On Links: Exercises in Style

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ABSTRACT

Links are the most important new punctuation mark since the invention of the comma, but it has been years since the last in-depth discussions of link poetics. Taking inspiration Raymond Queneau's *Exercices De Style*, we explore the poetics of contemporary link usage by offering exercises in which the same piece of text is divided and linked in different ways. We present three different exercises—varying the division of a text into lexia, varying links among lexia, and varying links within lexia—while pointing toward potential aesthetic considerations of each variation. Our exercises are intended descriptively, not prescriptively, as a conversational starting point for analysis and as a compendium of useful techniques upon which artists might build.

CCS CONCEPTS

• **Human-centered computing** → **Hypertext / hypermedia**; **Interaction design process and methods**; **Interaction design theory, concepts and paradigms**; Systems and tools for interaction design; • **Applied computing** → **Arts and humanities**; Document management; • **General and reference** → *Surveys and overviews*; *General literature.*

KEYWORDS

hypertext, links, Exercises in Style, poetics, link poetics

1 INTRODUCTION

Links are the most important new punctuation mark since the invention of the comma, but it has been years since the last discussions of link poetics within the hypertext research community. Discussion of rhetoric was more common in the era before the Web [30] [31], spurred in part by richer models of links [54] [14]. The coincidence of the Late Age Of Print [9] with the rise and fall of postmodernism [15] diverted attention for a decade; if we didn't know whether

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meaning was fixed or if history had a future, it was hard to focus on link usage and stylistics. For a time, it seemed that the link itself might be a mere stepping stone, an incunabular artifact of the lost Golden Age en route to a future of computer games and holodeck caves [12] [42]. Complicating matters is the fact that many Web contexts offer perverse incentives for the hypertext writer: deceptive linkbait attracts clicks. More recent discussion of the rhetoric of links has often focused on advocacy [1], or on narrow design issues or more specific problems and effects [48].

Rather than prescribing rules for usage or describing observed practice [4], we propose to follow Raymond Queneau's 1947 *Exercices De Style* [46] to identify some hinge points in the use of links. *Exercices De Style* famously retells the same short, banal story 99 times in different styles, emphasizing how different prose and storytelling mechanics change aesthetic impact through genre styles and literary conventions.

Our aim is to take a similar approach to the practice of linking in an effort to explore how different ways of splitting text, altering link anchors, and varying other mechanics of linking convey different stylistic and aesthetic impressions to readers of hypertext. Our goal is not to enforce good style or to decry bad style, but rather to explore how different approaches can create different effects and may convey distinct impressions to readers.

Discussing prose, we understand that florid passages that exploit the full compass of language have an honored place in expressive discourse. So do short, direct claims. Both change the reader's[1] experience. It is our desire to show how authorial choices in linking change the work of the text. (See also [33] and [25]). Though we cannot hope to be comprehensive here, we hope to make a gesture, to begin a journey.

Our exercise starts with a brief passage McCloud used in *Understanding Comics*[36]:

> I crossed the street to the convenience store. The rain soaked my boots. I found the last pint of chocolate chip in the freezer. The clerk tried to pick me up. I said, "No thanks." He gave me this creepy look. I went back to the apartment, and finished it all in one hour. Alone at last.

and inquire, how different writers might choose to link them. Though short, McCloud's passage gives us ample opportunity to explore a number of facets of linking in a narrative context.

Writing implies choice, not only of what (and how) we express, but also (perhaps especially) what we omit [10]. In these exercises, the narrative is McCloud's but we are free to imagine anything we like in the margins. Narrative preceded this episode, and narrative will come after it; precisely where this tale ends and another begins may be uncertain and contingent.

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[1] In this paper, we will use "they" as the gender-neutral singular pronoun in reference to an imagined reader.

2 DIVIDING LEXIA

Before we can link, we must divide; links exist to join, and our links must have "writing spaces" (or pages, or lexia) to connect. The problem of how best to divide a notionally-continuous text into lexia, now seldom mentioned, was a central controversy of early hypertext research. Should a hypertext aspire to seamless continuity in support of the perfluent narrative dream [18], or should it expose its structural members? [50] [49]. If continuity is desired, is that best achieved by making transitions more efficient or by fluid animation of the transitions [55]? If we wish to emphasize the discrete charm of the hypertext unit, how big should the lexia be? In particular, should lexia acknowledge the size and nature of a screen that had (in those days) perhaps 512 x 348 pixels? Or should the unit be larger than the screen, privileging scrolling within the page and linking outside it [23]? Either decision might greatly impact the pacing and perceived interactivity of the work.

Thus how our text is divided has great impact on our reader's experience. Explorations of these divisions follow.

2.1 Sentence and Paragraph

We might, for example, use the text's punctuational cues to divide it into units; sentences and paragraphs are, after all, familiar expressive forms.

> *I crossed the street to the convenience store. → The rain soaked my boots.*

This is a reasonable starting point, but often proves insufficient. A single action may span more than a sentence or more than a paragraph; here, for example, the consequence of wet feet follows directly from the decision to go to the convenience store, and splitting the action across discrete lexia obscures that relation.

2.2 Dramatic Beats

We might instead divide the text into more-or-less coherent and discrete actions, or into dramatic beats [37].

> *I crossed the street to the convenience store. The rain soaked my boots.*
>
> ↓
>
> *I found the last pint of chocolate chip in the freezer. The clerk tried to pick me up. I said, "No thanks." He gave me this creepy look.*
>
> ↓
>
> *I went back to the apartment, and finished it all in one hour. Alone at last.*

Here, the causality problem from the previous example is largely resolved; we have three actions in three disparate locations. In a film, we might express this through a sequence of three shots: crossing the street in the rain, the convenience store interior, and then eating the ice cream alone in our apartment. There is no need to supply an explanation or transition; the sequence of images supplies an implicit narrative closure here, just as in the cinematic cut [38].

2.3 Protagonist Throughline

Reviewing McCloud's passage, we might identify that the protagonist's experience is clearly described in three actions, and that the residue of the text annotates her internal, emotional reaction to external events.

> *I crossed the street...*
> ↓
> *I found the last pint...*
> ↓
> *I went back to the apartment...*

We might, in fact, speculate that punctuation in McCloud's passage expresses the inchoate desire for the yet-uninvented link. We could clarify the action by expressing the protagonist throughline explicitly as a sequence of three lexia, joined directly and also ornamented with emotive annotations. We could treat the emotional reaction as a mirror world [6], thereby emphasizing the expressionist duality of the narrator's mundane urban existence and her far less mundane emotional response.

2.4 Antagonist Throughline

Rather than focus on the protagonist's actions, we might instead cast her into even higher relief by focusing not on her own activity but on all that surrounds her. In this telling, we might usefully begin *in media res* with that primary antagonist, the clerk.

> *The clerk tried to pick me up.*
>
> ↓
>
> *He gave me this creepy look.*
>
> ↓
>
> *I had gone across the street to the convenience store.*
>
> ↓
>
> *The rain had soaked my boots.*
>
> ↓
>
> *A pint of chocolate chip was all that was left in the freezer.*
>
> ↓
>
> *I said, "No thanks."*
>
> ↓
>
> *I went back to the apartment, and finished it all in one hour.*
>
> ↓
>
> *Alone at last.*

By beginning with the malevolent clerk, he shadows the entire passage. Had we begun with the rain or the ice cream, the clerk might seem a detail. We might choose to begin here for clarity, so the reader appreciates the importance of the clerk at once or because the clerk explains something that happened earlier but that we will describe later [19] [5], even though its placement here raises a brief ambiguity: is the narrator rejecting the sexual advance or the ice cream? That ambiguity might well trip the reader, leading us to reflect, if only for a moment, about what is actually happening here. The useful tension this evokes is immediately resolved, forming a convenient cadence. [41] [31]

2.5 Coover Splits

Boundaries between lexia frequently fall between thoughts, scenes, or episodes, allowing each lexia to complete itself and to arrive at an intermediate resting place. A number of writers, however, have experimented with more abrupt transitions [28] [2], notably transition in the midst of a sentence. [11]

I crossed the street to the convenience store. The rain…

↓

…soaked my boots. I found the last pint of chocolate chip…

The pendant fragment builds suspense and propels the reader across the gap of the link while simultaneously inviting the reader to speculate on what might follow. That speculation, in turn, can be amply rewarded when what does follow is unexpected, and can be still more pyrotechnic when several distinct sequels might follow.

2.6 Intensification

Our progress through the scene might be interrupted by digressions that intensify the narrative. A separate path may omit those digressions, or replace them with digressive passages that defuse the implicit tension through humor or self-deprecation.

I crossed the street to the convenience store. The rain …

↓

…sent filthy rivers along the gutters. I saw a dead rat. The grey water…

↓

…soaked my boots. I found the last pint of chocolate chip…

A sequence of small split-joins that follow this pattern takes on some aspects of a mirror world, as the intensifying passages can assume a nightmarish quality. [6] If the reader finds they can reliably choose to explore or omit the intensifying passages, moreover, they gain an interesting measure of extra-diegetic agency and control over her experience of the resulting narrative [35]. Additionally, those choices can be used to determine what the reader may see later.

2.7 Acceleration

At the outset of a story, we have all the time in the world. The audience is on our side, for they have chosen this story (and not some other), and set aside time and space to read it [8]. They have paid to enjoy it, and they want get their money's worth. We may take time to establish characters and places, to explain situations, to construct a voice.

As the crisis approaches, things accelerate. We cannot stop to describe. We have no time for exposition. In novels, chapters grow short. Everything speeds toward the climax. Though the action may be recounted in extreme detail—time slows, every tiny action carries tremendous importance—everything happens in a flash.

In hypertext, acceleration translates to shortened lexia, more suspenseful breaks, and increased propensity for inviting interaction, propelling the reader ever-faster toward the next lexia.

2.8 Pointillism

At the extreme limit, short writing spaces regain their lyrical nature [51] as language itself fragments into a pointillist wordscape. Much self-conscious electronic literature of the early 21st century explored precisely this terrain, interrogating or seeking to transcend meaning [29], though the impulse dates back to the start of literary hypertext and *afternoon*'s word maze [26]. Short lexia that are open to multiple interpretations can join intersecting cycles, simultaneously commenting on themselves and taking part in two episodic contours.

2.9 Locative Forces

Locative hypertexts are meant to be read in a specific place (or a specific kind of place [24]), and might range from museum guides to personal advisors to location-specific art installations [20], others can be listened to, while others appear through augmented reality. Even sophisticated augmented reality, however, offers far less textual scope than even the crudest codex; all locative media necessarily favor short lexia because, often, that's all that will fit. Still, the lexia of locative media are deeply influenced and contextualized by the physical surroundings of the reader as they experience them.

In addition, physical limitations constrain locative hypertexts. People might easily click on this link or that when doing so means moving a finger, but when following a link means walking up a steep hill, some might not feel up to it, and others—having just climbed that hill, might not want to go back [39]. Even if screen size were not a constraint, people don't want to stand in one place for long periods— especially not in bad weather. Nor do they enjoy straying too far from snacks, rest rooms, and their car.

3 LINKS AMONG LEXIA

Having decided how best to split our text, we must subsequently decide how best to create links from one passage to another. In addition to how our text is split, placement of the link anchor and the relationship between the anchor and destination work together to creating meaning which can—and indeed should—be used to further our aesthetic goals.

3.1 Four Roles of Links

Of making lists of link types there is no end, but we may distinguish four families or roles for links among lexia: timeshift, recursus, renewal, and annotation [27] [5].

(1) *Timeshift* moves in time, often to what follows from the scene or moment we have just read, but might also reveal past events that led to it.

(2) *Recursus* returns to something we have seen before, to a refrain or a chorus or a catalog, either to reinterpret with new context something we thought we understood (Rashomon) or to mark the cadence before we spin out to some new and distant modulation [40].

(3) *Renewal* embarks on a new episode—refreshing our reader's mental context—though the new episode might eventually illuminate what has gone before.

(4) *Annotation* comments or ornaments the passage we are currently reading; it either leaves us where we are or promises

(perhaps deceitfully?) to return us again to the place from which we set out.

The link needs to explain itself—links want to be followed, to shine in use—but that explanation can only be made once the link's destination is revealed. When the reader sees a link, they necessarily form a theory of what the link will offer. That theory will be in dialogue with whatever text the link actually delivers [30]. This exchange is always a complex negotiation, and a generation of teaching materials dedicated to improved website signage has only obscured the issue by pretending that all expression ought to be (or that it can be) concise and sincere [31].

3.2 Anchors: Position In Sentence

The visible link anchor—the words or symbols that represent the presence of a link—clearly affect the link's meaning. So, too, does the position of the link in the sentence. A link at the start of a sentence initially entices the reader to move away before even finishing their thought, but as it waits there unclicked, the reader's mind may linger even as the eye moves on.

> *The clerk tried to pick me up. I said, "No thanks." He gave me this creepy look.*

Links near the start of the sentence are anchored before the action and can suggest stasis, exposition, exploration. They interrupt the reader's rush to get to the point, reminding the reader that there is something back at the outset to which they may want to return.

Links near then end of the sentence follow the action and can suggest dynamism and departure, the irrevocable leap. They interrupt the reader's reflective impulse and urge them to get on with the story, to let the text replace itself already.

> *The clerk tried to pick me up.*

Here the reader is driven onto the new text without the same pause as the previous example.

Linking to the verb suggests that the destination will comment on or explore the action, its consequences or its motivations.

> *The clerk tried to pick me up.*

3.3 Anchors: Position in Lexia

Building on the previous example of the importance of placement within a sentence, increasing the number of words in a lexia increases the effect of positional placement: links at the beginning of lexia may keep reader's eyes and thoughts returning again and again.

> *I crossed the street to the convenience store. The rain soaked my boots. I found the last pint of chocolate chip in the freezer. The clerk tried to pick me up. I said, "No thanks." He gave me this creepy look. I went back to the apartment, and finished it all in one hour. Alone at last.*

While links at the end of a lexia may signal a reassuring departure or closure, they may also hurry the reader to the end of the lexia more quickly by pulling the eye forward.

> *I crossed the street to the convenience store. The rain soaked my boots. I found the last pint of chocolate chip in the freezer. The clerk tried to pick me up. I said, "No thanks." He gave me this creepy look. I went back to the apartment, and finished it all in one hour. Alone at last.*

3.4 Anchors: Parts Of Speech

The part of speech we use for our link anchor can entirely change the meaning of a link. Consider,

> *The clerk tried to pick me up.*
> *The clerk tried to pick me up.*
> *The clerk tried to pick me up.*

The lexia to which these links lead might be the same destination, but because our choice of link anchor helps frame the link, the destination will read differently.

> *The clerk tried to pick me up. → I said, "No thanks." He gave me this creepy look.*
>
> <div align="center">or</div>
>
> *The clerk tried to pick me up. → I said, "No thanks." He gave me this creepy look.*
>
> <div align="center">or</div>
>
> *The clerk tried to pick me up. → I said, "No thanks." He gave me this creepy look.*

Is this passage about the clerk, or about his failed advances, or about the narrator? The anticipatory theory we form about the link when choosing it informs what we see at the destination [21].

Linking to the subject of a sentence suggests annotation—especially when the subject of the sentence is a new narrative element. Indeed, anchoring links to nouns or noun phrases is preponderant in annotative hypertexts such as Wikipedia.

> *I crossed the street to the convenience store.*

Links on verbs in which the subject of the sentence is the protagonist may act as diegetic choices, actions to be taken by the protagonist in which the act of clicking makes the reader complicit.

> *I crossed the street to the convenience store.*

Linking to modifiers and parentheticals may suggest annotation, but skillful use can quickly lead readers to anticipate that these instead offer tangential narratives or renewals.

> *I crossed the street to the convenience store.*

In some hypertexts, anchors may signal their intent or role, either through a distinctive icon [7], through text that appears when hovering near the link [55], or by launching an explanatory video in the margin [43]. We might regard this supplementary work of the link anchor as a kind of diacritical mark, an extra element which might generally be understood in its absence, but which adds useful clarity when present.

3.5 Anchors: Dialogue With Destination

Just as the link anchor typically offers some hint or assurance of what the link offers, the destination may be read as a commentary on or response to the link source—either the anchor itself or its surrounding lexia. The familiar, annotative case, in which the destination defines or expands on the anchor is by no means the only option. Often, when the link anchor is the direct object, it becomes the subject of the destination.

> *He gave me this creepy look. → When he was in seventh grade, Bobby discovered that he could unsettle Mrs. Korensky, his teacher, by staring at her and then crossing his eyes.*

A link destination may itself be an ironic comment on the source.

> *…soaked my boots. I crossed the street to the*
> *convenience store.*
>
> ↓
>
> (Official Trailer: Al Gore, An Inconvenient Truth)

3.6 Diegetic Links

More explicit agency appears when the reader is asked to make or ratify choices on behalf of the narrator, usually focused around a particular action.

> *I stood outside the convenience store.*
> *Cross the street.*

Diegetic links are the hallmark of the Interactive Fiction tradition, and trace their heritage back to *Zork* and *Choose Your Own Adventure* [53], but the desire for diegetic agency (or its simulacrum) [35] has a significant impact on the internal construction within lexia. We must include an action taken by the protagonist, and the text on screen alongside it necessarily creates an immediate framing for that action. Often, these links are grouped into a set of explicit choices from which the reader—and protagonist—must choose.

> *I stood outside the convenience store.*
> *Cross the street.*
> *Call Naomi instead.*

If we offer few choices, or if those choices seem inconsequential, the fictive universe becomes predestinarian at best; at worst, it may come to seem fraudulent. Moreover, choice points, and any content that branches in their wake, must be written; if too numerous, they overburden the writer (or, the writing department), while if too few, they undermine the agency they promise.

To make choosing meaningful or even plausible, we must consider reasonable responses to available choices, and if we ask a reader whether they want to do something, we must anticipate that they might prefer not to [26]. We need to make the choices clear in their intended impact, even if the reader cannot anticipate their future consequences [34] The reader, moreover, may reasonably expect that, having been invited to play a part in the unfolding story, that they will be able to do what they might reasonably expect that the protagonist could do if only the protagonist were as clever as they! [3].

Diegetic links valorize coherence and causality, since reader control depends on the reader's comprehension of the protagonist's situation, and role-play depends on her identification with the protagonist's choices. Diegetic links address the reader: they invite her to become the protagonist through role-play and a sense of responsibility for the narrative direction. While many popular examples of texts with diegetic links tend toward the second person, a choice with subtle but profound consequences [52], popular contemporary visual novels [44] [45] show that third-person diegetic choices foster role-play even when the player and the protagonist are not merged by the second-person address.

3.7 Integral and Excess Links

Some links are integral to the text, inextricably connected to that which is unlinked and knitting the unlinked together. We cannot remove the links from such texts, any more than we could remove the binding from *Ulysses*, the rhymes from Blake, or the excess notes from Mozart.

Other links are added to the text; they supplement it, enriching it, but the text remains itself. Surrounding a challenging text with commentary is, of course, an ancient scholastic practice [22], and hypertext systems from Intermedia to The New York Times have treated links as supplements that connect articles together rather than as integral parts of the text [13].

3.8 Annotation

Discussions of narrative have largely neglected annotation, assuming its expository role obvious and its employment a last resort or a sign of inept writing [32]. Yet, annotation can carry the entire weight of a story [16] and, after a generation of irascible debate in Game Studies, we can now view many cutscenes and other exposition that floats outside of a game's mechanics as narrative annotations of the player's activities.

As Roa [48] observes, moreover, annotation can play an important role in supporting an authentically postcolonial voice, offering an opportunity to explain language and customs that may confuse a global audience even though they are second nature (and hence unmentionable) to those in the scene.

Some annotative hypertexts—notably Wikipedia—rely almost completely on definitional links, links that explain or describe their anchors. Intensive links—for example, links that connect to any occurrence of a name or phrase that appears in the text—often emphasize the definitional role [14]. Yet many other annotations are possible, and offer richer narrative possibilities.

- Epistemic: how do we know this is true?
- Citation: who found out?
- Alternative: what other views do people hold? Why are they mistaken?
- Argumentative: anticipating reader objections, and offering to refute them
- Backstory: how did the annotated fact come to be?
- Ironic: satirizing or problematizing the link anchor
- Motivational: whom does this fact benefit?
- Consequential: what ensues from the annotated assertion?

Annotation offers the reader an implicit contract, a promise to return. Of course, in a narrative world informed by modernism and postmodernism, readers understand that promises are contingent and narrators untrustworthy. The promise, conversely, may be reinforced either by making it explicit—perhaps distinguishing annotation links through a symbol or a typographic convention—or by presenting the annotation within the frame of the current page and thereby avoiding the suggestion of navigation [5][55].

3.9 Calligraphic, Sculptural, and Automatic Links

Conventional links are commonly calligraphic: each link is created by an author who selects its source and destination. In sculptural hypertexts, in contrast, everything is assumed at first to link to everything else; the author removes unwanted links until only the desired links remain [3][39]. Sculptural hypertext is a particularly good fit for locative hypertexts such as museum guides where the reader might walk almost anywhere.

Automatic links are omnipresent and mechanical. In an electronic book, we might look up any word in a dictionary, or in Wikipedia. We might ask for a translation of any phrase into a more familiar language, or ask Google to hunt for an apparent allusion. Typically, the anchors of such links—being omnipresent—are not distinguished through some typographic callout. And in automatic links, we do not expect to discover authorial insight, nor can we blame the author if the link destination is not helpful or interesting.
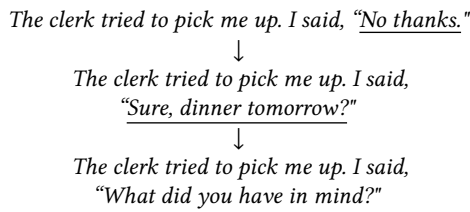
4 LINKS WITHIN LEXIA

In addition to considerations of splitting lexia and the practices of linking among them, the way links are framed and communicated within lexia color expectations for how they function, and thus bring additional meaning to the experience of interacting with them [21]. Concrete poetry has proven that the visual design elements of text necessarily impact and influence our interpretation of it. Likewise, the user experience (UX) elements of linking, though a substantially different classification than those previously mentioned, suggest different approaches to the reader; they color the available actions, build expectations, and suggest affordances. After all, the reader of a linked work is not just navigating the text; they are acting within it by process of clicking.

Links that do not navigate to other lexia create interesting case studies for our exercise. After all, links need not "move" the reader or cause "progression." When a link anchor is the only text that changes within a lexia, it creates a sense of static time, or choices being made within a paused moment. This pause reaches beyond a standard pause for player input, as it keeps the protagonist moving and the link reacting while the rest of the text stands still.
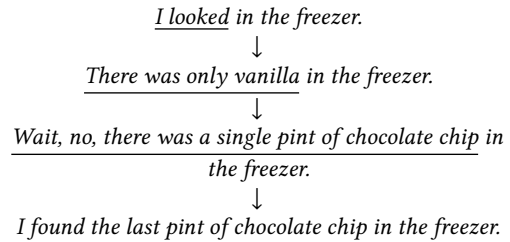
4.1 Cycling Links

In a cycling link, clicking on the anchor causes the anchor to cycle among options before selecting one. The process is essentially equivalent to a drop-down menu except that the act of cycling itself is often meaningful; it creates a sense of anticipation and exploration of possibility space as the reader clicks through the options for the first time. It also may indicate the protagonist's waffling.

<div align="center">

The clerk tried to pick me up. I said, <u>"No thanks."</u>

↓

The clerk tried to pick me up. I said,
<u>"Sure, dinner tomorrow?"</u>

↓

The clerk tried to pick me up. I said,
<u>"What did you have in mind?"</u>

</div>

Authors may choose to explicitly communicate that a link is a cycling link (or any other form of stationary link) through UI elements such as differently colored anchors or double-underline, choose to hope context and convention may frame the link appropriately in the minds of the reader, or choose to surprise the reader with a cycling choice where they expect navigation. Surprising a reader with a cycling link can feel like a boost in agency if used sparingly enough to keep the surprise.
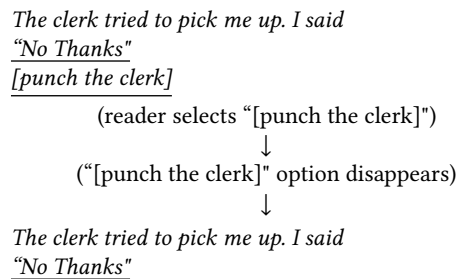
4.2 Click-to-Advance

A cousin of the cycling link, click-to-advance links cycle among anchor text options upon click, but unlike cycling links, the changing anchor text communicates a progression. Usually click-to-advance links come to a natural conclusion and may cease to be links upon final click, whereas purely cycling links may cycle through the same set of options and may even require clicking on a "next" link (or equivalent) to stop cycling and make a selection.

<div align="center">

<u>I looked</u> in the freezer.

↓

<u>There was only vanilla</u> in the freezer.

↓

<u>Wait, no, there was a single pint of chocolate chip in the freezer.</u>

↓

I found the last pint of chocolate chip in the freezer.

</div>

When coupled with static text surrounding the dynamic anchor, click-to advance links can create a feeling of slow-motion time—both progression and lack of progression simultaneously.

4.3 Disappearing Links

Links that disappear generally emphasize their disappearance to communicate a "lack" or absence to the reader.

<div align="center">

The clerk tried to pick me up. I said
<u>"No Thanks"</u>
<u>[punch the clerk]</u>

(reader selects "[punch the clerk]")

↓

("[punch the clerk]" option disappears)

↓

The clerk tried to pick me up. I said
<u>"No Thanks"</u>

</div>

In this example, a choice disappears on the reader the moment they make it, intentionally presenting an option, then declaring that option unavailable. The disappearance emphasizes a moment when the protagonist does not have as much agency as the reader might want—a way to communicate that the reader's desires are understood, but the author is intentionally denying them.

4.4 Timed Links

Timed links are those that advance, change, or disappear on a timer without prompting or input from the reader. The timing mechanism (e.g. a counter) may be visible or invisible to the reader. If invisible, links changing without input from the reader may be used to undermine agency, convey difficulty or urgency in a protagonist's choice, or might be used rhythmically to convey the steady marching forward of time—often in a way that rushes the reader or protagonist along.

Visible timers are used widely in games to force quick action from the player. Just adding a visible countdown timer to a game—even a very generous one that poses no real threat to the player—creates a sense of urgency. [17] Timers may also be used with other link types to heighten urgency and increase drama. Often, timers are added to choices where the protagonist feels a sense of urgency that the player should feel as well.

4.5 Appearing Links

Links may appear after certain conditions are met. If these conditions are met by completing certain actions or steps, the appearance of a link may feel like progression or a path forward, thus engendering a sense of accomplishment.

Links may also appear as timed events (see timed links). An appearance without the input of the player may feel like a *deus ex machina* moment, triggering relief in our reader, especially if coming on the heels of a tense or dramatic exchange.

4.6 Shimmer Text

Shimmer text offers a link anchor that quickly cycles among options without a click or other input from the reader [47]. Unlike cycling links, in which clicking on the anchor cycles to the next option, clicking a shimmering link makes the anchor stop cycling among options. After the anchor is clicked, the link hardens into static text.

> *The clerk tried to pick me up. I said, "[**No thanks / You wish! / Maybe next time.**]" He gave me this creepy look.*

> ↓ (reader selects while "[No thanks.] is visible")

> *The clerk tried to pick me up. I said, "No thanks." He gave me this creepy look.*

In practice, clicking on shimmering links feels like bringing calm to a moving target. It conveys that (finite) choices are present, and applies a finality to their selection. The faster the options cycle, the more frantic the passage feels, and the more relief the player feels when that tension is alleviated. If one option is more attractive to the player, requiring more physical dexterity to make that selection communicates that the protagonist may feel proportionate difficulty taking that action in the narrative world.

4.7 Stretchtext and Replacement Links

Stretchtext is a form of hypertext in which triggering a link replaces the anchor with additional text, thus extending or stretching the amount of text in a lexia. These links are sometimes referred to as "replacement links".

> *I crossed the street to the convenience store. The <u>rain</u> soaked my boots.*

> ↓

> *I crossed the street to the convenience store. The rain sent filthy rivers along the <u>gutters</u>. The grey water soaked my boots.*

> ↓

> *I crossed the street to the convenience store. The rain sent filthy rivers along the gutters. I saw a rat. The grey water soaked my boots.*

In stretchtext, the text around the link anchor remains static while the anchor stretches and grows the text. The effect of adding more detail in this way pauses the flow of narrative, often emphasizing the effect of slowing or stopping a particular moment, and instead directing the reader's attention to an intensification, annotative narrative, or digressive asides.

5 DISCUSSION

Our catalog of styles is not meant to be exhaustive, but rather meant to demonstrate the effect (and effectiveness) of subtle changes. Our exercises are intended descriptively, not prescriptively, both as a conversational starting point for analysis and as a compendium of useful techniques for artists to take and interpret and build upon.

Each style we outline here need not necessarily be mutually exclusive. Links appearing at the beginning of a sentence may also be communicating diegetic action; these categories may bleed and overlap. And as a purveyor of meaning and an extension of language itself, links may necessarily convey ambiguity. Adept writers will harness reader expectations and, even if undermining them, wield them to aesthetic effect.

New techniques are always being created, and familiar styles shift to create new meanings and associations in the mind of the audience. We cannot possibly hope to capture all uses of links, and alas, we are still constrained by the space and communicative affordances of the facsimile of the printed page.

Nevertheless, we hope that this guide serves as a useful starting point for updating our vocabulary around the scholarship of links and moves towards a poetics for their critical analysis and practical application.

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