ContractVis HighLighter: the Visual Assistant for the Fine Print

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Abstract. Navigating and comprehending the legal text of web shops' general terms and conditions is a burden for consumers. This poster abstract describes work-in-progress to design a visualization environment specifically addressing the needs of online shoppers. This environment highlights keywords of relevance (e.g., returning items), provides visual overview, and supports comparison of two texts.

Keywords: Visualization · Text Analytics · Personal Context.

1 Introduction

Does the fine print matter? Sure it does! Buying a product or signing up for a service implicates a contract between the consumer and the merchant or provider. The average web user is often worried about the possible consequences from such a contract, in particular when they interact with a new web shop. Even though the rights of consumers are strongly protected (e.g., by Austrian national laws [1]), the enforcement of these rights at a court is a major hassle. Especially as each contract involves a multitude of legal text that is hard to read.

The comprehension of large text corpora is a challenge for various professional domains such as crime fighting [9] or social media analysis [11] and can be addressed using text visualization techniques. In particular, visualization environments from the digital humanities [5] are an applicable inspiration because the humanities share the need to combine close and distant reading of text. For example, VarifocalReader [6] summarizes the text of an antique book at different levels of detail and represents those as bar charts and word clouds [10]. ShakerVis presents a corpus of different translations of a theater play by Shakespeare, in order to study similarity and variation between these translations [3].

The ContractVis HighLighter (CVHL) aims to transfer sophisticated text visualization techniques to online shopping and other online activities involving legal text, mainly general terms and conditions (GTC). By guiding consumers' attention directly to the text segments that matter most to them, it will empower them to make better informed shopping decisions. CVHL provides an interactive visual interface that represents long texts in overview and detail [2]. Furthermore, visual comparison between two versions of a contract or segments within the

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same text are possible. However, in contrast to many existing text visualization environments, CVHL has a target audience of non-professional users that use it in a casual context without training [4,7].

2 Methods

The focus on casual users calls for a high level of usability. Therefore, CVHL is designed and developed by following a user-centered design process [8]. Initial interviews with six frequent online shoppers were summarized into a primary persona:

> Stefanie Schidl is a 32 years old physiotherapist who frequently buys sports equipment online. Since she wants to try different product and sizes, she cares about shops' returns and payment terms.

The needs and usage scenarios of this persona were the basis for the user interface design of CVHL. In a first iteration, it was sketched as low fidelity wireframes, so that its usability could be tested with users from the target audience. Informed by the test results, a high fidelity prototype will be developed using modern web development frameworks and evaluated by conducting a second usability study with the target audience.

3 Visual Interface Design

CVHL will be realized as a web browser extension in order to make it available for its users while they are shopping online. When they encounter a legal text like the terms of services of an online shop, they can load the text into CVHL.

CVHL provides two mechanisms to facilitate text comprehension (Fig. 1): First, criteria of concern for online shoppers are highlighted by a colored background. The environment provides a curated list of keywords that are grouped into the six criteria – payment, shipping, warranty, guarantee, exchange, and return. Additional keywords can be specified by the users. These highlights allow shoppers to browse GTC quickly, for example with attention focused on the conditions for returning items. Second, the text is accompanied with an overview panel on its left. The overview panel presents the distribution of highlighted keywords throughout the complete text and can be used for navigation in the text [2].

Additionally, CVHL allows shoppers to load a second text as comparison, which is presented in an overview panel on the right. The center panel is then split between the focus areas of both texts (Fig. 2). Therefore, it is possible to compare the GTC of two shops or the revised and previous versions of a shop's GTC.

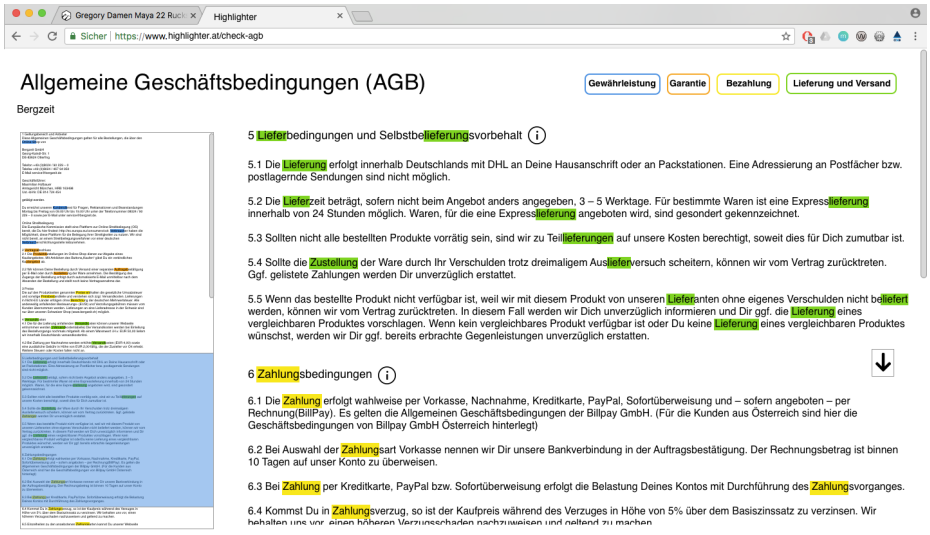

Fig. 1. Low fidelity prototype showing the GTC of a hiking shop with overview and highlighting.

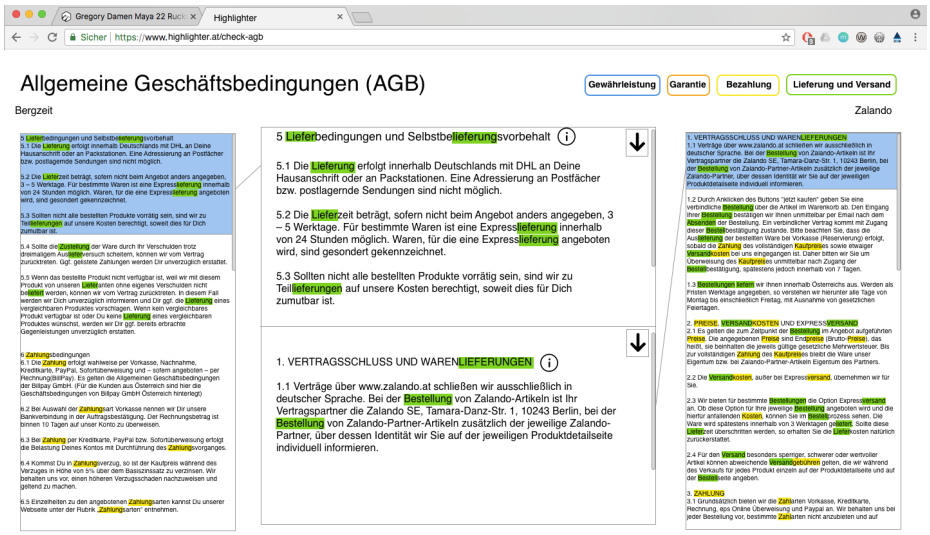

Fig. 2. Low fidelity prototype comparing the GTC of two shops using highlighting and visual overviews.

4 Next Steps

At the time of writing, the low fidelity prototype is being evaluated. Further refinement of the design and implementation in web languages are planned in the upcoming months.

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References

1. Konsumentenschutzgesetz. Bundesrecht, Republik Österreich (2017), https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10002462
2. Cockburn, A., Karlson, A., Bederson, B.B.: A review of overview+detail, zooming, and focus+context interfaces. ACM Computing Surveys **41**(1), 2:1–2:31 (Dec 2008). https://doi.org/10.1145/1456650.1456652
3. Geng, Z., Cheesman, T., Laramee, R.S., Flanagan, K., Thiel, S.: ShakerVis: Visual analysis of segment variation of German translations of Shakespeare's Othello. Information Visualization **14**(4), 273–288 (Jul 2013). https://doi.org/10.1177/1473871613495845
4. Huang, D., Tory, M., Aseniero, B.A., Bartram, L., Bateman, S., Carpendale, S., Tang, A., Woodbury, R.: Personal visualization and personal visual analytics. IEEE Trans. Visualization and Computer Graphics **21**(3), 420–433 (Mar 2015). https://doi.org/10.1109/TVCG.2014.2359887
5. Jänicke, S., Franzini, G., Cheema, M.F., Scheuermann, G.: Visual text analysis in digital humanities. Computer Graphics Forum **36**(6), 226–250 (2016). https://doi.org/10.1111/cgf.12873
6. Koch, S., John, M., Wörner, M., Müller, A., Ertl, T.: VarifocalReader: In-depth visual analysis of large text documents. IEEE Trans. Visualization and Computer Graphics **20**(12), 1723–1732 (Dec 2014). https://doi.org/10.1109/TVCG.2014.2346677
7. Pousman, Z., Stasko, J.T., Mateas, M.: Casual information visualization: Depictions of data in everyday life. IEEE Trans. Visualization and Computer Graphics **13**(6), 1145–1152 (2007). https://doi.org/10.1109/TVCG.2007.70541
8. Sharp, H., Rogers, Y., Preece, J.: Interaction Design: Beyond Human-Computer Interaction. Wiley & Sons, Chichester, second edn. (2007)
9. Stasko, J., Görg, C., Liu, Z.: Jigsaw: Supporting investigative analysis through interactive visualization. Information Visualization **7**(2), 118–132 (2008). https://doi.org/10.1057/palgrave.ivs.9500180
10. Viégas, F.B., Wattenberg, M.: Tag clouds and the case for vernacular visualization. interactions **15**(4), 49–52 (Jul 2008). https://doi.org/10.1145/1374489.1374501
11. Wu, Y., Liu, S., Yan, K., Liu, M., Wu, F.: OpinionFlow: Visual analysis of opinion diffusion on social media. IEEE Trans. Visualization and Computer Graphics **20**(12), 1763–1772 (Dec 2014). https://doi.org/10.1109/TVCG.2014.2346920