Death and Transmediations: Manuscripts in the Age of Hypertext

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ABSTRACT

Has Hypertext killed off both the form and value of manuscript? Digital authoring first and web authoring later have changed drastically the availability and type of traces that reflect both creative and editorial processes. In this view, the consolidated approaches on manuscript studies involving the analysis of material artefacts are challenged. While new methodologies such as digital “forensics” and “virtual desks” are emerging, the nature and relations of native-digital manuscripts are yet to be fully investigated. This contribution accounts digital artefacts within the field of manuscript studies, identifying parallels between material manuscripts and hypertext features in their value as documents. The mapping between digital and material artefacts outlines a theory of manuscript “transmediations” identifying where and how manuscripts cues are reflected in digital technologies. This theory is developed through case studies and analyses of digital transitions. In a discussion, we highlight key challenges and future directions for scholarly editions of digital manuscripts. Lastly, we elaborate the requirements of a hypertext “genre” for digital manuscripts that supports reconciling the open-ended collaborative process of curation with the need for a coherent narrative addressed to the broader public.

CCS CONCEPTS

• **Applied computing** → **Arts and humanities**; • **Human-centered computing** → **Hypertext / hypermedia**.

KEYWORDS

Digital Humanities, Digital Authoring, Digital Manuscripts, Digital Editions

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1 INTRODUCTION

Has Hypertext killed off both the form and value of manuscript? Manuscripts can be seen as the lifelong hidden topic of HT: addressing the capabilities of interactive systems and non-linear text has the direct effect of porting work and experience from the physical to the digital “real”. It reduces the need for material traces by creating digital artifacts that incorporate elements of the context within the creative work, emptying de facto the role of material artefacts. Arguably, the aim of digital and interactive media is to complement or twin material manuscripts, reproducing digital-equivalent features and providing cues of similar value to their material versions. However, the ambition of HT was never limited to reproducing a digital version of either the material work environment or artefacts, but was meant to go above and beyond, exploiting the potential of digital media. In this view, the success of HT technologies is a direct cause of a loss of manuscripts in their current forms, creating a gap in the available traces necessary to study and experience contemporary works for both scholars and the general public. In this view, it is legitimate to ask whether native digital artefacts can be still considered under the same conceptual framework and which characteristics, if any, they share with physical manuscripts. Manuscripts are cultural artefacts created as by-products of the erstwhile almost inevitable material conditions of authoring including, e.g., paper, ink, systems of preservation, archiving and sentimental collection. By principle, digital-native contents do not alter the essence of the creative work but they alter the practices and traces left by the authorial work which we call manuscript. Indeed, the study of manuscripts involves access to notes, letters and materials physically aggregated in few locations, while digital traces are sharded, encrypted and not in human-readable forms as logs and data packets. As HT technologies change the authoring process and the nature of creative works as artefacts, a first question concerns what “manuscripts” are produced by hypertext systems. Assuming that material manuscripts may be considered forms of pre-digital hypertext, we ask if digital hypertexts are manuscripts. This contribution accounts digital artefacts within the field of manuscript studies, identifying parallels between material manuscripts and hypertext features in their value as documents. The mapping

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between digital and material artefacts outlines a theory of manuscript “transmediations” identifying where and how manuscripts cues are reflected in digital technologies. This theory is developed through case studies and analyses of digital transitions. Firstly, we discuss manuscripts grounded in literature and Humanities studies with a focus on their crafting, value and use. Following, we provide an historical reflection on digital artefacts from digital authoring, to web and social media, connecting their specific features with the background discussion on material manuscripts. Lastly, the discuss three main axes of analysis generalising the “transmediations” of material manuscripts into digital platforms and artefacts.

2 HYPERTEXT & MANUSCRIPTS

Manuscript is an abstract concept connecting aspects of, usually, very physical artefacts representing the authoring work. A manuscript is the collection of all traces, parts and by-product of the creative process, useful to understand and frame a creative work and the author in its socio/cultural space and in society as it evolves. In this view, manuscripts are “fossil hypertext” [42] connecting parts, bits and traces of the authorial process with the final work. However, not all hypertexts are manuscripts as only certain types of connections (represented in a manuscript) are informative for the study of creative works. In general, authoring is an overarching activity, extending from material to digital supports. However, the traces that can be collected concern specific steps, actions or states of authoring and are strongly dependent on the authoring tools. For instance, typewritten paper copies are the product of a specific stage of writing; at the end of drafting when a first version is handed over, handwritten notes on a draft can easily recognised as comments of an editor or of the revision of the author. Digital authoring tools and text augmentation support the embedding of authoring traces within the final work, e.g. in the forms of links to the sources to alternative versions, notes and drafts, enabling a merging between work and manuscript. However, digital authoring introduced an issue related to the fluidity of digital media [10]. The effortless revision enabled by digital media resulted in the partial loss of manuscript components such as versions and, generally, of the role of media as milestones: fixed in time and space, and accessible as they are by anyone at any time. This change required a reflection on the very concepts of fixity and fluidity of documents and of how these concepts are specifically instantiated in hypertext systems [33]. In general, all types of media and genre are characterised by a different mix of fluidity and fixity which must be considered under the light of a specific purpose, subject or use, negotiated accordingly to the situation. However, it is undeniable that the widening of the range of media resulted in an increase of complexity which must be understood, communicated and made self-evident. From a different perspective, the digital transition of authoring involved also a change of the process itself [35]. Discrete stages highlighted by drafts and proofs, versions, editions exchanged between multiple actors are the result of the practicalities of material authoring. Differently, digital tools support a fluid digital authoring involving continuous revision, collaborative writing, self-publishing, community translations and new digitally-enabled practices. Indeed, digitality itself does not pose a problem. Digital manuscripts are not ephemeral but have a “materiality” that can be studied and

documented [29]. In this regard, two distinct topics emerge. Firstly, the materiality of the physical phase of authoring is still a relevant source of information. Indeed, “digitizing [...] is not about replacing it. It’s about making it usable in new ways and making sure we don’t forget the old” [35]. This is the key challenge of hypertext systems for the Digital Humanities: the integration of “paper-based inheritance with the emerging archives and born digital materials”, enabling new forms of collaborative scholarship while addressing the preservation of both material and digital-born manuscripts. Secondly, born-digital introduces new digital traces yet to be fully uncovered while preserving a material side, such as handwritten notes and hard drives [28].

2.1 Digital Scholarship & Editions

The digitization of manuscripts introduced the challenge of defining of a standard interoperable language for transcriptions that would describe the content and structure of a manuscript. From a practical perspective, the transcription and alignment work also needed to be explained and logged, including the provenance of each contribution and the management of conflicts, revisions, and iterative collaborative curation over time. Most of these curation issues have been addressed by the Text Encoding Initiative (TEI) [16], but the use and exploration of TEI data remains still an open issue. In this view, research in the humanities has always been a source of challenges for hypertext [17] in regard to a) the complexity of documents and collections in terms of multiple logical and physical structures, and b) the arbitrary encoding of these structures as custom signs and paratext. Furthermore, research involves close reading, disambiguation and interpretative analysis of genetic connections, requiring “pathways for exploration and methods of annotation [that] cannot be defined in advance for literature” and “sophisticated search, retrieval and annotation tool[s]”. In this regard, digital editions introduced new methodological issues deriving from their ambivalence as both publishing and curation platforms and, therefore, as repositories of both “originals” and of notes, discussions and curations which are, by definition, re-elaborations [40]. Book scholarly editions hide the vast amount of work preserving, in some regards, the distinction between the original work and the editing by presenting a consolidated and apparently finalized curation. However, in digital editions, the publishing is only the starting point of an open-ended process of curation aiming to generate new knowledge through a collaborative environment. This conceptual reframing can be explained as “a sort of Heisenberg principle: the more we are tempted to see through the superficial texture of text, the more we modify it”. A hypertext authoring environment can be used also to support the study of authoring. Indeed, a hypertext “is a tool for working on information and for flexibly handling structures while they emerge” [14]. A “highly interactive authoring environment is necessary since the research work itself consists in making a structure emerge”. From a different perspective, digital editions can enable access to manuscripts otherwise impossible or hard to use. Firstly, access to manuscripts is limited by their physical location and their state of conservation (e.g. too fragile to handle). Secondly, ancient manuscripts are unique craftworks that use ad hoc coding systems, internal structures and references that are hard to interpret by modern scholars [13]. In this view, digital editions

bring “back to life” custom paratext and metatext operationalizing their mechanics as they were meant to be. For instance, spelling variations pose an obstacle to interpretation that can be handled by linking graphemes (variation) and their more stable phonemes [6]. More generally, manuscripts have more in common with hypertexts than with the linear forms typical of the printing era. Indeed, manuscripts are often “collections of facts of largely independent sections” [32]. In this view, the natural structure of the manuscript is the “network of connections behind manuscripts”. New ways “of looking at these textual elements and the narrative paths” are best represented in the form of a hypertext digital edition. These hidden pathways are not limited to single manuscripts but link topics, themes and collections from different locations. For instance, illuminations and illustrations can be brought to life by linking annotations that link hierarchical relations between images (e.g. progenitor, copy or elaboration) and circumstantial relations such as a shared model, style similarity or connection, scientific school, location or other contingent situations [5].

2.2 Authoring Tools

The availability of manuscript versions of literary works is directly connected to the practicalities of the authoring process. In this view, the most influential change is the transition from material authoring practices to digital tools, e.g. from typewritten and handwritten paper to word processing. The emergence of dedicated word processing computers in the 1980s, such as the IBM Displaywriter 6580, the Kaypro I and II and the Wang, changed the way authors worked [30]. Word processing software like WordStar and WordPerfect enabled digital composition and, most importantly, introduced the practice of “overwriting” [50]: a continuous and global revision of the work. Desktop publishing tools such as QuarkXPress and later Adobe InDesign made it possible for authors to control the layout as well, extending their remit to the “look and feel”. This step has collapsed the distance between manuscript and the final printed product, with the digital manuscript now coinciding with the old printer’s proof phase. Material (e.g. printed books) and digital formats (e.g. e-books) can now be produced through the same authoring tools. For more experimental literary authoring, one of most notable examples of authoring platforms is Mark Bernstein’s company Eastgate Systems Ltd, which published digital manuscripts on physical supports (e.g. disks) and provided tools for writing hypertext digital manuscripts through the Storyspace software [37]. The rise of the internet disintermediated electronic literature from earlier physical media (disks, CD-ROMs). Electronic literature is now authored through tools such as Twine and predominantly distributed through online platforms such as Steam [38]. There is now no material “original” for many works that have been authored digitally. At each step we lose the distinction between phases involving different actors, whose interference/contribution could be connected to each part of the manuscript. Digital authoring blends the traces of each phase and therefore the role of the different actors. This new paradigm of information gardening [9] pushes to find new methods to identify these mediations and transformations which, in digital authoring, do not necessarily correspond to distinct artefacts. Humanities scholars can reconstruct the history of the author’s creative process through corrections and deletions

from the first manuscript draft to final printed version. This is not the case with manuscripts produced through digital authorship, which has been designed to be fluid and continuous.

3 MATERIAL MANUSCRIPTS

Manuscripts published as printed scholarly editions are usually coherent narratives based on elements synchronously bound to the authorial work, hiding a) the curation process of collecting and relating the different parts of a manuscript, and b) the non-linearity and asynchronicity of the authorial work [20]. For instance, manuscripts can be physically “bound”, e.g., in a volume but not necessarily logically connected. They can reflect forks and alternative attempts produced at different times, with or without any impact on a final work. Indeed, the reconstruction of a manuscript can sometimes be facilitated by the analysis of the materiality, e.g. handwriting, colour, paper type, while at other times involves a complex investigation of its history. Materiality is a rich source of information that we can easily relate to on a physical level, with limited or no socio-cultural intermediation. Materiality defines how we interact with and shape the places where we keep, find, read and catalogue manuscripts. However, materiality as physical manifestation has also an important role in how concepts and ideas are used for shaping society. A manuscript is, first of all, a document: a social artefact composed of a material trace and a conceptual structure residing in the common knowledge of a group or society [19]. The conceptual structures lead to convergent interpretations of facts of social relevance, e.g. contracts, money, rights. However, their materiality makes social artefacts accessible and stable, “historicizing” notions at a place and time and acting as building blocks of social infrastructures. A document can be seen as a “speech act” [7, 46] embodied in a material trace that can be distributed and, therefore, perpetuate its effect. In this view, the materiality of manuscript grounds the authorial work in place and time, and the people who had (or could had) access/influence to it. The manuscript provides a sufficient testimony of the existence of the authoring process by itself, and by the relations its materiality entails. Indeed, the materiality of a document creates a clear distinction between an original and a copy, the latter being valid only through the existence of the former. Literary Studies complements this perspective by considering, more generally, manuscripts as cultural infrastructures. Literary manuscripts carry the evidence of the history of their making, documenting the evolution of ideas and the authorial process. Beyond literature, manuscripts allow readers to close the gap between their own timeframe and that of the authors. The Humanities address this history systematically through philology and textual studies, interpreting the textual heritage of the past [35].

3.1 The Modern Concept of Manuscript

Since the early nineteenth century, manuscript has been conventionally understood as authoritative. Authoritative, in that it represents the most archaic and original iteration of a creative work, and because it is something by which the authority of print can be measured, challenged and even undone. Manuscript carries meanings associated with its materiality, in ways that the printed book does not; chief among them is the idea of it as a unique artefact,

unique in that there is only one of it, but unique too in that it bears witness to a unique writing moment. This uniqueness underpins the value both sentimental and by extension financial of the manuscript in the album, the auction house and the archive; it also gives rise to forgery of such manuscripts which began to flourish at the beginning of the nineteenth century to flesh out and cash in the figure of Shakespeare. Manuscript is conceived as offering intimate access to authorial subjectivity, which explains the gradation of value between a famous poem and a business letter; it offers a site of encounter between author and reader.

3.1.1 *Extension of the Author's Body.* This interactive concept of manuscript first develops in the early nineteenth century as a Romantic formulation with especial reference to poetic manuscripts. It may be conveniently exemplified in miniature by a famous poetic fragment by John Keats. This constructs the paper on which it is written as an unnervingly intimate hybrid of authorial ghost, body-part, and vampire, and the reader as suffering from survivor guilt to the extent of being willing to transfuse their own life-blood into the manuscript so that handwriting can become once again the authorial “hand” [27]. Keats’ insistence that the manuscript in the “hand” of the writer can act as an agent to reembody the dead, so reconnecting the dead with the living, glosses the shudder of the encounter with a manuscript of a very well-known poem; it epitomises the uncanny in being at once intimately familiar and unfamiliar. The poem constructs manuscript not as text, but as a body, that solicits encounter with the reader. In other words, the manuscript functions as a sign to denote the presence of the author.

3.1.2 *Reconstructing the Author's Inspiration.* A manuscript also allows for the accretion and elaboration of anecdotes about the author in the act of authoring. The manuscript of “Ode to a Nightingale” details the poet’s visionary encounter [26]. A key part of this manuscript is the testimony of Charles Brown which recalls a moment of inspiration and spontaneous creativity, how Keats sat in his garden in Hampstead on a beautiful spring morning and, moved by the song of a nightingale nesting nearby, and wrote the lyrics within a few hours [12]. Brown’s anecdote mimics the values of the poem which privilege song, scrap-paper, illegibility and loss over books as a system of preservation and retrieval. This is equally true of a posthumous painting of 1834 by Keats’ friend Joseph Severn, depicting the poet on the day he composed the poem [47].

3.1.3 *Gateway to Author's Experiences.* Nowadays, a copy of Severn’s portrait hangs in the very room it depicts at Wentworth Place. The frame contains a lock of Keats’ hair; one of nine known death masks sits alongside [47]. Visitors are silently invited to sit in Keats’ empty chair. Even without the presence of the manuscript itself, painting, lock of hair, and death-mask combine to produce a posthumous space of intimacy, a sort of writer’s house museum in embryo [51]. This is already a hypertextual effect, just achieved without the actual text. However, to commemorate the bicentenary of John Keats’ death, Keats House in Hampstead borrowed the manuscript of “Ode to a Nightingale” from Cambridge [3], offering the opportunity to “view this manuscript in the house where it was drafted” [2]. Displayed in such a way, the manuscript became explicitly hypertextual, physically co-ordinating poem, author, and location in such a way as to link past and present, author and reader within an

imagined physical encounter. As a hypertextual strategy and effect this is typical of many writer’s house museums, extending to physical objects in the museum’s gift shop [4]. The temporary nature of this exhibition, moreover, underscores the other statement silently encoded by the manuscript itself; that it was composed, revised, and then, at some subsequent moment, revised again, to be retitled as “Ode to a Nightingale”.

3.2 Manuscript & Retrospective Reflection

As testimonies, manuscripts are not simply situated objects but embodiments of the author within situations and play a significant role in the development of ideas, e.g., supporting vivid recollection and enabling self-reflections and revisions that are often at the core of a creative work. For instance, diaries are artefacts specialised in supporting memory, recollection and reflection and have a special role in the reconstruction of the author’s mind journey. However, the use of such intimate sources presents a range of challenges concerning the identification of the correct relation between the manuscript and the creative work, and navigating between circumstantial evidence and blunt deceptions. For instance, in *Memoirs of an Infantry Officer* (1930), the poet Siegfried Sassoon recounts the lead up to the first day of the Somme Offensive, 1 July 1916. “A shiny black notebook contains my pencilled particulars”, he writes, “and nothing will be gained by embroidering them with afterthoughts” [44]. The three pages of transcription that follow seem to accord with Lauri L. Hyers’s assessment of the power of diaries as historical artifacts [24]. By appearing to give his readers privileged access to his own private manuscript, Sassoon makes an implicit claim to authenticity. However, a comparison with the digitised version of Sassoon’s notebook [43] reveals that Sassoon has subtly rewritten his 1916 account of the Somme for its appearance in *Memoirs*, re-ordering material, condensing and altering descriptions. He has, as Max Saunders observes, effectively rewritten his diary to make it seem more authentically autobiographical [45]. The 1930 version’s “authenticity” lies, then, precisely in its being “embroidered with afterthoughts”, revisions that enable it to conform to subsequent expectations of what a diary written at the time should look like. Sassoon’s inability to let an earlier version of his wartime narrative pass without rewriting it illustrates the implicitly hypertextual nature of the diary form. The point of rereading one’s diary is to make a connection with the past, the details recorded there activating memories and forming chains of recognition. The encounter validates a link between a past and a present self, the one performing the act of revisitation via rewriting [49]. The manuscript diaries in public archival collections typically exist within multiple horizons of temporality. The diaries of Private Wilfred Knott, 32nd Field Ambulance, ostensibly chronicle Knott’s wartime service in Gallipoli and the Middle East [31]. However, a close examination reveals that the diaries were systematically reworked after the war. Someone, presumably Knott himself, has carefully over-written significant place-names in pen and added occasional explanatory glosses for particular locations, especially those with religious significance. What these acts of revisiting do is to retrospectively convert the diaries into pilgrimage documents, culminating in Knott’s arrival at Jerusalem. The glosses and over-inking act as improvised hyperlinks, structuring Knott’s experience within a religious framework

onto the surface of the pre-existing documents. The private papers of Driver D. Gyngell are similarly complex documents when viewed from a temporal and agential perspective [23]. Although Gyngell refers to the documents throughout as “My Diary”, they in fact exist in at least three iterations. The documents were apparently created in temporal succession, but there are points in the earlier notebook where Gyngell’s later revising hand is visible, adding in retrospective comments like “I shall never forget this night”. These marginal comments act as links between temporal horizons, indicating the diaries’ role in the creation and recollection of personal memory. Both Knott’s and Gyngell’s diaries are accompanied by a range of other material that illustrate the complex webs of meaning and significance in which they are embedded. As Tanja Luckins points out, soldiers’ diaries bear the impressions of many hands other than those of the creator, the archivist, and the historian and have emotional significance in their own right as bearers of the diarists’ memory [34]. Wartime diaries (and manuscripts in general) should not be seen simply as precursors to a “final” printed version. Instead, they are often continuously evolving historical documents, which anticipate their incorporation into the archive and the historical record via acts of rewriting, glossing, and (hyper)textual accumulation, all of which create durable links across time and space.

4 DIGITAL MANUSCRIPTS

All print texts have been digital for at least part of their lives since the 1970s, when computerised typesetting superseded earlier mechanical methods [11]. From the 1980s, digital word processing enabled a further shift from authoring through physical means (typewriting, paper) to digital authoring [30]. For a while, these digital manuscripts were intermediate versions of the final artifacts, which were processed into material print objects. With the rise of the Web in the 1990s, the transmediation of manuscript became possible through digitisation, which enabled the creation of digital editions of material works for example following the protocols developed by the TEI (see Section 2.1). For born-digital [18] manuscripts, the web allowed their disintermediation, enabling the (re-)emergence of collaborative practices and configuring a fluid creation-distribution ecosystem. Digital texts no longer need a material support (e.g. a disk) to be distributed but can be read and circulated entirely digitally. The web now mediates and partially replaces the social and cultural infrastructure of authoring, publication and reception, operating as a parallel virtual society apparently independent from the physical world. Following, we highlight how the digital transition relates with authoring practices.

4.1 Digital Authoring

The appearance of digital manuscripts has created new challenges for literary scholars. Scholars and librarians have developed methods over the centuries to recover material knowledge (e.g. the technologies of ink, type, paper production, printing presses, book-binding) which do not apply to digital writing processes. Scholars can study a material manuscript and reconstruct its hypertextual relations because they understand the cultural infrastructure of authoring, publishing and reading. For example, through a manuscript such as the drafts of Thomas Moore’s *Lalla Rookh* [36],

scholars gain a hypertextual perspective of the author’s creative process from the first manuscript draft to the final printed version. For born-digital manuscripts, word processing and the web re-mediate the cultural infrastructure. These new digital authoring environments are dynamic and in constant evolution and yet at the same time subject to rapid software and hardware obsolescence, which requires social and technical efforts to be contrasted. Overall, digital manuscripts appear opaquer to Humanities scholars in the mist of developing specific methods for a) curating born-digital manuscripts as collections of digital traces, b) addressing the drastic changes in authoring practices in regard to the lack of discrete, self-contained artefacts, e.g. versions, notes, proofs, drafts.

4.1.1 Fluidity of Text. Scholars like Johanna Drucker have argued that, though texts are always in a state of flux, printed books appear to be stable and self-sufficient [18]. Digital texts seem instead ephemeral and volatile, capable of constant erasures and revisions that leave no visible trace in the digital manuscript. William Gibson’s *Agrippa* (1992) is a good example of a mixed-medium work consisting of a printed book and a disk containing a digital poem. The disk would erase itself after being read just once, in a seeming commentary on the instability of the digital text, though fan copies of *Agrippa* quickly surfaced on early bulletin boards, ensuring its survival [1]. In 1990, Gibson wrote the novel *The Difference Engine* together with Bruce Sterling. The two authors exchanged manuscripts through computer disks, constantly rewriting one another’s drafts and including texts from Victorian newspapers [21]. Such fluidity would have been impossible with material manuscripts. Gibson has now embraced digital authoring and writes all his novels on a computer, endlessly “overwriting” his earlier digital manuscript until he has reached a satisfactory final version [50]. By comparing Gibson’s earlier physical and later digital writing process, it appears clearly that authorship has always been fluid. Indeed, it was physical media that imposed constraints upon authoring, generating the discrete stages studied by scholars. The digital authoring process involves fewer mandatory constraints and more arbitrary choices for authors which must be then identified to interpret and understand the authoring process. Similarly, future readers and scholars, raised exclusively on digital authorship, will require extensive study to understand physical manuscripts.

4.1.2 Curation of Digital Artefacts. Literary scholars have developed complex methodologies to study the hypertextual relation between authorial manuscripts and print editions, or between subsequent print editions, that must now be instantiated to the study of digital manuscripts. One path is to develop new skills in digital humanities and new collaborations with librarians and computer scientists, such as digital-specific manuscript archives. For example, the British Archive for Contemporary Writing (BACW) at the University of East Anglia is collecting born-digital manuscripts from contemporary authors and is developing methodologies for co-designing tools and infrastructures together with scholars and archivists [22]. A digital manuscript archive should enable, for instance, the reconstruction of a virtual replica of the “writer’s desks” [28] by presenting file structures, calendars of events that occurred during composition, or music played while writing. The digital authoring experience is hard to reproduce due to a) workflows being less constrained and, b) digital obsolescence causing the loss of

the authoring environment and hindering the experience of the original works, drafts, proofs and versions. The numerous works in the Electronic Literature Collection volumes 1 & 2 that use Flash are emblematic of these issues [41]. While emulation of the reader experience is possible, the Flash development environment is possibly lost for future scholars, leaving them unable to experience Flash authoring first-hand. Indeed, functioning legacy digital devices that can run obsolete software are hard to repair and diminishing in number compared to material tools and conditions (e.g., reading by candlelight, using a quill or typewriter). It is worthwhile highlighting authority is a relational quality in terms of veracity that is supported by a closeness to the author and the authoring activities. Indeed, the author is not the only source of authority for texts; the relations emerging for the creative process are as valuable. While digital versions may lose the connection with the body of the author, they provide an ideal setting for the reconstruction of these relations. An extreme example is the loss of the original manuscripts that can be still partially recovered from the network of references and copies still available. The best historical example is Dante's Divine Comedy, which lacks an authorial manuscript but is nonetheless preserved. Each of the 800 manuscript copies of the Divine Comedy written between 1330 and 1500 is a hypertext pointing to lost, irrecoverable authorial "originals". Subsequent readers treated them as a hypertext writing marginal annotations about variants they had found in another manuscript or even incorporating them into their own copy of the Comedy [48]. In conclusion, a manuscript is always a part of a relational system. Therefore, the curation of manuscript is aimed at finding and reconstructing these relations as proxy of authority.

4.2 The Web

The Web potentially includes most if not all the manuscript parts and connections we discussed so far. Rather than needing to be reconstructed, web traces are encoded and ready to be "discovered" or "followed" as ready-to-be consumed interconnected resources. Furthermore, with web 2.0 content creation is open to all, disintermediating the creative work from publishers and means of production. Standard formats enabled interoperability and reuse which led to further opportunities in the form of, e.g., linked data, APIs, crawlers and scrapers, and new genres such as data journalism. Today, web-based tools allow real-time, concurrent collaboration based on cloud and edge infrastructures. The use of cookies and other tracking techniques are transforming web contents into input interfaces with ripple effects requiring regulatory interventions, e.g. the EU GDPR. Lastly, Social media are playing a central role in transitioning toward digital societies based on collaborative practices while stressing our cognitive readiness for purely digital mediation.

4.2.1 From paratext to coding. The crafting of web contents is tightly related to web technologies and a clear decoupling between the languages of the contents (e.g., English) and their presentation (e.g. HTML, CSS, JSON and Markup) and interactivity (e.g. HTML5, JSON and CSS3). Indeed, the combination of standard formats and digital processors aims to make the encoding/decoding of contents transparent: "What You See Is What You Get" (WYSIWYG) editors.

However, web editors take into consideration the needs of occasional and expert users by pairing WYSIWYG with source code editors (e.g. Wordpress.com) or by using mixed markup languages (e.g. GitHub). Descriptive formats (e.g. RDF/XML, JSON-LD and HTML5) enable semantic machine-readable annotations supporting multi-modal access to contents, and inter/intra-document navigation. Programming languages (e.g. JavaScript) enable authors to transform contents into software capable of, e.g., generating new contents, reusing external resources and triggering changes in the real world through IoT and apps. Web manuscripts are testimonies of a broader authorial curation of personal manuscripts, ranging from the content to the exposition in digital "rooms" in the forms of, e.g., social media profiles.

4.2.2 Logging the authoring process. Web technologies are based on client/server-based infrastructures managed thanks to a set of technical solutions which are, today, at the core of cloud services, e.g. logging, versioning and sharding. These mechanisms create new forms of portioning manuscripts based on the logics of the technical systems, e.g. memory allocation across server farms. For instance, logging is the generation of incremental reports of operations, e.g. access or changes to a resource, used for managing access to protect the integrity of systems. As records of single activities, logs cannot be evaluated on their own but only as parts of a time-ordered chain of changes (change-logs). Document versions are bookmarks on a chain of logs and, therefore, not to be intended as artefacts on their own but as virtual milestones in the incremental evolution of a system. Logging, fluid versioning and real-time collaborative working on cloud documents are now part of the common experience of web writing. These technical solutions enable a) comparisons based on facets of versions, e.g. date or author of changes, b) roll-back, recovery and reconstruction of the history of documents, and c) real-time writing, editing, commenting, and task management with multiple co-authors. Thus, these artefacts provide rich factual, quantifiable testimonies of the development and distribution of a work that material manuscripts do not allow, recording the exact actions made by the author. However, they do not support a compositional perspective on the authorial work but focus on historical stratification of changes.

4.2.3 Derived Contents and Open Data. The web is the result of a (commendable) perpetual effort of standardization. Among several benefits, standards are the core of machine-readable contents and, therefore, of automated processing of web resources. The web 2.0 and the explosion of contents was supported by news feeds formats (e.g., RSS and ATOM), aggregators, and web crawlers keeping directories and search engines updated. In this view, for instance, a web registry (an organized collection of web resources) is one the first web manuscripts, derived from the automated analysis of the web. With the open data movement, the phenomenon of derived contents took also a political value of civic engagement and ecologism based on the economy of reuse [25, 39, 53]. National and international interoperable repositories made technically possible the real-time automated reuse and transformation of contents embedded in everyday applications. An emblematic example is the genre of data journalism, framing open data in a narrative with a focus on places or events. Web manuscripts heavily based on reuse are however characterised by little or no control on the final results

by the author. These artefacts reflect indeed the point of view of the author (e.g. the journalist's angle) but lack the epistemology: it is hard to assess the veracity as the authorial responsibility is diluted through the processing steps connecting the original sources and the final result.

4.2.4 Generative Contents. Web contents are software interfaces de facto, recording users' behaviour, feeding profiling mechanisms or recommender systems necessary to navigate the complexity of the world-wide web. Aside from ethical and privacy considerations, web contents cannot be considered passive resources to consume, but engines that convert user interactions into new contents. In some regards, this trend is the logical result of stretching the concept of derivative contents to the extreme limits: if humans can reuse web resources, the same result can be achieved using algorithms and using humans as resources to be read and consumed. Thus, we are read as we read and eventually a machine-biographer will create a recording of this event into machine-manuscripts for machine consumption. The identification of the will of the author enables to distinguish between the goals and the effects of a work and, therefore, the use of creative works as a probe for the cultural context of period/place. Lacking intentionality, machine manuscripts represent only limited aspects of cultural structures emerging from direct and indirect relations between users and contents. Indeed, machine traces do not record anything beyond mere action, missing the reason and purpose of users. These artefacts are self-fulfilling or self-justified through circular mechanisms using the user activities to generate more user activities. Thus, it is necessary to discriminate the picture of cultural structures they provide from the more spontaneous result of self-reflections to be found in material manuscripts. Machine manuscripts flatten the complexity of cultural infrastructures on the aspects of the user functional to the running and efficacy of web infrastructures. This setting is comparable to the document production of public agencies, implementing protocols and generating records for legal compliance, such as open government and archival requirements. Similarly, the documental value of public record is limited to the social organizations generating such documents. Rather than society at large, machine manuscript reflects the practices of corporations in the field of data economy: how they operate to "read" and "steer" users as sources of attention and data [52].

4.2.5 Social Media. Ideally, the author's social media feed could be considered a real-time manuscript. Unlike logs and machine manuscripts, social media posts have a unity of meaning and carry a form of intentionality, making them comparable to material sources of manuscripts. However, their hypertextuality is the result of a partially or totally automated process aggregating and presenting these parts as plausible artefacts. Indeed, as aggregations, these artefacts do not have an author or curator, but they are a different manifestation of machine manuscripts unwittingly co-authored with users. The curation of these manuscripts is at a meta level in term of the interaction and algorithmic design which are applied systematically to an ecosystem of content-building blocks. From a human perspective, the authoring responsibility and intentionality is only partial and limited in the ability to foresee and predict the use of their contributions by constantly-changing, non-transparent algorithms. By the very nature of social media, the value of each

part should be identified in traces of self-reflection: their content is almost equivalent or reduced to the reflective effects of manuscripts. Furthermore, the specific social media paratext of connections with users, contents and topics is a visible embodiment of the cultural structures that can be found in manuscripts.

5 TRANSMEDIATION OF MANUSCRIPTS

Reconciling digital artefacts within the field of manuscript studies requires an exercise in abstraction. Firstly, we need to shift the focus from material cues as sources of information to the underlying questions, i.e. axes of analysis, guiding the interpretation of manuscripts. Secondly, we need to identify digital cues supplementing information from the lost material traces of authoring. Lastly, we need to define the new aspects of authoring revealed by the unique availability of digital traces, in terms of both quantity and types. In this regard, transmediality provides a useful perspective in reframing the manuscript as an abstract concept: the transmedia manuscript crosses and projects different complementary facets of the authorial process into multiple material or digital manifestations. In general, transmediality is intended as the extension of contents across multiple media. In this context, transmediality offers a new perspective re-interpreting the connections between material manuscripts and digital artefacts as parts of a whole. Indeed, it is hard to understand digital artefacts outside the complexity of a socio-technological ecosystem and multimodality of interactions. This, however, can be argued also for manuscripts: which may be understood as networks of discrete media, such as handwritten drafts, typescripts, notes, proofs, versions, correspondences and prints. While some works are transmedia by choice, all manuscripts are transmedia by nature. Narrative transmedia is the final result of the authorial work, while manuscripts are the by-products. As such, manuscripts involve other actors beyond the author through implicit connections related to the process itself. If a story is a conceptual space on its own, the story of a story is necessarily related to the reality of the author. Studied together, creative works (e.g. novels or poems) and their manuscripts tell the story of an idea. Thus, manuscripts can be seen as an overarching network of a plurality of sources providing context, authority and facts necessary for the analysis of works. In this perspective, each part of manuscript is the object of study of specific disciplines, approaches and methods (i.e. scholarships) focused on a) the cues of the manifestation-artefact and b) the questions that could be addressed by its study. However, in the light of transmediality, the different scholarships configure a multidisciplinary field focused on the same object of research: the manuscript. Indeed, this perspective applies also to the study of material manuscripts which involves multiple disciplines addressing, for instance, the chemical analysis of support and inks and technology of production, the history of provenance of the manuscript, linguistic studies of regional/period language variations, text genetic analysis about versions or comparative studies. In this view, digital artefacts are components of the transmedia manuscript. Thus, addressing digital artefacts involves identifying what questions can be addressed through digital artefacts as facets of the manuscript and what cues hold unique aspects of the story of authoring, i.e. new information not available before. Furthermore,

the transition to digital authoring requires finding in digital artefacts new forms of the same cues which were found in the material facets of manuscripts.

5.1 Analysis Axes

From the comparative analysis of material and digital manuscripts we identify three main axes of analysis. A first axis concerns the authoring process. As discussed, material and digital authoring processes are different and, therefore, the analysis of cues focuses on different approaches to work. Material traces identify discrete steps in the process, such as the handing over of versions. Differently, digital traces focus on continuous revision and improvements outlining authoring as a trajectory. Both perspectives are not specific to the type of traces but to the specific authoring approach of choice and therefore to the technology, constraints and types of by-products. In this view, this type of traces are, first of all, testimonies of the choices made by the author. Thus, the issue on hand is not if a specific artefact is informative of the authoring process but which choices about the authoring process are generating a specific material or digital artefact. The second axis concerns the phenomenology of authoring. As discussed, manuscripts are proxies of the authorial experience, including the conditions for inspiration such as events and situations which influenced the mindset of the author. Material manuscripts focus on the physical reality and conditions of authoring, such as the physical craft and environment of writing. Digital manuscripts are much more informative about the habits and the interactions of authors with their work, such as when and how long they write, which parts are re-worked more often. In this view, material and digital traces are complementary, illuminating different aspects of the same story. The last axis concerns the conception of the work in the author's mind in terms of inner factors and self-reflection. Material manuscripts are carriers of testimonies of self-reflection but also objects belonging to the physical space. In this view, these trace the evolution of thought across the author's relations with people and places: a material embodiment of the reflections leading to conception and development of work. Digital manuscripts include the conceptual structures as defined for supporting the authoring process or emerging from the personal life of the author. These conceptual structures provide a spontaneous perspective not entirely mediated by the author's awareness and "hand", as generated and recorded regardless of an explicit will: not a still-life but a reportage on the author. In this view, the contents of material manuscripts are constructed in their situation but also the results of a spontaneous act unbounded by specific working tools (e.g., scrap notes, drawings). Differently, digital manuscripts may provide rich testimonies generated automatically (unwillingly) by the tools but tightly bounded to specific settings and use of the digital medium (e.g., at the desk). Thus, the different types of traces are not just complementary but provide a view on the conception of the work strongly mediated by the technology used or not used by the author.

6 DISCUSSION & CONCLUSIONS

The presented analysis outlined a first set of issues related to the lack of a unifying perspective of manuscripts at the core of this contribution (as we will argue in the second half of this section).

Furthermore, the analysis highlighted a second set of issues of great general relevance and worthy of further investigation, emerging from our engagement, as human beings, in the digital transition and from the current trends of web and intelligent systems. A first issue concerns the space of manuscript, e.g., from a museum to a digital exhibition. This transition raises a question about the role of exposition within the manuscript. Can a journey out from the archive to the writer's house museum change the nature of a literary manuscript? More specifically, can a manuscript be usefully conceived as a hypertext when it is displayed in a museum? This is not simply an exercise in offering a historical perspective upon the experience of manuscript as hypertext; it should suggest innovations within the digital heritage sector to display the hypertextuality of the manuscript in the museum. This transition to digital exhibitions is a necessity rather than a choice during the COVID-19 pandemic but it requires reflection to understand its impact and implications. Secondly, in the age of content industry and personal copies, manuscripts still hold a special value concerning their uniqueness and being a proxy of direct contact with the author, a sort of contact relic. The manuscript is invested with an "aura" of authenticity [8] that is part of the experience and engagement of manuscript as gateway to the author, their life, inspiration and experience. This is a cogent topic, as demonstrated by the phenomenon of auctioning of non-fungible tokens (NFT) art [15], e.g. meme, tweets or digital pictures. While NFT can be seen as one of the possible transmediation of this aura, how this aspect of manuscript "reincarnates" in the digital sphere is yet to fully explored and likely to generate new unexpected cultural phenomena. The last issue concerns the provenance and authority of web artefacts. In terms of provenance, automated information manufacturing and information mining [9] (i.e. generated by a system rather than by a person) configure an articulated system of parts and components, and traces of the authoring activities which are shared between human and artificial agents. Indeed, transformations of interactions/actions into traces and the processing of web resources into content presents a complexity which is challenging to master and to communicate. The consequence of this setting is a blurred attribution of authority over contents, results of only partially predictable processes with limited control from the formal author. We opened by asking if digital artefacts and hypertexts are manuscripts. In light of this discussion, this question should be reframed as what value digital artefacts represent as part of a manuscript, and which role hypertext can have in the representation of manuscripts. Addressing the nature and the value of digital artefacts is a matter of priority. While the study of manuscript still focuses on centuries of material artefacts, the digitization process is catching up. Even though manuscripts were born analogic, they will eventually die (at the end of the study) in a digital form. Thus, the matter of how to study, preserve and present manuscripts in a digital form is not marginal to the study of digital artefacts but will supplement the current scholarship. In this regard, it is necessary to move beyond the forms of manifestation in favour of a framing at the conceptual level of the logical structures representing the activity of authoring, the mental state, and development of the idea (i.e. process, experience and conception). In framing of manuscripts as transmedia, the focus is shifted to representing the network of material and digital artifacts necessary for the understanding of a creative work.

In this view, a manuscript is always plural (a collective noun). The representation of this structure, which is the result of the scholarly analysis and reconstruction of the manuscript artefacts, is therefore necessarily a hypertext. However, the manuscript as hypertext genre is yet to be defined. Printed scholarly editions are carefully crafted reports making explicit the networks of connections reconstructed in the analysis of manuscripts. The structure of these reports is curated and structured with the aim of making the manuscript and its components legible and accessible under the light of a coherent and complete narrative, e.g., connecting the evolution of a work with the biography of the author and contextual information. Differently, digital editions are open-ended by design, structured as a collaborative field aiming to communicate with scholars directly involved in the curation activities. The issue of a genre for hypertext manuscripts concerns how to extract a synthesis of this open-ended process that communicates a form of coherent result to broader public, as the printed versions. The key issue concerning the wider adoption of digital editions with the Humanities is grounded on their collaborative and open-ended nature. Indeed, scholarly editions need to provide stability and a clear authoritative view on the manuscript, supplementing the authority of the author. Thus, on the one hand, digital editions address the need to open the curation process enabling both transparency, inclusion and overall better results based on a larger pool of expertise. On the other hand, the collaborative setting contrasts with the need to make conclusive statements and reconstruct the work done in a coherent output. Printed scholarly editions are multiple and competitive in terms of the perspectives they offer of the same manuscripts. In this view, the instantiation of hypertext manuscript should reflect but not be limited to the collaborative nature of digital editions providing, for instance, multiple alternative readings and narratives of the current state of the curation work. Thus, a hypertext genre of manuscripts is not synonymous with digital editions but should provide a structure to talk about a digital edition addressing, e.g., which work is the object of curation, what artefacts are composing the manuscripts, what information and facts they present, what hypotheses are being evaluated, what is still to be investigated and who contributed and what. This issue of hypertext genre is a promising line of research that could benefit greatly the fulfilment of the promise and potential of such platforms.

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Visual-Meta Appendix

The data below is what we call Visual-Meta. It is an approach to add information about a document to the document itself, on the same level of the content (in style of BibTeX). It is very important to make clear that Visual-Meta is an approach more than a specific format and that it is based on wrappers. Anyone can make a custom wrapper for custom metadata and append it by specifying what it contains: for example @dublin-core or @rdfs.

The way we have encoded this data, and which we recommend you do for your own documents, is as follows:

When listing the names of the authors, they should be in the format 'last name', a comma, followed by 'first name' then 'middle name' whilst delimiting discrete authors with ('and') between author names, like this: Shakespeare, William and Engelbart, Douglas C.

Dates should be ISO 8601 compliant.

Every citable document will have an ID which we call 'vm-id'. It starts with the date and time the document's metadata/Visual-Meta was 'created' (in UTC), then max first 10 characters of document title.

To parse the Visual-Meta, reader software looks for Visual-Meta in the PDF by scanning the document from the end, for the tag @[visual-meta-end]. If this is found, the software then looks for @[visual-meta-start] and uses the data found between these tags. This was written September 2021. More information is available from <https://visual-meta.info> for as long as we can maintain the domain.

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year = {2021},

isbn = {978-1-4503-8551-0},

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While new methodologies such as digital “forensics” and “virtual desks” are emerging, the nature and relations of native-digital manuscripts are yet to be fully investigated. This contribution accounts digital artefacts within the field of manuscript studies, identifying parallels between material manuscripts and hypertext features in their value as documents.

The mapping between digital and material artefacts outlines a theory of manuscript “transmediations” identifying where and how manuscripts cues are reflected in digital technologies. This theory is developed through case studies and analyses of digital transitions. In a discussion, we highlight key challenges and future directions for scholarly editions of digital manuscripts. Lastly, we elaborate the requirements of a hypertext “genre” for digital manuscripts that supports reconciling the open-ended collaborative process of curation with the need for a coherent narrative addressed to the broader public.,

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