Detail in the Novel

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1 Overview

Authors produce narratives by complementing events that advance the plot with a mosaic of details that evince deeper meaning from the work's characters, context and setting. Narratology is a field devoted to the understanding of the functional structure and patterns of narratives. An innovative group of computational studies glean their theoretical framework from this field and investigate narrative sequences at scale. Their analysis centers on "salient" events as defined by narratological luminary Roland Barthes. However, in these studies and throughout the broader research environment, little attention has been devoted to accounting for the details that establish a narrative as authentic and tangible.

The focus of this project is to leverage methods from the field of natural language processing to investigate the characteristics and function of the details in a corpus of novels. This would entail a first computational analysis of its kind.

2 Related Literature

2.1 Traditional Narratology

Literary critic Roland Barthes provides theoretical foundation for the field of narratology when he taxonomizes components of narrative (Barthes and Duisit, 1975). One of the elements he identifies is the "cardinal function." A cardinal function refers to an action that "directly [affects] the continuation of the story . . . it either intiates or resolves an uncertainty." For instance, the plots of Jane Austen's novels typically feature characters "calling" (visiting) upon the guests of an estate. In *Pride and Prejudice*, Austen (1813) proffers this excerpt in a letter to Elizabeth Bennet: "On the very day of my coming home from Longbourn, your uncle had a most unexpected visitor. Mr. Darcy *called*, and was shut up with him several hours" (emphasis mine).

We can consider this sentence representative of a cardinal function because the course of the narrative would diverge if Elizabeth did not know about the visit.

Barthes is again instructive as we shift our focus to details. Every sentence contained in a narrative bears significance, even if it does not meet the requirements of a cardinal function; for Barthes, art is a "pure system" (Barthes and Duisit, 1975). Thus, in addition to cardinal functions, every narrative possesses a certain number of details (Barthes, 1989). For this reason, sifting through a narrative's particulars possesses robust potential to illuminate important truths about an author's work and the experience of reading their stories.

For example, a study of Leo Tolstoy's realist fiction posits empirical details are significant because they contribute to a discourse that generates persons and worlds that feel authentic (Auyoung, 2015). Like most surveys of its kind, Auyoung labors closely and attentively over a few works — the work centers on elegant close-reading. However, this mode of hermeneutics cannot (easily) scale if your goal is to interrogate the entire "system" mentioned by Barthes. Therefore, enhancing my analysis through digital methods is a sensible protocol.

2.2 Computational Narratology

The practices of natural language processing provide a reliable set of frameworks for large-scale experiments in narratology. From a broad perspective, explorations in the social sciences that combine traditional research methods with algorithmic techniques have produced exciting results (Kao and Jurafsky, 2012; Mendelsohn et al., 2020; Moretti, 2013). Other works in this spirit include improving the coreference resolution task (Lee et al., 2017) and extending the functionality of topic models with word embeddings (Demszky et al., 2019).

The most relevant computational studies for this effort operationalize Barthes' theory of salience. For instance, a fascinating study takes Barthes at his word and operationalizes cardinal functions to determine whether the **BERT** language model can effectively detect important sentences across a corpus of folktales (Devlin et al., 2019; Otake et al., 2020). This study considers a sentence to be "salient" if its omission from the story greatly reduces the narrative's coherence. This research serves as a germane resource for my project.

Furthermore, a duo of prolific computational narratologists are producing excellent studies regarding tasks such as identifying suspense (Wilmot and Keller, 2020). In regards to salience, the pair augments the technique used by Otake et al. (2020) with an enhanced model: a question-and-answer mechanism plus an attentive layer responsible for handling the increased contextual demands of their corpus (Wilmot and Keller, 2021). They contribute an original learning pipeline that can identify salient sentences across a corpus of novel-length works. Their work is likewise of direct interest to my project.

It is worth mentioning that there is a wealth of exciting research that takes up "narratology" from a non-Barthesian perspective with focus areas such as aggregating shifts in the pace and quantities of "narrative" time addressed in narratives (Underwood, 2018), "multiple narrative disentanglement," utilizing clustering algorithms to parse discursive plot lines (Wallace, 2012) and identifying "turning points" in cinematic screenplays (Papalampidi et al., 2019). These salvos, while valuable in their own regard, are less pertinent to my interests.

3   Research Plan

3.1   Modeling and Learning Strategy

The experiments laid out by the dueling Barthesians provide an excellent template for investigating details in narratives. Luckily, both projects have the digital elements of their studies published on *Github* (Otake, 2021; Wilmot, 2021). The conceit of their strategies is to operationalize salience and then fine-tune a large language model to rank sentences in a large corpus based on this metric. This results in a text separated into a small group of salient sentences and the "unconsequential" majority. Wilmot and Keller (2021), for example, use a clustering algorithm and select the 10 sentences closest (by cosine distance) to an established

"salience" centroid and identify those as the most important within each chapter (the rhetorical unit of inquiry for their study).

My plan is to simply flip the process and investigate those sentences that are furthest from the centroid: the "least" salient. Overall, the experimental goal of this approach is not to pioneer yet another acronymic language model — I harbor no plans to trademark **TIM**. Rather, I would like to produce a robust representation of details across novels. Another way to conceptualize the problem that I am approaching is to consider the popular task of automatic summarization (Liu, 2019; Gupta et al., 2021). Automatic summarization aims to distill an inputted text into its most crucial components; my endeavor inverts this sort of scheme.

3.2   Distilling Insights

Utilizing an unsupervised clustering algorithm like topic modeling is one potential strategy to reveal underlying themes and emphases within this subset of sentences (Blei, 2012). Others might involve variations on topic modeling or integrating other techniques like k-means. Regardless of the algorithm employed, my goal remains consistent: to aggregate trends across works and genre with respect to the details therein.

Potential questions in this vein include:

- What are the most frequently occurring objects invoked in "detail" sentences?

- Can we conceptualize a temporal relationship between salient sentences and detail sentences?

- How do different authors employ details?

I will experiment with the criteria for extracting a detail as "of interest." For instance, only considering sentences that mention a certain character (or no characters at all) may helpfully narrow my focus. These sorts of decisions will be addressed once my learning pipeline is functionally established.

Additionally, I will examine specific works in my corpus that I am most familiar with — like Austen's fiction — to understand how the data put forth by the models compares to the context of an individual narrative. Closely examining a member of a corpus following digital analysis is a common technique in computational humanities studies, for instance looking deeply at a single novel's relationship to television when investigating the adoption

of technology in fiction (Manshel, 2020) or high-lighting an individual birth story after analyzing a large corpus of these narratives (Antoniak et al., 2019).

3.3 Corpus Construction

The language models necessary for this sort of analysis require massive amounts of input (tens of thousands of novels) for proper fine-tuning to this task. I plan to work with out of copyright English-language works from *Gutenberg* (via a wrapper) so I have full control over the construction and usage of my corpus (Wolff, 2021).

3.4 Supporting Future Work

Another goal of this project is to support future research. Working with out of copyright novels means that I can potentially release an annotated dataset of notable works with their "details" systematically identified for future analysis. This aligns with the practices of other researchers in the computational humanities, such as releasing a large group of text with instances of coreference annotated (Bamman et al., 2020).

4 Conclusion

To give Barthes (1989) one last due, let's ponder a spellbinding question which summarizes my motivation in this area: "If everything in narrative is significant, and if not, if insignificant stretches subsist in the narrative syntagm, what is ultimately, so to speak, the significance of this insignificance?"

I will explore the details of a large corpus of novels through the adaptation of successful computational practices from other scholars. Ideally, my work will produce actionable insights regarding the implementation of details in novels and provide interesting avenues for further study with the furnishing of an annotated corpus.

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