The spatialization and temporalization of environmental suffering

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Many people live in circumstances of environmental suffering: exposure to contaminated natural resources and toxic chemicals due to a history of accident or misuse. Environmental suffering is disproportionately experienced by politically, ethnically, and economically disadvantaged group members. An analysis rooted in the concept of *false consciousness* (Gabel, 1975) suggests that environmental suffering narratives tend toward perspectival distortions. Although narratives from disadvantaged group members may contain defensive distortions, these are warranted by experiences of environmental suffering, and expert narratives also regularly contain distortions. Disadvantaged narratives of environmental suffering tend toward *spatializing* distortions: emphasizing spatial aspects, objectifying people and agents, and fixating on a tragic past. Advantaged narratives of environmental suffering tend toward *temporalizing* distortions: emphasizing temporal aspects, refusing to clearly assign blame, and fixating on a "miraculous" future. We present a preliminary supporting study, using quantitative text analysis, of parallel environmental suffering narratives from community members, EPA officials, and other experts.

Keywords: environmental racism, contamination narratives, time, space, false consciousness, redemption narratives

Introduction: Common themes in environmental suffering narratives

An increasingly common form of suffering attends the experience of living in an environment of slow-scale disaster: A "contaminated community" in which a legacy of technological accidents or malpractice has poisoned the water, land, or air (Edelstein, 2004). This form of suffering is not yet evenly distributed. Disadvantaged group membership (African American, Hispanic) and the percentage of low-income or unemployed individuals in a community have been found in numerous U.S. national studies to be the best predictors of the siting of toxic

waste disposal facilities and the amount of risky toxic emissions (Mohai & Saha, 2007; Grant, Trautner, Downey, & Thiebaud, 2010; Taylor, 2014). Accordingly, this paper addresses the question of whether the reality of environmental racism creates a discursive realm in which contradictory narratives frame environmental suffering in radically different modes.

It is crucial to examine such narratives, which occur in the modern context of risk distribution and implicate political and scientific institutions. In the present context, when we refer to victims of environmental suffering as belonging to "disadvantaged groups," we denote the compounding of classic inequalities that arises when the experience of being poor and disenfranchised is combined with increased exposure to contamination and risk (Beck, 1992; Nixon, 2011). Disadvantaged group members who formulate narratives of contamination experience compete with the official discourse of institutions (government agencies, responsible corporations, expert consensus), which is typically crafted by individuals belonging to "advantaged groups" (i.e., higher-SES, majority ethnic, and not personally exposed to high contamination levels). From their perspective, the narratives of disadvantaged group members can appear counterproductive. Experts living outside polluted zones often wonder why those inside fail to embrace narratives of technological and legal progress.

But for disadvantaged group members, their stories of environmental suffering may serve an important psychological function. These stories *spatialize* – render phenomenologically spatial and concrete – a vague atmosphere of oppression under which residents have spent their entire lives. Conversely, the narratives common among advantaged group members *temporalize* suffering: they frame environmental catastrophes as historical events destined to be overcome.

As initial examples of these two narrative tendencies, consider two keynote addresses that were given at an "Expert Panel Workshop" on the community experience of hazardous substances in the 1990s. The first was given by a psychologist representative of what we call "advantaged group experts." His speech was short on anecdotes, long on technical references to the literature, and consisted primarily of a comparison of models developed in occupational stress research to the environmental stress situation. It concluded with a call to empower communities so that they may be able to make progress, to move forward in time:

> People at some level have to learn to live with the environment. But at the same time, like in occupational stress, we don't want people to just continue working in the same environment and just learn to live with it, we want people to the extent possible to be able to change the environment. The problem-solving approach is just as important where you work with the communities to minimize threat, to minimize uncertainty, and to enhance individual and community control.   (Baker, 1998, p.18)

The second keynote address was given by a contaminated community activist representative of what we call "disadvantaged group members." Her speech was riddled with personal examples of problems in her community, as well as an over-arching narrative of how the community's history as independent farmers has fragmented with industrialization, dispossession, and contamination. She repeatedly uses metaphors connecting her community to the land and to animals, and explicitly invokes the specter of mental illness:

> I always visualize those big traps in which a bear or wolf or some other animal's leg is clamped within the metal teeth. You watch the animal's terror-stricken eyes, squirming. It is a horrible, ugly scene! Those poor creatures, trapped without mercy. The people in contaminated communities are victims with no retreat…sick and dying a slow death…In communities that are so environmentally contaminated, we are all crazy, and everybody in this room is crazy. We have to be. Right? I am not going to leave here saying anybody in here is real rational. I think the whole world is crazy in some fashion. Don't you?   (Herrera, 1998, p. 20)

To an extent, these speeches reflect differences in institutional roles as well as economic and social stratification that might be considered the normative backdrop for any public discourse. Indeed, the expert and the activist in this case may ultimately have been trying to express the same idea: that contaminated communities should be empowered. However, we assert that when such statements are made strongly or consistently enough, or codified in official materials framing a contamination event, the distinct narrative approaches to environmental suffering of disadvantaged and advantaged groups may acquire characteristics of *false consciousness* (Gabel, 1975): cultural and political distortions of space and time. When qualities of false consciousness overtake environmental suffering narratives, groups may be trying to communicate at cross-purposes, almost speaking different languages – a situation that undermines society's potential to undertake the massive task of combating environmental threat.

Table 1 presents excerpts from the life narratives of several individuals, all coming from lower-SES or minority ethnic backgrounds, who have spent much of their lives in an environment with a history of contamination. These excerpts are relatively short passages extracted from oral histories and social scientific interviews. Although even these brief passages contain several elements, we focus on these excerpts because they are representative of two themes that prior content analysis has found to be common in environmental suffering narratives in the United States (Edelstein, 2004) and in other countries (Auyero & Swistun, 2009).

First, these excerpts are examples of what narrative psychologists call *contamination*, as opposed to *redemption*, sequences (McAdams, 2013). In redemption sequences an initially negative situation is transformed – typically, via exertion

Table 1. Environmental suffering narratives[*]

"I came here for three months, and I'm still here…This was a small neighborhood. Four or five families, we all knew each other, we were like a family. We used to take care of each other…You could sleep with your doors open…[Now] the air that we breathe has lead, the water the kids drink has lead…The land in which kids play is all contaminated, they play soccer there, day and night…Contamination is latent, everywhere…Lead is a fatal poison, in the long run it damages your heart."[1]	"Yeah, it was the [creek] we used to get odors from. But, that, again I think was more in the warmer weather, and in the wintertime it was too cold…It smells like garbage, rotten garbage. But, when it started, or when it ended, I don't know. You know, sometimes you just don't pay attention. It's there, but you, it's just part of your life, you don't know when it started or when it stopped."[3]	"We didn't consider moving. If we were looking for a place, we would not know where to go. The problem is everywhere. If it's not smog, then it's the water. No matter where you move, how do you know you're not moving into the same nightmare elsewhere?"[2]
"We went [on vacation]. We hoped the house would burn down while we were away. We had a lot of plans for the house when we moved in. But after the water [contamination], we didn't paint, landscape, carpet – we didn't do anything. There is no joy in this house at all. I hate the floors, the walls. But I'm not going to fix it up. We won't get our money out of it."[2]	"It was good! Work was available, close to home. We thought we were blessed…Down in the mine where I worked, ore extended out in yellow rock formations. The ore looked like a huge snake. When you blasted a whole wall, you could see their heads, bodies and tails of big snakes. They may have been alive in the beginning of time. They were very yellow. We were told that this ore was high grade uranium. We were completely unafraid to handle it, because we did not know the danger from its radiation. We only worked for money to get food for our families."[4]	"People are tired of all the deceiving talk. They are tired of the [news] photographer who shows up, takes a picture of your sick child, and then never comes back again…Sometimes I don't want to wake up. And neither do [my children]…I don't want my son to have a blood test every month. I don't want him to be hospitalized every three months and then to come back here. It's useless…I'm leaving. I don't want to be here any more. When I'm somewhere else I'm okay, but every time I come back I get very annoyed because of all the dirt, the rats. I hate this neighborhood. I don't want to live here."[1]

[*] Sources, identified by superscript, are (1) Residents of an Argentine shantytown with a history of chemical contamination quoted in Auyero & Swistun (2009, pp. 86–87, 116–117); (2) Residents of a New Jersey community impacted by groundwater contamination quoted in Edelstein (2004, pp. 97–99); (3) Resident of a New York community located on a Superfund site quoted in Weiss & Heimbinder (2010, p. 9); (4) A Navajo ex-uranium miner quoted in Brugge, Benally, & Harrison (1997, p. 16).

by the protagonist – into a more positive state. By contrast, in contamination sequences an initially positive or innocent state is transformed downward into circumstances of despair or corruption. Environmental suffering narratives of disadvantaged community members tend to contrast a quasi-idyllic past, naturally and socially pure, with a present in which the environment and community are degraded.

Second, these narratives are notable for their representation of space and time. Spatially, individuals who have undergone environmental suffering often experience "the inversion of home" (Edelstein, 2004): their homes, neighborhoods, and surrounding natural environments, once a source of security, have become unpredictable sites of distrust. Temporally, these individuals blur the uncertain present and the threatening future, living in a purgatory of "exposed waiting" (Auyero & Swistun, 2009) for their lives to improve through the glacial machinations of institutions. People living under such conditions understandably develop posttraumatic stress disorder and other conditions at a heightened rate (Baum, Gatchel, & Schaeffer, 1983), and their life narratives begin to take on elements that might seem distorted, and even paranoid, under different circumstances. Such environmental suffering narratives recall themes in the case histories of delusional patients undergoing various forms of mental disorder. For our purpose, these parallels are significant not because environmental sufferers sometimes develop psychiatric difficulties, but rather because they illuminate how space and time may be reconstructed when the individual is under prolonged environmental threat.

We do not claim that these two themes, nor the excerpts shown here, exhaust the complex content of environmental suffering narratives.[1] Rather, we hope to show how Gabel's theory of false consciousness can shed light on why these themes are so common in the narratives of the disadvantaged living under contaminated conditions, as well as why parallel but opposite themes can be found in the narratives of advantaged group experts who seek to control contamination.

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1. For instance, we will not be carefully attending to cultural variation in environmental suffering narratives, although of course cultural context – such as local attitudes toward nature or industry and the state – will shape their exact content (Hammack, 2008). In keeping with the perspective of cultural-existential psychology (Sullivan, 2016), we seek here only to outline how a certain kind of existential situation – namely, finding one's environment to be suddenly corrupted and untrustworthy as a result of contamination – leads to commonalities in narrative form across diverse groups and settings. Further, we will attend primarily to within-culture variation in social class and relative advantage, which has been demonstrated to have important independent and consistent influence in different settings beyond mere cultural variation (Grossmann & Varnum, 2011).

Method: The politics of narrative

The present project developed in three distinct stages to arrive at a theory of how different modes of false consciousness shape the distinct environmental suffering narratives of community members and experts. We have adopted an adaptive theory approach (Layder, 1998) that involves an ongoing dialogue between inductive and deductive, theoretical and empirical phases. In the first stage, the first author has, for the last three years, spent extensive research time examining environmental suffering narratives, both through widely available texts (oral histories, popular press accounts, meeting transcripts) and by attending public meetings where experts and community members present *in vivo* narratives concerning historical and ongoing contamination. The second stage began one year into this process, when the first author realized that recurring themes in these narratives might be understood in light of Gabel's (1975) theory of false consciousness. We then began to organize much of the published environmental suffering literature according to Gabel's categories, seeking examples that inform the theory ("Theoretical Analysis"). Finally, in the third stage, we performed a preliminary test of the theory's usefulness by subjecting a subset of these narratives to quantitative text analysis ("Empirical Analysis").

Environmental suffering narratives reflect standing relations of dominance and subordination, and may sometimes seek to upset these relations through resistance. They represent cases where what Somers (1994) calls *ontological narratives* of the embodied self adopt characteristics of *public narrative*: personal contamination stories assume institutional form or potential as part of a public meeting transcript, or a lawsuit, or a technical report to the community. Our approach is complicated by the fact that about half of the material – the stories of victims of environmental contamination – share much in common with the narratives of individuals experiencing posttraumatic stress disorder (Vyner, 1988). These narratives should be understood as a sub-genre within the broader set of *trauma narratives*. Thus, we contend, environmental suffering narratives need to be understood as politically relevant attempts to come to terms with traumatic disruptions in one's perceived relationship to the surrounding world.

The "lay" narratives of the (typically disadvantaged) group members who suffer from contamination must be understood as constituting a counternarrative to the "official" discourse of scientists, experts, responsible corporate representatives, and political leaders charged with construction of the "public" narrative. In analyzing narratives from these two broad groups, it is impossible to separate the content of the narratives from their socio-political form and function. Experts and responsible parties produce their narratives in court testimony, at meetings held to inform the public, or in academic and political reports of their activities. They

are often dropped into the story *in medias res*, after the sudden revelation of contamination calls for an institutional response. These narrators can pinpoint the exact moment when they became aware of or involved with a particular site, and not surprisingly they emphasize progress that has been made in the time since this moment. By contrast, the disadvantaged group members who live on these sites have felt the narrative slowly encircling them. The revelation of contamination offers a new trope, a symbol, but only because it brings into focus events that have befallen them for years. These people tell their stories to each other, to journalists, to social scientists and to lawyers, not only to seek restitution but to make some sense of their suffering; and they tend to emphasize the circularity of their experience, the apparent inescapability of circumstances that have entrapped them for much of their lives.

As Feldman (1991) writes (with reference to a different context of political oppression):

> Local oral history emerges in tandem with more formal political discourses, as a narrative genre directly concerned with recording the expanding spheres of domination rather than explicitly advancing domination. The symbolization of domination effects in oral history can be contrasted to the utopian rationalization of domination in formal organizational ideologies. This difference separated oral history, for the main part, from a utopian vocation. The oral history of domination and [contamination] is an atopic narrative...embodiment became the site for surrogate codes, for censored and excess experience.   (p.15)

Feldman's perspective on the "politics of narrative" suggests a way in which both the "oral histories" of environmental sufferers and the "organizational ideologies" of experts and responsible corporations can be understood as entailing modes of false consciousness.

Theoretical tools: False consciousness and psychiatric phenomenology

Joseph Gabel (1975) analyzed the false consciousness of political groups as systematic, ideological distortions of the dialectical nature of existence. If human life occurs in a historical matrix that is partially determined by the past but also open to future modification, then ideologically motivated false consciousness is the attempt to deny either freedom in and responsibility toward the future by rigidifying the past, or the constraints of and responsibility toward the past by liquidating it in a boundless future. Gabel's major innovation was to use the construct of false consciousness as a "bridge between the areas of social and clinical alienation" (p.xxi): He fused historical, macro-level examples of ideologically motivated groups with clinical data on patterns he associated with delusion.

We noted above that common distortions of space and time in accounts from individuals exposed to contamination parallel aspects of clinically relevant experiences. For this reason, Gabel's bridging theory – linking social to clinical forms of false consciousness – may illuminate the distinct tropes observable in disadvantaged and advantaged group environmental suffering narratives. The psychiatric phenomenologist Minkowski (1933/1970) describes how delusions of persecutory contamination can represent active attempts by a patient to cope with an initial state of vague anxiety by attributing it concrete spatial form. In his analyses of schizophrenic patient narratives, he refers to the "double aspect of mental disorders" (pp. 233–252), or the need to distinguish between "primary" and "secondary symptoms." The primary symptom is the "generating disorder," the "primitive lesion of the psyche" (p. 232) – the initial neuro-biological disturbance of the patient's mental equilibrium. The loss of perceived control, and the sense of external influence, that begins to dominate the patient's experience gives rise to "secondary symptoms", the persecutory delusions that are communicated to others. Minkowski believes these delusions are acts of "phenomenological compensation" through which the patient struggles to make sense of an increasingly hostile inner world, to "fill up the void" and "to add vivid color to the arid countryside of the autistic life" (p. 243). The patient compensates for the organic disturbance by objectifying and personifying the menacing atmosphere of persecution. Conjured mysterious agents elaborately orchestrating the self's downfall provide a rationalization for the patient's dread feelings. Thus "the psychic stereotypes in schizophrenia…serve to effectuate a kind of phenomenological filling-in of the void that was hallowed out in psychic life by the initial disorder" (Minkowski, 1933/1970, pp. 248–249).

These concepts can be analogically applied to the experience of disadvantaged group members who become aware of environmental toxicity. Their contamination narratives can partly be understood as acts of phenomenological compensation for a life spent under an atmosphere of oppression. Many people living in toxic environments have seen their loved ones succumb to unusual health problems, or seen their children born with disproportionate birth defects. For those who belong to disadvantaged groups, they have likely also experienced numerous incidents of explicit and implicit discrimination, devaluation, and disenfranchisement throughout their lives. When outsider journalism or lay epidemiology formulates a contamination narrative, the initial shock of coming to terms with an "inverted home" can give way to a sense of validation (Edelstein, 2004). A literally poisonous environment can become in the eyes of the disadvantaged group member a microcosm of their suffering, lending form and landmark to the vaguely "toxic" social atmosphere through which they always sensed that they moved. The machinations of gluttonous corporations and corrupt officials offer names and faces to replace the shadow-play of institutionalized discrimination; instead of helplessly submitting, the disadvantaged group member can finally direct their rage at a target.

A culturally informed narrative analysis must fulfill certain criteria in order to avoid simply pathologizing the experience of disadvantaged group members (Dzokoto & Adams, 2005). We are not committed to the somewhat radical form of Gabel's (1975) thesis, namely that political false consciousness is directly equatable to forms of clinical disturbance. Instead, to achieve understanding of how environmental suffering narratives from disadvantaged group members may contain defensive distortions of temporal-spatial cognition, we must show how these distortions nevertheless retain some validity in light of their experiences of environmental suffering. Furthermore, we must show how the advantaged group narratives – i.e., those constructed by responsible corporate parties, scientists, and government agents – also regularly contain distortions. If we can achieve these aims, then the present analysis will contribute to a deeper understanding of social and regulatory conflict over environmental suffering and its mitigation. Public discourse concerning the science, legality, and social response to contamination is often characterized by tension between competing expert and lay narratives. If we can illuminate how these competing narrative forms share elements of false consciousness that arise in response to the threatening existential situation of contamination, we may be able to reduce the barrier posed by narrative impasse to social progress on this issue.

Theoretical analysis: Environmental suffering narratives as modes of false consciousness

In analyzing cases of both socio-political and individual-clinical false consciousness, Gabel (1975) identified as a common theme two "mechanisms of de-dialectization" (pp. 52–53, 263–265). Specifically, he distinguished between a "sub-realist" (spatializing) and a "surrealist" (temporalizing) mechanism of false consciousness (cf. Sica, 1995). The first mode may be considered an over-*spatialization* of existence, in which the individual denies the possibility of future change by reducing temporal flux to the identity of an unchanging physical environment. The second mode may be considered an over-*temporalization* of existence, whereby the individual denies the constraining reality of physical space by accelerating existence to the constant flux of temporal change.

As outlined in Table 2, the common environmental suffering narratives of disadvantaged and advantaged group members can be understood in light of these modes of false consciousness. Considering Gabel's (1975) categories in conjunction with Feldman's (1991) method for analyzing the "oral history" of disadvantaged groups and the "formal organizational ideologies" of advantaged group experts, we might claim that victims' environmental suffering narratives sometimes represent

Table 2. Spatialization and temporalization as modes of false consciousness[*]

	Spatialization	Temporalization
Narrative style	Preponderance of the spatial aspect in narrative	Preponderance of the temporal aspect in narrative
Cognitive style	Excess of symbolism and objectification	Lack of symbolism and incapacity for objectification
Attitude toward history	Past as reversible and future as "catastrophic"	Past as irreversible and future as "miraculous"

[*] Adapted from Gabel (1975), p. 157

false consciousness in the classic sense, whereas the expert narratives are a form of "utopian consciousness."

We should reiterate that our primary aim is to develop a theoretical account of the environmental suffering narratives of groups differentially positioned according to political, economic, and institutional roles and divides. Accordingly, as we apply Gabel's categories to these narrative types, we will strategically highlight excerpts and examples from a wide range of narratives stemming from various sources, including those presented in Table 1 as well as additional oral history, social scientific/interview, and other secondary sources. We do not yet claim that our theoretical account, and the examples given as supporting evidence, achieves full representativeness. The account must be tested in future investigations that apply it more directly to the rigorous analysis of data. After presenting our theoretical account, however, we do offer a preliminary empirical analysis as an initial demonstration of its viability, as well as that of alternative theoretical perspectives.

Narrative style

Clinical in origin, Gabel's category of "sub-realism" is useful in understanding narratives of individuals who are burdened by a *preponderance of the spatial aspect in the perception of the world*; while the category "surrealism" is more applicable to those overcome by a *preponderance of the temporal aspect in the perception of the world.*

Applying these categories to environmental suffering narratives, the stories of disadvantaged group members are often focused on the contaminated *space*, its borders and safe zones, and on the particular events and individuals encircled within or transformed through contact with the space. Individuals may become frustrated with the limitations of epidemiological studies, which are unable to trace contamination at the household level. Locals are similarly frustrated by the lack of spatial knowledge among outsiders sent to "fix" the situation. As one Superfund site resident complained,

> We've been meeting with this Department of Health rep for over a year and a half at least. And then all the time…all he's done is Googled a map, right, and drawn a circle around it, right? I as a volunteer could have drawn a more accurate circle, could have printed up a better map. [laughs]
>
> (qtd. in Weiss & Heimbinder, 2010, p. 20)

The spatial tendency of these narratives is also evident in descriptions of changes in landscape and animal behavior. Lois Gibbs' autobiographical account of the 1970s contamination of the Love Canal community makes frequent reference to the visible decay in neighbors' gardens and yards ("There we were, standing in the hot sun, with only the shade coming from a dying tree, and she [a neighbor] was telling me how everything was all right"; qtd. in Mazur, 1998, p. 71).

In contrast, the narratives of advantaged group members – the experts and responsible parties designated to "clean up" contaminated sites – have a tendency to overemphasize temporal markers and details. Dates, facts, and sequences of events are highlighted at the expense of descriptions of contaminated people and places. Business representatives who oversee environmental policy often establish their "rational" view of events by pointing to their long-term experience: "Because we have been around for twenty years, because we're not a *new* environmental organization, I think we built up – we've certainly built a credibility for our scientific knowledge" (qtd. in Eden, 1999, p. 1300). Charged with achieving certain deliverables along a specified timeline, experts often resort to temporal markers to indicate progress achieved.

Experts and regulators see themselves as taking a "broad view" of the contamination problem, and in so doing sometimes fail to grasp the more locally oriented perspective of suffering individuals. As one Department of Energy consultant put it, "It's almost as though the whole country is supposed to be a giant town meeting with everybody feeling like they have a part in the decisions, and yet, here's this poor guy [DOE official] that has to meet all the deadlines" (qtd. in Bella, Mosher, & Calvo, 1988, p. 35). Experts asked to implement regulatory policy may sometimes see the concerns of citizens as a "waste" of time.

Cognitive style

In Gabel's theory, narrative tendencies of spatialization and temporalization stem from systematic errors in information processing, which generate distinct patterns of social perception and causal attribution. Spatializing false consciousness partly inheres in an excess of symbolic interpretation, a "prevalence of identificatory functions": seeing identical phenomena everywhere and continually tracing the same patterns where none truly exist (Gabel, 1975, pp. 92–100; 149–155). People in the grip of such false consciousness evince an "insufficiently structured

perception of reality," failing to appreciate realistic distinctions and boundaries between objects of perception (Gabel, 1975, pp. 157; 171–173). This leads them to *objectify* themselves and others, believing individuals powerless to resist the swell of fate. Attributions are made within a "morbid universe of blame" (Gabel, 1975, p. 111): Blame is spatially assigned and events are overdetermined by human causes. If something negative occurs, and some agent is close to it or has caused a similar event to occur in the past, then that agent must be responsible. Objects, people, and events are thus linked through a circular, incriminating logic.

On the other hand, according to Gabel, temporalizing false consciousness is associated with an "over-structured perception of reality" (p. 157) and struggles to achieve even a minimal level of symbolism. Instead of objectifying, hyper-temporalized perception lacks the simplest of abstract interpretations because symbolic reductions of information cannot be affixed. Temporalizing false consciousness involves obsession over facts, dates, and finely grained categorizations without the ability to abstract higher-order meaning from them. It separates the individual from context, and fails to acknowledge the extent to which people are realistically limited in their capacity to change particular situations. Blame is difficult to assign and can be diffused through various parties, as it is determined by a solely temporal logic: guilt cannot be known until all that has transpired and its consequences are revealed, a causal chain that is difficult to establish. Because everyone is potentially guilty, no one party can be assigned blame, and individuals are left responsible for taking care of themselves.

The environmental suffering narratives of disadvantaged group members on contaminated sites often combine a fatalistic resignation to events with the desire to concretize blame by laying it at the feet of responsible parties. Some residents develop hypochondria and trace the majority of their misfortunes to the history of exposure. In a case study of Midwestern farmers whose cattle were accidentally exposed to toxic chemicals, Vyner (1988) reports how one farmer "became obsessed with the problem" (p. 35), constantly running tests on his cattle, alienating his family, and even becoming suspicious that a farmhand's accidental death was somehow related. As one former uranium miner stated, "We didn't know what we were dealing with – we were just a sampling tool. We were more or less expendable" (Cable, Shriver, & Mix, 2008, pp. 392–393). Families may seem doomed as the poison spreads across generations, or across environments. The fatalistic notion that the entire world is becoming contaminated is a common motif in such narratives.

Beyond fatalistic resignation and hypochondria, many exposed to toxicity also become preoccupied with the attempt to causally attribute their suffering to responsible human agents. Suspicion and outrage are evoked by the sight of government or utility workers testing neighborhoods in protective gear (for examples, see Lerner, 2012). General trust is depleted and paranoiac divisions can arise

between community factions that disagree on the extent of the problem and the best solutions (Kroll-Smith & Couch, 1990). Such divisions can take on the character of multigenerational feuds as children and grandchildren struggle to come to terms with the transmitted consequences of exposure. A conspiratorial mindset emerges in some people, according to which all difficulties – from low property values to neighborhood decline to their children's every setback – have been directly caused by company CEOs or corrupt local politicians.

Expert narrators are quick to diagnose "the public" as lacking tolerance for ambiguity. As one public health official argued: "To a frightened and impatient public, health officials' punctilious concern about the thinness of scientific evidence and their disinclination to draw conclusions from insufficient data are easily mistaken for lack of resolve or abdication of the responsibility to act" (Harris, 1984, p. 429). Experts decry simplistic or zealous "scapegoating": "Several people...had essentially taken this on as a political and personal cause, and for those people there was really nothing the [EPA] could do for them, nor over the years later, to persuade them this had been an honest process...an example of someone turning a hazardous waste site into a kind of religious quest" (Grumbly, 2005, p. 13).

Whereas disadvantaged group sufferers often see blame as an issue of spatial proximity, advantaged group experts consider blame an exclusive issue of temporal precedence and contingency, and accordingly of degree of conformity to legal standards current at the time of an act. Such standards are continuously shifting as a consequence of developments in scientific knowledge and jurisprudence. Thus the president of a chemical company that caused the Love Canal contamination was able to proclaim his organization's innocence in a 1980s speech:

> [The company's] use of the canal site as a landfill from 1942 to 1952 was not an irresponsible operation, as some have suggested. Even with all the advantages of hindsight, a task force of the American Institute of Chemical Engineers recently concluded that the design of the canal site back in the 1940's and early 1950's would essentially conform to most provisions of present pending federal regulations.   (qtd. in Mazur, 1998, p. 20)

When knowledge is protean and single hard facts provide no respite, criminality becomes a temporal, not a spatial problem. Indeed, responsibility and the standards by which it is determined are so complex that victims themselves often shoulder some portion of blame. A health manager responsible for Shell Co., which has contributed to the history of contamination in an Argentinian shantytown, told inquiring researchers: "Everybody [the public] emphasizes what's inside the petrochemical compound. But they don't realize what's in their homes: car batteries, garbage...Contamination doesn't come so much from industrial activity but from the way in which people live their lives" (Auyero & Swistun, 2009, p. 68).

Attitude towards history

Gabel (1975) argues that different modes of false consciousness correspond with different orientations to the past and the future. Spatialization is characterized by a refusal to accept history as a continuous, irreversible flow of time: "The temporal structure of dissociated reasoning postulates the possibility of a return to the past, of completely new beginnings, which implies a spatializing element [because] time does not begin again" (Gabel, 1975, p. 109). People who spatialize their suffering come to consider all past events only in terms of their relevance to the contemporary experience of misfortune, and sometimes imagine that the past can be undone if enough faith or effort is expended. At the same time that they feel the past to admit of potential magical influence, such people often perceive the future as blocked and foreboding, the experience of the future which Minkowski (1933/1970; cf. Sica, 1995) considered elemental to schizophrenia. In a stagnantly spatialized universe, time can only enter via a worsening of conditions:

> As a prisoner of a universe where space takes the place of duration, man in the reified world cannot understand history as the expression of creativity and spontaneity. Consequently the undeniable fact of change forces itself on this 'consciousness of immediacy' as a *catastrophe…*which is the result of heteronomic action (external action). Seen in this perspective history appears as a function of a *demiurgic action.*   (Gabel, 1975, p. 151)

Individuals in the grip of spatializing false consciousness do not feel that they personally have the power to change their circumstances through future actions. Instead, they await the action of "demiurgic" external forces, whom they fear are more likely to enact catastrophe than to provide relief for their suffering.

In their ethnography of a shantytown with a history of contamination, Auyero and Swistun (2009) observed a narrative "collapse of present and future" (p. 110). People living in contaminated homes eventually find themselves in a limbo state: they await the opaque deliberations of government agents and lawyers while their health seems to deteriorate. The indeterminacy of the present is commingled with a capricious future, in which the past might be undone through a single demiurgic action. As one shantytown resident verbalized her hope for a policy reversal from the chemical company controlling her fate: "Maybe, what has not happened in a hundred years, happens in one second" (qtd. in Auyero & Swistun, 2009, p. 136).

At the other end of Gabel's (1975) continuum, temporalization is characterized by a comparatively dismissive attitude toward the past: history is considered irreversible and thus to some extent irrelevant to present action. What is most important for the temporalizing individual is the possibility of limitless action in the utopian future. Accordingly, the narratives of advantaged group experts and

officials regarding the history and future of contaminated sites are characterized by a redemptive emphasis on progress and the promise of innovation. Solutions lie in the prospect of technological and economic developments that will enhance our ability to decontaminate sites and protect public health:

> I think the [EPA] has done an increasingly better job over the last 20 years of making this into a more rational process…[I was] extremely interested in the development of technologies that would enable us to do…things in a much less expensive way…One of the best things Americans are good at is innovation when they're given the opportunity to do it…I'll go out of the limb [*sic*] and say that it will take one more generation for [the Superfund] program to completely fulfill its mandate of dealing with the past.   (Grumbly, 2005, pp. 5, 25)

Occasionally these optimistic appraisals can lead to a "miraculous" attitude toward the future, a belief that we will be redeemed by the power of economy and science, as when former EPA Administrator Scott Pruitt declared that the Superfund program would accelerate clean-up of sites simultaneously to experiencing major budget cuts (Wertz, 2017). Like spatializing false consciousness, temporalization may render individuals prone to a kind of magical thinking that is consistent with the denial of situational context, or of transition and change. The primary difference between these forms of magical thinking lies in their attitude toward history: praying for a "demiurgic" reversal of the past, versus trusting in the "miraculous" progress of the future.

Summary

Our theoretical account suggests that, to the extent that disadvantaged narratives of enduring environmental suffering distort reality, they often do so through spatialization: describing places, events, and people as if they are static and circular; finding symbols of contamination everywhere and objectifying people as helpless or powerful; and fixating on the past while ignoring the possibilities of the future. On the other hand, to the extent that advantaged narratives of environmental suffering distort reality, they tend toward temporalization: fixating on historical records, scientific findings, and calendar dates; treating individuals as if they are endlessly capable and responsible for whatever befalls them; and denying that the past could have been otherwise while reifying the prospect of future progress.

Empirical analysis: Themes in Superfund oral history interviews

Though our primary aim was the construction of a theoretical analysis that might guide future inquiry, we also sought some tentative confirmatory evidence to supplement our theory. Specifically, we were able to perform coding analyses on the full texts of narratives representing both advantaged expert and disadvantaged sufferer perspectives on environmental contamination. We sought out texts of narratives from representatives of both groups that were obtained under similar circumstances and of equivalent length. Specifically, these narratives occurred in the context of semi-structured interviews conducted by EPA representatives to commemorate the 25th anniversary of the Superfund program. We analyzed the texts using an objective, quantitative analysis (word count) method that not only permitted tests relevant to our theoretical account, but that also pointed toward other possible conceptualizations of environmental suffering narratives.

Method

Data source

To commemorate the 25th anniversary of the Superfund program, the EPA conducted an oral history project, through which forty individuals were asked a set of semi-standardized questions concerning their experience with the program and environmental contamination and remediation. Of the usable interview texts, we divided the interviewees into 3 groups: community members ($n=9$), EPA officials ($n=17$), and "other" experts ($n=13$, including politicians, lawyers, and industry representatives). The narratives ranged in length from 2,031 to 20,181 words, $M_{Grand}=9,175$ words (the groups did not differ in average narrative length). Typical interview questions centered around high and low points of the interviewee's experience with Superfund, and their perceptions of the success of the program and its future. Full transcripts of the publicly available interviews are currently accessible at https://archive.epa.gov/epa/aboutepa/superfund-25th-anniversary-transcripts-oral-history-interviews.html

Analyses

For our computerized analysis, we submitted the narratives to the Linguistic Inquiry and Word Count Version 15 (LIWC; Pennebaker, Boyd, Jordan, & Blackburn, 2015) software text analysis. This analysis yields percentages of words (out of the total number of words in a text) that can be classified according to particular linguistic

categories set by a developed dictionary. For our analysis we focus on two sets of categories from prior psychological research relevant to our theorizing: temporal focus (past vs. present vs. future) and motivational language (affiliation vs. achievement vs. power; McClelland, 1975).

We also examined a "summary variable" produced by the LIWC analysis, labeled *analytic*. This variable is computed by combining information from other word frequency categories in a theoretically specified manner; the resulting counts are normed with reference to datasets from the LIWC creators and represent percentiles based on standardized scores from large comparison samples (Pennebaker et al., 2015). Scores range from 0–100, with 50 representing neutrality with respect to the relevant dimension (Matheson, Wood, & Franklin, 2017). High scores on the analytic variable represent more formal, abstract, categorical, and complex language, which can be interpreted as a form of "distancing" from potentially traumatic events; whereas lower scores represent greater use of pronouns, auxiliary verbs, and other markers associated with a more dynamic and personal narrative style (Matheson et al., 2017).

Results

After obtaining the scores for each group of narrators on the temporal focus, motives, and summary-analytic categories, we tested for mean differences between the groups using one-way ANOVA (we also replicated our results with independent-samples Kruskal-Wallis tests to adjust for small sample sizes). The patterns of means and test results for each category are presented in Table 3. We observed that, compared to EPA officials and other experts, community members scored lower on the analytic summary variable, and indeed beneath the neutrality score of 50 (while the expert groups scored above this midpoint). We also found that the groups differed in their relative level of past focus, with the community members scoring higher than the expert groups. The groups did not differ in present or future focus (given that these were oral history narratives, future focus scores were unsurprisingly low). Finally, the groups differed consistently in expressed motives. Community members scored comparatively high in affiliation, while EPA officials scored higher than the other groups on achievement; and both expert groups scored higher than community members on power themes.

Table 3. Results of empirical analyses of Superfund oral history narratives*

	Analytical	Past focus	Present focus	Future focus	Affiliation motive	Achievement motive	Power motive
F(2,36)-test for group differences	$F=6.55$ $p=.004$	$F=4.59$ $p=.02$	$F=.38$ $p=.65,$ ns	$F=.71$ $p=.50,$ ns	$F=7.68$ $p=.002$	$F=6.71$ $p=.003$	$F=5.02$ $p=.01$
Community narratives	43.66	8.56%	8.64%	1.02%	3.71%	1.25%	2.38%
EPA narratives	64.25	7.23%	7.99%	1.02%	2.62%	1.87%	2.96%
Other expert narratives	63.34	6.93%	8.24%	1.11%	2.54%	1.55%	3.10%

* Percentage scores represent the average percent of words out of the total text falling under the linguistic category.

Discussion

This study provides only an initial empirical glimpse into the differences between environmental suffering narratives of community sufferers and "external" experts. The data and method permit only limited tests of our theoretical analysis. Ideally, in future studies, more comparable data would be elicited from disadvantaged group members and advantaged experts concerning the same contaminated site(s), using a protocol more explicitly designed to broach ongoing and psychological issues (e.g., stress) and questions of temporal and spatial cognition. Nevertheless, suggestive patterns in the data do complement and qualify our current analysis. It is clear that there are meaningful differences in the kinds of narratives produced by members of these differentially positioned groups. The oral history of community members scores lower on the *analytic* continuum, suggesting that these are stories of immersion in the actual events, times, and spaces of contamination. By contrast, the narratives of experts score relatively higher on the *analytic* continuum, suggesting a more "utopian" quality of rational detachment from concrete cases of contamination. These differences are consistent with the two cognitive styles described by Gabel. Also consistent with our account are the attitudes toward history present in the data: community members are more likely than the experts to be relatively fixated on the past.

There are also trends in the data that, while not necessarily contradicting our account, do go beyond it and point toward alternate frameworks for understanding environmental suffering narratives. There were systematic differences between our three groups in the extent to which they expressed McClelland's (1975) fundamental motives in their narratives. Community members were relatively more likely to invoke themes of *affiliation*, suggesting that these narratives may also sometimes

include more redemptive themes of communities banding together to force governmental change or promote environmental action. EPA officials were the most likely to express strongly redemptive themes of *achievement*, probably due to their pride in what the EPA and the Superfund program have been able to accomplish over the past few decades. And finally, other experts were most likely to express *power* themes in their narratives, which could be the result of their concern with struggles over policy and litigation. Again, although these findings might be seen as consistent with our theoretical account, they also illuminate that ours is only one interpretive frame for these narratives, and point to ways in which future research might consider a variety of theoretical perspectives.

Conclusion: Redemption and "contamination" narratives

Observing that narratives of sufferers and experts are not only discrepant, but systematically so, yields several implications and areas for productive inquiry among researchers, members of affected communities, and those involved in relief work. Just as narrative can reveal much about politically and environmentally distressed contexts, it also shapes and informs the meaning of and responses to environmental problems (Moezzi, Janda, & Rotmann, 2017). For this reason, divergence in narrative – and the impetus toward a shared narrative – can structure the communications among stakeholders in environmentally and socially distressed communities. As we have observed among our small but illustrative sample, conflict is often predicated on mismatched assumptions and priorities between groups. In the cases we have observed, there is reason to be concerned that groups are almost literally not speaking one another's languages, placing priorities and explaining courses of action in light of spatial vs. temporal conceptualizations of problems. Because in both cases spatialization and temporalization may have distorting effects, ignoring the priorities of other stakeholders or missing important parts of the problem, flexibility (vs. rigidity) in temporalization vs. spatialization is a laudable goal for invested parties. In the short term, parties might at least make efforts at mutual translation – as when a representative from a utilities company agrees to make detailed reference to a legible map of the impacted terrain at a public presentation, or when a community member makes the effort to learn about the science of (de-)contamination and the complex temporal scale and uncertainties involved. Gabel's (1975) theory further suggests these tendencies toward false consciousness are bound up with the stress that impacted parties feel, and hence translation may be significantly accelerated by stress-reduction efforts (e.g., physical and mental health care for affected residents; necessary resources made available to government officials). However, it is important to acknowledge that

resources often differ markedly between victims and experts. The onus is likely to fall on those with advantage of status, training, economic means – and frankly, the ability to leave – to integrate spatializing perspectives.

Narrative psychologists have found that the preponderance of positive redemption sequences in life stories tends to be correlated with measures of psychological adjustment and "generativity", or a prosocial commitment to the wellbeing of future generations (McAdams, 2013). On the other hand, higher depression and anxiety scores are associated with a greater number of contamination sequences. McAdams (2013) associates two key attributes with the contamination sequences he finds at disproportionate rates in the life stories of "low-generativity" participants: *stagnation* and *repetition*.

Many psychologists describe the function of life stories in nearly exclusively temporal terms: "Actors see their lives as *extended narratives in time*" (McAdams, 2013, p. 55). From this standpoint, "low generativity" participants offer stories that "tend to lack a forward, upward thrust" (p. 189). For "If the plot of a life story does not move forward, how does it move?" (p. 190). Failure to achieve narrative coherence stems from "low generativity" participants' inability "to build anything positive upon the past; nor are they able to leave the past behind" (p. 190). So problematic is this psychological relationship to history that:

> At an unconscious and completely irrational level…the person may feel that it is still possible to go back to the past and undo it…For some people, redemption means nothing less than the *complete decontamination* of the past…But of course…there is no getting back into the Garden of Eden once the hero and heroine have been thrown out.   (pp. 194–195; emphasis added)

From this perspective, narrators of contamination stories are "stuck" and "unable to move on" with their lives because they fail to incorporate life events into a "progressive narrative of the self." But is it not possible that McAdams' (2013) implied causal direction reverses what is sometimes the true state of affairs – that the contamination story, rather than infecting the narrator with a pessimistic frame that precipitates lived stagnation, is instead the *outcome*, the narrator's act of "phenomenological compensation," through which she struggles to make sense of a literally stagnant (toxic) life?

Our analysis may present a commentary on the tendency to pathologize narratives that do not demonstrate a clear progressive arc. Sales, Merrill, and Fivush (2013) observe that in at-risk populations, attempts at meaning-making and processing may take ruminative form that is unproductive and conducive to psychopathology. They suggest that processing may not always be advantageous among populations with complex adversity for this reason. However, we offer that pervasive and complicated problems may lend themselves to spatializing narratives, and

that these may not in themselves be the problem. Instead, it may be possible for clinicians and other professionals to recognize the importance of spatializing concerns among affected populations and integrate these into their work. Such approaches may present a generative area of research and application.

It may well be, as McAdams (2013) reminds us, that there is no returning to Eden after the Fall. But what was the original function of this story: to temporalize Man's expulsion from the Garden as the beginning of a redemption sequence? Or is this instead the ultimate "contamination sequence", symbolizing humankind's perennial attempt to return to the *space* that has been corrupted? For the story in Genesis is a narrative vicious circle, beginning with the line, "There was no *ādām* [human] to till the *ădāmah* [soil]," hauntingly mirrored in the conclusion, "The *ādām* must till the *ădāmah* but with toil and sweat, no longer in Eden."

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