

Identifying creative fictional ideas

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Abstract. Ideas are the main driving force of creative work, so it is important to know how to detect or generate them. People can usually identify a creative idea when they see it. However, the assessment and identification of the best and most valuable creative ideas is a difficult problem that justifies the employment of experts for such tasks in many professional environments. For computers, the evaluation of creativity is even harder, as it requires common knowledge and awareness of the context of each specific use case. Computers currently provide little support in evaluation and detection of creative ideas, and even less in their generation or refinement. However, thanks to the recent developments in terms of computing power, resources and methodologies, first promising results were reported and attracted a wider scientific attention [3, 2].

We are targeting the assessment of fictional *what-if*¹ type of ideas, which can be used in advertising, media, art and other creative industries. The goal of our work is to build a human evaluation model of creativity in this context. The (computational) creativity is usually measured in terms of novelty and usefulness or quality [1]. In our case, the usefulness corresponds to the narrative potential of a fictional idea.

Development of the evaluation model of creative processes and artefacts is tightly connected to discovery of characteristics of the artefacts that are perceived as creative. We are thus focusing on discovery of relations between the characteristics of fictional sentences, evaluators' characteristics and the evaluation scores. The results of this work can help the systems for automatic generation of (fictional) ideas and can contribute to better understanding of the human perception of creativity.

We will address this task with data analysis and pattern discovery methods on databases of human-assessed textual *what-if* ideas, which are produced either by humans or by computers. In the latter case, the features of the idea generation processes can also be considered as features of the evaluation models. This can be particularly useful, as it enables the evaluation models to assess and guide the generation processes.

We are considering syntactic and semantic features of *what-if* ideas. On the syntactic level we are considering features, such as: part-of-speech information, negation, modality markers, number of adjectives, sentence length and rhymes. On the semantic level we are considering features

¹ Example: *What if dragons drove you to school?*

related to semantic resources, for example various distances in semantic networks, such as ConceptNet². Other semantic features that we intend to use are: the bag of words, novelty, actuality, sentiment, ambiguity, presence of fictional characters, named entities and others. While for the calculation of some of these features there exist several proven methodologies (e.g., for sentiment classification), for some others (e.g., ambiguity) we will have to develop and test new techniques for their assessment. We are presenting the first steps of our work: the framework and infrastructure for opinion gathering and the preliminary insights from pilot experiments. The gathered opinions of human evaluators on the *what-if* ideas will be used as the basis for the development of human evaluation model of creativity. We are gathering data in two distinct ways: (I) through an online opinion gathering platform, which targets the opinions of the general public and (II) with targeted questionnaires, which are controlled and focus on the opinions of selected target groups in specific experiments.

The presentation of *what-ifs* and the assessment characteristics on the online platform suit the online context and the expected behavior of online evaluators. The evaluation procedure thus favors simplicity of use and clarity of the interface over the thoroughness and completeness of the assessments. The first version of the platform is available at:

<http://www.whim-project.eu/whatifmachine2/>

It allows the users to set the main input parameters for the current *what-if* sentence generation machine and run it to get the results. The sentences are presented in an environment for evaluation, tailored to motivate the user participation.

Targeted questionnaires are a form of opinion gathering that we use for specific experiments, which demand elaborate questions and a specific amount of opinions gathered in a limited amount of time. These surveys are conducted on groups of people, which we can control regarding the number of participants and their characteristics.

Preliminary results of both kinds of experiments indicate a weak inter-annotator agreement and limited abilities of evaluation modelling with the current set of observed features.

This research was supported through EC funding for the project WHIM 611560 by FP7, the ICT theme, and the Future Emerging Technologies FET programme.

References

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² <http://conceptnet5.media.mit.edu/>