The Pit Beneath the Town Square: How Digital Solastalgia Affects Platform Migration and Community Structures of Transfeminine Users

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Abstract

Transgender women and transfeminine nonbinary people (transfems) rely on social media for community and critical resources that are rare offline. However, transfems face perpetual risks of those communities suddenly turning hostile or transphobic, forcing withdrawal and losing those resources. To investigate, we conducted a two-stage asynchronous remote communities (ARC) study with 27 total participants, drawn from transfeminine-heavy online communities. We found that transfems forced off crucial platforms by transphobic hostility experience **digital solastalgia**, distress caused by observing a platform's character significantly erode over time. Moreover, through visual elicitation, we found that transfems perceive characteristics of locality and space in their online communities. These factors shape transfems' disengagement strategies and community structures. Informed by this, we develop community-sourced design guidance for designers and admins on building robust online platforms that can better protect transfeminine communities, and investigate the transferable effects of these suggestions to other marginalized groups, such as disabled users.

CCS Concepts

• **Human-centered computing** → **Social networks**; **Empirical studies in collaborative and social computing**; • **Social and professional topics** → **Gender**.

Keywords

Transgender, transfeminine, solastalgia, ARC, online communities, migration, non-use, harassment, content moderation, visual elicitation

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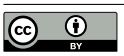

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1 Introduction

For Marcie, a trans woman, Twitter was a "town square on a global scale": a source of community and hope to a degree that was unthinkable offline. It was where she could get critical information about transition that was impossible to find elsewhere. It was a place for her to organize with her community, and to cultivate solidarity with other marginalized groups. It was a social hub, "where trans people all were," even those in her own local community. However, after Twitter was purchased by Elon Musk and rebranded to X, the environment changed to be unrecognizable. Transphobia and harassment were rampant, and Marcie's previous strategy of using a blocklist was suddenly insufficient to keep abuse at bay. Other trans people in Marcie's communities, also targeted and harassed, started leaving in a steady trickle, scattering Marcie's network. The town square was now unrecognizable, unwelcoming and dangerous. Marcie left, moving to Bluesky, carrying a feeling of grief; she could only hope that platform would be a safe refuge, at least until it turned, too. Her consistent fear of losing her core community had finally materialized. "We always knew it was the pit."

In this vignette, a transfeminine[1] user watches her online community decay as occurrences of transphobic harassment and abuse increase on the platform around it. This is an example of an **anthropogenic platform shift**, or a change in the character or culture of an online platform facilitated by human actions. These shifts take many forms, but for transfems, the results are often the same: increased normalization of harassment and hate [43, 48], exacerbating the elevated levels of harm transfeminine users already experience online [47, 66]. Because online communities are critical for transfems to organize [40], exchange health information [7], and build networks of community support [37], these increases in transphobic hate jeopardize transfems' access to these valuable and often

[1]The terms "transfeminine" and "transfem" broadly refer to any person assigned a gender of male at birth who now hold a different gender identity.

irreplacable resources. Therefore, when faced with an onslaught of hate and abuse, transfems are left with a painful choice: either reinforce what's left of their community and accept the risk of tangible harm from attacks, or leave to protect themselves, sacrificing their access to these networks and accelerating the collapse of the community - the seemingly inevitable fall of the "town square" into the "pit" - a little bit further. We investigate how transfems respond defensively when faced with such choice, and how those responses might have deeper consequences for the broader communities they take place in. In particular, our work is guided by the following questions:

RQ1. How do anthropogenic platform shifts affect transfems' decisions around platform migration?

RQ2. How do transfems organize their communities to resist anthropogenic platform shifts?

In this paper, we build on digital community scholarship to investigate these linked phenomena of transfeminine platform migration and community defense. To accomplish this, we conducted a two-stage asynchronous remote communities (ARC) study [51, 52, 76] with a total of 27 transfeminine users. The first stage provided us with exploratory context of problem areas and lines of inquiry to develop in the second stage, which focused on individual mental models and speculative designs to address those problems. During the second stage, we also incorporated visual elicitation techniques to gain an improved understanding of spatial relationships and physicality in transfems' perceptions of online communities, as suggested by responses in the first stage. Drawing on Albrecht's climate science concept of *solastalgia* [5] to analyze these visual elicitations, we find that transfeminine users' responses to anthropogenic platform shifts are shaped by a phenomenon we call **digital solastalgia**, or the feeling of distress experienced by a marginalized group when witnessing an anthropogenic platform shift towards hostility to that group. From assessing transfems' responses to digital solastalgia, we contribute a set of community-sourced design suggestions to reinforce transfeminine communities online. We also briefly investigate the transferability of both the guiding concept of digital solastalgia, and our design suggestions, by assessing potential benefits for online disability communities.

2 Background and Prior Work

Prior work has explored how spaces are structured and negotiated on online platforms. Past work has typically contextualized these explorations of space within particular subcommunities of both identity and practice, such as religious users [14], mutual aid organizers [42], and open-source contributors [31]. Beyond the boundaries of system interfaces, past work has also examined users negotiating with direct digital metaphors of physical space, such as in the virtual worlds of Second Life [50] and gather.town [46].

We define an **anthropogenic platform shift** to be a change in the human character or culture of an online platform. We draw on the language of climate scholarship to highlight that these communities function within models akin to ecosystems on both social [21] and technical [49] dimensions, and we use the word "anthropogenic" to stress that these shifts are necessarily human-caused due to the human-defined nature of digital communities. Within the context of this paper, we focus on anthropogenic platform shifts leading to an increased acceptance of transphobic harassment and attacks on transfeminine users. Past work has examined similar shifts in other contexts, most often by focusing on rates of toxicity perpetuation. Mall et al. [53] examine the dual concept of individual users' toxicity over time, and classify users based on trends in toxic behavior; similarly, Take et al. [74] assess of toxicity escalation in dedicated harassment campaigns facilitated by users on Kiwi Farms. There is precedent for target-centered work as well, assessing experiences and harms sustained by victims of abuse [39, 64], including in digital representations of embodied space [26, 44]. We extend these models by studying transfeminine users' mitigation and migration strategies employed in response to abuse.

Past work has also assessed user attitudes towards online platforms through what DeVito refers to as *platform spirit* [18, 19], which is broadly defined as the user's perception of a platform's purpose and character based on the juxtaposition of their expectations and experiences of the platform. Platform spirit and its impact on user behavior has been examined in a number of specific platform and community contexts, particularly non-users who have abandoned platforms that deteriorated in their eyes [8]. Notably, Twitter saw significantly more polarized user opinions of the platform [77] and a mass user exodus [78] after the platform was acquired by Elon Musk and rebranded to X in 2023. Similar rapid downturns in platform spirit which foment migration have been studied for other platforms such as Tumblr [23]. We build on this scholarship by examining the point at which transfeminine users decide to migrate, and protective strategies employed by those users who choose to stay on platforms they hold more negative views of.

2.1 Transfeminine Users and Trans Technologies

Transfeminine users face elevated rates of harassment and abuse online [41, 63]. Moreover, transfems are subject to *transmisogyny*, a unique form of intersectional oppression incorporating both transphobia and misogyny [71]. However, transfems also rely heavily on digital communities to support interactions and provide connections that are not easily replicated in person [58]. For transfeminine users, digital communities provide crucial health information [3, 24], dedicated trans spaces [35, 40], and opportunities to build relationships with other trans people [66], all of which are not readily accessible anywhere else. Because of this, transfems who lose access to these critical networks also lose access to the irreplacable resources contained on those networks [56], which can result in tangible harms [76]. The repeated pattern of transfems being chased off various platforms, combined with the exacerbated harms experienced by transfems when those platforms are lost, suggests a pressing need to study transfeminine experiences and identify areas where they may be better supported through platform design.

To this effect, past work has analyzed individual transfeminine communities to establish benefits and practices of particular platforms or spaces [21, 24], as well as the differentiated security practices of transfems in communities that mix transfeminine and non-transfeminine users [28, 47]. We extend these works to analyze transfeminine communities in cross-platform migratory contexts. Past work has also engaged in speculative design centering the differentiated needs of trans users. In particular, Haimson et al.

[33, 35, 36] introduced the concept of *trans technologies*, a speculative framework which explores the possibility of technologies created with the direct intention of supporting trans experiences. Haimson et al. propose the following criteria for trans technologies: facilitating change in a separate digital space, enabling multiplicity and fluid exploration, and supporting eroticism and bodies [35, 36]. We add to this body of trans-centered speculative work by exploring the gaps between individual online spaces, and examining design implications which could bring individual spaces more in line with the sought affordances of trans technologies. Moreover, both DeVito and Haimson center their work primarily on the effects on trans content creators, and assess loss in the sense of opportunity cost and economic impact. We add to this an additional understanding of loss - that of grief felt by transfems losing digital homes, histories, and establishments - and explore the emotional and social repercussions of this beyond content creation, for general transfem users.

To support community involvement in this way, we drew on a version of the asynchronous remote communities (ARC) method adapted by DeVito and previously used with queer populations [18, 20]. In this format, users join a private, closed online group, and respond asynchronously to various prompts. This directly incorporates trans voices into the design process, prioritizing the epistemic authority of our participants [3] and ensuring that our design suggestions are designed in conjunction with the same community they will impact. Moreover, we opted to use an ARC to support a variety of user populations who may benefit from a more relaxed study atmosphere and flexible schedule, such as neurodivergent users, parents, and working professionals, who can engage with the study at their own pace thanks to its asynchronous nature. This is in line with transfeminist principles [45], which advocates for centering trans issues while recognizing intersectional effects of other identities alongside trans identity. Incorporating transfems with a variety of lived identities into our work was critical, as transfems have historically experienced harm from systems designed without their input [2, 33], an additional mechanism by which epistemic injustice is perpetuated [4, 27].

3 Methods

Our study was conducted in two stages; Stage 1 ran from October to December 2024, while Stage 2 ran from March to May 2025. Each stage consisted of a seven-week study on Discord using a modified asynchronous remote community (ARC) method to develop community-sourced design suggestions. The ARC method was originally developed to study sparse or isolated communities in a health context [51, 52], and has since been adapted to study vulnerable populations in social computing such as LGBTQ+ users [18, 20, 22]. The ARC format allowed us to include visual elicitation components in Stage 2 to gain additional insight into phenomena mentioned in Stage 1. Additionally, as described previously, the ARC format's asynchronous, open nature allowed for flexible response times and varying levels of engagement from participants, letting us accommodate participants with a variety of schedules and obligations. The study followed a constructivist grounded theory approach [15, 16], using theoretical sampling to dynamically construct prompts that investigate information and inquiries borne from previous prompts; in addition, the results from Stage 1 of the study were used to develop inquiries for Stage 2. This study was approved by our institution's Institutional Review Board.

3.1 Participants

Participants were recruited through direct outreach on personal networks through Discord, X, and Bluesky. Both stages of the study had comparable participant demographics. In the second stage, we included both transfeminine people and their partners (who were not necessarily transfeminine), to hear additional input from others who are a core part of transfeminine communities' protective apparatuses. Participants in Stage 1 were invited to take part in Stage 2 as well; four participants took part in both Stages.

Prior to entering the study, participants completed a preliminary demographic questionnaire, which also outlined consent information. To help protect participant privacy, all participants were asked to select a pseudonymous username to be used during the study and for reporting in this paper. None of the participant identifiers in this paper are actual usernames. Participants are referred to using their pronouns specified in the demographic questionnaire. Other personally identifiable information, such as names of third parties or specific organizations, has been redacted or pseudonymized by the research team prior to reporting.

3.1.1 Participation Rates. External world events impacted participant retention rates in this study. Namely, during Stage 1, the United States presidential election precipitated a significant drop in participant activity immediately following Election Day, while during Stage 2, many participants stopped responding without withdrawing, citing apprehension over participating in a transgender-centric study due to fears of reprisal from the current United States government. We seek to preserve the epistemic authority of our participants in line with Ajmani et al. [3], and would have concerns with ignoring the results of a study due to systemic targeting designed to instill fear into the core demographic of the study. Therefore, we report these results and take the relative sample density of each prompt into account in our analyses. Due to dropoff rates, we hold more confidence in results from earlier in each study, and have opted to qualify any broader results which arise from less populous portions of the study. However, because the latter half of each stage was largely independent speculative work intended to express personal interpretations and serve as launchpads for creative iteration, we are confident that this dropoff has minimal impact on the study's overall contribution.

3.2 Protocol

Both stages of the protocol involved similarly-structured ARCs, with the primary difference between the two stages being the specific questions and tasks asked of participants. During each stage, participants received prompts twice a week for seven weeks, inviting them to respond in the discussion channels. Participants were also encouraged to reply to one another's prompts for additional discussion, and to respond to further questions from the research team. In each stage, after filling out the initial demographic questionnaire, participants were invited to a private Discord server run by the researchers; a separate server was used for each stage to ensure privacy. Participants were encouraged to join the server on an

Stage	Number	Age Range (Mean)	Demographic
1	15	20-55 (29.7)	Transfem users only
2	16	23-40 (31.4)	Transfem users and members of transfem-centric spaces

Table 1: Participant count and demographic data.

alternate account and use a pseudonym to maintain privacy. Upon joining, reviewing consent information, and agreeing to the study code of conduct, participants were manually verified by research staff as an additional security step before being allowed to enter the discussion channels.

- **Stage 1**: The first stage of the study was an exploratory exercise which centered transfeminine users explicitly and sought to identify lines of inquiry that were most relevant to transfems' safety and comfort. The prompts in this stage were all free response journaling exercises, asking users to recall their experiences on various platforms handling harassment, their past strategies and attempts to recover from attacks on their community, and their desires for an ideal digital community.
- **Stage 2**: The second stage of the study was open to both transfeminine users and members of transfeminine-centered communities, including partners and peers who were not themselves transfeminine but who regularly interacted in transfem spaces. Following a round of intermediary analysis, the prompts in this stage were designed to address lines of inquiry developed in Stage 1, responding to the experiences of harm and open design questions reported in the previous stage with speculative assessments and designs sourced from the community to address them. To accomplish this, the prompts in this stage took many forms, including written reflections, anecdotes, drawn maps or images, collages, and ranking tasks.

  Following our observations in Stage 1, we elected to include a visual elicitation component in Stage 2 of the study. We used visual elicitation to better understand participants' mental models of their digital landscapes, as well as to establish a more concrete starting point for developing community-sourced designs. We model our use of visual elicitation exercises off of Oates et al. [59] and DeVito et al. [21], both studies which used visual components to develop abstract ideas from participants into spatial and iconographic relationships. We asked participants to include textual walkthroughs of their images, describing the component elements and their meanings; some participants were also asked follow-up questions to clarify elements of their images. Our analysis was based on visual elements, including sizes, relative positions, relations, and iconography, as well as on the textual descriptions and answers participants provided about their images.

3.3 Analysis

Our analysis was conducted using a multi-round, iterative approach common to constructivist grounded theory [15, 16]. The research team, led by the first author and supervised by the last author, performed weekly open coding passes on discussion transcripts and visual responses throughout data collection and regularly conferred to discuss insights, which in turn informed future prompts provided in the ARCs. Because participants were readily available on the ARC server, we were able to ask follow-up questions to clarify their intent with their study responses as well as symbolic elements in their visual responses, helping to ensure data quality during our coding procedures. At the conclusion of Stage 1, the first four authors performed additional axial coding to consolidate codes and develop inquiries to be explored in Stage 2; similarly, after Stage 2, all authors held an additional round of axial coding to develop relationships and patterns from the latter half of the study and to connect our results to the inquiries developed in Stage 1. We then held a final round of focused coding to synthesize results, where the first four authors did an additional coding pass and then met and exchanged codes to confirm insights.

3.3.1 Positionality. Our analysis is underpinned by our research team's positionality, which provides both strengths and limitations to our observations. This study comprises member-research, with multiple authors holding complete membership (direct immersion and participation) in the communities under study, while the remaining authors hold peripheral membership (connection through shared experiences or identities without direct participation) [1]. Member-research is integral for developing trans technologies which effectively address the needs of the community [32, 33, 36].

The study was designed by the first author, a South Asian trans nonbinary person with prior experience researching online community boundaries, and supervised by the last author, a trans woman who is an expert in sociotechnical marginalization and the ARC method. We were joined for study moderation and data analysis by the second, third, and fourth authors. All five members of the author team are LGBTQ+, and collectively possess lived experience across a breadth of intersecting identities discussed by our participants, such as neurodivergence, disability, and polyamory. However, because all but two members of the research team are white-presenting, our positionality also raises possible limitations analyzing the component of race. Therefore, in line with our transfeminist principles as described in Section 2.1, our findings emphasize demographics in which we are member-researchers.

4 Findings

Our results indicate that participants adopt proactive strategies to respond to the irreparable harms transfems experience when they lose access to their online communities. In particular, participants who had been forced off online communities due to hostile changes in policy or climate tend to view most current forms of

social media as tenuous and impermanent, where other users are potential threats. Using visual elicitation exercises, we found that participants sought models of social media which enable many of the same safety and community affordances as physical interaction, but which remained digital and hypermediate, and did not necessarily replicate physical presence. We analyze each of these findings in turn in this section. Furthermore, we found that participants who held multiple marginalized identities held that these physicality-informed models of social media could potentially address other forms of harm beyond those specific to transfems; we briefly analyze those findings here, and discuss possible transferability of our results beyond transfeminine users more thoroughly in Section 5.

In this section, we present the findings from both stages of the study simultaneously for ease of reading, since Stage 2 of the study directly explored how transfeminine communities understood and responded to the types of attacks and threats described in Stage 1. In Stage 2, we asked participants to draw a map detailing their perception of their social media landscape, and encouraged them to consider features such as relative positions and sizes, landmarks, and connections, as well as to identify their "hometown" and frequently visited locales on their maps. Throughout, we will periodically refer to these visual elicitations, which comprised a key part of our dataset.[2] Participants were also asked to write a response explaining their decisions for different visual elements of their maps, and our analyses draw on both the visual elements of the images as well as participants' explanations. For clarity, we have appended participant pseudonyms with a parenthetical marking which stage of the study they were in.

4.1 Responses to Loss of Critical Communities

Participants who left platforms they were previously deeply embedded with in response to cultural or policy changes described feeling a profound sense of loss and grief. Many considered their lost communities irreplacable for multiple reasons. First, community members often leave hostile environments individually or in splinter groups, so groups often cannot coordinate a transfer of the entire community to another platform. `ThrowPillow` (S2) recounted how a combination of coordinated attacks and a more widespread anti-trans sentiment caused many of her friends to gradually abandon Twitter[3] one by one, noting that "a lot of my friends have made their accounts private due to constant transphobia". This piecemeal migration means that entering a new space necessarily involves attempting to rebuild large parts of one's community. Moreover, the new community may never fully replace the previous one, due to losing some community members entirely if other users choose to switch to different sites or withdraw from social media; `Cyberpup2077` (S2) described feeling "homesick for the communities that now feel diminished" due to community members scattering after leaving Twitter, an expression of loss for a previously valued space. Taken together, these factors suggest that anthropogenic platform shifts incited by sweeping changes lead to *destruction* of transfem communities, rather than effective migration; communities, and their resources, become irreparably lost.

Compounding this, in addition to the userbase, migrating to a new platform also often involves losing the technological and structural affordances which made the original platform desirable. One such affordance is the capacity of a wide-reaching audience to provide tangible support: `Zina` (S2) described how on platforms such as Bluesky and Instagram, "discoverability is a matter of livelihoods" for transfems, typically through facilitating sales of digital goods and amplifying calls for mutual aid. On top of financial support, participants also expressed the importance of digital community connections as a supplement to physical community. Because transfems - particularly disabled transfems - often rely on visibility and community connections for support in ways that physical communities cannot provide, they experience direct harm when those communities are lost. This also extends to sharing of crucial community-specific information: `Callie` (S1) provided the concrete example of Twitter, which functioned as a "public notice board" for prominent organizations, and described witnessing cases where transfems missed critical updates on anti-trans bills due to disengaging from Twitter discourse to protect themselves from aggression on the platform. These networks of followers and information sources are critical yet vulnerable lifelines for transfems, and they are not easily replaced once lost.

A notable subpopulation affected by these losses was neurodivergent transfems. Over the course of the study, many participants disclosed that they were disabled or neurodivergent, and several of these participants reinforced the usefulness of social media to find and maintain connections with others. This was true even for two disabled participants who had diametrically opposed needs. `Eros` (S2) described how social media enabled critical community connections that weren't otherwise possible, stating, "I'm disabled and so I need my social interaction or I go a little nuts." In turn, `Chillie` (S2) replied "I go a little nuts *because* people interact with me," explaining that social interaction is taxing for them because of their disability; however, they still benefit from social media enabling specific, deliberate relationships. Though `Eros` and `Chillie`'s disabilities affect their engagement with social media in opposite ways, both of them found value in online transfeminine communities that, according to them, could not be replicated offline.

Beyond technical affordances, participants also described deeply felt emotional responses, namely the grief of losing a source of community and nostalgic comfort, akin to losing a childhood home. In Stage 1, we observed participants' reactions as being similar to *solastalgia*, a term from environmental scholarship describing feelings of distress or homesickness arising from negative changes to the nature of a location [5]. Building on this insight, we reintroduced the concept of solastalgia in prompts for Stage 2, and participants responded affirmatively to the idea, observing that it captured their relationships with social media platforms well. `Marcie` (S2) notes that community spaces such as Twitter formed the core of many transfems' online identities: "It was where trans people all were. It was where we found each other... We had a community." Because of how important Twitter was in forming her identity, watching its

[2]Because participants' drawn responses can be very large and contain a lot of text, we have opted to crop each image to the relevant portions for our observations to preserve visual clarity for the reader. The uncropped versions of the visual responses shown here can be found as supplementary materials to this paper.

[3]In 2023, Twitter rebranded to X. To preserve the epistemic authority of our participants and more closely match their language, we opt to refer to the platform as "Twitter" in this paper.

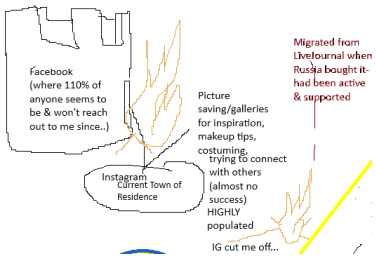


Figure 1: Fire is used to denote multiple types of loss: pervasive and socially accepted toxicity (Facebook) and hostile corporate policies and practices (LiveJournal). (Chillie)

"town square" drift towards transphobic hostility evoked deep feelings of loss: "I miss it as a place that genuinely mattered." This sense of loss also served to reinforce Marcie's perception that transfeminine communities have a "pit" lurking beneath the surface - that they are fundamentally impermanent and subject to destruction at a moment's notice.

Interestingly, the subset of participants who reported not experiencing solastalgia nonetheless considered it a useful concept to define themselves in direct *opposition* to. Zina (S2) stated that she did not experience solastalgia due to "not expecting anywhere to be home," instead fixing her online world to a specific circle of users rather than any particular platform: "Without [my social circle] all social spaces are an implicit threat." She added that this response was due to the perceived "precariousness" of social media platforms, which she - like Marcie - felt could change or dissolve at any moment, thus jeopardizing any sense of permanence a singular, central social media home could provide her. In this way, even participants who did not experience solastalgia found benefit in using the concept to explain their own means of coping with the mutability of social media: preemptively resigning themselves to an inevitable platform collapse, in an effort to avoid experiencing the pain of loss.

4.1.1 Responding to Digital Ruin: Walls and Diasporas. When describing platforms that had been left, participants often invoked imagery of ruin, reporting that the platforms in question had degraded to a point where it was untenable to stay. Accounts of this degradation are best seen in participants' visual responses to an elicitation exercise in Stage 2 of the study, where participants were asked to draw "maps" of their social media landscapes. Fire and destruction were prevailing themes across more than half of participants' maps. Most commonly, participants depicted one or more social networks as being on fire or destroyed to represent a climate of hostility and transphobia that made the platform unwelcome and dangerous to a transfem user. Chillie described the fires in their drawing (Fig. 1) as representing literal "burnt bridges", denoting platforms they had cut off after receiving threats and experiencing harm. In their description, they recalled reporting an onslaught of threats on Facebook and Instagram to Meta and compiling screenshots, but their accounts were deleted in response. Raani (S2) offered a similar account, observing that the isolation and anonymity afforded by broadcast social media platforms, coupled with limited recourse from the platform moderators, empower individual "randoms" and "anons" to cause harm:

> There's something more about the culture of communities that intend to punish, and the structure of social media that enables that isolation and punishment... Even in wide-open pseudoforum sites like Twitter and Bsky, communities and niches end up forming... the anonymous ten-follower account is empowered to harm more than highly-visible people.

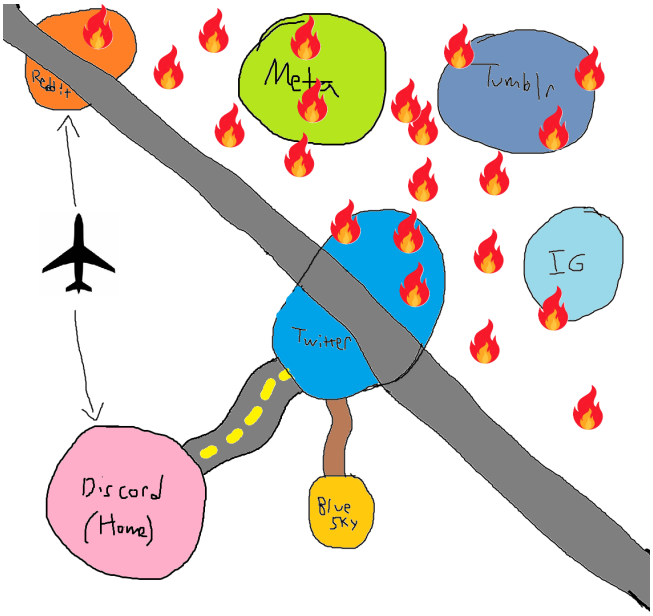
Here, Raani observes the same pattern that Chillie depicted in their map, where social media features facilitate and personal attacks while the sites deny administrative recourse to harassed transfems. Combined, these create a climate where transphobia is accepted and normalized, forcing transfeminine users off the platform and jeopardizing their access to the critical networks they have formed. Raani suggests that this pattern is exacerbated by platform design and community norms, which are considered to privilege public opinion when deciding how to moderate spaces.

To participants, digital ruin was an actively encroaching threat, and necessary steps had to be taken to mitigate it. From their maps, we identified two common categories of strategies that transfems employ to respond to the anthropogenic platform shifts that beget digital ruin. The first is **curation** (Fig. 2), where users still visit the platform, but limit their own engagement with the parts of the platform that they deem harmful. In practice, this requires significant effort and strong proactive techniques, such as limiting browsing to "safe" parts of the platform and keeping a low threshold for blocking other users, making it an active and taxing process. It also limits users' abilities to engage as deeply with the platform and its community resources as they would otherwise want to.

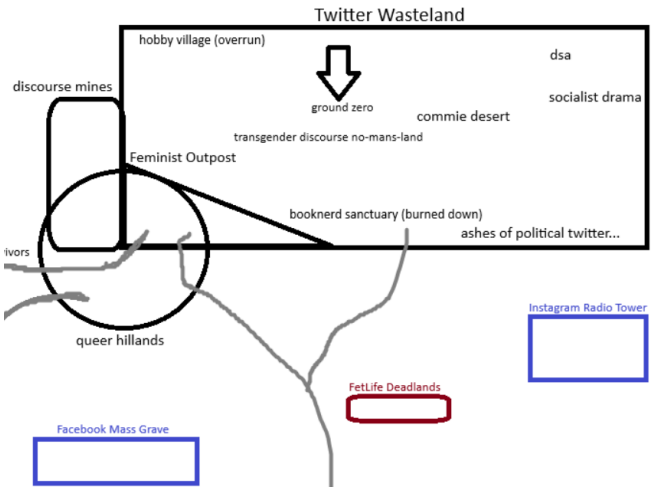
The second strategy is **migration** (Fig. 3), where users leave certain social networks or communities entirely to avoid harms. Participants who have migrated away from a platform reported doing so because the risk and harm caused by being on the platform became too great to continue, despite how valuable the relationships and community network provided by the platform were. D0v3, speaking of her own migration away from Meta's platforms, separates her positive perception of the communities and people in her former circles from her negative view of the overall platform climate: "I don't feel much of a longing from the platform, just for the people I know who only have that as their social media." This speaks to a drawback of migration: as users leave, their communities are further severed, perpetuating their fragmentation and declien.

Importantly, these strategies are not mutually exclusive, with some participants choosing whether to employ curation or migration on a per-community basis. Some participants depicted curation as a first response, and only resorted to migration from platforms that crossed a further threshold of harm or offered no more beneficial community (e.g. Cyberpup2077, Fig. 2b). Other participants used temporal bounds to differentiate the two strategies, such as Eros (Fig. 3b), who described Tumblr as having the potential to be usable again if it improved, while other platforms, such as Reddit and 4Chan, were considered permanently cut off.

While each of these strategies was described as being a preliminary response to harassment and harm, participants also remarked

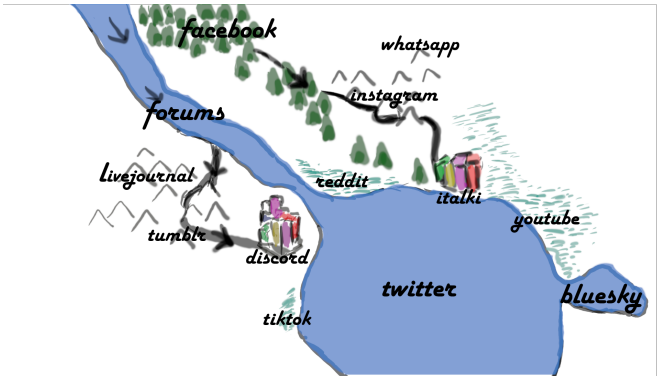


(a) Curation: Fire is used to depict "destruction" of large swathes of social media, having been rendered effectively unusable by transphobia and harassment. The wall is a "massive manually made blocklist" intended to keep harmful actors from destroying more spaces. (Sunflower)

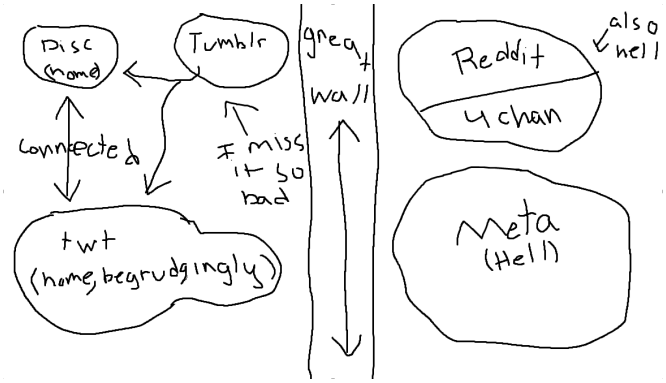


(b) Curation: The area representing Twitter has been divided into two sections: "queer hillands," representing the portions of Twitter considered usable, and a large section with descriptions of apocalyptic ruin caused by deliberate warfare and attacks: "ground zero," "mass grave," "deadlands," "burned down," "over-run." (Cyberpup2077)

Figure 2: Selected participant maps which demonstrate the *curation* strategy.



(a) Migration: This map depicts temporal migration across different platforms, represented as a flowing stream. At each link, the previous platform is largely left behind: "Usually new spaces are fairly separate for me. (I might have a couple friends from an older space, but aside from that, no continuity.)" (Sophia)



(b) Migration: This map demonstrates different degrees of migration reflecting different levels of erosion of platform spirit. Reddit, 4chan, and Meta have been completely cordoned behind a wall, labeled "hell," due to unrestrained transphobia, personal attacks, and hate speech. By contrast, Tumblr, while still showing migration away from the platform, is outside the wall; the participant expresses a willingness to return to the site if it improves. (Eros)

Figure 3: Selected participant maps which demonstrate the *migration* strategy.

on the additional labor needed to employ these techniques. In particular, since several participants defined their communities by specific people rather than by a platform as described in Section 4.1, there was potential for the same ties which connect communities across different platforms to become liabilities, enabling targeted attacks to spread along information flows from platform to platform as seen in Figure 4a. Raani, the creator of this map, describes her experience as a victim of this process:

> I've mostly noticed the deepening reactionary sentiment online, even as my personal community ties and even family remain fairly rock solid... Sort of a "pay it forward" situation of shit flowing downhill, with migrants from other social media platforms (such as Threads/Meta, notably) reacting to the state of ascendant global transmisogyny by finding their own whipping girl to vent frustration on.

Other participants supported this account of omnipresent collateral risks, exacerbated by the close ties between online communities of transfems. This suggests that personal curation strategies are not a complete solution because community boundaries transcend platform boundaries, as seen in Figure 4b, where users on Bluesky are depicted as continually affecting the participant's life despite Bluesky being intentionally kept outside her social media landscape. We examine designs which may best support these personal curation strategies and minimize these risks further in Section 5.

4.2 Building Space: Transfeminine Online Risk Models and Community Structures

Participants overwhelmingly described heightened risks for transfeminine users and communities on social media which made them hesitant to engage online. Generally, these risks were described as part of a struggle for space, in a digital sense; transfems sought to negotiate a secure nexus for their communities, and received backlash in response. In this section, we detail participants' risk models for digital attacks on transfems, and then assess two families of moderation strategies in the context of defending against these attacks and managing spaces that have formed. We conclude with the results of our second visual elicitation exercise, outlining two strategies for access control to newly formed spaces which attempt to defend those spaces against the threats outlined in these models.

4.2.1 Risk Models for Transfems on Social Media. Nearly every participant reported being threatened online. Multiple transfem participants reported receiving threats of career destruction, sexual violence, and death, often unprompted; some participants also recounted instances of direct harm that had come to them following these threats. In particular, participants reported that sharing trans experiences or otherwise outwardly projecting trans identity was met with significant emotionally-charged backlash that could not be meaningfully mitigated with constructive discourse, which in turn made participants feel ostracized and deprived of digital space.

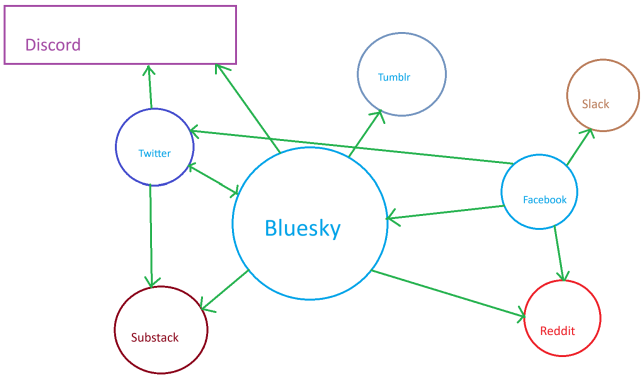
The most common solution was to disengage from social media as much as possible, minimizing both the amount of information shared online and the number of people it is shared with. Sxlxpsxsm (S2) described how she limited her personal identity disclosure over the prior several years due to this backlash, and observed the resultant feeling of being othered: "It sucks, the point of it all is human connection, but it makes me feel increasingly inhuman." The threat of coordinated and unceasing hate prevents transfems from socializing as intended on social media, depriving them of the core benefit of the platform. Because transfeminine users are heavily reliant on the affordances of social media as described in Section 2.1, this inability to effectively engage online is tantamount to a complete, devastating loss of one's entire social support network.

Compounding these risks is what WickedWalls (S1) referred to as the "hedgehog's dilemma," or the idea that forming close ties of mutual solidarity with other community members invites additional risk vectors for harassment and abuse. Participants separated these risk vectors into two major categories. The first is the potential for being collaterally impacted by targeted hate against another transfem user or community. This risk is amplified on platforms where transmisogynistic attitudes remain embedded in local culture and discourse, allowing transfems to be disproportionately and systemically targeted. Participants overwhelmingly named Twitter as one such platform. Jules (S1) observed that this kind of attack was not only dangerous while it was happening, due to "catch[ing] random transfems in the stray fire," but that it also "leaves a lasting impact on the general consciousness of what transfems *must be like*" which could be weaponized later as a way to attack other transfems by association. Participants added that the safest way to defend against collateral impact this type of attack was to distance from the community under fire, leading to fragmented online communities and isolated users. This strategy of defensive distancing also limits help and support available to transfem victims of online abuse; Clover (S1) describes how, after she was attacked, her support network of other transfems cut her off to protect themselves, thus leaving her further isolated. In this way, transfem community ties can strain and fragment from an attack on any single member, an example of the liabilities of cross-platform ties described in Section 4.1.1.

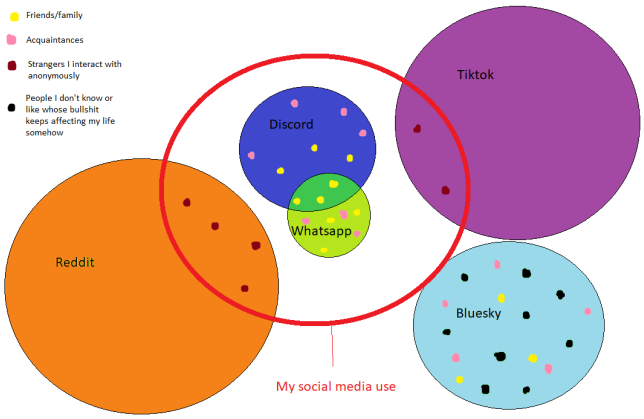
The second risk vector is that another transfeminine user could themselves turn into a potential threat over a theoretical future conflict, which would suddenly jeopardize one's access to their shared community. Participants recounted several instances of this occurring, often without any prior warning signs. Rebecca (S1) noted that this turn is usually directly tied to her transfeminine identity, stating that trans women, particularly POC trans women, are "a really good target for violence like that because we're already on the fringes of society."

Often, these risk vectors play out in tandem, with some transfems deflecting attention from harassers to others in their orbit as a means of self-defense. Narca (S1) observed this pattern in a particular incident she witnessed where a trans woman of color was forced to close her Discord server following unsustained accusations of racism:

> There is always a cadre of other trans women ready to lend oxygen to such claims regardless of evidence or the accuser's behaviors... In my opinion this was probably due to not wanting the label of "racist" and the nastiness which came with that, and thus it was easier to throw someone who up until that point had been a close friend for some of them under the bus.



(a) This map depicts a "flow of 'takes"' between different platforms, reflecting the participant's folk model of how ideas spread across communities. This demonstrates the belief that curation and migration at the platform level will not stop a dedicated harassment campaign. (Raani)



(b) A map depicting different social media sites as having user overlap with one another. Though the participant attempts to curate her social media use to a limited subset of networks, she remains impacted by Bluesky users outside of her curated digital threshold due to knowing other users on Bluesky from elsewhere: "People I don't know or like whose bullshit keeps affecting my life somehow." (Luna)

Figure 4: Selected participant maps demonstrating how communities exert influence on other communities, adding challenges to employing curation and migration strategies.

Participants commented that these patterns of harassment were exacerbated by platform cultural shifts and by policy changes enabling transphobia. The feelings of loss described by participants in Section 4.1 were associated with increased feelings of risk due to more frequent attacks, which in turn led to those participants withdrawing from communities and leaving the platforms in question, perpetuating the diaspora.

4.2.2 Rules-Based and Vibes-Based Moderation. Participants discussed the role of moderation practices and how they interacted with their risk models of social media platforms. When describing moderation practices, participants in both stages broadly categorized them into two classes: **rules-based moderation** and **vibes-based moderation**. Rules-based moderation fixes a code of conduct and tasks moderators with enforcement as written. In contrast, vibes-based moderation empowers staff to make ad-hoc decisions about how to handle perceived moderation infractions based on a situation's "vibes," allowing for moderators to take instinctive and intuitive actions they feel are necessary. This includes arrangements where non-moderators can informally facilitate moderation-adjacent actions, such as through leveraging personal relationships with moderators, or through community self-policing behaviors. While most moderation and governance systems do not directly classify themselves as rules-based or vibes-based, participants had an intuitive sense of the divide, and classified systems based on their experiences with various digital communities and their folk models of those communities' moderation processes.

Participants largely felt that neither rules-based nor vibes-based moderation was a universally better choice, but rather that an inappropriately applied type of moderation led to tangible harms and negatively impacted communities. Participants noted that rules-based moderation enabled direct enforcement of order and kept those willing to follow the rules in line with minimal moderator intervention. For example, users who posted hate speech were able to be removed with the justification of the particular rule banning hate speech. However, some users may operate within a community's defined rules while still harming the community. In these cases, communities which allow vibes-based moderation can address situations where bad actors obey the rules of the community as written while still detracting from it. Sunflower (S2) recalls one such incident where vibes-based moderation was used to remove a user with Nazi imagery in their Discord profile description who joined a shared server and was combative to other members while still technically not breaking the community's rules:

> We deliberated and then banned them anyway... because being confident enough to put *that* in your profile is indicative of who someone actually is as a person, and the vibes were *rancid*. Sometimes you don't need to explicitly break a rule to be a detriment to the community you're trying to ingratiate yourself with.

Other users expressed agreement that some amount of vibes-based authority was important to handle cases such as this, where rigid application of rules would allow the user in question to stay and invite what participants considered an uncomfortable amount of risk into a digital refuge.

On the other hand, moderation systems which outsource decision-making authority to user judgment can also lead to negative outcomes, even if the system itself does not explicitly empower users in this way. Sophia (S2) identified this phenomenon on Twitter, a platform which has official rules and moderators, but also heavily incorporates intracommunity policing, criticism, and counter-harassment as a *de facto* form of vibes-based moderation within

certain circles. Sophia (S2) referred to this as "moderation by mob rule," describing an incident where a trans woman faced "disproportionate backlash" for posting a biphobic joke, which emboldened users to post transphobic responses to her in kind. Oftentimes, this behavior was enabled and amplified by the same systems intended to allow for more user control in moderation. As an example, multiple participants in Stage 1 pointed to Bluesky's shared blocklist and quote post features as means of sharing information to proactively prevent attacks, but also described how those same features were themselves sometimes abused as a form of attack. coalandwater (S1) noted that this phenomenon is not unique to online spaces, but it is amplified in scale and frequency due to digital affordances, because "it is easier to find victims online." She observed that the easiest defense for most transfems is to "vanish from online spaces" because neither tools nor community context was a sufficient defense:

> None of these dynamics are effectively prevented with tools like blocking, some tools make it worse (lists, protected accounts being able to quote tweet you, etc.), but I have not seen any tool that actually helps. Often, community policing makes this worse instead of better because the community does not have any awareness of these dynamics.

Here, coalandwater is describing how subcommunities are situated within a larger superset of online discourse, and how local moderation tools intended to facilitate a normative or vibes-based community standard might instead enable external harassment if they breach the community context. Furthermore, Jules (S1) observed that this potential for context collapse and vilification has led to wariness of integrated tools among transfems which serve only to publicize problems without guidance of how to respond.

However, participants overwhelmingly rejected the removal of subjectivity from moderation. They observed that automated moderation and content delivery algorithms operate on an extreme version of a rules-based framework, with rigid guidelines about what those systems consider worthy of removal or suppression that contribute to silencing transfems and facilitating hate. In particular, Sophia (S2) said that Twitter's algorithm "isn't always powerful enough to distinguish between pro-trans and anti-trans content," which occasionally leads to users having their trans-positive content removed while transphobic content is placed in their feed. Some users asserted that this algorithmic favoritism towards anti-trans content was deliberately implemented on behalf of Twitter's executives; ThrowPillow (S2) attested that "Musk's stewardship of the platform" had turned Twitter into a "transphobia bot dead internet space." In this way, a rules-based moderation system is viewed as a managerialized proxy for implementing moderation methods which selectively suppress marginalized voices and amplify the biases and desires of the system creators, while presenting those methods as neutrally applied. The threat of this type of rules-based marginalization led several participants to reject any strictly rules-based moderation systems, such as Eros (S2), who notes that "It ALWAYS has to be vibes-based... because as soon as it's a mechanical system it can be exploited and that defeats the purpose."

In addition, there were varying preferences among participants regarding the social effects of various moderation styles. In particular, vibes-based moderation was described as being more amiable for users seeking groups with calmer, less-stressful power dynamics. Eros (S2) noted that vibes-based moderation approaches foster fluid, organic group dynamics in a way that rules-based moderation quickly flattens, by allowing space to negotiate different approaches to a single moderation problem. Conversely, participants alluded to neurodivergence lending preference to rules-based moderation structures. Neurodivergent participants expressed a preference for "highly structured spaces," reflecting a sentiment common within the autistic community [57]. These participants also qualified their preferences with an understanding that "this is not the usual experience for people," reflecting an awareness that most of their communities do not meet this expectation.

In response to the variety of opinions, participants proposed that an increased focus on **local, small-scale community stewardship** would allow for differentiated approaches to best fit different sizes of communities. Horsatia Beansz observed that different scales of community fit different models: larger-scale communities might trend towards planned, structured "conventions," while smaller-scale ones of around 10 people might be more like free-form "parties". They suggested that these smaller "parties" are best suited for vibes-based moderation approaches, and noted that such methods often arose organically in such small groups, since "lacking the communication ability means they're not really long-term or governable." Other participants concurred with the potential usefulness of differentiated moderation approaches, and suggested that platforms should facilitate different scales of moderation and community through their design.

4.2.3 Situating Private Space in a Broadcast Environment. While discussing differentiated moderation approaches, participants emphasized the importance of having private spaces within the protective boundary of an established subcommunity. They described two common models of negotiating these private spaces. Both of these were demonstrated in a later visual elicitation prompt from Stage 2, where participants were asked to represent their favored online communities as buildings and depict how constituent parts of their chosen community connected. The first model was a tiered access structure where users were progressively invited to more private areas within the community as they reached further stages of membership and involvement. Most commonly, this was done to assess new users, to determine both whether they were a potential threat and whether they would fit comfortably into the existing community. This model supports integration into the community both administratively and culturally, protecting existing members while maintaining open access to the most critical resources provided by the community. Notably, this integration process was not depicted as a wholly linear set of stages. Chillie (Fig 5a) had special categories for both "sacred relationships" and "loose contact", and added that while linear progression to deeper regions of their community was typical, "all zones have pathways to all other zones" as needed. In tiered access models, progress through stages was typically mediated by vibes-based moderation processes described in Section 4.2.2, with additional "quarantine" areas reserved for those who need to be removed administratively. Eros (Fig 5b) had

two such quarantine categories: one for users who need more time to adapt to the community rules and norms, and a more isolated one for users who are harmful to the space and are at risk of being completely separated from the community.

The second model of negotiating private spaces involved hub-and-spokes structures (Fig. 6), where spaces consisted of a larger public common area and a series of smaller subspaces to be used for spontaneous breakout discussions or messages. Broadly, participants understood different spheres of their community to take place in different physical locations, and connected this to fluidity in how conversations could be moved from public to private. Participants identified multiple types of online communication which took place in these private subspaces, including direct messages, small-group side conversations, admin discussions, single-topic channels, and "safe rooms" to withdraw from the main public space. Participants also offered different ideas as to how these purposes were allocated to different subspaces: `Cyberpup2077` (Fig. 6a) depicts subspaces as pre-allocated for dedicated purposes, while `Sophia` (Fig. 6b) has several general-purpose private areas to be used as needed.

As with mitigation strategies, these two community structures were not mutually exclusive. Most spaces depicted with tiered access structures had independent subspaces used for quarantines or side channels, while some spaces with spontaneous subgroups still facilitated access to various subgroups through progressively defined membership criteria. We argue that both of these strategies are enabled by the same affordance: the ability for spaces to **fluidly and organically subdivide**. We discuss the implications of this affordance further in Section 5.2.

5 Discussion

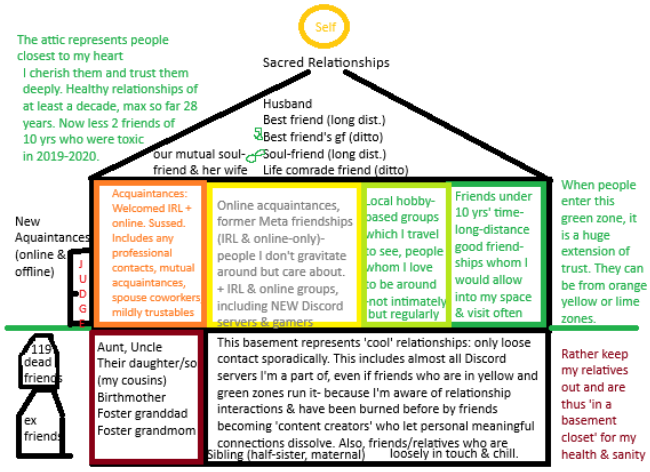
Through our conversations with users in transfem communities, we have identified key implications for platform designers and community leaders to take into account when managing digital spaces. We find that transfems consider an online community as having features of space and locality, both internally within its own boundaries as well as externally with respect to other communities. These features contribute to a felt sense of place for digital spaces, cementing their importance in supporting communities that cannot be easily replicated offline. When one of these digital spaces changes in nature or character to become hostile to transfems, we find that transfeminine users respond with feelings of irreparable, collective loss and displacement, as though the community no longer existed. In this section, we first analyze these feelings and responses through the lens of **digital solastalgia**, and then develop community-sourced design suggestions to help build communities for the marginalized which are resistant to embedded hostility. We also assess how the vibes-based moderation practices described by participants function to reinforce this sense of place, and we provide additional design guidance for communities to develop moderation and stewardship practices which can empower marginalized communities online while minimizing the risk of concentrating power to an individual arbiter. Finally, we consider these insights as they relate to marginalized populations of neurodivergent and disabled users, to better establish benefits for multiply marginalized transfems and to motivate the potential transferability of our design suggestions.

5.1 Digital Solastalgia

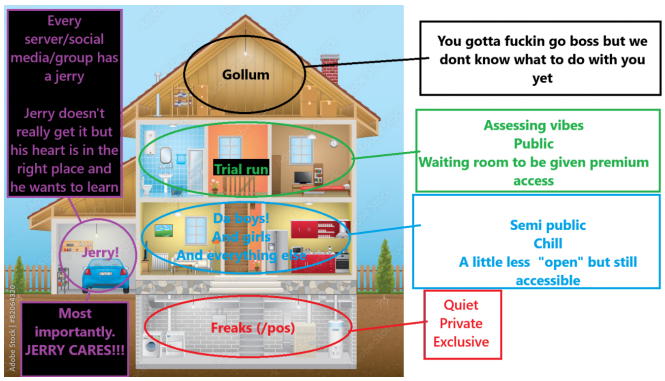
We find that cultural or policy changes in digital spaces that turn them into hostile environments for transfeminine people can be understood through the framing of Albrecht's *solastalgia* [5]. As detailed in Section 4.1, participants agreed that solastalgia explained their reactions to the increased inhospitability of their critical online communities, and even those participants who did not say they experienced solastalgia nonetheless found benefit in using the concept as an anchor to orient their own feelings about the alienation of their communities. Moreover, participants treated platforms affected by these shifts as though they were gone or destroyed, reflecting the difficulty of replacing the critical networks jeopardized by growing harassment and abuse on their host platforms. When describing this, participants largely drew on metaphors of ruin and natural disaster in their visual responses to encapsulate their perception of these platform changes. From these significant parallels, we propose the concept of **digital solastalgia**, which we define as a feeling of loss, distress, and abandonment experienced when an online community changes to become hostile to one's identity.

Importantly, the impacts of anthropogenic platform shifts may be asymmetrically experienced across the community. Character changes of digital communities are not typically like stochastic natural disasters, where human activity *implicitly* amplifies their intensity; rather, anthropogenic platform shifts are *explicitly* and deliberately enacted through behaviors of other members of the community, or of the organizational authority overseeing the community. This stratifies communities with differentiated experiences, where users who do not hold affected identities may not react with the same urgency or even recognize that harm is being inflicted. While physical communities impacted by climate change face epistemic injustice when voicing their experienced harms in global intercommunity dialogue [13], we find that the largely internal causation and identity-based stratification of digital communities facing anthropogenic platform shifts leads to a different form of internal epistemic injustice, where marginalized users' concerns are consciously ignored. Therefore, digital solastalgia positions itself as an oppositional, internal distress, rather than a unifying, external one. This suggests that the emotional response of digital solastalgia may negatively impact transfems' perceptions of platform spirit [55], by contributing to the perception that the platform is no longer supportive of their community. Combined with participants' reported deep resignation to the prevalence of endemic hostility and transphobia online, these feelings of instability evoked by responses of digital solastalgia contribute to participants' views that their communities must necessarily be impermanent. This limits transfems' ability to form meaningful, persistent online communities: they are taught through repeated examples to expect that they will eventually need to move to defend themselves, and so they cannot securely commit to permanent digital infrastructure. In their view, the town square has collapsed into the pit before, and if it is rebuilt elsewhere, it threatens to do so again.

We also find that, as a response to feelings of digital solastalgia, an immediate instinct for most transfems is to migrate away from the platform in question. Often, this is the most immediate and actionable solution to prevent further harm to oneself, though it carries the cost of losing access to critical networks which coexist

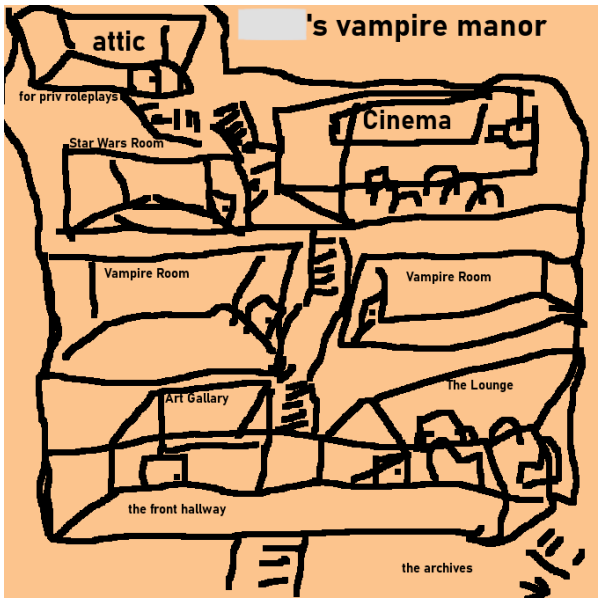


(a) New acquaintances are judged at the front door, and then welcomed into progressively deeper rooms based on closeness. Two independent, unordered spaces are presented: an attic, holding "sacred relationships" close, and a basement, holding relationships with limited or no contact. (Chillie)

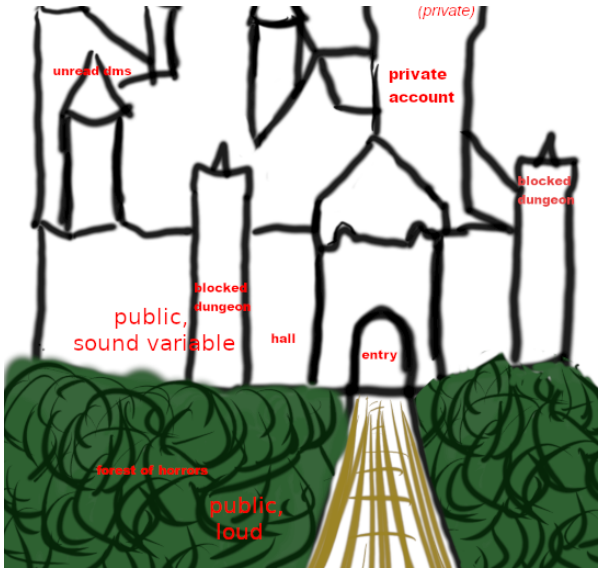


(b) New members are subject to a vibes-based differentiation process to ascend through tiers of membership. This house also features two independent spaces, both of which function as quarantines: an attic, for users who need to be separated from the community, and a garage, positioned adjacent to the main public square, for users who pass the trial period but still struggle to integrate into the community. (Eros)

Figure 5: Selected participant buildings which demonstrate progressive, linear access structures.



(a) A tree structure connects common areas of varying privacy. At the top levels are several rooms to facilitate private discussions which are spun off from public channels. In their description, the participant added that there are "lurker roles" for people to spectate these private discussions without participating. (Cyberpup2077)



(b) This building uses a central hub to situate private spaces, in contrast to an open public. While the community's main hub remains open and public, different private towers are arranged around the main hub to withdraw into. (Sophia)

Figure 6: Selected participant buildings which demonstrate hub-and-spokes structures.

in the same hostile spaces. However, this pressure to migrate away from sources of harm itself contributes to the instability and transiency of these networks, because online communities are often more strongly delineated by connections between users than by any tangible boundary [75]. This pattern of cyclic collapse spurred on by digital solastalgia further prevents communities of transfems from establishing themselves and dissuades transfeminine users from forming strong ties to any platform. Moreover, it contributes to epistemic injustice [27] against transfeminine users through perpetuating Ajmani et al.'s *cycle of invisibility*[4]: as transfems leave a platform, their collective voices continually carry less weight in establishing a status quo in moderation or community management practices, which then allows anti-trans practices to be codified into the platform. This leads to moderation systems failing to sufficiently protect trans users, which leads to more transfems leaving.

To alleviate this, designs must account for two factors: supporting the foundations of communities to allow them to embed more stably into platforms, and facilitating curation and migration of communities across lines that do not necessarily conform to platform boundaries. While prior work has examined transgender user continuance [6, 34, 62], subcommunity formation [21, 40], and digital community migration [23, 25] in isolation, we present additional community-sourced design suggestions in the following section which could support all of these factors more cohesively. We also suggest that the concept of digital solastalgia, as applied to these areas, may provide a useful framework to explain user behaviors and attitudes towards platforms undergoing anthropogenic shifts, particularly in cases where the reactions of marginalized users are differentiated from those of the broader community.

5.2 Spatially-Informed Design Suggestions for Communities

We found that participants intuitively understood their favored digital communities as taking on characteristics of physical spaces, despite the communities themselves being primarily traditional broadcast or chat-based social platforms. As described in Sections 4.1.1 and 4.2.3, participants were able to definitively separate "rooms" for various subcommunities and identify "distances" from other communities, imposing a sense of structure onto a community based on observed social patterns rather than intentional design. We propose that community designs which take these intuitive spatial mappings into account from conception could help address conflicts over use of space and offer stronger protections for marginalized communities from targeted harms, enabling the formation of stronger community ties as described in Section 5.1. For the remainder of this section, we outline a suite of design suggestions for communities based on our findings.

- *Fluid Subdivision.* A critical way to keep a spatially-defined community safe is through allowing subspaces within the community to be easily created as needed. Enabling fluid subdivisions decentralizes the community, allowing subspaces to resist targeted attacks on other subspaces. It also enables both models of private space negotiation observed in Section 4.2.3. New users might be placed into a trial area or observer role, enabling tiered access models which gradually acclimate new users to a space to build trust and establish safety. Simultaneously, the ability to create private rooms as needed allows for spontaneous subgroups which facilitate intimate or purpose-based interaction or which are separated for privacy or security concerns. On existing platforms, subspaces generally take one of many forms. The most common are pop-up threads or temporary channels, such as those seen on Discord or IRC, and semi-permanent user-managed subgroups, such as Fediverse instances. Each of these implementations offers benefits: threading increases the resiliency of the overall network against internal dispute and facilitates goal-oriented subtasks [72], while instanced subcommunities provide refuges for communities under attack [56] and allow for flexibility in local moderation practices within the same community sphere [12]. Allowing for spontaneously-created subgroups also supports Haimson et al.'s principle of multiplicity and fluidity for trans technologies [33, 35, 36], enabling trans users to explore identities in temporary spaces and share them among other users as selected with reduced privacy concerns. For this reason, we advocate for communities which permit both ephemeral and semi-permanent subgroups.
- *Local Conversation.* Users should be able to easily decide who can see their communications, with a level of granularity down to individual user visibility. In effect, this is akin to creating an ad-hoc, temporary subdivision, with the scope of a single communication. This would enable users to more intuitively enact their felt senses of locality on digital spaces, mirroring a private conversation with one's neighbors. While other platforms have attempted to replicate immediate physical space online, such as gather.town's implementation of proximity [46, 60] and VRChat's simulacrum of reality [17, 65], we instead propose hypermediate platforms (those which enable the functionality, rather than simulate the form, of the interaction they facilitate), which embed an understanding of these spatial properties into their design. An example would be allowing users to identify circles of users based on some selection criteria, and then choosing which circles could see a given post, allowing them to control the "loudness" of individual messages. We propose this way of considering spatial design because participants expressed an acute awareness and rejection of the logic of immediacy [9]: they did not want online platforms which simply replicated the *practices* of offline interactions. Rather, they sought the *affordances* of those interactions, particularly enhanced privacy and intimacy, while maintaining the benefits of the online medium. The ability for any conversation to turn local - parallel to the offline practice of lowering one's voice or stepping into a hallway - provides this affordance as it could manifest in a hypermediate online environment. Giving users this control also offers potential security benefits, functioning as a form of preemptive "algorithmic emergency brake" [19] to limit visibility in sensitive contexts.
- *Cross-Platform Mobility.* As described in Section 5.1, transfems whose platforms face anthropogenic shifts often seek to migrate away; however, when this migration is done in a piecemeal fashion, the existing community ties are often irreversibly severed in the diaspora. A potential solution to

this is to facilitate cross-platform bridging to connect distributed communities, as an extension of permissive subcommunity formation. This could take the form of partnerships between different communities, mirrored messages across different channels, or multiple platforms providing access points to the same community space. This would provide communities with dedicated "refuge destinations" in the event of a community collapse, which would presumably have preexisting ties to one another, thus mitigating the network-severing effects of diaspora. The functionality to build cross-community connections also provides a means of additively incorporating subcommunities, facilitating organizational ties and allowing severed connections to be more easily rebuilt. An additional implementation option would be to build modular communities on top of flexible hosts, enabling transfers to a different host if needed, which would allow for a community to uplift itself from the context of a hostile platform environment. There is some precedent for this paradigm among federated communities, which permit account-level [11] or community-level [69] transfers among hosts due to their distributed model.

- *Justice in Moderation.* Our final design suggestion relates to community moderation. Of the categories outlined in Section 4.2.2, most content moderation typically falls under rules-based approaches to justice [68], particularly corporate or algorithmic models of content moderation [30, 67, 70]. However, we observe that certain types of intracommunity attacks detailed in Section 4.2.1 are effectively attempts at vigilantism outside of the moderation system. This is particularly true for attacks weaponizing context collapse [54], which seek justice beyond a formalized set of community rules. We suggest that moderation systems which rely too heavily on rigid rule-based interpretations of restorative justice lend themselves to this extra-systemic pattern of "bounty board moderation" for the most affected users to find recourse. Therefore, we propose that there must exist a form of intracommunity accountability, and that the vibes-based moderation systems outlined by participants are, in part, a means of filling that gap. We propose that communities incorporate democratic mechanisms of governance [29, 73], scoped as appropriate for different sizes of community, which could alleviate some of the powerlessness users may feel in having their concerns addressed and help proactively prevent the need for vigilante approaches to justice. Individual communities ought to negotiate which decisions should be made democratically versus which should be done by administrative fiat; answers are likely to vary depending on the features of the individual community.

5.2.1 Intersectional Affordances for Disabled Transfems. In 4.2.1, we observed that the frameworks for understanding transfems' responses to anthropogenic platform shifts also helped transfems with disabilities and neurodivergent transfems explain feelings, preferences, and desired community arrangements which emerged from their intersectional characteristics. As with the framework of digital solastalgia, this was true even when needs were conflicting; participants found value in using classifications derived from an understanding of digital solastalgia to articulate where their experiences and needs lie with respect to others. While our research centered transfeminine participants, the concept of anthropogenic platform shifts is broadly applicable, and we suspect that patterns of migration and non-use in online disabled communities resulting from these shifts could be further understood through the lens of digital solastalgia; for example, the experiences of disabled users remaining on TikTok after receiving ableist abuse as detailed in Heung et al. [38]. We also note that digital solastalgia as a framing concept supports epistemic autonomy and participant storytelling in intersectional contexts - here, disabled transfems - in line with the principles of both disability justice [10, 61] and "trans-competent" design [2].

Building on this overlap, we suggest that several of our design suggestions could have impacts for disabled users as well. For example, as described in Section 4.2.2, neurodivergent participants expressed a preference for control over digital notions of proximity and space to accommodate stimulation needs. This preference was also expressed in the context of transfeminine spaces in Section 4.2.3, and the proposed design suggestions are designed to support this preference. Therefore, neurodivergent users could benefit as an additional result of taking these principles into account.

5.3 Limitations and Future Work

We have presented novel implications for digital community scholarship, as well as potential design suggestions to better protect those communities. However, our work has some important limitations to consider. First, we recognize that our design suggestions are only the start of a robust technical solution. To fully realize the benefits of these suggestions, future work should prototype and test them on new and existing platforms, and refine them with concrete data from live deployments. This would also provide additional opportunities to investigate transferability of these design suggestions beyond those contained in this work. In a similar vein, future work should also investigate digital solastalgia as a potential contributing factor to understand user responses in adjacent areas, such as user continuance and platform governance.

Second, as we discussed in Section 3.1.1, there was significant participant dropoff exacerbated by world events at the time of the study. Future work should therefore assess the scalability of these findings to larger populations. Future work should also investigate transfeminine subpopulations who were underrepresented in the study, such as nonwhite transfems and those in non-Western contexts, to assess intersectional effects with those demographics.

Finally, while we briefly discussed the transferable benefits of our results to disabled and neurodiverse users in Section 5.2.1, future work should conduct dedicated studies with these demographics to determine the full scope and applicability of these benefits, as well as to identify effects which may be specific to disabled populations which did not arise or disclose their presence in this study. Another promising direction for future work is to explore extensions of the frameworks we have presented to other marginalized demographics, particularly intersectional demographics, to determine how to best support those users.

6 Conclusion

We have provided an investigation into how transfems understand and respond to anthropogenic platform shifts leading to increased hostility in their critical online communities. In doing so, we have contributed the concept of digital solastalgia, which in turn has led to both concrete design suggestions based on intuitive understandings of locality to reinforce digital transfeminine communities, and promising future directions to better understand differentiated responses to degradation of platform spirit. Drawing on the intersectional nature of our own participant demographic, we have also presented an example of the transferability of these findings to the disabled community. Even when transfems' online communities teeter on the edge of the pit, they still seek ways to rebuild and reinforce their own town squares - to restore the memories of the online homes that once existed. It is our hope that these contributions can enable further support for the restoration of these crucial online spaces, and help these communities reach their promised potential.

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