

Red Ink Algorithms: “Wandering Rocks” as a Virtual City

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James Joyce’s *Ulysses* takes place over the course of a single day: June 16, 1904. After the introductory episodes – which star Stephen Dedalus, *Ulysses*’ analog to *The Odyssey*’s Telemachus – it follows the hourly meanderings of Leopold Bloom as he traverses Dublin. Each episode is stylistically dissimilar, often to dizzyingly parodic effect. Episode ten, “Wandering Rocks,” is perhaps one of the most comprehensible sections, but it departs from earlier episodes by abandoning a single point of view in favor of nineteen interconnected vignettes with no consistent narrative voice. The episode takes place over the course of an hour and features a cast of incidental characters walking the streets of Dublin, including the Earl of Dudley, Father Conmee, and even a crumpled piece of trash floating down the river Liffey. The arrangement of the characters’ paths is very particular: according to Frank Budgen, “Joyce wrote the Wandering Rocks with a map of Dublin before him on which were traced in red ink the paths of the Earl of Dudley and Father Conmee. He calculated to a minute the time necessary for his characters to cover a given distance of the city” (qtd. in Blamires 93). This calculation was so vital because characters, objects, and sounds from many vignettes interlope on others to show that the vignettes are simultaneous.

Joyce’s Dublin is calculated but, contrary to what its mathematical engineering might connote, feels alive. Today, in the era of virtual reality and video games, users are accustomed to algorithmically-assisted immersion in fictional worlds: the pixelated barkeep in a video game is not actually serving customers when the player leaves the inn, but the immersed player will pretend he did when the coding spawns empty ale steins on the player’s next visit. A comparison between Joyce’s red ink algorithms and the programmed algorithm behind virtual cities can retrospectively engage with the aesthetic Joyce has crafted. The programming behind Joyce’s Dublin and behind open-world video game cities is necessary to establish the illusion of simultaneity in each given fictional world – in other words, to convince the readers or players that they are missing part of the action. Regarding how Dublin is crafted in “Wandering Rocks”

as a pre-virtual city reveals how it is precisely the user's engagement with the illusion of simultaneity, mathematically designed in both *Ulysses* and in video games, which simulates a city. In order to set *Ulysses* in conversation with a digital medium a century after Joyce's time, I will establish the ways both might be considered spatial texts via Joycean and video game scholars, argue the usefulness of linearity as a formal term for such spatial texts, and investigate the episode's substitution of a consistent narrative voice with movement through the spatial text. Using these cross-medium resonances, I will identify how Joyce's Dublin is crafted to feel ever-living by its chance interlocations, interlocutions, unfollowed paths, and movement through space with careful attendance to time.

One hundred years after James Joyce wrote *Ulysses*, audio-visual technology has enabled the creation of virtual worlds that can be traversed through the mediation of an on-screen avatar. Interactive technologies now allow creators to puppeteer more exactly than ever before; never has the manipulation of a network of characters and digital space so efficiently represented the experience of real movement through real space. With considerably less manual computation – computation Joyce performed by hand when constructing the city of Dublin in the “Wandering Rocks” episode – creative authors can construct villages, cities, and worlds that are populated with characters and in which societal networks are self-sustained through programming. Today, if Joyce chose to dabble in virtual algorithms, the permutations of Dublin in “Wandering Rocks” could span infinity instead of an hour.

Human artists, however, did not just recently begin representing cities now that computer programming does the math; the fictional city did not start as a digital city. Cities have been fictionally represented since well before the digital age, especially in modernist literature, and programmable maps and programmable citizenry have never been necessary components of this representation. In “Wandering Rocks,” for example, Joyce stretches the abilities of traditional narrative structure by arranging slices of city life in a way that suggests the world of the city is perpetually alive beyond the scope of the words on the pages. The arrangement is mathematically calculated, but the effect of this calculation is a simulation of the pulse of a city – that is, much like the ever-present but unperceived human heartbeat, the feeling that life continues unperceived beyond what is shown in the nineteen close-ups – and it is achieved entirely through words. The urban simulation is highly mechanized and calculated, yet paradoxically it is this mechanization which creates the living, breathing city organism. The mechanics behind “Wandering Rocks” do not take away from the movement and believability of the city – just like the programming of virtual cities in video games, they illusively establish a sense of coincidence and ever-present “off-stage” action (Brown 66). Joyce's Dublin and open-world video game cities

are not just locations where stories are set; via the illusion of simultaneous events happening beyond the camera's lens, events that the user might perchance stumble upon, these cities are stories themselves.

Spatial stories, a concept outlined by Michel De Certeau and applied to computer games by scholars such as Sybille Lammes, are stories that develop out of the movement through a space (Lammes 223). The story is generated by traversing a landscape; the movement of the story is not from theme to theme or idea to idea, but from location to location in a space, and it is the physical relocation that moves the story forward, not a storyteller. Lammes calls the identification with the landscape in such stories "abstract," and suggests that via a "bird's-eye view, the player is fixed in a depersonalized frame of mind" in which "a story can be developed without ever bringing it to the level of individual experience" (Lammes 227). Further, Lammes says, this relationship to the environment makes the map not simply a location for a story, but instead "the hero of the story" (227). Ruth Frehner has made a similar argument regarding the map of Dublin in "Wandering Rocks"; the city, not "individual characters," is the "real protagonist" (203). Joycean critics have also noted the presence of a bird's eye view in the episode (209). However, calling the cities the protagonists in both *Ulysses* and video games is not useful in figuring out exactly how a story is told via movement through a space; cities are not characters. They cannot be anthropomorphized. They have no intentions and they have no goals. In an episode with many minor characters and perspectives, calling the city the "protagonist" is merely a semantic move to replace the empty space left in the cast list that, in traditional narratives, an actual character protagonist with a traditional point of view might occupy. Instead, it is more useful to reject the necessity for any protagonist figure as a center in spatial texts, and define the movement through the space itself as what is creating the story. No central protagonist is necessary, because the bird's eye view negates the need for a single storyteller or story lens. The element of the story that allows meaning to be communicated without one figure as the focus or one figure as the storyteller is the movement through the space itself; this is what defines a text as spatial.

These similarities in aesthetic experiences, *city-as-protagonist* and *bird's eye view*, pose the question of how open-world video games and Joyce's textual representation of Dublin can both manage the same experience of spatial storytelling when constructing cities. Games consist of many moving parts that are aural, visual, tactile, and text-based, and they are easily mutable, while novels consist of static text – yet both achieve a breathing city space. The simulation is established through the characters that populate the city. Open-world video games are games in which the player can roam freely in a virtual space, can achieve objectives through multiple means and storylines, and games which provide "the

sensation of being inside a large and disinterestedly functioning world” – an undeniably modernist flavor (Bissell 4). Open-world video games such as *Skryim* (2011), *Fallout 3* (2008), and *Mass Effect* (2007) have cities or hub worlds populated with non-player characters (NPCs) who may or may not influence the player’s story, even when some are programmed to be interactive. The player may or may not choose to interact with them. NPCs are often programmed with their own behaviors using cyclic scheduling, which allows them to go about their own daily routines according to an in-game clock (Zhao and Szafron 94). “Wandering Rocks” has a similar NPC-aesthetic: a cast of characters – some familiar and influential in the novel and some not – come into focus without any introduction, are met and left alone, are seen again or left unfollowed, are followed mid-action and abandoned again.

James Joyce had a different way of categorizing the NPC-aesthetic in episode ten. Each episode of *Ulysses* has been assigned, by Joyce himself, a title, time, color, “persons,” an art or technic, and a meaning; these cheat sheets were created for two of Joyce’s friends, Carlo Linati and Stuart Gilbert, and are referred to as the Linati or Gilbert schemas. In the Linati schema for “Wandering Rocks,” Joyce lists the Persons as “Objects, Places, Forces, Ulysses” (Gifford 260), and the idea that Joyce considers objects, places, and forces “persons” in this schema resonantly addresses the network between objects, places, and forces also observed in open-world cities in video games. Stumbling upon characters in “Wandering Rocks” actually feels like tripping over wandering pebbles; we meet them by chance and get the “sense that any slice of street or interior life might do just as well” in establishing the rhythm of the city (Senn 157). This NPC-aesthetic is all part of the living city vibe because the “persons” need not be people at all, and are equally as influential as objects, places, and forces; we do not need to know all of the details of their dreams and goals, their wants and needs, or even their destinations. They are no more part of the focus of the episode than objects like Conmee’s letter (10.46), places like George’s quay (10.297), and forces like the pull of the river Liffey (10.294). We intercept characters as we traverse the space, but they need not stop our progress through the story.

Interception is not a technique that can be accomplished in every text, and to call “Wandering Rocks” an example of a spatial text challenges the shape and trajectory usually associated with written literature. The shape most commonly referenced in the discussion of the movement of literature is the line, but that line breaks when discussing spatial stories. A traditional linear narrative might be a story told in chronological order wherein a single narrator tells a tale with an explicit beginning, middle, and end. Cause and effect are easily identified because cause comes before effect. A nonlinear narrative, then, might be told out of chronological order or disjointedly present cause and effect. Adam W. Ruch, in an

essay on the construction of *Grand Theft Auto IV*'s Liberty City, argues that video games and the virtual cities presented within them are a true break from the *linearity* that modernist authors may have wanted to escape but never could:

Ulysses is as much focused on the physical movement through a city as the dramatic presentation of plot events and is the description of an experience known as player-driven or emergent narrative in game studies. Yet, despite the best efforts from these modernist writers, poetry and novels, in their traditional form, are inevitably linear. (Ruch 344)

Because worlds in video games can be “explored rather than narrated,” Ruch would suggest they are nonlinear (344). Ruch’s observations about modernist writing are underdeveloped and his argument leans too heavily on the linearity that spatial texts challenge. To use Ruch’s distinction, for example, “Wandering Rocks” is not traditionally narrated and in fact might be better described as “explored” than narrated, and could therefore qualify for Ruch’s definition of nonlinearity. The term “nonlinear” is oft (ab)used to describe the narrative styles in both modernist writing and video games and it can stagnate discussions of Joyce’s Dublin or open-world video games. If a work of fiction is not attempting to report a narrative of events, sequential or otherwise, but is instead creating a space which houses multiple instances of simultaneous movement, classifications of linear and nonlinear are unhelpful. One single character’s movement through a space might be a line but a spatial text contains the possibility for multiple movements and directions, and the bird’s eye view sees the whole map. If a spatial text is any shape at all, it is not a line but a sphere: a sphere has no beginning, middle, or end, but much like a planet, provides the space for any number of overlapping, simultaneous movements. In this spherical view, open-world video games and *Ulysses*’ Dublin are neither linear nor “nonlinear.”

The struggle to settle on a shape for the narrative in spatial, spherical texts manifests in the slipperiness of how the narrative experience is determined if it is technically not narrated. Many video games offer interactivity and choice; this is why their narrative styles, accurately or not, are often labeled “nonlinear.” But when an open-world video game is experienced by a player in a situated gaming experience—i.e., when a player plays through a game for the first time—the narrative is sequential. It cannot be anything but sequential, even if the events are not chronologically ordered, because a player performs a series of actions one after another. Sequential is not, however, equivalent to linear. If Ruch can argue that modernist novels cannot escape linearity, then open-world games in his definition must also be linear. Even though a player might have a choice of what to do next, she can ultimately only choose one action at any given time. Ruch does not deny

this, and says, “in a video game, events are contingent and so narrative can be made up of a selection of different textual elements in different orders” but “one cannot divorce the narrative from the situated play experience,” therefore, “multiple potential narratives exist, but this is not identical to the one single narrative a player will experience and remember as part of the player model” (Ruch 334). The element of choice in games, then, and thereby the nonlinearity of games, is a carefully crafted illusion. Choice exists, but only within pre-established frameworks with predetermined outcomes. A virtual city might offer any number of paths to take and any number of non-player characters to feature, but only the avenues pursued by the player become part of that player’s situated gaming experience and that player’s single narrative.

In this way, the “livingness” that can be established in virtual cities – the feeling that something is always happening offstage, that stories continue even when unwatched and unfollowed – is the same “livingness” with which Joyce experiments in “Wandering Rocks.” Only when looked at from a meta-perspective, that is, from outside of the immersion of gameplay itself, is a video game’s story nonlinear. The same is true of the city of Dublin in “Wandering Rocks:” although Joyce only wrote what he wrote, and we only can experience his city through the nineteen sections he chose to show us, we have to play along with the game that something else happened before we run into the characters and that something else will happen when we leave them, unseen by us. In video games, our experience of the world is situated in the framework of choices presented by the game’s writers. Likewise, our experience with Joyce is situated by his framework of choices, but in both cases, the illusion of what could have been is a permanent part of the experience.

In his statement regarding novels and poems as “inevitably linear,” Ruch points out that the movement through the city in *Ulysses* is stylistically identical to what is called “emergent narrative” in video game studies (334). Aylett’s definition, “When NPCs have complete autonomy, an interactive narrative is referred to as an emergent narrative” (qtd. in Bulitko and Riedl 74), clarifies Ruch’s point: the complete autonomy of the NPC – that is, as described earlier, a game in which NPCs have their own programmed itineraries outside of the progression of the player character through the game world – creates a space out of which a narrative can emerge. As a tertiary characteristic, then, a narrative is not *required* for the movement through the space and does not preexist the movement through the space; it emerges from the space. Neither an open-world video game nor Joyce’s representation of Dublin requires a narrator to report on the action, and they do not need any one narrative perspective to tell a story. In both open-world video games and “Wandering Rocks,” the narrator is not required but instead is a tool to be used or neglected.

Even without a narrator, a spatial story is transmitted by the movement through a city. In “Wandering Rocks,” the fictional representation of the city of Dublin is not reported by one single voice. It is arranged. John Somer defines the “arranger” figure in *Ulysses*, which is not the narrator, as “part of an author’s creative persona responsible [...] for designing a fictional world” (67). “Wandering Rocks” is not a narrative of an afternoon in a city; it *is* the fictional world of the city itself. The experience of the episode is accessible whether or not it is narrated by a single reporting voice because the arranger has designed a spatial series of movements that can be navigated without a narrative voice. Because of the existence of the arranger figure, “the narrator shrinks within the text and, consequently, gives readers the opportunity to encounter the narrative without a narrator” and to experience what Stephen Dedalus calls “the dramatic form of narration,” which gives readers the sense, according to John Somer, “that they are in contact with a reality that is rendered directly to them and not one mediated through a prejudiced sensibility” (72-3). Because the arranger provides the zoom effect of the bird’s eye view of Dublin’s map, “Wandering Rocks” retains comprehensibility while shifting between different narrators, even when that shift takes place within a demarcated section. The episode keeps moving even if the experience often feels “as if each scene had its own isolated narrator who is caught in a passageway” (Frehner 207), because the episode’s coherence lies not in its narration but in its arrangement. The reader’s distant bird’s eye view permits an engagement with the moving parts of a spherical whole without a hand-holding narrator.

Because open-world video games are designed to promote the feeling of “user agency,” they commonly implement a non-narrator figure called the “drama manager” or “experience manager” (Riedl and Bulitko 68), which is the twin of *Ulysses*’ arranger. The experience manager, “an intelligent, omniscient, and disembodied agent that monitors the virtual world and intervenes to drive the narrative forward according to some model of quality of experience,” ensures “coherent story progression” while still allowing the feeling of “user agency” (Riedl and Bulitko 68). User agency in a video game goes hand in hand with its quasi-nonlinearity: both are illusions. The arranger, or the experience manager, is Oz’s man behind the curtain. To become immersed in a virtual world means to accept the invisible borders, to agree with game-world limitations, but not to let the awareness of its mechanization break the sense of engagement.

The algorithm behind “Wandering Rocks” – that is, the red ink paths of Conmee and the Earl of Dudley, and the calculations, down to the minute, of the time it takes to traverse certain parts of Dublin (Blamires 93) – is surely mechanical. Its use is appropriate, given that the featured art in the Linati schema for this episode is mechanics, and it is doubly appropriate that the Gilbert schema

technic for the episode is “labyrinth” (Frehner 206) – how much of a challenge is a labyrinthine maze when viewed from overhead? And yet, from street level, the labyrinth feels endless and perpetually overlapping. The labyrinthine mechanics at work in the arrangement of the spatial text that is “Wandering Rocks” creates a city that is alive, breathing, and synchronic—but the mechanics themselves could not be more calculated. “Wandering Rocks,” like video game cities, functions on an algorithm. That algorithm, just like the algorithm of virtual cities, hinges on the variables of time and space, and the locations of actors on a map through the passage of time.

Chronology is important in *Ulysses*, given that the novel takes place on a single day, and it is especially important in “Wandering Rocks,” since “the relation of time to space in the episode reminds us that it is only by virtue of the clock (and clocks) that the life of the city can interconnect” (Brown 64). While pronouncing events chronologically in terms of their causes and effects – or even pronouncing causes and effects at all – is not especially important to the composition of *Ulysses*, chronology itself, regarding the passage of time while moving through space, is the novel’s most driving formal quality. To revisit the question of linearity – and poke another hole in its use for spatial texts – linearity *must* exist in the construction of a day, as the human ontological construction of time is always linear (insofar as humans use the concept of time in daily life). This is also true of the perception of movement: when a human body moves within a space, it leaves one spot behind, is present at a spot, and intends to move to another spot in the future. Movement and time are linear; the perceived experience of movement and time, however, is not. It is not necessary for time’s linearity to be explicit when illustrating the experience of a day; like the human pulse, it is not always perceived. Chronological linearity (Joyce’s stopwatch) is offstage and unperceived, a programmed element of the story, but is not necessary to the reader’s experiential progression through the novel. It is necessary for the episode itself: the illusion of offstage action in the city during *Wandering Rocks* is only possible because of Joyce’s attendance to chronology.

Thus far, I have argued that the “Wandering Rocks” episode of *Ulysses* is an example of a spatial text because it presents the same qualities of city-construction as virtual cities in video games. I have rejected the terms linear and nonlinear in the discussion of spatial texts, because such terms do not allow room for the discussion of the illusion of simultaneous city life – which, if it is any shape, is spherical. I have agreed with past critics that the organizational figure of the episode is not a narrator, or even multiple narrators, but an arranger – and that this arranger is equivalent to experience managers in open-world video games. But with all of this foundation for the understanding of “Wandering Rocks” as a spatial story, what, in the text of *Wandering Rocks*, establishes the illusion of the city as

alive? It is the feeling of “potential narrative expansion” (Senn 157) that, whether it is acted upon or not, forms the cityness of Dublin. The city’s “worldness”¹ is carefully crafted through the illusion of choice and “simulated simultaneity” (Frehner 201), the ever-present offstage action, interlocations, and unfollowed paths.

Interlocations or interpolations, of which there are thirty-one (Frehner 218), are moments in which characters from other places in the city are depicted mid-scene without any sort of narrative cue, such as “The lacquey rang his bell” amidst the Dedalus sisters’ pea soup scene and the card “Unfurnished Apartments” reappearing on the window sash of number 7 Eccles street during a conversation between Lenehan and M’Coy (10.281, and 542-3). According to Frehner, only one interpolation is established with the marker “while” – “while a generous arm from a window in Eccles street flung forth a coin” at 10.222-3 (Frehner 207). All of the other moments are simply injected into the prose without explanation or warning. These interlocations – a term used by Fritz Senn (163) – illustrate the lack of a single narrator with a single voice and a single perspective and reveal the presence of the arranger. These interlocations also create the notion that whatever we are reading is an interception of an event in the city; something happened prior to what we see, and something will happen after we leave the scene. It generally goes without saying (unless we are trying to unpack the mechanics of the episode) that nothing actually *will* happen, of course – until “Wandering Rocks” becomes a video game, anyway. Joyce presumably did not write nineteen complete and linear scenes, cut them apart, and paste them together in their current order. He did not have to. The interspersed moments of people a few streets away, or of a throwaway on the Liffey (10.294), are enough to suggest the continuous presence of action on the streets of Dublin. These moments are enough to imply that the episode might have been arranged differently and still achieve the same cityness, and that a turn down any other street would give us yet another story.

Senn associates this availability of “alternatives,” that is, the “paths not taken by the main narrative,” with the Homeric parallel that is the Wandering Rocks: in a navigational decision that would be right at home in any video game adventure, Odysseus has a choice to face Scylla and Charybdis or attempt to traverse the Wandering Rocks, and he chooses the former (157). The episode as a whole, then, is a huge giant construct of while-you-weren’t-looking: what is happening at the Wandering Rocks while Odysseus is not there? What is

¹ “Worldness” is a term used in game studies to discuss the quality of being what J.R.R. Tolkien called a “secondary world” – an internally consistent fictional space that extends beyond the borders of the text. Cf. Lisbeth Klastrup, “The Worldness of EverQuest: Exploring a 21st Century Fiction,” *Game Studies* 9.1 (April 2009); and J.R.R. Tolkien, “On Fairy-Stories,” in *Essays Presented to Charles Williams*: Oxford, Oxford University Press (1947).

happening to Stephen while Molly gives a coin to the one-legged sailor? It takes gaps in the narrative – textual space – to provide for us the illusion of physical space. Senn notes that Homer, at one point in *The Iliad*, “is literally talking about allomachy, other battling elsewhere,” and that as a poet, he cannot actually manage to discuss all of the actions happening everywhere in Troy at once (160). Joyce is dealing not with battles, but with everyday routine, and he makes no apology for his depiction of *allomachy* – he tosses those other “battles” right into the scene.

What Joyce’s Dublin and virtual cities share from an artistic perspective, given their shared settings and subjects of the mundane city, is an aesthetic of eavesdropping. The reader is privy to only bits and pieces of the goings-on in Dublin, and rarely are the bits and pieces the main event of any given character’s day. The episode takes a lot of creative input on the reader’s end, but it is not an unintelligible collection of actions and descriptions; compared to some of the more experimental episodes, it is one of the most straightforward sections in the entire novel. It is not, however, traditional in terms of the information it offers us about these characters’ lives, and it does not guide us to any one central focal point, a characteristic that might have led to the aforementioned urge to call the city itself the protagonist (Frehner 203). We might not get enough information to follow one character’s whole story, or even get to know him beyond the name “Cashel Boyle O’Connor Fitzmaurice Tisdall Farrell, with his stickumbrelladustcoat dangling” (10.1102-3), but we get enough to establish the living world – we know Cashel was walking somewhere before we came to Merrion square, and we know he will go somewhere else afterward. But this is our duty to the poet who cannot describe all of the battles happening elsewhere: we must take the bits of information from our eavesdropping perspective and make sense out of them, for “the reader is the *only* consciousness with access to the linking elements of the individual episodes and characters” and only the reader “can plot these diverse itineraries on a map of Dublin” (181, original emphasis). From the bird’s eye view the reader has the needed perspective to create a spatial story out of this seemingly arbitrary “series of individual itineraries bound only by their coincidence in space and time” (Hegglund 178). The coincidental experience of the episode is illustrated perfectly when Dilly runs into her brother, an unplanned interception, and asks “What are you doing here, Stephen?” and he responds “What are you doing?” (10.854, 857). Both are looking for books, clearly, but the bigger implication resounds: how did we both end up here? Serendipity, perhaps – or Joyce’s algorithm.

Willingness to *play* is necessary for the city illusion to work in both video games and *Ulysses*. *Play* is a word always used in relation to video games and rarely used in reference to Joyce, but the “cityness” of Joyce’s Dublin is indeed a game to be played. To play the episode, the reader must imagine that the gaps that Joyce leaves are not empty. The reader must imagine that the crumpled throwaway

continues to float, that the one-legged sailor continues to walk, and that all the while, the Earl of Dudley is riding along the streets. A popular improvisational comedy game called “Four Corners” utilizes this ability of the human imagination. Four players stand on stage in a square, two in the front and two in the back, and every clockwise rotation presents a new pairing at the front of the stage. As the game leader (this game’s arranger figure) calls for a rotation, the scene that is no longer seen is still imagined to be taking place, so that by the time the square has fully rotated, the first scene will resume, but with the caveat that time has passed and the scene has continued while we haven’t been looking. Logically, we know that the players do not imagine what is happening while they are not center stage – because they do not have a chance to – but the game only works if we agree to follow its rules and agree to fill in its gaps. The same is true of Joyce’s Dublin, and the same is true of virtual cities. Even if the offstage action is programmed somewhere in the coding of a video game, it is not activated until the player is within visual range of the action at hand – at which point it becomes on-stage. Even if Joyce knows exactly what Dilly is doing before she finds Stephen, we do not have access to that information. We have to play the game.

Though it is a text and crafted entirely from words, “Wandering Rocks” depicts a Dublin that is alive. The movement through this spatial text, in which persons and objects and forces are evenly weighted, produces a reading experience that is centered not on one focal point moving through space, but the entire space itself. This experience, like the experience of virtual city spaces in open-world video games, is constructed algorithmically, but the construction nonetheless produces a living, pulsating space – a space that presents many paths and alternatives. The sense that the reader could step into this Dublin and walk into anyone’s conversations may be an illusion, but when the text is played and the gaps imaginatively filled, Dublin is not a static text, but a breathing, spatial story. As technology advances, users may be very aware of the programming choices establishing their fictional immersion, but this does not break their immersion; complicity in the illusion, in both games and Joyce, is the basis of the imaginative experience.

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