

# “That’s dastardly ingenious”: Ethical Argumentation Strategies on Reddit

COLIN M. GRAY and SHRUTHI SAI CHIVUKULA, Purdue University

Scholars have previously described how online communities engage in particular discourses and forms of argumentation. In parallel, HCI and STS researchers have described discourses surrounding ethics and values and their role in shaping design processes and outcomes. However, little work has addressed the intersection of ethical concern and the discourses of non-expert users. In this paper, we describe the argumentation strategies used by Redditors on the subreddit ‘r/assholeddesign’ as they discuss ethically problematic design artifacts. We used content and sequence analysis methods to identify the building blocks of ethical argumentation in this online community, including ethical positioning when raising issues of concern, identification of potential remedies to the original design artifact or issues of concern, and means of extending or negating these elements. Through this analysis, we reveal the breadth of ethical argumentation strategies used “*in-the-wild*” by non-experts, resulting in an increased awareness of the capacity of community members to engage in “everyday ethics” regardless of specific ethics training. We describe future opportunities to connect these ethical argumentation strategies with design practices, education, and methods.

CCS Concepts: • **Human-centered computing** → **Empirical studies in interaction design**; *Empirical studies in HCI*; • **Social and professional topics** → **Codes of ethics**.

Additional Key Words and Phrases: ethics, ethical argumentation, values, Reddit

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## 1 INTRODUCTION

As design systems become increasingly embedded in our everyday lives, end users are frequently responsible for identifying and analyzing complex ethical dimensions of technologies, making decisions about their use, extent of use, and social impacts of use in relation to these technologies. However, even as end users have become more able to engage in technology use across a wide spectrum of devices, platforms, and contexts, the designers of these systems have increasingly engaged in deceptive, manipulative, and coercive practices to encourage certain patterns of use and discourage others [39, 40, 57, 61]. The practical implications of this tension between technology use and manipulation has a range of social impacts, from the ability to freely consent to data collection (e.g., [61, 84]), the lock-in effect of some platforms due to their ubiquity (e.g., [45]), and the hidden consequences of long term data capture and use (e.g., [44]).

In the HCI and Science and Technology Studies (STS) literature, researchers have previously sought to describe the role of ethics and values in informing or directing design practice [38,

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Authors’ address: Colin M. Gray, [gray42@purdue.edu](mailto:gray42@purdue.edu); Shruthi Sai Chivukula, [cshruthi@purdue.edu](mailto:cshruthi@purdue.edu), Purdue University, 401 N Grant Street, West Lafayette, Indiana, 47907.

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69, 71, 72] and research [26, 29]. Prior work in this space has outlined the theoretical [1, 31], methodological [30, 71, 79], and philosophical [24, 32, 80] dimensions of design work, which when taken together, provide insights into the ethical complexity of design practice, designed artifacts, and the ethical implications of design use. Most of these discourses of ethics have focused on formal systems of ethical reasoning and their uptake as an analytic tool, educational approach, or means of structuring design practices. However, little work has described the *everyday* ethical reasoning that is undertaken by non-experts.

In this paper, we focus on identifying and describing the ethical argumentation strategies used in comments on the subreddit “r/assholedesign.” On this subreddit, members are focused on posting design artifacts across a range of digital and physical contexts where the designer was deemed to be an “asshole”; supporting this focus, the subreddit has the tagline: “*Because nothing comes before profit, especially not the consumer.*” While the demographic characteristics of this subreddit are not available, we consider this membership to be non-expert users with varying levels of technological capability and interest. Through a content and sequence analysis of comments from this subreddit, we seek to reveal aspects of the ethical discourse that community members focus on, how the members raise and argue for matters of ethical concern, and to what extent the comments relate to known formal patterns of ethical reasoning.

Our contribution in this paper is two-fold: First, we identify the ethical argumentation strategies used by community members of “r/assholedesign,” revealing various dimensions of unstructured ethical discourses used by non-experts and demonstrating the capacity of these users to engage in deliberation about the ethics of both technologies and the designers who created those technologies. Second, we describe the interplay of argumentation strategies within and across comment threads, pointing towards discursive qualities of ethical argumentation “in the wild” and the conditions that may be relevant in encouraging ethics-focused interaction in other online communities.

## 2 BACKGROUND WORK

### 2.1 Deliberative Discourses in Online Communities

Online social media platforms are a rich source of community engagement and co-production of knowledge relating to a multitude of topics. These communities—and the members that sustain these communities—create discourses of interaction which are coherent, holistic, and normative. Professional discourses—including a variety of forms of dialogue, argumentation, and reasoning [76]—have been shown to be sustained on a range of platforms, including forums such as Quora and Stack Exchange, as well as general purpose conversational platforms such as Reddit or Twitter. These platforms provide a potential space for computer-mediated communication, building a public sphere that can support a “vibrant exchange of positions and rational critique” [19, 20]. Previous CSCW scholarship has shown the robustness of these communities in supporting analysis of political events [49, 59], legal discourses around trending social movements [33], and social support [2, 22]. These platforms have also been used to structure professional development [47, 55], aiding users in engaging in creative practices such as design critique [52, 86], and motivating knowledge work in relation to existing or emerging disciplines [48].

Beyond the use of social media platforms to support professional development and engagement with substantive analysis of complex issues, other researchers have used the lens of ethics to describe the discourse as a means of argumentation and sharing of opinions. Often, ethics has been operationalized to address specific social issues such as bias, discrimination, harassment, or privacy. For instance, Hutson et al. [43] investigated design features on online platforms that create bias and discrimination, while Chandrasekharan et al. [13] evaluated new anti-harassment rules on Reddit. While these studies focused more directly on consequences of certain discourses or

forms of community interaction, Chen et al. [14] used a survey and text analysis of Reddit users to describe how people present their value orientations in online communities. In this paper, we attend primarily to the conversations generated by users that have an ethical valence, leveraging the interest of an extant community in critiquing designed artifacts to describe the discourse and ethical argumentation latent in this discourse.

## 2.2 Ethics and a “Design Stance”

Ethics is an increasingly common topic of inquiry in a range of disciplinary communities, including CSCW, design, privacy, and critical computing. In each disciplinary framing, ethics-focused inquiry has taken on different framings, with different epistemological lenses, communities, and desired outcomes. Due to the range of ethics-focused work on methods, frameworks, codes of ethics, our ambition is not to detail all of the relevant literature in disciplines that relate to our research contribution. Instead, in this subsection we seek to describe four different areas of research focus that substantiate the framing of this paper. Our primary contribution lies in relation to the fourth area: user-focused approaches to describe ethically-valenced interactions with technology.

First, *methods-focused* ethics research has proposed new ethics-focused methods or approaches in a range of disciplinary contexts (e.g., [3, 31, 42]), with the intention of supporting the education and practice of designers and technologists. This work has been supported by higher level work by professional organizations to create and build upon codes of ethics to support decision-making and ethical reasoning practices (e.g., [11, 12, 27, 37] and formalized scoring systems to evaluate the extent of ethical sensitivity [16]. Additional strands of discipline-focused ethics work includes a recent focus on research ethics in relation to these work practices (e.g., [26, 29]) and work on ethics education (e.g., [85]).

Second, *theoretically-focused* ethics research has proposed ethical frameworks and paradigms through which ethical reasoning may productively occur. In the HCI community, scholars have outlined the relevance of existing ethics paradigms for technology-focused contexts [36, 69]; in parallel, work in STS and design has provided support for inquiry into ethical responsibility and its relationship to organizations, individuals, and the inscription of ethics into artifacts (e.g., [1, 21, 24, 79, 80, 82]).

Third, *practice-focused* ethics research has focused on studying the reasoning practices of design and technology practitioners, primarily in an ethnographic and critical stance from the perspective of the practitioner. Relevant work in this area emerges from a combination of STS, design, and HCI scholars, with the goal of describing the ethical complexity of everyday work practices (e.g., [38, 67, 68, 70, 72]). This work has also resulted in the creation of new concepts to engage with situational and pragmatist dimensions of ethics, including *value levers* [67], *ethical design complexity* [38], and dark patterns [10, 40].

Fourth, *user-focused* approaches to ethics research seek to describe the everyday engagement of end users with technological systems, with the goal of describing how these end users engage with ethical decision-making as they consider, use, and discontinue use of technologies. As compared to the other framings of ethics-focused research listed above, this space has shown the least historic engagement by the CSCW community. Rare examples include more theoretical work by Crilly [17] and Da Silva et al. [18] that describes how users project their understanding of designer intent as they evaluate artifacts. This description of users as having agency and capacity to evaluate and discuss designer intent is resonant with the prior claims of Gray, Chivukula, and colleagues [15, 39] in their study of the subreddit ‘r/assholedesign,’ pointing towards what [39] refer to as a “community capacity for subreddit members to engage in ethically-nuanced conversations.” We explicitly build upon this notion of community capacity in this paper, using capacity as a point of

departure to further describe the extent to which comments on posts reveal the nature of ethical engagement and argumentation.

In this paper, we seek to build upon this notion of “design stance” to describe users’ perception of designer intent, and their capacity to work out this intentionality in robust ways. Quoting Crilly [17]:

*“[...] fully respecting users’ sophistication means acknowledging that they have the capacity to recognize that designed systems have been designed. That is, as users interact with systems, they may reason about the design processes from which these systems result. Such reasoning may help users predict the behavior of systems, especially when they consider how designers might have expected users to act. Furthermore, this reasoning may also influence other aspects of how users experience a system, including the meaning that it holds for them, their engagement with it, and the fulfillment that it brings.”*

This combination of reasoning practices is characterized by Crilly as a user’s *design stance* towards a system, building on the work of Dennett [23].

### 2.3 Approaches to Ethical Argumentation

Argumentation is defined by linguists, sociologists and philosophers as “a verbal and social activity of reason carried out by a speaker or writer concerned with increasing (or decreasing) the acceptability of a controversial standpoint for a listener or reader, by putting forward a constellation of propositions intended to justify (or refute) the standpoint before a rational judge” [78]. Argumentation is also posited to include an embedded structure of “giving, receiving and assessing of arguments, understood in the terms just presented” [74]. In communication, argumentation is defined based on the interactions that take place between two or more people who “conduct or have arguments such as discussions or debates; or texts such as speeches or editorials in which a person makes an argument” [62]. These definitions from a variety of disciplinary framings position argumentation as a collaborative, discursive activity, and it is this co-constructive work that we will explore further in this paper.

The concept of argumentation has been explored in various fields with differing goals, such as: building argumentation skills for better learning in education [65], understanding discourse structures, describing implicit discourse structures in linguistics [53, 54], strategically supporting political interests and reasoning [25], and mapping ethical reasoning in journalism [6]. The study of argumentation has a long history, with various approaches to structuring an argument that are defined as logical (based on facts and proofs), rhetorical (based on persuasion), and dialectical (based on inquiry) [74]. Other formal approaches that are resonant with this approach include the Toulmin model [75], which describes various strategies and structures of argument that consist of ‘grounds’, ‘warrant’ or ‘inference license,’ and ‘backing’; and Wellman’s [83] approach, which provides a framework of argumentation that is evaluated within a ‘challenge’ and a ‘response.’

Moving away from more formal approaches, *everyday* argumentation includes a primarily ‘informal logic’ [46]; with this approach, the goal is to investigate structures of arguments in relation to practical scenarios, rather than focusing only on formal, factual, and logical reasoning. We acquire this theoretical framework in describing the argumentation strategies used in discussing about everyday ethical concerns. Building on these informal logics, Walton proposed the concept of *ethical argumentation* [81], arguing that this means of pragmatic and grounded argumentation is used in daily life in the act of deliberation. Ethical argumentation describes the deliberative and discursive process through which ethical justification is reached. According to Walton [81], the process of ethical argumentation includes two layers: 1) practical reasoning to describe a specific issue that is grounded in specific and actionable circumstances; and 2) argumentation to describe

the rationale by which a decision is reached in the first layer—a process that “is truth-seeking rather than action-oriented.” In this paper, we primarily focus and engage with a dialectical approach to argumentation, which “focuses attention of the argumentative exchanges within a dialogue and the moves that might be involved” [77]. We also build upon Walton’s notion of ethical argumentation, primarily attending to the first layer that describes practical reasoning in a specific content with an orientation towards action, while capitalizing on Crilly’s notion of a users capacity to evaluate a “design stance.”

### 3 METHOD

In this paper, we rely upon a multi-year digital ethnography [5, 64] to engage with a specific community of interest, with the goal of further exploring the discourse of “everyday design ethics.” As part of our longer ethnographic engagement, we have collected posts and comments from Reddit, the largest online forum, focusing on the ‘r/assholedesign’ subreddit. This subreddit is dedicated to the posting of design exemplars which include some form of intentional malice. As of May 2020, the subreddit had 1.4 million subscribers, and is a moderated community with a set of posting guidelines and meta posts to further situate the purpose of the subreddit. The subreddit’s focus is evident through its sardonic tag line: “*Because nothing comes before profit, especially not the consumer.*” For a post to qualify as an example of “asshole design,” an artifact must possess clear malicious or deceptive intent on the part of its creator/s, rather than simply be inconvenient to a user due to a poor design decision or implementation. This set of artifacts, moderated using a substantial number of posting guidelines, allow us to identify and describe the ethical character of content posted and discussed within this subreddit in this paper. Because Reddit is a pseudonymous community with widely varying profiles of users by subreddit, we cannot provide any further insights into the demographics of this particular subreddit. However, our analysis and multi-year engagement on this subreddit has shown us that users with a wide range of technical capability and intentions for participation are regularly active. Our analysis in this paper focuses primarily on the comments through which the subreddit community responds to the posting of an artifact, building upon prior work at the post level by Chivukula, Gray, and colleagues [15, 39]. Thus our present work productively extends these prior analyses both through a difference in dataset (evaluating comments instead of instances of asshole design shared in posts) and in theoretical frame (characterizing ethical argumentation from community members instead of describing types of ethical concern inscribed in posted design artifacts). Through our analysis, we seek to answer the following research questions:

- (1) What issues or concern was raised related to the posted artifact?
- (2) What ethical paradigm(s) was connected to the issue?
- (3) What remedies were offered to address the issue?
- (4) How did the argument emerge across the threaded comments?

#### 3.1 Data Collection

We collected and analyzed a set of artifacts posted by members of the subreddit ‘r/assholedesign’ using the Reddit API and a series of PHP scripts. We collected a portion of all posts from the subreddit across a sixteen-month period (July 2017 to November 2018). Due to the moving window of accessible posts using the Reddit API, we cannot ensure that all data were collected from the entire period. Content of the posts included title, author, post date, the artifact shared (if any), related URL (if any), number of comments, content of comments, and upvote count score. We used the post id provided by the API to retrieve raw JSON of all posts and comments at the end of the data collection period to ensure we had access to final threads in their archived state. We

compiled and processed all available metadata and media content into a MySQL database with relational tables for posts and comments for offline analysis. All comments were tagged with parent ids using the information from the API, allowing us to accurately reconstruct the threading of conversations. However, due to the dynamic nature of comments prior to their archived state, we could not assess the dynamic ordering of comments based on upvote and other factors. Additionally, some comments were later deleted by their author prior to being archived ( $n=2485$ ). In all, our final dataset contained 4,775 unique archived posts with 103,238 related comments, which we iteratively narrowed to 25 posts and 777 related comments representing “typical cases” through the process described in Section 3.2.

## 3.2 Data Analysis

To identify an appropriate sampling strategy for further qualitative analysis, we first identified descriptive statistics across the dataset. Posts contained an average of 30.39 comments ( $SD=108.49$ ), with a minimum of 0 comments and a maximum of 1403 comments. Artifacts were shared in the post in a variety of ways, including an image ( $n=3672$ ), web link ( $n=592$ ), video ( $n=171$ ). The remaining posts contained no post hint, or contained only text. The posts showed a relatively high level of engagement, with an average upvote score of 751.94, but with wide dispersion ( $SD=3263.01$ ;  $MAX=58422$ ;  $MIN=0$ ).

The team involved in this analysis process included three student researchers and the principal investigator. Two of the researchers are graduate students who are involved in qualitative research work through course and thesis work and the third researcher is an undergraduate student who was given training in qualitative research methods through this research project and related projects. The discussions among the experienced and early researchers strengthened the credibility and reflexivity of the analysis procedures.

To answer our research questions, we have focused our analysis on comments of selected posts. We conducted a content analysis of the comments from 25 posts through an ethics-focused lens, building on the results of the content analysis to create a sequence of the threaded conversations. We will detail our analysis approach in the following three stages:

*3.2.1 Familiarization with the Subreddit and Conversational Approach.* To begin, we familiarized ourselves with the structure of the posts, comments, and various conversation styles common within this subreddit using a digital ethnographic approach [5, 64] over a one year period. Our goal in this ethnographic engagement was to better characterize the types of posts and forms of community engagement, patterns of posting, and post foci, allowing us to ask more precise questions about the discourses within this platform and sensitizing us as “human instruments” to characterize the complexity of the interactions in our data analysis [51]. To concretize this everyday engagement, we selected two posts with high numbers of comments ( $n=1403$  and  $n=949$ ) representing differing post types and technological contexts to more precisely identify conversational norms in extended comment threads, allowing us to understand the kinds of artifacts and parent comments that resulted in this high level of engagement. These posts included the following descriptions: “*Thank you Windows for restarting in order to update my computer in the middle of important work with literally no fucking warning*” (score=18699) and “*This website fakes a Chrome error to convince you to disable your ad blocker*” (score=41602).

We found these two posts to be varied in terms of the content and media posted and kinds of discourses contained in the comments underneath the post. The first post included a text description of why the author thought Windows should not auto-update and the second post included an image which illustrated a website faking an error. These two posts had varied audiences and means of engaging community members in the dialogue surrounding the ethical concerns of these artifacts,

further differentiated by the comment structure of the threads which includes parent comments and various levels of sub-threads.

We used a preliminary content analysis to characterize the conversational norms and structure of the comment threads, relying primarily upon threading structure due to the lack of other accessible metadata [35]. We also characterized the complexity of these threads and the limitation of our approach, noting the lack of metadata to describe sequencing information as the comments were originally created (e.g., which comments were displaying and in which order when a comment was made), and the presence of deleted comments, which made it difficult to understand the context of related comments in the thread. This sensitization approach prepared the researchers to understand what to expect from the conversations, including how community members talked about solving the issues, included personal experiences of similar design issues, engaged in thought experiments around the consequences of such designs, shamed the “asshole designers” responsible for creating the artifacts [39], and the tendency of some comments to go off-topic. These characteristics conveyed the discourse characteristics [34] that appeared salient in this community, and allowed us to identify further qualitative analysis techniques to investigate these behaviors.

**3.2.2 Thematic Analysis of Comments.** After familiarizing ourselves with the structure and discourse characteristics of the conversations using more frequently commented posts, we sought to identify typically occurring themes in the conversations using an opening coding approach [8]. We used a typical case sampling method [73] to collect posts that surrounded the average number of comments ( $30.39 \pm 2$ ), forming a subset of our corpus that included 78 posts with 28 to 33 comments each. Because our work represents the first study to characterize the discourse characteristics in this context, we sought to identify “typical” cases in terms of comment engagement, which could serve as a helpful point of comparison for future work. Future work could address different patterns of discourse across infrequently, average, and frequently commented posts, and we anticipate that there might be useful distinctions across different patterns and volume of engagement. Within this subset of data of typical posts, we worked as a research team to identify four posts for closer qualitative analysis that were varied in terms of the types of content shared. The four posts included digital interfaces (mobile and desktop), physical artifacts, and a service design example, resonant with a previous content analysis of this site conducted by Gray and colleagues [15, 39]. This variety of posts ensured that we would identify a wide range of comments and conversational norms regarding “asshole designs” as we sought to create a comprehensive codebook of ethical argumentation strategies.

Each researcher used a bottom-up coding approach [8] to describe the sequence of conversations, conversation styles, and types of comments in relation to ethical concerns. This activity aided us in exploring the range of ethical discourse present in the dataset, aligning the research team for further thematic coding and analysis, while ensuring the credibility and transparency of our research approach. We explicitly chose to take on a bottom-up or inductive approach to identifying discursive norms in relation to ethical argumentation based on our extended engagement with the site and our realization that the ecology of the subreddit varied substantially from other classifications of ethical engagement or interaction that were formed in educational or laboratory settings (e.g., [16, 37]). Since our goal was to describe the discourse around ethical concerns within this community on its own terms—given the particular types of artifacts being shared and the likely non-expert nature of respondents—we chose to inductively build a sense of discourse characteristics relating to ethics. To formalize our analysis, we iteratively and through conversation among researchers created a codebook for further coding, formulating the following main categories of argumentation strategies in subreddit comments: *issue/concern*, *proposed remedy*, *argumentation modifier*, and *phatic communication* (Table 1). For issues/concerns, we evaluated the ethical paradigm(s) that appeared

most salient, selecting from virtue, consequentialist, and deontological paradigms [4, 11] to resonate with common approaches to describing ethics. For argumentation modifiers, we identified how additional comments extended the original argument through examples, agreement, negation, specific or conditional examples, and future-oriented extensions. We also indicated the presence of a *sub-level conversation shift* whenever there was a change of conversational focus, including starting a different conversation from the previous thread, a change in topic which differed from the previous comment, or a change in the content of the comment. This code application allowed us to conduct a sequence analysis on the comment threads.

Theme	Description
<i>Issue/Concern</i>	Raising a matter of ethical concern
<i>Proposed Remedy</i>	Providing a possible solution to the concern raised
<i>Argumentation Modifier</i>	Modifying the ethical character of the conversation through extension, negation, examples, conditions, or futuring
<i>Phatic Communication</i>	Informal conversation that is not directly related to the post
<i>Sub-Level Conversation Shift</i>	Indication that the comment is not related to the previous issue/solution

Table 1. Thematic Codes and Descriptions

**3.2.3 Coding a Set of Comments.** In the final stage of our analysis, we began by creating a sample of posts for final analysis. We randomly identified 25 posts from the larger dataset with the chosen mean number of comments ( $30.39 \pm 2$ ), creating a related corpus of 777 comments. Each comment was analyzed *in vivo* using a purpose-built Node.js web application, using the themes in Table 1 to perform a content analysis with the comment as the unit of analysis.

We performed a content analysis [60] of the posts, and content analysis, thematic coding, and sequence analysis of the comments. When coding the content of each post, we identified for the kind of artifact shared (image, video, link or text), interaction context (mobile, desktop, physical or other), interaction domain (advertisements, social media, news, etc.) and purpose (subscriptions, advertisements, product design, payments, etc.) using themes from prior work conducted by Gray and colleagues on this community [15, 39]. Then, we non-exclusively coded each comment in our sample of 777 comments with the themes using a self-coded tool for analysis. The average code application was 1.84 (SD=1.28) codes per comment, and this non-exclusive coding is visualized in Figure 1. For this part of the study, we excluded the context of the post when analyzing the ethical content of the comments. Each post and comment was coded by at least two researchers, with one researcher performing an initial round of coding for each comment, followed by evaluation and peer debriefing by a second researcher. Any necessary addition or deletion of codes was suggested and confirmed by both researchers or the lead investigator. This analysis process focused our attention on the reflexivity of the design team as a primary characteristic of rigor rather than a quantitative measure of intercoder reliability. The evaluation and peer debriefing procedures foregrounded the situated, discursive, and reflexive nature of our analysis, a key commitment of interpretivist research [9].

Because we could not be certain of the initial ordering of comments, we decided to concentrate on argumentation strategies present in archival form rather than speculating on the inter-connectivity of various sub-threads. To visualize the sequence of the comments, we mapped the order of the comments in the threads preserved in the data from the Reddit API linearly with the argumentation



strategy themes we formulated in Table 1 without visually differentiating branching or hierarchy. A linear visualization of the sequence and coding outcomes of comments for each of the 25 posts is presented in Figure 1.

### 3.3 Research Ethics

This research engagement was approved by our Institutional Review Board, and the parameters of our data analysis were informed by our ethnographic engagement with this subreddit community. When reporting on any comments in our findings, we deem the risk of linking the contents of the comments to the pseudonymous author profile to be low; however, we have lightly edited the quotations to reduce the potential discoverability of the authors [28]. In addition, no text from deleted comments was downloaded or included in our final analysis. In addition, given the size of this community, the pseudonymous nature of interaction, and the public access that Reddit affords, we contend that this specific subreddit is low risk with high potential public benefit [58]. This is reinforced by a community post from July 2020 linking to a video from a previous HCI publication on asshole design [39] which we build upon in this paper; this post has been upvoted 1.5k times (100% upvoted) as of October 2020 and has been given multiple awards by other redditors. This post demonstrates a general awareness of community members that the subreddit is accessible to and is being read by researchers, and demonstrates a positive sentiment regarding this interaction. We will plan to provide a link to a publically-accessible version of this published paper as a form of reciprocity.

## 4 CONTENT ANALYSIS

In this section, we present the results of our analysis of the argumentation strategies used in the comment threads. In Table 2, we provide the frequencies of the occurrence of various argumentation strategies in our dataset. Across 777 comments, we identified a total of 191 issues, 121 remedies, 369 modifiers, 290 instances of phatic communication, and 26 deleted comments. In total, 502 identifiable authors produced 710 comments, with an additional 67 comments produced by authors who had deleted their profile at the time of data collection. Of the 710 comments with author detail available, 58 were posted by the original post author in response to their own post. These number of comments provide a wide range of examples of various ethical concerns discussed and related discourses. Most of the modifiers either extended the conversation (35.1%) which shows the support and continuity of the discourse. These were extended either through examples from real-life experiences (20.33%) or counter arguments (10.55%) to strengthen the discourse around ethical complexities posted in the subreddit. The following sections will detail the different argumentation strategies with examples and quotes from the comments.

### 4.1 Issues/Concerns

In this section, we address comments by participants that raised a matter of ethical concern, frequently identified as a problem alongside rationale for why a shared artifact could reasonably be interpreted as an “asshole design.” These matters of ethical concern—representing almost a quarter of all comments (24.6%)—were related either directly to the concerns presented in the post by the original post author, or related secondarily or in a tertiary way to the original post. These latter concerns often provided alternate lenses through which to view the *context* of the asshole design, while the former concerns represented more explicit articulation of ethical concerns already present in the original post. We categorized all concerns in the comments based on an *a priori* list of ethical paradigms defined in the literature [4], relating to *virtue* ethics, *consequentialist* ethics, and/or *deontological* ethics.

Theme	Frequency of Occurrence
<b>Issues/Concerns</b>	<b>191</b>
<i>Virtue Ethics</i>	55
<i>Consequentialist Ethics</i>	85
<i>Deontological Ethics</i>	90
<b>Remedies</b>	<b>118</b>
<i>Legal</i>	1
<i>Shaming a Company</i>	32
<i>Hacks</i>	96
<i>Directed to Individual</i>	84
<i>Directed to Society</i>	33
<b>Modifiers</b>	<b>359</b>
<i>Extenders</i>	263
<i>Examples</i>	157
<i>Conditionals</i>	80
<i>Counters</i>	77
<i>Futuring</i>	36
<b>Phatic Communication</b>	<b>275</b>
<b>Deleted Comments</b>	<b>43</b>
<i>Deleted by Author</i>	27
<i>Deleted by Bot</i>	16

Table 2. Sociotechnical Properties of Comments based on Frequency

Due to the focus of the subreddit, the commenters generally appeared to recognize both the genius or craftpersonship of the designed artifacts and the ethical concerns that these decisions raised in the artifact's eventual use. According to one commenter, the design decisions made were "brilliant on the company's end, but truly fits the sub[reddit]." On another thread, which features buy and sell groups on Facebook, a commenter notes "That's ~~dastardly~~ ingenious," highlighting both the ingenuity and craft present in the design artifact as well as the malicious and cruel intent assumed on the part of the designers that made these decisions, contextualized by the presented ethical issue or concern. In context, the strikethrough of the word "dastardly" seems to indicate a sense of admiration for the ingenuity of the designer, while also serving as a repudiation of the ethically-problematic (or "dastardly") nature of that ingenuity.

**4.1.1 Virtue Ethics.** Virtue ethics concerns (55 of 191) included a focus on the moral character of an individual, whether that individual be a designer, stakeholder, or user. These concerns were often framed in relation to the commenter's personal beliefs related to the context, with a focus on complicating issues such as the designer's responsibility or a business stakeholder's mindset. In contrast to other ethical paradigms, where the focus is on first principles or consequences, concerns presented in a frame consistent with virtue ethics foregrounded the potential or actual moral reasoning in relation to the design or use of the "asshole design." For instance, one commenter described the sentiment "*how someone could think of doing this to the user,*" while another commenter took on the role of the designer, noting: "*I feel bad when I create these kinds of designs.*" While these examples point towards the emotional valence of intent, other comments addressed the connection

between ecological factors, actors, and design choices in a more substantial way: “*I would like to know what goes on in the vacuum in the heads of marketers who decide that the solution to people trying to get rid of their annoying ads is to make even more annoying ads.*” In this final example, the comment focuses on querying the content of the designer’s moral character, relating “what goes on in that vacuum in the heads of marketers” with the visible design outcomes. In another similar example, the commenter targets the web designer, saying: “*No, mr. web designer, I use adBlock not because I don’t want you to get revenue [...] I just want to read a fucking article and not be assaulted by pop-ups, videos and scamming ads.*” In this example, the commenter projects the motivations—and by extension, the morality—of web designers in identifying the potential logic behind advertising design decisions. These examples illustrate the variety of stakeholders that commenters blamed and targeted in their ethical arguments, with a particular focus on the responsibility of the designers or other enabling stakeholders of these “asshole designs.”

**4.1.2 Consequentialist Ethics.** Consequentialist ethics concerns (85 of 191) included a focus on the potential consequences of the designed artifact presented in the post, often broadening the original scope of the post to include the social or technological outcomes of design decisions. In one example of this behavior, readers were assessing a post titled “How to ensure I’ll never use your website again,” where an image showed a mobile website that blocked use without downloading the app onto their device. In replying to this post, one commenter complained: “*Why do websites force you to download their crap? What if you don’t want to fill up your device with random garbage?*”. In this case, the commenter pointed towards both the presumed intent—which could be linked to virtue ethics—as well as the negative consequences of “fill[ing] up your device with random garbage.” Many other comments pointed directly to disuse of specific technologies as a result of perceived unethical behavior (e.g., “I deleted my Facebook account due to this.”), the normalizing of privacy violations as outcomes of unethical design decisions (e.g., “[...] It takes a minor inconvenience to the end user to piss them off when constant privacy violations don’t.”), or the engagement in some form of advocacy to change the company’s mind and produce different outcomes (e.g., “I block ads to make a statement, and will stop once the company finally gets the message.”). These examples illustrate the breadth of the issues discussed, as well as the types of conversations the commenters presented beyond the subreddit focus of “asshole design,” leveraged to express the experiences and impacts of such design artifacts.

**4.1.3 Deontological Ethics.** Deontological ethics concerns (90 of 191) arise from an application of principles that are intended to guide ethical action. These principles, in a classical sense, might arise from a range of sources including codes of ethics, legal doctrine, or heuristics that build on knowledge of human perception. Common concerns included commenters discussion of privacy violations by apps (invoking principles of privacy and security), the failure of designers to follow basic interaction design principles (invoking principles of “good” design), or the desired right of users to access free online content (invoking a libertarian ethos of commerce). One comment addressed multiple sources of guiding principles, linking them to design outcomes: “*Until sites start to vet the ads they host to ensure they don’t contain malware, and don’t stalk the viewers without their explicit opt-in consent, my ad blocker will stay on.*” Here, the commenter expresses a violation of the principles of consent, an expectation that content will be malware-free and safe, and that sites have a responsibility to vet ads to meet these standards. Further, this post indicates the desire of the commenter to exercise rights over “*their own device*” and that sites must not demand control: “*It’s my computer, I have a right to ensure the code that runs on it doesn’t do shit I don’t approve of. Period. End of story.*” In these cases, deontological framings of ethics are used both to critique the design decisions made by companies and to justify the autonomy and agency of the end user.

**4.1.4 Synthesis of Ethical Paradigms.** In the subsections above, we have presented ethical concerns primarily through the lens of a single ethical paradigm. However, numerous comments included a combination of ethical paradigms, with 38 comments containing evidence from two paradigms and 5 comments containing evidence from all three defined paradigms. One example of a comment that bridges multiple paradigms, discussing the role of ad-blockers on imgur, illustrates this ethical complexity: “*The whole point of adblock is to block ads that interrupt your experience (e.g., automatic sound, pop-ups, laggy websites). If imgur starts playing those types of ads, don’t worry about keeping them whitelisted. That’s their fault.*” In this comment, the author begins with a deontological argument that adblocking enhances the user experience, notably addressing only the patterns of end use and not the organizational and economic realities of web services. Using this deontological framing, the commenter then identifies consequences of imgur playing such ads (“don’t worry about keeping them whitelisted.”), indicating that this outcome is the fault of the company, not the end user. Finally, the statement “That’s their fault” points both to the implied virtue (or lack thereof) of the company, and the deontological standards by which that virtue would be expected to be activated on the website. This comment provides a rich example of how the interweaving of these ethical paradigms was used to engage in the ‘asshole designer’ qualities of the posts.

## 4.2 Remedy/Proposed Solution

Alongside issues of ethical concern in the comments, community members also identified possible solutions to raised issues, which we term *remedies*. There were three major kinds of remedies that were proposed in the comments: *legal recourse*, *shaming a company*, and *hacking*. Through our thematic analysis, we found that these remedies were sometimes directed towards an *individual* and sometimes directed towards *society*. We defined a remedy *directed to an individual* as being targeted towards the particular author of a previous comment or an individual who posted the issue. Remedies *directed towards society* were posted for the betterment of a collective or larger group. In the next sections, we will describe the three kinds of remedies through examples directed towards both individual and society, demonstrating how the community not only raised issues of ethical concern, but also worked to rectify the issues posted through an ethics-focused lens.

**4.2.1 Legal.** These proposed remedies (1 of 121) are related to institutional authorities, through which legal concerns could be ameliorated by governmental or other policies. These solutions were proposed through only one comment in our data set, perhaps reflecting the lack of knowledge regarding relevant policies. We include this single case as a “critical case” or outlier since it represents a characteristically different type of remedy than the others we identified. This type of remedy shows what kinds of remedies appear to be atypical or external to the discourse, potentially identifying opportunities for future work in other settings where legal remedies may be common (e.g., data protection). When referencing the order of grades of gasoline at the pump, one commenter leveraged the norms and standards that defined the appropriate color for each type of gas pump: “*In Ontario, diesel is always yellow. Usually the handle is yellow and the sign is too.*” This comment obliquely pointed towards governmental or organizational standards that may limit or define appropriate design choices.

**4.2.2 Shame.** Shaming a company (32 of 121) represented a second type of proposed remedy, whereby an attempt by end users to blame a stakeholder may result in the cessation of unethical practices. Of these comments, 17 were directed towards the individual and 14 were directed towards society. Examples of this remedy type commonly included “calling out” the company for bad behavior or shaming the designer or marketing personnel in charge, questioning why and how someone would incorporate such asshole designer strategies. In one instance, the original post referenced a subscription service that did not allow the user to move forward in the interaction

without providing their information; a commenter called out the designers of the service, stating: “If they don’t ask for confirmation, I like to provide them with their own support email, something like `support@telus.com`. Give them a taste of their own medicine.” This comment proposed a specific form of advocacy that could be taken on by the end user, bringing further attention to the service provider regarding the users’ frustration. In another example, a commenter shames a company while pointing out the value of their product, recommending the use of bad reviews to get the attention of the company: “[...] What’s sad is they provide a decent product. I hope everyone reviews the hell out of them until they get the message. Greedy fucks.”

**4.2.3 Hack.** A large portion of the remedies (96 of 121) included means of working around the ethical concerns that had been previously mentioned, often through technological means. Thus, remedies in this category generally represented specific implementable solutions with the goal of increasing privacy gaining access not intended by the original designers (75 of these comments were individually-focused), and in some cases, guidance for broader implementation of these hacks by the general public (25 comments were societally-focused). In one instance, the post included an issue with Facebook not letting users hide the new ‘buy and sell group’; in response, some commenters suggested the use of ad-blocking software to solve this issue: “Maybe consider adblock, or if you already use it you could have adblock see that element as an ad and never see it again.” In a more technical example, multiple commenters proposed the use of uBlock and other client-side scripting approaches to block certain kinds of ad-based content; one commenter provided specific userscript code, along with the following explanation: “This will remove the attribute that seems to be linked to removing the article’s content when the message is displayed. It also sets the message style to be hidden from sight (it’s still there, just not seen), and it makes sure that the page will still be scrollable as that function also was removed when the message was displayed.” Finally, another set of examples spanning across multiple comments focused on the use of various services and filtering approaches for disposable or anonymous email accounts; for instance, “I have a wildcard spam e-mail (like `literally-anything@spam.example.com`) that just discards all e-mail sent. I set it up for situations like this and if you know how, DO IT! It will be pretty useful when it’s time.”

### 4.3 Conversational Modifiers

In addition to raising issues of ethical concern and proposing potential remedies, much of the discourse was strengthened or made more complex through what we call *conversational modifiers*. Comments that included modifiers represented almost half of all coded comments (46.2%), and if deleted comments and comments with phatic communication are removed, modifiers were present in 78.2% of all on-topic comments. Modifiers represent a means of argumentation, clarifying issues of ethical concern and remedies by identifying additional implications of the ethical concern (*extension*), providing context and application details (*examples*), identifying required and optional characteristics (*conditionals*), presenting alternative viewpoints (*counters*), and engaging in future-oriented speculation about the ethical concern (*futureing*).

**4.3.1 Extenders.** Comments that included an *extender* modifier added to a previously stated ethical concern or remedy, either through explicit restatement and extension, or only as an extension with an implied connection to a previous comment or post. The conversation was dominated by this modifier, with 264 of 527 secondary or lower comments in our data including an extending modifier, representing the continuity of the conversations happening within the comment threads of these posts. For example, in one comment where the author claimed: “I don’t download apps b/c of mobile websites. I work in travel. I am sort of shocked they would throttle/limit review availability like that. That’s insane.”, an extension in a subcomment included the following response: “That and if you’re using that app there’s a good chance you are traveling. If you’re traveling there’s a good

*chance you're not on wifi and have to use up your data.*" In this example, the comment the raised an issue of ethical concern using deontological and consequentialist language; the next comment extended the conversation by providing an additional situational variable, which further supported the consequentialist line of argumentation by describing why a user might have limited access to the internet while traveling.

**4.3.2 Examples.** Comments that used an *example* modifier provided lived experiences or other references to the prevalence or situational complexity of the ethical concern or proposed remedy. This tactic was commonly used, with 158 instances across our dataset. One tactic used by commenters was to provide examples from similar or parallel services; in one example that focused on an ethical concern with TripAdvisor, a commenter noted: "*Same with Yelp. You can't read more than a snippet of the top 3 reviews on the mobile page. I just use the desktop version of the page and bingo all the reviews are there.*" This use of a specific app and related context extended the conversation by providing an example of a similar service and issue, while also proposing a potential remedy that may be transferable into the other app context.

**4.3.3 Conditionals.** Comments that used a *conditional* modifier proposed boundaries around when the matter of ethical concern might occur, or when the proposed remedy might work, either in the comment itself or as an "extender." The use of conditionals included certain situations in which the posted "asshole design" could be an issue, specific implementation details to use the proposed remedies, or through additional details or conditions of the user or use context. In the following comment, "*Small ads that are \*not\* IN YOUR FACE YOU CAN NOT IGNORE ME are okay for me. I'd rather have those ads than having to pay separately to use Reddit, Facebook, Google, etc. etc.*" the commenter agrees with the post that ads are an issue and interrupts the browsing experience of the user. However, the commenter notes that if the ads are not obstructing the user's view ("\*not\* IN YOUR FACE"), they feel that "small ads" are appropriate and reasonable, thus proposing a conditional for determining which kinds of ads are appropriate and inappropriate.

**4.3.4 Counters.** Comments that used a *countering* modifier disagreed with the concern or remedy proposed in the post or previous comments. The use of disagreement often brought to the foreground individual versus societal impact, where many presented issues were reframed by commenters as matters of individual choice. For example, in one comment where a concern was presented regarding the autoplay of videos with sound on Facebook, a counter-argument was made by another commenter: "*i hate facebook but i dont see a problem with this. if it's gonna autoplay, it might as well play the sound too. dont like it, turn off autoplay.*" Here, the person disagreed with the original presentation of an ethical concern, stating "*i don't see a problem*" and providing a rationale. These modifiers engaged participants in a "devil's advocate" conversation, allowing for nuance and promoting a discourse that not *every* issue might be an ethical concern for *everyone*. The use of these modifiers also appears to create the space for additional conversation about the complexities of user experiences that might cause an issue to be framed as unethical or the work of an "asshole designer." This is particularly evident in the quotation below, where the commenter points toward a meta-conversation about what is and is not "asshole design."

*"Just download the fucking app and stop crying. They even offer a mea culpa. Everything little thing that annoys us is NOT asshole design. The browser is a wild west of design. Its hard to make good experiences since every phone owner uses weird browsers or different settings. The better option is to reduce those variables and offer an app. Fuck mobile websites."*

**4.3.5 Futuring.** Comments that used a *futuring* modifier imagined the potential impacts of the issue mentioned or how the remedy might play out in new or future scenarios. Comments using this modifier were generally aligned with consequentialist ethical concerns, but beyond restating the potential consequence, the commenter more fully described the issue or presented a fictitious scenario that might occur in the near future that related to the use of digital technologies. While discussing the issue of ads increasing in digital experiences, one commenter used futuring as follows: “*If these ad techniques were in place in real life, you could see something like: Go to a movie theater. As you enter the door for your movie, the entryway has a corporate spokesman requiring you to fill out surveys or add a comment/like to their products \*before\* you’re allowed to be seated.*” Through this comment, the commenter provides a digital to analog translation of the ad experience to describe how an “asshole design” experience in one context may propagate into new contexts.

#### 4.4 Phatic Communication and Deleted Comments

Due to the social nature of Reddit, and consistent with other social networking sites, a substantial portion of the comments could be considered “off task” or not substantively related to the original post. In our analysis, we identified 27 comments (13 of which were parent comments) that had been deleted by the author prior to our acquisition of the JSON data, 26 of which also included an author who had deleted their profile. An additional 16 comments were not fully deleted, but the contents were replaced by text from a bot intended to protect the author’s identity and wipe traces of the conversation, even while the conversation was still active (see Thread 12 in Figure 1 for an example where 11 comments from a single author were removed by a bot). A wide range of comment texts that included wordplay, jokes, spam messages, and other profane language not directly related to the post were coded as phatic communication—a substantial portion of the dataset which comprised over one-third of the total number of comments in our dataset ( $n=290$ ; 37.3%). These examples are still relevant to the overall conversation, in that they presented sociality as another purpose of posting, alongside the ethical argumentation work we focus on in this paper. For instance, in one post titled “This deceiving sandwich,” a photo of packaging design that appeared to be a well-stuffed sandwich began the conversation. One phatic response to this post focused on a small portion of text in the image rather than the main ethical concern: “*Flour tortillas are almost always made with enriched flour.*” In another example that we coded as phatic, interaction among commenters that were not directly related to the ethical concerns or remedies resorted to name-calling: “*You know what I mean, you edgy little shit.*”

### 5 SEQUENCE ANALYSIS

In this section, we build upon the previously described conversational elements to demonstrate how these matters of ethical concerns, potential remedies, and modifiers functioned as a sequence. We first address how the type and threaded depth of comments impacted their argumentation function within the comment thread. Then, we identify and describe several key patterns of conversational elements that point to norms of ethical argumentation in this online community.

#### 5.1 Type and Depth of Comments

Across the corpus, we analyzed 777 comments within 25 threads. In Table 3 we describe the frequency of comments by threaded depth and argumentation function, demonstrating the level of threading present in these posts. The majority of comments occur within the first three levels of threading ( $n=583$ ; 75.0%), leaving a long tail of comment threading that extends to ten levels of depth on two separate posts. It is also interesting to note that the majority of comments that were either deleted by the author or later deleted by an author-selected bot presented useful content, as indicated through upvoting (resulting in a higher comment score) and garnering of threaded

comment replies. Across the comments coded as a concern, remedy, or modifier, most instances occurred within the first six levels of threaded depth, with the majority of comments after this level of depth including only phatic communication. Across comments with a function that extended the ethical argument (concern, remedy, modifier), we found these functions to appear at similar ratios through the fourth level of depth, perhaps indicating some linguistic or conversational relationships that could be further evaluated in future work.

Depth	#	Concern	Remedy	Modifier	Phatic	Deleted by Author	Deleted by Bot
1	250	93	47	110	66	11	1
2	200	39	31	103	70	7	5
3	133	33	16	70	46	6	4
4	82	17	10	35	35	1	1
5	55	2	11	24	23	2	3
6	30	6	2	13	14		1
7	12	1	1	4	7		1
8	9				8		
9	4				4		
10	2				2		
<b>Subtotal</b>	<b>777</b>	<b>191</b>	<b>118</b>	<b>359</b>	<b>275</b>	<b>27</b>	<b>16</b>

Table 3. Frequency of Comments by Depth and Function

We also analyzed these argumentation strategies in relation to their comment score, defined as a total of all registered upvotes (positive) and downvotes (negative). The comment score is a generally accepted measure of community interest and reception, which may provide evidence of how community members felt that a given comment resonated with the purpose of the subreddit. In Table 4, we indicate the average score and standard deviation of comments by conversational function. This set of descriptive statistics reveals that issues of ethical concern represented the most highly upvoted comments (score=28.51), however this average score had the highest proportional level of volatility of any category (SD=52.63) except comments deleted by author (score=21.65; SD=49.83). It is also interesting to note that comments coded as modifiers received a higher score (score=14.36; SD=26.64) than comments that presented potential remedies (score=12.14; SD=21.34). These scores, taken as a summary of the conversation, show that the key elements of ethical argumentation appear to be rewarded with relatively high levels of engagement (evidenced by a higher number of replies to the main post) and indications of resonance with community norms (evidenced by a higher number of upvotes to post comments). Since the comment and post scores across the entire subreddit are quite volatile, with large standard deviations, future work would be needed to indicate how these comment scores compare to other linguistic or topical phenomena in this community beyond the subset of comments and argumentation functions that we analyzed in this study.

## 5.2 Patterns of Conversational Functions

To further describe how the argumentation strategies interact as a unit, we visualized the sequence of each comment thread in Figure 1. In this figure, each row represents the complete set of comments for a single post, numbered from 1 to 25. In each row, a block represents a single comment, and this block is color-coded according to the conversational function(s) present. In cases where multiple



Measure	All	Concern	Remedy	Modifier	Phatic	Deleted by Author	Deleted by Bot
Avg Score	15.63	28.51	12.14	14.36	10.67	21.65	5.44
St Dev	33.44	52.63	21.34	26.64	19.25	49.83	5.92

Table 4. Descriptive Statistics of Comments by Score and Function

functions were present, multiple bands represent the presence of more than one function. Figure 1 is color coded to easily identify different strategies over the thread: matters of ethical concern are in *red*, potential remedies in *blue*, modifiers in *orange*, phatic comments in *light gray*, deleted comments in *dark gray*, and conversation shifts with a thick black vertical line.

As seen in Figure 1, there are varied patterns of conversational functions across the selected posts. The sequence of functions is highly contextual—and even potentially stochastic—due to the variety of examples posted, different numbers and types of comment authors, and differences in the location of conversation shifts in each thread. Based on the results of our content analysis, we can conclude that different matters of ethical concerns are discussed, in different ways using different arrangements of conversational functions, even given the same relative length of comment threads. In the subsections below, we will identify several patterns of note in this sequence analysis, which may point towards further opportunities for research on ethical argumentation without specific platform support.

**5.2.1 Diversity and Overlap of Ethical Paradigms.** The ethical conversations that are generally undertaken by ethicists or others in academia primarily focus on assessing a phenomenon within a single ethical paradigm, or by controlling one’s movement among multiple ethical frames to engage with the strengths and weaknesses of each paradigm (e.g., pragmatist ethics [50]). Dominant approaches to disciplinary ethics training are frequently focused on a primary mode or frame (e.g., failure as consequentialist [63]; codes of ethics as deontology [11, 66]), even while experts acknowledge that movement among differing ethical paradigms is important to address the full complexity of dilemmas [7, 50]. In contrast to these controlled movements among paradigmatic positions, we found that composite ethical paradigms were present in these discourses that did not clearly indicate an awareness of moving among ethical frames. This unsignaled mixture of ethical perspectives is intriguing because there appears to be no indication that the commenters are aware of this mode shifting. Out of the comments that presented a matter of ethical concern, 38 comments included reference to two ethical paradigms, and 5 included reference to three ethical paradigms. This overlapping use of ethical paradigms to identify the rationale for the ethical concern demonstrates the great facility of these community members in describing and supporting their ethical argument, which could be compared to other naturalistic interactions with more expert ethicists in future work.

**5.2.2 Raising Issues of Concern.** Matters of ethical concern were a common starting point for the comment threads, with 18 of the 25 analyzed threads beginning with an issue or concern. These issues of concern either re-iterated the text or image content of the post, or raised related issues that might result from the artifact posted. While in some posts (e.g., 2,18,24) this presentation of ethical concerns then resulted in a discussion of remedies, in other posts (e.g., 4,7,15,20) the conversation focused primarily on raising and assessing issues with few or no solutions being proposed. The varied nature of these sequences, and the extent to which the ethical argument could be concluded,

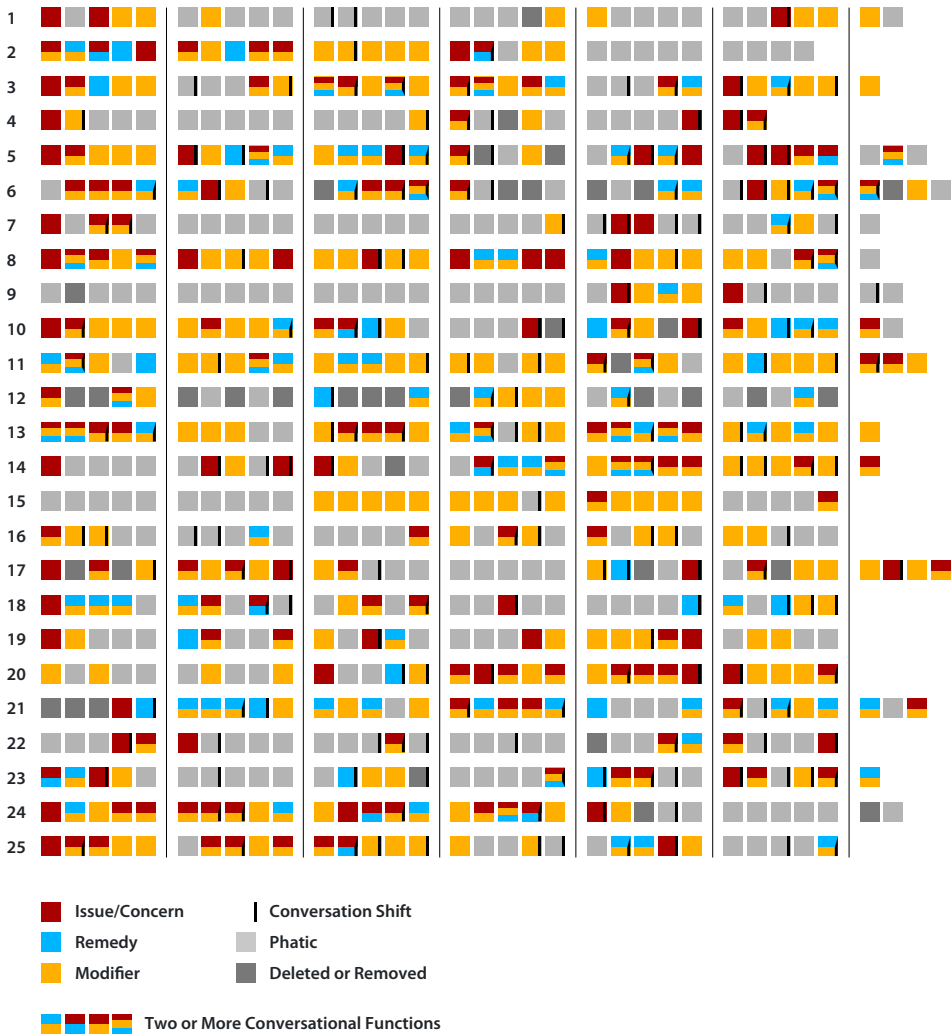


Fig. 1. Visualization of Conversation Function Coding Across the Corpus.

seems to differ based on the type of ethical concern being addressed and the interest of the authors in pursuing certain types of conversation in relation to these artifacts.

5.2.3 *Function Co-occurrence.* The conversational functions used to stimulate and build the overall argument were commonly layered. Over the entire corpus, 170 comments included two conversational functions (issue, remedy, modifier) and 25 comments included all three conversational functions. Posts 13 and 14 contain the densest use of co-occurring conversational functions; however, co-occurrence appeared in almost all posts (24 of 25) and co-occurrence of all three conversational functions was present in 10 of 25 threads. This use of multiple linguistic functions to engage the community members in evaluating or discussing ethical issues represents a reasonably high level of conversational complexity, particularly given the lack of platform supports for an ethics-focused

conversation. In one example of this flexibility, the first comment on post 13 reads: “Advertisers could have a point if ads weren’t so ridiculously intrusive and loaded with malware and spyware.” In this comment, the author restates the *issue* of ads being intrusive, providing a potential *remedy* for less intrusive or malware-laden advertisements, and *modifying* the original post (“I guess I’m a dick for using adblock”) by providing an example of why adblockers are appropriate to use, due to the presence of malware and spyware.

## 6 DISCUSSION

As we have described in the findings, members of this community regularly engaged in rich and varied styles of argumentation as they assessed the nature and impact of designed artifacts. In this series of conversations, the community members appear to show concern for both their own experiences and the experiences of other users and society more broadly, guided by the subreddit tagline. In the following subsections, we will further evaluate the utility and potential impact of such unstructured online conversations about design ethics, detailing the role and capacity of community members in identifying and arguing for ethically-focused design practices, and the potential benefits of leveraging these argumentation strategies when engaging everyday users.

### 6.1 Community Members’ Engagement with Ethics

Our analysis of comment threads in this subreddit validates the claims made by Crilly [17]—in particular, the contention that humans are capable, and even well-primed, to identify and evaluate an intentional actor that is responsible for a designed artifact. We build upon this notion of a “design stance” by identifying and describing the means by which these community members engage in ethically-valenced argumentation about posted artifacts, engaging in a discourse that includes elaboration of ethical concerns, suggestions for possible remedies, and other modifiers that extend or iterate on these other conversational markers.

Through our analysis, we have identified the extent to which community members—who are frequently users of designed systems that they then choose to evaluate—are aware of the values that designers have inscribed into design artifacts. These members were able to engage in various and complex forms of ethical argumentation about these artifacts, even though these conversations lacked the structure, vocabulary, and paradigmatic emphasis that would be typical of a formal ethical evaluation. Given the large membership of this subreddit—1.4 million members as of May 2020—this engagement with ethics through the posting of artifacts and commenting shows how these ethically-valenced conversations and related argumentation strategies appear to be embedded in everyday conversations on this subreddit, perhaps in part due to the popular appeal of the moniker “asshole design.” While we cannot accurately model or describe the demographic characteristics of the members of the subreddit, it does appear that at least some proportion of users have technological skill that enables them to hack existing systems, and other users—even if unable to produce hacks on their own—appear able to engage at some level with these conversations.

Our analysis of these comment threads also begins to suggest dominant discursive norms within this community which include normative stances towards ethics, such as highlighting the goal of “shaming” offending designers and companies and seeking to distinguish between poor design and design with intentional malice, however imperfectly. While it is possible that many community members would not characterize their interactions as engagement in “ethical argumentation,” we have shown how the practical implications of these conversations address many of the same goals as formal ethical analysis, albeit with important limitations due to precision and breadth of conceptual vocabulary. Thus, we characterize these elements of the discourse that relate to the qualities of “asshole design,” the role of intentionality, the desire to remediate or correct behaviors either individually or collectively, and the ability to argue for appropriateness or violation of ethical

norms across multiple instances as preliminary discursive boundaries for ethical argumentation within this community.

Our results show that these members were able to consistently raise different kinds of ethical issues, consistent with multiple existing ethical paradigms. These members were able to identify issues with deontological, consequentialist, and virtue framings, engaging with these different perspectives in a synthetic way that is more consistent with pragmatist forms of ethical engagement. In support of a pragmatist frame, these conversations rarely stopped with the identification of an ethical concern; instead, most conversations included proposals for solutions to the identified concerns, demonstrating the facility of many members in managing obstacles in their online interactions or subverting expected behaviors of shareholders or designers of digital systems. This interaction with matters of ethical concerns is consistent with what scholars have described as “everyday ethics.” This notion of ethics as an everyday matter of conversation and concern is not new, with key references from the 1980s and 1990s (e.g., [41, 56]); however, the extent to which technological systems increasingly impact our everyday lives, and the impact of user choice in relation to these systems, requires all users and non-users of technology to engage with these everyday ethical concerns, whether they are well-equipped or even realize they are engaging in ethical decision-making. Thus, this contemporary view of ethical argumentation may provide a novel account of how people engage with and evaluate socio-technical systems, how they view and interact with notions of technology ethics, and how this awareness and argumentation might impact future value-centered design and technology practices.

## 6.2 Leveraging Community Capacity in Technology Ethics

Given that everyday users are increasingly engaged in judgments about: what technologies they use, how these technologies (and their ecosystems) fit into their everyday lives, and what types of interactions can be deemed “ethical” or “unethical,” this set of argumentation strategies provides a means for evaluating the ethical valence in everyday conversations about technology. In particular, we propose the use of this mundane-yet-ethically-rich language to provoke the attention and engagement of everyday users and designers alike. While some ethics-focused conversations may benefit from the structure provided by formal ethical paradigms and frameworks, we have identified the discursive power of more pragmatic engagement with ethically-valenced language that requires neither formal training in philosophy and ethics nor a style of argumentation that relies upon such training. A substantial number of remedies proposed in the comments were directed towards individuals ( $n=84$ )—sometimes occurring alongside technically-focused hacks ( $n=96$ )—but there were also numerous instances where externally-focused action was proposed, including shaming a company as a “light” form of activism ( $n=32$ ) and proposing remedies that were directed towards society ( $n=33$ ). These instances demonstrate at least some level of concern for negative design outcomes beyond one’s own lived experience, moving the focus of the community beyond a neoliberal libertarian role of solely looking out for one’s own benefit to the potential for shaming and discourse to lead to greater public awareness of ethically-problematic design behaviors.

We see potential in building upon previous notions of “community capacity” for ethically-focused conversations about technology [39] to further expand the capability and opportunity for everyday users of technological systems to engage in ethically-focused conversations. The framing of this activity certainly seems to be salient; if we conjecture that the subreddit was named “ethicalargumentation” rather than “assholedesign,” it is likely that the community would be much smaller, and would not have the same level of popular support and high level of engagement. Thus, future engagement with users or citizens might productively leverage the apparent appeal of profanity (i.e., *asshole design*, *I fucking love science*), or the use of other framings of ethics which are more likely to capture the attention of the general public (i.e., *dark patterns*). Another important

dimension of this community capacity appears to be the languaging of the metadata; while more formal ethics-focused conversations lead with names of ethical paradigms or frameworks, examples on this subreddit focus on the situated qualities of the interaction, with common post categories including “bait and switch,” “dark pattern,” and “clickshaming.” This indicates the power of the linguistic discourse, which if leveraged properly, could allow crowdsourcing or other designs for socio-technical interaction to produce an environment where conversations with a critical ethical valence could be productively supported.

## 7 IMPLICATIONS AND FUTURE WORK

Our findings indicate a substantial role for ethical engagement and argumentation, even without the explicit presence or guiding language of formal ethics frameworks. This implies potential areas of research inquiry into similarly unstructured—yet ethically rich—conversations in design and technology practice, and in the formal ethics training of designers and technologists in higher education. Our work on ethical argumentation “in the wild” presented here does not indicate that we advocate for excluding the use of formal frameworks or focusing solely on unstructured ethical dialogue, but rather we wish to expand the study and recognition of ethical discourse to encompass argumentation with and without formal or *a priori* conceptual vocabulary. While current models of ethics education focus primarily on evaluation of technological systems, outcomes, and actors through formal ethics frameworks, we have shown here the potential uptake of more colloquial forms of ethical argumentation that may lead to similar conclusions *vis-à-vis* potential societal or personal harm. This reframing of ethical argumentation may be more inclusive, encouraging the discursive qualities of ethical engagement rather than a mere application of an *a priori* ethics framework, as suggested by many existing case study approaches to ethics education. However, since the specific demographic characteristics of commenters within this subreddit are unclear and inaccessible, there may be additional limitations relating to educational level, cultural background, technical knowledge, or occupation that may extend or constrain the ethical argumentation capabilities we have described. Future work could address these capabilities in a developmental stance, revealing how the ability to form and verbalize ethical argumentation might be better scaffolded and characterized in educational settings. As an additional means of extending this work, future studies could address how the broad set of concerns referenced in posts to this subreddit [39]—organized as domains or categories—may aid in identifying patterns of argumentation that may be more situational or contingent on individual versus societal concern. Finally, the use of different analytic modes or tools may also reveal additional discursive detail, such as the use of different forms of conversational analysis (e.g., lag-sequential analysis) or computationally-informed means of capturing ethical valence.

Our findings also point towards a more situationally-grounded use of ethics-focused methods that have the potential to engage designers and other practitioners in ethically-focused conversation. While current frameworks and methods generally focus on formalizing the ethics or value-related language (e.g., Value Sensitive Design [VSD], Values at Play), we imagine what more discursively and contextually-bound approaches to ethics conversation may look like, given this demonstrated community capacity for ethics-focused conversation. Perhaps issues of concern and potential remedies could be leveraged in more interactional and conversational ways, as suggested by Shilton and colleagues [71]? Could ethically-rich conversations still exist—and continue to be developed—without the invocation of a specific and targeted human value, as is suggested in common frameworks such as VSD? To answer these and other related questions, future research should further investigate the discursive forms of ethical conversation in everyday design and technology practice, evaluating whether the colloquial forms found in this community may also exist in-the-wild in collocated and non-collocated design settings. Through comparative studies,

future work could reveal potential linguistic differences and similarities among VSD-focused conversations, professional ethics conversations, and colloquial conversations such as those we have captured in this study. Additionally, researchers may find value in evaluating the capacity of various types of online and offline communities to engage in ethical argumentation, perhaps expanding, problematizing, or reframing the discursive toolkit we have identified, demonstrating how ethics-focused conversations might exist at varying levels of detail or abstraction or how these conversations might be productively augmented or scaffolded to result in more substantial or specific outcomes.

## 8 CONCLUSION

In this paper, we have reported on the results of a content and sequence analysis of comments on the subreddit “r/assholeddesign,” demonstrating the ethical argumentation techniques that are used by this community to critique artifacts and the designers that created these artifacts. We observed that commenters discussed a wide range of issues using conversational functions that crossed multiple ethical paradigms, provided remedies, and modified elements of the conversation to provide more context, examples, and opinions. Building on these findings, we describe the capacity of communities such as members of this subreddit to engage in argumentation about the ethics of technologies they experience in their everyday lives. We conclude by identifying how future research could build upon this community capacity and capability of users to identify and critique the “design stance” of the practitioners responsible for unethical design decisions, and how these pragmatic and situated argumentation practices may point towards new approaches to ethics-focused methods and education.

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