Narrative Causal Impetus:
Governance through Situational Shift in *Game of Thrones*

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Abstract
As a story unfolds, it constructs a depiction of events, and at the same time, it also builds conceptual structure at a higher, interpretive level. This higher-level structure provides the terms for understanding the unfolding story, indicating what kinds of features and consequences characterize it – a story ontology. The process by which a tale constructs a story ontology is not straightforward, and in many ways is just as complex as the action at the event level. It involves an interaction between inferred situations and contexts, each with their own networks of terms and structures, which jostle for dominance. I refer to this interaction as governance. In this work, I demonstrate an example of governance at both levels, using a scene from the series *Game of Thrones*. When the interpretive terms of a story emerge, an understanding of what kinds of events might come next – the possible causal implications – are also conveyed, even if they are unexpected.

Introduction
Any event can follow any other, in a fictional story. But only some consequences seem to be a development of the tale, rather than simply another item in a ‘list’ of situations. As a writer, it is harder still to construct a sequence of events that can make a reader hunger to know how they resolve. This paper frames that sense of inevitability-yet-unpredictability in terms of causal impetus. I define causal impetus as the conceptual structures in a story that provoke a reader or viewer to anticipate outcomes, even if they are unable to predict them. What narrative attributes can facilitate a sense that scenes are developing in a causal manner? How is it possible to anticipate future outcomes that are unknown?

This paper focuses on one aspect of this phenomenon: the causal transition between situations. These transitions are facilitated by agents, at numerous levels in a story. I distinguish between two levels here: those in the events of the storyworld (the usual kind of agent considered in narrative analysis) and the conceptual agents, which manage the interpretive structure of the tale itself. Using an example from the popular television series *Game of Thrones*, I will show how the shifting governance of conceptual agents establishes the terms by which a story unfolds. These terms indicate what sort of entities and event sequences are possible in a particular fictional universe, enabling inferences about what might come next in the tale, even if it is not easily predictable.

This work is an initial step towards the goal of enabling intelligent systems to arrange information using narrative mechanisms (Goranson and Cardier, 2013). In this paper, I focus on a particular aspect of inference in stories, touch on the narrative features involved, outline the theoretical grounding, and indicate the nature of the animated method used to demonstrate it. It is almost impossible to show something meaningful about an animated method (in which the transitions are key) in still images, so I only indicate the basics here. In the presentation, an example of these animations will be demonstrated, and presented within a novel user interface, which is being developed to allow annotation in conjunction with streaming footage.

Higher-Level Interpretive Structure
It is common to analyze a story in terms of character, events or plot (Prince, 1982, p. 4), (Genette, 1982, p. 127), (Ryan, 1991, p. 253), but less common to consider a tale in terms of its evolving interpretive conceptual structure. The notion that a story constructs an on-the-fly ontology, for the purposes of its own interpretation, is novel to narratology (existing narratological uses of ontology can be found in (Leitch, 1986, p. 4), (Pavel, 1981, p. 155) and (Ryan, 2001, accessed online)). I became aware of this higher level of structure during problems I experienced...
writing a fictional novel. At first, I attempted to inject a forward-moving drive into the story by inserting dramatic events that took many pages to unfold. I created ‘mysteries’ to be solved, as in the case of a detective thriller. After doing this, however, the story remained stagnant. The events unfolded like a list. This could be an indicator of my poor ability to create plot-related suspense, but there was an additional element. I sensed there was a higher aspect of drive – of possible formation – that was lacking in this writing, but could not identify what it was.

With further investigation, I realised that many novels are compelling regardless of whether they contain unsolved mysteries. For example, Arundati Roy’s opening to The God of Small Things, which won the Man Booker Prize in 1997, seduces the reader using vivid associations (Brockington, 1998, accessed online October 2012):

May in Ayemenem is a hot, brooding month. The days are long and humid. The river shrinks and black crows gorge on bright mangoes in still, dustgreen trees.... (Roy, 1998, p. 3).

In Roy’s novel, I sensed the presence of a higher-level of story formation that was lacking in my own writing. The associations of the images were unexpected. Their relationships seemed to create a specific perspective on a fictional world, one that I continued to read because I was curious to understand how it fit together. In the research that followed, I came to understand this structure as a kind of ontology, which I refer to as a story ontology.

I define a story ontology as a conceptual reference framework – a network of concepts and relations – that the reader builds using cues in a story, in order to interpret that tale. This network is constructed using elements borrowed from commonly known conceptual frameworks. Such references can include generalized everyday situations (car chase, romantic encounter, restaurant meal), stereotypes and archetypes (gentle mother, brutish warrior) or mythologies (biblical, historical, scientific). As the tale unfolds, it arranges these general elements into a new structure, by depicting unusual connections or specific presentations for them. The notion of a story ontology thus takes a step beyond Schanks’ scripts, which only donate general, stylized inferred structure to a story without reconfiguring it to suit the tale’s specific situations (Schank and Abelson, 1977, p. 41). As a reference structure, a story ontology includes a system of causal connections, which indicate what sorts of events can have causal implications in that fictional universe, and on what terms they unfold.

This new network of concepts is framed as a kind of ontology, rather than simply being a network of concepts, such as a schema. Ontology includes the idea that the reference framework is a particular and limited way of naming the world. In computer systems, the presence of different ontologies creates interpretive confusion within and between systems (Sowa, 2000, pp. 408-412), (Li and Yang, 2008, p. 198). These same features are important to causal impetus in a story. Narrative unfolds in incremental steps that demonstrate how different reference structures can be related in a particular instance, even though they might not usually be compatible. This unfolding quality can be exploited to make a story compelling.

Given that an ontological perspective is limited, there is room for unexpected developments to arise from outside it, and for that perspective to change as more narrative information is revealed. This marks another difference between a story ontology and the ontologies of computer science, which function as a reference because their terms do not change. These computerized ontologies can be defined as a “systematic account of reality” (Gruber, 1993) which are expressed as a static corpus of general reference terms, using formal expression (Hendler, 2001, p. 30), (Smith et al., 2006, p. 61), (Smith and Welty, 2001, p. vi). The terms that populate these systems are general, to enable reuse (Smith and Welty, 2001, p. v), so I refer to them as general ontologies. A story ontology must change in order to the capture specificity of a particular set of circumstances, or it does not serve the needed function.

Uses for a Model of Higher Conceptual Structure

Targeting this aspect of story assembly is potentially useful for the formal modeling of information in the design of intelligent systems, particularly those that need to integrate multiple contexts, such as knowledge bases (Li and Yang, 2008, p. 198), or those that would benefit from an ability to causally assemble situations, such as interactive games (Mateas, 2001, p. 141). Models of ontology for computer systems cannot easily be reconfigured to account for multiple specific contexts or unexpected information; at the same time, current formal models of causality in stories do not yet easily account for the sense that one scene is developing out of the next (for the extraction of causal consequences in intelligent systems (DARPA, 2012, accessed online October 2012), for causal dependence in narrative (Trabasso and Sperry, 1985, p. 597), (for unexpected information in context (Devlin, 2009, p. 235)).

The primary rule for textual interpretation in mainstream natural language recognition techniques is the point-by-point linguistic structure of statements, with subjects and verbs extracted to discover what entities are present, and what are they said to be doing (Sowa, 2000, pp. 181-184). In narrative psychology, Tom Trabasso tracks the relationship between counterfactual plot points, but ignores the relationship between causally related situations, omitting such circumstantial details as “dead end” (Trabasso and Sperry, 1985, p. 607). Both approaches omit higher-level aspects of a story that cognitive theorist Mark Turner deems critical to narrative cognition, such as “agency, motive, intentionality” (Turner, 1996, p. 14).
Although the current state of the art in reasoning systems does employ higher-level structures (Aucher et al., 2009, p. 15), (Calcagno et al., 2010, p. 474), in terms of stories, the critical aspect is that these systems are geared towards interpretation using only a single referential situation — a single ontology. They do not manage interpretations that involve different versions of the same term, or produce structures that are not anticipated by their reference frameworks. These systems thus cannot construct an interpretation (or a narrative sequence) by integrating situations grounded in diverse conceptual structures. They also cannot generate or identify causal agents that are unexpected, in the sense that their activities are not already anticipated by the structures within the system.

My use of the term unexpected therefore refers to concepts that are not accounted for by their commonly known frames of reference. I do not refer to information that might be assumed to be related but simply not included in a reference framework, such as ‘Shakespeare wrote Hamlet’ rather than ‘Shakespeare is the author of Hamlet’ (Schank, 1975, p. 11). Instead I refer to conceptual associations that could not be assumed from the given details. If there is no familiar precedent regarding how a conceptual entity might relate to the story so far, a reader must consume more text to understand how it is connected, and what sort of consequences it supports.

In this research, I explore how the causal impetus of a story can emerge from the way it constructs and modifies its story ontology. Following is a brief example to clarify what I mean by a story ontology.

Example: Dragons are mystical but not religious

Here is a brief example, from Game of Thrones. In the episode And Now His Watch Is Ended (Season 3) heir-to-the-throne Daenerys Targaryen (Daenerys) presents a dragon that she intends to trade for an army. As the chained dragon rises into the air, the image is accompanied by religious-sounding middle-eastern music.

Several conceptual reference frameworks converge to produce the meaning of this image. One is the general notion of ‘dragon,’ which is a flying, fire-breathing serpentine creature. Another reference concerns the backstory of the event – the audience knows that Princess Daenerys (Daenerys) intends to trade this dragon for an army. A third reference comes from the music: the religious-sounding middle-eastern refrain, which carries suggestions of Judeo-Christian-Muslim spirituality. When these different situations overlap, select elements from each combine to form a new conceptual network, the gist of which is: trading away this dragon might be a bad deal.

Inferences from the reference structure middle-eastern spirituality that would be out-of-place in this interpretation, such as the tenets of Judeo-Christian-Islamic religions, do not appear in this new interpretive situation, yet they still lend meaning to it, because they endow the creature with mystical power. By the end of the scene, the question of a dragon’s trade value becomes mute, however, as it is revealed that the scene is not about trade after all, but conquest. At a higher level, one interpretive framework is exchanged for another, and some basic terms in the story ontology are redefined.

My animated annotation method was designed to track how this structural evolution occurs, using techniques from Knowledge Representation (Cardier, 2012). Each inferred situation donates select concepts to the story ontology, where their structure is rearranged to fit the circumstances of the tale. When more information is revealed, those structures change again. Which inferred elements are transferred? Of these, which become so important they inform that viewer’s sense of what will happen next? This annotation method was designed to make such a process of selection, carry-over and transformation explicit. Using diagrams, I was able to see that narrative has a special feature that facilitates the integration and evolution of diverse situations: governance.

Governance: domination and rule

A story can call upon numerous different conceptual structures as a reference for a chunk of story. These can have conflicting elements and associative priorities. In order to make sense of, simultaneous inferences, a means of determining which structures take priority is needed. Governance fulfills this role.

Governance is a form of structural imposition. It is a relation of influence, where one conceptual structure dominates others, modifying their associative priorities towards its own. I thus define governance as the influence that one conceptual structure imposes on another in order to modify its associations and terms. It is the means by which diverse situations can act together to interpret a chunk of story.

Such a notion bears similarity to three existing theories, but none consider it as a mechanism of the way a story unfolds, as I do. The first is Roman Jakobson’s dominant in literature (Hale, 2006, p. 6), which describes the way a literary structure focuses and transforms story components. However, Jakobson uses the term dominant to refer to elements of literary style and the way they are used or changed by individual artists (McHale, 1993, pp. 6-7). My notion of governance applies specifically to conceptual structure that is organized into a situation, so it can collectively impose its influence on other situations.

Governance is also similar to a principle of borrowed compression outlined by Turner and Fauconnier, as part of their theory of conceptual blending (Fauconnier and Turner, 2002, p. 320). In this feature, one analogical space
supplies most of the conceptual structure, and the other is projected into it, making its structures interpretively dominant (Fauconnier and Turner, 2002, p. 321). However, the Turner-Fauconnier approach is concerned with switching complementary nodes on and off across analogical situations, rather than bending numerous structures towards each other. In my approach, the influence of one structure over another enables new information to be created, either through bridging abstractions, or the distortions of imposition.

A third similarity can be found in D. Fox Harrell’s notion of a phantasm (Harrell, 2013). Some elements of a phantasm are similar to those of a story ontology: a phantasm is made when a worldview (which roughly correlates to a general ontology) combines with an experienced image or artifact (similar to a situation) to produce a blend of the two (similar to an interpretive situation). However, Harrell focuses on the production of single images, whereas I explore how these compounds feed a new interpretive frame of reference, which is repeatedly reconstructed in response to an unfolding tale.

I now analyze the developments of the same scene from Game of Thrones, to demonstrate how these higher-level structures are modified. Following this example, I will zoom in on the drivers of causal impetus in this scene.

Example: Princess takes power

This example focuses on a scene from the episode And Now His Watch Is Ended (Graves, 2013, 46:36 minutes). In this scene, Daenerys Targaryen rises to power over a city of slave traders (represented by the leader Kraznys mo Nakloz). This scene establishes Daenerys’ skill of surprise ambush, where she supplants the interactions of a trade negotiation for those of conquest. By the end, she has proven that she might have the skills to reclaim the throne.

The example shows the rise of one group over another in the storyworld, and at the same time, the rise of one interpretive conceptual structure over another. At both levels, the shift is unexpected, yet allowable by the conventions established by the story. Following is an outline of the graphical annotation.

Key Features of the Animated Model

The layout is organized to accommodate the numerous situations that contribute to a story ontology. These situations are shown as separate horizontal bands (see fig. 1). This format allows situations to be layered, so their interaction can be easily tracked. Most significant is the way a viewer can progressively follow how these layered situations donate concepts to the new emerging frame of reference, which can be found in the interpretation band.

Such concepts can be general, such as those found in general ontologies (general knowledge) or be specific to the story (image, sound). The story ontology consists of the entire structure: the sum of all contributions from the source situations, as well as the new interpretative framework. The distilled meaning of the story ontology can be found in the interpretation band, which presents the dominant presumptions until that point. This acts as a frame of reference for story elements as they continue to stream in, and also changes in response to them.

The situations that contribute to the interpretation band are positioned on either side of it. Starting from the top and bottom edges (the most general references at the top, and the footage itself at the bottom), each layer builds increasing structure towards the middle, where higher interpretation is recorded. For example, I found that film annotation was easier when I added an additional stage between descriptions of pure images and the higher level of the interpretation band (represented by the inference from action). Any situation can be used that will serve the analysis, but the more incremental the stages towards higher-level interpretive structure, the easier a story’s development will be to follow.

Concepts or events that characterize a situation are represented as conceptual structures within the bands. I depict all story information as conceptual nodes, whether it is an event in the storyworld or a non-explicit idea.

Figure 1 – Each reference situation is represented as a layer, so action in the footage can be marked, and then its meaning mapped through multiple situations, until a combined interpretation is reached.
Nodes can depict any narrative entity because in a tale, all elements are rendered conceptually in the mind of the viewer. This format allows me to show how concepts (or events represented by concepts) can change, or provoke the development of new conceptual structure.

Following are the key features of this technique.

**Situation Bands** represent the different forms of information, context, group or conceptual structure used by the story.

**Conceptual Nodes** appear or are deposited in the above situation bands, according to the inferences and associations prompted by the unfolding scene.

**Color Blue:** governing structures (situations, boxes, funnels and nodes) are colored blue, to show they are imposing their structures on other elements.

**Boxes** group emerging conceptual structures as situations, so they can collectively act on other structures.

**Funnel-shaped connectors** indicate how concepts are altered and transferred between the above structures.

**Dynamism:** All the above elements can be changed dynamically, as the scene unfolds.

### Key Stages of the Example

These elements occur in the layout shown in figure 1:

1. **Situation bands** are established. In the example, these are: *image/event, sound, inference from action, anticipated outcomes, interpretation, back story, reference situations and general knowledge.*

2. **Nodes** are deposited in these bands, according to the defining aspects of the unfolding scene. At the beginning of this example scene, Daenerys prepares to trade a dragon for a slave army (see figure 1). Information from previous scenes provides the reasons for this trade, and appears in the situation back story.

3. **The general knowledge situation** provides some commonly-known associations from the relevant reference situations (deposed royalty, dragon mythology, similar CGI creatures). As these references impose their structures on each other, they produce more nodes, which interpret the images of Daenerys opening the dragon’s cage.

4. **All other reference situations** are nested within the terms of 'trade.' Each is successively governed by others, until all conform to this trade situation (see blue nesting boxes in fig. 1). The general information band records common assumptions regarding trade. These terms will govern subsequent events.

5. **Details** are supplied regarding the nature of this particular trade. As information from back story mingles with images from the scene, it is inferred that Daenerys’ success or failure as a ruler might depend on her ability to succeed in this situation. Unfortunately, the next few images suggest this is a bad deal: her advisor appears worried, and the slave-traders peer at the dragon in awe.

6. **When the dragon rises into the air, mystical music accompanies it, provoking inferences in general knowledge about powerful and mystical entities. These qualities become associated with this dragon. When those inferences are combined with the back story details about this trade deal, there is an implication that the dragon is too precious to be traded away. In the anticipated outcomes band, it is posited that she might die, as this is a TV show where central characters are often killed.**

So far, the interpretation band has collected details regarding the significance of the trade underway. During the following action, the terms of the scene itself will be changed, from a situation in which Daenerys might fail in her quest for the throne because she has struck a bad deal, to one in which she might succeed because she never intended to go through with this trade.

7. **Daenerys asks the slave-trader, Kraznys, whether the trade exchange has taken place. He confirms that it has.**

8. **Daenerys addresses her new army in their native language, Valyrian, and they answer with a clang of shields (recorded in sound). Back story notes that until now, Daenerys has used an interpreter to communicate with natives of this city. This has allowed Kraznys to call her disrespectful names such as ‘slut’ and ‘bitch’ in her presence. It now becomes clear that she understood these slurs. This revelation is recorded in the interpretation band.**

9. **Daenerys gives a series of simple commands to the army in their native language and they obey. Daenerys’ control over them is recorded in the interpretation band.**

10. **Kraznys complains to Daenerys that the traded dragon will not obey him. Interpretation records that he does not have control of the object of his exchange.**

11. **Daenerys answers, “A dragon is not a slave”. She says it in Valyrian, revealing her understanding of this language to him. Kraznys realizes this situation is not as he thought. The interpretation band records that even though Daenerys has entered into the situation under the guise of trade, she is operating under different terms. Anticipated outcomes posits that she might not intend to give up her dragon. This conflicts with the terms of trade, which currently govern this scene.**

12. **The interpretation band records that the terms of the trade situation are changing. Yet in the interpretation band, the interpretative terms are also changing. The reference situations change their nesting arrangement, so that terms of trade loses its governing status.**

13. **The anticipated outcomes band records speculations about what sort of scene this will become, now that it is not governed by trade. Previous inferences regarding Daenerys’ situation as a deposed royal are reasserted, to contribute the possibility that this situation might be one of conquest. The deposed royalty and Targaryen birthright reference situations regain governing status.**
The dynamics of governance in the action have thus filtered into the contestation of governance between interpretive structures. The resulting speculations in the possible outcomes band feed two different interpretive networks for the scene: one in which Daenerys is not a good leader because she has agreed to a bad trade deal, and another in which she is a great leader because this deal is part of a larger strategy.

Daenerys commands her new army to kill all the slave-traders and free the slaves. Kraznys orders the same army to kill Daenerys. Final governance at the action level will be determined by who the army obey.

Daenerys gives the dragon the command, “dracarys.” Back story notes two previous scenes in which this command appeared: the one in which Daenerys taught her baby dragons to breathe fire, and another in which she escaped capture by issuing the command, so her dragons set her captor on fire. The same outcome for Kraznys is anticipated and placed in the anticipated outcomes band.

Daenerys commands her new army to kill all the slave-traders and free the slaves. Kraznys orders the same army to kill Daenerys. Final governance at the action level will be determined by who the army obey.

The army slay the slave traders. Daenerys and her terms of conquest prevail. This establishes that she is a good leader, one that might attain her ultimate goal: reclaiming the throne of the land. The possibility of this outcome is placed in the possible outcomes band.

With this outcome, the higher-level interpretive structure changes. Early in the scene, it was: Success or failure as a ruler could be determined by these terms of trade. It finished as: Ruling power has been determined by undermining the terms of trade.

My method tracks how the action of the story prompts the structuring and re-structuring of a story ontology, and with it, the terms by which the action is understood. With this in mind, I now discuss how these narrative features can reveal the causal development of this scene.

Causal Transitions: Partial Carry-Over

I focus on a particular aspect of causal unfolding: the transition from one state to another. Causal philosopher John Mackie refers to causal succession as one of asymmetry, where “...something carries over from cause to effect, causal relations are forms of partial persistence as well as change” (Mackie, 1980, p. ix-x). Cognitive narratologist David Herman has observed that stories seem depend on a similar characteristic of asymmetry, where readers are “inclined to view as stories precisely those sequences in which the outcome is not strictly determined by the initial conditions” (Herman, 2002, p. 94). One way in which stories imitate causal succession is the manner in which some elements carry-over between states, while others disappear. At the same time, unexpected elements emerge, in a manner that seems like a natural development.

I will now zoom into the feature of “partial carry-over” in narrative, by turning to the nodes in the interpretation band, in my example. These nodes are a distillation of the entire story ontology, providing snapshots of its progressive structure.

Many of the same elements reoccur in successive nodes, but in slightly different ways. Sometimes this seems to be only an alternative phrasing, or the addition of a new entity. The differences matter, however, because each step adds enough new conceptual structure to provoke additional inferences. These additional inferences can generate enough unique structure to eventually allow contradictory ideas to be connected.

Below is a compressed version of the interpretation band, for the first half of the example scene. Its most frequent carry-over concepts are highlighted in green – they concern ‘ruling power’ and ‘terms of trade’:

In the second half of the scene, the information connected to these carry-over concepts diverges more radically:

During the course of the scene, the role of the trade agreement in Daenerys’ future as a ruler has been inverted. At the beginning, she was subject to its terms; by the end, she has used it for her own ends. This shift alters the causal affordances of the story, with the concluding version of the story ontology stating that potential rulers can gain greater advantage by undermining an agreement than adhering to its terms. This suggests future courses of action for this character and the overall story.

In this example, conceptual structure is partially carried-over at multiple levels. At the level of action, Daenerys’ pursuit of the assets needed to rule during this trade is carried-over from previous scenes, but does not occur in the way she said it would. Partial carry-over also occurs at the interpretive level. In the example, the proposition that Daenerys will demonstrate her potential as a ruler during this trade agreement is established, and then modified, when the trade situation is subsumed. The notion of her “ruling power” carries over while its dependence on trade is dropped. She does demonstrate her potential as a ruler, but not in the manner the viewer has been lead to expect.
This carry-over provides an imitation of causal development at the event level, as well as a sense of causal impetus at the interpretive level. The story ontology frames the action so a viewer understands the terms on which events are unfolding (is this a bad or good deal? Is it a trade or a conquest?). At the same time, its implicit causal structure enables a viewer to anticipate what sorts of events can happen in this particular world, and on what terms. As those terms change, unexpected potential paths arise, creating anticipation about how they might contribute to a resolution. Such inferences towards the conclusion gives the tale causal impetus. These unexpected elements seem like a natural development because they are partially connected to previous structures, and facilitate an urgency to known more, for the ways they are not.

## Conclusion

What story features can facilitate a sense that unexpected outcomes are a causal development of a story? I propose an approach that considers a higher level of conceptual structure – a story ontology. In this higher level, conceptual agents emerge when they bridge multiple reference situations. These agents pull previous structures into new arrangements, imposing their own terms, in a manner I refer to as governance. In the process, some parts of the initial structures carry-over, whilst other aspects are abandoned. Such carry-over enables narrative structures to imitate causal succession, while at the same time, allowing an audience to anticipate causal outcomes, even when aspects are unexpected.

## References


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