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Impossible Fictions of Infinity: Reading Beyond Boundaries in 21st-Century Novels

Martin Riedelsheimer

One of the few 'certainties' about narrative fiction seems to be its formal finitude. While fiction can be said to harbour a "limitless internal world" (Winters, 2015, p. 2), this world is contained in the finite space between the covers of a book, expressed in a finite number of words and to be perused in a limited amount of time. And yet there are some texts that at least imply their own continuation *ad infinitum*, and there are even texts that seem to actively seek to overcome this fundamental ontological limitation of narrative fiction in order to be understood, somewhat impossibly, as *infinite texts*. The impossibility of such an endeavour goes hand in hand with the impossibility of representing infinity: any such attempt that does not want to resort to extreme forms of abstraction (where the infinite is reduced to a single word or symbol) must inevitably clash with the limitations of a finite medium of representation. This is an impossibility that some narratives attempt to realize through textual structures that evoke infinity in the reader's mind, even though these structures themselves are part of the finite text – a process that can be explained with findings from conceptual metaphor theory. Such texts can then become "fictions of infinity" (Riedelsheimer, 2020) that transcend their own boundaries and so impinge on their readers. As my readings of two recent novels, David Mitchell's *Cloud Atlas* (2004) and Colum McCann's *Apeirogon* (2020), aim to show, texts may employ different structures to reach infinity – a complex mise en abyme structure in Mitchell's novel and an intricately interconnected textual web in McCann's. The effect of such textual infinitude can be the disruption of entrenched 'truths' and the introduction of new ethical prospects.

The impossible fiction at issue here is then that of an infinite text, of a presentation of the highly abstract concept of infinity in such a way that this textual representation itself appears as infinite. The first question that arises in this context is how we come to understand things to be infinite. One answer that is highly pertinent to the way we read narrative fiction is provided by conceptual metaphor theory. Writing on conceptual metaphors in mathematical thought, George Lakoff and Rafael Núñez have argued that since infinity is not something we encounter in the actual world it must be conceptualized through a metaphor (Lakoff & Núñez, 2000, p. xii). This metaphor is rooted in the aspectual system of language (p. 155). As

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the aspectual system is tasked with expressing iteration or continuation, it can be identified as "the fundamental source of the concept of infinity" (p. 156). This can be seen from the fact that in contexts other than mathematics, "a process is seen as infinite if it continues (or iterates) indefinitely without stopping" (p. 156). Lakoff and Núñez's examples are phrases like "John said the sentence over", which indicates a single repetition, as opposed to "John said the sentence over and over and over", which, they claim, implies the indefinite continuation (and not just a threefold repetition) of the process described, i.e. of John saying the sentence (p. 157). The underlying conceptual metaphor is that "Indefinite Continuous Processes Are Iterative Processes", where, crucially, such a continuous process is metaphorically conceptualized as an "infinitely iterating step-by-step" process, i.e. as an infinite series of "discrete and minimal" elements (p. 157).

Importantly, this works both ways: as can be seen from the example of 'John saying the sentence over and over and over', an iteration of finite elements ("over") is metaphorically conceptualized as an indefinitely continuing process (John keeps saying the sentence). The continuum is thus conceptually segmented into an iteration of finite elements. In a second step of metaphorical identification called "Basic Metaphor of Infinity" (or BMI) by Lakoff and Núñez, this process of iteration is conceptualized as attaining completion in infinity itself (p. 158). The BMI thus marks the conceptual transition from an indefinitely iterating process that *could* go on forever to the understanding of this process as resulting in an infinite state – or, in other words, it converts infinity "from an open-ended process to a specific, unique entity" (p. 160).

As the BMI is "a general cognitive mechanism" that is not restricted to mathematical thought of the infinite (p. 161), it should also come into operation whenever *texts* appear to be infinite. As such, Lakoff and Núñez's findings on the nature of the conceptual understanding of infinity may offer clues as to how a literary text may end up being understood as infinite by its readers. If "[the] source domain of the BMI consists of an ordinary iterative process with an indefinite (though finite) number of iterations with a completion and resultant state" (p. 158), then any narrative structure that implies indefinite iteration might be metaphorically conceptualized as infinite. Such narrative structures would have to consist of "discrete and minimal" building blocks that create an iterative pattern, just like "over and over and over" in the example "John said the sentence over and over and over". While this can be attained through simple repetition, where longer narrative texts are concerned more complex narrative structures create similar effects. These may, for example, include circular narrative structures, multiply layered mise en abyme structures, or long and overt intertextual chains of reference. In general, it would

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seem that the cognitive mechanism of the BMI can be triggered by any kind of iterating textual structure.

Importantly, though, the BMI is an unconscious conceptual mechanism (Lakoff and Núñez, p. 180), which means that the metaphorical identification of a text as infinite via the BMI is generally not the result of a (conscious) interpretive effort. Instead, the presence in the text of iterating structures must provoke the unconscious use of the BMI in readers. However, it seems that the BMI is not triggered entirely predictably, or at least not by an overly simple mechanism such as mere repetition. Otherwise, there would be a clear mechanism that, for example, would ensure that whenever we read that a character does the same thing three or more times in a row (akin to 'saying the sentence over and over and over') we would already see this character as caught in an infinity loop. What is still needed then is a form of contextual marking: in Lakoff and Núñez's study a clear thematic marking as being 'prone' to infinity is given through the mathematical context, since infinity is something a mathematician will expect to encounter in certain circumstances. In literature such a contextual marking might either be a thematic reference to infinity or an overt marking of the text's structure as infinite, as is for example the case in the song "A dog came in the kitchen and stole a crust of bread" that features in Beckett's *Waiting for Godot* (Beckett, [1952] 2006, p. 53). If there is a context that suggests a text's connection to infinity and if the text itself features a (sufficiently marked) iterating structure, then that structure and by synecdochic extension the entire text may be understood as infinite via the BMI.

A prominent example of such an infinite text is David Mitchell's 2004 novel *Cloud Atlas*, which features a complex mise en abyme structure whose narrative levels are connected through moments of reading or reception. This structure reflects the novel's overall emphasis on endlessly repeating patterns of human exploitation; at the same time, it manages to imply its own infinity and so to transcend the novel's own finite form – a breaking of narrative boundaries that results in directly addressing the readers and insists on breaking with the exploitative patterns the novel depicts. The narrative structure central to *Cloud Atlas*, the mise en abyme, has been defined by Lucien Dällenbach as "any enclave entertaining a relation of similarity with the work which contains it" (Dällenbach, 1977, p. 18; trans. in Ron, 1987, p. 421) – hence, in a broad sense, any story within a story, where a relation of mirroring of content or form exists between the two stories. In his typology of the phenomenon Dällenbach identifies one type as "*réduplication à l'infini*" (Dällenbach, 1977, p. 51). This is his intuitive term for a stacking of narrative levels that could go on forever, something he describes as "a fragment which entertains a relation of similarity to the work that includes it and which itself frames a fragment which…, and so forth" (p. 51; my trans.). While Dällenbach does not provide an explanation

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why this type of stacking should be connected to infinity – after all there must be a finite number of narrative levels and it is unclear what the narrative equivalent to Dällenbach's elliptical dots and the "and so forth" should be – Lakoff and Núñez's BMI explains why we indeed tend to understand such structures as infinite: the stacked narrative levels precisely are discrete and minimal elements and so may serve as the source domain of the BMI.

In *Cloud Atlas*, this type of mise en abyme structure is realized by six narrative levels that are nested in each other, each presenting a story in a distinct literary style and set at a different moment in time, from the 19th century to a distant, post-apocalyptic future. The narrative is presented in such a way that narrative brackets are opened up: the novel begins with the chronologically first narrative, which is interrupted mid-sentence about halfway through by the next story, which again is interrupted halfway through by the next one, and so on. Only the sixth level, set in post-apocalyptic Hawaii, is presented in full, after which the previous five are completed in reverse order so that the storyline that opens the novel is also the one that ends it, bracketing all the other narrative levels. This creates what Heather Hicks has called a "boomeranging arc" (Hicks, 2010; see also Parker, 2010, p. 202) in which the novel eventually returns to its beginnings, creating a form of circularity. At the same time, the ontological order of these levels is reversed, with the central sixth narrative being the logical diegetic frame: in it the characters see a hologram recording that presents the fifth narrative, in which characters see a film version of the fourth narrative, and so on, down to the second narrative in which a manuscript of the first is found. The chronological and ontological framing of the narratives are thus at odds and what Douglas Hofstadter has called a "strange loop" (Hofstadter, 1979, p. 10) ensues in the reading process. This narrative setup creates the novel's infinite aesthetics by coupling a circular temporality with the potentially endless nesting of narrative levels, creating a "réduplication à l'infini" in Dällenbach's sense – the text may hence be understood as infinite by readers due to the BMI.

The understanding of *Cloud Atlas* as infinite text is also suggested by the novel's thematic focus on repetition and Nietzschean eternal recurrence. While all six stories are independent of each other and seemingly hardly connected, they all thematize repeating behavioural patterns, above all the exploitation of characters or entire social groups. Dr Henry Goose, a confidence trickster and murderer in the novel's initial/final section, cynically sums up this motif as "The weak are meat, the strong do eat" (Mitchell, 2012, p. 503). This notion occurs throughout all chapters, most frequently in the shape of colonization and enslavement. It is a form of recurrence that is repeatedly and overtly linked to Nietzsche's idea that all states of being recur cyclically in an eternal return – a notion that features prominently in the novel, as has been pointed out by several critics, including Hicks (2010) and Sonia

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Front (2015, p. 73–95). This kind of infinite repetition in *Cloud Atlas* is connected with an ethical question: if this pattern of recurrence is "treacherous" (Hicks, 2010), a negative determinism, then can it be broken, and how so?

It is the novel's textual infinity that provides an answer: if the text, the very vehicle of negative recurrence, can break its boundaries to become infinite, then the apparent determinism of human exploitation may likewise be broken. The infinite text implicates its readers in this process: because the story of each level is read at the level chronologically following it, all levels of narrative are connected by what Mark Currie has described as a "relation of reading" (Currie, 2009, p. 362) and the infinite extension of this relation through the narrative form must by implication draw in the real-world readers. Readers of course occupy an ontological level different from the literary text, but if they understand the text's structure to infinitely telescope and project ever new levels beyond its boundaries then that might just as well include their own reality. In this way, *Cloud Atlas* calls on its readers to emulate the protagonists of the six storylines that all in their own ways rebel against the eternal recurrence of exploitation. This becomes clearest at the very end, where *Cloud Atlas* reaches its "ethical climax" (Mezey, 2011, 27): Adam Ewing, the protagonist of the framing story, has undergone a transformation from colonizer to abolitionist and now argues for compassion for others. The novel ends on him imagining that he will be derided for his decision to join the abolitionist cause, an effort that will be seen as useless, a mere drop in the ocean. In the novel's final sentence, he asks: "Yet what is any ocean but a multitude of drops?" (Mitchell, 2012, p. 509). With this image of an ungraspable, seemingly infinite, multitude that is dissolved into discrete, more manageable segments – an optimistic approach to a daunting task – the novel presents its final appeal for ethical action to its readers: even if taking a stance against injustice seems a lost cause, it is still an imperative to do so in order to bring about change eventually, in incremental steps. Understanding the text as infinite makes sure this appeal gets to the readers and stays with them beyond the moment of reading.

Similar mechanisms are at play in Colum McCann's 2020 fact-based novel *Apeirogon*, which is another example of a text that goes beyond its own boundaries to become infinite. McCann takes the real story of Bassam Aramin, a Palestinian, and Rami Elhanan, an Israeli, to (attempt to) frame the conflict between Israel and Palestine. Both men lost a daughter to the conflict: Rami's 13-year-old daughter Smadar was killed in a suicide bombing in Jerusalem in 1997 and Bassam's 10-year-old daughter Abir was shot and killed on her way to school by an Israeli soldier's rubber bullet ten years later. While, by the logic of the conflict, these two men should be mortal enemies, they both joined a group of peace activists, where they met, became close

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friends and toured the region and the wider world to tell their stories and advocate for peace.

McCann's novel does not attempt to give a linear cause-and-effect account of what led to the status quo, but instead provides a mosaic of impressions of the conflict, highlighting its complex nature by stressing the myriad of interconnections between and contingency of events whilst creating an 'infinite' text. *Apeirogon* is divided into short narrative vignettes, most of which are no longer than a page and which are numbered: the first half of the novel presents sections 1–500 in ascending order, the second half is numbered 500–1 in descending order, with a central chapter numbered 1001 that captures the moment of Bassam and Rami telling their story to a seminar group – a reference to *One Thousand and One Nights* and Scheherazade's storytelling against death (see Sansom, 2020; Costello-Sullivan, 2022, 41). The vignettes for the most part are not connected through a linear storyline but by narrative association. For example, the novel begins with Rami riding his motorbike and seeing a flock of birds, followed by a section on migratory birds and their behaviour, followed by vignettes on slings and their use in (bird) hunting and battles in ancient times, and so on. Some of these things do not seem related to the central story of the conflict and the two girls' deaths at all, other than through geographic vicinity; with others, a connection gradually emerges over the course of the novel, adding layers of complexity. This structure sends readers on a chase for connections. Occasionally, but not always, two sections that share the same number will be directly connected and occasionally there are other numerical connections. For a large part, it is association or sheer contingency that seems to determine the progress of the narrative.

Together with the numbering of the vignettes, this associative sequencing of the storytelling implies the endless continuability of the narrative process. The vignettes form the discrete and minimal elements that serve as the source domain of the BMI, creating a process of narrative iteration. Their numbering invokes the potential infinity[1] of integers and the iterative process of counting, while the associative linking between the vignettes constitutes another process of iteration. The novel's title itself provides the contextual marking of this structure as infinite that would then allow the BMI to come into effect: an apeirogon is, as readers learn, "a shape with a countably infinite number of sides" (McCann, 2020, p. 82). This clear thematic presence of infinity in the novel then provides the thematic marking that allows for

[1] The term "potential infinity" goes back to Aristotle, who in his *Physics* distinguishes between actual and potential infinity (see Aristotle, 1961, p. 41–57, 200b-208a, bk. Gamma; see also Clegg, 2003, p. 29–32). Potential infinity refers to processes that could (potentially) go on forever – like counting whole numbers –, whereas actual infinity refers to an actually existing, complete, infinite entity. The existence of actual infinity was a proposition Aristotle rejected outright and which was only rehabilitated in the nineteenth century by mathematician Georg Cantor (see Maor, p. 53–59). Importantly, as Lakoff and Núñez stress, the BMI's application results in actual infinity. The infinite texts discussed here would then be understood as actually existing infinite objects.

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readers' identification of the narrative with infinity via the BMI, allowing for *Apeirogon* to be understood as infinite text.

In McCann's novel, this textual infinity has two quite contrary effects. An immediate effect of the novel's structural infinity seems to be that in this way the complexity and gigantic dimensions of the conflict it describes are mirrored on the level of the narrative structure: everything appears as connected, everything somehow involved in the conflict, from quasi-encyclopaedic accounts of migratory birds and the last meal of former French president Mitterand to the works of Jorge Luis Borges and the travels of a 19th-century Irish amateur geographer. The novel's infinity here takes on an oppressive, almost totalising quality. It would seem that the textual apeirogon evoked offers ever new angles and sides, but no way out of the conflict (as is of course to be expected, given that literature can rarely offer instant solutions to real-world problems). In this way readers become entrapped in the logic of violence the novel traces.

However, the infinite textual structure also is instrumental in breaking this seemingly endless and inescapable spiral of violence. What shines through the cascading presentation of ever new angles on the conflict is the human dimension of Bassam and Rami's grief. It is in the intense moments reflecting on loss that the infinite text pierces the web of interconnections it weaves: might minute changes to any of the myriad of details have saved the girls? This is a question that does not only torture the two fathers but is also extended to the readers in the form of an appeal the novel's structure helps to make: as it is, the conflict keeps killing people, so change is necessary. While things may seem inscrutably complex in their interconnections, the positive reading of this is that if almost anything may be connected to the conflict then anyone can join in efforts to make a difference, by following the example of Rami and Bassam and seeking peaceful exchange. This is how McCann's novel suggests to "end the preoccupation" with cycles of violence, as a graffiti pun Rami sees on the border wall in Jerusalem puts it (McCann, 2020, p. 169). The gaps in the numbering of the vignettes (sections 501–1000 and back are missing) add to this: these gaps create a sense of openness, implying that not all chapters of the story of the conflict have been written yet and that Bassam and Rami's stories of peace may only be the beginning. In this way, the novel's textual infinity is also a demand for an ethical awareness of and openness towards – as the 1001st section of *Apeirogon* puts it – "all of those stories that are yet to be told" (p. 229). And just like in *Cloud Atlas*, the infinite text makes sure this appeal stays with the reader even beyond the moment of reading.

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In conclusion, the impossible fiction of an infinite text may then be the result of a conceptual metaphor that allows us to read infinity in finite texts. Fictions of infinity like *Apeirogon* and *Cloud Atlas* employ textual structures that create iterating narrative patterns which may be understood as infinite through the cognitive mechanism of the Basic Metaphor of Infinity identified by Lakoff and Núñez, in particular as their iterative structure is complemented by a thematic concern with infinity. Both texts therefore have the potential to, impossibly, appear as infinite to their readers and in both this is connected to the ethical appeal the novels make: in both novels, infinity first appears as a negative phenomenon, as the infinite recurrence of the ever same patterns of violence, be they a human penchant for egotism and exploiting those who are weaker in *Cloud Atlas* or the cycles of violence in the Israeli-Palestinian conflict in *Apeirogon*. However, both novels use their textual infinity to disrupt these destructive patterns and to introduce ethical counterpoints through the actions of their protagonists. The textual infinity carries the potential that these interventions attain a forcefulness that goes beyond the singular moment of reading and stays with the readers. Ultimately, the impossibility of an infinite text remains: we may understand such texts to imply their own infinity or even to 'be' infinite, but they still occupy the finite space between the covers of the book. This is what makes such texts 'fictions' of infinity in every sense of the word. What they may achieve, however, is to transcend narrative boundaries by 'getting into their reader's mind' and to encourage new perspectives: in this way, the impossible infinite text may, possibly, leave behind its ontological limitations. Perhaps the infinite text is no more impossible than the notion that fiction might change the world in incremental steps.

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