Expressing the Narrator's Expectations

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Abstract

We augment the text generation pipeline of a story generation system to allow expressions of the narrator's expectations. The narrator can then remark in different ways on events that are labeled in the underlying representation as particularly surprising (or unsurprising). We develop a theory of how the narrator's surprise can be expressed, drawing on sociolinguistic research, narratology, and our examination of particular literary texts. We show how different narrator expectations can lead to interestingly different texts and how narrators can tell stories as if easily surprised or jaded. We describe our implementation and how inverting aspects of the system allows for ironic narration in which the narrator feigns surprise. Further work along these lines, and the development of a component to automatically model cultural and narrator expectations, could lead to improvements in narrating and to systematic disnarration – saying what has not happened.

Even Narrators Can Be Surprised

Leaving aside, for now, the important issue of how audiences and readers feel about a story, and the way that characters within a story are sometimes surprised by events, there are still many complex factors that determine to what extent different story actions are surprising or unsurprising to a particular *narrator*. This narrator may be a character, and thus diegetic, or not. Some of the expectations a narrator has relate to genre, some to cultural assumptions about what situations arise often or infrequently, some to the context of previous actions, and some to particular previous experiences of the narrator. A surgeon will not find cutting into a living human body to be a particularly surprising event, and would not narrate an incision as extraordinary. A person who has never been to a city, however, may find everyday activities there to be remarkable. A person residing in the present-day United States will not find it unusual to see a woman driving a car, while a person residing in Saudi Arabia would.

Significant work has been undertaken on generating narratives to provide surprise or suspense (Bae and Young 2008, 2009a and 2009b, Cheong and Young 2006). Our current project is not to create a plot or high-level narrative discourse. We are not seeking directly to cause or enhance the surprise of readers (or, for that matter, characters, unless they happen to be narrating). Initially, we consider the plot and the ordering of telling to be fixed. We consider how the narrator can indicate his or her level of surprise as these events are narrated, sometimes with explicit textual markers, during the final process, text generation. This is done with particular small-scale changes to the narrative discourse and generated text. At most, the narrator might omit an event that is seen as truly obvious and repeat the narration of one that is completely unexpected.

The work we detail in this paper was done to enhance Slant, a system for collaborative, creative story generation. Its components are each informed by and model humanistic theories. Each component has a distinct area of expertise (Montfort et al. 2013). These collaborators influence each other in a blackboard framework, augmenting a shared story representation. Currently, Mexica Libre develops plots (about the Mexicas, the pre-Columbian inhabitants of what is now called México City), Fig-S makes decisions about figuration by choosing poetic metaphors, and Verso decides on a genre and applies it to the narrative discourse. We intend to add a component to model narrator expectations, tentatively called Whoa.
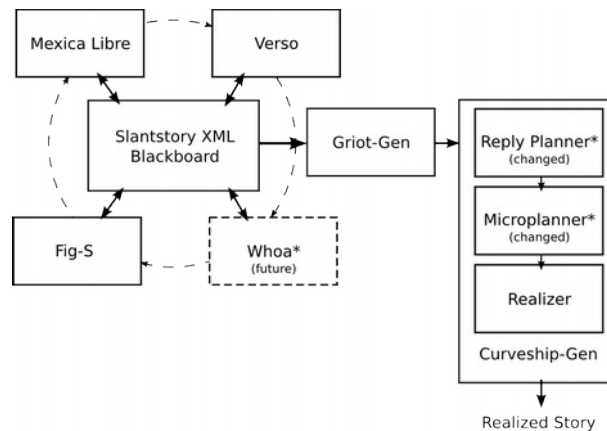
After the blackboard components have fully specified the story representation, a generation pipeline turns the representation into text: Griot-Gen determines which figurative expressions will be used, and Curveship (Montfort 2011) selects and arranges content, performs microplanning and finally does surface realization.

Modeling the expectations and social norms of characters is a major component of some contemporary interactive storytelling systems. Versu, a storytelling platform developed by Richard Evans and Emily Short, focuses on character interactions rather than movements of objects through the world (Evans and Short 2014). The system models norms of social propriety, allowing characters to react to the expected or unexpected actions of the player or other characters in more or less rude ways. Besides responding in varied, individual ways, the characters also display their social expectations by commenting to each other about how others are acting.

We intend to develop a compelling, general model of what actions are more or less expected in different contexts and to different sorts of narrators. This will eventually involve adding a new component, Whoa, to work with the others on the Slant blackboard. Whoa will indicate how surprising actions are and what actions are expected instead. These expectations will then be used to narrate in appropriate ways by the text generation pipeline.

For now, we have developed new text generation capabilities in Curveship that allow for different types of narration based on how surprising, or how expected, different actions are. In taking this step, we have simply annotated existing Slant story representations so that each action is indicated with a *surprising* value in [0,1], with 0 meaning the action is completely unsurprising and with .5 as a default value. We have done so based on our judgment, attempting to annotate stories so that moments of anagnorisis (e.g. when a character recognizes that someone is a murderer based on newly-observed physical characteristics) are highly surprising and other actions (such as a warrior defending himself when attacked) are not. We have also added to the spin one other high-level parameter, *flappability* (also in [0,1]), which measures how much surprise the narrator is inclined to express, with 1 being the most. These ad hoc annotations allow this first stage of investigation to proceed, so that we can determine whether interesting new narrative effects can be achieved.

A First Theory of Narrator Surprise

We found no well-developed narratological theory of how narrators can be surprised and how they can signal this surprise. So, we have developed a preliminary theory with reference to particular literary texts and sociolinguistic research. Initially, we document that narrator surprise is indeed expressed in diverse ways in literary texts.

Narrators sometimes remark directly on how something they describe or narrate seems surprising, sometimes simply by use of a word such as "amazing" or "incredible" and sometimes in a longer phrase or sentence. In chapter 21 of *Moby-Dick*, in describing a fanatical figure who is part of the crew of the Jeroboam, and who claims to be the archangel Gabriel, the narrator, Ishmael, states: "Such things may seem incredible; but, however wondrous, they are true" (Melville 2002). Narrators can also express that what they are telling is not incredible, but ordinary. In the first paragraph of that novel, Ishmael, describing how his grim attitude often leads him to join a ship's crew, states: "There is nothing surprising in this" (Melville 2002).

The narrator's surprise or lack thereof does not always correspond to whether the reader is surprised. One genre that makes this clear is magical realism, where a very strong convention holds that supernatural events are never remarked upon by the narrator as unusual or surprising (Faris 2005). When a supernatural event is narrated for the first time in a story or novel in this genre, it is certainly meant to be surprising to the reader, who must adjust his or her model of the fictional world. But the narrator's lack of surprise is important, showing that the event, extraordinary from our perspective, is not unusual in this fictional world.

A narrator can express shock at the current, ordinary state of affairs, which presumably are not surprising to others, as is seen in Ichiyō Higuchi's story "Child's Play":

> Customs here are indeed a little different. You won't find many women who tie their sashes neatly behind their waists. It's one thing to see a woman of a certain age who favors gaudy patterns, or a sash cut immoderately wide. It's quite another to see these barefaced girls of fifteen or sixteen, all decked out in flashy clothes and blowing on bladder cherries, which everybody knows are used as contraceptives. But that's what kind of neighborhood it is. (Higuchi 1981)

A narrator can also be understated, narrating a series of events in which one is particularly surprising, but only commenting on this by saying that the following event was ordinary. This is seen in a story told (in direct discourse) by the Hoy Hing Toy in Don DeLillo's novel *Ratner's Star*:

> "I was senior consultant in obstetrics and gynecology in an ultra-modern hospital affiliated with a world-renowned university. In the delivery room one day, demonstrating advanced procedures to a distinguished panel of observers, I delivered a baby, clamped and cut the umbilical cord, handed the baby to a nurse, waited for the placenta to emerge, scooped it up and ate it in five huge gulps, then examined the woman's uterus to make sure everything was out, a fairly routine procedure, this last part." (DeLillo 1976)

This short narrative brings up two interesting points. First, the narrator, who tells this aloud to another character, is a character in the main narrative level of the novel. The top-level narrator, however, is not, illustrating that even when the top-level narrator is not diegetic, diegetic narration can occur. Second, the effect of this narrative is amusing because the way it is narrated is odd. Toy is trying to explain an important incident in his life, but also to downplay his impropriety. This type of "mistaken surprise" is used in other ways, for instance, in irony.

From these few literary examples, it should be clear that the narrator's surprise and the way it is expressed can vary greatly, and that this surprise is a meaningful aspect of narrative – the narratives discussed would be significantly different if their narrators did not do anything to express how their expectations were being met or violated.

Explicit Mention of Expectation

In literary texts (e.g., in *Moby-Dick*), we noted that there are sometimes direct statements expressing the narrator's surprise. A narrator can also remark that something "obviously" happened or is otherwise unsurprising. Declaring something along the lines of "I am surprised!" is very explicit, and involves explicit mention of the narrator. Declaring "You won't believe it" similarly involves explicit mention of the *narratee*, the one to whom the story is told (Prince 1980). Surprise can also be indicated with words such as "surprisingly," which do refer to the narrator (the narrator must be the one who has this view of the events) but which are less direct in their reference.

Omit the Unsurprising, Repeat the Surprising

Deborah Tannen, writing from a sociolinguistic perspective, surveyed work in schemata, frames, and similar concepts of expectation. Although she does not mention explicit declarations of surprise, she found in a cross-linguistic study of oral retellings of a movie sixteen surface manifestations of the speaker's expectations (Tannen 1979). We identified five that were suitable for implementation in our limited, initial model: omission, repetition, false starts (in particular, ones that do not include semantic content), hedges (and qualifying words), and contrastive connectives.

Omission and repetition correspond to what are understood in narrative theory as changes in frequency. Genette's discussion of frequency covers the iterative "N to 1" case in which several events are aggregated in some way and narrated using a single expression as well as the repeating "1 to N" case in which a single event is narrated with multiple expressions (Genette 1980). Aggregating several events in a single representation is common, while expressing one event several times (in novels) is not. After a long catalog of avant-garde writing activities, one of the

narrators of Roberto Bolaño's *The Savage Detectives* states: "We kept moving... We kept moving..." (Bolaño 2007, p. 221-222). Here the repetition works to expresses exhaustion, that there is no more to say and that there was no more to do.

In the extremely surprising turn of events at the core of Don DeLillo's *Underworld*, the main character, Nick Shay, is revealed near the end of the book to have fired a shotgun, having been told that it was not loaded, and to have killed a man. For the length of a page, (DeLillo 1997, p. 780-781) the events of Nick's looking at the man, pulling the trigger, and discharging the gun are narrated in short sentences over and over, out of chronological order, helping to express the extraordinary nature of these events at the level of narrative discourse.

There are examples of extraordinary events being narrated with iterative frequency, aggregated into a single sentence. The quotation from *Ratner's Star* provides one example. The effect there and in other cases is one of intentional understatement, however. We believe the more usual situation in which several events are aggregated into one expression is when these events are ordinary ones. In the extreme case, the "N to 1" frequency can become "N to 0" and events can be omitted entirely, particularly appropriate for when one's cultural or personal expectations suggest there is no need to mention them.

False Starts, Hedges, and Contrastive Connectives

False starts (such as when a speaker begins with the coordinating conjunction "and" and then switches to say the contrastive "but") are straightforward to add, at least in their simpler manifestations. Similarly, qualifying phrases that distance the speaker from what is being told (e.g., "He just kind of...") can be easily used. Finally, a contrastive connective such as "however" can be used to signal the representation of a surprising event. The only qualification is that these markers, derived from spoken discourse, work best in less deliberate texts that imitate speech.

Other Reported Expressions of Surprise

Tannen's other surface manifestations of surprise fell into two categories. The first of these includes expressions we hope to generate at some point, but which involve further development of underlying expectation machinery. It is necessary to know what exactly is expected (not just how surprising an event is) to implement backtracking or negative statements, called *disnarration* in narratology (Prince 1988), for instance. Producing inexact statements and generalization may be worthwhile, but would involve much more elaborate text generation development. Other types of expression (modals, inference, evaluative language, interpretation, moral judgment, incorrect statements, and addition) may not be useful at any point.

For instance, generating a story and then having a narrator be mistaken about it (in a way that is invisible to the reader) is an elaborate process. Why not just generate the different story to begin with? Because of these complexities, we implemented only five manifestations that were noted by Tannen (three of the ones discussed in her work exclusively, plus omission and repetition) as well as some that are seen in literary texts (explicit surprise, surprise with the narrator mentioned, surprise with the narratee mentioned, and explicit lack of surprise).

Generating Expressions of Surprise

Large-Scale Changes: Omission and Repetition

In the reply planner, which carries out content selection and determines whether or not sentences will be included, we have added a capability for omission of very unsurprising actions and repetition of highly surprising ones. While the repeated frequency can be used for several purposes, we are interested in showing surprise with the "1 to N" frequency. In the current version of Curveship, those events that are most surprising, in accord with Tannen's observation of repetition, are realized twice, in two sentences. The first of these includes any figuration (currently, figurative adjectives) provided by Fig-S and Griot-Gen, while the second sentence omits these figurative expressions and ends in an exclamation point. The current system omits completely unsurprising events and narrates those that are very surprising twice. If the narrator is expecting the eagle knight's death and finds it unsurprising, an explicit marker may be added:

> The eagle knight suffered. **Expectedly,** he, frozen, died.

(Throughout the paper, aspects of the text that were changed by the development of this narrator expectation project are indicated in bold.) If, however, the death is very surprising to the narrator, the same underlying story will be narrated in this way:

> The eagle knight suffered. He, frozen, died. **He died!**

In the following extract from a Slant story, two surprising things are narrated. The narrator initially loves the other character, the slave, which is surprising in the telling of it. Immediately afterwards, the narrator does not love the slave, which is also surprising:

> An enflamed slave loved me, flame-sparking me. I, burning, loved him, incendiary him. **I loved him!** I, enflamed, did not love him, flame-sparking him. **I did not love him!**

Sentence-Level Changes: Explicit Statements

Changes within the sentence are decided upon in the reply planner (so that they can be coordinated with omission and repetition) and lexicalized in the microplanner. The microplanner chooses which subset of markers to represent and how, specifically, they will be represented.

In the following Slant-generated story, the explicit expressions of surprise do not refer to either the narrator or narratee directly, although the story, which is in the "prophecy" genre, begins with an explicit reference to the narrator:

> I have foreseen what is to pass! A prince will envy a trader. The trader**, astonishingly,** will notice a tattoo. The trader will recognize the prince. The trader will remember a murder. **The trader will remember the murder!** The gazer trader will observe him, illuminated him. The trader will draw a weapon. The vanquisher trader will attack him, adversary him. **Unremarkably,** the consumed prince will panic. The prince will depart the jail. The prince will enter Popocatepetl volcano. The prince**, unsurprisingly,** will hide from the trader. And so it will be.

Several indicators of surprise are present, including inserted explicit mentions and the repetition of a sentence. There is also an indication that two events, the prince panicking and the prince's hiding from the trader, are not surprising. The next Slant-generated story shows how explicit reference to the narrator and narratee can also be incorporated in expressions of expectation:

> Dear diary, today was certainly eventful. An eagle knight flirted with a hunter. The hunter**, unsurprisingly,** flirted with the eagle knight. The eagle knight noticed a tattoo. **You won't believe it,** but the eagle knight recognized the hunter. The eagle knight remembered a murder. **Expectedly,** he, cold-wind, hated the chilling hunter. The eagle knight bound the hunter. The eagle knight took a sacred dagger. The hunter feinted at the eagle knight. The hunter stumbled. The vanquisher hunter**, I can't believe it,** injured his adversary self. The hunter suffered. The frozen hunter died. I wept. I wonder what tomorrow will hold?

In this excerpt, both types of directed explicit reference are present: "You won't believe it" indicates the narratee, while "I can't believe it" indicates the narrator.

Some genres in Slant involve explicit mention of the narrator whether or not there is any surprise, simply because of how they are framed ("prophecy" is one, but so is the sports-commentary genre "play-by-play"). Some of them provide an explicit narratee, as in the genres "diary" (in which the diary is being treated as the one to whom the story is being told) and "confession" (in which it is supposed that the story is being told to a priest, who is explicitly addressed). In developing this project, we encoded whether the narrator and narratee

are to be explicitly mentioned in the underlying Slantstory XML representation, so that the system only generates surprise markers with "I" or "you" in them if an "I" or "you" will be otherwise mentioned.

This behavior is not the only kind possible. A text that includes "you won't believe it" as its only reference to a "you" may still be clear, effective, and stylistically sound. However, we have chosen to amplify existing references to narrator and narratee instead of adding them for the first time when expressing surprise.

To thoroughly model surprise as expressed in a narrative, the narrator's expectation and what the narrator considers to be the narratee's expectation will probably both need to be modeled, since "You won't believe it, but ..." may be appropriately generated at times when "I can't believe it, but ..." is not appropriate.

Sentence-Level Changes: Discourse Markers

The reply planner also now indicates which discourse markers are to be used to indicate surprise, or lack of surprise, in each sentence. The microplanner determines how each expression will be lexicalized. To see how these can enhance the expression of surprise, consider this story without additional indications of surprise that is told in the "play-by-play" genre, a genre which already is meant to convey excitement at the unexpected:

> This is Ehecatl, live from the scene. An artist is becoming jealous of a warrior! And, yes, he, gazer, is observing the illuminated warrior! The artist is drawing a weapon! He, vanquisher, is attacking the adversary warrior! And, yes, the consumed warrior is panicking! And, the warrior is departing Tenochtitlan city! Look at this, the warrior is entering Popocatepetl volcano! Yes, the warrior is hiding from the artist! Back to you!

Here is the same story with added surface expressions of surprise; the ones that are false starts, hedges, and contrastive connectives are indicated with italics and bold, while other markers of surprise just are in bold:

> This is Ehecatl, live from the scene. *And ... but* an artist is becoming jealous of a warrior! And, yes, he, gazer, is observing the illuminated warrior! *Yes, and, no,* the artist is drawing a weapon! **And now, the artist is drawing the weapon!** Amazing -- *but, all I know is,* the vanquisher artist is attacking the adversary warrior! **The artist is attacking the warrior!** *And ... but* the consumed warrior is panicking! Amazing -- the warrior is panicking!! Yes, *but,* **astonishingly,** the warrior is departing Tenochtitlan city! Look at this, the warrior is entering Popocatepetl volcano! The warrior**, unexpectedly,** is hiding from the artist! Back to you!

Flappability: More or Less Surprise Overall

The current expectation mechanism provides two primary ways to change the narrator's expectations and affect the resulting text. First, different expectation values can be placed on the actions in the story. These may represent the effects of cultural expectations, the narrator's prior knowledge, and other aspects of the narrator's personality. To the reader, the following excerpt from an example of the "diary" genre may seem like a largely uninteresting example of anagnorisis.

> **Unexpectedly,** the farmer noticed a tattoo. The farmer recognized the slave. The farmer remembered a murder. **Unsurprisingly,** the enflamed farmer hated the incendiary slave. I wonder what tomorrow will hold?

This story becomes striking when told by a narrator with different cultural expectations:

> The farmer noticed a tattoo. **Surprisingly,** the farmer recognized the slave. The farmer remembered a murder. He, enflamed, hated the incendiary slave. **He, farmer, killed the crop slave with a scythe weapon. The farmer killed him with the weapon!** I wonder what tomorrow will hold?

It is so obvious to the first narrator that the farmer kills the slave, exacting vengeance for the remembered murder, that the killing is not even mentioned in the narrator's account. The narrator of the second passage, in contrast, is shocked at the outright killing. That event is therefore narrated twice, as befits such a surprising event.

As mentioned, each narrator has been given a flappability value in [0,1]. A value of 0 represents a narrator who is extremely jaded – not surprised by anything, or at least never expressing surprise. Changes in the narrator's personality encoded in this manner can also produce interesting and pleasing changes in output without any changes to the underlying actions. A jaded narrator produced the following confession:

> Forgive me, Father, for I have sinned. It has been a month since my last confession. I slid. I, autumn-leaf, fell. **I**, er, **can't believe it,** I, destroyer, injured my foe self. A princess, um, located a curative plant. The princess, uh, cured me, er, with the curative plant. The bandit tlatoani kidnapped the good princess. Unsurprisingly, the princess departed the forest.

Here, only one event is noted as surprising: the narrator's self-injury. However, an easily surprised narrator narrates the same events, with the same expectation weights, very differently:

> Forgive me, Father, for I have sinned. It has been a month since my last confession. I, astonishingly, uh,

slid. **You won't believe it, but** I, autumn-leaf, fell. I, destroyer, injured my foe self. **I injured myself!** A princess located a curative plant. The princess, **you won't**, uh, **believe this,** cured me the with curative plant. The bandit tlatoani kidnapped her, good her. **The tlatoani kidnapped**, uh, **her!** The tlatoani departed the forest.

In this version, a number of additional events are surprising (the narrator sliding, the narrator falling, the princess curing the narrator, and the kidnapping). Additionally, the sole surprising event from the first version, the narrator's injury, is now so surprising to the narrator that it is expressed twice. These are changes of degree, different from the previous pair of examples, which showed the effects of opposing cultural expectations. But both methods to vary expectations, through underlying action weights and the jadedness of the narrator, expose different perspectives on the same set of plot events.

Producing Irony with "Surprise"

With a mechanism in place to express surprise at certain events, to narrate others normally, and to express that other events are unsurprising, a new possibility arose. Some ironic narration is marked by the narrator pretending to be surprised by ordinary events. We considered whether it would be possible to flip the way expressions of surprise are generated and easily produce an ironic narration.

To attempt this, we let very ordinary events be narrated as surprising, but we did not reverse everything. Events that are highly surprising are narrated typically instead of being specially marked as unsurprising. The idea is that the jaded narrator we have in mind would ironically feign surprise but not pretend to savvy about anything. Here is one entire, very short story generated with irony:

> I have foreseen what is to pass! An artist will depart the temple. The artist will enter Tenochtitlan city. The artist, **I can't believe it,** will go home. And so it will be.

The "prophecy" genre, and simple and rather pointless plot, make this even more amusing. The opening statement makes this unsurprising narrative seem momentous. To provide another example, consider the following Slant story that is narrated based on expectations, without irony:

> It is still so vivid after all these years. An artist departed Texcoco lake. Ah, let's remember ... The artist was in Texcoco lake. The artist departed Texcoco lake. Yes, that was a fine recollection. I departed Texcoco lake. The artist entered Popocatepetl volcano. I entered Popocatepetl volcano. The artist went hunting with me. The artist slid. He, autumn-leaf**, remarkably,** fell. The destroyer artist injured his foe self. **The artist injured himself!** An enemy encountered the artist. A virgin encountered the artist. A priest encountered the artist. I, cold-wind, detested him, chilling him. I**, obviously,** did not cure the artist.

Since the narrator (as this narrator has mentioned) detests this hunting partner, it isn't a surprise that the narrator didn't render aid after the artist fell. Here is just the ending of the ironic version of the story, which is otherwise similar:

> … The artist slid. The autumn-leaf artist fell. An enemy encountered the artist. A virgin encountered the artist. A priest encountered the artist. I, cold-wind, detested the chilling artist. **Unbelievably,** I did not cure the artist.

While the effect of irony is not always humorous, it often is. Improved ironic narration could offer a new type of computationally-generated humor that would augment humor based on other aspects of langauge, such as lexical and semantic incongruity.

Future Work: Disnarration and Beyond

Notably, this previous story ends, not with an event, but with the statement that no event happened: "I did not cure the artist." It is reminiscent of the narrator of an earlier story stating "I did not love him." To state that an action did not take place is different than narrating an action ("narration"), and it is different than omitting mention of an action that did take place ("non-narration"). This, a different activity, is mentioned earlier: *disnarration* (Prince 1988). It corresponds to the sociolingustic "negative statement" (Tannen 1979), specifically in the case where a negative statement is made about an event.

Many of the same questions about disnarration ("this event did not occur") can be raised about negative statements more generally ("this was not the case" or "I did not love him"). At any moment, with reference to any character, there are an infinity of events that do not occur; why mention one? The answer, of course, is that by saying "he did not cure me" or "she did not attack her" or "he did not flee," the narration suggests (in a nuanced way) that he was expected to cure, she to attack, and he to flee.

Slant currently has a "do not cure" action; The disnarration of curing is treated as if it were narration. This is not ideal, since it places an (pseudo-)event in the plot rather than leaving the narrator to decide what and how to say about the inaction in question. Another phase of work will involve creating an expectation component that, rather than just assigning a value in [0,1] for each action in the plot, determines actions to model what is expected. The events of the plot can match this expectation or not. Beyond generating changes in frequency and explicit markers of surprise or expectation that refer to narrator and narratee, we intend to produce new types of narration along with appropriate disnarration.

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