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TOWARD A NONHUMAN NARRATOLOGY: MATERIAL METAPHORSIN ANN PANCAKE'S *STRANGE AS THIS WEATHER HAS BEEN*

Abstract: This paper examines the convergence of affect theory and cognitive narratology. I investigate the methodological potential of a cognitive narratology informed by affect as found in the (autonomous) intensities and resonances that circulate about and between bodies (Gregory J. Seigworth and Melissa Gregg). By adopting Brian Massumi's configuration of affect (as asymbolic, autonomous and asubjective), I aim to explore how this conception can account for nonhuman (narrative) agents and open up space for alternative forms of environmental situatedness in cognitive narratology. Expanding upon the "4E" cognitive model, I trace the enmeshment of human and non-human agents within the metaphorical pattern of Ann Pancake's 2007 novel *Strange as This Weather Has Been*. I undertake an analysis of multiple extra- and inter-textual vectors to show how these metaphors underscore a view of cognition as participating in a field of affective intensities and becomings and highlight its emergence as entangled in a world of material interdependencies.

Keywords: cognitive studies, narratology, affect theory, more-than-human assemblages, ecocriticism, Anthropocene.

Introduction

Cognitive narratological studies that underline the affective-emotional dimension of narrative generally employ a definition of affect that treats two notions, affect and emotion, interchangeably[1]. In order to expand cognitive narratological studies toward vocabularies of interdependency and enmeshment, this paper illustrates the methodological potential of the intersection between cognitive literary studies and a conception of affect informed by Brian Massumi's philosophy. This conception opens up cognitive narratology toward non-human encounters in the context of post-millennial novels that aim to narratively bridge the gap between the human and the nonhuman and to represent modes of interconnectedness in the Anthropocene. Inscribed in this methodological stance is a narratological category that I call "material metaphor," which I will define later in this paper. Ann Pancake's novel *Strange as This Weather Has Been* (2007) illustrates this direction within the literature of the past two decades and epitomises the need for the development of post/anti-Cartesian heuristic instruments, namely categories that elide the mind/body dualism and reject the notion of a self-enclosed mind. "Post-Cartesianism" also refers here to the renunciation of the rationalist model towards a broader definition of knowledge, recognising that it is not solely the appanage of the intellect and that it includes the infolding of pre-rational and bodily resonances.

To delineate this paper's contribution to the field of narratology, I will briefly explore a series of recent approaches to the study of narrative in order to show how the syntheses that this paper introduces have the potential to expand the field and *why* narratology needs reconsiderations oriented towards the nonhuman in the first place. My investigation into the methodological potential of the intersection between cognitive narratology and affect theory operates firstly within "postclassical narratology," a term introduced by David Herman in his 1997 article *Scripts, Sequences, and Stories: Elements of a Postclassical Narratology*. In Herman's terms, postclassical narratology "contains structuralist theory as one of its 'moments' but enriches the older approach with research tools taken from other areas of inquiry" (Herman 1057). In his own paper,

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[1] My focus here is specifically on two studies, one by Patrick Colm Hogan and another by Alexa Weik von Mossner, where the study of non-human narration takes into account an emotional-affective dimension. Although the field of nonhuman narratology, that I will explore later, has been expanding in recent years, the engagement with nonhuman narration through the lens of emotion or affáect is fairly restricted.

Herman argues for the integration of cognitive tools into narratology, adding that the role of postclassical narratology is not necessarily to provide new lenses for "old problems," but "a *rearticulation* of those problems" (1057, emphasis added). Monika Fludernik provides a composite definition of postclassical narratology, namely defining it as the model that "proposes extensions of the classical model that open the fairly focused and restricted realm of narratology to methodological, thematic, and contextual influences from outside" (Fludernik 2). This paper's aims are primarily inscribed in a postclassical stance in the sense that it is first and foremost interested in formal configurations: it interrogates *classical* (that is, structuralist) narratological categories in order to investigate their rapport with contemporary literature. In other words, I intend to examine how *form* transforms in accordance with the ambitions and aims of contemporary literature in connection to climate change and the question of the nonhuman.

I take into consideration two types of movements that mobilise responses in literature and echo in contemporary ecological novels: firstly, the concrete, tangible realities of climate change and its morphological (in this novel, in the most material and geological sense of the word) and societal repercussions; and secondly, the question of our relations to nonhuman agencies. These two components are not separate but rather interconnected, and in a sense, co-emergent. With regard to this novel, although it is constructed as a direct response to the disasters of environmental destruction, taking its inspiration from the day-to-day struggles of a community living in the vicinity of a coal mining site, the engagement with theories and philosophies pertaining to "the nonhuman turn" (Grusin 1) is not necessarily explicit. However, in my view, this engagement does not need to be direct, since the issue of environmental exploitation inadvertently begs the question of cohabitation and entanglement with nonhuman agents. In this context, the issue that the contemporary ecological author faces is one of representation: given how the new millennium has been equated with the "Age of Man" (Anthropocene) and with an epistemic shift toward the nonhuman, how can this interconnectedness be represented in literature in a way that decenters the experience of humans?

A growing number of scholars have begun to answer this question, with Marco Caracciolo as one of the primary examples (in volumes like *Narrating the Mesh: Form*

and Story in the Anthropocene, University of Virginia Press, 2021 and most recently, a collection edited in collaboration with Marlene Karlsson Marcussen and David Rodriguez, *Narrating Nonhuman Spaces: Form, Story, and Experience Beyond Anthropocentrism,* Routledge, 2023). While Caracciolo takes an interest in form and, similarly, examines how literature engages with the planetary changes that the Anthropocene describes from a narratological point of view, he is primarily focused on how narratives conceptualise time and space. My focus here is primarily on how the agency of nonhumans is depicted in literature, mainly how categories such as voice and character can be reconceptualised to account for nonhuman materialities. As I argue in this paper, Ann Pancake's novel requires new conceptual tools and narratological frameworks, given its aim to interrogate the barriers between the human and the nonhuman. Although it is certainly not the only possibility of dismantling the human-nonhuman barrier in the study of narrative, the insertion of affect theory into cognitive narratology opens up the study to a discussion about the functions that nonhuman agents can perform in narratives.

Following the postclassical vector, cognitive narratology supplements structuralist narrative studies "with concepts and methods that were unavailable to story analysts such as Roland Barthes, Gérard Genette, A. J. Greimas, and Tzvetan Todorov during the heyday of the structuralist revolution" (Herman, "Narrative Theory After the Second Cognitive Revolution" 166). As Herman explains in a *living handbook of narratology* entry revised in 2013, what defines cognitive narratology is "a focus on the mental states, capacities, and dispositions that provide grounds for—or, conversely, are grounded in—narrative experiences." Moreover, contemporary frameworks that engage in "decentering the human in favor of a turn toward and concern for the nonhuman, understood variously in terms of animals, affectivity, bodies, organic and geophysical systems, materiality, or technologies" (Grusin 1), designated by Richard Grusin as the "nonhuman turn," have engendered a growing interest among narratologists in the dynamic between the nonhuman and narrative.

Following this movement, this paper is an experiment in removing human experientiality from its position as the standard for how nonhuman agents should function and be described in narrative. This paper is certainly not the first attempt at describing how nonhuman agents operate within narrative. For example, Lars

Bernaerrts, Marco Caracciolo, Luc Herman and Bart Vervaeck engage directly with the issue of nonhuman narrators in an article from 2014 (Bernaerts et. al. 68-93). They demonstrate that the double dynamic between defamiliarization and empathy on the one hand, and human and nonhuman experientiality on the other hand, functions to break down cognitive and cultural barriers between human readers and nonhuman narrators. The authors of this paper are concerned with nonhumans that become narrators in literary texts, that is, "*talking* (narrating) subjects" (Bernaerts et al. 71, emphasis in original). This focus on nonhumans that have the ability to communicate still functions within anthropocentrism by subjectivising the nonhuman animals (or objects): attributing them a *personality*, the ability to *communicate* and express their *feelings* as *characters*. However effective this dynamic between estrangement and closeness can be in eliciting reader empathy, this dyad takes for granted the ontological barrier between humans and nonhumans, ascribing to nonhuman agents characteristics that are specific to humans. In a 2022 article, Biwu Shang explores the theme of nonhuman narratology in a similar vein, by examining how nonhumans play the roles of narrator, character and focalizer and perform the telling, acting and observing functions, respectively (Shang 69). In my view, categories such as narrator, character, actant, actor and voice are all problematic in this context because they entail, first and foremost, human qualities like the ability to speak, and secondly, they are predicated on a type of agential "charge" that is anchored in subjectivity and the concept of personality (in the case of actor and actant) that can be "realistically" attributed to humans or sometimes animals, but certainly not to objects (or other types of nonhumans). In other words, these categories persist in projecting a framework still grounded in Cartesianism, where the qualities that separate humans from nonhumans are precisely the field where empathy with "lower" forms of existence is negotiated. Hence, these approaches cannot account for other forms of materiality, such as objects, things, technologies, landscapes and are limited in their scope to anti-mimetic narratives. The way my approach differs from those of the aforementioned authors is by anchoring cognition in a different framework, namely the "4E." To extend this model to the representation of objects and to literary works that bear on realism, I pair this cognitive model with the notion of affect as it is theorised by Brian Massumi. In my analysis of Pancake's novel, I aim to demonstrate that one does not need to subjectivise nonhuman agents in order to be able

to "empathise" with them and that *we* do not need to make nonhumans *more like us* to show how our existence is coterminous. I focus not only on the ways that the novel constructs new forms but also on how the readers interact with them, providing a response to the framework based on defamiliarization, which I will explore in the last part of the paper. To go back to Herman's original discussion of postclassical narratology, my approach *rearticulates* the problem of the representation of nonhumans in the novel by proposing that one should not look for suitable categories among classical narratological tools but *rethink* the mechanism altogether in light of the ambition of representing nonhumans in a non-anthropocentric manner.

Studies such as Patrick Colm Hogan's *Affective Narratology: The Emotional Structure of Stories* (2011) extend the structuralist scaffolding with methodological insights from cognitive studies. Patrick Colm Hogan theorises a model for the internal structuring of narrative(s) based on cognitive processes that underlie the emotional reactions of the readers. He argues that story units ("incidents," episodes, scenes and stories) derive from processes that coordinate cognitive mechanisms like emotion and memory. Alexa Weik von Mossner makes a similar argument, integrating research in cognitive science to support the exploration of the mechanisms that incite reader empathy towards nonhuman entities. My analysis of Ann Pancake's novel affirms emotional processes as an internal generative principle but departs from Patrick Colm Hogan by differentiating between emotion and affect. I take Patrick Colm Hogan and Alexa Weik von Mossner's studies as paradigmatic for the direction in which this intersection is explored in cognitive narratology, analyses where "emotion" and "affect" are interchangeable. Not only is this non-distinction between emotion and affect the symptom of theory's "wedded[-ness] to structure" (Massumi 88), but it is also linked, in my view, to a dominant of anthropocentric textual categories in cognitive narratology, which, as I argued, limits the field of narratology and relegates the representation of *things* to the domain of the antimimetic.

The distinction between "emotion" and "affect" plays a central role in my argument. While this dyad has been described in manifold ways in literary studies, psychology and affect studies, I approach this distinction from a very specific standpoint, namely from Massumi's theory, that I will explore in detail later on. The distinction between emotion and affect, emotion generally denoting the conscious,

social and linguistically-ordered dimension and affect representing the autonomous and asubjective dimension, underscores the distinction between an approach focused on human experientiality, employing an internalist and (sometimes) individualistic vocabulary and one predicated on circuits and assemblages. Hence, I believe that the insertion of affect (as it is theorised by Massumi) into cognitive literary studies affords the possibility of shifting the paradigm from the personal and the subjective toward the interrelational.

Environmental Consciousness in a Postnatural World

Ann Pancake's novel examines the coming-undone of the See-Make family as they live nearby a coal mine in the Appalachians in West Virginia. The novel posits humans as a geological and environment-making force (Jason W. Moore 100) by illustrating the topological becoming of an area that surrounds a mountaintop removal mining site[2]. The novel illustrates how mountaintop removal mining generates calamitous processes of environment-*un*making that alter the biotope: the collision between the remains of the protagonists' flood-affected households and the mining waste transforms their environments into junkyards. Much of the novel's spatial configuration rests in the concatenation between (what remains of) the biotic and the abiotic, composed mostly of waste and trash, an architecture that is not unfamiliar to the post-'80 novel. This grammar of the novel's spatiality exemplifies a continuation of what Cynthia Deitering calls a "toxic consciousness" that developed as our sense of "complicity in postindustrial ecosystems, both personal and national, which are predicated on pollution and waste" (Deitering 197) heightened. However, in the novel, the "slow violence" (Rob Nixon 2) of industrial exploitation is linked to the central conflict of the novel: the dispute between the mother, Lace, and the father, Jimmy Make, on whether they should leave their homes and the village they grew up in or fight for their partially decimated habitat, which posits a threat to them and their children and may soon turn inhospitable.

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[2] Mountaintop removal mining (MTR) is an extremely radical and destructive form of surface coal mining. This technique entails the blasting off of the summit of mountains with the help of explosives in order to reach buried coal seams that are not available through "traditional" mining techniques. MTR has a disastrous effect on the surrounding ecosystems, leading to landslides and floods, the disturbance of local flora and fauna and the contamination of drinking water supplies. Coal companies can dump the resulting waste in adjacent valleys.

Consequently, the relationship between the protagonists and their environment generates both the meta-thematic nervature of the novel and the prism through which the readers empathise with the characters. That is, the concatenation between humans and *things* is not just an aesthetic representation of a "postnatural world" (McKibben 72), but the very means through which themes such as displacement and trauma are explored.

The protagonists' environmental situatedness is central to the novel, underscoring the author's polemical engagement in regard to the ravages of coal mining. As Theresa L. Burriss shows, the destruction of the ecosystem is interconnected with "[a] form of cultural annihilation that results in a loss of the commons and mountain residents' way of life, which has been dependent upon the flora and fauna for generations" (Burriss 101). The author's engagement with issues such as climate change, resource extraction and the global market forces that cause environmental annihilation in the Appalachians is explicit, given that the novel is heavily inspired by the locals' real-life stories and her own experience growing up in West Virginia in a coal mining town (Gipe and Pancake 172). In an interview from 2007, the author explains that the driving force behind writing the novel was the "[need] to convey a sense of legacy to show what is being lost and why it's worth saving" (*Online Exclusive: A Conversation With Ann Pancake*) and to give a testimony of the interconnected exploitation of the environment and the people. In the same interview, Pancake confesses that writing this novel required a type of tightrope walking between politics and aesthetics[3] and between romanticised, essentialist and monistic views about nature and the people of Appalachia, and their "deep, passionate investment in the land" while fighting for the cessation of MTR.

Although Pancake tries to distance herself from overly essentialist and spiritualised views, pantheism is certainly not absent from the novel. The author decides to represent this view in her novel, which she confesses is present amongst Appalachians,[4] and dedicates a whole chapter to Uncle Mogey, who believes that God is

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[3] As Ann Pancake states in "Online Exclusive: A Conversation With Ann Pancake": "I knew [that] for the novel to be successful politically, it would first have to be successful aesthetically."

[4] From the interview *Online Exclusive: A Conversation With Ann Pancake*: "Most people keep their God separate, though. They're good Christians, and I was raised the same way, although my dad is both a

in the woods and confesses his spiritual attachment to the land: "Although I have been a Christian all my life, I have never felt in church a feeling anyplace near where I get in the woods" (Pancake 169). However, this view is restricted to one character and the novel never returns to this view outside of the chapter dedicated to Uncle Mogey, while the other characters do not display such spiritual connections to the land. In this sense, one could add another sense to Burriss' formula, "land literacy" (Burriss 100), which she uses to describe the "practical and spiritual knowledge of the land" that the characters possess. "Land literacy" also describes the plural forms of attachment to and engagement with the environment that the novel creates: each one of the characters *reads* the land in a different way, and Pancake skillfully illustrates how one's relationship with the environment is constructed by their life circumstances. However, the material metaphors permeate the whole novel, irrespective of the dynamic between the characters and the land. In this sense, materiality is treated here not as a monistic singular "substance" that binds together everything in the universe. Rather, the novel explores the characters' attempt to bridge the ontological gap that separates them from the world around them and go beyond their individuality.

Affect Studies and the "4E" Model: An Experiment in Synthesis

Recent developments in cognitive sciences underline the fact that cognition is constituted through the enmeshment of the mind and the body in the environment. Researchers from the "second generation" in cognitive sciences explore the interaction between the mind/body and symbolic-material (and affective) circuits in configurations that go beyond "a computer-based understanding of the brain" (McConachie 137). In an essay that tackles the intersections and divergences of cognitive science and affect studies, Brook Miller identifies the "4E" cognitive model as the space for potential synthesis. Namely, he finds that the focus on embodiment in the "4E" cognitive model affords the possibility of creating "interleaved analytic strategies" (Miller 113) in intersection with affect studies, in light of their shared aim to connect the mental and the physical. In this sense, the present paper could be regarded as an attempt to examine if the intersection that Miller proposes is operational. The "4E" cognitive model

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minister and somewhat pantheistic, so that influenced me. Some of the mixture of God, land, and nature in Strange As This Weather Has Been just arises from my own experience and feelings."

counters the "foundation of traditional cognitive science" (De Bruin et al. 5): the representational and computational model of cognition (RCC), i.e., the "first generation" of cognitive research. This computational view, the RCC, that "treat[s] the mind as a disembodied information processor or neural network" (Weik von Mossner 4), corresponding to a "cognitivist" paradigm (as Herman discusses in a 2013 entry in *the living handbook of narratology*) is countered by a model where cognitive processes are "dependent on the morphological, biological, and physiological details of an agent's body, an appropriately structured natural, technological, or social environment, and the agent's active and embodied interaction with this environment" (De Bruin et al. 5). This model states that the mind is:

(i) embodied = "arises from the nature of our brains, bodies and bodily experience" (Lakoff and Johnson 4): this statement does not refer to the rather obvious remark that we need a body to be able to think but is, as Lakoff and Johnson stress, "the striking claim that the very structure of reason itself comes from the details of our embodiment" (4);

(ii) embedded = "causally dependent on extrabodily processes in the environment of the bodily system" (De Bruin et al. 6);

(iii) enacted = involves an *active* engagement with the environment; it is "partially constituted [or] (…) dependent upon the ability or disposition to act" (6);

(iv) extended = "it extends into essentially involved extrabodily components or tools" (6).

In her 2017 study *Affective Ecologies: Empathy, Emotion, and Environmental Narrative*, Alexa Weik von Mossner adopts this model in her analysis of ecocritical discourse and its processing in the minds of the readers. However, she is more attached to the first two "e"s and is sceptical about the fourth one (the extended mind). My approach seeks to integrate this fourth "e" and expand the model in the direction of adding a fifth "e" (or rather an "a") to this model, the idea of an emotional/affective mind.

Generally, scholars discern between two directions of affect studies defined by two foundational texts published in 1995: Eve Sedgwick and Adam Frank's *Shame in the*

Cybernetic Fold: Reading Silvan Tomkins and Brian Massumi's *The Autonomy of Affect*. The first relies on psychologist Silvan Tomkins' theory of affect, predicated on a series of "darwinist" (Seigworth and Gregg 2) constructions, starting from a set of innate and biologically determined primary affects, while the latter is derived from thinkers like Deleuze and Spinoza. Although Melissa Gregg and Gregory J. Seigworth discuss in their introduction to *The Affect Theory Reader* (2010) the vast spectrum of nuance between and beyond these paradigms, when it comes to the way they treat the issues of subjectivity and consciousness, I take them as almost two opposite poles. While Silvan Tomkins' theory hinges on conscious experience, describing more specifically how we (should) "manage" our innate affective matter, while being concerned with issues like survival and motivation, Brian Massumi's system recognises that cognition is not found exclusively in what we consciously *do*. From this principle derives the way the two treat subjectivity: while a theory of affect derived from Tomkins contains an investment in notions such as personality, selfhood and life experience, Massumi is concerned with human subjectivity only to the extent to which it becomes able to infold "outsides" (Massumi 91), which is an asocial (but not presocial) event. This infolding of "outsides" refers to the fact that the human body is not disconnected from its context and that the infolding of resonances is not detached from its circumstances. Moreover, while Massumi's project is based on dismantling structuralist and constructivist lenses towards the elaboration of an asignifying theory of affect, Tomkins defines nine (almost archetypal) innate and originally biological affects. Thus, we could synthesise the points of divergence between the two paradigms in antonymic pairs: affect is (a)subjective, (a)signifying, autonomous-conscious respectively. That does not mean that all paradigms subsumed under affect studies should be interpreted as located somewhere on the spectrum formed between these presumably two antipodal nodes. Rather, I highlight these points of divergence in order to showcase the different ways in which the intersection between cognitive studies and affect theory can be conceptualised. That being said, a conception of affect that is predicated on the body's receptivity towards other agents is more suitable for the integration into the "4E" cognitive model and to the development of formal categories that describe the entanglement of human and nonhuman agents, since it pivots to the ways the "4E" model highlights the mind's interaction with the environment. The last three "e"s refer specifically to the

interconnectedness of the mind and environment, which is the primary dynamic that Massumi's affect theory describes.

An important distinction in Massumi's theory is the one between affect and emotion[5]. Massumi proposes that the two belong to different (non-corresponding and embodied) levels of image comprehension and processing (extending to a different mode of interaction with the world itself). Massumi's starting point is the primacy of the affective in image reception (Massumi 84). Image reception, as Massumi demonstrates, is dually situated, corresponding to a gap between the *effect* of the image and the *content* of the image. The level of "intensity" (effect) is the level of autonomous and epidermic reactions and takes effect at the "interface" of the mind-body unit with the environment, while the level that organises one's "deep" reactions and gives a socio-linguistic quality to the image is the level of "quality" (content) (85). These two levels correspond to affect and emotion respectively. While affect is linked to non-linear processes that "momentarily suspend the linear progress of the narrative present from past to future" (86), constituting itself as a state of "disruption" and (temporal) "suspense," emotion is "qualified intensity, the conventional, consensual point of insertion of intensity into semantically and semiotically formed progressions, into narratable action-reaction circuits, into function and meaning" (88). While Massumi's philosophical project is based on transcending a theory of affect that is "wedded to structure" (88) towards a model of an asignifying, asymbolic and autonomous affect, he nonetheless stresses that intensity is not incompatible with semiotic and semantic indexation but highlights the limits of operating image reception analyses exclusively within a socio-linguistic framework, within what he calls an "explanatory heaven in which all permutations are prefigured in a self-consistent set of invariant generative rules" (87). The major way in which Massumi's configuration departs from other models within affect studies is the importance that Massumi attributes to outside agents and his theorisation of a pre-rational and pre-linguistic form of interaction with these agents.

Another section in Massumi's essay talks about the simultaneous materiality and virtuality of the body: the moment of contact, where the intensity spreads throughout

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[5] Silvan Tomkins also makes a distinction between affect and emotion, but in an entirely different manner. That is, while affect in Tomkins' theory is innate and biological, emotion is the integration of life experience and memory into the affect system, and it is defined almost algebraically as: affect+memory=emotion.

the body "like a lateral backwash from the function-meaning interloops travelling the vertical path between head and heart" (85), is too fugitive to be consciously registered and indexed, – so the body is both abstract/virtual and concrete/actual, able to infold intensities and resonances that it cannot comprehend semantically or even corporeally. A narratological analysis built on affect as it is conceived by Massumi shifts the focus from the machinations of the characters' inner lives as disconnected from their environments to the interplay between the characters and other agents. Even though Massumi stresses the non-narratable aspect of affect, I do not take this remark as the impossibility of integrating affect theory into narratological methodologies. Rather, I take it as the opportunity of divorcing from not only "structure-wedded" paradigms but also from anthropocentric configurations that insist on the autonomous emergence of cognition as a transcendental, internal process separated from the outside world. An affect-based narratological configuration can come closer to bridging the ontological gap that separates humans and nonhumans and developing an appropriate formal lexicon for the representation of this process in the novel.

Material Metaphors

In Ann Pancake's novel, cognitive mechanisms, emotional dispositions and thoughts are depicted with the use of objectual images. This is what I call "material metaphor": the rendering of the protagonists' cognitive mechanisms with the help of material intensities[6]. Uncle Mogey's pain for the buck he had hurt is "like cloth tearing"

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[6] Katherine Hayles originally used the term "material metaphor" in her 2002 book *Writing Machines*. Here, I will briefly explore the convergences and divergences of these two uses of the term. The context in which Hayles uses this term is in regard with inter/transmediality, which she explores in intersection with technology. In this book, Hayles is concerned with the way that the materiality (which designates here the concrete, physical characteristics, and the technology) of the artefact that encodes the text, shapes its meaning. In explaining the term "material metaphor", she gives the example of a dog-shaped robot that uses a text-to-speech program to speak the word of printed materials, which she contrasts to the printed book as medium and artefact, concluding that "[t]o change the material artifact is to transform the context and circumstances for interacting with the words, which inevitably changes the meanings of the words as well" (Hayles 23-24). In this sense, the robotic dog and the book are the material metaphors. Where Hayles' and my own definition of material metaphors come together is in the shared focus on materiality as the basis for "the transfer of sense associated with one word to another" (22). In my conception, materiality is the foundation for the entanglement between the human characters and the nonhuman agents with which they interact. If Katherine Hayles' metaphors foreground "the traffic between words and physical artifacts" (22), material metaphors emphasise the traffic between cognitive systems and different forms of materiality based on their interconnectedness. Not only do material metaphors connect

(Pancake 173). Lace imagines the involution of her romantic relationship with Jimmy Make as a becoming-inorganic, from a "tie as a light spring green. I see it as a new slim vine" (143) to a "rope. Knotted rope, scratchy and binding" (185) and then finally "[a] long stretched nerve that had never been tied right, had just been clapped together and then ingrown tight" (310). For Bant, the adolescent daughter, her unrestrainable emotions make her feel like her skin is always covered in flammable liquids and like "[s]omething [is] about to flame" (262) at all times, like being in love ("The second time he touched, it was just my hair. He picked up the long of it and smelled it there. Me thinking nothing but gasoline." (260)) or having to deal with her parents' constant fighting. Not only does her entire existence seem to fall under the auspices of gasoline, but she often conceptualises the destruction of the mountain in corporeal terms: "Whole top of Yellowroot amputated by blast, and that dragline hacking into the flat part left. Monster shovel clawed the dirt and you felt it in your arm, your leg, your belly" (165). Lace describes her son Dane's simultaneous (affective) porousness and reclusiveness as "[feeling] too much, how he pulls into him everything, then closes like a mussel. Mussel soft inside" (333). The portrait of young Corey, his father's son, a machine-man altogether, is constructed by his desire to be near man-made objects: "That giant, his body in that gigantic body, his body running that body, and the size, the power of that machine: inside Big John, Corey can change the shape of the world" (164). Industrial objects and machinery permeate Corey's universe and construct his relationship to the environment; his drive is linked to his "want" for things that pertain to mining and industrial activity: "He half lies there, his stomach gouged by the steering wheel, in the brutal aluminium-soaked shed heat, inhaling the good gas and oil, and Corey feels, for the first time in months, the hard want dissolve away" (322). Towards the end of the novel, Avery, reading about the Buffalo Creek disaster, the last time that a coal slurry impoundment collapsed and took the lives of 125 people, feels "[the disaster] carved into his body like grooves in a phonograph record, and the page about the prices, they played his skin back" (237).

These metaphors are not instances of hybridization or synthesis between two agents or actants, but disclose the processes by which, to use Spinoza's seminal

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the characters with these materialities, but they also connect the readers to these agents, as I shall demonstrate in the last section of this paper.

definition of *affectus*, "the affections of the body by which the body's power of action is augmented or diminished, assisted or restrained, and at the same time the ideas of these affections" (De Spinoza 95), humans can be affected by non-human agents. These enmeshments indicate the difficulty of demarcating between material and abstract linkages, since an abstract agent ("the flood") can leave material markings on another agent (it becomes "carved into his body"), and a material object can be integrated into a cognitive function (the gasoline becomes a state of mind and body for Bant). These narratological categories make up the mechanism by which the characters' imbrication with nonhuman agents is constructed. Given that their mental processes are constructed *through* material images, cognition is inseparable from the material world. Moreover, since three of the narratives that make up the novel showcase first-person narration, these models describe not only the generative laws of the exterior/outside world but also the way in which the characters themselves *think* their worlds into existence and situate themselves in this world.

These cognitive phenomena are embedded into a web of material intensities and vibrations (the tearing of a cloth, the "softness" of a mussel), because they are the result of the characters reaching out into the world and approaching the pulsations of these "lower" forms of existence. These metaphors do not codify "emotions" in the sense of Massumi since they cannot be indexed into conventional semantic formulas. There is no word in our emotional vocabulary that can denote the way in which the disaster is "carved into his body like grooves in a phonograph record." One can categorise this as pertaining to the domain of "the affective," but it has no recognisable, distinguishable emotional signifier (is it sadness? frustration? disappointment?) - rather, it goes beyond a recognizable spectrum of emotions. Nor can one recognise here an emotion that is too complex to be indexed or described. I argue that the novel constructs a new narratological vocabulary, corresponding to a (new) conception of the mind itself (and of its relationship to the environment - that is, a system that integrates the "4E" model and affect theory).

The process by which the reaction arises can be described as *impingement*, the result of the interplay between (other) agents in the environment and the (human) body. This interplay is both virtual and corporeal, relying on the amplification of the permeable membrane that separates the mind-body and the environment. Therefore, as

it is constructed in Ann Pancake's novel, cognition is not the result of internal, computational mental processes, but arises in the points of (virtual and corporeal) convergence with extracranial agents, pioneering a mode of cognition that is "continuous with processes in the environment" (Clark and Chalmers 10).

The discussion about how the novel constructs the image of an extended mind necessitates further explanation, as I will also venture my own insights and propose an expansion of the extended mind hypothesis. Expanding on Andy Clark and David Chalmers' seminal essay *The Extended Mind* (1998), I propose that agents that have no materiality (such as the flood or "the disaster" in this novel) can also be functional agents in a "coupled-system," that is, a system where a (human) agent is "linked with an external entity in a two-way interaction" (Clark and Chalmers 8). The extended mind thesis proposes that the mind is located neither in the brain nor in the body exclusively, but it extends into the environment so that objects become integrated into cognitive systems that are traditionally perceived as self-contained or self-sufficient (to be more specific, the coupling between mind and body). Although the extended mind hypothesis is generally employed within arguments about the intersection between technology - or "tools" (generally understood as notebooks, maps, calculators, computers) - and cognition, here, it is environmental agents that function as such. To demonstrate that "[c]ognitive processes ain't (all) in the head" (8), the authors give the example of the simple mental exercise that consists of fitting two-dimensional shapes into their respective "slots", like in the game *Tetris*. Clark and Charlmers refer to a previous study that shows that manually rotating the shapes to determine if they fit into their slots takes the players less time than doing it "mentally," without clicking on the shape and seeing it rotate. This is just one example (the authors also give the example of how somebody might be dependent on a notebook to help give their life structure) of how operating in a coupled-system improves competence and performance, how we make decisions and solve problems by literally reaching out into the world and how cognition is not "wholly in the head" (9), but relies on an "active externalism" (10). This refers to the fact that the body is dependent on the environment and that coupled systems cannot be decoupled without consequences.

Clark and Chalmers go even further and claim that we not only use the "tools" available to us in our environment for improved mental performance, but that they also

partly structure our beliefs. One could argue that the human agents in this novel use their experiences or interactions with physical (albeit virtual or representational) phenomena (a piece of cloth tearing, a piece of rope knotting and scratching, the smell of gas) to aid them in modelling their understanding of the world around them. These agents and their material imprints serve as prosthetics to the cognizers, as extended entities in the emergence of their cognition – they become "tools" that are implicated in their cognitive processes that take place on a brain-body-environment continuum. Here, the Buffalo Creek disaster (the flood) functions as an agent in a coupled system with Avery. Not only is this metaphor constructed to show how an immaterial agent can have material effects on a body, but also how it can function to structure somebody's beliefs, aspirations and desires. This moment, reading about the Buffalo Creek disaster, becomes crucial in Avery's journey, transforming an indifferent young man who had repressed his memories about the flood and left the town into an impassioned activist who works on preserving the memory of those who had suffered.

Affect theory supplements this cognitive scaffolding with a fifth "e" (or "a"), by declaring that the mind is not only embodied, enactive, embedded and extended, but also affective. Primarily, affect theory aids in describing the intertwinement of mind-body and environment, integrating in these schemata the extracranial non-human agents that make up complex cognitive systems - which makes this synthesis viable in the analysis of a new formal lexicon.

Drawing on Jason W. Moore's aggregate concept of "world-ecology," which rests on "a double internality of historical change—humanity inside nature, nature inside humanity" (Moore 100-101), Ann Pancake's novel engenders a new way of experiencing the world, catalysed by environmental (and ontological) mutations corresponding to the dawn of the Anthropocene. In her novel, the pervasiveness of environmental danger is explored not only in its material dimension but also in its symbolic, psychological, epistemological and ontological aspects. These material-symbolic-affective interdependencies underscore a post- or anti-anthropocentric conception of mind and cognition and require a new narratological vocabulary. This narratological lexicon subsumes both the inter-dependent emergence of cognition as enmeshed in material assemblages and a non- or anti-binary conception of the world - that is, a conception that refuses binaries of any kind. Narratological functions such as the ones that this

novel requires cannot be described by the categories of "character," "actant" or "voice," because they go beyond the human-nonhuman binary that underscores these categories. They entail a circuit of intensities whereby bodies are not passive repositories of potential, nor do they obtrude these energies upon other bodies. There is no "active" or "passive" agent in this equation, but describe the interplay between two or more agents, or the processes by which the mind simultaneously acts and is acted upon, the affordances and impingements of these material-symbolic interactions and the traces that they leave: which constitutes a "material metaphor." In these metaphors, affect "is found in those intensities that pass body to body (human, nonhuman, part-body, and otherwise), in those resonances that circulate about, between, and sometimes stick to bodies and worlds, and in the very passages or variations between these intensities and resonances themselves" (Seigworth and Gregg 2).

Material Metaphors and the Reader

Pancake's use of a poetic of affect in her narrative construction is apparent not only in the textual dimension of the novel, but also in its extra-textual aspect. Howard Mancing, in an essay dedicated to affective thought, expands cognitive narratologist Alan Palmer's "speech categories" model towards the integration of a cognitive mechanism called the Theory of Mind (ToM). Palmer makes the distinction between "(free) direct thought," "thought report," and "free indirect thought," to which Mancing adds the fourth category, "inferential thought." Inferential thought is the most cognitively demanding category, where "it is stated or implied that the character is thinking, but there is no specific indication of what those thoughts might be" (Mancing 632). Mancing develops this concept in relation to a cognitive mechanism originally advanced in primatology and child psychology, Theory of Mind (ToM). ToM is essentially the ability to grasp the fact that other people have cognitive worlds of their own, and that they have their own desires, fears, motivations - simply put, the ability to speculate and understand *what is going on in other people's heads*. Mancing cites Lisa Zunshine, who claims that without ToM we would not be able to understand literature, essentially because ToM enables one to understand not only the motivations of "real" people but also the motivations and desires of fictional characters. Pancake uses the inferential thought category to highlight the indistinctness of the characters' affective reactions (emphasising that they are un-

narrativizable and cannot be labelled, in Massumi's terms) and to let the reader participate in this coming-together of human cognition and nonhuman motility and resonance. By refusing to give these affects a name, the narrator leaves heuristic space for the readers: they have to "activate" their ToMs to be able to understand the characters' motivations and desires.

Later, Vittorio Gallese and Hannah Wojciehowski added the term Feeling of Body (FoB) to the ToM framing in order to integrate bodily experiences into this "mind-reading" mechanism and to open up the ToM paradigm to a different conception of the mind, analysing literary experience through the lens of a brain-body unit. FoB counters "[the] risk of reintroducing a backdoor Cartesianism to our understanding of literary texts" (Gallese and Wojciehowski 7) that ToM is based on and incorporates modern cognitive research in mirror neurons. FoB is based on a mechanism that the two call "embodied simulation," a "mandatory, prerational, non-introspective process – that is, a physical, and not simply 'mental' experience of the mind, emotions, lived experiences and motor intentions of other people" (14). FoB, our ability to understand others' "body-states associated with actions, emotions, and sensations within the observer, as if he or she were performing a similar action or experiencing a similar emotion or sensation" (14) is based on this non-linguistic mechanism (embodied simulation) that enables us to "map" others' actions. Although Gallese and Wojciehowski do not attach a specific literary form to this process, one could argue that material metaphors enable an intensified use of FoB. That means that the indistinct character of the affective matter of the novel requires not only heightened intellectual participation, but heightened corporeal receptivity at the same time. If inferential thought corresponds to a heightened use of ToM, material metaphors facilitate an augmented use of FoB, thereby adopting a model for how the mind works that is more similar to the "4E" lens. Similarly, if ToM corresponds to what Massumi describes as the level of content and quality, of semantic and semiotic indexation, FoB corresponds to the level of intensity, of affect. As it is formally galvanised in material metaphors, FoB enables the readers to partake emotionally in the destruction of the characters' habitat and corporeally feel their loss. In contrast to defamiliarization, FoB describes the interaction between the text and the body, integrating the corporeal dimension that cannot be grasped through a structuralist lens. When Bant describes in first-person narration that "[the] [m]onster

shovel clawed the dirt and you felt it in your arm, your leg, your belly" (Pancake 165), the reader's body stimulates the details of her embodiment, literally feeling the ravaging of her home. This conception of how readers respond to the text grounds the literary experience in the body and shows how what could be generally perceived as a "mental" activity, pertaining to the domain of the intellect, is in fact one that brings together the mind and the body.

Conclusion

In conclusion, the conception of affect as an asymbolic and asignifying intensity as it is developed by Brian Massumi can supplement the "4E" cognitive model in order to help open narratology towards nonhuman encounters. This intersection can integrate non-human agents and illustrate that the circulation of resonances and intensities between human and nonhuman agents is possible, as they are situated on the same ontological plane. Ann Pancake's novel exemplifies the need for the development of novel narratological categories and highlights the emergence of a new conception of cognition in the contemporary novel. Material metaphors, the category that I propose here, is one of many heuristic instruments that I believe could be theorised starting from the multiple intersections explored in this paper. My approach also demonstrates that narratological categories oriented toward the nonhuman can be successfully coupled with classical frameworks from cognitive studies and that this coupling can lead to more complex analyses and take into account multiple textual dimensions. In my paper, I discussed how material metaphors, which are built upon the merging of the "4E" model and a theory of affect inspired by Massumi, to describe how the interaction between the characters and their environment functions in Ann Pancake's novel, while the FoB framework is used to describe how the readers respond to this textual construction.

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