

*Chercher le Texte: Locating the Text in Electronic Literature***Exopoiesis and literariness in the works of William Gibson, Mark Z. Danielewski, Kate Pullinger and Chris Joseph**

In an interview, Manuel Castells partially calls into question the maxim that "the medium is the message", a concept held by Marshall McLuhan and many other media scholars:

I would say that today 'The message is the medium' because it is the kind of message that we want to put forward, with the range of possibilities and the interoperativity of all this intermedia, that determines the way we actually process the message to a medium or a communication. For this you have to reach the moment of hypertextuality, interactivity, interoperativity in different forms of communications (Rantanen, 2005: 142).

In the context of present-day medial ecology, which is deeply influenced by phenomena of "participatory culture" and "connected intelligence", the interoperational potential of messages often organizes the process of communication. The growing expansion of the Internet in our lives brings about a transgression of the usual boundaries between media, fostering an "underdetermination" of cultural objects that can be freely modified by users.¹ More recently, scholars such as Henry Jenkins, Sam Ford and Joshua Green have taken this discourse a step further, focusing their attention on the "spreadability" of cultural contents: "Audiences play an active role in 'spreading' content rather than serving as passive carriers of viral media: their choices, investments, agendas, and actions determine what gets valued" (Jenkins, Ford and Green, 2013: 21). At the same time, it seems relevant to consider that spreadability also affects the decisions that have to be taken by authors when they are creating their works: "Creators have to think about creating multiple access points to content and texts that are both 'grabbable' and 'quotable' – which are technically and aesthetically easy for audiences to share" (296). The aim of this contribution is to analyse some aspects of the contents, structures and reception of three recent novels characterised by the spreadability of their contents. More specifically, William Gibson's novel *Pattern Recognition* (2003 [PR]), together with the subsequent *Spook Country* (2007), became the core focus of some projects within online communities: users began to build online databases by annotating the various narrative segments, in order to link them to other online searchable resources. Because of this process, *Pattern Recognition* might be considered a "networked novel", a definition that was adopted by Kate Pullinger and Chris Joseph to define their own novel *Flight Paths* (2007 [FP]). Pullinger and Joseph have been working on their project since 2007 with the help of other participants, in order to "actively engage with many of the questions that are raised by the concept of a transliterate production" (Thomas, Joseph *et al.* 2007).² Consequently, *Flight Paths*

1 As Mark Poster observes, "A type of object [such as print documents, photographs or videos] thus emerges into social space that is overdetermined in the sense of being structured through multiple contradictory practices but is also underdetermined in the sense that it remains an invitation to a new imaginary" (Poster 2001, 18). For the concepts of "participatory culture" and "collective" and "connected intelligence", see Jenkins (2006: 3), Levy (1994) and De Kerckhove (2010). The ideas of "prosumption" (Tapscott 2009: 89-91) and "mix" (Manovich 2001: 135) also appear to be relevant in this respect.

2 "Transliteracy" is "the ability to read, write and interact across a range of platforms, tools and media", which is being radically influenced by electronic media (Thomas, 2008: 101-102; see also Van de Poel, 2005: 8).

was developed alongside a related hypermedial database containing images, videos, newspaper articles and other texts, which can be continuously updated by the readers. Finally, the print novel in verse *Only Revolutions* (2006 [OR]) was written by Mark Z. Danielewski, with the help of a well established group of readers involved in his online forum, in order to discuss the various aspects of the novel and to suggest possible connections to other online material. It seems in all these cases that the composition and reception of the literary text is perceived to not be autonomous, thus requiring the support of parallel electronic and non-literary environments, such as a database or a forum. Consequently, it is necessary to understand not only how these literary works can be conceived as “distributed narratives” (Walker, 2004), but also how they articulate a complex relationship between their literariness and the multiplicity of new media.

The novels examined here originate from an Anglo-American critical and literary context over recent decades: an area which has witnessed a greater focus on the cognitive perceptions and artistic representations of electronic and web media. In 1992, Frederic Jameson introduced the concept of “postmodern or technological sublime” in order to explain how these new forms of technology entered the collective imagination as a “distorted figuration” of the world system of late capitalism (Jameson, 1992: 37-38). As Joseph Tabbi points out in *Cognitive Fictions* (2002), Jameson's idea of the “technological sublime” shares similarities with Friedrich Kittler's conception of “absolute knowledge”, which “like a language that has hardened into a code, [...] ceases to distinguish itself from its environment and has little chance of evolving in response to its uses” (Tabbi, 2002: 11-15; see Kittler, 1999: 1-2). Simultaneously, as argued by Tabbi, the “infinitely detailed representations” typical of the postmodernist “art of excess”³ – such as Pynchon's *Gravity's Rainbow* (1973) or Joseph McElroy's *Lookout Cartridge* (1974) – ceased to appeal to the U.S. publishing industry because “they bring too much mental activity into consciousness” (Tabbi, 2002: xv). To this end, Tabbi analyses Richard Powers' *The Gold Bug Variations* (1991), a novel that reveals the problematic nature of an encyclopaedic representation of information technologies. In Powers' subsequent novel, *Galatea 2.2* (1995), the autofictional protagonist, ‘Richard’ (the alter ego of the author Richard Powers) considers his former volume as a massive “encyclopedia of the Information Age” (Powers, 1995: 210), a failed attempt to make an “aerial survey” (215) and a “map on the scale of one to one” (214) of the cultural impact of genetics and computer science. Consequently, for Tabbi, Powers establishes a second-order observation regarding his previous literary production. This practice allows the author/character to become an observer of his own cognitive strategies, thereby challenging “bounded conceptions of the mind in favor of a mind able to reflect back on itself and reengage the environment after the accumulation of (previously indistinct) information” (Tabbi, 2002: 74-76). Therefore, it is possible to notice a shift from a “representational realism” to “a more cognitive realism in fiction—based on notation and reportability rather than representation.” Thus, literature becomes a tool that helps in “recognizing conscious experience as a process of selection, an autopoietic creation out of noise that is far more complex than anything yet accomplished by computer simulation” (xxv). Through this view, Tabbi identifies a type of autopoietic literature in the works of the aforementioned Richard Powers, and in those of Thomas Pynchon (*Vineland*, 1990 and *Mason & Dixon*, 1997), Paul Auster (*The New York Trilogy*, 1987 and *The Invention of Solitude*, 1988), David Markson (*Wittgenstein's Mistress*, 1988), Harry Mathews (*The Journalist*, 1994) and Stephanie Strickland ('To be Here As Stone Is', in *True North*, 1998).

The concept of autopoiesis was originally proposed by biologists Humberto Maturana and Francisco Varela (1978) and can be applied to any natural or artificial system that “continuously generates and specifies its own organization through its operation as a system of production of its own components, and does this in an endless turnover of components under conditions of continuous perturbations and compensation of perturbations” (Maturana and Varela, 1980: 78-79). For instance, as long as a living system breathes, eats and drinks, the autopoietic networks by which it is constituted will continue to provide the energy to maintain its organization and the system will

3 See Le Clair (1989: 6-24 and 48).

be able to interact with the surrounding environment (Johnston, 1998: 192; Hayles, 1999: 134-137). In the same way, the nervous system of a living organism is also characterised by a circular organisation. As Katherine Hayles argues: “In the autopoietic view, [...] the environment merely triggers changes determined by the system’s own structural properties. Thus, the center of interest for autopoiesis shifts from the cybernetics of the observed system to the cybernetics of the observer” (Hayles, 1999: 11). The observer is an autopoietic unity and consequently is able to generate “representations of its own interactions. [...] The system can then recursively generate representations of these representations and interact with them, as when an observer thinks, ‘I am an observing system observing itself observing’” (144).⁴ Tabbi applies the concept of autopoiesis to the analysis of some literary works of recent decades, in an attempt to show how they can be understood as “self-organizing compositions” that establish their boundaries through the selection of elements from the surrounding media environment (Tabbi, 2002: 8). For instance, in David Markson's *Wittgenstein's Mistress*, the protagonist Kate (like 'Richard' in Powers' *Galatea 2.2* or other characters in novels such as Paul Auster's *City of Glass* and David Matthews' *The Journalist*) re-reads the text that she has previously written, becoming an observer of a system of notation that is finally available to other cognizers: “by imagining oneself as 'outside', the observer introduces a new *distinction* within the writing-system. Hence the possibility of moving the system (not necessarily 'up') to a different level of complexity, so that it can function differently within the environment” (xxi-xxii). The idea of re-entering the system at another level of complexity plays a fundamental role in Tabbi's analysis of cognitive fictions and was originally formulated, in the context of the social sciences, by Niklas Luhmann: “re-entry” occurs when “a system *makes* the difference between system and environment and *copies* that difference in the system to be able to use it as a *distinction*” (Luhmann, 1995: 171-186, qtd. in Tabbi, 2002: 20). According to David Ciccoricco, Luhmann refers to systems that are operationally closed, but environmentally open. This “double positivity” can also be appropriated for literary theory: “a writing system can remain open structurally (environmentally) while remaining closed organizationally (operationally)” (Ciccoricco, 2007: 135).⁵ Similarly, as Tabbi points out, cognitive fictions preserve their literary autonomy, but, at the same time, interact with the medial ecology that surrounds them: “defining the literary as a self-organizing composition, or *poiesis*, is not to close off the literary field; instead, by creating new distinctions such a definition can actually facilitate literary interactions with the media environment” (Tabbi, 2002: 8).

Within the context of environmental ethics, John Nolt distinguishes between the “autopoietic” and the “exopoietic functions” that define the behaviour of organisms. For instance, functions such as breathing, obtaining food or water or healing injuries can be defined as autopoietic because they contribute to establishing and enhancing the survivability of an organism. Conversely, exopoietic functions “are those that establish, maintain, or enhance the survivability of some related biotic entity” (Nolt, 2009: 149). For instance, reproduction is exopoietic because it enhances the survivability of the species and not of the organism itself; the carrying of pollen by the honeybee is also exopoietic, because it enhances the survivability not only of the bee itself, but also of the flowers. As highlighted by Nolt: “In exopoiesis, an organism functions not for its own benefit, but rather for the benefit of something related to it, to which it is therefore of instrumental value” (*Ibid.*). When applying the concept of exopoiesis to the literary field, it is possible to understand how some recent novels are characterised by non-autonomy of their textual structure: their reading

4 From the 1940s onward, first-order cybernetics concentrated on the behaviour of observed systems, theorized as distinct from the environment in which they were embedded. Second-order cybernetics was developed from the research of H. Von Foester and W.R. Ashby in the 1960s and of Maturana and Varela in the 1970s, and was concerned with interactions between the observer and the system. See Hayles (1999: 132-143; 2010: 147-148); Kenny and Boxer (1990: 207).

5 For more on the concept of “double positivity” see Clarke (2003: 61-65), Maturana and Varela (1980: 79-80), Luhmann (1990: 12-15) and Hayles (1999: 145-147). In particular, Ira Livingston argues that an autopoietic system “is a system that is able to misrecognize itself (or to be misrecognized) as autonomous” (2006: 83).

requires the parallel fruition of non-literary fluxes of online information, experienced through search engines, blogs and forums in which the fragments of the literary text are spread by readers themselves. Literary autopoiesis can be identified in “cognitive fictions” as the ones analysed by Tabbi and mainly concern the level of the analysis of characters and their way of cognizing the world. Similarly, it is possible to understand how exopoiesis might be conceived as an environmental strategy which presents a strong organisational openness of the literary work. Taking this view, I consider literary autopoiesis and exopoiesis to be two complementary strategies that can contribute to understanding how people interact with media environments. As Richard Powers states, we can think of the novel as “a supreme connection machine – the most complex artifact of networking that we've ever developed” (Williams, 1999).

In Powers' *Galatea 2.2* and in other “cognitive fictions” the autopoietic strategy of cognitive re-entry is articulated through the presence of characters who are also authors of literary texts. This relevance of the character/writer can be considered as symptomatic of what Tabbi defines as “the marginality and medial *difference*” of print-based literature, which “far from putting the literary artist at a disadvantage, might allow the artist to resist the largely communicative purposes of other media, to manage their multiplicity, and to experience the meaning of their unreflective functions” (Tabbi, 2002, xi). At the same time, in the case of 'exopoietic' fictions that are prearranged for spreadability of their contents, it is possible to notice the presence of 'vectorial' characters, who are intended to guide the reader in formulating a path of knowledge along the narrative and outside from it. For instance, in William Gibson's *Pattern Recognition*, the protagonist Cayce Pollard, finds herself wandering both through the global village and the World Wide Web, in order to grasp more information about a mysterious “footage” (PR 47) and its maker. The footage consists of an unfinished series of film clips that have been gradually spread online, drawing the attention of the “Fetish:Footage:Forum” (4), an online community of which Cayce herself is a member. Finally, in Moscow, Cayce succeeds in meeting Nora, the footage maker, and her sister Stella who is responsible for online spreading. At the beginning of the plot, Cayce and her forum mates might arguably be considered what Lev Manovich defines as “digital flâneurs” or “data dandys”, who tend to display their “private and totally irrelevant collection of data to other net users” (270). Bearing this in mind, it is helpful to note that the database is considered by Manovich as a “natural enemy of narrative”: “competing for the same territory of human culture, each claims an exclusive right to make meaning out of the world” (Manovich, 2001: 225). In Gibson's novel, Nora and Stella merely spread the film fragments online, therefore making a database available, a paradigm of choices which never arrives to be actualised by audiences in a coherent narrative. Katherine Hayles states that, in the case of Gibson's *Pattern Recognition*, “the possibility that the footage, compelling as it is, may not finally be a narrative at all hints at the vulnerability of narrative at a time when Lev Manovich, among others, asserts that the database has displaced narrative as the dominant cultural form” (Hayles, 2006: 147). However, other than being a mere 'digital flâneuse', Cayce would also seem to be a “user navigating in a virtual space”, which is another type of subject typical of computer culture that, as Manovich argues, “exemplifies the classical American mythology in which the individual discovers his identity and builds character by moving through space” (Manovich, 2001: 271). Indeed, Cayce defines her interest for the footage as an “*investigation*” and argues that she and some of her forum mates “may all seem to just be sitting there, staring at the screen, but really, some of [them] anyway, [they] are *adventurers*” (PR 175).⁶ Furthermore, when Cayce's forum mate Parkaboy states that the film fragments engender “a sense of [...] of an opening into something”, Cayce replies that it is probably an opening to “*narrative*” (PR 74). Through her global investigation in the search of a meaning for the paradigmatic nature of the footage, Cayce ceases to stare at the data flickering on the screen and abandons her role of ‘data dandy’, being finally able to build her own narrative adventure and discovering a meaning in sharing her personal trauma (the vanishing of her father in the World Trade Center disaster) and the one of the footage

6 Emphasis added.

maker Nora (rendered catatonic by a fragment of a Claymore land mine lodged in her brain after an aggression against her powerful Russian family). Consequently, Cayce may be considered a sort of narrative vector, who is able to abandon the hyperspace flaneurism to navigate through the 'real' space of globalization, walking the reader through meaningful paths. In this sense, the online spreading of the footage does not merely create a database, but it is the promise of a cognitive and narrative process of pattern recognition.

Umberto Eco argues that “writing a novel is a cosmological matter” (Eco, 1984a: 20): it corresponds to the creation of a “possible world” that is an alternative to the real one. However, it is impossible for a fictional world to be totally autonomous from the 'real' one, since a certain part of its individuals and features derive from the “world of reference”, with which both the narrator and its readers are acquainted (*Id.*, 1981: 219-222). The non-autonomy of the fictional world from the world of reference becomes relevant if we think that, for instance, an author like Gibson declared in an interview that he wrote *Pattern Recognition* frequently utilising the Google search engine in order to acquire a vast amount of information to describe the setting, the characters and the objects of the plot (Lim, 2007). Consequently, according to Gibson, Google changed the way he views a novel as he is “working on it”, creating a “sort of ghostly, spectral hypertext that surrounds any novel now” (Ellis, 2007; see also Garreau, 2007). This process is the demonstration of a growing relationship that occurs among literary texts and the World Wide Web, the latter being adopted not only as a database, but also as a world of reference that is shared with the readers. In this context, Gibson considers Google as “an organ of global human perception” (Gibson, 2010), which often becomes a parallel information device that is adopted by readers during the fruition of a literary text. As Gibson points out:

Something that started with *Pattern Recognition* was that I discovered *I could Google the world of the novel*. I began to regard it as a sort of extended text — hypertext pages hovering just outside the printed page. There have been threads on my Web site — readers Googling and finding my footprints. I still get people asking me about “*the possibilities of interactive fiction*,” and they seem to have no clue how *we're already so there* (Ellis, 2007).⁷

A few months after the publication of *Pattern Recognition* (2007), the author noticed the creation of websites managed by fans who indeed 're-patterned' many of the footprints left by Gibson during his online research. If, in the plot of *Pattern Recognition*, the database constituted by the footage fragments allows Cayce to weave her personal narrative, *Pattern Recognition* and *Spook Country* have been the focus of an opposite process, having been fragmented and restructured in a database of narrative quotes linked to other online sources – such as images, videos, Wikipedia pages or other encyclopaedic apparatuses – that refer to places, characters or objects that also exist in the 'real' world. One of the most relevant weblogs of this kind is 'Node', which has been realised – on the 'Tumblr' blogging platform – by the passionate reader 'Patternboy'. The project actually draws its title from the imaginary review “*Node*”, founded by the character Hubertus Bigend in Gibson's *Spook Country* ('Patternboy', 2007). For example, in 'Node' it is possible to find photographs of a rock band who look similar to the one described in *Spook Country*, satellite images of the places represented in the novel, or Wikipedia pages that refer to a medicine that is described in the plot. The activity of online research that is carried out by 'Patternboy' in 'Node' is not an isolated experiment and would seem to suggest a way of experiencing narrative texts that is going to become more habitual.⁸ For instance, a web blog user commentates on Patternboy's project in this way: “This idea of the book existing in a Google cloud is a great one, and jibes with how I read SC [*Spook Country*] (having not then yet read any of the commentary sites like this one or Node): with my laptop nearby, googling whatever caught my eye” (comment by 'Christopher Tassava', 2007). As

⁷ Emphasis added.

⁸ For an analysis of 'Node', see also Sutherland (2007). Another relevant website that is structured in a similar way is 'Pr Otaku', edited by Joe Clark and focused on *Pattern Recognition* (Clark, 2003-2007).

Eco observes, written texts are tools to “keep something latent” (Eco, 2007: 100).⁹ For instance, when we read a novel, our knowledge of the 'real' world is temporarily substituted with the information expressed by the possible world of the text. In addition to this, a lot of information is 'frozen' in the novel and can be actualised once the reader decides to compare the possible fictional world to other sources. Whenever we return to the Internet and to online search engines in order to interpret the details of a text, the actualisation of the latent knowledge acquires a higher level of immediacy. In this regard, in a research article published in *Science* in 2011, Betsy Sparrow, Jenny Liu and Daniel Wegner explore the consequences of the necessity to “google everything”. Online access to search engines and databases such as Google and Wikipedia has become a “primary source of transactive memory”, the latter being “a combination of memory stores held directly by individuals and the memory stores they can access because they know someone [or something] who knows that information” (Sparrow, Liu and Wegner, 2011: 776-777). In the context of the present day medial ecology, this 'someone' corresponds, more often than not, with the entire potential of information that is available online. As Sparrow, Liu and Wegner's psychological tests demonstrated, we immediately think of connecting to the Internet whenever we find that we need knowledge and, at the same time, we tend to forget the information that we expect to be continuously available online. Consequently, the advantage of being able to access a large amount of information has the drawback of demanding the need to be constantly online: “We must remain plugged in to know what Google knows” (776-778). Consequently, Google is becoming a kind of prosthetic and transactive memory, of which we make use, putting our cognitive and mnemonic skills in its hands. Therefore, Gibson defines Google as “a central and evolving structural unit not only of the architecture of cyberspace, but of the world” (Gibson, 2010), managed by algorithms and data interrelations that escape our direct comprehension. Although Gibson's comments seem overemphasised, it is necessary to consider how a large amount of data constitutes the basis for a world of reference that is exploited by readers and authors precisely because it can be easily and rapidly retrievable and shareable through the Google search engine.

The process of 'exopoiesis' – the spreadability of the literary work in a new medial environment – fosters a continuous cycle of actualisations and virtualisations. As Slavoj Žižek points out, in the context of new media the free reinterpretation of some works of fiction entails “the suspension of the function of the Master on account of which – potentially, at least – there no longer is a 'definitive version'” (Žižek, 1997: 152). In *Pattern Recognition*, Stella and Nora, are not merely 'Masters' but 'spreaders' letting other characters 'choose' how to actualise their work. Similarly, 'Patternboy', the active reader, would seem to problematise the original authorial actualisation, de-structuring the narrative syntagm previously created by Gibson in a database of textual fragments that allows different actualisations by audiences. However, at the same time, 'Patternboy' exopoietically links the various parts of the original text to other online material. In this latter view, both Cayce and 'Patternboy', the vectorial character and the active reader, from passionate 'data dandies' become explorers elaborating interpretative strategies and striving to make connections between different data. The various 'exopoietic' practices seem to be grounded in this ambivalence between virtualisation and actualisation. Consequently, it is necessary to explore this latter phenomenon through the analysis of two other novels that foster a dialog among different subjects and enhance a growing awareness of our ways of acquiring knowledge through the Web.

In the case of *Pattern Recognition*, the creation of an extra-literary space of knowledge occurred independently from Gibson's original intention. On the contrary, Pullinger and Joseph's *Flight Paths* and Danielewski's *Only Revolutions* are divided in two different spaces that both originate from a project conceived by the authors: the first part consists of the literary work itself, whereas the second space is prearranged in order to share and elaborate information together with audiences. In the case of *Flight Paths*, the reader can access the different chapters of the novel; each one is constituted by a brief flash movie where the texts are accompanied by sounds, videos and

9 See also pp. 98-105. The translation from the Italian is mine.

animations. The work is thus characterised by a strong multi-mediality, despite written texts being preponderant in relation to other content. For the time being, there are two main narratives that are visually and narratively intertwined as the 'paths' of the two protagonists, Yacub and Harriet, intersect with increasing frequency. Yacub is a young Pakistani who has been forced to emigrate to Dubai and then to London in search of a job and better living conditions; Harriet is "a good wife and a good mommy" (FP: chapter III), who reflects on the privileged economic conditions of her family as compared with many others in the world. What makes *Flight Paths* a potentially interesting project is the space that was created on Net Vibes, a dashboard publishing platform for the Web that allows the "transliterate reader" to insert texts, links, newspaper news, images, audio files and videos related to the plot, which are then displayed in windows adjacent to each other, in a similar way to the display mode of the windows in any computer desktop. For example, a link leads to a story published in *The Guardian* about a Romanian stowaway, who, like Yacub, had miraculously survived a flight while clinging to the undercarriage of an aeroplane that landed at Heathrow (Foy, 2010). Pullinger and Joseph make use of this kind of material to develop the chapters, which are added from time to time in order to continue to tell the story of two main characters who appear to be exemplars of very different social conditions and ways of moving through space (the perilous flight of Yacub is in stark contrast with the Harriet's bored trip by car).

Also in Danielewski's verse novel *Only Revolutions*, there are two main narrative paths associated with the two protagonists: sixteen year old Sam and Hailey meet each other, become lovers and begin to travel together across the United States. The two narratives correspond with two different reading directions, one that begins with the recto of the volume and the other with the verso. As Brian McHale observes, the reader is constantly required to physically perform 'revolutions' rotating 180° the volume, in such a way as to pass continuously from one narrative to another (McHale, 2011: 162).¹⁰ On the margin of every page there is a sidebar of "Chronomosaics" (OR, 180/H), that is to say a column of historical events chronologically listed under a certain date. The reader is invited to perform a great number of interrelations among the different narratives and the data of the chronomosaics. For instance, during the episode of a party, in which the two protagonists are dancing, Hailey's narrative states: "Sam bolts away with one ruinous/ step, dashing from me/ leaving free/" (78/H). Similarly, in the adjacent chronomosaic we notice another relevant 'step', which refers to the famous words pronounced by Neil Armstrong when he first landed on the moon (July 20 1969): "10:56 PM/ —one small step for man,/ one giant leap for." (*Ibid.*). Other references can be more cryptic and are often related to relevant historical events in international history. For example, in the "April 15 1992" chronomosaic it is stated: "Cosa Nostra, Capaci &/ Palermo Airport,/ Giovanni Falcone &/ Francesca Morvillo & 3 go." (227/H). In the related narrative, Sam and Hailey drive an Alfa Romeo, one of the car models that the Italian Antimafia prosecuting magistrate, Giovanni Falcone, and his police escort officers used to drive, before they were killed during the massacre in Capaci (Palermo, Italy, May 23, 1992). Many other matches between the historical events present in the 'marginalia' and the verses of the two narratives have been interpreted by forum users and may include references to the bibliographic material that Danielewski probably consulted.¹¹ In this sense, as Mark Hansen points out, Sam and Hailey "are allegorical figures of sorts, and what they allegorise is the incessant movement of time itself and the universal human desire to get free from time's burden" (Hansen, 2011: 187). As in *Flight Paths*, in *Only Revolutions* the dualistic and almost genesiacal presence of a male and a female protagonist refer to an idea of universality that is effective in inspiring in audiences with a wide sense of identification. Furthermore, as in the case of Cayce in *Pattern Recognition*, the two pairs of characters may be interpreted as 'vectors', having the function of walking the readers in their wanderings both within the narratives and outside of them, in the online information sharing spaces.

10 For a deeper understanding on the formal aspects of *Only Revolutions*, see Portela (2012), McHale (2011: 142-143) and Hayles (2011: 162-168; 2012: 173-247).

11 See for example the thread 'Chronology & Sidebar' (MZD Forums, 2004-2013).

As with Gibson, Danielewski, Pullinger and Joseph based the writing of their works on the acquisition of information and documents online. In the case of *Flight Paths*, this process is made immediately noticeable by the presence, inside the online dashboard, of all the documents that have been used as sources to elaborate the plot. Similarly, as revealed by Katherine Hayles and Mark Hansen, Danielewski made use, during the composition of *Only Revolutions*, of many apparatuses available online, such as Wikipedia or online historical dictionaries of American slang (Hayles, 2011: 167; Hansen, 2011: 184). Indeed, Hayles points out that, using Google, she retraced much of the data that Danielewski probably had acquired in the same way. Consequently, “such extensive correlations are feasible only when one has digital databases at one's command” and “the connections that come into focus [...] are patterns that emerge from an ocean of data, much as Google search imparts a partial ordering on an infosphere too vast to comprehend” (Hayles, 2011: 166-167). The research of online sources performed by readers seemed to be forecast and hoped for by Danielewski himself, who declares: “The fact is it would be nice to have a Google page in the book [*Only Revolutions*], so you could find out where the quotations came from” (Benzon, 2007). This 'reverie' is a clear demonstration of how online research is considered as a relevant aspect of the production and the fruition of literature. Consequently, in novels such as *Only Revolutions* and *Flight Paths*, collective knowledge plays an important role and is characterised by a high level of complexity. In this view, it is possible to consider Umberto Eco's concept of “encyclopedia”. An ordinary encyclopedia such as Diderot and D'Alembert's *Encyclopédie* is a set of documents that partly represents global knowledge. In contrast, in *Dall'albero al labirinto* (2007), Eco analyses the idea of “Maximal Encyclopedia”, that is necessarily a “semiotic postulate” and a “regulative idea” (Eco, 2007: 59):

A Maximal Encyclopedia is not drawable in its entirety because it represents the set of all that has been said and thought, or at least of everything that would be in theory available as expressed by a sequence of materially identifiable interpretants (graffiti, stelae, monuments, manuscripts, books, electronic records), as in a sort of World Wide Web infinitely richer than that to which you have access via the Internet (81).¹²

If the 'real' World Wide Web is obviously less rich in information than the regulative hypothesis of a maximal encyclopedia, it is also possible to notice how the acquisition of knowledge via the Web is becoming more and more problematic. First of all, there is the risk of considering the Internet as if it actually were a sort of 'pseudo-maximal' encyclopedia, an instrument of transactive memory containing all the information possibly available. Secondly, as explained by Eco, there is the risk that the globalization of knowledge promoted by the network fosters not so much a shared knowledge, but an inability to filter knowledge: “The Internet gives us everything and forces us to filter it not by the workings of culture, but with our own brains. This risks creating six billion separate encyclopaedias, which would prevent any common understanding whatsoever” (Eco and Carrière, 2011: 82). It is possible to analyse how the exopoietic processes that characterise the novels of Danielewski, Pullinger and Joseph challenge both the risk of considering the Internet as a vast deposit of the entire human knowledge and the potential proliferation of a plethora of distinct private encyclopedias. As Danielewski points out:

[*Only Revolutions*] was pointedly a *centrifugal novel*. It was about getting outside. It was about looking at landscape. It was about addressing what the open was. [...] It was also about [...] addressing the online community and saying, "Hey, give me your input here: what was your favourite historical moment?" So it's not just my personal history, but *histories that go beyond what I can perceive* when I'm looking at thousands of books (Benzon, 2007).¹³

12 The translation from the Italian is mine.

13 Emphasis added.

Here Danielewski acknowledges that *Only Revolutions* is, in part, a sum of multiple inputs coming from a community. The imperfection of the individual cognition and acquisition of information is clearly fostered by the “centrifugal” and 'exopoietic' nature of a literary text that asks the readers to 'cognitivise' outside its material boundaries. During the design and the preliminary draft of the novel, Danielewski availed himself of its website and of the MZD forums, in order to collect images and photographs taken by users and to formulate some questions for them. This database of information also formed a basis for the writing of the two main narratives and of the 'chronomosaics': many lists of plants, animals, minerals and cars or, as noted above, of particular historical events suggested by readers. The pronoun “US”, used by the two protagonists to refer to themselves, is also an acronym for "United States of America" and, above all, it refers to the collectivity constituted by the various readers. In this sense, as Hayles points out, *Only Revolutions* can be considered “a topology of great complexity” (Hayles, 2011: 168), where narrative is hybridised with data and the personal myths of the characters with collective national (and global) identity (159). Danielewski considers that “Sam and Hailey are all races; they're all shapes and colours and clothing” (Benzon, 2007). Also many forum users interpreted Sam and Hailey as an allegory of themselves or even of the book itself, arguing that the two protagonists could be “in some way literally the text on the page” ('Ducknerd', 2009) or “not physical beings so much as ideas or *revolutions*” ('murasume', 2011), since they “go to free the world” (OR, 215/S/H) and they claim to be “impossible to confine” (298/H), “impossible to threaten” (298/S), “unmastered” (234/S), and “unprincipled” (234/H). In the same way, this 'revolutionary' circulation of knowledge is also at the base of the interpretive strategies of readers. In this regard, it seems relevant to take into account the comments of some forum members who have received from Danielewski an "Advanced Reader Copy" (ARC) in such a way as to contribute to the first phase of the development of the online discussions: “The term ARC [...] also means 'a continuous portion of a circle or other curve'. What we few, we happy few have been asked to do is begin tracing (or, perhaps plotting) an arc that is a portion of this circular text's circumference” ('John B.', 2006). Here the reader perceives the activity of the community as a crucial factor for the final elaboration of the plot and the structure of the novel. The very idea of “tracing/plotting enough of that arc” also remembers both the work's title (“Only Revolutions”) and the 'revolutions' that the readers have to establish while they physically rotate the book during their 'inferential walks' on the Internet and in the forum threads. As Eco points out, it is possible to compare the notion of 'maximal encyclopaedia' to a sort of solar system, with a central nucleus that corresponds to an “average encyclopedia” that is participated both by common speakers and by experts on certain subjects: “A great deal of Specialised Encyclopedias perform orbits of different size around a central nucleus (the Average Encyclopedia), but we should also imagine, at the center of the nucleus, a swarm of Individual Encyclopedias, representing the encyclopedic knowledge of each individual in varied and unpredictable ways” (Eco, 2007: 83-84).¹⁴ The notions shared by forum users during and after the composition of *Only Revolutions* enable individual encyclopedias to come out from the nucleus. These 'revolutionary motions' intersect and influence one another in a shared space, ensuring a common understanding of public and private data. A similar process also occurs in *Flight Paths*: the online dashboard hosts many stories and chronicles posted by audiences. For example, a user reports a story of migration: “Aqeel is tired and he feels all his money has been spent on trying to fulfill his dream of reaching the land of gold” (FP, /flightpaths#Contribute). It is plausible that Aqeel's story has been used by Pullinger and Joseph in order to describe the profile of the protagonist of *Flight Paths*. Indeed, reading the reflections of Yacub in the main narrative, we can perceive a similar dissatisfaction towards the economic sacrifices that are needed to reach a foreign country in which only strenuous and poorly paid jobs are usually available for immigrants. In another window of the dashboard another user transcribes a poem that is focused on the myth of Icarus. In this latter case, in comparison with the adoption by Pullinger and Joseph of Aqeel's story, the process is reversed, since it is the narrative of the novel

14 The translation from the Italian is mine.

that inspired the obvious analogy between the mythological figure of Icarus and that of Yacub, who falls from the undercarriage of an airplane in which he was hiding in order to reach England. Therefore, in *Flight Paths* the main literary text works as a “transliterate lifeworld” that absorbs and inspires content from multiple paths walked by different subjects.¹⁵

We have already seen how, after the publication of *Pattern Recognition*, Gibson developed a growing consciousness of the existence of empirical readers who systematically resort to the Internet during the reading of the novels he wrote, thus interactively reconnecting parts of the literary work to the same digital world of reference on which the creative process was based. From the point of view of the authors of *Only Revolutions* and *Flight Paths* the relationship between the composition of the literary work and the reading enhanced by the Web might be considered not merely conscious, but even strategic: these works assume, as an evident textual strategy considered since their conception, a “model reader of the second level”, that is, as Eco explains, a “semiotic reader, who asks himself what kind of reader that particular story was asking him to become, and wants to know how the Model Author who is instructing him step by step will proceed” (Eco, 2005a: 223). In the novels examined, the semiotic reader is asked to read sources outside the material inscription of the work of art: the literary work is neither designed nor perceived to be structurally autonomous. Another comparison might aid a better understanding of the way these texts conceive the model reader as a textual strategy. In the aforementioned novel *Galatea 2.2*, Richard Powers imagines that his alter ego 'Richard' contributes to create an artificial intelligence able to memorise all the books and the letters that deeply affected his life. At the end of the plot (Powers, 1995: 326-329), the failure and self-termination of this prodigious 'absolute reader' may be interpreted as a sort of sacrifice, that allows the protagonist to finally acknowledge his cognitive human imperfection and the impossibility to manage autonomously a knowledge too vast to comprehend. As Powers (the author) points out: “our being overwhelmed by the archive doesn't change the fact that there is a human project. We may now be able to know it only as an aggregate” (Birkerts, 1998). Here, literature is considered as a process fostering a dialog among the cognitive efforts expressed by a multiplicity of human subjects. It is possible to argue that authors such as Danielewski, Pullinger and Joseph ideally take proper account of this unavoidable imperfection of individual cognition. Indeed, their literary works carry on a textual strategy that does not correspond to the idea of a 'model reader', but of a multiplicity of 'model readers', who are aware of the presence of other interpreters and do not consider literary fruition as an individual activity, thus interacting with each other in order to establish interrelations among the literary text and private and public knowledge. Derek Attridge states that a literary text is “inventive in its difference”, because it introduces “otherness into the sphere of the same”. The “singularity” that characterises the “literariness” of a text “consists in its difference from all other such objects, not simply as a particular manifestation of general rules but as a peculiar nexus within the culture that is perceived as resisting or exceeding all pre-existing general determinations” (Attridge, 2004: 63-64). Thus, for Attridge, “singularity” is an “event” that occurs in the reception of the reader, the latter being understood as a “repository of an idioculture, an individual version of the cultural ensemble by which he or she has been fashioned as a subject with assumptions, predispositions, and expectations” (67). *Only Revolutions* and *Flight Paths* promote a comparison among the assumptions, the predispositions and the expectations of various cognizers. Consequently, it is possible to consider the “singularity” of these literary works as a multiplicity of singularities, displaced across more than one document and distributed in more than one subjectivity.

As Yellowlees Douglas observes, a literary hypertext is often organised through an “intentional network”: the hypertextual structures developed by the authors – such as guardfields, defaults, windows, link labels and so on – shape the choices made by the reader and the trajectory of his

15 As Philip Agre and Ian Horswill point out, a “lifeworld” can be defined as “the *patterned ways* in which a physical environment is functionally meaningful within some activity” (Agre and Horswill, 1997). For the notion of “transliterate lifeworld” in the context of new media see also Thomas (1998: 108).

reading (Douglas, 2001: 134). Conversely, in websites like 'Node', in *Flight Paths* dashboard and in Danielewski's forum, fragments of the work are released from the original literary corpus and hypertextualised through the choices made by users. As a consequence, it is possible to see, in the spaces outside the literary text, the material inscription of what Eco defines as “inferential walks”, which happen when the reader has “to 'walk', so to speak, outside the text, in order to gather intertextual support” (Eco, 1981: 32). Since the early development of the projects, Danielewski, Pullinger and Joseph were conceivably aware of grounding the narratives of their novels in a world of reference (the World Wide Web and the information provided by advanced readers) shared with their audiences, even if they were unable to predict the outcomes of the inferences performed by potential readers. In this perspective, there is a difference between creating a hypertextual narrative linked to various external sources and creating a database or a forum where a set of documents and links are always potentially up to date. Furthermore, since the Internet is characterised by continuous changes, the critical overview of interpretations and contributions included in *Flight Paths* or in MZD forums is subject to constant modifications over time. The novels examined here can be considered as those that Eco defines as “open works”, which “encourage 'acts of conscious freedom' on the part of the performer and place him at the focal point of a network of limitless interrelations, among which he chooses to set up his own form without being influenced by an external *necessity* which definitively prescribes the organization of the work in hand” (Eco, 1989: 4). In addition, in these novels the centrifugal tendency to a spreadability of contents also reveals a strategical 'openness' that is typical of the “works in movement”, namely, particular kinds of “open works” that “consist of unplanned or physically incomplete structural units” and “suggest themselves in constantly renewed aspects to the consumer” (12). However, *Only Revolutions* and *Flight Paths* are not merely 'distributed', 'open' or 'in movement' works, they contemplate the fruition of other material *outside* them. Consequently, the work is not merely considered as a system that is fuelled by external sources which become part of its structure, but as a factor that *becomes part* of a larger system. For instance, in the case of *Only Revolutions*, the continuous “revolving and rereading” (Bray, 2011: 214) of the novel is deeply affected by the surplus of knowledge that the reader is invited to acquire outside the text, through the fruition of other sources available online or on the forum threads. The fruition of the work is not merely “constantly renewed” (Eco, 1989: 12), as in the case of Eco's open work, but is potentially enhanced by this process. This is why it is possible to notice many blank lines between the “Chronomosaics” sidebars: public memory and private memories are always incomplete and to be completed through a cognitive process which changes throughout time. The documents and the interpretations on the MZD Forums are an inscribed chronology, a material statement of the various 'movements' performed by online users which affects subsequent readings of the work. In the case of *Flight Paths* a material accretion of the novel even occurs, as Pullinger and Joseph add new chapters from time to time, which are based on the contents and the interrelations previously posted by users. The literary text can therefore be considered a cognitive filter, since it is possible to subsequently re-enter into the work after the acquisition of an augmented consciousness of alterity, fostered by the participation of other readers.

As Tabbi notes, in many 'autopoietic' fictions “we are presented with thinkers thinking, writers writing, and readers reading”. This “metacommunication” may be interpreted as a process of “remediation”, when a narrative gives the opportunity of “establishing correlations between collaborating minds—the writer's mind and the reader's mind and the mind of past readers and writers of other works under citation”, all represented in the text of a writer's journal (Tabbi, 2002: 83-84). For instance, in Harry Mathews' *The Journalist*, the protagonist is able “to note down the positions and dispositions” of other characters, defining them as “collaborations”. In so doing, he “discovers another key feature of autopoietic theory: the second-order observation by differently positioned observers, each one displacing and correcting for the other's blind spots” (135). It would be possible to argue that, in the 'exopoietic' view, the novels considered here outline a similar strategy, allowing a multiplicity of readers and writers to collaborate in order to exploit the main

narrative as a place in which to re-enter bringing together private and public encyclopedias. However, in the case of the works examined, this process is accomplished by a multiplicity of 'journalists' working together not only 'inside' the text, but also 'outside' it, through the different sources, search engines, sites and forums available online. Furthermore, since medial ecology and its contents change throughout time, the multiple readings and reinterpretations of works such as *Only Revolutions* or *Flight Paths* also co-evolve. In this respect, the notion of 'exopoiesis' presents similarities with a wider range of theories about what Katherine Hayles defines as "third order cybernetics":

Second-order cybernetics redraw the boundary to include the observer as well as the system (or, in the terms that Maturana and Varela develop, the autopoietic, informationally closed system plus the observer looking at the system). Third-order cybernetics redraws the boundary once again to locate both the observer and the system within complex, networked, adaptive, and coevolving environments through which information and data are pervasively flowing [...] (Hayles, 2010: 149).

Autopoietic and exopoietic perspectives are not mutually exclusive and can be traced in the analysis of the same literary work in a complementary way, exactly as a bee acts both autopoietically feeding on pollen, and exopoietically spreading it in the environment. For instance, as highlighted by Philip Leonard, the text of *Only Revolutions* can be interpreted as "a self-authoring document and an autopoietic machine—that is activated as a system of operations carried out by a range of components, from the printed character and the page to the hand and eye of the reader" (Leonard, 2010: 48). At the same time, Danielewski's novel is 'exopoietic', constantly turning the attention of the reader outside its material boundaries and suggesting materially spreading parts of the text through other media.¹⁶ Subsequently, works of fiction such as *Only Revolutions* or *Flight Paths* barely fall into an interpretation of the novelistic genre as a "cannibal", which – as Virginia Woolf already pointed out in 1927 – is able to devour different forms of art and expression (Woolf, 2008 [1927]: 79-80). Borrowing a metaphor conceived by the novelist Cory Doctorow, Jenkins, Ford and Green argue that we are understanding less and less our creative outputs with a "mammalian predisposition" and compare the circulation of cultural contents to the unpredictable spreading of dandelion seeds (Jenkins, Ford and Green, 2013: 294; Doctorow, 2008). Therefore, readers of Gibson, Danielewski, Pullinger and Joseph's novels – like the audience members described by Jenkins, Green and Ford – "exert agency in the spreadability model". "They do not simply pass along static texts; they transform the material through active production processes or through their own critiques and commentary, so that it better serves their own social and expressive needs" (*Ibid.*).

Nevertheless, this high degree of agency and randomness that affects the reading of interactive and non-ordinary narratives can, as Douglas states, "narrow the distinction between fiction and life" (Douglas, 2001: 126). This process can result in frustration and be puzzling for contemporary readers, who "would need to have evolved a set of entirely different aesthetic expectations, satisfactions, and objectives than those of us accustomed to print and its literary conventions currently possess" (Douglas, 2001: 126).¹⁷ Similarly, Slavoj Žižek argues that, in the case of interactive storytelling, "excessive freedom is frustrating to the utmost" (Žižek, 1999: 116). Generally speaking, in the context of new media, it is possible that the risk of an "excess of choice" "will be experienced as the impossibility to choose." One possible reaction to this would be the

16 In a recent article Amy Elias (2012) questions some interpretations that align *Only Revolutions* with "autopoietic self-reproduction" (752) and points out that Danielewski's novel is characterised by "a relational, ecological dialogics" (741): "The text seems to me to be an open work that may point to the dialogical avant-garde, one whose central chronotope of the planetary constructs subjectivity as both individual and collective; in which reader participation creates equalized interpretive communities; and in which aesthetic form puts ideas in dialogue, in this case in the service of a meditation upon the nature of the human in a social world" (762).

17 Douglas finds a fictional example of this process in Jorge Luis Borges' "Book of Sand", a dystopian volume characterised by numberless and always changing words and pages (Douglas, 2001: 124-126; Borges, 1980).

emergence of a feeling of “informational anorexia, the desperate refusal to accept informations” (Žižek, 1997: 154). Eco too finds a problem with the excess of choice in the fruition of cultural objects which include a vast amount of data: “We have a limit, a very discouraging, humiliating limit: death. That's why we like all the things that we assume have no limits and, therefore, no end. It's a way of escaping thoughts about death. We like lists because we don't want to die” (Beyer and Gorris, 2009). Also in the case of hypertextual or database narratives, the making of potentially infinite lists of knowledge is a way to escape our biological limits and to acquire a “cutout of infinity” (*Ibid.*). On the contrary, for Eco, one of the main functions of more traditional “unchangeable stories” is to make tangible the impossibility to modify our destiny: “no matter what story they are telling, they are also telling our own story, and that is why we read them and love them. We need their severe, 'repressive' lesson. Hypertextual narrative has much to teach us about freedom and creativity. That is all well and good, but is not everything. Stories that are 'already made' also teach us how to die” (Eco, 2005b: 14-15). We are witnessing the growing emergence of a dialectics between the actualisations of narrative syntagms able to partially represent complexity and the potential of forms of literature that escape from their material boundaries in order to be interrelated with non-narrative cultural objects. Within this horizon, recent examples of 'transactive' narratives, such as the ones examined here, would seem to express both the 'death' and the 'freedom' that literature can teach, helping us to *consciously* choose the destiny of the information we keep and develop through our transactive memories. From this, it is possible to consider the metaphorical presence of the bee in *Only Revolutions*. As Dirk Van Hulle (2011: 133-134) points out, in Danielewski's novel the bee – a fundamental example for Charles Darwin's theory of evolution – is the only creature who is not threatened by extinction. Furthermore, Sam and Hailey feed exclusively on honey during the whole story: “It's the HONEY/ All along. By it I succeed/ Without I retreat. Begin to freeze” (OR, 353/H); “It's the HONEY/ All along. By it I thrive/ Without it I recede. Start to die” (353/S). The two protagonists find twelve jars of honey, the amount of which diminishes while each of the two narratives draws to the end and starts again on the other side of the volume. At the same time, a bee stings Sam (321-322/S) and probably causes his death (328/H), even if his narrative finally revives in Hailey's one, just turning the book 180° (360/H; 1/S). Consequently, “the symbolic presence of the bee [...] seems to mark the notion of rebirth” (Van Hulle, 2011: 133-134)). The metaphor of death and rebirth represented by the bee also involves the role that the two narratives have within the text, constantly influencing each other and 'pollinating' extra-literary spaces outside the novel.¹⁸ The exopoietic processes that are promoted by fictions such as *Only Revolutions*, *Flight Paths* or the re-elaborations of Gibson's novels entail a recursive cognitive re-entry from an unchangeable textual structure to a paradigm of choices fostered by the contents available online. Readers are constantly invited to switch from 'sepulchral' spaces typical of unchangeable narrative corpora, to the spectral hypertexts of online knowledge that surrounded the choices made by authors during the writing of their works, and, finally, to the 'ecological' spaces characterised by the spread of literary fragments and the sharing of non-literary contents. In this way, literature can help to remind us, as Katherine Hayles argues, that “I think, therefore I connect with all other cognizers in my environment, human and non-human, including both the dynamic processes that are running right now as you decode these letters [...]” (Hayles, 2005: 213). This continuous education in the death and rebirth of knowledge does not merely help us understand how we acquire and 'choose' information through new media, but allows us to compare our cognitive patterns to the ones of other authors and readers. These recent works of fiction can help us understand how the way of 'making' literature is changing in order to 'use' literature as a medium *in conjunction* with other media. We can get used to thinking of ourselves as 'processes' and to act together with the intelligences that we create, be that technology, literature or both.

18 Also the last verses of each narrative imply an idea of continuous rebirth: “I'll destroy no World/ so long it keeps turning with flurry & gush,/ petals & stems bending and lush,/ and allways our hushes returning anew/” (OR, 360/S).

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