A Paradigm for Eliciting Story Variation*

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Abstract

The understanding of story variation, whether motivated by cultural currents or other factors, is important for applications of formal models of narrative such as story generation or story retrieval. We present the first stage of an experiment to elicit natural narrative variation data suitable for evaluation with respect to story similarity, to qualitative and quantitative analysis of story variation, and also for data processing. We also present few preliminary results from the first stage of the experiment, using *Red Riding Hood* and *Romeo and Juliet* as base texts.

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1 Introduction

Adaption, re-adaption and remakes have become a common part of popular culture [11]. Between this and the growing mainstreaming of remixed and transformative works [10], the co-existence of multiple variations of a story is becoming[1] widely accepted [9, 19]. Story[2] variation, or distinctness, and stahlory similarity are two aspects of the same question [12, 6, 13, 5]: When does a narrative cease being a version of a story but is instead seen

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1 Not for the first time if we take oral traditions and folklore into account.

2 In this paper *story* and *narrative* are often used interchangeably, although *story* properly refers to the 'greater' culturally situated artefact rather than the material manifestation for which we prefer *narrative*. Where we wish to refer to the semantic level of the text for which the term *story* (in the sense of Todorov's *histoire*) is often used in computational literature, we have used *plot*. This was done to reflect that *story* seemed to be the most appropriate term to use in communication with test subjects. That *story/narrative* are understood in a broader sense is important because in a too narrow understanding, the question may seem appropriate: Isn't a narrative already different if we change a comma? We have not drawn a distinction between *version* and *variation* for similar reasons.

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as a story in its own right [18]? An underlying question is: Do the levels of plot (*story* in Todorov's sense) and discourse interact, or are they independent?

This issue is highly relevant for story generation and story retrieval as well as any other practical applications of formal models of narrative [1, 2, 14, 15, 4]. Selecting test material poses significant challenges: While the textual corpus of the world is extensive, such data is generally too diverse to allow an easy comparison with respect to research questions, and frequently too complex to be analysed in depth. Conversely, working with texts created for the purpose of experimentation and analysis allows control over variables such as length, complexity and composition but has a high risk of losing the characteristics of 'natural' discourse found in organically created texts.

This paper introduces the first stages of an experiment designed to elicit story variations in English and German, to (a) **create a corpus** of related texts that are more suitable to the needs of researchers than what one finds 'in the wild', and subsequently (b) allow for and carry out **analysis**. We aim at the following kinds of analysis: (i) qualitative (and ultimately quantitative) 'human' corpus analysis for similarities and difference, of variations to the paired summary, to each other and to similar texts; also, (ii) annotation of the data allowing to test annotation systems and computational analysis tools on a known corpus of manageable size. By controlling specific axes of the product (length, story derivation, variation), but otherwise allowing the authors freedom in their process, we hope to ensure that the corpus is interesting and viable for researchers while retaining as much authenticity as possible. Ultimately, we expect that our data may become part of a 'story bank', often named as a desideratum in computational modelling of narrative (e.g., in recent CMN workshop announcements), and establish a methodology for expanding and analysing such a collection.

2 Experiment

A preliminary survey was carried out to explore detail recollection of three narratives: *Romeo and Juliet* (RJ), *Little Red Riding Hood* (LRR) and *Harry Potter: The Prisoner of Azkaban*. Volunteers in both Germany and the UK rated a series of potential events to indicate whether they occurred in the given text. Results indicated that (a) few details of the stories were retained and (b) it was unlikely to be productive if we asked for subtle variations that went beyond the main characters and plot line. It was decided to focus on RJ and LRR as well known works with comparatively simple primary plots. Although arguably both cautionary tales, they represent different basic narrative types: the fairy tale and the tragic love story.

The main experiment was divided into two stages, the first of which we detail in this paper; it involved the collection of the corpus of story and variation summaries. In the second stage of the experiment, we will elicit multi-dimensional similarity ratings for a selection of the collected data regarding similarity to the 'original' story, but also to other narratives presumably containing similar plots or motifs, such as the stone filling seen in both LRR ([7, #26], cf. fn. 6) and *The Wolf and the Seven Young Kids*, ([7, #5]).

Methodology. Test subjects were invited to write a short summary (100–300 w) of their selected story. Once the base summary was submitted, the participant was given one of the variation constraints and asked to write a second text of around the same length taking this change into account.[3] The experiment was carried out online and volunteers were mainly

[3] It was made clear that the second text need not follow the structure of the first.

recruited from creative writing and other amateur author groups. While presented as a scientific experiment, volunteers were encouraged to to see it as a playful creative challenge (see Extract 1). They were allowed to complete the experiment at their own pace and were not prevented from refreshing their memories about the plot at any time.[4]

(1) **Instruction (short extract):**[5] This is an experiment to collect data on story variation. It does not require or test any particular level of intelligence, education or writing ability. We hope it will be fun and we are very grateful for your help.
For this experiment you will be asked to write a summarised version of *Romeo and Juliet* and/or *Little Red Riding Hood* under a constraint you will be given.

> *An example constraint which is not in the experiment might be*:
> all human characters are animals and vice versa.

For the experiment, six short instructions for writing variations ('constraints') were prepared for each narrative (see below). These constraints were chosen to include significant changes to the setup of the characters (LRR1, LRR2, LRR 5, RJ1) and their properties (LRR3, LRR4, LRR6, RJ2, RJ4, RJ5, RJ6) or introduced a narrative change, or 'twist', to the plot (LRR5, RJ2, RJ5). The choice of constraints was randomised and participants were given the option to turn a constraint down. Rejections were recorded and only three rejections in a row were possible. Once they had the variation summary for the assigned constraint, participants could continue with another variation, or change to the other story.

Little Red Riding Hood Constraints: (LRR1) The character of the wolf is not in the story. (LRR2) The character of the Huntsman/woodcutter is not in the story. (LRR3) Little Red Riding Hood's grandmother lives with Little Red Riding Hood and Little Red Riding Hood's family. (LRR4) One or both of the main characters (Little Red Riding Hood, Little Red Riding Hood's grandmother) are male. (LRR5) Little Red Riding Hood's grandmother died before the story starts. (LRR6) The main characters are political, geographical or commercial entities.

Romeo and Juliet Constraints: (RJ1) The character of Mercutio is not in the story. (RJ2) Romeo and Juliet are not in love with each other and are forced to marry each other against their will. (RJ3) The Capulets and the Montagues are good friends. (RJ4) Romeo falls in love with another character than Juliet or Rosalind. (RJ5) Juliet reveals her secret marriage with Romeo to her parents. (RJ6) The main characters are political, geographical or commercial entities.

Participants. From the initial call for volunteers there were 32 responses, 8 in English and 24 in German (see table below); 10 test subjects submitted one summary, 4 submitted two, 1 and 2 five and six, respectively. Due to the differential between the number of responses in German and English, it was not deemed possible to draw any comparison between the two groups at this time. Further English volunteers are currently being sought.

		German		English	
		Male	Female	Male	Female
Little Red Riding Hood	Baseline Summary Only	1	3	1	
	Summary & Variations	2	8		4
Romeo and Juliet	Baseline Summary Only			1	1
	Summary & Variations	1	2	1	
No Summary		3	5		

(One volunteer submitted responses to both narratives so was included twice.)

[4] Some volunteers mentioned reading synopses of the story on Wikipedia.
[5] A German and an English version of the instructions was available; we only give English examples.

3 Observations

Due to the distribution of the responses received to date, it is not yet sensible to give an elaborate analysis. We cite some 'paradigmatic' examples, mainly focusing on LRR.

Usefulness of the Summary. Collecting summaries, not only variations, is especially important in the case of LRR, as it is a story with many existing variants (see, e.g., [17, *Rotkäppchen*]).[6] As expected based on our preliminary survey, the baseline summaries do not completely agree with respect to the detail: Many test subjects do not mention the 'punishment' episode and the death of the wolf (*liberation*: 19y : 2n; *punishment*: 10y : 11n; *wolf dead*: 12y : 9n), and one of them has the liberation of the grandmother take place before LRR gets swallowed. We are not aware of a published variant that have liberation but not punishment, so that this may be an indication that the 'resurrection' is the more important scene (and furthermore it is plausible to assume that the wolf dies of a cut stomach).

Simple and Complex Solutions. Comparing the story variations that we received, it was clear that the constraints prompted very differing levels of transformation. In addition to this, it was noticeable that some test subjects chose very simple solutions to the problem of integrating the proposed change, while others took the opportunity to change much more than 'necessary'. The instructions did not specify a preference for either solution, so it will be interesting to look into this further.

In the case of (LRR1), the absence of the wolf can result in a removal of the main story line (in one variant, explicitly 'nothing' happens) or in a simple exchange of the aggressor (once the grandmother, once a Bambiraptor), which keeps the main story line, but there are solutions in between (e.g., the grandmother beats LRR); similarly so for (LRR4), where some test subjects implement the sex change by simply exchanging the pronouns; one volunteer noted that this felt 'like cheating'. Others change the story completely: in one variant, the wolf character is exchanged for a beautiful wench (German: *"Maid"*), who seduces LRR, eating the cake intended for the grandmother and stealing the box of tools LRR was bringing to him; finally, she robs the grandmother of her money. Constraint (LRR6) and (RJ6) required the replacement of the main characters with commercial or geographic entities. Here the difficulty lay in: (a) signalling the character mapping to the readers – even though this was not demanded – and (b) giving analogues to eating and swallowing. For the first question, test subjects (4 out of 4, one only for LRR itself, sc. LRR as the German social democrats / 'reds') choose to use names that playfully point to the original characters, such as "Redhood Bank" [English], or "Lupuria" and "Omar" (in German, the latter more or less homophonous with the colloquial word for grandmother, *Oma*).

4 Preliminary Conclusions and Continuation

Based on our preliminary analysis, we conclude that the paradigm is suitable to elicit variations of texts from test subjects. However, due to the range of variation caution must be exercised in collation and due care taken in similarity judgements using multidimensional

[6] In Germany, the version collected by the Brothers Grimm [7, # 26] (or a variant of it, such as Bechstein's [3]) is the most popular. Compared to the earliest published version by Perrault [16] it also contains the liberation of LRR and her grandmother from the wolf's stomach, and the punishment of the wolf by filling his stomach with stones and his subsequent death (as in *The Wolf and the Seven Young [Goat] Kids*); it also lacks a 'moral'. For research on the relation between versions, see [17, *Rotkäppchen*]

rating. We also note that certain changes seem to always co-occur, e.g., setting stories with economic/geographic entities in the modern world. Whether they are 'causally' related, possibly due to the disenchantment of the tale by the insertion of 'realistic' elements [8], is outside our current remit. This co-occurrence also means that some combinations of properties do not occur in current corpus, although this may be 'corrected' by future expansion or limited alteration on the side of the experimenters. Ultimately, we expect the data set to be useful for learning or testing of algorithms modelling narrative similarity. We look forward to presenting the full results of the experiment in the near future.

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