The Thematic Illustrator: An Automatic Illustrative Approach to Enhancing Narrative Cohesion

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ABSTRACT

Adaptive or generated narratives offer personalised and dynamic delivery of narrative content to users. However their generation or adaption is often based on the literal content of the narrative and not the subtext ignoring many important narrative principles such as narrative cohesion. Based on our existing work on a thematic model we present the Thematic Illustrator; a system capable of generating content relevant themed illustrations for short stories. The system aims to emphasise core themes and as a result improve the thematic cohesion of the story. We investigate whether this has a tangible effect on the cohesion of the narrative as a whole by using five variables to measure the cohesion of a story with themed and unthemed illustrations. Our results show that thematic noise can be reduced and that there is a demonstrated link between thematic cohesion and some other aspects of narrative cohesion.

Categories and Subject Descriptors

H.1 [**Models and Principles**]: General

General Terms

Standardization, Human Factors, Experimentation

Keywords

Narrative, Thematics, Narrative Cohesion, Illustration

1. INTRODUCTION AND BACKGROUND

As our understanding of narrative increases alongside the motivation to provide personalised and custom content for users increasingly systems offer adaptive or generated content. This can range from adaptive hypermedia systems which present content in different ways based on the user and preferences all the way to full narrative generation where the system itself creates content to fit requirement. The adaption or generation that takes place is often based upon a model of the content within the narrative and may take advantage of a series of rules dictating what creates the most engaging plot. However, existing approaches seldom concern themselves with narrative subtext, and many of the subtleties, connotations, and underlying concepts can be lost in adaption or are not a part of narrative generation.

In previous work [4] we have investigated themes within narrative using a thematic model and presenting methods for how themes can be incorporated into narrative generation with photo montages. One of the potential benefits of the inclusion of themes is that they may be used as unifying concepts to bind component elements of a narrative together enhancing narrative cohesion [5]. We have furthered our initial work by creating the Thematic Illustrator; a prototype that uses the TMB (thematic montage builder)[4] to generate content relevant themed illustrations for short stories. As our initial work showed that the TMB was capable of embedding themes within a narrative we now seek to explore if this can be done at an illustration level in order to emphasise core themes and as such improve thematic cohesion.

It is to be noted that the cohesion of narrative as a whole is more complicated than just thematic cohesion. It is necessary for us to build up a model of narrative cohesion itself so that the effect of thematic emphasis, and narrative adaptation or generation can be understood. This begins with the identification of variables that represent narrative cohesion as a whole. We define narrative cohesion as the binding or unifying of narrative elements together in order to ease the understanding of the narratives content and from this identify variables based on a combination of existing systems in the area and literature from a variety of fields.

2. COHESION VARIABLES

Existing work examining narrative cohesion often limits it to the linguistic cohesion of its presentation [3]. While the language used in expressing a narrative is undoubtedly a key part there are also many other concepts and techniques that are adopted in the unifying of narrative elements. This might include themes, the roles of which within narrative we have been exploring with our thematic model [4]. Tomashevsky in his original essay 'thematics' [5] emphasised the importance of themes in cohesion, explaining how they were instrumental in unifying narrative elements. Coh-Metrix [3] is a system designed to analyse the cohesion of individual narratives, much like other work it is principally concerned

with linguistic cohesion but also uses narrative genre as a key variable in analysing the narratives cohesion. The narrator has a key role to play when establishing narrative cohesion through a consistent storyteller perspective, and work has been covered both by Booth [2] on the importance of the narrator to a coherent story. Finally structuralist theory often makes a distinction in narrative between 'story' and 'discourse'; the content of the story and how it is presented [1]. The choices made in presentation and the style the narrator adopts can have an effect on cohesion, the author may choose to adopt their own established conventions and keep mood and language consistent with the scene presented or choose to break stylistic cohesion.

From this we see an emergence of 5 variables of cohesion:

- **Logical Sense:** the connective language used to explain the content of the narrative.

- **Themes:** the concepts communicated implicitly throughout the narrative.

- **Genre:** the presence of reoccurring features that culturally contextualize the narrative.

- **Narrator:** the presence of an identifiable consistent perspective communicating the narrative.

- **Style:** the adoption of authors own conventions and coherence between content and language used to present.

3. THEMATIC ILLUSTRATOR

The thematic illustrator is an extension of the TMB that uses images generated by the TMB to automatically illustrate short stories with images that are both relevant to the content and enhance the stories core theme for stronger thematic cohesion. The system is built on using java, takes an xml input, and generates a html output of the illustrated story as shown in figure 1.
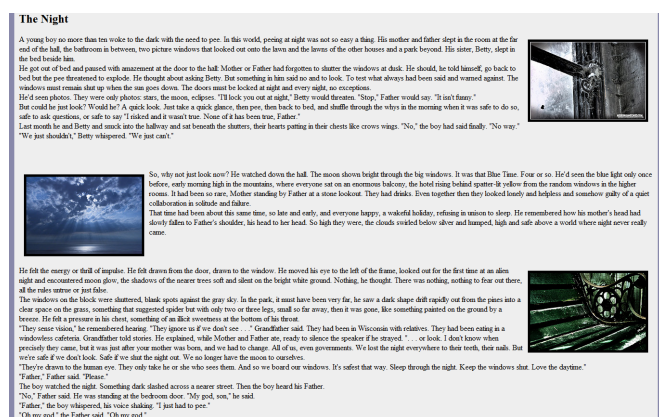

Figure 1: The Thematic Illustrator.

The xml input to the system comprises the story and necessary meta data. The story is divided into logical parts each forming a 'section' which each has a 'content' attribute. The content attribute stores keywords representing the content of that particular section. The story as a whole also has a 'theme' attribute containing the desired core theme for the story as a whole. The TMB will require a thematic definition of this core theme and its components to be built in

advance which defines how features (which may be detected in image tags) denote motifs and in turn connote themes as explained in [4]. Using this the illustrator then for each section in turn performs a flickr search using the content keywords and retrieves the top 30,000 images (or as many as it can find) for that content. Using the TMB these images are then sorted based on their relevance to the core theme and the top image is used as an illustration for that section unless for some reason it is used elsewhere in which case the next image is used (iterating till it finds an appropriate images). Images that would not be suitably viewable in the confines of the presented page are also discounted, such as images that are extremely wide and or very narrow.

4. CONCLUSIONS AND EVALUATIONS

We have investigated the effect of thematic emphasis on the narrative cohesion of short stories using the thematic illustrator. This has been done comparing how stories score when illustrated thematically (using the thematic illustrator) or automatically without using any themes (using the content keywords for each section but not sorting based on thematic relevance). Participants when showed stories illustrated using different methods were then asked to rate their perception of each cohesion score with regards to each story. Our findings showed that while thematic illustration showed irrelevant themes getting weaker (a reduction in thematic noise) the core theme only got very slightly stronger (not by a significant degree). Our evaluation also found a correlation between thematic cohesion and 'genre' and 'logical sense' cohesion suggesting that if a method of thematic emphasis stronger then illustration could be developed, perhaps involve direct manipulation of the text, then these variables might also be increased as well as thematic cohesion.

The thematic illustrator is based upon our previous research on thematics in narrative systems. It provide a potentially useful tool for automatic illustration using thematic definitions and flickr. With further refinement and continued research in the area of narrative cohesion it might also lead to a method for increasing the narrative cohesion of adaptive or generated narratives.

5. REFERENCES

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