Where Story and Media Meet: Computer Generation of Narrative Discourse

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Abstract

Story generation (including interactive narrative) consists of creating a narrative experience on computer by generating narrative events. It requires building an abstract computational model that can generate a variety of narrative events from a limited set of authored content. These models implement a *story logic*, as they formalize the occurrence of an event in the story according to various algorithms. At the same time, these stories aim to be expressed to an audience using digital media, which requires a *medium logic*. In this contribution, we look at the relation between story logic and medium logic in the production of mediated narrative discourse. Using the terminology of Russian formalists and a metaphor borrowed from cinema production, we introduce three models of increasing complexity. In the first model, the story logic (fabulist) creates a fabula which is performed by the medium logic (director) to a screenplay then to the screen. In the second model, the story logic (screenwriter) generates a sjuzhet composed of narrative discourse acts that are staged by the medium logic (director). In the third model, the story and medium logics communicate bidirectionally as co-authors of the screenplay in order to render the story optimally.

1998 ACM Subject Classification H.5.4 Hypertext/Hypermedia: Theory, J.5 Arts and humanities: Literature

Keywords and phrases narratology, interactive drama, media adaptation

Digital Object Identifier 10.4230/OASIcs.CMN.2014.164

1 Introduction

The domain of story generation covers a variety of computational techniques aiming at generating events that constitute a narrative. Within this paper, we will adopt a large acceptation of the term, that ranges from the generation of a text in a basic language, to the generation of pleasing aesthetic experiences, in text or visual media. We also include research in interactive digital storytelling which makes use of generative algorithms to adapt the story to the user's choices. The common feature of these techniques is that they require building an abstract computational model, that will be able to generate a variety of narrative events from a limited set of authored data. These models implement a *story logic*, as they formalize the occurrence of an event in the story according to various rules and algorithms. Depending on systems, this story logic can be based on the simulation of characters [6, 2], the simulation of reader's response [35, 3], the simulation of narrative acts [27, 30], etc. For this modeling task, there exists a vast set of narrative theories, in particular within the formalist approach (Propp, Bremond, Greimas).

At the same time, these stories aim to be expressed to an audience: the reader, the viewer, the listener, the user, depending on a specific medium. To represent a generated abstract

story event within a certain medium requires another kind of theory. For text for example, the computational linguistics technique known as *surface realisation* generates appropriate sentences from abstract clauses. Furthermore, an effective text generation system must also include a model of style and perform paraphrases to avoid monotonic language. Generating stories to different media such as 2-D or 3-D animation requires similar generative theories.

Previous work in story generation has adopted, implicitly or explicitly, a simple communication model between story and medium: the pipeline model. Practically, it consists in taking the output of the story logic part, expressed as a series of actions or events, and feeding them to the medium logic. This approach has the advantage of simplicity but it raises two issues. On the one hand, the medium logic possesses limited information from the story logic and performs an uninformed flat representation of story events. On the other hand, the story logic does not take into account the strengths and limitations of the medium. To resolve those issues, what is missing is a theory describing the interrelation between the story and the medium. In this paper, we lay the ground for such a theory by offering a review of previous work and proposing three models with increasing complexity.

2 Story and medium in narrative theories

The relation between the narrative and the medium is an old debate in narrative theories. Narratology as a discipline has emerged in the 1960s as a study of narrative structures that are independent of the medium [25]. For example, C. Bremond analyzes Propp's approach by stating that the structure of the story is independent of the techniques that carry it [5]. This independence is illustrated by the theory of G. Genette [11], which states that a narrative is composed of three distinct layers: the **story** consisting of events arranged in the temporal order within the fictional world; the **discourse** consisting of events re-organized in the temporal order in which they are presented to the audience; and the **narration**, which is the act of narrating a story and the concrete situation in which the story is conveyed through a physical medium. This tripartite model finds its roots in Russian formalism, via the fabula/sjuzhet distinction. (Note on that respect that one must remain careful with the terms coming from different narrative traditions and their translation between Russian, French and English). By adopting the working hypothesis that the story is independent from the other layers, theorists have produced several useful semi-formal models of the story [5, 12, 32].

Nevertheless, the hypothesis that narrative can be described independently of the medium has been largely criticized in the theories of narrative: *critics have been adamant that form does not separate from content* [8]. According to many theorists, it is not possible to translate a story from one medium (e.g. a book) to another medium (e.g. film) without changing the story itself. Furthermore, the characteristics of a medium determines, as a resource, which stories can be told in that medium [16]. Between these two opposite positions (the thesis and the anti-thesis), Herman proposes that a synthesis is possible [16]. It consists in considering that the medium dependence of stories is a matter of degree. In this paper, we adopt Herman's position, that is, we acknowledge the three layers from Genette's theory, but we also question, from a computational point of view, what it means that some feature more or less translate across media. We will use the following concepts and terminology:

- **Event**: an elementary modification of the fictional world. Events include actions and happenings [24]
- **Fabula**: the set of events occuring in a narrative along with their temporal relations within the fictional world.

- **Discourse**: the set of events in the fabula along with their temporal relations within the narrative experience time.
- **Mediated discourse (rendered story)**: the physical representation of the subset of events that are effectively displayed in a given medium.

Literary text is the implicit medium in many theories of narrative, including Genette's theory. It has some specific features that constrains the type of narrative it can support: it is based on a complex written language; it is mono-modal (reading); it is sequential. In contrast, it is worth observing how cinema differs from literary text, and how it calls for a different account of the relation between fabula, discourse and mediated discourse [19]. The computer medium, used in games and interactive storytelling works, albeit sharing properties with cinema provide yet another range of characteristics regarding the above-mentioned relation. In the rest of the paper, although 3-D virtual worlds are targeted in the short term, we will apply the above-defined narrative concepts generally to arbitrary media.

3 Story and medium in digital narrative

For more than 30 years, research has been carried out in the fields of interactive fiction, interactive narrative and interactive drama to produce computer-generated stories in different media: text, as well as 2-D and 3-D graphics. In this section, we want to explore how the resulting prototypes handle the relation between the fabula, the discourse and the rendered story. Because some of these systems have explicitly used narrative theories, we will also explore how they have interpreted Genette's theory and other narrative models. Six cases will be discussed and contrasted, that represent (but do not pretend to cover) the state of the art in the domain.

FearNot! [1] is an interactive drama prototype based on the simulation of autonomous agents. Agents use a complex and emotional architecture to generate actions dynamically, according to the current situation that may be influenced by the user. In this generative system, the visualization in a 3-D game engine is clearly separated from the characters' logic [2]. The actions themselves are completed with information regarding the way the action must be performed (e.g. facial animation). Because the outcome of the action depends on the physical configuration, this outcome is decided in the visualisation engine that sends this information back to the logical part of the system. "FearNot!" implements a bipartite model with a strong independence between the two parts.

The Mutiny. [31] is a text-based interactive drama based on the IDtension system [30]. Narrative actions inspired by Todorov [32] are simulated and selected according to narrative criteria such as conflict or complexity. Once calculated in the narrative engine itself, fabula events and possible user choices are sent to another module that displays events as text and proposes choices via a specific menu system. Similarly to "FearNot!", there is no separate discourse layer. However, the rendering layer does not render all events: it only renders events that involve the user, while others are logically executed but not displayed. As a result, the user may convey an information to character A, and then receive a comment on this information from character C because, in between, A talked to C. Therefore the visualisation module carries out some of the functions of the discourse layer.

Nothing For Dinner. [13] is also based on IDtension, but within a 3-D environment. It therefore demonstrates the advantage of medium independence in terms of interoperability.

The same story can be displayed in text or in 3-D [29]. As for Mutiny, the rendering filters out some actions: some NPC actions may not been seen by the user, depending on her position and orientation in the 3-D environment. Note however that this visibility is not sent back to the narrative engine. In conclusion, the visualization engine in "Nothing For Dinner" plays a role at the discourse level, but this role is not necessarily controlled narratively.

Prom Week. [18] is a Facebook game, based on a large set of rules simulating the social relations between high school students. In terms of visualization, fabula events are displayed, without specific discourse processing. In order to avoid the Tale-Spin effect [34] that occurs when complex internal information behind characters' actions are unfortunately hidden, the cartoon-based rendering is supplemented with an explicit display of internal features of characters: how they feel, how they relate to each other, their status, etc., as in video games such as "Creatures" or "The Sims". Therefore, the discourse layer is rich and expressive, compared to other systems discussed here, but the expressivity relies on an analytic reading of internal numbers rather on the intuitive perception of the characters' behaviors.

Suspenser. [7] is a module in a larger architecture that aims at generating suspenseful stories. This whole architecture is directly inspired from Genette's approach (adopting the Russian terminology). Three main modules are considered: the Fabula Generator (producing the fabula), the Suspenser (transforming the fabula into the sjuzhet) and the Discourse Generator (transforming the sjuzjet into the medium). The main innovation of this research is to explicitly tackle the transformation of the story into discourse (note a shift in terminology, discourse here corresponds to the mediated discourse in our terms). Suspenser is able to automatically re-order events in the fabula to create a more suspenseful ordering of events. But Suspenser does not take into account the specificities of the medium, and the re-ordered events are handled by the Discourse Generator in a traditional pipeline approach.

Slant. is a system for story generation [21] that integrates five components from three different systems. These components include: MEXICA that generates plots; Fig-S that generate variation of the plot by using metaphors; Verso that adds constraints regarding the genre; GRIOT-Gen that realizes metaphorical representations and Curveship-Gen that generates the text. The distinctive feature of Slant is that it goes beond the pipeline approach that characterizes all previous cases. Via a blackboard approach, the chain of processing is not always unidirectional. In particular, Verso can intervene after MEXICA by adding a new action to the plot and this action is in turn processed by MEXICA. Note however that these bottom-up processes are used for building the plot (corresponding to fabula in our terminology), not for building the medium-specific discourse.

These six cases obviously do not cover all the field and many other cases would deserve a similar discussion, but this sampling is sufficient to formulate the following general observations:

- All systems more or less follow the general principle of independence between narrative layers.
- The separation between layers in not uniform across systems. In particular, for systems which are bipartite and not tripartie, the discourse layer may be dispatched in both modules.
- What is conveyed from the story logic to the discourse and/or medium logic(s) varies among systems: from the mere ordered set of events to much more complex engine-specific structures, making interoperability between different systems difficult.

In order to progress towards a computational model of story/medium relation, we propose to focus our attention on the data that may circulate between story, discourse and medium modules. In order to restrict our scope to the simplest case, even if it departs from a pure Genettian approach, we will only consider two modules. While this may appear limited in scope, this configuration is already sufficiently rich to open many new possibilities in terms of narrative expressivity, as it will be detailed in the next sections.

If a model of story/medium relation is to reach a certain level of generality, the data that circulate between these two modules should be independent both from a specific narrative generation approach and from a specific medium. As a result, the data should not refer to *plans, speech acts or cases* specific to a particular story logic and neither should they refer to *verses, cameras or panels* specific to a particular medium. The language used to communicate between story and medium should be neutral and yet expressive. We consider this language as a *lingua franca*, defined as "a language systematically (as opposed to occasionally, or casually) used to make communication possible between people not sharing a mother tongue, in particular when it is a third language, distinct from both mother tongues" (Wikipedia).

In the next three sections, we will propose three successive specifications of a lingua franca between story and medium. They correspond to three options that may be adopted when designing a whole system for story generation, including the interactive storytelling case. These models are of increasing complexity, meaning that the first one is a special case of the second one which is a special case of the third one. Therefore the last model is the most sophisticated one.

4 The fabulist-director model

As described in the previous section, a common approach in most state-of-the-art systems is a pipeline model, where the story logic creates fabula events and sends them to the medium logic. In case of a 3-D medium, virtual actors play those events in real-time 3-D animation, and a cinematography module chooses camera viewpoints and displays them to the audience. Let us call this the *fabulist and director* model. The model has several advantages - it works and it is simple. Although we have already stressed its limitations, it is important enough to be reviewed in detail.

The core information needed to describe the fabula is the succession of events that happen in the fictional world. Therefore, **events** constitute the first elements in the lingua franca. Following the traditional distinction in narratology [15, 24] an event may be either an action, in which case it involves an agent, or a happening, in which case no agent is causing the event. Events are usually described in a predicative form, where the predicate represent the class of event (expressed as a verb) and the parameters are role-value pairs such as **(agent,character)** in the case of an action. Other roles may take values from other elements: characters, objects, places, and events (in which case the events are nested). Therefore the lingua franca also include characters, objects and places, which are called existents [24].

Temporal relations between events can be described either implicitly or explicitly by providing a start time and a duration for each event. In a temporal medium, the unfolding of a single event may take an unpredictable amount of time. Moreover, in some media, like interactive 3-D environments, the event may fail. Therefore, the medium needs to send back the information that the event is finished (**eventFeedback**), and the corresponding outcome, in terms of success or failure.

Finally, the interactive case needs to be examined, regarding the lingua franca. There exists a large variety of interaction modes in the field of interactive storytelling but what

Table 1 Elements of the lingua franca for the fabulist-director model.

Name	Constituent's name	Constituent's description	Direction
event	eventType	action|happening	Story→media
	content	predicate structure : P(a1, a2, ..., an)	
	indication	various formats	
	status	execution|user-possible	
	id	unique integer	
eventFeedback	result	success|failure|user-decided	Media→story
	id	unique integer	
UserEvent	eventType	action|happening	Media→story
	content	predicate structure : P(a1, a2, ..., an)	

is exchanged with the story module still consists of events. However, these events must be enriched with additional data. First, the story module needs to be able to send *possible* actions, the execution of which depending on the user's choice. Second, in return, the medium logic needs to inform the story logic that an action has been chosen. Therefore, in the lingua franca, the action is enriched with a **status** attribute, that can take three values: execution, user-possible, user-decided. Also, the lingua franca includes the case where the user is creating events that have not been proposed by the fabulist. Therefore, a **userEvent** element is introduced.

Table 1 summarizes the lingua franca related to the fabulist-director model. As already mentioned, this model is not new *per se* but illustrates one simple approach of story/medium relation, in which the story logic (fabulist) produces a raw description of actions that must be conveyed to the user by the medium logic (director). In the medium of text for example, the director generates a natural language version of the predicate-based content. Similarly, in the medium of 3-D animation, the director generates character animation, cinematography and film editing in real time [22].

The fabulist-director model has severe shortcomings. The director receives very little information from the fabulist to motivate directing choices: Is the event important or anecdotal? What emotion does it convey? How does it relate to previous events? Without answers to these questions, the director has no other option than to use standard, repetitive options. In the fabulist-director approach, the director's role is limited to showing events in the fabula in chronological order and with a neutral point of view. With such a minimalist approach, it may be difficult or even impossible to show all events to the viewer. To make things worse, the director has no way of reporting that some events could not be shown to the viewer, which may cause the following steps in the story to become unintelligible.

5 The screenwriter-director model

To overcome the limitations of the previous model, it appears necessary to revise the role of the story logic. Instead of simply reporting fabula events, we now require that the story module communicates towards an audience, taking charge of (part of) the narrative discourse. By analogy with film, this transforms the fabulist to a screenwriter. Indeed in traditional movie-making, it is a common practice to write an intermediate document – the screenplay – that represents events as they will appear in the movie (not the fabula) and from the point of view of the audience. Narratologically speaking, the screenplay is an interesting document, since it represents the narrative discourse in plain words, but with the temporal and spatial structure of a movie (scenes are indicated to represent spatial and temporal changes). However, our model departs from the film analogy by further imposing that the screenplay be medium-independent.

Based on the above observations, we propose a different model of story-medium relation where the story logic is not limited to creating fabula events, but also produces a narrative discourse as a series of *discourse acts*. In such discourse acts, the subject is the computer and the object is the audience. In our proposal, the screenplay is not written in natural language (as in a real screenplay) but as a conceptual representation of narrative discourse acts.

The main discourse act at work in a fictional discourse is **CONVEY** that simply consists of conveying information about the story world to the player. Because the story world is fictional, the narrative discourse act of conveying a state or attitude or event in the story world can best be compared to the speech act of pretending – which in Searle's theory is the core component of fiction [26].

The first difference with the fabulist-director model is that the screenwriter can now specifically choose the ordering of events. The following steps will further extend the model with typical discourse-related information. The first extension concerns states in the fabula. In the fabulist-director model, states in the fabula (object properties, mental states, etc.) are not communicated to the director, which is purely event-based. In the screenwriter-director model, the screenwriter may decide to convey, at a precise moment, a current state. For example, it can choose to convey the emotion of the character John: fear, just before this character attempts a dangerous action. Depending on the medium, this information may be displayed differently. A director in the text medium may generate a sentence such as "John was terrified". A director in the 3-D animation medium may insert a close shot on John with the proper facial expression; or shake the camera or trigger a fearful music; etc.

In complement to $CONVEY$ discourse acts, narrative information can be added, in order to provide information on the manner to represent the action or happening. It includes the type of emotions that the event is expected to cause in the audience, the relation to other past or current events, the relation to characters and objects in the scene, the opening or closing of a subplot, etc. We therefore include a narrative **indication** field to the discourse act, letting it open what kind of information may be included in this field.

Another dimension of a discourse act is its relative importance of the event. Key actions, such as Barthes' kernel functions [4], need to be represented with a specific focus. In film for example, the Hitchcock principle says that the size of an object that is currently in the frame should be related to its importance at that given moment [33]. Therefore, the model adds an **importance** field to the discourse act **CONVEY**.

Regarding events ordering, major discourse-related processing such as flashbacks or flashforwards are processed (if any) by the screenwriter. However, the director may need some flexibility regarding the precise ordering of some overlapping events, both at the fabula

Table 2 Elements of the lingua franca for the screenwriter-director model.

Name	Constituent's name	Constituent's description	Direction
CONVEY	contentType	action|happening|existent|state	Story→media
	content	predicate structure : P(a1, a2, ..., an) or simple proposition for existents	
	indication	various formats	
	importance	in [0,1]	
	priority	in [0,1]	
	perceivedBy	list of characters	
	pointOfView	a character or an object	
NOT-CONVEY	contentType	action|happening	Story→media
	content	predicate structure : P(a1, a2, ..., an)	
	priority	in [0,1]	
	notPerceivedBy	list of characters	
CONVEY-FALSE	contentType	action|happening|existent|state	Story→media
	content	predicate structure : P(a1, a2, ..., an) or simple proposition for existents	
	indication	various formats	
	importance	in [0,1]	
	priority	in [0,1]	
	perceivedFalseBy	list of characters	
	pointOfView	a character or an object	
PROPOSE-EVENTS	choiceList	list of events with corresponding id and attributes	Story→media
ENCOURAGE/ DISCOURAGE	eventType	action|happening	Story→media
	content	predicate structure : P(a1, a2, ..., an)	
eventFeedback	result	success|failure|user-decided	Media→story
	id	unique integer	
UserEvent	eventType	action|happening	Media→ story

and at the discourse level. For example, if Mary asks John for help for lifting a heavy box, the following event should occur immediately. But the decision of a third character Lucy to suddenly stand up to and walk to the fridge may occur now, or slightly later, without any significant change in the narrative. In some media, such as 3-D animation, such secondary action by Lucy may get in the way of the primary action involving John and Mary. This can be remedied by letting the screenwriter assign a **priority** indication to the discourse act **CONVEY**.

In addition to the **CONVEY** operator, it should be possible for the screenwriter to give indications that some fabula events should remain hidden from the player. We propose the operator **NOT-CONVEY**, meaning that a fabula event is taking place but hidden from the player until further notice. **NOT-CONVEY** is not equivalent to an empty act, because the event *does* occur in the fabula, and the director must ensure that the event is not be perceived by the audience. For example, in a 3-D environment, if the director receives the information of not conveying the action of John lifting a box, it must ensure that the camera never displays the box and John lifting it. Interestingly, at the narrative level, this discourse act opens the way to decide later if the event happened or not, a strategy called late commitment [28], that allows for more flexibility in the narrative generation, especially in an interactive context.

A more radical discourse act **CONVEY-FALSE** can be used to lead the audience to believe that some fabula event is happening, whereas it is in fact not the case. In some extreme cases, this may lead the director to lie to the audience, as in the 1995 movie Usual Suspect, by Bryan Singer, i.e. show events that did not take place in the fabula. In many cases, the same effect can be produced by providing only partial information from which the audience can draw false inferences. This creates an interesting twist when the audience then discovers what finally did "really" happen in the fabula. Such an effect is subtle to render and, once again, is rendered differently by different media. In the 2011 movie "The Artist", a modern silent movie by M. Hazanavicius, the main character is about to commit suicide, when an intertitle with the word *bang* is displayed. While this seems to indicate that the character has shot himself, the next shot shows a car crashed against a tree! In this case, the effect is used for only a few seconds. In other examples, the wrong belief may last during the entire duration of the story.

An extension of the **NOT-CONVEY** discourse act concerns the characters rather than the audience. The screenwriter may wish to control which characters perceive the conveyed event. For example, it may specify that John is lifting a box but that Lucy is not aware of it. This applies for both **CONVEY** and **CONVEY-FALSE**. In the model, these discourse act are supplemented with a **perceivedBy** field that contains one or more characters and their perception constraints (must perceive or must not perceive).

Another very important discourse-related information is *point of view*. The screenwriter may decide that an event must be presented to the audience from a given perspective. This can be one of the participants in the event, or any other character known to perceive the event. In text generation, the "Curveship" system is able to change the point of view (who sees) as well as the narrator (who speaks) [20]. In 3-D environments, point of view is an important consideration for choosing camera angles [23]. Our model therefore includes an optional **pointOfView** field that can contain characters or even objects.

Finally, we introduces three additional narrative discourse acts to allow direct interaction with the audience:

- **PROPOSE-EVENTS**: The screenwriter proposes a list of possible events that the audience can choose from. Typically, in the case of interactive drama, it will include all

actions from the user-controlled character. To each proposed event is attached one or more attributes that we de not specify at this level and that qualifies the choice. For example, the estimated suitability of playing this action at this moment may be provided, allowing the director to highlight the most suitable choices.

- **ENCOURAGE**: Although interactivity is about giving choices to the user, it may be suitable in some context to influence the user towards a specific choice. Strategies of this kind have been suggested by researchers [35, 10]. Interestingly, there is a mirror effect in this case between the discourse and the diegesis (fictional world), when an influence from a character serves the purpose of the enunciative instance.
- **DISCOURAGE**: It is the opposite of the previous act: influencing the user so that she does not choose a given event.

Table 2 summarizes the lingua franca for the screenwriter-director model. We do not believe that we have exhausted this configuration, yet, the model appears very rich compared to previous work. By no means do we recommend that a system implementing this lingua franca should be developed right away. The lingua franca should rather serve as an overview of the range of options that the screenwriter-director model offers, from which a system designer may pick whatever features appear relevant.

6 The co-authors model

In this section, we propose a model that better accounts for the two-way relations between story and medium. The model builds upon the screenwriter and director model of the previous section, but adds back-channel communication from the director to the screenwriter.

The model considers that the story and the medium are two authors, collaborating to create a mediated narrative experience. To draw an analogy with film-making, it corresponds to the situation in which the screenplay is modified and re-written on the set, which is often the case in film production [9, 14]. The story logic is still in the position of generating discourse acts but the medium logic is now allowed to confirm, infirm and suggest narrative discourse acts as well. More precisely, rather than return success or failure, the medium can now send feedback in one of two forms:

- In case of success, the medium logic may execute a discourse act that is slightly different from the requested act. For example, the act conveyed an event as requested but with different parameters. The medium logic produces the best effort to execute the requested act but does not guarantee that the event is represented exactly as requested. For that purpose, a new discourse act is introduced, **CONFIRM**, which includes the details of how the the content has been effectively represented. Note that the medium logic has to make a decision wether the alternative discourse act is still acceptable or wether a failure return should be preferred (next case).
- In case of failure, and if it is possible to do so, the medium logic proposes an alternative discourse act that it could execute, that contains the same event or existent, but with different surrounding fields. For example, it may suggest to relax the constraint of perception (**perceivedBy**) by allowing a character to perceive the action. The corresponding discourse act is **INFIRM**, which contains (optionally) a new set of values for the fields of **importance, priority, perceivedBy** or **pointOfView**.

In the above case, the medium logic is *reactive* when it proposes an alternative act following an impossibility to perform the desired act. It can also be *proactive*, by suggesting events. For example, in a 3-D environment, the director may suggest that the current spatial configuration of four characters into two groups of two would be suitable for conveying two simultaneous events with these two respective groups, one with a dialog, the other

Table 3 Elements of the lingua franca for the co-authors model. These elements, covering the medium to story communication, come in addition to the story to medium communication elements in the screenwriter-director model (see Table 2).

Name	Constituent's name	Constituent's description	Direction
CONFIRM	id	unique integer	Media→story
	indication	various formats	
	importance	in [0,1]	
	priority	in [0,1]	
	PerceivedBy/ perceivedFalseBy	list of characters	
	pointOfView	a character or an object	
INFIRM	id	unique integer	Media→story
	indication	various formats	
	importance	in [0,1]	
	priority	in [0,1]	
	PerceivedBy/ perceivedFalseBy	list of characters	
	pointOfView	a character or an object	
SUGGEST	contentType	action|happening|existent| state	Media→story
	constraints	include list and exclude list of existants and states	
	indication	various formats	
	importance	in [0,1]	
	priority	in [0,1]	
	perceivedFalseBy	list of characters	
	pointOfView	a character or an object	

without. It could also suggest that an ominous representation of a given character would be particularly suited at this moment (say with a low-angle shooting and a backlighting). Therefore, we introduce the discourse act of **SUGGEST**, containing the specification of fields characterising an event.

Table 3 summarizes the three narrative discourse acts introduced above, which come in addition to those already present in the screenwriter-director model (they replace the last two lines in Table 2). The negotiation mechanism involved between the two "co-authors" is beyond the scope of the present paper. Our focus remains on the lingua franca which now involves nine narrative discourse acts.

7 Conclusion

In this paper, we have proposed the first steps of a computational model of narrative that zooms out from the logic of story events to encompass the whole picture of narrative as an expressive artefact, embodied in a medium. This has led us to focus on how the story logic and the medium logic need to converse, and to propose three models of what we have called the lingua franca between the story and the medium. Our current effort goes towards the practical implementation of a small version of the above-described lingua franca, by connecting interactive narrative technology [30] with virtual cinematography technology [17] in a principled way.

Acknowledgements. We thank the anonymous reviewers for their helpful comments and suggestions. This work was partially funded by the ERC advanced grant EXPRESSIVE.

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