of insinuation and suspicion.[78]

We can conclude that the editor has to act like any normal and prudent journalist would have acted in similar factual circumstances. He or she needs to strive for truthfulness, check the data or facts in every way possible and thus avoid spreading rumours without verifying the information.[79] Each journalist has to refrain from launching serious accusations, by for example feeding the algorithm with manipulated or biased data, without sufficiently checking their accuracy.[80] However, the editor only has to perform this obligation to the best of his/her abilities.[81] Specifically with regard to automated journalism regarding court proceedings, the editor has to check whether the article align with his/her specific duties of reservation, discretion, objectivity and impartiality, to not infringe upon the presumption of innocence of the defendant or suspect.[82]

With regard to the publisher, it is further worth emphasising that he is liable for the faults done by his contractually employed editor (except for fraud or gross negligence) under Article 18 of the Belgian Labour Agreement Law[83], which states that

> *"[i]n case the employee, during the performance of his agreement, causes damage to the employer or third parties, he is only liable for his fraud or gross negligence.*
>
> *For minor faults, he is only liable if they occur on a usual basis, rather than by accident."*

The article only applies if we establish that there are no authorship rights on the article. If the employee provided original, creative input, he/she is liable as the author (due to the cascade system *supra*). The Constitutional Court of Belgium confirmed this non-applicability of Article 18 to journalists who act in their capacity as authors for a

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[77] Press Council, *Joseph Lov v. DeMorgen.be and Dieter Lizen*, 10 September 2015, available at http://www.rvdj.be/sites/default/files/pdf/1508.%20Beslissing.pdf (Dutch).

[78] Press Council, *Willy Van den Wijngaert, mrs. Rosie Ovaere and mr. Jean-Paul Peers v. Walter Wauters and Het Laatste Nieuws*, 10 July 2003, available at http://www.rvdj.be/sites/default/files/pdf/beslissing_10_07_03a.pdf (Dutch).

[79] First Court of Antwerp, 24 June 2007, *A.M.* 2008, Vol. 3, p. 223; H. Vandenberghe, 'Gemeenrechtelijke aansprakelijkheid voor geschreven persbijdragen', in X., *Mediarecht*, 1983, Antwerp:Kluwer, p. 9.

[80] H. Vandenberghe, 'Persaansprakelijkheid. De bijzondere zorgvuldigheidsnorm. Een glijdende schaal', *T.P.R.* 2010, Vol. 4, p. 1828.

[81] Court of Appeal Brussels, 16 February 2001, *A.M.* 2002, Vol. 3, p. 282.

[82] Court of Appeal Brussels, 9 November 2001, *A.M.* 2002, Vol. 6, p. 527; H. Vandenberghe, 'Persaansprakelijkheid. De bijzondere zorgvuldigheidsnorm. Een glijdende schaal', *T.P.R.* 2010, Vol. 4, p. 1832.

[83] Law of 3 July 1978, published in the Belgian Official Gazette on 22 August 1978.

publisher.[84] In that case, the publisher is only held liable if his own separate, personal fault can be demonstrated.[85] The mere fact of allowing the publication of the article does not qualify as such a separate, personal fault.[8687]

Lastly, it should be emphasised that if there is a problem on the level of the algorithm itself and clean, checked data still leads to inaccurate output, the developer of the algorithm is liable under the same general civil liability regime for his fault, which caused the damage.

V. Editor and publisher's duties

TRANSPARENCY - It is still unclear how sophisticated the news-content-creating algorithms will become. Yet, taking into account already existing algorithms that compose music[88] and write poetry[89] comparable to human composers and poets, it is never too early to be aware of the remarkable, for some even frightening, possibilities of artificial intelligence. Informing the readers of the specificities and functioning of these algorithms involved in producing news stories will be crucial.

To ensure reader trust and to show prudence as a publisher with regard to the problems that could arise when using content-creating algorithms, the publisher should first and foremost make it transparent which items were written by a human journalist and which were written by a smart algorithm.[90] Clerwall collected descriptors of credibility and quality (such as believable, fair, accurate, patriotic, objective, boring, lively, important, creative…) to assess the differences according to users between journalistic and automated content. He came to the conclusion that the users did not experience significant differences between the story written by the journalist and the one written by

[84] Constitutional Court of Belgium, 22 March 2006, nr. 47/2006, *A.A.* 2006, Vol. 2, p. 547.
[85] Court of First Instance of Brussels, 9 November 2011, *A.M.* 2002, p. 288; Court of First Instance of Antwerp, 8 January 2006, *A.M.* 2006, Vol. 1, p. 97; P. Valcke & E. Lievens, *l.c.*, p. 62.
[86] Court of First Instance of Brussels, 12 December 2003, *A.M.* 2004, p. 193.
[87] For more information see H. Vandenberghe, 'Over persaansprakelijkheid. De specifieke context', *T.P.R.* 2010, Vol. 4, p. 1818 et seq.
[88] M. Edwards, 'Algorithmic Composition: Computational Thinking in Music', *Communications of the ACM*, 2011, Vol. 54, Issue 7, pp. 58-67, available at http://cacm.acm.org/magazines/2011/7/109891-algorithmic-composition/fulltext.
[89] J. Morris, 'How to write poems with a computer', *Syntax, and Something of Wildness*, pp. 17-20, available at http://dwwp.decontextualize.com/pdfs/morris.pdf.
[90] N. Diakopoulos, *l.c.*

software.[91] The research showed that transparency is very important, as the audience will not distinguish the automated from human content themselves.[92]

FACT-CHECKING - Moreover, transparency guidelines should not be limited to an acknowledgment of the robotic nature of certain news stories. An equal level of verification of sources could be expected from publishers for automated pieces of journalism, compared to source-verification of human-written pieces.[93] The readers should have information on how the raw data is chosen, which reasoning was employed while choosing the data, how the data was checked, whether personal data of the readers is being processed[94], how credibility and objectivity of the used sources is ensured[95], who made the initial algorithm and which values he or she embedded into the technology and for which reasons.[96] It should be made clear for example in which ways the style, tone and values of the algorithm producing crime stories differs from the one producing output related to sport events.

ETHICAL CONDUCT - Ethical guidelines should be defined and respected. Otherwise, as Latar fears, *"[t]he economic temptation to assign a human name to a robot story can be expected to grow."*[97] For Belgium, the Ethical code of the Press Council for journalists should equally be respected for algorithmic output. According to this code, the journalist should only publish information of which the source is known. The journalist should further check the truthfulness and accuracy of the information[98] and make the distinction between facts, assumptions, claims and opinions transparent towards his/her public.[99]

The Grand Chamber of the ECtHR has recently decided in Delfi AS v. Estonia[100] that a traditional publisher can be held liable for illegal content posted by users on the publisher's online news platform. It is significant that users in this case posted the illegal

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[91] C. Clerwall, 'Enter the Robot Journalist: Users' perceptions of automated content', *Journalism Practice*, 2014, Vol. 8, Issue 5, pp. 519-531: he found one difference in experience: they enjoyed reading the content written by the human journalist much more than the content written by his robotic counterpart.

[92] Ibid.

[93] L. Weeks, *l.c.*, p. 84.

[94] P.J. Ombelet, 'Send in the Robots: automated journalism and its potential impact on media pluralism (part 2)', *LSE Media Policy Project Blog*, 17 August 2015, available at http://blogs.lse.ac.uk/mediapolicyproject/2015/08/17/send-in-the-robots-automated-journalism-and-its-potential-impact-on-media-pluralism-part-2/

[95] C. Clerwall, *l.c.*, p. 521-522.

[96] M.L. Young & A. Hermida, 'From Mr. and Mrs. Outlier To Central Tendencies: Computational journalism and crime reporting at the Los Angeles Times', *Digital Journalism*, 2015, Vol. 3, Issue 3, p. 384.

[97] N. L. Latar, *l.c.*, p. 76.

[98] Article I.2 of the Code of the Press Council, approved 20 September 2010, available (in Dutch) at http://www.rvdj.be/sites/default/files/pdf/journalistieke-code.pdf.

[99] Article I.4.

[100] European Court of Human Rights (Grand Chamber), *Delfi AS. v. Estonia*, nr. 64569/09, 16 June 2015, available at http://hudoc.echr.coe.int/eng?i=001-155105.

content on the platform as comments to the article. Moreover, the publisher removed the defamatory comments upon notification, and yet he was still held liable. By analogy, we could assume that publishers using content-creating algorithms could equally be held liable for incorrect algorithmic output on their platform. Therefore, it does not suffice for publishers who make use of automated journalism to delete incorrect content without delay after publication and on their own initiative. Rather, publishers have to assign a human (most likely the editor) to pre-monitor the raw data's accuracy, and to remove potential inaccurate, manipulated or biased data.

Liability becomes an even bigger concern for publishers once the algorithms are twitched to provide (or contribute to) more opinionated and *humanesque* pieces, rather than aim to produce neutral, merely factual output. To show prudence, a notice-and-take-down system could be put in place by publishers using content-creating algorithms. Readers could then flag the inaccurate or biased nature of (certain parts of) the automated piece. The establishment of such a system is expected from internet intermediaries that perform hosting services under the Belgian Code of Economic Law[101], i.e. solely store information provided by a recipient of the service and at its request.[102] The regime does not apply to traditional publishers, and as proven by Delfi, it will not serve as a sole protection against illegal (or incorrect) content. Nevertheless, we still recommend to install such a notification system as an additional precautionary measure.

VI. Conclusion

In general, the creation and use of content-creating algorithms in newsrooms to write merely factual stories, to reallocate the resources of publishers and more efficiently allocate the time of human journalists is highly welcomed. To avoid liability, at least in Belgium, the human responsible for the algorithm has to act prudent and ensure that the raw data that is fed into the algorithm does not contain biases, inaccuracies or falsehoods.

[101] Transposing Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market ('Directive on electronic commerce'), *OJ* L 178, 17 July 2000.

[102] Intermediaries falling under this regime are exempted from liability whenever the provider does not have actual knowledge of illegal activity or information and is not aware of facts or circumstances from which the illegal activity or information is apparent, or if the provider, upon obtaining such knowledge or awareness, acts expeditiously to remove or to disable access to the information (Art. XII.19 Belgian Code of Economic Law).

However, there is an important caveat. On October 20, 2015, Automated Insights issued an official press release announcing the launch of the beta version of their patented Wordsmith engine to put the power of data-driven writing in everyone's hands. "*Now, users don't need coding or data science experience to create personalized stories, articles and reports directly from their data. Professionals in finance, e-commerce, real estate, media, marketing, and many other industries can generate thousands of articles in the time it usually takes to write just one.*"[103] Once these algorithms become more advanced and are programmed to write more opinionated and *humanesque* pieces, a well-defined legal framework should be established. The framework should address the challenges that the content-creating algorithms could bring, ranging from liability and authorship concerns to issues of privacy and data protection and freedom of expression. Moreover, the legislator will first have to identify the distinctive characteristics of automated journalism which trigger the need for a change in the existing framework.

Until the conception of this framework, the actors that regularly use content-creating algorithms have a strong responsibility to protect their readers against any inaccurate, harmful or even illegal material, by clearly communicating information on these techniques to its readers and by doing so, improve trust in its services. Certain companies, such as Volvo[104] and Google[105], have already preliminary proclaimed full liability for accidents involving its driverless cars. Software programmers and publishers developing and using content-creating algorithms should be aware that a similar acknowledgement of responsibility could be expected from them.

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[103] Automated Insights, 'New Data-Driven Writing Platform Enables Professionals to Create Personalized Content at Unprecedented Scale', press release, 20 October 2015, available at http://www.prweb.com/releases/2015/10/prweb13029986.htm.

[104] X, 'Who is responsible for a driverless car accident?', *BBC News*, 8 October 2015, available at http://www.bbc.com/news/technology-34475031.

[105] The Associated Press, 'Google driverless car involved in first injury-causing accident', *CBS News*, 17 July 2015, available at http://www.cbsnews.com/news/google-driverless-car-involved-in-first-injury-causing-accident/.