Consumer Participation in Online Contracts –
Exploring Cross-Out Clauses

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Abstract: E-commerce is reality. Millions of consumers buy goods or subscribe to services online. However, they are often presented with take-it-or-leave-it decisions: consumers must accept standard business terms and privacy policies as they are or the contract cannot be concluded. We explore the idea of letting the consumer cross out unwanted clauses online, giving back what was possible for offline contracts. We built a prototype and conducted a user study of 24 face-to-face tests with subsequent interviews in public space, applying both a between-subject and a within-subject experimental design. Results show that the participants of the study appreciated the idea and actively made use of it. Additionally, we observe a tendency that users read contracts more thoroughly if they know that they can alter them. This may help coming closer to the intended notion of informed consent when contracting online.

1 Introduction

Concluding contracts on the Internet is a well-established way for consumers to buy goods and subscribe to services. In 2013, 61 % of consumers in the EU bought online at least once [SR13]. A problem with this approach is that consumers often face a take-it-or-leave-it decision: they can accept the terms of the contract as a whole or choose to not use the service. German law, however, generally allows consumers to cross out clauses they want to exclude from the contract (cf. [BL13] for legal aspects of cross-out clauses online), giving the consumer a basis for negotiation of contract terms with the service provider. This is easily done on paper, but most online contract forms do not offer this option. We explore ways to give it back.

In this paper, we report our experience with a prototype that allows users to cross out certain clauses pre-defined by the service provider. Furthermore, we present a user study that evaluates our prototype. This study seeks to answer three research questions. First, behavioural aspects are examined by observing how the study participants interact with our prototype. Second, we analyse self-reported attitudes towards the general idea of crossing out clauses. Third, concrete design options are evaluated by pairwise comparisons between variants of the prototype.

Our research applies to contract clauses of various kinds, including Standard Business Terms (SBT), End User Licence Agreements (EULA) and privacy policies. We refer to them as *contract terms* and differentiate only where the specific kind of terms matters.

Online contracts also suffer from the problem that people tend to read their terms only superficially or not at all [JP04, MC04, GG07]. To address this problem, it has been proposed to shorten contracts or provide non-legally binding versions that are easier to understand [KCBC10, GG07]. In this paper, we examine whether our prototype can help solving this problem by encouraging users to interact with contracts. We present evidence that, indeed, people tend to read the contract more thoroughly if they can alter some of its clauses.

The rest of this paper is structured as follows. Section 2 reviews related research. We present our prototype in Section 3. The user study is described in Section 4. Section 5 discusses the results and concludes the paper.

2   Related Work

There is an economic argument to be made regarding the improvement of contract terms. McDonald and Cranor estimate the theoretical opportunity cost for the time to read privacy policies under the assumption that all consumers read them. They add up to a stunning US$ 780 billion per year for US consumers, about 40 times the value of the online advertising market [MC08]. User interaction with contract terms presented online have been subject to research for quite a while. We broadly distinguish prior work in approaches *reducing* user involvement and *improving* user involvement.

2.1   Reducing User Involvement

A reason for the need to reduce user involvement is given by Böhme and Grossklags. They argue that the user's attention is a scarce resource which is best spent on a few important instead of many, partly trivial decisions. Otherwise, important decisions could suffer [BG11].

One way of reducing the number of decisions is by automating them. Formal languages can be used for this task, some of which are presented in the following. All of them deal with privacy policies. P3P, shorthand for Platform for Privacy Preferences, is a protocol allowing websites to state their privacy policy in a standardised formal language [CW07]. Additionally, it allows users to state their preferred policy. When a user visits a website, its privacy policy is compared to the user's preferences and differences shown to the user.

The EU-funded EnCoRe project aims to strengthen the user's control over her personal data processed on websites with a formal language and a supporting infrastructure on the service provider's side exceeding P3P's server-side mechanisms. In [PCG09], the authors describe the foundations of the project. Similar to an earlier approach in [Hom05],

XACML is used to specify privacy policies and to enforce purpose binding of personal data. Additionally, [ACGP10] describes revocation mechanisms to prevent further usage of personal data.

Another privacy policy language is the Enterprise Privacy Authorization Language (EPAL), developed by IBM in 2003. It uses XACML to define conditions for data usage. Ashley et al., some of its authors, view EPAL as being complementary to P3P [AHK$^+$03].

The presented approaches accomplish the task of reducing user involvement. However, reaching widespread adoption can be challenging. For example, a survey on P3P support in 2006 showed that only about 10% of the top-20 websites found by searching for one of about 20,000 popular search terms have P3P policies [ECC06]. Without a critical mass supporting these languages, there is a chicken-and-egg problem: browser vendors are reluctant to implement features that websites do not use, and vice versa. Additionally, users without deep technical knowledge are often alienated by the complexity of policy languages [Cen00].

2.2 Improving User Involvement

Concluding a contract should follow the concept of *informed consent*. In many situations, consent is required to be explicit, voluntary and specific. Explicit means that consumers give consent by a distinct action. Voluntary means consumers do so out of free will. Specific means that consent is given to a well-defined usage scenario (e.g., [FLM05]). The concept also has a policy dimension as its role is about to be strengthened in the EU's data protection reform [Com12]. Kim suggests coming closer to the notion of informed consent could be achieved by having the user confirm every usage of their data one-by-one when first dealing with a service provider. This would imply that more invasive privacy policies need more confirmations and thus incentivises service providers to implement privacy-friendlier policies [Kim10].

Several studies on the usability of contract texts show that informed consent is often absent in practice. The authors of [JP04, MC04, GG07] all conclude that real-world contract texts are often unreadable for their length and complex language. Studies on the behaviour of users dealing with contract texts show that they are only superficially read, if at all [GG07, MC04]. When asked, consumers also claim that the lack of choice when wanting to use a product or service causes them to not read contract texts [PB11]. Giving the user a choice in parts of the contract leads to different behaviour depending on whether options are presented as opt-in or opt-out. Empirical studies, e.g. by Johnson et al., have shown that default options have a measurable effect on the option chosen by users [JBL02].

Even without changing anything in the contract texts themselves, it is possible to get users to read them more thoroughly. Plaut and Bartlett manipulated the beliefs users held in contract texts, e.g., by telling them beforehand they had a choice on its content or that it was different from common contract texts while still using the same text. Users primed with this information read the texts for a longer time. On the opposite, telling them the service provider was reputable decreased the reading time [PB11].

Approaches to improve the usability of contract texts differ by the type of contract. For privacy policies, there exist concise representations showing the type of data being processed and the purpose. For example, Petterson et al. developed a *Send Data dialogue* showing this information as well as retention options and a link to a verbose privacy policy [PFHD⁺05]. Kelley et al. experimented with representing the information in table form, additionally colouring the table cells according to the level of data use. In a study testing how much information was remembered from reading privacy policies, users who dealt with the table version could answer more questions correctly than those who read common verbose privacy policies [KCBC10].

For EULAs, Kay and Terry propose that augmenting the text is better than substituting it by a different representation or a shorter version of the text. They augment contract texts by adding layers, i.e. collapsible parts, colours, and pictographs to emphasise certain parts of the text. In a user study, they show that the augmented version of the original text is not only read longer than a control group contract text, but also longer than a shortened summary they provided as an alternative [KT].

All of the studies presented are meant to give an overview, not the complete picture. However, to the best of our knowledge, we are not aware of any studies that come close to our approach of crossing out clauses like on a paper contract.

3   The Prototype

In this section, we present a prototype that allows crossing out clauses. The idea behind our approach is to be evolutionary rather than revolutionary—its user experience is known from offline contracts.

3.1   Implementation

The prototype is designed after typical mobile phone service provider websites, which was tested and confirmed in the user study. A screenshot of the main page is provided in Appendix C. On the website, users can enter their credentials. The contract terms are placed below. Optional clauses can be crossed out in this area. Each optional clause is inside a HTML `span` environment.

Crossing out clauses is handled in JavaScript. A clause is selected by clicking on or marking at least part of it. If mandatory clauses are marked, nothing happens. A clause is either crossed out directly after it is marked or by clicking on a button (see below). Additionally, its `span` environment's `class` name is changed. After crossing out clauses, the user clicks on a *Check Data* button. The crossed-out clauses are sent to the server hosting the website via JSON. Further steps could be taken at this stage, e.g., the altered contract could be evaluated by the service provider. This feature is not implemented in the prototype. Afterwards, the clauses are sent back to the client and confirmed by the user.

3.2   Content and Variants

We created the SBT under legal consideration (cf. [BL13]) to look like common SBT of mobile phone companies. However, we formulated easy-to-understand SBT to avoid users giving up on reading the text due to not understanding it (cf. Section 2.2). Two clauses could be crossed out: paying per direct debit and the automatic renewal of the contract. Additionally, we made some options available as choices outside the text, e.g., the duration of the contract and its cancellation period.

We designed the privacy policy to be concise with three main options. Users could choose whether they wanted to get advertisements from the mobile phone service provider or from third parties. Additionally, they could choose to not be contacted for market research purposes. For each of the options, four different contact ways were available: e-mail, standard mail, text message, and phone calls.

We developed several variants of the prototype. It either had one, two or no buttons to cross out clauses. For the variants with one or two buttons, clauses were crossed out by clicking on a button. The same button undid crossings in the one-button variant. Clauses got crossed out as soon as they were marked in the variants without buttons.

There either was a checkbox to emphasise optional clauses or they were always emphasised. Finally, users could either only cross out parts of the privacy policy clauses (i.e., only contact ways) or whole clauses. These variants were created because the latter is more natural like pen & paper while the former is more practical and automatisable. We also tested a control group that could choose some of the optional clauses via checkboxes.

4   User Study

4.1   Goals

The goals of the user study are defined by three research questions (RQs):

- RQ 1: How do consumers deal with contract texts in order forms?
- RQ 2: How do consumers evaluate the option to cross out clauses?
- RQ 3: How do consumers evaluate different design options?

For RQ 1, we observed the behaviour of the participants of the study during the simulated contract formation. Thus, we know how thoroughly the contract terms were read. We can then compare the results to the literature to see whether the possibility to interact with the contract encourages users to read it in more detail.

For RQ 2, we asked whether the participants liked the idea of crossing out unwanted clauses and if they would use it. We compared this with their behaviour during the simulated contract formation. Possibly, contradicting results could tell something about the difference between liking the idea in theory and using our prototype.

Crossing out clauses can be implemented in various ways. For RQ 3, we tested different variants of our prototype described in detail in Section 3.2 (cf. Table 2 in Appendix B for information on variant distribution in the study). We stated some expected results beforehand: buttons help users understand they are able to cross out clauses. Regarding the emphasis of clauses we expect two effects. On the one hand, clauses that are already emphasised should be more visible. On the other hand, having to tick a box possibly serves as a hint for the user. Being only able to cross out parts of the privacy policy clauses could lead to fewer crossed out clauses or a worse evaluation of the prototype.

4.2   Design of the Qualitative User Study

Our study consisted of 24 participants, of whom 17 were male and seven female. Eleven were recruited from a law lecture, the others by approaching them spontaneously. Apart from students, we also asked secretaries and librarians to broaden our sample spectrum. For more details on the composition of the sample, please refer to Table 1 in Appendix B. Each participant performed the study individually, i.e. there was exactly one participant sitting face-to-face to a conductor, using the prototype on a laptop. RQ 3 was answered both by applying a between-subject and a within-subject design. Most participants only used one variant of the prototype but we let some compare two variants directly (see below).

The study was divided into four parts: First, each participant answered some general questions regarding demographics, knowledge of computers and experience with mobile phone contracts. She was informed that she should act as if she would sign a real mobile phone contract. Then, she performed the simulated contract formation. We monitored her choices and how long and thoroughly she read different parts of the contract website to answer RQ 1. Afterwards, we interviewed her on the contract formation, answering mainly RQs 1 and 2. Lastly, we let her fill out a questionnaire to evaluate the prototype itself, i.e., the implementation, which concerned RQs 2 and 3.

Interview. In the interview, we first asked about problems during the contract formation and what the participants thought the intention of the prototype was. We then checked facts from the contract texts to determine how thoroughly the participants had read them, a part of RQ 1. After that, we asked questions regarding RQ 2 as mentioned in Section 4.1. We also asked whether they thought this technique was easy enough to work with, would lead to reading contract texts more thoroughly and how people became aware of what they could do. Lastly, we asked eight people to perform a consecutive test and compare another variant of the prototype to the one they had just tested, answering RQ 3.

Questionnaire. We used an adapted (cf. Appendix A) version of [MRT13a], a questionnaire using the Components of User Experience (CUE) model to measure the quality of interactive products. The questionnaire is presented in detail in [MR13] and was validated in [MRT13b] and [MRT13c]. All of its items belong to one of five categories: The *usefulness* of a product describes whether users can achieve a certain goal with it. The question answered by this measure is if *what* the product does is good. The *usability* of a product describes how efficiently the user can reach her goals. The question answered by this measure

is whether *how* the product implements its functionality is done well. *Aesthetics* measures whether its design looks attractive to the user. Here, functionality is of no concern. *Negative emotions* can be split up into *passive* and *active* negative emotions. Passive emotions are, e.g., getting tired by the product, while an active negative emotion could be being frustrated by it. Lastly, *loyalty* is a measure to determine whether the product encourages the user to be used again.

4.3   Results

The results of the user study are presented along the research questions stated in Section 4.1.

Behaviour of test subjects (RQ 1). During our study, most participants read at least the privacy policy in great detail. The SBT were often read in lesser detail, albeit most participants still remembered facts from the SBT correctly. One participant probably even read the SBT of a mobile phone contract for the first time, as she wondered why a request to a credit agency was included, a standard practice in mobile phone contracts.

On the other hand, six participants did not read the contract terms at all or only very superficially, even though they were primed with testing a consumer-friendly version of a mobile phone website. This behaviour is reflected in the literature, e.g. in [JP04], [MC04], and [GG07], but still unexpected considering the circumstances of the study. Still, the number of participants showing this behaviour is relatively small. One of the problems mentioned was that the contract terms were only available by clicking on a link instead of being directly visible. Additionally, participants claimed they were not being informed about their possibilities even though information about crossing out clauses was provided directly above the contract terms. Only three participants claimed this information made them aware of what they could do. Additionally, participants claimed the contract terms were inside containers that were too small. Optional clauses should be more emphasised and SBT only acceptable after at least scrolling through them.

All but two participants who noticed they could cross out clauses did so at least in the privacy policy, all in all 18 out of 20. Four out of the six who only superficially read the contract terms never noticed they were able to cross out clauses. In the SBT where there were far less options, only few participants crossed out clauses. Interestingly, one participant claimed he did not read clauses that came directly after crossable ones.

Crossing out clauses was problematic in six cases. Aside from variant-specific problems described below, marking clauses correctly was the biggest problem. Participants often asked how they could mark clauses even before trying for themselves. If they marked clauses in a way such that the prototype did nothing (cf. Section 3.1), all but one did not try again before being helped.

General attitudes (RQ 2). Generally, the idea of crossing out clauses was near unanimously seen positively. All but one participant would prefer having such an option, all but two would use it themselves. The participant favouring the idea without wanting to use it claimed that in reality he would not trust such a novel feature. Still, there were more participants who claimed they would cross out clauses than who actually did so. We asked

the participants who showed a contradictory behaviour for an explanation. Three people claimed they did not see how to cross out clauses, while the fourth person simply did not find anything in the contract texts he wanted to cross out.

However, while almost all participants in general liked the idea, there were mainly three critical remarks when asked whether crossing out clauses was simple enough. The first critical remark was that, especially in lengthy SBT, the few optional clauses can be hard to find even if they are emphasised. People have to scroll through the entire text to find all clauses. Thus, easily readable, short SBT were claimed to be more important than crossing out clauses by two participants.

The second critical remark was that having all optional clauses as checkboxes would be easier. On the other hand, all participants stating this explicitly said it was only true if all clauses were available as checkboxes, which is rather unrealistic considering the amount of optional clauses. Additionally, one of the goals of our idea is to make consumers aware of the contract terms. This can be hard with checkboxes due to users blindly checking them (cf. Section 2.2). Finally, all clauses in our contract were positive for the service provider when not crossed out. This was criticised as well. It has to be kept in mind, however, that the usual alternative to this would be to have no options at all.

Two answers dominated when we asked what the goal of the prototype was: offering a transparent privacy- and consumer-aware alternative to standard online contract formation and getting consumers to read contract terms more thoroughly. Telecommunication companies trying to gain trust they lacked in the eyes of the participants was also mentioned. One participant, however, saw our prototype cynically and claimed it only suggested to offer autonomy of decision where in reality there was none.

All but one participant claimed they would read contract texts in more detail given the option to cross out clauses. Most participants claimed it would also lead to a more thorough examination of contract texts by the general public, but only 16 gave an unconditionally positive answer to this question.

There was no specific part of the prototype that made participants aware of their possibilities. All of the possible hints, e.g., buttons, the checkbox to emphasise clauses, emphasised clauses themselves, the structure of the website, and the information text above the contract texts, were mentioned about evenly.

Additionally to asking about the general idea of crossing out clauses, we also wanted to test our implementation (cf. screenshots in Appendix C). One of the evaluation methods used was the questionnaire described in Section 4.2. An overview of the results can be found in Figure 1.

Overall it can be seen that the participants evaluated the prototype positively. In all categories the median is in the upper half of the respective scale. The usefulness of the prototype was evaluated especially positively. With a median of 6 and no values below 4, it was always rated at least neutral. The prototype's Usefulness is higher rated than usability, aesthetics and loyalty. This order is good, as usefulness is clearly the most important aspect of our study as it also assesses the idea. Weaker ratings of the usability and the aesthetics can be explained by a prototype being tested.
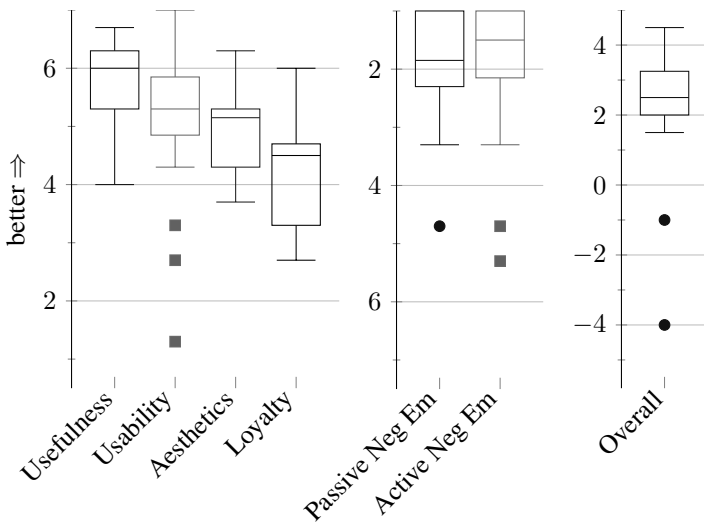
Figure 1: Results of the questionnaire. *Neg Em* are negative emotions, therefore lower values are better and the scale is inverted. ($n = 24$)

Loyalty is the least important category and rather hard to measure correctly due to the nature of the product being tested—people probably see a contract website as something they have to use, not something they would want to use regularly.

One of our goals was to reach a low level of negative emotions, in which we succeeded. Except for one and two outliers, respectively, both aspects of negative emotions were rated on a low level. The same is true for the overall evaluation which is positive except for two outliers.

Variants of the prototype (RQ 3). Contrary to our expected result, variants without buttons were preferred to variants with buttons. The main reason stated for this was that without buttons, one could experiment with marking the clauses and immediately see a result instead of having to click on a button first. Only two participants preferred the variants with buttons because it served as a hint for what they could do.

Having to check a checkbox to emphasise clauses that can be crossed out was generally preferred to clauses being emphasised from the beginning due to the checkbox serving as a hint. We expected this, but it nevertheless contradicts the result on ease-to-use vs. explicating functionality we generally saw for buttons. This is probably due to checking a checkbox once is easier than having to click on a button for each clause that is crossed out.

Versions where it was possible to cross out whole clauses in the privacy policy were not evaluated differently than those where only parts of them could be crossed out. Additionally, in the questionnaire, differences of the scores between variants were very small. This could possibly be explained by the relatively small number of participants or the fact that while there were differences in preference regarding the variants, they were considered relatively

minor.

The consecutive tests (cf. Section 4.2) performed with eight of the participants mainly explicated results that were implicitly stated in the interview.

5   Discussion and Conclusion

We have explored, to the best of our knowledge for the first time, the idea of allowing users to cross out clauses in standard business terms and privacy policies. This option enriches online contracts with part of the negotiation power consumers enjoy offline. A user study with a prototype implementation reveals that the participants like the idea of being able to cross out clauses and actively make use of it. When asked for their impression, most participants expect that this option leads people to deal with contract terms more thoroughly. Therefore, we believe that our idea helps to come closer to the intended notion of *informed consent* between contracting partners.

However, there are a few limitations attached to the generally positive results. As also mentioned by participants of our study, the prototype does little to enforce simpler or shorter SBT and privacy policies. We used shorter than average texts for our study, but the question remains whether our results generalise to longer, more complex SBT with fewer options. Furthermore, to implement our system in an existing business architecture, this architecture must be adapted to accept and manage different SBT and privacy policies for each user. This aspect was deliberately excluded from our study. In practice, implementing the new functionality and handling diverse contacts with more consumer-friendly terms imposes additional costs on the service provider. Unless these costs are offset by competitive advantages, the prospects for voluntary adoption by the industry are dim and additional incentives might be needed. Finally, part of the success of our prototype could be caused by its novelty. Over time, a habituation effect may emerge that attenuates the observed benefits.

To conclude, our study shows that getting the user to read contracts more thoroughly is possible by giving her the option to cross out unwanted clauses. By staying close to a familiar usage concept, users have few problems when interacting with our prototype. Future research could focus on the implications for service providers and the factors affecting their decision to adopt.

Acknowledgements

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A   Questionnaire Details and Adjustments

The *meCUE* questionnaire [MRT13a] consists of statements regarding the product measured on a seven-stepped Likert scale. Additionally, an overall grade ranging from -5 to 5 can be given. We excluded all questions regarding *status* and *binding*, as contract websites are not prone to change the social status of a user or become an integral part of her life. Additionally, we left out questions on positive emotions. Our goal instead was to not invoke negative emotions, as we concluded this was the measure a contract website could achieve. Lastly, we excluded questions on intention of use, as they were all concerned with long-time repeated usage. This left us with questions on usefulness, usability, aesthetics, negative emotions and loyalty as well as an overall mark.

B   Details on the Study Design

Dimension	Manifestation
Participants	24 overall 17 male 7 female
Profession of participants	11 from law lecture Secretaries, librarians, students, PhD candidates
Age	21–60
Computer experience	Above average, styled after Eurostat questionnaire [Eur12]. People who... copied files: 24 created presentations: 24 created Excel sheets: 20 implemented a computer program: 5
Mobile phone contract experience	22 have had mobile phone contracts 4 lastly contracted online 4 on telephone 16 in a brick-and-mortar store

Table 1: Stylized facts of the participants of the user study

Element	Variants
Buttons	7× 0 buttons 10× 1 button 7× 2 buttons
Clauses	8× only parts of privacy policy clauses 16× whole privacy policy clauses

Table 2: Variants of the prototype tested

C   Prototype Screenshot

Figure 2: Screenshot of the prototype website. Variant with no buttons, option to emphasise clauses and whole clause crossable
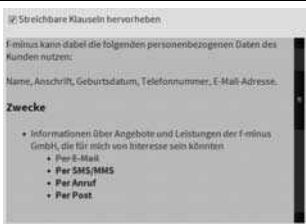
Element	Alternatives to Figure 2	
Buttons	One button	Two buttons
Clause marking	Only parts of each privacy policy clause (contact way) can be struck, not the whole clause	
Emphasis	Clauses automatically emphasised without checkbox	

Table 3: Screenshots of alternative variants