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EMBODIED INTERCONNECTEDNESS THROUGH SYNAESTHESIA:

Art, Intersubjectivity, and Hypermnesia



Nadine (Nadia) Sigalov

Submitted in fulfilment of the requirements for the Degree of PhD in English Literature

School of Critical Studies
College of Arts
University of Glasgow

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Abstract

This dissertation explores the convergence of New Materialism, embodied cognition, and synaesthesia within contemporary English-language literature, highlighting how these frameworks challenge traditional dichotomies such as mind/body and human/object. At the core of this study is the concept of embodied interconnectedness, which asserts that our identities and interactions are intricately linked to our physical bodies. Synaesthesia, characterised by cross-modal sensory responses where stimulation of one sensory or cognitive pathway leads to experiences in a second sensory or cognitive pathway, acts as a metonym for this interconnectedness. This phenomenon exemplifies the integration of sensory and cognitive processes and the blurring of boundaries between subjective experiences and scientific understanding. Through detailed analyses of four novels – *Saudade* by Katherine Vaz, *The Particular Sadness of Lemon Cake* by Aimee Bender, *The Memory Artists* by Jeffrey Moore, and *The Beautiful Miscellaneous* by Dominic Smith – this research shows how literary narratives can enhance scientific and philosophical understandings of synaesthesia and interconnectedness. Each narrative is examined for its ability to integrate scientific perspectives, particularly those concerning synaesthesia’s role in cognitive processes and sensory perception, with artistic expression. Such integration enriches the dialogue between neuroscientific theories, including those exploring the relationship between mirror-touch synaesthesia and empathy, and literary approaches such as reader-response, neuro-Romanticism and post-postmodernism. Moreover, each novel not only depicts synaesthetic experiences but also challenges and expands contemporary scientific theories through the portrayals of characters’ deeply material and imaginative engagements with the world. This melding of science and art highlights the novels' contributions to our understanding of complex sensory interactions and the resulting implications for art, identity, perception, and the human condition. Ultimately, this dissertation advocates a holistic approach to studying synaesthesia and embodied cognition. I argue that literary narratives offer a unique and invaluable

perspective on these phenomena, integrating insights from both humanistic thought and science to promote a reevaluation of disciplinary boundaries.

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Affidavit

I declare that, except where explicit reference is made to the contribution of others, this dissertation is the result of my own work and has not been submitted for any other degree at the University of Glasgow or any other institution.

All illustrations included in this manuscript have been generated using artificial intelligence, specifically employing the models available at <https://deepai.org/machine-learning-model> and <https://creator.nightcafe.studio>. The generation of these images was guided by keywords relevant to the topics under discussion. Their purpose is to provide conceptual visualisations that complement and enhance the understanding of the ideas explored in this work. The selection of these illustrations was based on their associative resonance with the thematic elements being addressed.

Nadine (Nadia) Sigalov

General Introduction

The body is our general medium for having a world.

–Merleau-Ponty, *Phenomenology of Perception*

She could taste her children on her tongue, the colors they wore. Jacqueline was yellow. Gunnar was blue. Gabriela had always been red. All their weight. Their history inside of her. And she remembered her mother’s synesthesia and was startled as guilt crept up her throat.

–Gentile, *Within Paravent Walls*

Embodied Interconnectedness and Synaesthesia: Navigating New Materialism in Literature and Science

The concept of embodied interconnectedness, postulating that our sense of self and our world interactions are intimately linked with our physical bodies, has been gaining prominence in New Materialist studies over recent decades. This emerging trend, commonly referred to as the “material turn,” originated within the social sciences and has since expanded into the humanities. It champions the importance of bodies, embodied subjectivities, and the ontological dignity of material things, as supported by scholars such as Graham Harman (1-2), and Diana Coole and Samantha Frost (1). Drawing on the phenomenological insights of Maurice Merleau-Ponty, Edmund Husserl, and the philosophical teachings of Baruch Spinoza, New Materialists place a premium on corporeality as a means to reconnect with the world and comprehend the nature of perception through art (Coole 92-115; Connolly 178-200).

New Materialism intersects with post-dualism, effectively disputing and undermining firmly entrenched dualistic separations like those between human/object and mind/body. This approach underscores the concept of “intra-action,” a term coined by Karen Barad to refer to the

mutual creation of interdependent agencies (“Posthumanist Performativity” 814). Unlike interaction – which assumes that there are separate individual agencies that precede their interaction – intra-action acknowledges that distinct agencies do not antecede, but emerge through their meeting and co-mingling with each other (*Meeting the Universe Halfway* 33). It thus illuminates the condition of entanglement, representing the inseparable connections between entities.

Furthermore, New Materialism’s emphasis on embodiment is echoed in the works of George Lakoff and Mark Johnson, who argue that the structure of our reasoning is derived from the particulars of our embodiment (*Flesh* 4). They suggest that the mechanisms of somatic cognition that oversee our perception and movement also generate our conceptual systems and reasoning methods. This implies that our knowledge is considerably shaped by the specificities of our human bodies and the nuances of our everyday engagement with the world (4). Over the past two decades, both literature and science have exhibited a burgeoning interest in materiality and bodily experiences. In this context, embodiment – the emergence of thought and knowledge from one’s physicality (M. Wilde 25) – is a unifying thread between these two disciplines.

The focus on embodiment is traced in the literary field to the works of scholars such as Ellen Spolsky, who stresses in her “Embodiment and its Entailments” the necessity to leverage the knowledge emerging from our bodily existence and the embeddedness of meaning within embodiment (1). A similar emphasis on embodiment can be found in Susan Sontag (10) and Rita Felski (“Enchantment” 51), who stress the importance of utilising the material aspects of the literary text, such as its sensory appeal and immersive qualities. They advocate for this approach as a means to re-establish a connection with the world and others (“Recognition” 31-2) particularly in a postmodern intellectual landscape that has made tangible reality seem increasingly inaccessible or elusive (“Introduction” 2-3). In parallel, from the scientific perspective, scholars spanning various fields from linguistics to neuroscience are transitioning towards an embodied and situated understanding of the mind. Figures such as cognitive

philosopher Shaun Gallagher, phenomenological philosopher Richard Kearney, and ecological psychologist Zolt Palatinus, are moving towards an embodied and situated understanding of the mind, striving to bridge the body-mind chasm via individual or shared bodily experiences and corporeal reality.

Building upon the burgeoning trends of embodied cognition and New Materialism, this study delves into the exploration of synaesthesia – a perceptual phenomenon characterised by stimulation in one sensory or cognitive pathway, such as vision, leading to experiences in another, like hearing (Rich and Mattingley 43). Synaesthesia, a potent metonym for sensory interconnectedness, has been a subject of intrigue straddling the arts and the sciences since the nineteenth century. David Howes argues for a “sensual turn” in material culture theory – the interdisciplinary field that examines the relationships between material objects, artifacts, and cultural practices to understand social meanings and historical contexts – recognising sensory dimensions of objects, challenging textual and visual biases, and highlighting the role of sensation in shaping society. His approach captures the essence of synaesthesia, underscoring interplay between senses and a deeper understanding of material culture’s role in shaping social and sensory realities (161-4). Despite the blossoming discourse around embodied cognition and materiality in both scientific and literary fields, there is limited literature addressing the mutual influence and exchange of ideas between these fields in the context of synaesthesia.

Through close readings of four contemporary English-language novels that portray synaesthesia, this study aims to address this gap by exploring the way they not only present established ideas of embodied interconnectedness through synaesthesia, but also potentially challenge or expand contemporary scientific theories. By creating a reciprocal dialogue between science and art, as well as between objective and subjective modes of knowledge, this analysis illuminates the intersections of neuroscience and diverse artistic expressions. As Cretien Van Campen succinctly expresses, “where scientists ‘tell’ what synaesthesia is, artists ‘show’ what [it] is” (644).

The study also seeks to reveal the way synaesthesia provides a rich framework for understanding embodied interconnectedness, offering unique insights into creativity, art, and scientific phenomena. These include the fusion of the imaginative with the material, complex viewpoints on neurodiversity and empathy, and the exploration of loss and absence through sensory interconnectedness. The focus extends beyond the scientific treatments of synaesthesia to embrace the textual evocations of artistic creativity and personal expression, as well as additional neurological conditions such as autism, Alzheimer's disease, and brain tumours. In doing so, it seeks to elucidate the nuanced interplay between scientific inquiry and artistic expression in the context of synaesthesia. The narratives are leveraged as tools to illuminate embodied cognition through a detailed examination of its manifestations, the underlying neuroscientific principles, and the resultant creative and perceptual enhancements. This approach aims to provide a comprehensive exploration of synaesthesia, emphasising the convergence of empirical research and imaginative literature to offer insights into sensory integration, cognitive diversity, and the transformative potential of synaesthetic experiences in understanding the self and the world. Aligned with the principles of New Materialism, the study challenges dualistic epistemologies that attempt to bifurcate scientific from artistic modes of cognition, as well as the conceptual from the embodied.

Saudade by Katherine Vaz (1993), *The Particular Sadness of Lemon Cake* by Aimee Bender (2010; henceforth *Lemon Cake*), *The Memory Artists* by Jeffrey Moore (2004; henceforth *Memory Artists*) and *The Beautiful Miscellaneous* by Dominic Smith (2007; henceforth *Beautiful Miscellaneous*) all depict various aspects of synaesthetic interconnectedness.

In *Saudade*, the thematic tension between material interconnectedness and the absence represented by loss culminates in various multisensory and synaesthetic artistic experimentations that ultimately embrace the former. The novel draws on the Romantic attempt to (re)connect the self with the world (Miller 1-2), using a neuroscientific foundation, resulting in its classification as 'neuro-Romantic.' The latter is an innovative literary approach that blends Romantic ideals of

imagination and self-world connection with contemporary neuroscience and materiality. It ingeniously bridges literature and science, as well as the materially objective and the subjective realms, by establishing tangible connections between one's body, the world and others. These connections and the resultant fusion of literature and science are manifested as the characters navigate the boundaries of their own bodies, immerse themselves in the sensory details of their surroundings, and forge deep, material connections with the diverse individuals they encounter.

Moreover, the novel crafts a narrative that intricately links the subjective experiences of emotions, memories, and cultural nostalgia with the empirical realm of sensory neuroscience and embodied interaction, thereby offering a groundbreaking approach to human interconnectedness and the complexities of cultural hybridity. The novel thus fortifies Romantic imagination with the tangible and scientific underpinnings of sense-data. Thematically and figuratively, *Saudade* solidifies the material bond between the characters and the outside world through recurrent poetic vignettes. These vignettes vividly illustrate the tangible, scientifically-grounded aspects of connections between people and their environment, while also highlighting the role of imagination in these relationships. They effectively create bidirectional bridges between materiality and imagination, demonstrating the way they are intertwined. Synaesthetic interconnectedness in the novel is closely related to self-expression, imagination, and art, and results in a new sensory mindset that enhances creativity. The characters ultimately generate art that forges and consolidates a tight knit community, interconnected by a new outlook on its cultural heritage.

The study of *Lemon Cake* illuminates the complexities of extreme embodied interconnectedness and the ensuing sense of acute interpersonal alienation through a phenomenological exploration of mirror-touch synaesthesia (henceforth MTS). This condition, in which the mere observation or imagination of somatosensory stimulation, notably touch or pain, in another person or object can trigger a similar somatosensory experience in oneself (Banissy

592), blurs the boundaries between self and other. By immersing the reader in the lived experiences of MTS, the novel offers a fresh perspective on a scientific discourse surrounding hyper-empathy and autistic spectrum disorders (henceforth autism), which encompass a broad range of conditions characterised by social skill challenges, repetitive behaviours, and difficulties in speech and nonverbal communication (ICD-11, chapter 6, section A02). The novel's nuanced portrayal of autism includes hyper-empathy as a potential feature, thereby enriching our understanding of autism's complexity and its relationship with synaesthesia.

The novel illuminates intricate neuroscientific phenomena pertinent to embodied interconnectedness and neurodivergence, offering a unique, narrative-driven exploration that contrasts with empirical scientific methods, through phenomenological insight. Building on Tzachi Zamir's insights into the capacity of literature to probe complex human experiences that elude strict logical reasoning (7-9), *Lemon Cake* exemplifies the way literature can transcend solely literary interpretation to influence actual scientific debates. The novel implicitly questions and advocates scientific theories through its characters' lived experiences. Specifically, the protagonist's hyper-empathy and her brother's detachment together offer alternative insights into the relationship between MTS, hyper-empathy, and autism. Rather than siding with a popular view that dissociates MTS from autism (Baron-Cohen "Mirror-Touch Synaesthesia is Not Associated with Heightened Empathy"), *Lemon Cake* suggests these neurological features often coexist. This offers a more comprehensive perspective on autistic spectrum disorders. The exploration of the novel serves as a heuristic tool, not necessarily rooted in concrete scientific evidence, but valuable in stimulating contemplation on scientific discourse and cognitive variation, specifically the intricate interplay between MTS, hyper-empathy, and autism.

The analysis strikes a delicate balance between the conceptual backdrop of post-postmodernism and the frameworks of neuroscience. A response to postmodernism, aspects of post-postmodernism can be characterised by a shift back to sincerity, authenticity, and even a re-engagement with grand narratives or truths, albeit often in a nuanced or critical way. This

accords, for example, with Patricia Waugh's view that the modern syndrome novel – a narrative centred on the experience of a character's affliction, whether physical or psychological, and its impact on their life and identity – responds to the influence of the naturalistic trend emphasising the medicalisation of the self (32). She introduces the term “neo-phenomenological” to describe these novels as a fusion of phenomenology and postmodernism, suggesting that they move beyond postmodern self-awareness and also transcend neurological reductionism (25). These novels focus on interior experiences, providing a “pre-reflective place” that situates embodied minds within imaginary realms, adding complexity and depth to their portrayal (24). Waugh's analysis not only challenges postmodernism's extreme relativism and irony, but also attempts to marry postmodern scepticism with a renewed sense of meaning and depth, seen by Vermeulen and van den Akker as the essence of post-postmodernism (“Notes on Metamodernism”).¹ Indeed, in *Lemon Cake*, MTS is a narrative device that blurs the boundaries between self and others and invites a deeper understanding of empathy and interconnectedness. By authentically depicting characters with hyper-empathy and only apparently contrasting neurological states, the novel challenges traditional perceptions of autism and synaesthesia, suggesting a complex, post dualist, coexistence rather than a dichotomy.

In a related fashion, Stephen Burn integrates postmodern thought with neuroscience, asserting that themes from postmodernism echo in mind sciences. He promotes reading contemporary fiction with its neurological undertone, bridging the gap between postmodernism and the sciences (35). Although *Lemon Cake* is predominantly associated with traits of post-postmodernism, such as a return to sincerity and authenticity, Burn's approach, which blends literary theory with neuroscience, provides a valuable interpretive lens within the post-postmodernism paradigm. The novel conflates the post-postmodern onslaught of materiality with emotional and sensory over-stimulation characteristic of autism. The characters' struggle to

¹ Vermeulen and van den Akker refer to post-postmodernism as “metamodernism.”

regulate their interactions with others and the outside world, shifting between under- and over-connectedness, mirrors the post-postmodern oscillation between elusiveness and tangibility. This dynamic reflects a broader spectrum of contrasts as identified by Vermeulen and van den Akker, ranging from hope to melancholy, naïveté to knowingness, empathy to apathy, unity to plurality, totality to fragmentation, and purity to ambiguity (“Notes on Metamodernism”).

Memory Artists and *Beautiful Miscellaneous*, which combine features of both neuro-Romanticism and neo-phenomenology, explore the contrasting aspects of material interconnectedness and dissociation through the lens of neurological conditions. While synaesthesia and the resulting hyper-memory enrich and intensify human experience, brain tumours and Alzheimer’s disease, a progressive neurological disorder impacting memory, thinking and behaviour (Jack Jr 345), restrict it. These extremes of human experience will be thoroughly explored from the perspective of neuroplasticity – the lifelong ability of the brain to change (Innocenti 3) – drawing upon ideas advocated by Catherine Malabou (*Ontology 3*). This approach will uncover unexpected parallels and commonalities between these seemingly disparate phenomena. Through body-centred reflection on physical ailment and neurological difference, both narratives reflect on creativity in general, and scientific creativity in particular, on the one hand, and on loss and the meaning of material and metaphorical absence, on the other.

Memory Artists features an explicit debate contrasting the empirical methodologies of neuroscience with the profound insights gained from reading, enriched by synaesthesia and hypermnesia, in the quest for a cure for Alzheimer’s disease. *Beautiful Miscellaneous* intricately weaves together the perceptual-subjective and physical-objective perspectives, exploring the interplay between synaesthesia, enhanced memory, and creativity. In both *Beautiful Miscellaneous* and, to a lesser extent, *Memory Artists*, the protagonists illuminate the principles of “performative metaphysics” and its relation to synaesthesia. As conceptualised by Barad, this idea underscores the inseparable and mutually constitutive nature of our physical realities and the phenomena they give rise to (“Posthumanist Performativity” 814). By embodying this principle,

the protagonists demonstrate that entities, or “agencies,” do not exist in isolation. Instead, they emerge through intra-action (814).

The burgeoning interest in synaesthesia within both scientific and artistic communities mirrors a deeper philosophical evolution, where the New Materialist critique of dualism enriches our understanding of sensory interconnectedness. This shift emphasises a reevaluation of perception and cognition through the lens of materiality and embodiment, setting the stage for an in-depth exploration of synaesthesia's complexities and its reflection in personal and historical narratives and discourse.

Interdisciplinary Perspectives on Synaesthesia: From Historical Debates to Contemporary Insights

The term *synesthésie*, derived from the ancient Greek words σύν (meaning “with”) and αἴσθησις (meaning “sensation”), refers to the merging or blending of the senses (Macpherson 65), a complex phenomenon both deeply rooted in historical debates and enriched by contemporary insights. This continuum of understanding, from the Romantic-transcendent view juxtaposed against the rationalist-materialist-positivist perspective in the 19th century, as described by Kevin Dann, to the nuanced neuroscientific models proposed by neuroscientists such as Catherine Mulvenna, illustrates a dynamic dialogue on synaesthesia. Synaesthesia manifests in various idiosyncratic forms, many of which have yet to be fully researched by neuroscience (Van Campen 644). Each form of synaesthesia involves unique inducers that trigger synaesthetic experiences and concurrents that are secondary experiences occurring simultaneously with the sensory stimulus. The diversity of the inducers and concurrents gives rise to many types of synaesthesia, including uncommon ones such as visual pain, where pain takes on different visual shapes, and mirror-touch, where observing touch elicits a tactile sensation in the viewer. (Marks 22-3). A compelling illustration of this phenomenon comes from the narrative of Patricia Duffy, an author and a synaesthete. In her book *Blue Cats and Chartreuse Kittens*, Duffy vividly describes her unique experience of colourful graphemes:

We remembered that, under his guidance, I'd learned to write all of the letters very quickly except for the letter R.

“Until one day,” I said to my father, “I realized that to make an R all I had to do was first write a P and then draw a line down from its loop. “And I was so surprised that I could turn a yellow letter into an orange letter just by adding a line.”

“Yellow letter? Orange letter” my father said. “What do you mean?”

“Well you know” I said. “P is a yellow letter, but R is an orange letter. You know – the colors of the letters.”

“The colors of the letters?” My father asked (1)

A notable case from history is the Russian composer Nikolai Rimsky-Korsakov, who perceived music in the key of A-major as yellow (Myers 228-38, qtd. in Marks 16).

Dann captures the ambivalent nature of the evolving attitude towards this phenomenon. This historical context sets the stage for appreciating modern explorations of synaesthesia, where literature and science converge to deepen our understanding of this complex phenomenon. Synaesthesia, a *rara avis* and a curiosity, sparked a fierce debate in the nineteenth century between the proponents of the Romantic-transcendent view and the rationalist-materialist-positivist view.² The former saw synaesthesia as a gift heralding a revolution in consciousness, intertwined with the broader concept of synthesis, an approach that contrasted with analysis – the prevalent technique of naturalism – and was favoured by French artists and critics in the 1880s and 1890s. Synaesthesia was perceived as a channel for heightened sensations in the less artistically inclined (Dann 165, 26-7). In contrast, the rationalist-materialist-positivist view regarded synaesthesia as a pathological disruption of the sensory system, as the separation of the senses was seen as the pinnacle of evolution (33). Thus, “[w]hat medical science tended to

² An earlier mention of sensory perception that prefigures the nineteenth-century debate on synaesthesia can be found in Isaac Newton's *Opticks*. Newton draws a parallel between the sensory experiences of sound and colour, suggesting a conceptual linkage that echoes the complexities of synaesthetic perception: “as Sound in a Bell or musical String, or other sounding Body, is nothing but a trembling Motion, and in the Air nothing but that Motion propagated from the Object, and in the Sensorium 'tis a Sense of that Motion under the Form of Sound; so Colours in the Object are nothing but a Disposition to reflect this or that sort of Rays more copiously than the rest” (125).

see as pathological, or at least abnormal, the Romantic, cultivator of the intensely personal, saw as sublime” (23).

The second phase of the discourse emerged in the early twentieth century. Synaesthesia was viewed as a mystery during this period of speculation about new forms of consciousness and the inclination to draw connections between different realms (52). Occult writers of the time described the colours and forms of the astral world, which were only visible to those who had attained a certain level of spiritual development (52). Some claimed that “[s]ensitives connect every color with a definite sound” (52). Due to the emphasis on exclusive colours, synaesthesia and the astral realm were often grouped together. Artists such as Russian expressionist painter Wassily Kandinsky, who were fascinated by synaesthesia, sought to uncover deeper levels of hidden or “occult” meaning, dissociating it from its material aspects (60-1). Concurrently, psychological studies on synaesthesia argued that it was “an essential component of [the synaesthete’s thought processes,” experienced as a form of thinking (82).

Recent literary portrayals and scientific research on synaesthesia have converged on the notion that there exists an intrinsic link between synaesthesia, creativity, and artistic expression. Moreover, contemporary neuroscientific studies propose models to elucidate this connection (Mulvenna 621-2). According to Mulvenna, synaesthetes excel in the generation of creative ideas and follow artistic pursuits more than non-synaesthetes (621). She asserts that the neural common denominator of synaesthesia and creativity might be a co-activation, or synchronous connectivity, of disparate and distal regions of the brain (622). Thus, rather than belonging to two opposing camps, the representations of synaesthesia and synaesthetic characters in literature and contemporary neuroscientific studies seem to agree that there is an inherent connection between synaesthesia, creativity, and artistic expression, while science offers a model to explain this link.

Duffy's vivid descriptions of colourful graphemes and Rimsky-Korsakov's perception of musical keys as colours likewise exemplify the longstanding fascination with synaesthesia, bridging past and present explorations. The first Anglo-European literary attempts to portray

synaesthesia as such belong to the French symbolist poets Baudelaire and Rimbaud. In their poems, “Correspondences” and “Voyelles,” respectively, the poets introduce synaesthetic-like correspondences between different sensory modalities. While the former portrays personal sensory correspondences between sounds, colours, and scents (193), the latter depicts grapheme-colour correspondences between vowels of the French alphabet and colours (78-9).³ From the formative representation in French Symbolism, the portrayal of synaesthesia evolved and continued to find resonance in subsequent literary works. Significantly, the literary contributions of Russian-American author Vladimir Nabokov (1899-1977) emerged as instrumental in exploring and portraying synaesthesia. Nabokov’s protagonist Fyodor in *The Gift* offers a vivid description of his coloured alphabet, a perception that parallels Nabokov’s own experiences as detailed in his memoir *Invitation of a Memory*. Fyodor observes that the colours he associates with Latin letters are roughly equivalent to their Cyrillic counterparts, albeit the English letters tend to be less vibrant. Beyond the visual mode, Fyodor perceives even stronger sensory crossovers in his native language: “The colour sensation of characters is shaped by tangible, labial, and almost gustatory means. To fully discern the colour of a letter, I need to taste it, allowing it to expand and glow in my mouth while visualizing its design” (qtd. in Dann 123). Nabokov’s synaesthesia is deeply intertwined with his exceptional mnemonic capabilities: as a chromaesthete with an affinity for letters and numbers, exemplified by his unique color associations such as the weathered wood hue for the English “a” (123), he also demonstrates syncretic perception through eidetic imagery. An eidetic image is a vivid, subjective sensory impression experienced mentally with a deep sense of physical engagement and emotional resonance, independent of any external object. (12). For Nabokov, it manifests through his vivid recollection of finding an oyster-shell-shaped cigarette case in 1907, a detail he meticulously

³ “Comme de longs échos qui de loin se confondent / Dans une ténébreuse et profonde unité, / Vaste comme la nuit et comme la clarté, / Les parfums, les couleurs et les sons se répondent.” “Like long-held echoes, blending somewhere else / Into one deep and shadowy unison / As limitless as darkness and as day / The sounds, the scents, the colors correspond” (15).

restored in *Speak, Memory* by replacing a placeholder object with this sharply visualised memory. His ability to transform vague recollections into focused, detailed images demonstrates his exceptional capacity for eidetic imagery, vividly ‘seeing’ past events with clarity decades later (126). His memory techniques, which are intensely visual, are thus harnessed as a “method” in his autobiography (126). Instead of allowing his experiences to be dismissed as mere fanciful metaphors, Nabokov firmly asserts that they are empirical phenomenological reports. Thus, in a correspondence from Nabokov’s wife, Vera, to Gladys Reichardt, Vera notes that “[t]he only thing that [Vladimir Nabokov] does object to is [the] implication that his metaphors [i.e. synaesthetic associations] are a concession to literature. He says that, being a scientist (entomologist), he considers his prose scientific and would have used the same ‘metaphors’ in a scientific article.”

Nabokov’s descriptions and assertions incite a crucial debate surrounding the interpretation of synaesthesia, polarising those who advocate for a more constrained definition, such as Dann, and those who favour a broader, more inclusive understanding of the phenomenon, such as philosopher Jonathan Cohen. Advocates of the narrow view, such as Dann, June Downey, and Erika von Siebold argue that true synaesthesia is idiopathic (spontaneous) and involuntary (68). They suggest that figures such as Poe, Swinburne, Blake, and other Romantic poets used intersensory metaphors rather than expressing authentic synaesthesia (98). According to this perspective, many well-known artists, including Alexander Scriabin and Kandinsky, are not true synaesthetes, but Nabokov is a genuine example of the phenomenon. This stricter definition, as posited by Dann, reflects what Marks describes as the dualistic viewpoint that regards synaesthesia as solely an induced experience (31). Conversely, proponents of the monistic perspective perceive synaesthesia as a spectrum, ranging from most intensely synaesthetic experiences to the least, with induced imagery and cross-modal perceptual similarity, such as matching high-pitched sounds with small bright objects, situated in the middle (32). Jonathan Cohen, for instance, suggests that there is a continuum between synaesthesia and ordinary

perception, essentially making us all synaesthetes to a degree (59). While many literary depictions of synaesthesia, such as *Saudade*, introduce a variety of characters exhibiting a wide range of synaesthetic expressions in line with this broader approach, some, including *Lemon Cake*, *Memory Artists* and *Beautiful Miscellaneous*, focus on its idiopathic nature.

However, my analysis of the novels extends beyond their manifestation of established ideas or historical discourse regarding synaesthesia, and more broadly, embodied interconnectedness, to foster a dialogue on an equal footing between literature and neuroscience. While the novels are illuminated through the lens of contemporary scientific theories on synaesthesia, they also inform, expand, and at times challenge these theories. These narratives unveil unique perspectives on embodied cognition and synaesthesia, delving into the intricate ties binding synaesthesia, art, creative expression, additional neurological conditions, and memory. Moreover, they bring to light innovative outlooks on neuroplasticity and trauma. The distinguishing feature of this study emerges from the mutual dialogue occurring between the literary and scientific discourses, facilitating a more holistic approach in grasping these multifaceted phenomena.

Literature and the Human Mind: Bridging Aesthetics and Neuroscience

The symbiosis between literature and the intricacies of the human mind has captivated scholars since Aristotle's *Poetics*. Aristotle's exploration of the way drama and epic poetry engage our perception and elicit profound emotional responses laid the groundwork for centuries of discourse. The focus has been twofold – analysis of the artistic elements that spark such emotions, and an exploration of the unique responses of the reader (Part VI).

However, the modern era witnessed shifts and even opposition in perspectives. Immanuel Kant, for instance, introduced a nuanced view of aesthetics and the relationship between human cognition and artistic experience. According to Hannah Ginsborg, Kant's insights into the sublime – an aesthetic quality that inspires a sense of awe and transcendence, often because it is

grand, overwhelming, or incomprehensible – challenges the idea of a strict divide between emotions, sensory perception and cognitive processes. The failure of our subjective cognitive faculties in the face of the sublime can create a form of disharmony, pushing the limits of our sensory and cognitive faculties. While this experience might produce initial discomfort or displeasure, it ultimately leads to a greater appreciation of our own capacity for thought beyond sensory limitations. The beautiful, on the other hand, is conceptualised in Kant’s framework as an object of a “pure” judgment, which is a disinterested, universally applicable cognitive evaluation focused solely on the object’s form. This type of judgment is devoid of considerations of the object’s utility or any emotional impact it may elicit. When sensory perception and emotions become factors in the judgment, it turns “impure,” introducing elements of subjectivity, such as “charm,” and forfeiting the universality that pure judgments of beauty aim to achieve. The concepts of the sublime and the beautiful offer a counterpoint to earlier perspectives that primarily focused on emotional responses to literature and art.

Hans-Georg Gadamer’s approach to aesthetics, rooted in phenomenology, shifts the focus from dispassionate, analytical judgements to a more engaged, interpretative interaction with the subject matter of art. This contrasts with Kant’s emphasis on “pure” judgements of beauty devoid of sensory or emotional influence, and provides an alternative to Aristotle’s concentration on the emotional responses generated by artistic elements. Integrating cultural, linguistic, and ethical dimensions, Gadamer’s hermeneutical aesthetics serves as a modern rejoinder, highlighting the dialogical and experiential depth of our encounters with art (Davey).

Alan Richardson pinpoints a significant evolution in this enduring discourse, charting a shift over the past twenty years towards a dynamic exchange between literature, broader artistic fields, and neuroscience (“Studies in Literature” 3). Recognising the importance of this interdisciplinary dialogue, scholars from both fields have sought to harness their unique tools and approaches to shed new light on enduring questions. Building on Gadamer’s focus on engaged, interpretive interaction with art, the contemporary interdisciplinary approach diverges from

Kant's notion of "disinterested" judgments, aiming instead to foster active dialogue between disciplines and to facilitate a visceral engagement between aesthetic objects and those who experience them.

The direction of influence is not one-sided; literary scholars have found value in neuroscientific insights, while neuroaestheticians such as Semir Zeki and neuroanthropologists including Merlin Donald have explored the processing and perception of art and symbolic language. Paul Armstrong reflects on the reciprocal nature of this exchange, arguing that literary criticism can benefit from the application of neuroscientific knowledge to elucidate reading, text interpretation, and intersubjectivity (7). Equally, literature can provide a mirror to challenge or support contemporary neuroscientific theories. Engaging in a mutual exploration through each field's unique "terministic screens" – a term defined by Kenneth Burke to refer to the selective lenses through which we perceive the world (87) – can yield a richer understanding of shared themes, despite differing discursive techniques, research methods, and definitions (Armstrong 7-8).

While Armstrong underscores the need to establish relationships between the separate terministic screens, Gillian Beer's *Darwin's Plots* provides an example of an integrative approach that accentuates their interconnectedness. Beer's work demonstrates the reciprocal influence between Darwin and English literature, emphasising the indispensable role of literary culture in comprehending Darwin's theories. Through detailed analyses of *The Origin of Species*, Beer delves into Darwin's use of literary devices such as analogy, metaphor, and narrative to frame his scientific theories (23-136). For instance, she notes that Darwin uses analogy to reveal "true affinities" (74) – relationships in nature subject to empirical verification. Through this method, he discerns underlying structures common to diverse natural forms, confirming these analogies as homologies. Beer's analysis thereby reinforces the idea that Darwin's scientific methodology and literary techniques are deeply interconnected, exemplifying the intricate relationship between

science and literature. In doing so, Beer exemplifies the way the prisms of literature and science can be intermingled, undermining the separateness of their respective terministic screens.

Such integrative investigation aims at a meta-epistemological framework characterised by co-development, co-emergence, and intra-action, which diverge from a dualistic approach.⁴ This framework, reflective of both the research methodology and the core messages of the novels, facilitates a nuanced understanding of the narratives. An intersectional focus is adopted, bridging the “two cultures” (Snow 2) of literature and neuroscience, to explore emergent patterns within these distinct yet interrelated disciplines. This approach accentuates the intrinsic value of both fields, fostering a comprehensive understanding of the novels’ themes. Ultimately, this symbiotic method broadens the scope of shared themes within the realms of literature and neuroscience, enriching our interpretation and comprehension.

This approach, echoing broader academic shifts, draws on Bruno Latour’s insights into literature and science studies. Latour has offered a paradigm shift from rigid dichotomies to embracing hybridities. He advocates expansive, speculative empiricism – which integrates imaginative and theoretical considerations with direct sensory experience (thus grounding imaginative thinking in real-world observations) – as an alternative to strict empiricism. For Latour, literature and science are not separate realms but deeply intertwined practices. His work challenges us to break down traditional intellectual boundaries and adopt a more holistic worldview (Meyer 8-11).

This method could be likened to assembling two puzzles, each with its own distinctive set of pieces, varying in size, colour, and shape. These puzzles are designed to depict different yet dynamic and constantly evolving images, bound by an intrinsic connection as they represent different facets of the same theme. Rather than independently completing each puzzle, the

⁴ I owe this formulation to Kristin Zeiler, a researcher who explores the epistemological challenges inherent in interdisciplinary research. She articulated similar ideas during her presentation regarding the relationship between humanities and medicine at the Medical Humanities Conference held in Linköping in 2022.

approach adopted here seeks a symbiotic ever-evolving and dynamic assembly process, whereby every piece added to one puzzle provides a clue for advancing the construction of the other. Similarly, phenomenological insights drawn from literature can refine neuroscientific hypotheses, while neuroscience can inform the conceptual frameworks through which we explore narrative.

Modern interpretations of close reading and reader-response theory, enriched by pertinent scientific discourse, function as the cornerstone analytical tools for this study. These tools facilitate a nuanced exploration of embodied interconnectedness. Originating from New Criticism – a mid-20th-century formalist movement that held significant sway over American literary criticism, the method of close reading entails a meticulous examination of literary passages to understand their meaning, structure, and literary elements (Childs). Reader-response theory, inspired by the philosophical tenets established by Gadamer in *Truth and Method*, which stress the importance of the reader’s experience and preconceptions, shifts the focus from viewing a text as an isolated object to understanding it as a dynamic interaction between the text and its reader (Thiselton 289). According to this theoretical framework, meaning is not solely encapsulated within the text; instead, it is co-constructed by the readers based on their individual experiences, background, and cultural context, which inform how they interpret and engage with it.⁵ This perspective challenges traditional forms of literary criticism, which often prioritise the author’s intent or the text’s formal elements, advocating instead that an understanding of readers’ responses is indispensable for a fuller comprehension of literature.

Methodology

⁵ This perspective is extensively articulated in Wolfgang Iser's *The Act of Reading*, where he argues that the text itself only offers “schematized aspects” – predefined, skeletal structures or frameworks within the text – (21) which readers fill in using their own imagination and experiences. Similarly, Stanley Fish, in *Is There a Text in This Class?*, emphasises that the meaning of a text is shaped by the interpretive strategies of its readers, which are themselves formed by the norms and conventions of particular interpretive communities. These works collectively advocate for a deeper understanding of how readers’ responses contribute to the construction of meaning in literature.

Using close reading and immersive engagement with the text can illuminate key insights from selected excerpts, thereby bolstering the final conclusions. Close reading's principles have been honed over the years by theorists such as Felski and Sontag. Felski's work enriches close reading by encouraging readers to engage with texts through immersive sensory experiences, thereby facilitating a deeper intersubjective connection that goes beyond formalist and textual analysis ("Enchantment" 51). This is paralleled by Sontag's advocacy in "Against Interpretation" for a phenomenological engagement, where she encourages readers and critics to deepen their sensory experiences ("learn to see more, to hear more, to feel more" 10). Sontag's emphasis on sensory engagement resonates with the New Materialists' focus on embodiment as essential for a deep understanding of both art and the external world (10-14). This embodied focus, centred on a more sensory interaction with the literary text, serves as a potent means of acquiring knowledge and understanding that transcends mere content analysis. Spolsky's "Towards a Theory of Embodiment for Literature" also elaborates on this focus on knowledge acquired from the sheer existence of our bodies and the embodiment of meaning (129).

While the immersive and embodied approaches to literature discussed by Felski, Sontag, and Spolsky offer a modern framework for understanding textual engagement, Vernon Lee's method of empathic close reading, originating in the early 20th century, converges on similar ideas. This resurgence of interest in Lee's approach highlights its enduring relevance and parallels the contemporary emphasis on integrating intellectual and bodily engagement in textual interpretation. According to Lee, empathic close reading does not only involve decoding the meaning of a text but also experiencing it in a holistic manner that engages both the intellect and the body. This approach acknowledges that our physical sensations and movements can significantly inform our understanding of art and literature, providing a more integrated approach to interpretation and critique (Morgan 31). In the close reading of the selected novels, the connection between embodied knowledge and the embodiment of meaning will be explored as

the narratives delve into various forms of embodiment, enabling readers to connect with the cognitive differences portrayed.

While every chapter foregrounds a different aspect of reading, they all share in common an immersive engagement with the literary text. This engagement is characterised by a meticulous focus on elements such as language, structure, imagery, symbolism, themes, and the interplay of ideas and characters, with a particular emphasis on the text's materiality and sensory aspects. This approach aligns closely with Marjorie Levinson's concept of "reading with or alongside the text" – a contemplative, deeply immersive, act of cognising with the literary work rather than a distanced approach for the sake of analysis (8). It will guide the exploration of the way embodiment, synaesthesia and other cognitive differences are portrayed in the selected novels, intertwining interpretation with literary analysis. Notably, J.H. Prynne, an English poet and academic, conducted an experiment in his self-published British monograph, *Field Notes: "The Solitary Reaper" and Others* (2007), employing both an academic writing mode and a "meditative" mode as he engaged with Wordsworth's poem (41-3). While Levinson finds this blending of modes significant for the field of literary criticism (8), the work's limited reach and obscure status could imply a resistance within the academic community to diverging from traditional literary critique, revealing a less receptive intellectual climate at the time to interdisciplinary or "meditative" approaches. This dynamic blending of writing modes once again exemplifies how different approaches to the same subject matter can yield complementary insights through distinct prisms.

The emphasis on embodied reading by Felski and Sontag establishes a vital framework for exploring the convergence of literary studies with cognitive science and neuroscience. This approach marks a transformative shift towards a more integrated approach to understanding the reader-text interaction, which incorporates modern perspectives from reader-response theory. These foundational theories serve as the bedrock for more recent scholarly explorations that seek to meld the neuroscientific and the literary in understanding reader engagement. Instead

of concentrating solely on readers' individual experiences, which are influenced by their backgrounds and cultural contexts, the latest wave of reader-response theory turns its attention to the shared neurological foundation as a unifying factor in shaping responses. Notable representatives of this perspective include reader-response critics, such as Anežka Kuzmičová and Naomi Rokatnitz. Kuzmičová investigates mental imagery through the lens of embodied cognition, while Rokatnitz elucidates the way literature impacts us via bodily-motor experience. Kuzmičová's formal methodology provides a robust theoretical basis for the exploration of mental imagery in literature. She offers a definition of readerly mental imagery and outlines its four primary types (275). Kuzmičová's work, grounded in empirical literary studies, is a seminal attempt to categorise readerly mental imagery in broad terms as a set of distinct embodied experiences (276). The factors affecting readerly mental imagery, according to Kuzmičová, are the text, the reader, and the situation (280). Rokatnitz also underscores the ubiquitous presence of mental imagery in the reading process (287). Broadening the scope, she explores the way literature's physical effects on the reader can facilitate an active readerly participation (287-8).

Contemporary scholars further probe the interaction between text and reader, incorporating tools from both literary theory and neuroscience. For example, Federico Langer proposes a neurocognitive and affective model of literary aesthetics, underlining the importance of mental imagery in augmenting emotional responses (170). Similarly, Elaine Scarry in her *Dreaming by the Book* explores techniques for evoking mental imagery, delineating methods authors employ to create an immersive imaginative experience, including motion, solidity, and repicturing (30, 75, 195). Her work agrees with the neuroscientific finding that visual imagery and perception utilise common neural pathways, thereby highlighting their similarity (Kosslyn et al. 226). She shows how effective writers craft texts that resonate with the brain's natural perceptual abilities, resulting in vivid, relatable narratives. Instead of prescribing what readers should understand, these skilled authors communicate in ways that align with what readers are innately capable of grasping (Scarry, "Theory of Embodiment for Literature" 132-3).

This study acknowledges the diversity of human experience while exploring the universality of cognitive processes that underpin our engagement with literature. Drawing on advancements in neurocognitive science, it examines the way the shared neural mechanisms of perception and imagination facilitate a deeply personal yet universally accessible interaction between the reader and the text. By integrating these insights, the methodology illuminates the complex interplay of individual perceptual experiences and the collective human capacity for empathy and understanding through literature.

Moving from the initial focus on neurocognitive science's impact on literary engagement, the analysis broadens with Gabrielle Starr's insights into the transformative power of embodied interconnectedness in shaping our perceptions of the world, thereby reinforcing the central premise of chapter two. She posits that the arts mediate our comprehension of the world by directing attention, moulding perceptions, and inducing harmony or dissonance (14). Starr's work supports a growing consensus that understanding literature requires a blend of cognitive and embodied approaches, as can be seen in the works of the already mentioned Kuzmičová and Rokotnitz. By fusing thought, sensation, and emotional experience, this integrated perspective offers a holistic way of knowing. In doing so, literature emerges as more than just a mental exercise; it becomes an existential encounter that profoundly alters not only our intellectual understandings but also our very way of experiencing and relating to the world.

Expanding upon the underlying concept of embodiment – especially as explored by Felski, Sontag, Kuzmičová, and Rokotnitz who have illuminated its critical role in shaping the way readers engage with and interpret texts – the exploration unfolds to incorporate perspectives from New Materialism. While sharing common ground with reader response theories in its focus on active, interpretive engagement with texts, New Materialism extends its focus to consider the role of embodied experiences and material conditions in shaping the interaction with the artistic object (Coole 104-5). As such, it acknowledges both the reader's role and the representation of

materiality and embodiment within the narrative, offering a multidimensional, nuanced understanding of the text. Adding another layer to this discussion, Armstrong explores the neurobiological mechanisms underlying the reading process, highlighting the roles of mirroring, empathy, emotions, and embodiment. According to Armstrong, the process of reading extends fundamental processes of mirroring and turn-taking, grounded in infant imitation (171). Reading becomes a social endeavour, with a “dialectical going-and-coming” between the reader and another entity (170-1). He emphasises the role of the mirror neurons – a type of brain cells that respond equally when we perform an action and when we witness someone else perform the same action – and the interaction between visceral corporeality and mental evaluation in the perception of art. These insights illuminate the embodied nature of reading (165). In applying these theoretical perspectives to the analysis of the selected novels, this study aims to illuminate the embodied nature of reading and the intricate ways in which literature can shape and reflect our understanding of the world.

In this study, the intersection of neuroscience and literature is explored, specifically through the neurobiological underpinnings of the reading process, such as mirroring, empathy, and embodiment, as investigated by Armstrong. This framework allows for a reinterpretation of literature that exhibits magical realist characteristics, notably in works such as *Saudade* and *Lemon Cake*. I posit that magical realism, rather than negating human sensory experiences, as suggested by Eva Aldea (19, 84) or necessitating belief in transcendent awareness, can be understood through the lens of the mirror-neuron system and embodied resonance. This perspective suggests that magical realist elements in literature do not alienate us from our reality but instead deepen engagement with the world by invoking a primal mode of perception and communication integral to our cognitive structure. Through this lens, magical realism emerges not as a flight into the supernatural but as a literary mechanism that amplifies and makes palpable the experiential and mental aspects of certain neurological conditions. The

aim is to refine the discourse on magical realism by situating it within a neurobiological context, setting the stage for a detailed examination of its implications in selected novels.

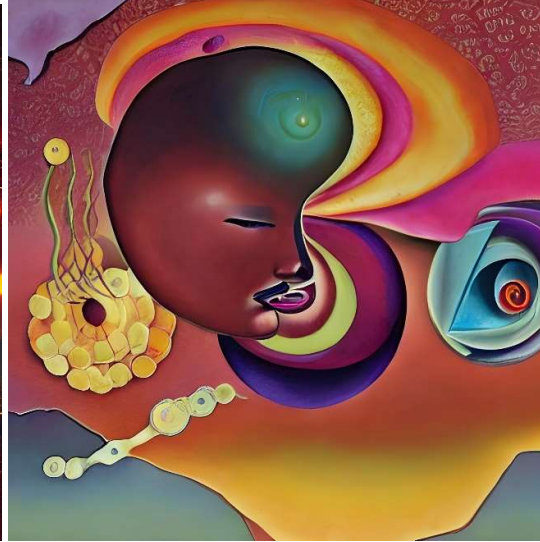
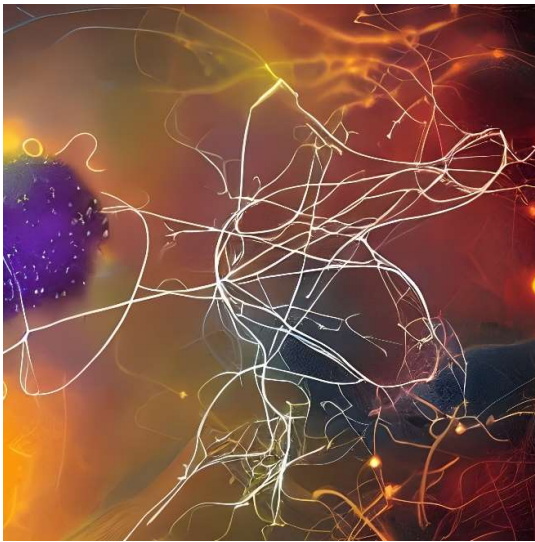
According to Wendy Faris, magical realism is integral to postmodern literature, concerned mainly with “questions of being” and hallmarked by elements like metafictionality and intertextual reference (163). As post-postmodern literature emerges, accentuating sincerity and authenticity, magical realism gains additional relevance. Its focus on the interplay of reality and the magical resonates with post-postmodernism’s attempt to balance scepticism with a renewed sense of meaning and depth, as exemplified in *Lemon Cake*. Magical realism thus emerges as a potent literary tool for exploring both tangible reality and subjective experience. By amplifying normative neurological perceptions through magical elements, magical realism allows readers to viscerally engage with complex neurological conditions, aligning well with post-postmodernism’s quest for authenticity and meaning.

Furthermore, with synaesthetic disposition understood to exist along a spectrum (Ward and Gözde 134), a continuity can be seen between this condition and conventional perception. This perspective implies that everyone possesses some degree of synaesthesia. Recognising this inherent potential, all four novels enable readers to physically grasp the various facets of synaesthesia and broader cognitive differences through embodied resonance.

Literature, unhindered by the restrictions inherent in the scientific method, utilises its expansive imaginative discourse to deepen the understanding and apprehension of neurodiversity. It enhances experiential comprehension, vividly transforms cognitive differences into emotional correlates, and adeptly demystifies neuroscientific concepts, thereby spotlighting its pivotal role in illuminating the variety of human cognitive experiences. The grounding of literary narratives in scientific concepts offers a tangible context, imbuing these works with a degree of concreteness.

In addition to serving as a methodology, reading is also explicitly engaged within the narratives of *Saudade* and *Memory Artists*. These novels undertake a metafictional exploration of the act of reading, which emerges as a central theme within their narrative structures. The immersive act of reading, pervasive in all the examined novels, and its metafictional exploration in *Saudade* and *Memory Artists* resonate with the tenets of embodiment, thereby foregrounding the intrinsic interconnectedness of cognitive processes with our interactions in the world.

This study reveals the way the dialogue between the scientific understanding and literary representations of synaesthesia enriches the comprehension of this multifaceted phenomenon. The interdisciplinary approach likewise proposes a novel framework for examining the intricate relationship between narrative forms and neural and cognitive processes and paves the way for further scholarly exploration into the representation and implications of synaesthetic experiences. Through the lens of embodied cognition, the upcoming chapters examine the intertwined themes of art, creativity, and neurological variations in relation to synaesthesia.



1.

Katherine Vaz's *Saudade*: Embodied Interconnectedness Culminating in

Synaesthesia as a Test Case for Neuro-Romanticism

[a]ll thoughts ... emanate from the body ... the description of thought ... – however abstruse it may be – can be beaten home by bringing it onto a physical level. Every idea, intuitive or intellectual, can be imaged or translated in terms of the body, its flesh, skin, blood, sinews, veins, glands, organs, cells or senses

–Dylan Thomas, *Collected Letters*

The sound of colors is so definite that it would be hard to find anyone who would express bright yellow with bass notes or dark lake with treble.

Color is the keyboard, the eyes are the hammers, and the soul is the piano with many strings. The artist is the hand that plays, touching one key or another purposely, to cause vibrations in the soul.

–Kandinsky, *Concerning the Spiritual in Art*

1. Introduction

Imagination – the cornerstone of Romantic literary thought (A. Day 4) – serves as a vital conduit for deepening the bond between self and the natural world (Miller 1-2; A. Day 3), enabling individuals to transcend their immediate realities and forge a profound, spiritual connection with their surroundings (A. Day 1). It amplifies emotional and sensory experiences (2), imbuing them with a sense of purpose and unity. Imagination can transform perception, making the familiar world an endless source of wonder and insight (2). Mark Bruhn suggests an enduring relevance of Romantic ideas in contemporary cognitive explorations of imagination,

highlighting a continuous, if complex, lineage of thought concerning imagination's role in understanding and engaging with the world (544).

Saudade by Katherine Vaz manifests the enduring resonance of Romanticism's imaginative spirit, intertwining its principles with modern neuroscientific insights. It showcases a neuro-Romantic approach – seamlessly blending imagination with the material dimensions of experience – thus reinforcing the Romantic quest for a profound connection between self and world.⁶ Romantic literature is fundamentally shaped by Romantic philosophical thought, particularly by Friedrich Schelling's emphasis on the intrinsic unity between nature and the human spirit, which profoundly influences its themes and narratives (Bowie on Schelling). The novel's neuro-Romantic essence innovatively merges literature and science, constructing palpable imaginative bridges between them and foregrounding material links between the body, the world, and others. *Saudade* bequeaths the Romantic model of self-world synthesis a scientific foundation through a narrative that blends sensory perceptions with scientific insights. This post-dualist approach manifests both in the narrative structure and its thematic elements, where specific techniques and thematic explorations transform abstract scientific concepts into palpable experiences for the reader. Thematically and figuratively, the novel reinforces the material bond between characters and their environment through poetic vignettes, which capture the scientifically established physicality of interconnectedness while preserving its imaginative nature.

Imagination forms the bedrock of *Saudade*, rooting itself in the disciplines of physics, biology, and, predominantly, neuroscience. These biological and neuroscientific mechanisms, rather than acting as constraints, are instead enhanced and transformed through the lens of imagination. In this context, biological mechanisms serve not as boundaries but as a springboard – a foundational platform from which imagination takes flight. This approach echoes the

⁶ Not to be confused with the neuronovel in which the protagonists are shaped and fundamentally defined by neurological disorders (Roth).

principles of physical psychology which advocate for treating the laws of physics as the starting point of intellectual exploration, not the ultimate goal (Michaels and Palatinus 23). *Saudade*, poetic to the extent that it can be considered a verse novel, does not explicitly name the synaesthetic experience or delve into the neuroscientific basis of the phenomenon. Yet, it seamlessly integrates a profound material awareness that implicitly incorporates scientific insights. In this light, *Saudade* emerges as an imaginative exploration of the human body and its limitless potential, realised through a dynamic interplay with the physical world.

The novel explores unorthodox, embodied modes of communication with others and the physical world, enhancing sensory perception and material interconnectedness, culminating in synaesthesia in the central protagonists. Additionally, it subtly crafts a narrative that resonates with synaesthetic qualities. This narrative, emerging from the story's deeply immersive descriptions and interactions, blurs the sensory boundaries for the reader, transporting her into the protagonists' experiences in a palpable manner. The novel engages with contemporary theories of perception and synaesthesia to deepen the exploration of these themes.

The chapter delves into the synergistic relationship between close reading and embodied resonance, with the latter being a focal point for the second-generation reader response school. Embodied resonance refers to the process by which literary descriptions evoke an instinctual, emotional, and physical response in readers. This concept leverages “affective consciousness,” a pre-reflective awareness originating from bodily experiences, as identified by neuropsychologists Maria Vandekerckhove and Jaak Panksepp. It underscores the capacity of text to connect deeply with the reader, grounding the reading experience in the realm of felt, bodily sensation (Rokotnitz 273). Embodied resonance shines a spotlight on the neuroscientific mechanisms that underpin readers' emotional engagement with a text (275). As readers engage with narrative fiction, they mirror aspects of the characters' feelings and sensory experiences, perceiving them as both authentic and self-verified (277). Close reading accentuates the embodied resonance created by *Saudade* on the reader, underlining the immersive and

consequently palpable aspects of reading. It thus encapsulates *Saudade*'s recurring theme of embodied interconnectedness with the world.

While notable New Critics, such as W.K. Wimsatt and Monroe Beardsley rejected Romantic reading practices that emphasised the author's intentions (Habib 29), some contemporary researchers claim that close reading – the cornerstone of New Criticism – is historically deeply entwined with the Romantic movement. Simon Frost, for example, contends that Samuel Taylor Coleridge, perhaps unknowingly, set a precedent for future literary criticism when, through his unique creative approach, he unveiled previously obscured truths within texts (8). Coleridge strived for close reading to serve as a tool to disclose the inherent value of a text for the first time, thereby establishing “a critical standard for much twentieth and twenty-first century literary criticism” (8). The effort of weaving together the Romantic approach of close reading with contemporary neuroscientific perspectives on reading mirrors the neuro-Romantic endeavour to integrate the subjective and objective, merging imagination with neuroscience.

Saudade, initially set in the Azores, an archipelago in the mid-Atlantic and an autonomous region of Portugal, follows the story of Clara. Despite her deafness and muteness, Clara develops unique and embodied methods of communication which ultimately lead to synaesthetic experiences. Mythical, inventive, and gripping, the novel could be regarded as a series of poetic images loosely connected by a plotline. *Saudade*, like other writing by Portuguese emigrants, evokes nostalgia and sorrow effected by the loss of one's native land and culture (Cid 252-3). It focuses on stories of dislocation and the embodied, interconnective, mechanisms devised to cope with it. These mechanisms eventually bridge the Portuguese and American cultures, literally embodying the “immigrant circumstance of hybridity” (252).

Clara's father, José Francisco, an avid seafarer, embarks on a final sea-voyage before intending to settle down in California with his wife, Conceição, who has inherited her uncle's land. However, he never returns from the voyage, and Clara's mother passes away from grief. Clara is then forced to leave her familiar surroundings and relocate to California. The local priest

who absolves her mother on her deathbed takes advantage of the situation and manipulatively seizes control over the land, offering to take care of Clara. Determined to reclaim her land, Clara's naïve plans only lead to heartbreak and further loss.

After literally being gripped by near fatal, melancholic bouts, or *saudades*, that threaten to consume and drown her, Clara ultimately finds love with the much older Helio. Like Clara, Helio has suffered much loss and likewise perceives the world through an unusually embodied and imaginative mode of consciousness. By way of their union, as they literally become each other's home (208, 213), they are physically transfigured through art and synaesthesia and choose a material reattachment to the world over despair. The other members of the Azorean diaspora in California likewise attempt to come to terms with physical loss of loved ones and/or native land by striving to reconnect with the new people and land around them. The characters set on a "voyage of discovery or recovery of themselves" (Cid 253), which reveals "new routes to old treasures" (253). Synaesthetic interconnectedness in the novel is closely linked to self-expression, imagination, and art, fostering a new sensory mindset that enriches creativity. The characters ultimately generate art based on embodied interconnectedness, forging and consolidating a tight knit community, unified by a fresh perspective on its cultural heritage. This art blends Lusophone and American traditions, transcending linguistic barriers and melding past with present through the immediacy of visual and musical expression.

2. All-Permeating Material Interconnectedness as an Instance of Neuro-Romanticism

This section highlights the all-pervasive nature of the novel's neuro-Romantic approach, merging the internal experiences of characters with the external material world. This palpable continuum between inside and outside reveals an innovative exploration of the characters' preconceptual and visceral connections to the world and others.

Although *saudades* form the core of the novel's narrative, they are counterpoised by a prevailing sense of interconnectedness, emphasised in this section as a pivotal theme in *Saudade*. Characters ingeniously employ physicality and materiality to link the inner world of imagination with the outer reality, providing a means to mitigate their various *saudades*. Concepts, words, and symbols produced internally are often materialised, and become unified, or blended, with physical exteriority, thereby creating a continuity between them. Some of these occurrences possess an apparently magical quality, and thus resonate with Vaz's idea of inviting miracles into everyday life ("King Sebastião" 51). As she herself attests, "the cultivation of the miraculous is open to us all," provided that "we believe that our memories and imaginations provide unlimited visions" (54). Yet, the material and physical elements counterbalance the imaginative ones to create a balanced relationship between subject and object.

One notable illustration of tangible interconnectedness is when, early in the novel, José Francisco, stranded at sea as his ship disappears into fog, tries to ground himself in the physical world (*Saudade* 11). First, feeling adrift, José Francisco voices his name, seeking to anchor himself in the cosmos (12). When this proves futile as he becomes plagued by ominous visions of danger, he attempts to overwrite his fears with "living red memories" – "Redness of his birth. Red bloom of childhood" (11). These vivid recollections, represented by the visceral colour red as they "flare out of his head" (11), serve as a beacon for his ship. They are projected outward, creating a material tether between him and the world. His endeavour proves successful as his thoughts intertwine with the outside world, "the white stars absorbing his red thoughts, transforming into the color of the Azorean night" (12). Simultaneously, his makeshift cloth harmonica synchronises him with the rhythm of the waves, further establishing a resonant connection with his surroundings (12).

While this example might initially seem more aligned with traditional Romanticism due to its emphasis on symbolism and a magical quality, it embodies neuro-Romanticism by illustrating the way these deeply personal, internal experiences are inextricably linked with the

materiality of José Francisco 's outside environment. Moreover, this excerpt underscores the immediate embrace of the external world over *post-factum* contemplation and imaginative transformation of sense impressions. Whereas Romantic literature focuses on the body and sensual experiences, Romantic poets often prioritise sense impressions enhanced by individual imagination rather than embodied interconnectedness with the world.⁷ For example, Wordsworth, who deeply cherishes the importance of connecting with nature (Gill xxvii), reminisces about daffodils flashing upon his inner eye, dancing with them in blissful solitude, rather than focusing on the actual moment of their perception (lines 21-2). Similarly, Shelley connects the power of nature in "Mont Blanc" to the human mind's imaginings, questioning the significance of "earth, ... stars, and sea" without the mind's perceptions (lines 142-4). Some Romantic poets, such as Coleridge, recognised the danger of subjective idealism in poetry and the potential solipsistic detachment of the subjective spirit from the world: "there is an under consciousness of a sinful nature, a fleeting away of external things, the mind or subject greater than the object, the reflective character predominant" ("Literary Remains").

Contrary to the Romantics, *Saudade* does not privilege subjective imagination alone. Instead, it seeks balance between subject and object, bridging the gap through materiality and embodiment. In the example above, José Francisco's internal conceptual world interlocks with the external physical one, bridging the chasm between subjectivity and objective reality through a material-imaginative conduit. The portrayal of his interaction with the physical environment exemplifies the way the novel embeds its narrative in material realities.

⁷ Alan Richardson asserts that many British Romantics were in fact preoccupied with the body, and, specifically, with "the corporeality of thought" (*Science of Mind* 40, 68). Some, notably Coleridge, were involved in the intellectual scientific atmosphere of the period which explored the notion that the mind is a function of the body (56, 68). Thus, Richardson concludes, "with however much ambivalence, Romantic-era writers did engage much more extensively and, in many cases, more directly than has generally been recognized with contemporary brain science" (36). However, this engagement did not culminate in an understanding of the relationship between subject and object, nor with the means to bridge the gap between them.

As the novel unfolds, subsequent instances of correspondence and resonance between the internal and external realms build upon physical and physiological principles. These foundational principles underpin both our perceptual mechanisms and the workings of the external world, creating a continuum between the mind and its perceived objects.

A noteworthy instance of *Saudade*'s palpable interconnectedness founded on physical and biological principles manifests through the communicative aspects of spoken words, bridging physical and perceptual processes with an imaginative worldview, prominently in the depiction of sound propagation and perception. Words emerge as physical emanations, forming continuous links between the speaker, the environment, and others. A significant element of this portrayal is Clara's deafness. Her parents, José Francisco and Conceição, strive to overcome this barrier by capitalising on the physical properties of sound. They whisper words over her crib – *mão, são, pão; sim, mim, latim* – selected for their ability to resonate with ambient sounds, creating a “chiming cloud,” or the “white sound” as it is known in Portugal (14). They aspire to physically steer this “white sound” towards Clara, hoping the “soft rain” of words will tap on the “stiffened drums inside her” (14). Echoing this strategy, Eugénio, Clara's friend, speaks quivering words – *hortelã, lã, lençol, coração, derramar* – that can meld with the air and contribute to the “white sound” (23). These passages underscore the physical continuity between the producers of sound and the space into which this bodily-produced sound is projected. Contrarily, Clara actively resists these attempts, stubbornly clamping her hands over her ears, refusing to heed anyone's words (14-15). This tension between effort and resistance further magnifies the exploration of interconnectedness, physically manifesting in *Saudade*'s world.

Rooted in the seminal theories of of Seymour Sarason, David McMillan and David Chavis, and the foundational principles outlined by Robert Putnam, Abraham Maslow, Roy Baumeister and Mark Leary, as well as Henri Tajfel and John Turner, the traditional conceptualisation of community belonging emphasises the psychological and social constructs

of connection, identity, and mutual support. In *Saudade*, however, the essence of community belonging is fundamentally rooted in the inherent laws of physics and physiology. The semantic aspect of words takes a backseat to their primary, embodied sensory attributes marked by rhyme and rhythm. *Saudade*, broadly speaking, prioritises a sensory, preconceptual grasp of the world and the translation of abstract concepts into palpable sensations, a theme that will be further elucidated later in the chapter. The emphasis on the material elements of vocalisation and hearing forges a tangible bond and continuity between the creators of sound, its recipients, and the conduit facilitating this communication.

This sound-centred instance reinforces the connection between the inner and outer realms, underscoring the integral links between the characters in *Saudade* and their external world. While the Romantic essence of the excerpt above is distilled through its poetic depiction of sound, which crafts deep, emotional connections that echo the Romantic quest for transcendental unity with the world, its neuroscientific dimension is unveiled in the meticulous portrayal of sound's physicality and its impact on human neurology, revealing a nuanced comprehension of sensory processing and neurophysiological engagement. By foregrounding material interconnectedness between individuals, the passage amplifies the novel's exploration of the way neuroscience and Romanticism converge. This convergence transforms abstract scientific insights into a palpable, immersive narrative experience that deeply resonates with the reader on both emotional and sensory levels.

3. Neuro-Romantic Interconnectedness Conveyed through Figurative Language

Building on the exploration of *Saudade*'s all-pervading material interconnectedness, we transition to examining the way the novel employs figurative language to further cement the bond between characters and their world. This additional layer of neuro-Romantic expression accentuates the novel's multifaceted approach to depicting interconnectedness. Just as the narrative grounds the

characters' experiences in the material world through neuroscientific principles, it also constructs a complex network of metaphorical language that deepens our understanding of these connections. The novel thus sheds light on the characters' embodied relationships with others and the external world, while also infusing the figurative form with the material and embodied content it expresses.

Saudade implements various literary tropes to link the characters and to bring them together with their material surroundings. These figurative means include abundance of vocabulary that conveys tangibility, metonymies, anthropomorphisms, and elaborate metaphors that create profound correspondences between characters, and between characters and their exterior. As discussed by Lakoff and Johnson, our conceptual system, in terms of which we think and act, is metaphorical in nature, while our usage of language is metaphorical at its very core and grounded in everyday experience (*Metaphors* 3). We live our lives, they assert, “on the basis of inferences we derive via metaphor” (273), as metaphoric language is secondary to the conceptual, unconscious nature of metaphoric thinking (272). Consequently, sensory phenomena merge into linguistic ones, facilitating intra-action and bearing witness to the ongoing interplay between sensory and linguistic processes. For example, the widespread use of verticality metaphors in discussing personal well-being, such as “[t]hings are looking up” or “[h]e does high-quality work,” demonstrates that our conceptualisation of goodness is fundamentally structured by the metaphor “good is up; bad is down.” This occurs as our minds inherently map the complex domain of well-being onto the familiar and tangible domain of physical height, guiding both our understanding of moral concepts and the language we use to describe them in a way that mirrors vertical elevation (17).

Similarly, Alan Richardson suggests in his *The Neural Sublime* that figurative language is “pervasive rather than exceptional, ... normative rather than aberrant ... constitutive rather than ornamental” (77). Richardson, who combines the research of Romanticism with contemporary cognitive and neuroscientific approaches, relies on cognitive psychologists Ellen Winner, Richard

Gerrig, and Raymond Gibbs, to argue that there is a “fundamental continuity between literary and everyday language” comprising “a cognitive rhetoric or a poetics of mind” (60-1).

Striving to touch upon the imaginative aspects of the material everyday, Vaz infuses every seemingly mundane observation and occurrence in the novel with poetic language. However, the author does not merely implement figurative language as a form of embellishment. Rather, Vaz touches upon the very basic, conceptual nature of metaphor, as she fuses the perceived with the expressed. In this way, the author deepens the connection between the sensory and the linguistic, and forges an inseparable bond between the characters, and between the characters and their physical environment.

The tangibility of the world in *Saudade* is exemplified through an abundance of grasping and touching verbs. A pivotal instance arises when Clara acknowledges the impending death of her infant. The tactile vocabulary employed in this passage accentuates the inherent material connection between Clara and her child, equating the intensity of their relationship with the level of its physicality. Additionally, the use of tactile vocabulary establishes a dynamic interplay between emotional and physical pain. The emotional anguish manifests as tangible physical effects, notably transferred from mother to offspring in utero, thereby blurring the distinction between these two forms of pain.⁸

Clara’s affection for her child is encapsulated in the act of holding him, imploring him to cling to life: “Clara had never considered what it might be to love her child, and holding him without letting go”; “[p]ity me in need of blooms! Hold on. Survive” (*Saudade* 85-6). Furthermore, Clara attributes her child’s medical condition, a gaping hole in his chest revealing his heart, to the physical manifestation of her *saudades*, turning her pain into a tactile reality:

⁸ As Clara, indeed, regretfully admits herself: “I didn’t anticipate far enough ... I forgot during my schemes that you would be born a separate self, breathing and yearning” (85).

“[h]is wound must have been caused by how fiercely her own longings for her family had pounded in her chest, wanting to burst out where her anguish could be touched” (89).

In a poignant moment of shared pain and connection, Clara’s baby, moments before his death, literally gives her his heart (106). This heart, still physically connected to the infant by “a few red reins” (106), is transfigured into a bird that flies to Clara to be held. The event prompts a profound physiological reaction in Clara, leading to *haemolacria*, or crying tears of blood, as she “wailed out the blood he had birthed into her eyes” (106). This momentary reconnection of their once shared blood circulation, although fleeting, echoes their shared biological bond during pregnancy.

These instances do not necessitate belief in some form of “magical transparency available only to the fictional characters,” but, instead, encourage the reader to “identify through them a primal mode of perception and communication” that underpins their own cognitive structure (Rokotnitz 279), thus eliciting embodied resonance with the narrative. Through engaging with *Saudade*, readers can experience the profound palpability of the world and other characters, thereby understanding the power of the material connection between mother and child, and the implications of its dissolution.

In addition to expressing the material interconnectedness between characters, *Saudade* figuratively accentuates the inherent link between the characters and their natural surroundings. The inhabitants of the Azores later experience the severance of this link due to immigration as particularly painful. The connection between the characters and their physical environment is emphasised through figurative correspondences. For instance, the “waving white handkerchiefs” of José Francisco’s friends take on a semblance of “violent slices of cloud, like a release of manic doves” (8). Similarly, Conceição is metaphorically associated with a plant – “strong as a cabbage rose – small but hard-muscled,” while her lovemaking with José Francisco is intertwined with sea imagery: “[s]uspended and clinging to him, she felt as she did when they had first met on a boat – tough as a barnacle fastened to an anchor; feet of the land” (7). In the same vein, Clara is

described as being “like steam from a teakettle ... light but sharp, directed, and uncatchable” (15), further illustrating the novel's use of nature-inspired metaphors to convey the characters' essences and their deep, almost elemental connection to their environment. These metaphors not only enhance the characters' individual identities but also subtly weave them into the fabric of their natural world, emphasising the way their destinies and emotions are inextricably linked to the land and sea that define their existence.

While the aforementioned examples liken humans and their metonymic attributes (such as the handkerchief) to their surroundings, the novel is also replete with depictions of anthropomorphised and animated matter. This imagery creates a bidirectional continuity between humans and the world around them; humans are likened to their environment, while the material world acquires animate characteristics. Thus, the “huge sticky fig leaves in the trees [are] like hands ... in the twilight,” while “the moon [paints] white caps on the trees” (6, 7). Likewise, “[p]atches of algae glittered like eyes in the distant water” (18).

Concurrently, *Saudade* imbues matter throughout the novel with a sense of vitality. Marbles in a bottle, for example, are likened to drowned sailors – a recurrent occurrence deeply ingrained in the Azorean collective psyche and a specific allusion to Clara's father's fate: “[Clara] jammed the marbles plugging the lips of their bottles downward, and they drank with them rattling, trapped inside the glass like drowning sailors” (25). In a similar vein, dust is personified as a vengeful army that “alternately cut [Conceição] and punched up and down the length of her body” following her surrender to *saudades* (44). Finally, the pipe under the sink, dripping in rhythm with Clara's frenzied exertions, echoes her mood (108).⁹

The immanent and pervasive transitions between the sensory-material and its metaphorical expression in the novel is seamless, blurring the distinctions between them. The

⁹ Another bidirectional metaphor from the sphere of architecture which highlights the correspondences between humans and things, and the closeness Clara and Helio attain in their relationship can be found in Appendix I.1.

correspondence between nature, or “life,” and poetic form echo Coleridge’s Romantic notion of the organic form of the poem: “such as the life is, such is the form” (“Shakespeare’s Judgement” qtd. in Adams 496). For Coleridge, “the organic form is innate” as it “develops ... from within” (496). However, in a characteristically Romantic fashion, Coleridge presents nature and poetic form as parallel to each other, rather than merged. In *Saudade*, on the contrary, the figurative correspondences illuminate the inseparable connection of the inhabitants of Terceira with its flora and fauna, and with the ocean surrounding them, created by a unique constellation of man and geographical region. The poetic nature of *Saudade* likewise brings to mind “the heresy of paraphrase,” expressed by the New Critic Cleanth Brooks. The latter postulates that the meaning of a poem is contained within its “total pattern,” or structure (158-9), since “the poem ... [is] an experience rather than any mere statement about experience or any mere abstraction from experience” (173).^{10,11} Nonetheless, Vaz departs from the Romantic perception that focuses on the subjective, as the figurative form is infused with the material and embodied content it expresses. Rather than articulating the figments of the author’s unbridled imagination, figurative language in the novel reifies materiality and instils it with a heftier presence. To revise Oscar Wilde’s famous assertion in “The Decay of Lying” (qtd. in Adams 719), *Saudade* as an artistic creation reifies life rather than imitates it.

4. Reading the Sensory in *Saudade*

4.1 Vision and Hearing: The Sensory Foundations of Neuro-Romantic Interconnectedness

¹⁰ While New Critics such as Brooks were largely responding to what W.K. Wimsatt Jr. and M.C. Beardsley term the “affective fallacy” – a purportedly romantic focus among some readers and critics on the emotional effects of a work rather than its intrinsic qualities (31) – it is worth noting that this critique was aimed at a specific contemporary practice rather than the Romantic tradition itself, which had its own nuanced approaches to the relationship between emotion and artistic form.

¹¹ The implications of the non-paraphrasable nature of literature at large will be the focus of the second chapter, which examines what implications non-paraphrasability has for knowledge that can be derived from literature.

The discussion has so far established two pivotal aspects of neuro-Romantic interconnectedness. First, it has shown how the novel is infused with an omnipresent sense of material interconnectedness between the characters, and the characters and their surroundings. Second, it has highlighted a variety of literary techniques that establish connections between characters and their environments, underscoring the metaphorical nature of our perception, as discussed by Lakoff and Johnson. The subsequent section explores the novel's portrayal of neuro-Romantic interconnectedness through sensory experiences, with a focus on active vision. The analysis highlights the way the novel utilises eye-centric narrative anchors, to express a palpable, material interconnectedness between characters and their environment. These anchors amplify themes of loss and presence, offering readers an embodied experience of the characters' unique perceptions and their deep material-imaginative links with the world. Appendix II furthers this exploration by emphasising the role of extended hearing.

Each modality ostensibly offers unique contributions to the synthesis of the material and the imaginative realms. The traditional view postulates that while vision facilitates the understanding of spatial relationships, hearing accentuates the temporal progression of sound. Roger N. Shepard's investigations into mental rotation, alongside David Marr's computational framework for visual processing, underscore the visual system's adeptness at interpreting spatial relationships and constructing detailed three-dimensional models from visual inputs (for an in-depth exploration, see Marr's *Vision: A Computational Investigation*). In a parallel fashion, Albert Bregman's auditory scene analysis elucidates the way hearing segregates and organises sounds over time, revealing the auditory system's sophistication in navigating temporal complexities within our environments (for comprehensive insights, consult Bregman's *Auditory Scene Analysis*). Together, the work of these scholars highlights the brain's distinct yet complementary capacities for processing the spatial intricacies of sight and the temporal dynamics of sound, each contributing to our holistic perception of the world. Incorporating these insights, vision in *Saudade* facilitates detailed analysis of the environment,

while hearing bridges emotional distances through the resonant and kinetic properties of sound.

However, the independent analysis of seeing (in the following section) and hearing (in Appendix II) is for the purposes of the unfolding argument, and by no means adheres to the classical, modular model of sensory processing.¹² It is intended to illustrate, rather, that, even individually, each sensory modality has a profound capacity to palpably connect the individual with the world. In fact, in *Saudade*, the depiction of these senses many times transcends the conventional boundaries. This facilitates a blending or crosswiring of sensory experiences, allowing for expression that bridges spatial and temporal dimensions. This expansive potential of each sense enhances the synaesthetic experiences in the novel, explored in later sections of this chapter.

4.1 Merging Subject and Object through Active Vision

Drawing on Alva Noë's concept of enactive perception, which posits that perception is an active engagement with the environment rather than mere passive reception, rendering all perception "touch-like" (1-2), the subsequent analysis explores the way *Saudade* extends visual perception to an embodied interaction, linking the characters with their surroundings. Vision thus encompasses a dynamic interplay between observer and observed. It evolves into a multifaceted exploration where sight acts not merely as a sensory channel but as a dynamic conduit for understanding and profound immersion in the world. This portrayal resonates with extended mind (Clark and Chalmers 7) and embodied cognition theories, which argue that cognitive processes transcend the brain to include environmental interactions and are inherently embodied.

¹² The traditional view harks back to the Aristotelean codification of five distinct senses in *De Anima* (109), and, more recently, to the "Law of Specific Nerve Energies" formulated by Johannes Müller.

This section highlights a nuanced form of embodied resonance, focusing specifically on the way visual perception and the imagery of eyes serve as a conduit for deeper, material-imaginative interconnectedness. Barbara Dancygier's theory of narrative anchors as tools for enhancing story coherence and reader engagement (“Narrative Anchors” 142; “Multimodality and Theatre” 32) is mirrored in *Saudade*, where ingeniously crafted eye-centric narrative anchors enrich the narrative by incorporating explicit references to eyes, exploring their diverse physiological aspects and active perceptual potential. Eye-centric narrative anchors interconnect the characters and enable readers to grasp the inherent connection between an individual and the world outside through the medium of vision. While the novel's overall sensory landscape invites reader engagement, the specific focus on eye-centric narrative anchors offers a closer examination into how visual perception amplifies embodied resonance.

The anchors range from José Francisco's hydrangea-eyes and Melissa Fabulina's salamander-eye to Conceição's “river-vision” and Helio's “whale eyes.” To briefly illustrate, “river-vision” encapsulates Conceição's extraordinary perceptual faculty, enabling her to extend her sight beyond conventional boundaries to mentally and physically integrate into her surroundings, and harmonise with their essence.^{13,14}

These narrative anchors engage readers by evoking extraordinarily vivid and robust visual experiences. The anchors resonate through imagination, thereby amplifying their

¹³ A detailed analysis of “river vision” and “whale eyes” is included in Appendix I.2.

¹⁴ The mobilisation of the eyes could be regarded through the prism of “transit,” as devised by Maruška Svašek. Transit in the New Material milieu refers to the movement of people, objects and images “across space and time, which allows individuals and groups to overcome space–time distances through material extensions of themselves” (2). For instance, the journey of a crucifix from a pilgrimage souvenir shop to a personal religious artifact embodies the multifaceted nature of transit, where an object traverses not just physical spaces but also cultural and emotional landscapes. Through this transition, what begins as a mere commodity gains profound personal and spiritual significance, illustrating the intricate interplay between mobility, emotion, and transformation. This example vividly captures how objects, in their movement, become imbued with new meanings and roles, deeply entwining themselves in the fabric of human experience (2). While Svašek largely touches upon the social context of extension, the “river-vision” anchor comprises a literal, physico-biological, extension to overcome spatial barriers. Concurrently, Helio's “whale eyes” signify his unique capacity to perceive and beckon whales, demonstrating his expanded, para-standard vision and his deep, physical bond with his environment, crucial in his mutual healing and reconnection with Clara.

palpable quality. Research in visual imagery supports this, showing that mental images preserve the spatial and metrical properties of perceptual experiences and engage the same brain regions as direct perception. (Carroll et al. 45).¹⁵

Furthermore, the eye-centric narrative anchors function as what Rokotnitz terms embodied anchors. These are narrative anchors that “induce readers’ resonance with significant aspects of the character’s experiences.” They do so through the mobilisation of the readers’ “affective consciousness,” brought about by the text’s rich imagery (287-8).¹⁶ Since Vaz concretises biological processes, bestowing them with tangibility, the reader can tune into the unusual mode of the characters’ engagement with the world. This, in turn, affects the readers on a sensory and emotional level, propelling them to engage with the text and evoking a deep empathy for the characters’ experiences. The anchors consolidate through vision the interconnectedness between perceiver and perceived, as well as between text and reader, enabling the material-imaginative bridges to comprise an antidote to the feelings of absence and inexistence inflicted by *saudades*.

Importantly, just as each anchor embodies the enhanced potential of vision, it also conveys the heightened sense of loss and its impact when material interconnectedness is severed. Each anchor thus depicts an interplay between intensified absence and presence, underscoring *Saudade’s leitmotif*. Moreover, negative-vision anchors, such as the “black holes” (67), are used to contrast the extended potential of vision with its apparent limitations, portraying the absence of visual connection to the world. The conflicting anchor sets create a further tension between the two opposing strands in the novel. The life affirming anchors, however, predominate and outweigh the life negating ones. The diversely shaped anchors gradually accrue meaning as

¹⁵ For instance, the ability to mentally scan a visualised map or rotate an object in one’s mind reflects the spatial properties of visual images (45).

¹⁶ Rokotnitz defines affective consciousness as “a range of multimodal sensory responses that may arise while reading.” These responses, she elucidates, “may include and often combine our five senses (sight, hearing, smell, taste, and touch), interoceptive sensations (such as pain or hunger), proprioceptive sensations (balance, limb and organ position), and/or motor/kinesthetic functions” (274).

Saudade unfolds. Each variegated iteration of an image cluster palpably enhances and deepens the notion of imaginatively extended visual interconnectedness and its opposite. The subsequent analysis will explore two prominent eye-centric anchors, aiming to uncover the way each is intricately linked with various biological principles and neuroscientific theories, underscoring the novel's exploration of neuro-Romantic interconnectedness.

A particularly potent image in the novel is a fusion of a sensory organ and the external object it perceives: José Francisco's eyes and the vibrant hydrangeas, which are a material manifestation deeply associated with the Azores. This eye-centric anchor embodies the reciprocal dynamics of the carbon cycle, highlighting the interdependence of photosynthesis in plants and respiration in humans. The hydrangeas transform the walls into a "dazzling purple net," forming a "compound eye" that visualises the interconnectedness between observer and observed as an "arterial jumble" (29).

The lantern, by casting light – the substance processed by the eye – ties the observer with the observed. As José Francisco cradles a lantern close to his face within the obscurity of a room, his eyes are, in essence, "dreamed inside out" – the emitted light projects a depiction of the interior structure of his eyes, specifically, the intricate contents of his vitreous humour, onto the encompassing walls. This illumination results in a "violet tangle within the jelly," a condensed reflection of the external hydrangea-adorned walls, manifesting internally within his own ocular anatomy (29). This visualisation is supported by ophthalmological experiments, as noted by the Truhlsen-Marmor Museum of the Eye, where a "flashlight in a dark room" can reveal the retinal blood supply, thus anchoring the metaphor in biological reality.¹⁷

¹⁷ The analogy deepens, mirroring the rete of José Francisco's ocular blood vessels with the intertwined arrangement of differently sexed flowers. Both generate "landscapes of purple arteries that blossomed far back and split into many branches" (29). Veins traverse the nexus of other veins, akin to bulwarks diving into mauve orchid-hued forks, resulting in such an entanglement that it becomes challenging for José Francisco to discern the intersecting male structures from the expansively splayed female ones (29).

The relationship between humans and their environment is further facilitated through a visuo-material analogy that bridges the material and imaginative worlds. Both the intricate structure of the eye's blood vessels and the proliferating hydrangeas consist of multiplying purple branches, enhancing the similarity. The analogy is further enriched by recurrent references to mating in the passage.¹⁸ The union of the mating flowers, seen as eyes dreamt inside-out, invokes the interplay between the perceiver and the perceived, highlighting the fusion of subject and object.

Photosynthesis converts sunlight into nutrients and oxygen, while respiration uses oxygen and releases carbon dioxide, illustrating a natural exchange (*Encyclopædia Britannica* ("Photosynthesis"); *Taber's Cyclopedic Medical Dictionary*). This elemental exchange between José Francisco and the hydrangeas highlights a dynamic material flow, emphasising their physical connection. A parallel emerges in their mutual dependence on sunlight, both for the hydrangeas' growth and the eyes' perception. The concept of inside-out dreamt eyes embodies this deep-rooted symbiosis, with 'eye-flowers' engaging in a cycle of absorbing carbon dioxide and emitting oxygen, paralleling the photosynthesis of hydrangeas and human respiration. This creates a closed loop, reinforcing the intimate link between observer and observed, as the landscape and gaze mutually reflect, underpinning their intertwined existence.

José Francisco's interaction with the hydrangeas demonstrates both Noë's enactive perception and Clark and Chalmers' extended cognition theory, highlighting perception as an active, interpretive process that blends the observer with the observed. This engagement transforms external reality into a deeply personal experience and illustrates how cognitive processes extend beyond the mind to dynamically interact with the environment, redefining the essence of cognition through the material and imaginative coalescence of self and surroundings.

¹⁸ The hydrangeas – José Francisco's eyes turned inside-out – are depicted as being "spilled into the earth in configurations of mating," while "[w]alls, branches, the gelatinous parts of eyes – all contained sketches of union" (29).

As the blossoms become a physical surrogate for his eyes, José Francisco's assurance to Clara that the hydrangeas would "watch over her when [he's] gone" takes on a literal dimension (29). Through their profound interconnectedness, the hydrangeas retain a physical trace of José Francisco within the landscape, incorporating his presence even after he fails to return to Terceira. However, the same interconnectedness that serves as a testament to his existence also underscores his absence, as the hydrangeas become a stark reminder of his departure.¹⁹

The hydrangeas-eye anchor thus encapsulates *Saudade's* central theme - the palpable embodiment of simultaneous presence and absence. This vivid interplay between José Francisco and the hydrangeas, rooted in both the material and the imaginative, epitomises the essence of neuro-Romanticism in *Saudade*. By seamlessly bridging the material and the imaginative, this neuro-Romantic framework illuminates the intrinsic connection between humans and the natural environment.

Another compelling eye-centric anchor in the novel illuminates the critical neuroscientific principle of neuroplasticity, supplementing the enhanced potential of outward sight with the expanded possibilities of inward vision. While José Francisco's example showcases neuro-Romanticism through his direct sensory communion with the environment, Melissa Fabulina's story shifts the focus to an internal realm, where blindness intensifies inner vision and creative insight. Her journey intertwines the material changes in the brain following blindness with creative imagination, thereby presenting a distinct instance of neuro-Romantic interconnectedness. This is vividly captured in a passage that graphically, if poetically, renders the transformative impact of blindness on poetic expression. "One day while retrieving a poem fallen by a cactus," the left eye of Helio's grandmother, the poet Melissa Fabulina, was pierced by a spine and "turned her into an axolotl" (140). "The stab's reverse passage let her peer more

¹⁹ The motif of ocular imprinting is further elaborated in the context of José Francisco's departure as he tries to "burn [Conceição] into his sights" during their final love making, so "he could put her luminous face to watch him as a star" (38).

profoundly into her brain” (140), as “pieces of heart fanned out of her head like an axolotl’s external red gills, where they quivered as wings that carried her, thriving in the fires one could observe through the porthole of her salamander-eye, into poems about the unexpected in our midst” (140).

Ever since the foundational myth of the blind oracle Tiresias, who was blinded by Hera but given the gift of foresight by Zeus in recompense (Ovid III.316-338), blind poets, such as Homer (Nagy 136) and Milton (Forsyth 94), have often been regarded as possessing a special wisdom. This wisdom, bordering on clairvoyance, has been perceived as an ability to apprehend the essence of the human condition due to their removal from visual engagement with the external world. Looking ahead several millennia, a prevalent theory in sensory and cognitive neuroscience postulates a general enhancement of non-visual sensory and cognitive abilities in blind individuals due to compensatory processes that recruit regions traditionally allocated for vision to perform other tasks (Sadato et al. 526; Burton 4005). This idea reinterprets the enhanced abilities of the blind, not as paranormal, as suggested in the myth, but as a mere extension of normative human capacities, achieving extraordinary insights as a consequence of blindness. For Melissa Fabulina, the physical act of blinding results in an intensification of introspection and brain processes unrelated to outward vision. Neuroplasticity, the brain's ability to reorganise itself by forming new neural connections, facilitates this shift towards a heightened internal awareness and non-visual sensory acuity.

Moreover, the open aperture left by the stab provides an external window into the process of the creation of Melissa Fabulina’s poems, as she develops the capacity to grasp the fundamental aspects of human existence. This “salamander-eye” motif marks a transition from Merleau-Ponty's notion of the eye as the locus of perception and its deep connection with the environment, as explored in *The Visible and The Invisible* (134), towards a reflexive,

introspective gaze that is common among poets who often reflect on their craft.²⁰ This metapoetic, eye-centric, anchor thus vividly expresses the novel's preoccupation with art, the artistic process, and their interrelation with the body, extensively explored by Paul Crowther (149), which will likewise be salient in *The Memory Artists* and *The Beautiful Miscellaneous*, discussed in chapter three. Unlike the Romantic concept of a transcendent imagination, the "salamander-eye" construct posits a corporeal imagination, which is further developed in the section on Synaesthesia, Art, and Creativity in this chapter.

Just as vision is not confined to exteriority, it, as mentioned previously, many times transcends the spatial domain to embrace the temporal, allowing characters like Conceição and Helio to navigate through time, connecting past, present, and future. Conceição's "river-vision" melds individual experiences across time, while Helio's "whale-eyes" anticipate the future, illustrating a seamless integration of sight with the flow of time. This vivid interplay pushes the boundary of the spatial medium with which it is primarily associated, thus likewise preempting the inherent synaesthetic mode of expression in the novel.

The extended potential of vision in *Saudade* is contrasted with its apparent limitations using negative-vision anchors. The interplay between the two sets of anchors – the eye-centric and the negative-vision – creates a further tension between material interconnectedness and loss. Clara's encounter with Caliopa introduces "black holes" in the fabric of the world as metaphors for depression.²¹ According to Caliopa, "[a]ll living creatures, including ours, dig tunnels out of the landscape" (67). She then invites Clara to "[d]raw two marks on a paper, almost the full width apart," to cover her "left eye and stare with [her] right at the blot on the left-hand side" (67).

²⁰ A revealing metaphor for critical consciousness, in the context of understanding and interpreting artistic processes, can be found in Goethe's *Wilhelm Meister's Apprenticeship*. Here, the protagonist, Wilhelm, becomes interested in the mechanism of the puppet show he adores rather than in the story being dramatised: "If I had formerly experienced the delights of surprise and astonishment, I enjoyed on this second occasion the pleasure of examining and scrutinising" (20). Goethe's metaphor, outlining a compelling drive to explore the creation of artistic illusion, attests to the centrality of this fundamental literary *topos* in the artistic process.

²¹ Aptly believed to be comprised of black bile in the ancient world.

Initially, all is perceptible, but as the paper slides “back and forth from your arm’s length to [one’s] nose,” a moment occurs where the right-side blot vanishes (67). Caliopa consequently deduces that this is a cautionary signal; the world is not a seamless image, but rather a lacy patchwork. Everywhere there are voids, yet our eyes act swiftly to gloss over them, protecting us from madness (67-8).

Caliopa's “black hole” experiment highlights the blind spot, illustrating our visual field's inherent gaps. This phenomenon, where the optic disk lacks light sensitivity, was first noted by 17th-century scientist Edme Mariotte.^{22,23,24} The blind spot can either be experienced as blackness or nothingness – “the lack of visual sensation, as for the world behind one’s head” (Gregory and Cavanagh). Due to this anatomical feature, our vision is inherently limited by the structure of our eyes, for which we compensate by constantly moving them to capture the entire visual field.

Saudade portrays an inherent tension between literally grasping on to the world by interlacing into its fabric, and sinking into despair by literally falling into the black “holes in the lace.” When Clara loses her child, her *saudades* are accompanied by a period during which “[s]he knew how to feel around until she found a black hole and fall inside it,” deepening her depression” (108). Clara’s ventures into “black holes” create a negative photographic image of the ‘*pseudooculus*’ sent outward into the outside surroundings by Conceição’s “river vision (35):

²² It is interesting to note the difference between the way a black hole is conceived in physics and the way a “black hole” is conceived by Caliopa. In physics, a black hole is a region of spacetime from which particles or even electromagnetic radiation, such as light, cannot escape due to the extreme strength of gravity. In contrast, a “black hole” according to Caliopa is a region on the retina which light cannot reach, preventing its translation by neurons, and ultimately, perception. Despite the ostensible discrepancy, the commonality of the two notions is that both represent a physical place where the passage of light is restricted. In fact, the blind spot (scotoma) lacks photoreceptors, resulting in no image detection in this area. Thus, following the death of her child, Clara loses her ability to write and read – “[l]etters [have] become fishhooks ... indecipherable” – and her ability to recognise what numbers signify, since “loss always involves something that proclaims a disengagement from the world” (107).

²³ As related by the prominent neuroscientist Vilayanur Ramachandran, the 17th-century French scientist Edme Mariotte realised that “unlike other parts of the retina, the optic disk is not sensitive to light” (86). Edme then deduced that “every eye should be blind in a small portion of its visual field” (86).

²⁴ Indeed, as the blind spot (scotoma) lacks photoreceptors, there is no image detection in this area.

“[Clara] shot lengthy hollow black tunnels of her optic nerves outward to probe the immediate scene for holes in the lace of the landscape, like the feelers of a lobster searching for food²⁵ When she found one, she rode the shafts into the blind spot” (110). Clara ultimately overcomes her *saudades* and holds on to the world after meeting Helio and his luminous eyes, which outweigh the “black-holes.” The “black-holes” anchor creates a material-imaginative bridge, which extends the negative potential of the anatomical structure of the eye, and concretises, through literal darkness, depression and withdrawal from the world, brought about by loss.

The diversely shaped visual anchors gradually accrue meaning as *Saudade* unfolds. Each variegated iteration of an image cluster tangibly augments and deepens the idea of visual interconnectedness and its various dimensions extended through imagination and the aftermath of its severance. It is the combination of the anchors, rather than each isolated appearance, that enables the reader to achieve a broader physical and affective consciousness of the notion of visual interconnectedness and its absence in the novel. The neuro-Romantic nature of the novel is manifested by the imaginative extension of the neuroscientific foundation of vision and eye functioning, exhibited in all the anchors. Merging subject and object, perceiver and perceived, the vivid anchors create an embodied resonance in the reader, thus expanding interconnectedness beyond textuality.

5. Synaesthesia: Materialised Language and Multi-Sensory Communication

Having analysed vision and hearing in *Saudade*, we now shift our focus to the novel's fusion of sensory modalities and language, setting the stage for an investigation into synaesthesia in art. Previously, we discussed sensory and linguistic interplay through figurative language. Now,

²⁵ *Pseudooculus* is modelled on the term pseudopodium, which originates from the Greek words ‘pseudo,’ meaning false, and ‘podium,’ meaning foot. In biology, a pseudopodium refers to a temporary, amoeba-like projection of the cytoplasm of certain cells, such as amoebas and some white blood cells. These projections enable the cell to move and engulf material in its environment. Essentially, pseudopodia serve as flexible, transient appendages that allow cells to interact with and adapt to their surroundings dynamically.

we examine how *Saudade* blurs sensory and linguistic boundaries, enabling embodied, multisensory communication and materialising language. The obfuscation of boundaries between them is essential for the fluid exchange between art forms, which underpins the subsequent discussion on the way literary texts are translated into paintings and musical compositions. While numerous artists and writers, including expressionist painter Wassily Kandinsky and symbolist writer Andrey Bely, have explored synaesthetic vicissitudes in art, *Saudade* explores the more physical and embodied aspects of cross-modality, constructing a tangible foundation for examining artistic transformations through synaesthesia.

The broad neuroscientific approach to synaesthesia, which views the condition not merely as idiopathic, but also considers it within the spectrum of cross-modal perceptual experiences (Rothen et al. 151), converges with the monistic philosophical approach that regards it as a continuum. On one extreme, there is the “most synaesthetic,” which involves induced perceptual experience, and on the other, the “least synaesthetic,” which is cross-modal metaphor (Marks 31-2). Induced synaesthesia and cross-modal perceptual similarity fall between these extremes. This perspective resonates with Lakoff and Johnson’s theory that metaphor is a form of sensory experience (*Metaphors* 238). They argue that metaphors enable us to understand one type of experience in terms of another due to natural similarities, which creates coherence (235). Such cross-modal mappings, found in metaphors such as loud colours or bright sounds, demonstrate correspondences between sensory dimensions such as brightness and loudness. These mappings are also present in algorithms for sensory substitution devices designed to artificially induce synaesthesia.²⁶ Ramachandran and Edward Hubbard propose an illuminating connection between synaesthesia and language: they suggest that the neural mechanism of cross-wiring that underpins

²⁶ For example, the visual-to-auditory sensory substitution device, The vOICe, uses the intensity of loudness to encode the intensity of brightness of a black-and-white picture. See <https://www.seeingwithsound.com/> for further details.

language evolution is similar to that in synaesthesia, indicating that language may have evolved from earlier, synaesthetic neural mechanisms (“Synesthesia – a Window into Perception 18-19”).²⁷

The Romantic poets envisaged synaesthesia as exclusively accessible through their poetry, positing them as channels to evoke heightened and extraordinary sensations among those less artistically inclined (Dann 26). Representing the first phase of the synaesthetic discourse, they associated synaesthesia with creativity and artistic expression (165). Thus, through their exploration of synaesthetic metaphors, Romantic poets such as Keats and Byron challenged the conventional boundaries between the senses, seeking to create a more immersive, emotionally resonant form of expression that could capture the complexity of human experience (De Ullmann 817). Somewhat ironically, the advocates of the narrow approach to synaesthesia, such as Dann, June Downey, and Erika Siebold, who view synaesthesia as solely idiopathic, exclude the Romantic poets associated with synaesthesia, including Shelley, Wordsworth, and Coleridge from the ‘synaesthetic society’ (98). Hence, while the narrow, idiopathic, view excludes Romantic poets from ‘authentic’ synaesthetic experiences, the Romantic poets themselves held synaesthesia as a privileged pathway to transcendence and sublime states, accessible solely through their poetry (15, 18, 23, 47). Despite their differences, both views capitalise on the exclusivity of synaesthesia.

According to the scholars who adhere to the idiopathic view, rather than expressing real synaesthesia, the Romantic poets employed “so called colored thinking or sense analogies.” These were more precisely described as intersensory metaphor: “the man who actually sees colour when he hears music must be distinguished from the man who images colour or merely thinks it” (98). *Saudade* abounds in such cross-modal (or intersensory) metaphors. For example, when Clara finds her dead mother, she literally finds her voice, releasing a sound described

²⁷ See Appendix I.4 for various illustrations of the intricate interplay of cross-modal sensory experience and metaphor, exploring how it can be challenging to distinguish between these elements due to their intertwined nature in the text.

visually as “enormous and sharp-edged” (*Saudade* 47).²⁸ In another instance in the novel, the colours of a honeycomb are depicted by Helio using an auditory simile: “[i]t was like the leading of many tiny stained-glass windows containing segmented pictures made mellifluous from the sun” (211). Such metaphors infuse the novel with a cross-modal quality that shapes its narrative rhythm and aesthetic.

However, it is the embodied, explicitly material, features of synaesthesia that set it apart in *Saudade*. Its materiality is rendered through its palpable sensory-linguistic interplay, neuro-romantically bridging imagination with multisensory experience. This is illustrated, for instance, by Clara's tactile encounters with Helio's words, transforming intangible colours into a solid prism, and her multisensory journey in language acquisition. Thus diverging from mere Romantic intersensory metaphors, the novel reifies cross-modal language, infusing it with sensory physicality.

Synaesthesia in the novel is depicted as a spectrum phenomenon, adhering to the broader definitions proposed by Marks and philosopher J. Cohen (31-2; 59). Diverging from both exclusivist perspectives, *Saudade* extends synaesthesia's scope to a universal, sensory experience, rendering it as physically perceivable and experientially vivid to all readers. *Saudade*'s inherently creative, multi-sensory communication portrays synaesthesia neuro-romantically through physical embodiment. By materialising language and sensory interaction, the novel unites “the man who ... sees colour when he hears music” with the one who “images colour or ... thinks it” (Dann 98). The synaesthetic form accentuated in this section is cross-modal similarity, positioned between the weakest form, cross-modal metaphor, and the strongest, idiopathic form on Marks' continuum. Cross-modal similarity serves as a material-imaginative bridge, providing a crucial link between the imaginative form and the physically induced one.

²⁸ Her newfound auditory abilities are described in visual terms as well: “the girl was not ignorant of the colorations of sounds” (48).

The broader conceptualisation of synaesthesia, as established in the novel, lays the groundwork for its multifaceted manifestation within the narrative. Vividly exemplified by the transformative relationship between Clara and Helio, the narrative showcases the way cross-modality amplifies sensory experience and intensifies the embodied interconnectedness between them. Their shared experiences create a sensory dialogue that highlights the nuances of synaesthesia within their intersubjective world. For instance, Helio's teachings about animals with mixed senses spark Clara's curiosity and wonder. She delves into "illustrations of the trigla fish, whose fins develop certain rays like fingers, with organs of both touch and taste, and of butterflies that can taste with the tips of their legs" (212). Delighting in these sensory "mix-ups," Clara becomes eager to explore the many worlds just beyond her reach (212).

Clara's eagerness to explore many worlds illustrates the way our sensory experiences and understandings are not mere passive receptions but are actively constructed through embodied interaction with our environment. This reflects Noë's view that consciousness arises from our active involvement with the world around us, challenging traditional notions of perception as a passive process.

As Clara and Helio's physical relationship deepens, her perception becomes attuned to cross-modality, when the colours of Helio's words are supplemented by the literal touch of his voice: "He spoke her name and it appeared in her palm. As if he had handed to her who she was since loving him: a prism with its full complement of rainbow" (213). The multiplicity of the colours emanating from the enunciation of Clara's name are coalesced into a solid, tangible prism, adding yet another sensory layer into the mix. Clara concludes that "[w]e probably die ... when all our senses merge into one, or when a person stays trapped inside us" (213), thus reinforcing the association between sensory and interpersonal blending while indicating the possible dangers thereof if taken *ad extremum*.

Clara perceives the colours of words sounded by Helio during intercourse – "[w]hile lying ... with him inside her, his heated words were all of a kindle, crimson, and the lulling ones

turned marine aqua” – and observes their spatial trajectory from him “connecting to her in an arc” (212).²⁹ Clara's perception of Helio's words in vivid colors – associating emotional or tonal qualities of the words with specific hues – reflects broader cross-modal cognitive processes, such as those highlighted by Charles Spence's findings that suggest a general, intuitive association between higher-pitched sounds and lighter colors (971). This suggests that the narrative's depiction of synaesthetic experiences, while not explicitly describing pitch, mirrors common and intuitive cross-modal associations among people, potentially implying a link between the emotional intensity of words and their perceived colour. This underscores a spectrum-based view of synaesthesia in the novel, including the broad, intuitive associations among sensory experiences.

The colourful words build a spatial, material bridge between Clara and Helio. The sensory blending enhances the physical blending of Clara and Helio's bodies. She finds herself unable to disconnect from Helio, as she “clamp[s] down on him the way barnyard animals do when they fight to get away but stay joined” (212). They get tangled even more – “locked together” – as the hammock net in which they stay becomes “a sealed net cocoon” when she tries to “get him out of her” (212). This infringement on the confines of her self, threatening her as a separate unit, forces her to attempt to stop sharing the same space with Helio. Within a naturally created cocoon, the caterpillar digests itself, releasing enzymes to dissolve all of its tissues, to eventually rebuild itself and morph into a butterfly (Jabr). The process of blending initial materials into a new synthesis exemplifies the embodied interconnectedness of Clara and Helio as they transform into a unified couple-entity. This development is mediated by synaesthetic experiences, highlighting synaesthesia's inherent capacity to interconnect.³⁰ Clara's alarm and

²⁹ Which allude to the red and blue colours discussed within the context of the Azorean chorus passage (see Appendix I.4) and José Francisco's “hydrangea-eyes,” thus accruing additional meaning that connects them to light and eyes, and to heart and blood cycle.

³⁰ Their interconnectedness is reinforced by further descriptions of their relationship as an act of swallowing and fusion, with references to the natural world: “[s]ome days they kissed like pike fingerlings, the fish that touch

panic foreshadow her decision to leave Helio and become her own separate entity, as the cocoon is not only protective but also constricting.³¹ The perils of overwhelming interconnectedness with others will be central to the second chapter, which examines Bender's *The Particular Sadness of Lemon Cake*.

The vivid exemplification of cross-modal communication in *Saudade* is further enhanced through mapping across sensory modalities – the translation of perceptions from one sense to another, facilitating multisensory integration. In this context, José Francisco's auditory, musical transmissions, aimed at familiarising Clara with the auditory world (see Appendix II), are enriched by the addition of touch (21). José Francisco incorporates tactile elements as he instructs Clara to “hold his lips so that fingers bouncing on the right cadence could touch upon the lyrics,” effectively integrating the tactile and auditory modalities (21). By superimposing the tactile element onto his spoken communication, José Francisco enhances the auditory experience for Clara, providing her with an additional sensory layer (21).

This approach incorporates the principles of sensory substitution devices (SSDs), which systematically translate information from one sensory modality to another, allowing deaf individuals to access auditory features by maintaining the characteristics of the original sensory modality (Sigalov et al. 149).³² José Francisco's guidance for Clara to touch his lips effectively creates a tactile-to-auditory sensory substitution device, where the tangible movements of his lips correspond to the soundwaves they produce (*Saudade* 21; Loomis 213). This creative cross-modal expression not only augments Clara's auditory input but also deepens the

lips before one consumes the other whole. He also wanted to be an anglerfish: The male fuses to the female by letting his mouth atrophy against her underside. He is joined with her forever” (212).

³¹ Clara's synaesthetic, sensory experience (hearing colours) sets in motion emotional processes (alarm and panic) which eventually lead to cognitive processes (the decision to leave Helio). This attests to the interconnectedness between the sensory, emotional, and cognitive systems. The intensity of the initial sensory experience, attained by synaesthesia, is the catalyst that enables Clara to know in advance, on a sensory level, what disturbs her in and what will eventually befall their relationship.

³² Most SSDs use a form of systematic mapping, where specific aspects of one sensory input are converted into corresponding aspects of another sensory input. This systematic approach is necessary because the goal is to provide meaningful and interpretable information that can be learned and used by the person wearing the device.

interconnectedness between her and José Francisco. The tangible materiality of cross-modal similarity endows the novel with yet another neuro-Romantic feature. Neuroscientific research utilising SSDs has unveiled that the brain's plasticity allows for the remapping of sensory inputs – a process where the brain forms new neural connections to interpret sensory information from one modality through the framework of another. This ability demonstrates that individuals can learn to ‘see’ through sound or ‘hear’ through touch (Sigalov et al. 150; Eagleman and Perrotta), thereby embodying Romanticism's ideal of fusion among the senses with empirical evidence.

However, notwithstanding the empirical grounding of cross-modality through a narrative that resonates with neuroscientific concepts, *Saudade* significantly diverges from the traditional Romantic view on synaesthesia. Unlike Romantic poets, who depicted synaesthetic experiences as mystical and exclusive (Dann 26), accessible only passively through intersensory metaphors created by an artistic elite, Vaz’s depiction makes synaesthetic processes accessible to a wider audience. It disputes Romantic exclusivity by rendering synaesthesia ‘experienceable’ for all, while empowering readers to actively explore cross-modality alongside the protagonist, demystifying the phenomenon and inviting a firsthand discovery of interconnected sensory experiences. Another elaborate example of the multisensory and material nature of communication pertains to Clara’s acquisition of English in California. The depiction of language in the following excerpts as a dynamic synthesis of sensory experiences and physical phenomena intricately captures Clara's journey through and adapting to the nuances of a new language environment. This process mirrors the insight by Soto-Faraco et al. that language acquisition is a complex, multisensory process that evolves over time and adjusts as we gain exposure to different linguistic contexts (207). In these passages, the sensory and material features of language are foregrounded. Language for Clara consists of physically moulded and mosaicked sensory building blocks: sound, touch, taste, and sight, with the semantic aspect of words being a mere epiphenomenon of sensory makeup. English is

materially extracted out of Portuguese, as the latter is rearranged in an extended, multisensory and bilingual, version of a Words in Words game. Moreover, a continuum is once again created between language and sensory perception, as language is portrayed as material and tangible. The articulation and acquisition of language is likened to physical phenomena, such as the meteorological water cycle, and the chemical reaction of butter churning, respectively.

In another instance Clara finds herself in Lodi, California, displaced and despairing, stripped of the communicative means that were familiar to her in Terceira (*Saudade* 52). A fellow Lodian endeavours to teach Clara how to speak using the visual forms of letters, which to Clara bear a resemblance to “fishhooks scattered on a white beach” (52). Clara’s language processing and production evolve into a visceral experience, as she seeks to digest and synthesise all the linguistic units she had encountered. Notably, among these units is “sugar language,” a unique form of communication devised for Clara.³³ Resonating with sign language in its iconicity and visuo-gestural nature, sugar language involves moulding sugar into specific designs, each carrying a particular meaning, and executing actions that accompany these creations. For instance, “a mound of sugar with a thumbprint in the centre = ‘You may rest here’” (20).

As Clara navigates these complex linguistic constructs, she experiences an intricate multi-sensory language learning process: “[a]ll the sugar and sounds that Clara ever swallowed, that anyone hummed into her ears, transformed into fishhooks in her stomach as she tried to emulate the letters and voice them. Her gut grew immense, and the letters erupted from her mouth” (52). White sounds and tactile sugar, each initially comprising a parallel sensory route to master linguistic communication, are combined due to the similarity of their mutual purpose to enable communication, similar to José Francisco’s auditory-tactile transmissions.³⁴ Importantly, both

³³ The sugar language was devised by a family friend and picked up by the rest of Terceira to communicate with Clara, thus, once again, expanding a new and inventive mode of communication to include the entire community as in the case of white noise.

³⁴ Sounds assume the digestible properties of sugar due to the similarity of their mutual purpose – to enable communication. Tactile sugar, of course, itself appeals to both the sense of touch and taste, again emphasising the artificiality of the approach that views senses as independent of each other.

sounds and sugar turn into fishhooks in her stomach, as the visual representation of language becomes a vital intermediary underlying sound production. The material metaphor of fishhooks evolves from depicting impediments to embodying key connections in Clara's language learning, serving as essential aids in her journey of comprehension. The integration and interaction of the four-part sensory representation of language – sound, touch, taste, and sight – along with the robust correspondences and communication between these sensory routes, eventually enable Clara to speak. The individual sensory routes go through various transformations, acquiring one another's characteristics, and thus pre-empt the vicissitudes undergone by art forms to be discussed in the next section.

Clara's language acquisition resonates with Lakoff and Johnson's theory of embodied cognition which suggests that the structure of our reasoning is derived from the particulars of our embodiment (*Flesh 4*). Clara's journey demonstrates how sensory experiences – sound, touch, taste, and sight – directly inform our cognitive processes and language understanding, rooting her linguistic development in physical embodiment. Moreover, it is a phenomenological counterpart of Spence's insights into multisensory integration, which underscore the way processing information through multiple senses simultaneously can amplify cognitive functions, including speed of processing (979), attention (987) and memory (988), through perceptual enhancement. Clara's vivid, embodied, multisensory engagement with English clearly augments her abilities to acquire it.

The material nature of language production is accentuated further as it obtains meteorological characteristics: “[t]here was so much crowding and swelling inside her that the white sounds she had collected since her childhood ... that should have ascended out of her and condensed into clouds, got caught on the hooks” (52). The hydraulic cycle metaphor situates Clara among the elements. She becomes a precipitation retaining Earth which fails to release

moisture to the atmosphere (“Water Cycle”).³⁵ Being the Earth, Clara literally embodies the world and her culture. Later, she learns to reciprocate with her surroundings and unbridle the sounds that she had accumulated within her. The sounds are gradually unleashed, changing their physical state from solid to liquid: “Glória ... wrapped her in a warm white blanket to melt the hooks and drink them out of her. [The blanket] turned black and heavy and Glória dragged it outside for burning. Clara’s white sounds were freed” (52).

The addition of dancing to Clara’s language learning process underscores the critical role of kinaesthetic activity in shaping cognition, a concept Maxine Sheets-Johnstone highlights as foundational to our grasp of life, agency, space, time, and knowledge structure (xvii). Specifically, dancing accelerates the learning process transforming abstract “fishhooks” into tangible letters that smoothly “slip through Clara’s throat without snagging” (52).³⁶ Resembling the physical process of butter churning as detailed by Park et al., where physical agitation causes fat globules in milk to clump together to form butter (88), English words cluster together, while redundant Portuguese letters are “knocked free” in a manner akin to water molecules (*Saudade* 52). Dancing, equated with energy, acts as a catalyst, making the otherwise impossible chemical reaction to materialise.

The English words become literally tangible, as the first word enunciated by Clara is “touch,” her hands having a “tough grip” (52). The entire process is exemplified in the following illustrative and poignant excerpt. Clara’s newfound interconnectedness through the materiality of language is juxtaposed with the feelings of loss and despair brought about by *saudades*, which characterise her mental state at this point in the novel:

³⁵ The fishhook nature of the letters interconnects the imaginatively extended laws of the science of meteorology – apparent in the water cycle – with the maritime cultural mesh of the novel, as the sea is the main source of livelihood – mainly through fishing – and mythology for the Azoreans.

³⁶ As “Glória [dances Clara] around like a hummingbird,” it alludes to the father-daughter dance of Jose Francisco and Clara and its interconnecting nature (52).

“*Estou cheia de saudades,*” mourned Clara to the air. “*Cá estou e pensando muito em vocês.*”^{37,38}

Glória danced her around, hoping to bang *estou* against *cheia* to form *estoucheia*.

Estoucheia poured from Clara’s mouth ...

“There! There’s the English word *touch* inside in the middle. She danced Clara more, until the *es* fell away. Clara’s hands ... had a tough grip.

“Touch,” said Clara.

Glória then danced her harder so that every one of the letters inside her would become free-floating. More words opened and banged against one another and agitated and whisked themselves into English: *Pensado* got so shaken up that the letters could form *an*, *sad*, *open*, and *sand*. *Cá em de* was reshuffled during their wild dance steps into *made*, *came*, and *deem*. The letters in *cheia de* got mixed up and created *idea*, *he* and *I*.

“I made an idea,” said Clara...

“I *am full of saudades.*” (52-3)

The embodied intercommunication of the senses examined through Clara’s acquisition of English, and the interconnectedness of language and sensory *experientia* create links between the various brain faculties (Soto-Faraco 207). These links facilitate linguistic communication for Clara, ultimately connecting her to others. Cross-modality thus contributes to the robustness of linguistic representation and facilitates it.

The range of examples discussed above illustrates the pervasive influence of cross-modality in *Saudade*, from its manifestation in interpersonal relationships to its role in enhancing language acquisition. The depiction of cross-modality gives credence to Ladan Shams and Aaron Seitz’s view that “the human brain has evolved to develop, learn and operate optimally in multisensory environments” (411). Moreover, collectively, the examples illustrate Gilles Fauconnier and Mark Turner’s Conceptual Blending Theory. According to this theory, human creativity and thought emerge from blending distinct mental spaces – each with its unique structure – through a process of identifying shared characteristics (cross-space mapping) and

³⁷ “I am full of *saudades*” (translation mine).

³⁸ “I am here and I am thinking about you a lot” (translation mine).

merging them into a new, coherent mental space (blended space). The latter generates innovative ideas and insights by integrating and reimagining elements from the original inputs (57-62). The novel's adept integration of the various modalities offers insights that challenge traditional sensory boundaries, and enable creativity, as illustrated in the next section.

The establishment of neuro-Romantic material-imaginative bridges through cross-modality is a major contributing factor to interconnectedness between characters. Furthermore, cross-modality can be experienced by the reader through embodied resonance. The neuroscientists Jamie Ward and Feliz Gözde propose the notion of synaesthetic disposition which lies on a spectrum (134). While “the presence/absence of synaesthesia is dichotomous,” Ward and Gözde conclude “the underlying causal mechanisms are continuous” (134). This would mean that many people whose brain wiring resembles that of synaesthetes experience the world the way they do, without actually experiencing synaesthesia.³⁹ This brain wiring, in addition to our innate cross-modal processing channels (Parise and Spence 790), could be the platforms that enable the reader to tune into the novel's synaesthetic nature (Rokotnitz 279).

However, it is the explicit connection between synaesthesia and art that brings together the Azorean expatriate community at large by broadening and transforming their cultural heritage. Synaesthetic translations of artistic mediums and their creative potential enable a cultural synthesis between the Azoreans' Lusophone past and their American present. Having established the material foundation of cross-modality, we can now consider its broader implications in the context of cultural synthesis.

³⁹ In this context, Stanislas Dehaene's notion of the “tipping point” or “phase transition” in consciousness, which he calls “global ignition,” becomes relevant. As this occurs, neurons burst into widespread collective activation, akin to an audience erupting into synchronous applause. This suggests that more active brain regions increase the likelihood of a stimulus reaching consciousness (130-1). The distinction between experiencing full synaesthesia and having merely a predisposition could be illuminated by Dehaene's concept of global ignition. Applying this model, for synaesthetic experiences to reach consciousness, a threshold of neural activation – similar to the global ignition's tipping point – must be crossed, distinguishing those who consciously perceive synaesthetic crossovers from those who are merely predisposed without such vivid perceptions.

6. Synaesthesia, Art, and Interconnectedness

The apotheosis of synaesthetic expression in *Suadade* is reached when Clara discovers the potential of combining synaesthesia with self-expression, creativity, and, ultimately, art. The creative pursuits of Clara and Helio primarily involve translating books into paintings, and, subsequently, converting paintings into music. In the words of Cid, “not only do colors become language, they also become sound. [Clara’s] music of colors is an audible expression of narrative and poetry, offering the occasion for intense episodes in the ongoing textual love affair with Portuguese literature, as well as with oral popular lore” (257). By establishing the material interconnectedness and mutual dependence of linguistic, sensory and cross-modal experiences in the previous section, *Saudade* has laid the physical groundwork for the interchangeable nature of art forms. These artistic-synaesthetic attempts physically reconnect the displaced characters of *Saudade*, their Portuguese heritage, and their new Californian land. Their fundamental works of literature are thus experienced through a novel prism, enabling a fresh glimpse into their essence as they are reimagined into alternative art forms. This defamiliarising transformation “[reveals] new routes to old treasures” (253), making the native culture a tangible, malleable, and transformable reality rather than a nostalgic reminiscence.

Saudade not only portrays the application of synaesthetic correspondences, but also emphasises their construction and acquisition. By focusing on induced synaesthesia, which, like cross-modality, is situated between the two extremes of the synaesthetic spectrum elaborated by Marks (31-2), the novel once again invites everyone to directly experience the phenomenon. This echoes current neuroscientific trends, as suggested by Nicolas Rothen and Beat Meier, who argue that synaesthesia can be acquired by appropriate training (“Acquiring Synaesthesia”). Clara and Helio's experiential journey serves as a phenomenological counterpart to laboratory settings,

revealing the possibility and process of synaesthetic induction.^{40,41} The gradual acquisition of synaesthetic associations enables the reader to observe its dynamic progression, offering insights into each step and revelation along the way. Through a narrative that weaves personal associations, fathomed only by Clara and Helio, into communal experiences, *Saudade* expands the understanding of induced synaesthesia, linking it with neuroscientific theories, such as Stanislas Dehaene and Laurent Cohen's theory of reading acquisition and Julia Simner's work on grapheme-colour synaesthesia, thus constructing material-imaginative bridges which merge the subjective and the objective realms.

The literary-works-turned-paintings foster a cultural synthesis between the Azoreans' Lusophone culture of origin and their American culture of destination. This creative process, transcending cultural constraints imposed by written language, enables a more direct integration of past and present through visual art – a medium allowing immediate perceptual interaction. Similarly, the sensory immediateness of pictures-turned-music create a meeting point between American and Lusophone musical genres that allows the Lodians to experience *saudades* and thus come to terms with the loss of their country of origin.

In their quest for spirituality and transcendence, the characters of *Saudade* utilise artistic vicissitudes as a means to redefine the spiritual. They leverage synaesthesia and imagination to defy, reassemble, and extend the confines of physical and biological mechanisms, demonstrating how spiritual experience can be actualised through the multisensory functioning of one's body. The material interconnectedness achieved through synaesthesia and art, leading to transfiguration of Clara and the entire Lodian community, thus fosters “transfigurative inter-

⁴⁰ Synaesthesia has been induced in an experimental setting by hypnosis or sensory substitution devices (SSDs), to name but a few methods (see, for example, Cohen Kadosh et al., and Ward and Wright).

⁴¹ Although meticulous experiments have demonstrated that synaesthetic induction is possible, the controlled environment in which these experiments are conducted cannot fully elucidate the nature of this process, typically capturing only snapshots of the initial and final stages. The realisations acquired through the experiential journey depicted in *Saudade* could later be implemented in scientific settings.

dependence” (Cid 263). As spirituality is a distinguishing trait of British Romanticism (A. Day 4), grounding it on a physical basis epitomises the neuro-Romantic nature of the novel.

Importantly, Vaz substantiates her philosophy of intertwining the spiritual aspects of religion with the sensory practice of reading literature in Clara’s journey. Vaz’s emphasis on the importance of literature for reaching spiritual insights is highlighted as she associates the notion of illumination or epiphany in literature with the spiritual feast day when the wise-men and kings brought their gifts to the child they deemed the Messiah (“King Sebastião” 56). By urging readers to “look to the art of the senses” (58), *Saudade* emerges as a novel offering an original resolution to the dispute between the arts and the sciences regarding synaesthesia, grounding transcendence and spirituality in materiality.

6.1 Coloured Reading: Revolutionising Perception and Expression Beyond Traditional Paradigms

Clara’s coloured reading is a defining moment in the novel, marking the first synaesthetic acquisition and transformation, thus setting the stage for the various vicissitudes across different expressive and artistic mediums. By challenging traditional reading paradigms through its synaesthetic approach, coloured reading intersects with neuroscientific theories of perception and cognition, while also laying the groundwork for a nuanced exploration of how sensory integration can enrich linguistic and artistic expression. It illuminates a unique mode of reading, as Helio transforms the twenty-six letters of the alphabet, fundamental for conventional reading, into corresponding colours, essential for painting. This synaesthetic technique, where Helio transcribes his books into oil paintings, allows Clara to “recapture her lost ability with reading” following the loss of her baby (*Saudade* 217).

Clara’s journey of learning to read through colour is consistent with the bottom-up theory of reading acquisition proposed by Feng Liu. Liu’s theory suggests that word recognition results from habit formation and the integration of smaller processing units into larger ones (154). Clara’s perception evolves as she transitions from recognising individual letters to discerning

larger units of meaning through specific colour-letter combinations that denote certain words – “*and* was gold smoke oyster-white and *the* was black straw lobster-red” (*Saudade* 217). She gains proficiency in rapidly identifying certain recurring colour combinations that can be registered at a single glance (217). Moreover, her experience of “colour-words” transcends the mere acknowledgement of individual letters. Instead, she perceives them as holistic entities or “miniature palettes, whole and storied, no longer three strokes, but a triune” (217). This dynamic process, which not only mirrors the emergent properties of words but also underscores Clara’s unique multisensory approach to language acquisition, sets the stage for understanding the way Clara’s acquisition of coloured reading differs from the norm.

While it bears similarities to the standard process of reading development, it significantly deviates in two critical respects. First, the introduction of visual shapes infuses an individualised aspect into Clara’s unique engagement with chromatic reading. Contrary to the systematic nature inherent to written words, the transformation of words into shapes within Clara’s reading method lacks this predictability and regularity. Second, Clara’s progression in coloured reading is steeped in the specific qualities of colours and the medium of painting. Both of these distinguishing factors serve to enhance the reading experience by intensifying the encoding and interpretation of words.

Clara’s synaesthetic reading experience can be interpreted as an inversion of the cultural recycling of cortical maps evolutionary theory, which postulates that the human brain has repurposed visual areas for reading acquisition (Dehaene and L. Cohen 389). Instead, Clara’s chromatic reading represents an innovative interface between linguistic cognition and visual perception. Clara’s experimentation with non-iconic pictographs represents a significant departure from traditional cognitive processes. Her innovative engagement with language transcends the boundaries of conventional writing systems, which she finds restrictive: “speech [lying] drained on paper” (*Saudade* 218). Words are re-represented as fundamental pictographs, aligning them with the overarching category of shapes, blurring the line between human and

primate perception and hearkening back to ancient representational elements. By embracing these elements, Clara forges a more direct perception of the world, unshackled from the constraints of arbitrary symbols that contemporary writing systems present. This allows her to form her own unique representations. One can see this in the distinct visual dissimilarity between the words "and" and "the," despite Clara's eventual perception of them both as hooks – a golden one and a black one, respectively (217-8).

Clara's chromatic reading acquisition, capitalising on personal connections between words and shapes, is imbued with the distinct qualities of colours and the medium of painting. Written language acquires vividness and recovers its vivacity as letters are transformed by colours, becoming "the concentrations that happen when plain language [is] forced into bloom" (218). This agrees with experimental results that show the advantages of grapheme-colour synaesthesia – in which specific colours are associated with letters or other graphemes – for reading (Simner et al. 1024). Clara's reaction, as she "paus[es] in shock when the colors [are] lurid or ... go[es] ashen when they [are] livid" (*Saudade* 217), attests to the significance of emotional response to colours, and to the role emotions play in synaesthesia in general.⁴² According to Avinoam Safran and Nicolae Sanda, cerebral structures involved in emotion processing are altered in developmental, particularly grapheme-colour, synaesthesia (40). The incorporation of both colour and shape is crucial since "the artwork change[s] from blots and squares into flourishes," as Clara describes (*Saudade* 218).

Indeed, "[b]efore long [Clara] was digesting entire pages of dashes and curves," alluding to the gustatory aspect of language acquisition explored in her English learning. Clara and Helio overlay the semantic sense of "alphabet words" onto their correspondences as "color-words"

⁴² Colour associations contain culturally predisposed and metaphoric elements. See, for example, Theo van Leeuwen's illuminating review of some of the prominent types of meaning with which colours have been attributed throughout the centuries (chapter 2 and chapter 4, respectively). These include colour symbolism and colour naturalism, and of the inherent metaphoric nature of colour. However, the social semiotic orientation of van Leeuwen does not detract from the essential emotional reality of colour associations.

(218), a dual encoding that strengthens word representation, distils their essential chromatic essences, termed “decoctions” (218), and results in a “rebirth” of words. The superimposition of the two frames of reference, the verbal and the chromatic-pictorial, expands the repertoire of signification and enriches the reading experience. This is consistent with Meier and Rothen’s finding that grapheme-colour synaesthetes have been found to exhibit enhanced verbal and visual processing abilities and communicative preferences. Additionally, they demonstrate a greater ease in transitioning between these modes of processing, highlighting their flexible cognitive abilities (“Distinct Cognitive Style”). In this manner, the chromatic qualities of words enable Clara and Helio to employ the vocabulary of visual arts, allowing them to “fathom [books] as oil paintings,” with “every letter [becoming] a staccato splashing, and page ... a tessellation of tiny blocks” (217).⁴³ Books are now discussed in terms of their “tone and essence, subtle shadings, obscured motifs, and passages of light and pitch.”^{44,45} The manifold encoding, linking writing with primal features like shape and colour, transforms reading into a visually multidimensional and tangible experience, while facilitating Clara and Helio’s easy conversion of books into pictures in their next synaesthetic vicissitude. Ultimately, Clara’s synaesthetic efforts to transform reading into a fully immersive experience parallels the immersive mode of reading espoused by Felski’s principles on text enchantment (51).

This distinct process of reading acquisition not only mirrors the principles of physical psychology, suggesting a foundational role for the laws of physics (and, by extension, neuroscience) in intellectual exploration (Michaels and Palatinus 23), but also transcends traditional cognitive frameworks. By weaving together synaesthetic perception, emotional engagement, and artistic expression, Clara and Helio's journey embodies a profound reimagining

⁴³ The musical terminology (“staccato”) already foreshadows the next transformation of colours into sounds.

⁴⁴ Yet again with glimpses of musicality – “pitch” (218).

⁴⁵ “Passages of light and pitch” could be interpreted as book excerpts or movements imbued with light and darkness, but also as book excerpts or movements of light and sound frequencies.

of language and cognition. This approach challenges established norms of reading while highlighting the novel's innovative contribution to understanding the complex interplay between neuroscientific processes and art.

Clara's chromatic and shape-based representations create a Romantic, imaginative, private world, in which time stops for her and Helio, who are the only ones privy to the code that converts words to coloured shapes: "[d]uring their color-times, all the natural laws, any forward impetus that did not pertain to creating pictures or reading shades, were in utter pause" (*Saudade* 218). However, despite capitalising on subjective elements, Clara's experience is situated within the context of neuroscience, notably theories concerning reading acquisition, evolution, and synaesthetic reading processing. The material foundation behind the Romantic, individual, sentiment sets it apart from free-floating unbridled imagination, which, for Coleridge, comprises the ultimate danger of subjective idealism taken to the extreme ("Literary Remains"). This common biological foundation enables one to generalise the private associations into communal ones that capture the cultural features of Portuguese culture and art.

6.2 "Ut Pictura Poesis" –Horace, *Ars Poetica*: Collective Impact through Synaesthetic Experiences⁴⁶

Transitioning from the individual cognitive effects of coloured reading to its broader collective impact, this section examines the social neuroscience underpinning the communal engagement with synaesthetic experiences. It elucidates the way the externalisation of individual synaesthetic perceptions into shared cultural artifacts – like art and literature – activates a collective neural resonance. This process, rooted in the brain's empathetic and simulative capacities, underscores the significance of shared perceptual processing in fostering communal identity and cultural continuity.

⁴⁶ "As is Painting, so is Poetry" (Latin).

Emerging from the intimate realm of Clara's private language, the potency of coloured reading begins to resonate within the wider community. In a critical episode in the narrative, Viriato, an Azorean compatriot overwhelmed by *saudades*, implores Clara and Helio to visually render Fernando Pessoa's "The Maritime Ode" (*Saudade* 220). This transformation of the poem into a vibrant ship-shaped artwork encapsulates the poem's central theme: "Pessoa translate[s] into color end[s] up, with its reds, bursts, and valves, shaped as a living vessel" (*Saudade* 220). Clara's interaction with this pictorial translation extends beyond sight, becoming a multi-sensory experience as she touches, smells, and even tastes the work: "she ripped a border off it and chewed a page of Pessoa, savoring the ship of the poem and its wild pumping" (220-1). This profound sensory encounter rekindles their cultural bond, serving as a bridge between their Azorean past and their present. Viriato recognises the power of this connection and understands it belongs to the entire community: "Pessoa had written the mournful heart that Viriato could not claim for himself, because it belonged inside them all" (221).

Clara and Helio's synaesthetic experiments not only delve into their Lusophone culture, but also traverse the realms of the American literary canon. By doing so, they eventually foster cultural hybridity, which in turn forges the unique identity of the Lodian community. They skilfully craft elaborate visual depictions of their favourite American authors, namely Whitman and Melville, transforming their works into unique and intricate patterns. Clara's pages are filled with a complexity reminiscent of a Persian rug, as she exclaims "It's Walt Whitman" (220).⁴⁷ These literary works-turned-paintings portray various designs that often capture the essence of the works, whether it be their ambience or style. Thus, for example, according to Roshan Lal Sharma, Whitman's works were heavily inspired by the Persian mystical Sufi tradition in their

⁴⁷ According to Susan Margaret Brown, it was the all-inclusive and ever self-contradicting Whitmanian persona that "provided Pessoa with a model for seeking solace and refuge by way of the heteronymic strategy," the latter becoming Pessoa's trademark (3). Pessoa's career was characterised by writing under different names, or *heteronyms*. He created approximately seventy-five others, the most notable being Alberto Caeiro, Álvaro de Campos and Ricardo Reis. These personas were more than *pseudonyms*, as each had an independent intellectual life.

tone, tenor, content and thematic spirit (39). The physical embodiment of the works of Whitman, a prominent figure of the American Romantic movement, who was largely influenced by the Romantic philosopher Schelling, epitomises *Saudade*'s neuro-Romantic nature (for Whitman's Romanticism, see Hodder). Just like "The Maritime Ode," the marine setting of *Moby Dick* becomes palpable as Clara communicates with the paintings representing it through touch. As her fingers trace the vibrant splashes of colours, resembling "fish coursing in channels," she establishes a direct connection with the story, giving it tangible presence (*Saudade* 220). By transforming these literary works into visual art, Clara and Helio encapsulate the essence of the literary works they represent, making them more accessible and immersive.⁴⁸

This approach reflects the theories of Sontag and Felski, who assert the importance of the material and immersive qualities of literary texts (10; 51 respectively). In transforming literary works into visual art, Clara and Helio strip the works of their verbal structure while preserving the core of their meaning in their pictorial representations. This provides an immediate and direct sensory engagement on both visual and tactile dimensions. By converting literature into paintings, they harness a shared neural process responsible for image processing. This unifying mechanism enables the processing of literary works from diverse cultures, in contrast to the compartmentalised language processing typically seen in individuals who learn a second language later in life (Marian et al. 70). Thus, their artistic re-imaginings create a common perceptual ground, breaking linguistic barriers, and fostering an integrated sensory

⁴⁸ In addition to being connected through their unhindered sensory immediacy, the American literary works visually depicted by Clara and Helio are thematically and symbolically related to Portuguese culture and oral popular lore. Once again accentuating the interconnectedness between the thematic and the formal, in this case the medium of the literary-works-turned-paintings, the two aspects reinforce and complement each other in *Saudade*. For instance, the works of Pessoa were greatly influenced by Whitman's *Leaves of Grass*, to the extent that Pessoa dedicated an ode titled "Salutations to Walt Whitman" ("Saudação a Walt Whitman") to the latter. Furthermore, the centrality of the ocean in the Azorean culture, particularly its allure and treacherousness, echoes its significance in *Moby Dick*. Ishmael's view of the ocean's "magnetic virtues" and its myth making potential (4), elucidates Jose Francisco's reluctance to give it up. Intertwined, the thematic connections between the sensory immediacy of the American and Lusophone literary works set in motion a synthesis between the Lodians' culture of origin and culture of destination.

experience. It also fosters a shared sense of culture and community among the Azorean expatriates.^{49,50}

6.3 The Translation of Sound to Colour: Synaesthetic Bridges between Music, Art, and Russian Symbolism

While the pictorial representation of texts serves as a cornerstone in their synaesthetic experiences, Clara and Helio's journey within *Saudade* broadens to encompass the interplay of music and colour, amplifying their sense of cultural interconnectedness and embedding their endeavours within a rich artistic tradition of sensory interplay. Helio devises an innovative method to perceive colours through sound, employing an algorithm that transmutes musical notes into colours, thereby allowing him to "truly belong to the harmony of shapes" (*Saudade* 222). This undertaking parallels the pioneering endeavours of Kandinsky and Russian symbolist composer Scriabin, who sought to establish correlations between painting and music, and between colours and sounds. With an understanding that "what worked with stories could also work with sheet music," Helio ventures into the translation of "sonatinas into rainbow fillets and bands of dots" (222).

Kandinsky sought to represent a symphony on canvas in his abstract artwork, Composition VII (1913), combining visual and musical composition while exploring sound-to-

⁴⁹ In addition to the synaesthetic translation of literature into pictures on the level of the plot, which immerses readers directly into the narrative's sensory experiences, there are other notable instances of the interaction between the literary and the pictorial. A graphic representation of a whale in Helio's account of his life (148), and in various visual diagrams and sketches interspersed throughout the text (143-4, 232, 278) enrich the reading experience. These elements, complementing and echoing the vividness of the plot's descriptions, play a significant role in enriching the narrative and providing a deeper understanding of the text. They bridge the gap between the visual and the written word, thereby creating a more multidimensional and engaging reading experience and enhancing the reader's immersion into the story's world.

⁵⁰ This interpretation extends Homi Bhabha's notion of cultural hybridity — the intersection of diverse cultures creating new identities (5, 9) — and Édouard Glissant's concept of creolisation — unique cultural expressions born from different cultures interacting (34) — beyond cultural and social critique into neuroscience. Clara and Helio's creative act, blending and evolving cultural expressions, embodies a deep engagement with and reimagining of identity and community ties among Azorean expatriates. By converting literary texts into multisensory experiences, they transcend linguistic barriers, fostering a hybrid identity that demonstrates negotiation and cultural dynamism while emphasising art's role in articulating the complexities of cultural diversity through a neuroscientific lens.

colour synaesthetic associations. His colour theory parallels hues on the colour wheel with the sounds of musical instruments.⁵¹ Kandinsky saw synaesthesia as a tool for spiritual exploration, enabling access to hidden dimensions of consciousness and cognition through active painting, separate from physical reality (Dann 60-1). Scriabin, for his part, associated specific colours with harmonic tones in his scale, using a colour organ to project these associations during performances of his symphony, *Prometheus: The Poem of Fire* (1910) (Peacock 399, 402).⁵²

However, the complexity and multidimensionality of Helio's conversion method differentiate his and Clara's synaesthetic experimentations from simple synaesthetic algorithms and strengthen the synaesthetic connections between sounds and colours. Unlike Kandinsky and Scriabin, Helio and Clara emphasise the sensory-material aspects of synaesthesia. In their experiments, rest marks are depicted as white colours, with the size of the blotches encoding the time value of the keys (*Saudade* 222). They represent the multiple frequencies of chords as a variety of hues, and softness as diluted colour washes, with colour gradation analogous to pitch gradation (222).⁵³

Importantly, this synaesthetic mapping expands the colour palette of the alphabet's twenty-six letters to accommodate the piano's eighty-eight keys, generating a unique blend of hybrid hues. In the novel, "[a] silver, emerald, tan arpeggio might roll into rapid azure to dun to mustard dots in the treble octaves" (222).⁵⁴ This vivid portrayal testifies to *Saudade's* nuanced

⁵¹ Kandinsky views warm colours, such as yellow and orange, as vibrant and vigorous. These colours correspond to brass instruments, such as the trumpet, and old violin, respectively. The cooler madder (a dark, reddish hue) corresponds to string instruments, such as violin and cello, and the cold violet corresponds to wind instruments, such as the English horn (*Concerning the Spiritual in Art* 41-2).

⁵² For example, the key of F# major appeared to him violet in colour (for Scriabin's colour correspondences, see Myers). An early endeavour to synthesise colour with music can be traced to Louis Bertrand Castel's ocular harpsichord, proposed *circa* 1725 (Franssen 15).

⁵³ Furthermore, the grace note is portrayed as a whisker, possibly due to the whisker-like slash often written through the note stem (♩), while black, presumably two-pronged, pitchforks correspond to accents above notes (>) (222).

⁵⁴ In addition, white colours depict rest marks, with the size of the blotches encoding the time value of the keys (222).

exploration of the intersections between visual and auditory media. It indirectly implies a deep understanding of the principles of sensory neuroscience, such as the perceptual correlates of electromagnetic and sound waves manifesting as colour and pitch. It suggests that the novel's characters are capable of recognising and utilising these correspondences in their unique synaesthetic experiences, further amplifying *Saudade's* narrative depth and intricacy. In this way, the novel once again intertwines the artistic with the physical, the subjective with the objective, erecting yet another bridge between the material and the imaginative.

6.4 Colour-Inspired Music Composition: The Role of Shared Emotions

In the next step of their exploration, Helio begins composing music inspired by colour rather than traditional harmonic principles. His endeavours illustrate the way artistic practices evoke what German philosopher Theodor Lipps terms aesthetic empathy (*Einfühlung*), supported by neurobiological insights into art's role in creating shared emotional and perceptual experiences. This conversion of colour into sounds, akin to the transformation of books into paintings, forges a connection between the Lusophone and American cultures, unifying the Lodian community through a newly emphasised emotional unity. A notable instance of this occurs when Clara plays a “page of blues,” filling a fellow Lodian with a profound sense of sorrow. This evokes an audible grief response and brings tears to Helio's eyes (223-4). Consequently, the entire community “bathe[s] in the sounds of colors” and unites through the colours-turned-music (224). As the colouratura reaches the ears of passersby, they are deeply moved, and the boundaries between individuals in the community blur: “Who are the hungry ones? They? We? Why? Why am I weeping?” (224).⁵⁵ This collective introspection, prompted by the shared emotional experience, leads to a stronger communal bond and a reevaluation of shared values and identities.

⁵⁵ It is noteworthy that “coloratura” holds a dual meaning. In Italian, it refers to both “colouring” and to an elaborate melody with decorative musical embellishments, thus accentuating the synaesthetic nature of Clara and Helio's endeavour.

The term "Blue(s)" serves as a cultural crossroads, embodying associations from both Lusophone and American cultures. This recontextualisation breathes new life into common metaphors such as "feeling blue" or "having the blues," traditionally associated with sadness or melancholy. In *Saudade*, Helio's page of literal blue colours undergoes a transformative metamorphosis into music resonating with melancholy.⁵⁶ This musical interpretation of blue hues encapsulates a sense of sadness, reflecting the blues, an American musical genre synonymous with dejection. At the same time, the melancholic atmosphere conveyed by the melodic sounds derived from blue colours intertwines with the concept of *saudades*, a sentiment of longing, melancholy, or nostalgia typically attributed to the Lusophone temperament. Often expressed in poetry and songs, *saudades* are frequently evoked in *fado*, a distinctive Lusophone musical genre (Gray 3). Interestingly, despite their disparate historical contexts and shaping social factors, *fado* and blues share a strong affinity. Some, like Ase Ottosson, even refer to *fado* as the "Portuguese blues" (92).⁵⁷

By reestablishing the connection between the sensory aspect of the colour blue and the English linguistic expression "feeling blue," cultural resonances evoke *saudades*. This transformation is driven by synaesthesia, as the visual element is converted into a musical composition carrying the emotional connotations associated with the linguistic expression of sadness. This robust, multidimensional perceptual construct dissolves the boundaries between cultures, fostering interconnectedness and a unique communal identity, where American blues and Lusophone *fado* converge, creating a new, shared emotional vernacular.⁵⁸

⁵⁶ One proposed origin of the noun "blue," as it's used to mean "sad," can be traced back to its first recorded usage in Chaucer's "The Complaint of Mars" (c. 1385). This idiom might have been reinforced by the notion that anxiety produces a livid skin colour ("Have the Blues").

⁵⁷ In the realm of visual arts, the colour blue often symbolises desolation, exemplified by Picasso's Blue Period (Tate Modern).

⁵⁸ Another possible origin of "blue" in English comes from a nautical custom practiced when a ship lost its captain during a voyage. Upon returning to port, the ship would fly blue flags and have a blue band painted along her hull as a sign of mourning ("Nautical Expressions"). This intercultural connection is further strengthened by the pervasive theme of maritime loss. The theme is particularly evident in Clara's story, as her father perishes at sea, reflecting the broader Portuguese culture's history as a maritime empire.

The communal tears and grief elicited by Helio's conversion of colours into music exemplify “aesthetic empathy,” as coined by Lipps. This concept – where viewers project their own feelings onto an art object – bridges their internal emotional states with the artwork, as noted by Curtis (356). Lipps's theory highlights art's power to evoke similar emotions across different individuals, thus fostering a collective empathy that deepens emotional connections among audiences (356). Through the synaesthetic transformation of music and color, Helio's compositions transcend sensory boundaries, forging a shared emotional language that bridges cultural divides and enriches collective experiences, engendering a profound sense of unity.

Semir Zeki's neuroaesthetic research demonstrates that engagement with visual art activates neural circuits related to emotion and perception (Ishizu and Zeki 1413), uncovering a shared neurobiological mechanism underlying aesthetic experiences. This insight is naturally extended to synaesthetic art, which, by engaging a wider spectrum of senses, enriches emotional and sensory engagement. In a similar vein, Rokotnitz's concept of embodied resonance reveals how literature – like all art – viscerally activates the brain's emotional and sensory networks, providing a neurological foundation for Vernon Lee's early twentieth-century notion of empathic close reading. Lee's holistic approach to experiencing texts, engaging both intellect and body (Morgan 31), and her integration of Lipps' *Einfühlung* with physical responses to art, presciently reflect contemporary neuroaesthetic findings on art's impact on the brain and body (Allesch 233-4). The insights from Zeki and Rokotnitz build upon foundational ideas of empathy and aesthetics, showcasing through a contemporary neurological lens the way art induces shared emotional and sensory experiences. The portrayal of Helio's synaesthetic art in the narrative draws readers into a metafictional exploration of aesthetic empathy, inviting reflection on the nature of art, emotional resonance, and the experience of reading and engaging with fiction.

6.5 Words-Turned-Colours to Music: Bridging Spirituality and Neuroplasticity through Synaesthesia.

The culminating synaesthetic vicissitude in *Saudade* occurs when Clara converts words-turned-colours into music, achieving an embodied spiritual expression that further integrates cultural narratives. Moreover, through Clara's synaesthetic journey, her progressive ability to smoothly blend words, colours, and music into a unified experience suggests an underlying adaptability of the brain, embodying a profound interplay between cognition, art, and spiritual growth.

Unifying the two previous trends of her synaesthetic explorations – converting literary works into pictures and colours into music – the culturally mediated symbols of writing, previously transformed into colours, acquire another perceptually immediate, auditory dimension. According to Clara “words could be reborn as colors but also as actual music” (228). Since Clara has internalised the conversion mechanism of colours-to-sounds, the auditory rendition of literary works-turned-paintings occurs naturally, almost automatically, as books-turned-colours stimulate a spontaneous concert in Clara’s mind. Thus, every visual characteristic of the book involuntarily induces a musical counterpart – hues are “lilting,” the coral and brassy colours, corresponding to specific piano notes, are heard erupting, a painted dialogue is perceived as pleasing to the ear (“euphonics”), and shades are heard as rhapsodies (228). The process of synaesthetic induction mediated by the arts makes way to synaesthetic perception, now occurring for Clara as inevitably as for idiopathic synaesthetes: “[c]olors could not only guide her to producing sounds on an instrument; they had sounds themselves!” (228). As induced synaesthesia begets synaesthetic phenomenology and causes brain reorganisation (Rothen et al., “Neural, Behavioral, and Phenomenological Changes” 151), it attests to the remarkable neuroplastic abilities of the brain. The brain’s adaptability in response to learning fosters recovery from trauma (see e.g. Levin, and Neumeister et al.), as exemplified in Clara’s case through synaesthesia. This adaptability creates avenues for the development of intervention, therapies, and strategies that can enhance brain function. Neuroplasticity in relation to synaesthesia will be discussed at length in the third chapter.

After undergoing this qualitative transformation, Clara and Helio embark on the task of translating books-turned-colours into music. Their endeavour to convey literary works through musical devices echoes the legacy of the symbolist movement, particularly the works of Andrey Bely, a Silver Age Russian writer who approached novel writing in musical terms (Tuchto 98-9). Bely sought literary analogies for musical devices such as *ritenuto* and *rubato* (99). In line with the second phase of the discourse of synaesthesia, he aimed to bridge the gap between literature and music, transcending the limitations of “matter” (99), and delving into mystical truths and life’s transfiguration, much like Kandinsky (Dann 60-1). As Dann elaborates, artists at the turn of the twentieth century strived to uncover hidden, or “occult,” depths of meaning through synaesthesia, dissociating it from its material component (60-1). The novel, like the treatise of Kandinsky, proposes that synaesthesia, by broadening perceptual limits, can play a crucial role in one’s inner spiritual journey (*Saudade* 229). However, unlike Kandinsky and Bely, Clara and Helio embrace and emphasise the sensory-material nature of the synaesthetic experience, enhancing its richness and impact.

This transformation of books to music by way of colour builds upon the principles established in the previous explorations of orthographic and chromatic associations, as well as the connections between chromatic and auditory elements. It extends these principles to forge meaningful links between the formal attributes and thematic elements of writing and musical notation. The final conversion once again demonstrates a deep implicit understanding of the physical and perceptual attributes inherent in different media, particularly in the realms of writing and music processing, heightening their interconnectedness. The translation of letters and words into music introduces the concept of “compound color-words” (*Saudade* 222, 228). Similar to a musical chord comprising multiple pitches that harmonise when heard simultaneously, a compound word combines multiple words to form a new word with its own meaning. The new conversion method applies the principles of complex word formation in language to correspond to complex sound formation of chords in music, deepening the intermedia correspondences (228).

Furthermore, the fundamental unit of rhythm, a quarter note, appropriately corresponds to the basic unit of orthography, a letter-by-letter dab (228).⁵⁹ Concurrently, the thematic tensions in literature find their musical counterparts. For instance, Clara employs accidentals (pitches not belonging to the indicated scale or mode) to “speckle” a story’s major conflicts (228). Just as borrowing notes from other keys and modulating between keys create tension and drama in a musical composition, the thematic conflicts of the stories are mirrored in the musical conflicts which aptly represent them. Similarly, the subdued minor chords convey the subplot of books-turned-paintings, while a medley, a heterogenous piece combining tunes from various sources, appropriately represents the chaotic sensation of crowds (228).

Aniruddh Patel's exploration in *Music, Language, and the Brain* of the profound interconnectedness between music and language at cognitive and neural levels illuminates the underpinnings of Clara's synaesthetic journey in *Saudade*. By highlighting the shared subprocesses which music and language undergo within the brain, including the ability to form learned sound categories, extract statistical regularities from sequences, integrate incoming elements into syntactic structures, and extract emotional meanings from signals (3-5), Patel's work offers a scientific foundation to the novel's artistic narrative and the experimentations of Bely. It suggests that Clara's ability to translate literary works into musical expressions – maintaining their linguistic essence even through the intermediary step of conversion to colours – is rooted in the brain's inherent capacity to convert complex acoustic sequences into perceptually discrete elements organised into hierarchical structures (3-5). This intersection between the cognitive sciences and the humanities provides a richer context for understanding

⁵⁹ Another revealing instance of this process is the conversion of the word “birth.” The green-blue, turquoise, circle fittingly “spells” “birth” – the first stage of the circle of life – as the green colour is associated with spring and birth while the blue colour is associated with the ocean – which holds the meaning of life (228). The visual characteristics of “birth,” which entail conceptual and symbolic significance, are transported to the word’s musical representation, as the turquoise circle is translated to “a whole note on the turquoise high C” (228). The colour of the word-turned-coloured-image (turquoise) is represented by a sound that stands for a C note on a high octave, as the latter is itself represented by turquoise in the musical notation-to-colour conversion algorithm, thus maintaining the order established previously. The visual appearance of the length of the note as “a whole note” (♯) – represented as an open circle – visually resembles the circle which represents “birth.”

the way Clara's translations go beyond mere artistic innovation, embodying a deeper, neurologically supported synthesis of music and language that reflects the essence of human communicative and perceptual abilities.

The meticulous depiction of the various synaesthetic transformations in *Saudade* provides the reader with valuable insights into the synaesthetic process. Phenomenological realisations, when situated within a scientific context, give rise to a bidirectional interaction between art and neuroscience. This neuro-Romantic interaction bridges the gap between the subjective and the objective while enriching our understanding of synaesthesia.

Upon completing the translation work of her library, Clara completes her transfiguration, seamlessly fusing paintings, language, and music, and reconnecting with the world around her (229). The Catholic doctrine, viewed sceptically in the novel due to the portrayal of the thieving and sexually abusive Father Eiras, is replaced by the artistic consubstantiated trinity, with music manifesting the Father (229). Similar to the Christian Trinity, where God exists as three distinct yet consubstantial entities, the triad of paintings, language, and music can also be profoundly similar despite their differences through synaesthetic transformations (229).⁶⁰ Through synaesthetic vicissitudes, these sensory-artistic manifestations reinforce and unveil hidden meanings, becoming interchangeable yet irreplaceable (229). *Saudade*, like the treatise of Kandinsky, suggests that synaesthesia, which expands perceptual boundaries, can play a crucial role in one's inner spiritual journey (229).

However, contrary to symbolist artists who divorced synaesthesia from its material aspect in their quest for spiritual insights, and the Romantics who focused on subjective experience, Clara achieves a harmonious integration of the material and the spiritual, as well as the objective and the subjective. It is this integration that leads to her personal metamorphosis. Significantly,

⁶⁰ Definition of the Fourth Lateran Council quoted in the Catechism of the Catholic Church. Latin: *substantia, essentia seu natura divina* ("Catechism" §253).

idiopathic synaesthetes do not view their synaesthetic experience as spiritual. For example, Giulia Carisi, a sound-to-colour synaesthete who paints songs, views her synaesthetic experience as neurological and realistic in line with postmodern art.⁶¹ Similarly, synaesthetic artists interviewed by Carol Steen and Greta Berman offer a pragmatic, matter-of-fact account of their perception (671-91). Clara's perspective on synaesthesia falls somewhere between these two extremes, much like her synaesthetic experience itself, which occupies a middle on the synaesthetic continuum elaborated by Marks. Notably, in the novel, spirituality is attained through embodiment and materiality, expanding one's sensory repertoire and facilitating communication between the senses, and between the senses and language. Paradoxically, to fathom the essence of existence – referred to as “the furthest plenary hunger of the universe” (229) – which in Catholicism entails renouncing of the body, one must instead explore it and fulfil its potential. The land of Transfiguration in Lodi indeed transfigures Clara, allowing her to establish a connection with her newfound place through the heightened potential of her senses and their interplay. Rootedness is discovered by embracing the workings of her senses and the artistic creations that arise from them, ultimately leading Clara to feel that “for the first time ... she [is] in a house made hers” (229).

The transformation of literary works into music, presented at public concerts, fosters a sense of unity and interconnectedness within the former Azorean community, exemplifying the dynamic link between interculturality, synaesthesia, and creativity, as highlighted by Nic Craith (149). Clara's translations encompass a diverse range of literary works, including renowned authors from the classical canon, works from Portuguese and American culture, and personal compositions. The wide array of literary expressions allows the Lodians to experience and

⁶¹ Carisi has described her personal process of painting, and the way it has changed over the years, while showing the auditory-to-visual correspondences in her works, in an illuminating talk entitled “Living Art’ - Giulia Carisi's Sound-Color Synesthesia Paintings Unpacked,” given at the University of Miami on March 11th, 2021: https://miami.zoom.us/rec/share/-O1q4yQ_JK14PKqauhLYSpRSwP03_1gZkNnUCJDeHJYCFDEbk83fFYXihg23ujX2.6CpEJ8mHwSckFh40. Access Passcode: Jh3A+goQ

participate in expanding and contracting cultural circles through the immediacy of music (230). The concert culminates as two women from the community hold conch shells to their ears listening to Camões, the renowned Lusophone poet, “so that the music would strike them salted and double-force from the echo chambers of the sea” (230). The incorporation of the sea’s sounds – the ultimate source of myths and culture for the Azoreans — and its sensory qualities enhances Clara’s music and unites the Lodians, echoing the initiation process Clara underwent with Jose Francisco and Conceição using conch shells.⁶² Through the immediate and direct perception of sound, culminating in music, and facilitated by Clara’s synaesthetic expressions, the novel comes full circle.

In the Romantic critique, the eighteenth-century notion of poetry as visual art – *ut pictura poesis* – gives way to the deeper kinship between poetry and music, the latter being seen as a more faithful mirror to the poet's inner world than painting. While painting captures the external, music transcends mimicry, directly expressing and evoking the spirit and emotions, thereby aligning closely with the essence of poetry. This shift from depicting the external universe to revealing the artist's internal emotional landscape heralds music and poetry as “twin sisters,” united in their mission to unveil the soul's hidden depths (Abrams 50-1).

In *Saudade*, while music indeed takes primacy as synaesthetic endeavours culminate in musical expression, Clara and Helio's approach transcends traditional artistic boundaries by embracing the sensory-material aspects of art. They emphasise multi-sensory experiences and cultural hybridity, weaving together synaesthetic transformations with implicit neuroscientific insights. This embodied melding of different cultures and art forms underscores an interdisciplinary approach to creativity, starkly contrasting with the Romantic era's emphasis on the transcendental and emotional, which often divorced art from its material aspects while underscoring individual emotional expression.

⁶² See Appendix II.

This chapter delved into the diverse and interrelated aspects of interconnectedness, building up to induced synaesthesia. *Saudade* provides a rich insight into the synaesthetic process, its various manifestations, and its pervasive nature that imbues every facet of life with a creative perspective. The novel's neuro-Romantic essence establishes multiple reciprocal material-imaginative bridges between subjective perception and physical embodiment, while fostering a profound interconnectedness between the reader and the text throughout the reading experience. The synaesthetic experiences rejuvenate personal and communal engagement with language, art, and music, bridging cultural divides and enhancing communal identity. Through transformative engagements with literature and music, the novel offers a profound exploration of human perception, emotion, and cultural interconnectedness. It embodies a meta-narrative that transcends traditional sensory and cognitive boundaries, enriching individual and collective experience alike and deepening the embodied understanding of the interplay between various processing systems.

Saudade offers a novel approach to bridging the Kantian dichotomy between the noumenal (things as they exist independently of perception) and the phenomenal (things as experienced through perception), intertwining Romantic philosophical tenets with contemporary science. According to Kant, the noumenal realm remains inaccessible as empirical data are processed through the synthetic-interpretive operations of the mind, thus accentuating a stark divide between subject and object. Schelling, however, challenges this view by positing a point of convergence where mind and matter become one, suggesting that “sometime the point must come where mind and matter are One, or where the great leap that we so long wished to avoid becomes inevitable” (qtd. in Bowie). This perspective is a departure from Kant's stricter separation, proposing instead a metaphysical unity that blurs the line between subjective and objective realms. *Saudade* builds upon Schelling's insights, integrating modern neuroscience to further explore this unity. *Romantische Naturphilosophie*,

or Romantic philosophy of nature, to which Schelling was a significant contributor, began this exploration by focusing on nature's appearances rather than its empirical essence due to the limitations of scientific tools at the time. *Saudade* advances this exploration by leveraging contemporary scientific advances, striving to bridge the divides that early Romantic philosophers pondered. Thus, the novel acts as a literary enactment of Schelling's philosophical ambition, seeking to reconcile and transcend traditional metaphysical distinctions through an entangled imaginative-scientific framework.

While idealist Romantic philosophy emphasises metaphysics, Romantic literature focuses on the body and sensual experiences, both serving as different modes of transcending ordinary perception and understanding. However, Romantic poets often prioritise sense impressions enhanced by individual imagination rather than embodied interconnectedness with the world.^{63,64} Contrary to the Romantics poets, *Saudade* does not privilege subjective imagination alone. Instead, it seeks balance between subject and object, bridging the gap through materiality and embodiment. The novel grounds subjective imagination on a common neuroscientific foundation,

⁶³ Alan Richardson asserts that many British Romantics were in fact preoccupied with the body, and, specifically, with “the corporeality of thought” (*Science of Mind* 40, 68). Some, notably Coleridge, were involved in the intellectual scientific atmosphere of the period which explored the notion that the mind is a function of the body (56, 68). Thus, Richardson concludes, “with however much ambivalence, Romantic-era writers did engage much more extensively and, in many cases, more directly than has generally been recognized with contemporary brain science” (36). However, this engagement did not culminate in an understanding of the relationship between subject and object, nor with the means to bridge the gap between them.

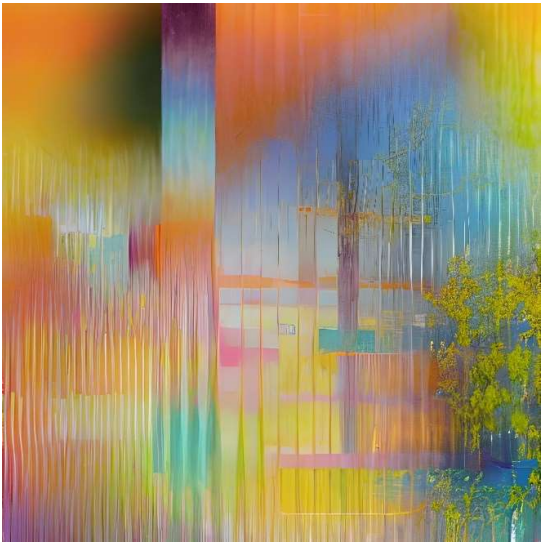
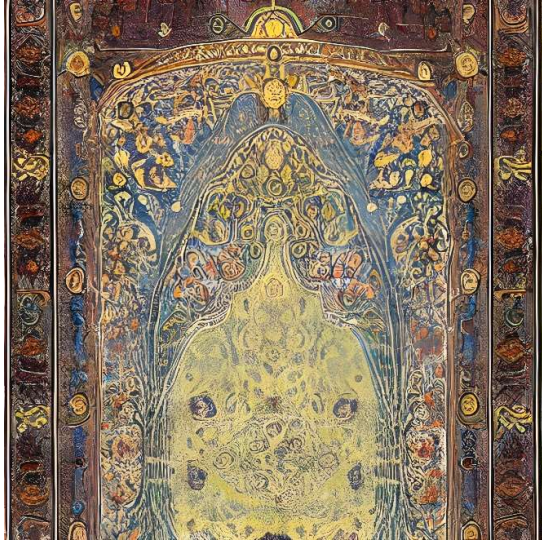
⁶⁴ Another caveat to this generalisation is that recent scholarship acknowledges the significant contributions of Romanticism to the Second Scientific Revolution and the creation of new scientific disciplines, challenging previous dismissals and highlighting its enduring influence on both science and the arts (Andrew Cunningham and Nicolas Jardine xix-xx). Richard Sha, who redefines the connections between Romantic literature and science through the concept of imagination, also challenges the prevailing notion of Romanticism’s hostility towards science. He argues for a more integrated view, showing that Romantic artists and scientists used imagination as a tool to deepen their engagement with the physical world, seeing it as a way to explore phenomenality rather than retreating from reality. This period witnessed a shift from a focus on individual components to understanding the relationships between parts within a whole, contributing to advancements in fields such as morphology and cell theory. Romantic imagination, therefore, is presented not as a divergence from scientific rationality but as a complementary approach to exploring and understanding the complexities of life and the natural world (1-9). Notwithstanding these advancements and shifts in understanding, the Romantic era's contributions, while significant, remained limited in bridging the humanities-sciences divide to achieve a comprehensive view of the subject-object relationship.

portraying it as a bridge to physically reconnect with the world and others. It engages with contemporary theories of perception and synaesthesia to deepen the exploration of these themes.

In the upcoming chapters, the exploration of synaesthetic interconnectedness will continue, with Bender's *Lemon Cake* highlighting the perils of interconnectedness observed in mirror-touch synaesthesia (MTS) accompanied by an acute sense of interpersonal withdrawal and alienation. Whereas interconnectedness in *Saudade* is very broad and linked with a very wide understanding of synaesthesia, in *Lemon Cake* interconnectedness underlies more specific neurological phenomena – MTS and autism. Through its phenomenological narrative, *Lemon Cake* provides a nuanced perspective on hyper-empathy and autistic spectrum disorders, suggesting that hyper-empathy, inherent to MTS, can co-exist with autism.

In *Lemon Cake*, as well as in Moore's *Memory Artists* and D. Smith's *Beautiful Miscellaneous*, the idiopathic nature of synaesthesia is highlighted. However, it is only in *Lemon Cake* that the portrayal of synaesthetic experiences exceeds the normative scope, adopting an ostensibly magical quality.

My analysis of *Memory Artists* and *Beautiful Miscellaneous*, like my analysis of *Saudade*, will examine the extremes of material interconnectedness on one end and material dissociation on the other, as demonstrated in neurological conditions. These subsequent chapters will likewise continue exploring the way scientific and personal insights could be reached through synaesthesia, creativity and reading, while touching upon neuroplasticity.



Aimee Bender's *The Particular Sadness of Lemon Cake*: Synaesthesia in the Twilight Zone between Magical Realism, Autism, and Post-Postmodernism

Through mirror-touch synesthesia ... my body physically feels the experience of others – sometimes betraying me, losing me in the people I see before me.

–Salinas, *Mirror Touch: Notes from a Doctor Who Can Feel Your Pain*

Often I failed to respond to other people at all. I acted as if they weren't even there ... I could be completely oblivious to my surroundings, totally absorbed in a pile of Tinkertoys ... I seldom met anyone's gaze.

–Robison, *Look Me in the Eye: My Life with Asperger's*

1. Introduction

In this chapter, the focus extends beyond textuality, to explore the unique insights that literature might offer to neuroscience. Particular attention is given to a close reading of Aimee Bender's *The Particular Sadness of Lemon Cake* (2010). This analysis argues that the novel not only provides a compelling literary narrative, but also serves as a valuable heuristic instrument for understanding and refining current scientific hypotheses about the interplay between mirror-touch synaesthesia (MTS), hyper-empathy, and autism. In MTS the mere observation or imagination of somatosensory stimulation in another person or object can trigger a similar somatosensory experience in oneself (Banissy 592), blurring the boundaries between self and other. Autism is characterised by social skill challenges, repetitive behaviours, and difficulties in speech and nonverbal communication (ICD-11, chapter 6, section A02). By focusing on the embodied experiences of the novel's characters, my study challenges and expands the neuroscientific view of these phenomena, aiming to present a more comprehensive and

inclusive view of autism and its various manifestations. Specifically, it highlights the variability of sensory and emotional processing in autism, including hyper-empathy and MTS as its potential manifestations, underscoring the condition's complexity and meriting further neuroscientific investigation.

Moreover, it sets the stage for a comprehensive account of autism that includes heightened empathy as an intrinsic aspect of the condition, coexisting with, rather than excluding, the frequently observed reduced social aptitude (for a discussion of the latter, see "Mirror-Touch Synaesthesia is Not Associated with Heightened Empathy"). I argue that *Lemon Cake* demonstrates that while cognitive empathy, which pertains to the ability to understand another's emotional perspective (as discussed by Baron-Cohen), might be less prevalent in individuals with autism, reactive empathy, marked by immediate emotional responses (Banissy 596), may be more dominant. As evidenced through the protagonists' experiences, such intense empathic reactions can lead to social withdrawal, given the challenges in processing these overwhelming emotions.

As demonstrated in the first chapter with *Saudade*, and to be explored further in subsequent chapters with other novels, the characters' lived experiences in each of the works discussed challenge, affirm, or expand upon scientific theories and findings. However, it is solely within *Lemon Cake* that the entire narrative and all its main characters collectively form a microcosm, a narrative universe that implicitly advocates one scientific theory over another. In light of this, Stephen Burn's viewpoint offers a compelling perspective. He contends that an exclusive emphasis on a novel's overt themes may overlook its broader, non-narrative dimensions – a crucial oversight given the comprehensive influence of the neurological revolution. Burn indicates that the most illuminating syndrome novels are not those that blatantly feature cognitive models within the plot, but rather those that subtly weave them into the narrative's fabric (36). In the case of autism, notable examples include Jonathan Safran Foer's *Extremely Loud and Incredibly Close* and Mark Haddon's *The Curious Incident of the Dog in the Night-Time*. The former features an autistic narrator (Tweed 34) without directly identifying him as such, while

the latter presents a protagonist whose perspective and behaviour resonate with experiences commonly associated with autism, though he is never explicitly labelled in the text. Both novels convey the lived autistic experience without directly exploring the neuroscience behind it. Burn concludes that to fully comprehend the portrayal and implications of neurological diversity in literature, it is essential to look beyond the explicit and delve into the more nuanced, intricate layers of the narrative (36). My perspective unveils the way *Lemon Cake* implicitly endorses certain scientific theories through the interplay of character development, narrative structure, and thematic subtleties, enriching the dialogue between literary art and scientific exploration in ways not previously explored.

Lemon Cake is the story of Rose Edelstein, a hyper-empathic girl who can taste people's emotions in the food they prepare. After she discovers this ability, Rose finds herself plunged into a world where food reveals the hidden feelings of those around her, from her mother's despair and depression to her brother's feelings of blankness and alienation (37, 36, 62, 67). As a result of these traumatic experiences, she becomes withdrawn and distant, forced to navigate a landscape filled with her family's secrets, such as her mother's extramarital affair and her father's emotional detachment. Meanwhile, her brother Joseph, who also plays a significant role in the narrative, exhibits a peculiar habit of disappearing and reappearing, finally merging with a foldable chair.

The novel engages with themes of isolation and interconnectedness, often portrayed through the characters' relationships with others and physical objects. Rose and Joseph, in their interactions with the outside world, present two apparently extreme poles: Rose's ability overwhelms her sense of self as she involuntarily experiences the emotions of others, while Joseph turns away from human interaction entirely, becoming one with an object. *Lemon Cake* and its characters oscillate between symbiosis with and separation from other people and objects, often not finding the right balance between the two extremes.

Though the themes explored may seem unrelated to neuroscience on the surface, the novel illustrates literature's potential to deepen our understanding of neurodivergent traits such as

mirror-touch synesthesia (MTS), hyper-empathy, and autism. This is demonstrated by the fact that the apparently magical elements in Bender's novel are in fact grounded on scientifically accepted models of neurodivergent behaviour. These models serve as stepping-stones from which seemingly unrealistic occurrences are derived. Thus, paradoxically, the novel's fantastical elements find grounding in scientific views, which are extended, expanded, and, at times, taken to extraordinary extremes. As such, akin to *Saudade*, the fantastical elements in the novel bridge the gap between imagination and science, offering a unique narrative universe where the two intersect.

This implicit interplay of neuroscience and storytelling in Bender's work sets the stage for exploring literature's unique capacity to illuminate aspects of human experience that science may overlook. My analysis of *Lemon Cake* extends Tzachi Zamir's argument, originally concerning philosophy's limitations in capturing the breadth of human experience, to critique the empirical constraints of neuroscience. Zamir suggests that close engagement with literature provides insights into human experiences that philosophy, with its reliance on syllogism, often misses (51). His insights correspond to the Aristotelian notion of the *enthymeme*, a form of argument that omits an obvious premise, allowing literature to utilise principles from known experiences to elucidate unknown aspects of human conditions (8). Applying this framework, my analysis reveals neuroscience's limitations, paralleling Zamir's critique by demonstrating how scientific methods may overlook the nuanced realities of neurodiversity, by relying strictly on quantifiable data and standardised experiments. The critique of empirical constraints is broadened by Bruno Latour and Steve Woolgar who argue that scientific facts are constructions influenced by subjective factors (36), and Mario Valdes, who notes the role of language in shaping our understanding of reality (21). Together, these perspectives suggest that such biases and linguistic influences prevent science from accessing a 'true' understanding of reality, thereby challenging the objectivity often ascribed to scientific inquiry. My reading of *Lemon Cake* enriches our comprehension of neurodiversity, while

challenging the methodologies of neuroscience, thus advocating for a broader, more integrated approach to understanding human experience.

My analysis thus serves as a heuristic device. Although Bender's work may not be bolstered by rigorous scientific evidence, this approach facilitates contemplation of the scientific debate. Specifically, it delves into the nuanced aspects of cognitive difference, shedding light on the interrelationship between MTS, hyper-empathy, and autism through phenomenology and embodiment. The goal of this approach is not to produce a sweeping scientific conclusion from the novel's depiction of cognitive difference, nor to definitively resolve the debate. Instead, it is utilised to sharpen and refine current scientific hypotheses, thus contributing to an entangled, meta-epistemological framework of literature and neuroscience from which new patterns can emerge. While neuroscientific theories and findings on the relationship between MTS, hyper-empathy, and autism will be referenced and discussed, Bender's focus on embodiment enables a more profound exploration of the insights provided by the narrative's imaginative journey.

Expanding upon this focus on materiality and embodiment, the examination of *Lemon Cake* provides a means of re-establishing connections with the world and offering glimpses into the nature of perception through art (Coole 95-115). The approach to embodiment functions in three interrelated ways: it serves as an interpretive framework for reading *Lemon Cake*; it advances a broader approach to literature that advocates for immersive text engagement through close reading; and it accentuates the embodied resonance between the reader and the literary text. While these distinctions are outlined for the sake of clarity, it is important to recognise that these facets of embodiment are largely intertwined and mutually influential. For instance, the neural mechanism proposed to explain MTS is predicated on the same system of mirror neurons that are thought to underlie the resonance of reading, as elaborated in the general introduction. Consequently, *Lemon Cake*'s thematic emphasis on empathy mirrors the intrinsic empathetic engagement inherent in the act of literary reception.

2. MTS, Hyper-empathy and Autism: The Neuroscientific Debate

The co-occurrence of autism and synaesthesia at large has been long established in neuroscience (“Is Synaesthesia More Common in Autism?” 1). The intersection has also found representation in contemporary fiction, notably in Sarah J. Harris’s *The Colour of Bee Larkham’s Murder* (2018) and Anna Ferrara’s *The Woman Who Tried to Be Normal* (2018).

Lemon Cake probes deeper into this co-occurrence by providing a phenomenological-imaginative account of the specific scientific debate regarding the interplay between MTS, hyper-empathy, and autism, offering a complex, non-binary perspective. Two different scientific mechanisms, which could potentially complement each other, have been suggested to explain mirror-touch synaesthesia (MTS). One interpretation proposes the existence of a mirror-touch system. This system arises from the overlap of brain regions that are activated both when one experiences touch directly and when observing another person being touched. Such an interpretation is backed by the discovery of certain brain areas that have “mirroring” properties. These regions are activated when an individual performs an action or experiences a sensation such as pain or disgust, as well as when the individual observes another person undergoing a similar experience (Banissy 590).

The other proposed mechanism suggests that MTS results from an error in the neural systems that differentiate self from other. In this case, the tactile experience of another person is mistakenly located onto the synaesthete’s own body. This proposition ties closely to findings that MTS is linked with changes in perceived body space. The boundaries of perceived body space between self and other may be broader in individuals with MTS, suggesting a potential alteration in their perception of body boundaries (591). Consequently, it is suggested that MTS could reflect a malfunction in the system that normally distinguishes between self and other. This failure might

lead to blurred boundaries of perceived body space and misrepresentations of another person's body onto the synaesthete's own body schema.⁶⁵

In a parallel fashion, there is evidence to suggest a potential relationship between the mirror neuron system and the social and communicative deficits observed in autism. The “broken mirror hypothesis” posits that impairments in the mirror neuron system may contribute to the social and communicative challenges experienced by individuals on the autistic spectrum (Rizzolatti and Fabbri-Destro 230-3).⁶⁶ Thus, autism and MTS could share some common neurological features, serving as a point of linkage between these two conditions.

Leading researchers, including Ralph Adolphs, Christian Keysers, and Giacomo Rizzolatti, propose that understanding another's emotions and physical states requires the perceiver to map the observed body state onto their own experiential representations. MTS, linked to heightened neural activity in a network of brain regions also activated in non-synaesthetes when observing touch, is suggested to play a role in facilitating social perception through sensory-motor stimulation. Furthermore, mirror-touch synaesthetes were found to show higher levels of emotionally reactive empathy – affective components of empathy and instinctive empathic responses to others – compared to controls, attesting to its possible role in facilitating social perception abilities (Banissy 596).

While many researchers emphasise the empathetic tendencies in mirror-touch synaesthetes, Simon Baron-Cohen and his colleagues challenge this perspective. Contrary to the previous researchers, their study did not find evidence that these individuals possess heightened emotionally reactive empathy. Importantly, the researchers found that mirror-touch synaesthetes,

⁶⁵ Coined by the neurologist Sir Henry Head to denote “the impressions produced by incoming sensory impulses in such a way that the final sensation of body position, or of locality, rises into consciousness charged with a relation to something that has happened before” (*Studies in Neurology* 607-8).

⁶⁶ However, this hypothesis does not fully explain all aspects of autism, such as the ability to understand the goals behind other people's actions.

as well as grapheme-colour synaesthetes, scored higher on the *Autism Spectrum Quotient* (AQ), a standardised test measuring autistic traits. Given that autism is frequently associated with social deficits and challenges in cognitive empathy, Baron-Cohen et al. interpret the elevated AQ scores among mirror-touch synaesthetes as indicative of their diminished empathic capacities (“Mirror-Touch Synaesthesia is Not Associated with Heightened Empathy”).

Moreover, the researchers suggest that autistic spectrum disorders are diagnosed more often in males, as females are more likely to be recognised as having synaesthesia, due to their ability to camouflage their social difficulties. In this context, camouflaging, or masking, refers to the observed tendency among some females to mask or adapt their social challenges, potentially to align with societal expectations or to mitigate social difficulties (Gould 703). Such camouflaging could inadvertently shift the focus onto their pronounced sensory experiences, leading clinicians toward a synaesthesia diagnosis. This implies that certain females initially recognised for synaesthesia might, upon closer scrutiny, exhibit traits that resonate more closely with autism (11). Thus, Baron-Cohen et al. essentially claim that empathy is not elevated in MTS, while autism is in some cases mistakenly diagnosed as MTS.

Nevertheless, the empathy proponents, among them Jamie Ward, Patricia Schnakenberg and Michael Banissy, do not accept this stance, perpetuating the debate around the relationship between MTS and empathy. These researchers maintain that MTS is unquestionably linked to an elevated level of emotional empathy and an enhanced capacity to interpret facial expressions of emotion. They support their stance with innovative experiments and the development of new screening instruments (314). *Lemon Cake* takes the reader on an experiential, embodied journey, which offers a possible resolution to this scientific disagreement, presenting a comprehensive portrayal of autism that includes hyper-empathy exhibited in MTS as one of its manifestations.

3. Embodied Interconnectedness, Cognitive Difference, Post-postmodernism, and Magical Realism

Having established the neuroscientific context for embodied interconnectedness, hyperempathy, MTS, and autism, this analysis explores the distinctive depiction of cognitive differences in *Lemon Cake*. The thematic tension between the conflicting themes of alienation and interconnectedness, along with the inherent instability of the novel's genre, underlies the cognitive exploration that permeates the novel. Sidestepping genre constraints and medical terminology, the novel palpably depicts neurological variation. The use of magical realism amplifies the discernible sense of cognitive differences, paradoxically inducing a sensation of hyper-realism while reinforcing familiar accounts of neurological conditions to the reader, rather than portraying them as supernatural. Consequently, it challenges traditional scientific dichotomies and expands our understanding of neurological diversity.

Lemon Cake focuses on hyper-empathic Rose, offering compelling insights into her unique perception: “[t]he first day I could see emotions, I felt the heat from the oven door smack flat against my face. It was stronger than any flinch, any squint” (11). However, the narrative intricately weaves in the tale of her brother Joseph's intermittent presence, further exploring neurodiversity: “[h]e wasn't here, and then he was. He began to appear, just in the corner of the room. First a flicker, a wisp of him. Then more and more, and every day he got a little more solid. He looked just like himself. [...] He was a chair. Joseph was a chair” (283).

This narrative shift has been critiqued by Jodi Chromney, who argues that it diverts attention from Rose's extraordinary abilities and gives the impression that Bender struggles to regain control of the narrative (“The Particular Emptiness of *Lemon Cake*”). Contrary to this view, the present analysis suggests that Joseph's narrative complements Rose's experience, reinforcing the exploration of cognitive differences as each sibling manifests a distinct form of autism.

The novel explores the tension between isolation and interconnectedness, depicted through characters' relationships and interactions with their environment, with objects frequently mediating human connections. This thematic thread encapsulates Rose and Joseph's extreme, apparently opposed, interactions with the external world, struggling to balance selfhood with their respective unusual abilities. Rose's involuntary empathy blurs her self-identity, leaving her isolated as others' feelings intrude via the medium of food. Eventually, she finds an acceptable balance between herself and the world, as she aids at-risk teens using her unique ability, and prepares for independent living. Conversely, Joseph shuns human interaction, becoming increasingly entwined with inanimate objects, culminating in his blending with a chair. This thematic tension lies at the heart of the novel's portrayal of the autistic experience, which manifests as a persistent sensory and emotional imbalance between the autistic individual and her surrounding world.

Echoing the oscillation and thus indeterminacy of the characters' relationships, *Lemon Cake* defies straightforward genre classifications, paving the way to examine how instability and uncertainty permeate the narrative structure and character interactions. Just as the characters grapple with their fluctuating relationships and blurred identities, the novel itself navigates between genres, reflecting its continuous search for a definable place within literary boundaries. The novel's genre has elicited varied interpretations from critics, reflecting its complex engagement with literary forms. Illustrating this diversity, Kelly Budruweit identifies elements of magical realism in the novel, alluding to this genre's capacity to "revitalise the human value of literature" through enchantment (109). Conversely, Benjamin Widiss interprets the narrative as a nuanced variation of the *Bildungsroman*, critiquing the very genre it seems to adopt (14-16). The narrative's vacillation between magical realism, coming of age, the fantastic, and detective fiction might have classified *Lemon Cake* as an undecided postmodern text that deconstructs existing categories to address the constructed nature of reality (Bennett and Royle 280). However, the novel does not settle into the expected mould of a destabilising postmodern text. Rather, it

challenges the postmodern “hermeneutics of suspicion” (Josselson 1), mitigating destabilisation and epistemic uncertainty by attempting to anchor textual meaning in physicality and materiality. Contrary to many contemporary postmodern novels exploring cognitive difference, *Lemon Cake* eschews prevalent tropes such as paratext, metafictionality, and unreliable narratorial voice (Tweed 30-3). This generic indeterminacy, much like the thematic tension, underscores the novel’s strategic use of literary tools to adeptly convey the inherent ambiguity of the autistic experience, characterised by a fundamental imbalance. By renouncing the “hermeneutics of suspicion” and eschewing common postmodern tropes, however, *Lemon Cake* not only avoids the pitfalls of overused literary devices but also seeks solid ground – the authentic core of the autistic condition. This approach offers a fresh, grounded portrayal of cognitive differences, anchoring its narrative in the physical and material aspects of its characters’ experiences.

In addition to defying traditional genres, *Lemon Cake* challenges conventional portrayals of cognitive differences by depicting hospital interactions as unproductive, avoiding medicalised discourse and labels (Bender 289; 60-2; 286). While the novel avoids explicit medical terminologies, it subtly highlights traits associated with autism and hyper-empathy. Bender skillfully interweaves references to these cognitive differences without explicitly naming them. For instance, Joseph, the male character, is object-oriented, systematic, and inclined towards science, while Rose, the female character, exhibits hyper-empathy (“Autism, Hypersystemizing, and Truth” 64). Furthermore, Joseph's characterisation, marked by his aversion to physical contact and a robotic demeanour, stereotypically mirrors key indicators of autism: “[Joseph] used big words too early... and they tried to hug him, which he refused. Me no touch, he said” (Wilson et al. 2523-4; Bender 40). However, these initially hyperbolically portrayed stereotypical traits of masculine and feminine roles are progressively challenged throughout the narrative.

The deliberate circumvention of medicalised language and the undermining of stereotypes aim to shift focus from labels and objectified discourse towards the mental correlates and

phenomenological aspects of these conditions. Rose's narrative, while authentically artless as befits her youth, is imbued with a surprising maturity. The narrative instability is counterbalanced by this vividly reliable emotional account of her journey, as well as the psychological implications of her and Joseph's difference. Rose's portrayal as a richly individualised character, with a deep inner world and palpable anguish, concretises her predicament. This reliable narratorial voice pushes back against postmodern narrative of destabilisation, especially in the context of representations of cognitive difference (Tweed 106). While *Lemon Cake* simultaneously challenges narrative norms and seeks affective veracity, it seeks to move beyond the thematic and stylistic territories often explored by postmodernist literature. It strikes a delicate balance, negotiating between narrative destabilisation and the tangible authenticity of its characters' experiences, positioning it within the realm of post-postmodernism ("Notes on Metamodernism").

Building on the theme of cognitive difference, the novel also challenges readers' expectations through its use of magical realism. Paul Armstrong's investigation into the neurobiological basis of mirroring, empathy, emotions, and embodiment within the reading process lays the groundwork for reinterpreting magical realist characteristics. Eva Aldea suggests that magical realist elements, by presenting a dichotomy, move away from the dynamic sensorimotor interplay of the human experience, thus facilitating access to the virtual – a realm of abstract potentials beyond conventional space and time (19, 84). However, magical realist characteristics in *Lemon Cake* can be elucidated through the lens of the mirror-neuron system and embodied resonance. Here, apparent magical realist features do not necessitate belief in some form of transcendent awareness beyond the reach of common experience available only to the characters (Rokotnitz 279) or embrace the "mystical magical" (Tweed 10). Instead, they encourage readers to identify a primal mode of perception and communication that underpins their own cognitive structure (Rokotnitz 279). Rather than negating the human sensory-motor experience, when combined with an all-encompassing affective realism, these elements give rise

to a paradoxical sensation of hyper-realism. Contrary to Aldea's portrayal of these elements as supernatural (2), my analysis suggests that they form a continuity with familiar (if stereotypical) accounts of neurological conditions, enhancing and reifying these conditions by rendering them more palpable and accessible. The choice of magical realism underscores the novel's innovative approach to using literature to depict cognitive differences, underscoring the extensive opportunities literature offers for contributing to our knowledge of such conditions.

Thus, Rose's ability to taste others' emotions in food is an enhanced and palpable variation of MTS, accentuating her hyper-empathy, rather than a supernatural element embedded in everyday life. Given that both synaesthesia and autism are viewed as spectrum conditions (Ward and Gözde 134; Lundsöm 2424), there is a continuum that links these conditions with ordinary perception. This implies that elements of synaesthetic and autistic traits potentially reside in all of us, and we can gain a sense of these experiences through embodied resonance (Rokotnitz 275).⁶⁷ This embodied resonance facilitates identification with the characters' emotional and perceptual states.

Lemon Cake enables readers to physically discern the extremes of these conditions, thus pushing this exploration to its limits, as illustrated by Joseph's blending with a chair. Even this transformation provides an intimate understanding of a deep fascination with physical objects, a significant characteristic in some forms of autism (Wilson et al. 2524). Freed from the constraints of realism, literature can bring us closer to otherness than many objective discourses. By magnifying experiences, it conveys the emotional counterparts of cognitive difference more vividly, and effectively unpacks complex neuroscientific concepts.

In a similar vein to Heather Tweed's account, which evaluates literary portrayals of cognitive difference in relation to societal stereotypes, my analysis explores the ways Bender

⁶⁷ For a detailed exploration of embodied resonance and its significance in facilitating the reader's affective engagement with synaesthetic experiences in literature, see chapter one, p. 37, 52.

challenges neurological stereotypes. However, I regard *Lemon Cake* as an imaginative narrative that provides embodied, phenomenological perspectives on the nuances of cognitive difference.⁶⁸ By closely examining the novel's intricate details, the profound ways in which the text delivers experiential insights into these neuroscientific phenomena are revealed. Close reading, which fosters an intimate familiarity with the text ("Against Interpretation" 10), mirrors *Lemon Cake*'s thematic focus on embodiment and sensory, physicalist thinking as paths to renewing familiarity with others and the world.

Although the novel incorporates elements of detective and mystery fiction, featuring Rose in a continual quest for her vanishing brother, the true enigma she seeks to unravel lies in her family's unique cognitive differences.⁶⁹ Rose acts more as an experiential than an experimental scientist, making scientific discoveries through embodied personal experiences. Her final revelation – that despite their perceived differences, she and Joseph share an inherent cognitive similarity – fosters a nuanced understanding of the novel's depicted neurological variations, which effectively challenge the constraints of rigid medical classifications. By contesting the dichotomous classifications in medical discourse, Rose's journey paves the way for a more nuanced understanding of cognitive differences, aligning with the novel's larger challenge to stereotypical representations.

⁶⁸ However, as autistic stereotypes range from the trope of the magical, mystical autistic figure, to that of the vulnerable, dependent child in contemporary discourse surrounding cognitive difference, *Lemon Cake* at least partially subverts by amalgamating these tropes, with Rose being both a magical figure with a "supermouth" and a vulnerable child (Tweed 10; *Lemon Cake* 71).

⁶⁹ While Tweed emphasises the link between the detective figure and autism (which is stereotypically associated with savantism), there are also examples of the same stereotypical association between the detective figure and synaesthesia (Tweed 38). Notably, Jane Yardley's *Painting Ruby Tuesday* (2003) and Jefferson Parker's *The Fallen* (2006) rely on their protagonists' synaesthetic mindset and abilities to solve crimes, combined, in the former novel, with the protagonist's quirkiness and notable idiosyncrasies due to her neuroatypicality.

4. Intersecting Threads: The Material and the Elusive in *Lemon Cake*

4.1 Intra-action, Materiality, and the Challenge of Detachment

Through its physical and material manifestations of cognitive differences, including Rose's sensory experiences and Joseph's transformation into a chair, *Lemon Cake* embodies New Materialist thought, highlighting the vibrant potential of all matter, as articulated by Bennett (3). This perspective is complemented by Agential Realism, proposed by Barad (*Meeting the Universe Halfway* 26). The latter further deepens the analysis, showing the way entities in *Lemon Cake* do not preexist but emerge through intra-actions, redefining boundaries between self, others, and the material world. This approach enriches our understanding, illustrating the novel's challenge to the rigid boundaries of Cartesian dualism through material-discursive becoming, in which all entities, animate or inanimate, participate equally ("Posthumanist Performativity" 810). Engaging with New Materialism and Agential Realism thus enhances our appreciation of the material world's role in shaping experiences and identities, providing a comprehensive framework for analysing interconnectedness in the novel.

However, intra-action and intersubjectivity are threatened by their very opposite – detachment – just as neuro-Romantic interconnectedness is challenged by *saudades* in *Saudade*. *Lemon Cake*, like *Saudade*, thus attempts to navigate between two extreme modes of relating to the world and others. The following sections will explore this oscillation and imbalance. In the culminating section, the ongoing tension between merging with others and maintaining selfhood is explored through the lens of magical realism, emphasising the significant role of empathy in understanding and navigating relationships. Specifically, Rose's nuanced and profound ability to experience others' emotions through taste, a manifestation of autism, highlights the complexities and challenges of intersubjectivity, illustrating her struggle with personal identity amidst intense emotional and sensory interconnectedness.

4.2 All-Permeating Intra-active Interconnectedness

Lemon Cake is characterised by a strong interconnectedness between the characters and their material surroundings, reflecting the phenomenological idea that consciousness extends beyond the mind to include bodily and environmental interactions. Echoing themes from *Saudade*, it dismantles the barriers between various material entities, including humans and furniture, and challenges the traditional distinctions between mind and matter. This interconnectedness is vividly manifested through the imagery of touch, the fluid exchange between mental and bodily states, and Rose's heightened gustatory abilities, reinforcing the intricate web of relationships between entities and intensifying the connection between characters and their physical surroundings. The concept of intra-action, illuminated through an empathic, meditative, and immersive reading, will now be illustrated vividly with examples from the novel.

Furniture and objects in *Lemon Cake* become narrative focal points, serving as bridges between characters and palpable manifestations of the connections between them. This profound interconnection resonates with Bill Brown's advocacy in his seminal article "Thing Theory" for a direct engagement with the tangible world (1, 3). In a pivotal example, Lane, the matriarch of the Edelstein family, spends the majority of her time constructing furniture. This activity allows her to intra-act with the material essence of the world, fostering a symbiotic engagement. Her son, Joseph, develops an unusual fixation with a chair, eventually merging with it, thereby highlighting his intense engagement with physical objects. Lane's initial encounter with Paul – the man who would later become her husband and the father to her children – revolves around a velvet footstool. This object, initially sought by Lane and strategically procured by Paul, transforms into a cornerstone of their relationship, reflecting the complex interplay between personal connections and material entities. As time progresses and circumstances evolve, Rose, enchanted by its enduring and faded charm, assigns it a new role and space in her room, further accentuating the intricate bond the characters share with the physical objects around them (85-6).

Furniture also plays a vital conduit for touch between Lane and Joseph, who struggles to reciprocate gaze. Their bond deepens through a shared ritual of splinter removal: “[h]e pulled splinters from her hand, weekly. Even in college, even during finals week. On the couch, with tweezers, for hours” (191). Joseph’s manual dexterity is highlighted, with his hands described as “long beautiful hands, like a pianist’s, fingers able to sharpen and focus like eyes,” starkly contrasting with his otherwise weak grip (43). *Lemon Cake* thus posits touch as a potentially more meaningful connector than vision, which is a more distancing sense.⁷⁰ By blurring the boundaries between individuals and objects, touch tangibly embodies bonding and attachment.

Another manifestation of interconnectedness in *Lemon Cake* is the intricate intertwining of body and mind, challenging the Cartesian dichotomy and aligning with New Materialist thought. This perspective, reflecting agential realism, asserts that matter and meaning are not separate but inextricably linked within the processes shaping our reality. The characters’ physical and mental states seamlessly transition into each other, suggesting a deep-seated fusion of their physical and cognitive existences. A case in point is Rose’s father, Paul, whose physical appearance transforms due to his mentally taxing job as a lawyer. This melding of mental stress and physical change is evident when his hair becomes “matted and rumped” after a strenuous workday, with the text noting: “by the end of the day, his hair, black and thick ... [has] taken the hit for all the work worry in his hands” (13). Here, Paul’s hair serves as a barometer for the mental load he carries in his hands, manifesting physically as it bears the brunt of his professional anxieties.

Similarly, as Rose nears the discovery of her brother merged with a chair, her mood, portrayed as a material entity, mechanically shifts. The text illustrates the physical nature of her emotions, stating: “it shifted my mood a little ... The irritation was becoming just a staticky front

⁷⁰ See section 5.2 for a detailed exploration of the way in which vision plays a pivotal role in detached scientific observation.

underneath of which was forming an arrow of anticipation, beginning to point” (186). This statement epitomises how Rose's mental states manifest physically: irritation, depicted as a static yet material force, transitions into anticipation, visualised as an ascending arrow, marking the shift in her mood.

Furthermore, in *Lemon Cake*, the lines between human interactions, physical processes, and inanimate objects are blurred, with sentience attributed to objects and humans depicted in a mechanistic light. Joseph's sole friend, George, a dedicated science enthusiast, exemplifies this overlap. George's hair serves as a bridge between the personal and the cosmic, between the organic and the inorganic. It is not merely “kind of curly and extremely curly” hair, but “galactic hair,” reflecting the interconnected spirals found in natural and cosmic phenomena. By drawing parallels between the spirals in his hair, cyclones, galaxies, and seashells, George exemplifies the interconnectedness of all things (31-2). This focus on the commonality of patterns across diverse entities underscores the theme of intra-action, demonstrating the interplay and mutual shaping between individual entities and the broader universe.

The manifestation of spiraled phenomena in both organic and inorganic realms embodies a common feature: asymmetry. This is observed in diverse examples such as George's “messy tousled hair” (31), cyclones, and galaxies. The spiral shape of cyclones, for instance, results from the Earth's unequal rotational speeds at the equator and poles (“Coriolis Effect”). Similarly, galaxies form spiral arms due to the uneven position of stars within them. Even mollusc shells, including the “miniature conch” that George points out to Rose (32), and the curliness of hair, which results from an asymmetrical distribution of keratin (Lavelle, par. 3), follow this pattern.⁷¹ The asymmetry across various scales and domains indicates a common

⁷¹ By presenting these examples, George weaves a continuum between biological and physical phenomena, all underscored by the inherent asymmetry prevalent in physical and biological processes, which is the driving force behind change and evolution. This theme resonates with the work of Scottish naturalist James Bell Pettigrew who famously linked the prevalence of spirals in nature to the principle of asymmetry in his *Design in Nature* (1908). As observed by Kevin Dann, Pettigrew argued for the purposeful design of spirals, and his

organisational pattern, indicative of deep-rooted interconnectedness, reflecting the concept of intra-action.

Reflecting the transformative power of spirals, George's journey from adolescence to adulthood embodies ease and fluidity. He spirals away, transitioning from Pasadena to Caltech and then to MIT, a path that showcases his smooth transition through life stages, his seamless geographical relocations, and his effortless assimilation into society. His relocation to Boston signifies the beginning of his independent life, finding a girlfriend and eventually marrying (152; 212, 236). Thus, George's development, in harmony with the world, reflects the quintessential nature of spirals as catalysts for change across physical, biological, mental, and social dimensions. His journey accentuates the theme of interconnectedness in the novel, seamlessly integrating these domains.⁷²

The novel intricately intertwines the organic and the inorganic, entities usually seen as diametrically opposed. In *Lemon Cake*, these traditionally distinct categories converge to forge a unique blend between the sentient subject and the physical world. This exploration establishes intra-action, redefining the boundaries between the human and the nonhuman and spotlighting the intricate web of interconnectedness central to the novel's narrative. Through its many manifestations of intra-action, the novel powerfully illustrates how self, other, and the material world are interconnected. Each example elucidates the diverse ways entities, rather than existing as isolated beings, continually engage in mutual co-creation of their realities, a

exploration of these shapes may have inspired a new generation of "spiralists" – one of whom may be George ("Helical Seashells and Spiralling Galaxies").

⁷² Another profound illustration of interconnectedness between the animate and inanimate is represented in the relationship that Eliza, Rose's friend, has with her parents, which is equated to a carefully arranged array of books on a shelf. When the family goes out for a movie, "[t]he popcorn would reside in Eliza's lap, and both parents would dip in as they flanked her, as if she were the sole precious book between their sturdy bookends" (121). This analogy captures the supportive, balancing role of Eliza's parents, akin to bookends on a bookshelf, offering physical support to a cherished book – their daughter Eliza. This arrangement, evoking envy in Rose, extends beyond a simple literary device, merging the animate with the inanimate, and serving to spotlight one of the novel's central themes: the interconnectedness of organic and inorganic entities.

hallmark of intra-action. This lens offers a profound re-imagining of the interconnected nature of existence, challenging the rigid dichotomies traditionally prevalent in our understanding of the world.

4.3 The Phenomenology of Alienation: Failing to Connect

Even though the novel establishes equivalences between human and material attributes and emphasises mediation through objects, these dynamics do not invariably foster balanced interconnectedness or endow characters with a substantive grip on the world. Indeed, George's balanced interconnectedness stands in stark contrast to the imbalance experienced by the Edelstein family, whose members exhibit imbalances in their engagement with the world. Notably, despite their seemingly contrasting ways of relating to the world, Rose and Joseph demonstrate both overwhelming interconnectedness and estrangement. In addition, Rose, grappling with her place in the world, finds that objects do little to foster meaningful interpersonal relationships. Her worldview, shaped through the lens of balanced and imbalanced embodiment and materiality, utilises these concepts as semiotic building blocks that encode and inform her understanding of the world.

With these complexities considered, the specific interactions between autism, empathy, and sensory perception begin to manifest more distinctly. According to Elwin et al., the imbalance between self and world, frequently demonstrated as sensory under- or over-stimulation, is fundamental to understanding high-functioning autism spectrum conditions (232). Here, the nexus between neurological conditions and experiential alienation becomes illuminated, as for autistic individuals, particularly children, sensory overload can intertwine with emotional processing difficulties. These challenges may stem from atypical sensory function that can trigger uncontrolled emotional reactions due to weak neural connections between cognitive and emotional brain regions (South and Rodgers). This dynamic often culminates in heightened confusion and uncertainty in social and emotional contexts. Importantly, these findings resonate with Roman Ingarden's theory that views empathy as intimately connected to

physical states as they manifest through sensory experiences (170-1). From this perspective, the autistic individual's sensory perception and empathic responses are interwoven, shaping their unique perception. Empathy is thus one feature among many that can be unbalanced in autism.

This inability to adequately filter sensory inputs, embodied in Rose's magical realist synaesthetic ability, indeed often results in overwhelming emotions, and limited emotional regulation, leading to feelings of insecurity and vulnerability. Significantly, Rose's family provides a clear illustration of these intricacies, acting as a microcosm for various manifestations of autism and its complex interplay with hyper-empathy, which corroborates research showing that autism often runs in families (Szatmari 159). While excessive interconnectedness can risk self-effacement, a concept that will be explored later, it is the lived experience of insufficient interconnectedness – leading to a sense of detachment and isolation from the environment – that most profoundly impacts the characters examined in this section.

Specifically, in contrast to the earlier examples of continuity between mind and body, alienation becomes prominent through the disconnect between them, as manifested in Rose's extraordinary synaesthetic gustatory abilities. For example, while Rose physically experiences the emotional truths hidden in food, the school nurse misconstrues these as mental anguish. This misunderstanding leads to a 'dialogue of the deaf' over the concept of "hollowness." While the nurse interprets this as a psychological state, believing Rose feels overweight, for Rose it represents a palpable physical reality (28). Further amplifying this imbalance, Rose's gustatory ability, initially experienced as a "subtle shift inside" akin to an alert sensor (9), transforms her physical body into a vessel for unwelcome mental intrusions. The intense distress she encounters pushes her to an extreme desire to physically disown her mouth: "I started tearing at my mouth. Get it out! I roared" (74). Towards the novel's end, a painful revelation is layered with irony. As Rose takes over the family dinners following Joseph's disappearance, she tastes hollowness in her own cooking. This unexpected emptiness is a reflection of her under-connectedness – her detached and dissociated mental state – and it resonates with a longing for simpler times (242).

Thus, even as the mental and the physical intermingle, with the mental void she has been physically sensing in food now transferred to her own mental state, their intra-action underscores absence rather than a substantive presence in the world, indicating an imbalance of interconnectedness. In addition to her unique perception of taste, Rose's relationships with those closest to her amplify her struggle for interconnectedness. This struggle exemplifies the way imbalanced interconnectedness can lead to heightened emotional sensitivity, a phenomenon often associated with autism and MTS.

Further examining Rose's struggle, the material metaphors provided by Lane – Rose's mother – become elusive mirages that unsettle Rose's sense of identity and connection with the world. Instead of strengthening her relationships with her family and the world, materiality acts as a *Fata Morgana*, intensifying her alienation and destabilising her self-identity. This is vividly portrayed through Lane's fickle natural analogies for her children. Initially, Lane likens Joseph to a desert, and Rose to a rainforest:

Mom ... thought Joseph was perfect, even though he was often in a bad mood, rarely made eye contact, and ignored everyone. She called Joseph the desert ... because ... he was an ecosystem that simply needed less input. Sunshine'll do it for Joe, she said ... He is economical with his resources, Mom told me, since Joseph wasn't listening. And what am I? I asked ... Rain forest, she said ... You are lush, she said. I need rain? Lots of rain (52-3)

However, Lane soon abandons these initial comparisons, re-characterising Joseph as a geode and Rose as a piece of sea glass, to Rose's dismay:

You said Joseph was the desert? ... Nah, not the desert, as if the conversation had never happened. Joseph, she said, is like a geode – plain on the outside, gorgeous on the inside. ... He has facets and prisms, she said. He is an intricate geological surprise. ... And me? ... You're – She smiled at me ... You're seaglass, she said. The pretty green kind. Everybody loves you, and wants to take you home. (57-8)

While at first Lane's analogies seem to anchor Rose in the physical world, their inconsistency undermines the stability and potential grounding the material world could offer. Rose takes Lane's first comparison seriously, attempting to understand herself through the metaphor of the rainforest: "I drew a whole line of lightning bolts very fast, and then took the blue chalk and made slashes of rain everywhere, in the dry and cloudless air" (55). However, Lane's thoughtless revision of her own words disorients Rose, disrupting her budding understanding of herself through the lens of the material world and her mother's interpretation. Studies in developmental cognitive neuroscience underscore the critical role parents, especially mothers, play in shaping a child's self-perception and their understanding of their surroundings (Whittle et al. 8). Lane's fluctuating analogies undermine this formative process, yielding not clarity, but confusion. The abrupt shift from rainforest to sea glass is not only arbitrary but also leaves Rose grappling for a consistent self-image and a stable connection to the physical world. Unlike in *Saudade*, where self and world are interwoven and mutually dependent, Lane's changing analogies preclude reciprocation between Rose and her surroundings. Consequently, feeling alienated and slighted, Rose must reassure herself that the comparison to sea glass is a compliment: "[i]t was a compliment, I kept thinking to myself ... it's supposed to make you feel good" (57-8). Lane's inconsistent metaphors complicate Rose's self-understanding, but her relationship with her brother Joseph most poignantly highlights her sense of alienation due to imbalanced interconnectedness.

This alienation is evident early in their relationship, underscored by failed physical interconnectedness. Although the siblings share a rare moment of connection following Joseph's unexplained disappearance, this event, against the backdrop of a relationship marked by Joseph's frequent avoidance – evident in the "Keep Out sign on his door, written in seventeen languages" and adorned with a black-inked skull and crossbones – serves only as a stark reminder of their ongoing estrangement. He claims to have been in Rose's room, searching for a pink Pegasus pen, triggering a shared laughter (121, 123). Rose's reaction encapsulates her physical response to

this glimmer of interaction. She is fully absorbed in the moment, bodily involved in the shared joy. However, Joseph's whimsical story and Rose's physical reaction serve as a mirage rather than a bridge to understanding.

The siblings' shared moment quickly dissolves the following day as Joseph withdraws, illustrating the profound instability of their connection. When Rose attempts to relive the interaction by recounting the pink Pegasus pen joke, Joseph's response is markedly absent: "I ... started a monologue about the previous night that ended in the retelling of the pink Pegasus pen joke ... Joseph didn't laugh once. His mouth a line, while he watched me slap the table" (125). This interaction, marked by Joseph's unresponsive façade, leaves Rose's attempts to make sense of the experience and recreate the previous day's laughter unfulfilled. The pink Pegasus pen, likely fictional, fails as a material intermediary, while their shared laughter, a physical reaction, proves ineffective as a bonding agent. Thus, neither of them substantiates Rose's place within her family or the world.

These themes of failed connection and instability are further evident in Rose's interactions with inanimate objects in her home. Similar to *Saudade*, *Lemon Cake* demonstrates a bidirectional continuity between the human and physical worlds, as objects are frequently animated and anthropomorphised. However, the physicality and materiality within *Lemon Cake* often serve as palpable, albeit somewhat insipid, substitutes for human interaction, due to the typically estranged and remote nature of personal relationships in the Edelstein family. This dynamic is particularly apparent when Rose is left alone, causing the house and its inanimate occupants to spring to life:

[T]he car drove off. The house settled around its new number of inhabitants ... [I] kept myself busy for an hour, zipping the doll gals around in boats made of slippers, marrying and divorcing the stuffed animals. I had stolen Grandma's chipped teacup from the kitchen cabinet, and I used it as a friendly companion to the stuffed flamingo ... The polished brown rock was best friends with the beheaded Barbie (120)

Though Rose's interaction with her toys initially appears as typical imaginative play – a re-enactment and enactment of experiences, including marriages, divorces, and boat rides, to make sense of the world – the presence of broken and incomplete elements is unsettling.⁷³ It evokes an eerie and uncomfortable feeling, suggesting that something is amiss. The teacup is chipped, and the Barbie – all body – is missing a head, indicating things are not quite in place. While the occurrences in *Lemon Cake* could evoke in the reader Todorov's concept of the fantastic – a genre in which the boundaries between the uncanny and the marvellous are blurred, causing a sense of ambiguity and hesitation about the nature of the events described (24-5) – Rose does not find herself perplexed by her experiences. As Jo Carney insightfully suggests, the bizarre in Bender's prose does not serve as a fascinating phenomenon in itself but as an indication of "postmodern dislocation and estrangement" (226). Indeed, Rose experiences a profound desynchronisation and temporal displacement within herself during her play, feeling "half five years old and half forty" (Bender 120).

Moreover, the chipped cup functions as a material substitute for her absent maternal grandmother, who is depicted by Rose as a telephone in a school assignment.⁷⁴ Unlike in *Saudade*, where the telephone operates as a conduit, connecting Clara with her external world and sparking her synaesthetic journey, for Rose, the telephone represents an alienating mechanism that merely outlines a grandmother she has never met. Consequently, Rose's anthropomorphisation of inanimate objects does not result in the balanced interconnectedness seen in *Saudade*, but instead highlights her family's deep-seated alienation. It highlights the

⁷³ The unsettling sensation aroused by Rose's play is reminiscent of E.T.A. Hoffmann's gothic tale "The Nutcracker and the Mouse King," wherein Marie Stahlbaum's seemingly innocent toy play takes a sinister turn. Her favourite Christmas toy, the Nutcracker, comes to life and spirits her away to a magical kingdom populated by dolls, only after defeating the evil Mouse King in a gruesome battle. In Hoffmann's tale, a fine example of the Todorovian fantastic, the reader is left uncertain until the very end whether Marie's feverish experiences are reality or figments of her imagination (Todorov 24-5).

⁷⁴ Rose's portrayal of her grandmother is influenced by their curt, one-sided Sunday phone calls, the only form of communication they share: "[w]hen a teacher had us draw our grandparents for an assignment on ancestry, I monopolised the black crayon, and my picture had been of a thick black box with grating, lines extending outward to indicate voice" (*Lemon Cake* 24-5). This telephone, in stark contrast to the device in *Saudade*, functions as an alienating symbol rather than a bridge to the outside world.

pervasive imbalance that characterises their relationships, with matter becoming the only constant left.

The novel reinforces anthropomorphism, akin to *Saudade*, through its vocabulary, bestowing objects with human attributes, as depicted, for example, when Rose “[d]ug the dish towel into the mouths of mugs” (46). However, this personification of objects does not foster any interconnectedness with the world outside or others, offering no remedy for alienation. Thus the said dish towel was sent by Rose’s absent grandmother “with [Rose’s] name on it” (23) along with other worn-out items such as the chipped teacup. Despite being threadbare and faded, the towel holds emotional significance for Rose (23).⁷⁵ Rose harbours a particular affection for her dish towel, a gift which stands out due to its personalised nature and its routine use in drying dishes: “I loved my dish towel ... It was soft and worn and smelled like no-nonsense detergent” (24; 46). The dish towel, with its tactile and olfactory characteristics, serves as a physical link to her grandmother. However, the rose-patterned towel symbolises Rose rather than providing a stand-in for her absent grandmother. Its design, described as an “optical illusion namesake,” creates a mirage of Rose’s identity, thereby isolating her further. Instead of promoting a sense of interconnectedness, even as a substitute, the dish towel underscores Rose’s isolation, offering only a fragile, illusory perception of self.

Rose’s attempt to bond with her father, Paul, through his passion for soccer, offers another illustration of failed communication. She painstakingly draws accurate soccer balls, earning brief approval from Paul (39). However, when she attempts to add personality to the balls, indicating her desire for a deeper connection, Paul’s enthusiasm wanes (101; 39). His gaze at Rose is fleeting and rather than looking directly at her, Paul sees a diminished image of Rose

⁷⁵ The continual dispatches of discarded items from Rose's grandmother culminate in a stark delivery, following her death. It included her pale-blue felt slippers, an empty pill bottle, and a box of ashes, held within an elephant-carved teak box. Tracing the contours of the carved elephant's feet, Rose's mother reveals her hand in its creation, remarking quietly, "I made this box" (249). In the face of Rose's grandmother's death, the last parcel, containing her ashes in a personally crafted box, underscores the inescapable isolation – it signifies the tangible remnants of a life, yet fails to mitigate the emotional distance.

reflected from the television set, akin to a reflection of a reflection, distancing her from their shared environment of the TV room to the unfamiliar context of a World Cup final in Brazil (101-2).

The television and the soccer ball, instead of bridging the communicational gap, only emphasise the chasm between them, as Paul does not reciprocate her effort to pass the ball in their metaphorical game. The estrangement reaches a peak when Rose expresses her dislike for beer (102). More than just signalling her withdrawal from their shared activity, her declaration resonates with her exceptional gustatory abilities. Her aversion to beer, a component of their bonding experience, highlights her unique sensory perception and emphasises the depth of her alienation.

4.4 The Phenomenology of Fusion: Being Drowned by Others

The sense of isolation discussed in the previous section sets the stage for a deeper exploration of how this condition paradoxically leads to an overwhelming merging of identities and experiences. Rose's challenges in connecting with her family stand in stark contrast to her unique ability to intuit others' emotions through food. This duality embodies the core challenge of autism: navigating the precarious balance between self and the external environment. Her distinctive talent stems from her empathic nature, palpably manifesting itself through the medium of taste. While MTS is scientifically defined as experiencing similar somatosensory sensations – including pain or touch – as the person observed, *Lemon Cake* vividly embodies this concept through magical realism, providing richer insights into the understanding of others.

Taste, a sense more intimate and visceral than vision, conveys the essence of others' emotions to the reader in a more relatable manner. The repercussions of Rose's alienation and her unmet longing for connection manifest in her body. Her mouth acts as a bridge to others, unveiling the intricacies of their inner worlds. Rose's ability to absorb others' emotions disrupts the natural give-and-take of interaction, leaving her invisible and unacknowledged. As Rose

becomes more attuned to the feelings of others, her growing fear of being overwhelmed threatens her sense of self. This realisation is further highlighted when she tastes her own cooking, only to find an absence of self, an inner void (242).

Rose's profound empathy for others is intricately tied to her fluid, intersubjective essence, which enables her to resonate with others' emotions. A prominent theoretician of intersubjectivity, Edmund Husserl portrays intersubjectivity as the realm where individual consciousnesses connect (107, 130), primarily through empathy. Empathy is the conduit that allows us to understand and relate to the experiences of others (134-5, 146-7).

This interconnected understanding moulds our collective perception, integrating our personal experiences into a broader, shared "life-world" (*Lebenswelt*) – the lived experience of everyday life (133-6). Drawing parallels from a psychological perspective, Heinz Kohut, a prominent self psychologist, likewise underscores the critical importance of the self-object experience in our emotional well-being, likening its role to that of oxygen.⁷⁶ He contends that without this experience, individuals can experience profound distress. Moreover, he views empathy, the bedrock of intersubjectivity, as a multi-dimensional concept indispensable to both biological and emotional survival (Orange 158-9).

Echoing the ideas of Husserl and Kohut, Rose's experiences illuminate the complexities of intersubjectivity. When Rose's offerings of connection are unmet, the equilibrium between her and others tilts. Drawing upon New Materialism's emphasis on the entanglements of matter and meaning, Rose's palpable empathy – as materialised in MTS – serves as a physical embodiment of Husserl's intersubjectivity, albeit in an unbalanced form. She becomes a vessel for others' inner worlds, resulting in an unending vigilance to prevent being overwhelmed. Despite the need

⁷⁶ Heinz Kohut's theory of "self-objects" pertains to individuals or experiences that are perceived as extensions of one's self, essential in the formation and sustenance of one's self-concept, especially during early developmental stages. These self-object relationships are integral components of intersubjectivity, as they reflect the deeply intertwined nature of self and other, suggesting that our understanding of ourselves is fundamentally shaped by our interactions and experiences with significant others in our lives (Ornstein 56-7, 60-3).

for others remaining unfulfilled, Rose's constant challenge lies in preserving her selfhood amidst the tumult of others' emotions. This basic inability to balance deficiency and excess is thus at the heart of her predicament. The ensuing thematic and formal examples offer insight into the lived experience of intersubjectivity as it progresses towards a total fusion with others, highlighting the potential perils when this interplay of consciousnesses becomes lopsided.

Rose's intersubjective nature and ability to form relationships is consistently highlighted throughout the novel. Lane depicts Rose as a "lush forest" requiring external sustenance. Notably, Rose's intuitive ability to offer a hug precisely when needed is described as "magical," highlighting her profound affinity for forming connections (Bender 53; 232).

However, Rose's spontaneous interpersonal acumen is most evident in her encounters with strangers, starkly contrasting with her tense family interactions. These exchanges underscore her inherent need for others to ground both her own identity and her perception of the world. Rose's inclination towards reciprocal recognition is manifested in casual street exchanges. For example, after she offers a simple smile to a mechanic, he "reciprocate[s] the gesture," leading her mother to observe, "you meet people so easily!" (40). Resonating with the intersubjective, interconnected tapestry of beings in *Saudade*, Rose fosters a continually expanding circle of participants who physically affirm one another's presence through gestures and through their shared physical surroundings. Thus, "[a]t a red light, [she] acknowledged an older woman," exclaiming "I achieved four reciprocative gestures" (19). In another instance, an encounter on a pier illuminates her ability to solidify her place in the world: "[w]hen I reached the end of the pier, I stood by a short old Japanese fisherman... Now I am here too, I said. The two of us, here, he said. Did you see the sunrise? Over the mountain, he said. Pretty? He nodded. Orange, he said. Pink" (54). The impromptu conversation with a stranger underscores Rose's palpable presence in the world, highlighting the physicality of their shared environment, with the fisherman vividly painting the sunrise hues.

Within the confines of her home, however, familial interactions prove elusive. In a notable episode in *Lemon Cake*, Joseph, lost in his textbook, remains absent from the shared circle of gazes. Consequently, Rose feels compelled to imaginatively draw him in to elicit a make-believe response: “He laughed, and looked” (19). Similarly, juxtaposed against George’s assertive grip, Joseph’s handshake is disappointingly lifeless, reminiscent of holding a wilted plant rather than a human connection (60). The estranged family dynamics, clearly evident in her brother’s behaviour and markedly in that of her parents, contribute to her feelings of alienation. Feeling more like “an echo than a participant,” these dynamics disrupt the delicate balance of intersubjectivity, pushing her toward an undesired fusion with others (49).⁷⁷ Given that realistic, quotidian, material objects fail to bridge the gap between Rose and her family members (as discussed in the previous section), *Lemon Cake* employs magical elements to explore interconnectedness. Consequently, as Rose’s attempts at reciprocation are thwarted, leaving her lonely and isolated, other people’s emotions – materialised as taste – come bursting forth through the physical medium of food. Invoking Freud’s “return of the repressed” (“Repression” 154), in a palpable, material form, this unwelcome onslaught tilts the balance from separateness towards its opposite – complete merging.

Ironically, the first time her mother’s emotions unexpectedly pervade her being, Rose tastes feelings of hollowness and absence, as is accentuated in the pivotal passage below. This highlights the potentially elusive and unstable nature of the notion of self which will come to haunt her:

I could absolutely taste the chocolate, but in drifts and traces, in the unfurling, or an opening, it seemed that my mouth also filled with the taste of smallness, the sensation of shrinking, of upset, tasting a distance I somehow knew was connected to my mother, tasting a crowded sense of her thinking, a spiral, like I could almost even taste the grit in her jaw that created the headache ... there was a kind of lack of wholeness to the flavors that made it taste hollow, like the lemon and chocolate were just surrounding hollowness. My mother’s able hands had made the cake,

⁷⁷ Importantly, a dysfunctional family is a recurrent motif in representations of autism (Tweed 108).

and her mind had known how to balance the ingredients, but she was not there, in it (Bender 10)

Whereas for George the concept of the spiral entails grounding and connectedness with the physical and social universes around him, for Rose, this concept is unsettling – a downward spiral detaching her from herself and hurtling her into her mother’s psyche. When Rose is overwhelmed by her mother’s emotions, she discerns that her mother feels hollow and incomplete, baking the cake mechanically without genuine presence. This insight evokes postmodern angst and challenges the very essence of the self, suggesting that merely enacting selfhood, displaying autonomy, and passing a form of the Turing test might not truly define one’s selfhood.⁷⁸

However, notwithstanding the perceived emptiness, the sensation of her mother manifests in a palpable and physical manner to Rose, thereby highlighting the polarity between material presence and the lack thereof. Closely related to and further accentuating the imbalance between embodiment and immateriality is the novel’s main unresolved conflict – the tension between impenetrability and all-permeating self-boundaries. Just as self-isolation is countered by merging with others, the self’s apparent illusoriness is countered by physicality and corporeality, both tensions comprising an attempt to challenge the postmodern collapse of tangibility and familiar categories of identity and relatedness through a confrontation with the materiality of the other.

Yet, the onslaught of materiality is overpowering. Before reaching a new equilibrium or homeostasis (if they can indeed be attained), this incursion proves painful and perturbing,

⁷⁸ Another pivotal manner in which *Lemon Cake* addresses postmodern concerns is through Rose's exceptional ability to deconstruct food. She discerns its intricate ingredients, traces their origins, and intuits the emotions and characteristics of those who produced them: “I just want to add that the eggs are from Michigan ... See there are two different milks, I said ... One is cream, from Nevada, I think, due to the slightly minty flavor, but then there is regular milk too, from Fresno ... Organic pigs, I added. North California, I said ... How do you know they’re organic? He said. It’s in the aftertaste, I said. Grainier. I’m thinking of east Modesto, I said ... The butter is French butter, I said. Not pasteurized. The parsley is from San Diego. The parsley farmer is a jerk” (271-2). While interrogating the substantiality of a basic, preverbal concept like food, *Lemon Cake* seeks a path beyond the postmodern phantasmagoric *cul-de-sac*. It finds footing in social reality, manifested when Rose reconciles with her unique talent and leverages it to assist teenagers in navigating their emotions.

coercing Rose to endure more than she can bear. When the surging materiality of others starts dominating Rose, she tries her utmost to avoid it. For example, there is a point in the novel when, having tasted a sandwich that was “yelling at [her] to love it,” she feels that “the yelling was too loud, and it was too much information to sort through, and it was way too much for nine years old” (65-6). Rose’s profound relief is palpable when the intrusive sensory experience subsides, drawing comfort from “the “traffic outside” and appreciating the protective barriers of the “closed car windows” where emotions of “people [she] couldn’t access” remain contained (66). From a neurological viewpoint, Rose’s imbalance underscores her difficulty in regulating the interplay between her self and the overwhelming stimuli of the world, especially from others.

In light of the novel’s exploration of materiality and self-boundaries, Burn’s intersection of postmodern thought and neuroscience offers a pertinent lens for analysis. Burn suggests that many themes ascribed to postmodernism resonate within brain science. He advocates for a reading of contemporary fiction that incorporates its neurological dimension, challenging the division between postmodernism and the sciences (35). While *Lemon Cake* leans more towards a post-postmodern approach, Burn’s insights provide a framework that merges literary-theoretical perspectives with a neuroscientific focus, as evident in the preceding analysis.

The conflation of the post-postmodern onslaught of materiality with the emotional and sensory over-stimulation characteristic of autism is amplified in the inescapable relationship between Rose and her mother. Despite her strategies to control her food intake externally, Rose remains vulnerable to Lane’s cooking (69). Unable to endure the palpable weight of her mother’s emotions in the food, she is driven to the point of wanting to excise her own mouth, a raw reflection of her distress: “I TASTED YOU, I said. GET OUT OF MY MOUTH” (76). A doctor soon reminds her of the unchangeable nature of her being: “You can’t remove your mouth... It’s part of my body” (79). She perceives the weighty message from Lane, concealed in the food, a cry for help echoing like a “message in a bottle sent to the eater” (80-1). As she bears this distress, the material message seamlessly translates into a clear emotional

understanding: “I got the message” (81). This phrase captures her immediate comprehension and the unavoidable, physical acceptance of her mother’s pain.

The magical manifestations of emotions through food are set against the backdrop of Rose’s quotidian and self-conscious struggles with unbalanced intersubjectivity. This further emphasises that magical realism serves to exaggerate an already present feature rather than introduce an extraneous element. This realistic imbalance is particularly evident in Rose’s relationship with Lane. Despite the hollowness Rose tastes in foods prepared by her mother, she largely perceives her mother as overwhelming and engulfing. There is an instance in *Lemon Cake* when Rose feels a mixture of envy and gratitude when her brother gets more attention: “I felt such a clash inside ... when she praised Joseph. Jealous ... but also relieved that he absorbed most of her super-attention, which sometimes made me feel like I was drowning in light” (57). Without a protective shell, Rose feels swamped by her mother’s intensity. This sensory portrayal of her mother’s attention, powerful enough to overshadow Rose, likens emotional and physical sensations, highlighting the continuity between them and the profound impact both have on Rose.

While *Lemon Cake* illustrates the perils of intense, symbiotic relationships, it also showcases the potential for salubrious empathy and the capacity to forge deep intimacy between individuals, both of which are particularly significant and defining for Rose. Thus, in addition to moments where Rose feels consumed by her mother, the novel also presents instances where Rose actively seeks physical closeness with her. For example, in an attempt to help insomniac Lane fall asleep, Rose would nestle into her lap. Without words, Lane would stroke her hair, and Rose, enveloped in her mother’s embrace, would swiftly fall asleep, hoping her own drowsiness might somehow transfer to her mother (21). However, for the majority of the narrative, Rose is caught in an emotional and sensory pendulum. This pendulum rarely finds its equilibrium. The rare moments of equilibrium underscore the consistent absence of healthy interconnectedness and intersubjectivity within the Edelstein family’s interactions.

Building on the themes of interpersonal imbalance discussed earlier, the novel's unique narrative style underscores the costs of alienation and unreciprocated intersubjectivity, making it challenging for characters to maintain distinct identities. The novel eschews the conventional use of quotation marks to distinguish characters' direct speech. In doing so, it visually blurs the boundaries between characters, making their individual voices and emotions indistinct. This melding of voices mirrors the interpersonal imbalances and underscores the absence of healthy interconnectedness and intersubjectivity within the Edelstein family.

Despite the thematic estrangement that Rose cannot mend, a blending of character identities occurs due to the abundance of personal pronouns and possessive determiners, leading to confusion among the characters. As the gazes shift from Rose speaking to her father, to her mother ("I pointed at Mom"), and then to the father's recognition of the mother ("I see a beautiful woman"), ending with Rose's unwavering stare at her father, this sequence of interconnected gazes among family members creates a sensation of disorientation and a loss of individuality: "What? He said again. Her, I said. Me? Mom said" (44-5). While the act of seeing does not necessarily lead to deeper understanding or connection with another, it is juxtaposed with a dissolution into the other, highlighting the disrupted balance of intersubjectivity. Unlike the beneficial intertwining of gazes in *Saudade*, which fosters interconnectedness, the seemingly merged characters in *Lemon Cake* serve as both a contrast to and a stark reminder of the underlying familial alienation that persists beneath the surface.

Importantly, the inherent imbalance is not limited to Rose but also extends throughout the Edelstein family. Joseph's pronounced attraction to objects echoes Rose's unique gustatory capacity. However, while Rose merges with people, Joseph's obsession leads him to become one with material objects. Lane with "a sheerness to her skin that people wanted to shield" (86), seeks solace in a tactile vocation. Her furniture building stands as a grounding element in her otherwise fleeting existence. Paul's apparent detachment is, in fact, a defensive strategy against overwhelming interconnectedness. As the narrative unfolds, it is revealed that Paul can detect

people's illnesses through scent. To prevent being overwhelmed, he erects barriers against deep connections. In this context, Rose's magical synaesthetic ability takes on a broader significance, hinting at a deeper dynamic that shapes her relationship with the world and those around her. Consequently, the Edelstein family embodies the emotional and sensory imbalances often associated with autism, displaying a wide diversity of its manifestations.

5. Personified Light and Embodied Interconnectedness: Bridging MTS and Autism

The eye is a sensory organ. It collects light from the visible world around us and converts it into nerve impulses. The optic nerve transmits these signals to the brain, which forms an image so thereby providing sight.

–Yiallourous, “Anatomy and Function of the Eye”

5.1 Setting the Stage: Sibling Dynamics and Neurodiversity

It is not until Rose discerns the intrinsic parallels between her own challenges and those of her brother in their interactions with the world that she unravels the neurological enigma of her condition. Rose's efforts to understand Joseph's disappearance become as central as her unique gustatory ability, showcasing her role as an experiential scientist. Although she relies heavily upon detached observation, Rose attributes to light both interpersonal and palpable qualities, allowing it to guide her throughout her solitary journey. She realises eventually that to understand Joseph's transformation, light is insufficient. Their embodied connection, once acknowledged, dissolves barriers and uncovers neuroscientific revelations. With the perceived dichotomy between them dispelled, their methods of engaging with the world no longer appear antithetical. Instead, the focus shifts towards the shared nature of their cognitive variances, pushing the

boundaries of conventional autism perceptions and challenging conclusions rooted in a narrow understanding of the condition.

5.2 Rethinking Vision: Interpersonal Connection and the Dichotomy of Light

Historically, vision and light, especially in science, are associated with detached observation, a gold-standard for objectivity. From ancient times, vision has held precedence over other senses. Plato, for instance, lauded it as “divine,” positioning it as a “rational sense” superior to the “lower senses” he deemed more subjective and tied to bodily reactions, as highlighted by Elizabeth Schellekens (736).⁷⁹ From a cognitive perspective, this predominance is supported by a recent study showing that the English language has a more diverse and frequently used vocabulary for visual experiences, reflecting their widespread usage. In contrast, senses such as taste and smell, which are discussed less often, have a more limited lexical range. This consistent pattern across various contexts and historical periods (Winter et al. 213) highlights the enduring bias towards the visual, cementing its role as the dominant mode of perception and understanding in human culture.

While historically vision has preeminence and cognitive research underscores its predominance in language and perception, the novel presents a contrasting perspective. It critically examines and often subverts the established primacy of vision, revealing the complexities and limitations of sight as a means of understanding. As previously discussed regarding alienation – such as Paul’s visual, yet uncomprehending recognition of Lane, or the impersonal co-watching of a football game – sight navigates a complex dynamic between Rose

⁷⁹ Similarly, Aristotle has created a ranking of the senses, putting vision first, followed by hearing, smell, taste, and touch (Jutte 61).

and the enigmatic Joseph. Its inherent detached qualities are continuously re-evaluated and subverted throughout the narrative.

However, since vision remains the most researched sensory modality (Hutmacher), despite its inherent detachment, its role in interpersonal contexts remains paramount. Notably, key diagnostic criteria for autism spectrum disorders, typified by challenges in social interactions, focus on visual cues, specifically shared gaze and eye contact (“Blind to the Mentalistic Significance of the Eyes?” 379-80).

Lemon Cake both mirrors and questions this approach. Shared gaze and eye contact, alongside broader themes of vision and light, are pivotal in exploring interpersonal relationships as they crystallise the oscillations between separateness and merging.⁸⁰ While Rose yearns for connection with Joseph through shared vision and ascribes human-like qualities to light, Joseph remains largely elusive, engaging more with the scientific dimensions of light, particularly as an astronomical phenomenon.⁸¹ The story traces Rose’s quest to decipher her brother’s enigma, immersing readers in a vivid exploration. Paradoxically, Rose discerns that it is only in the enveloping, material darkness that she can truly fathom Joseph’s condition. It is within this palpable obscurity that a unique, multisensory bond is forged between the siblings. Their bond challenges the primacy of light in observation and sight in connection. The novel subsequently dismantles conventional dichotomies – light and dark, subject and object, living and inanimate – facilitating Rose’s comprehension of Joseph and herself.

⁸⁰ Reciprocity of gaze, which raises physiological arousal, is crucial to forming a healthy bond and a secure attachment between parent and child, as eyes, and gaze direction and processing, play an important role in social communication (Jellina Prinsen et al.). See Chapter one, Appendix I.2 for further discussion. Individuals with autistic spectrum disorders demonstrate impairments in both initiating and responding to joint attention as well as in maintaining appropriate eye contact (Caruana et al. 502; Auyeung et al.).

⁸¹ “Joseph would reach out to me occasionally, the same way the desert blooms a flower every now and then. You get so used to the subtleties of beige and brown, and then a sunshine-yellow poppy bursts the arm of a prickly pear. How I loved those flower moments ... but they were rare, and never to be expected” (54).

This reevaluation transcends mere critique, offering a profound inquiry into foundational concepts. Through a process of intra-action, the novel reconfigures these categories, fostering a more inclusive neuroscientific perspective, once again integrating a post-postmodern approach with a scientific one. Rose's revelation underscores the underlying affinity between her empathic nature and Joseph's introversion. It invites a reexamination of neuroscientific theories, suggesting that the hyper-empathy associated with MTS and autism are not necessarily mutually exclusive.

5.3 Divergent Perceptions: Rose's Intersubjectivity and Joseph's Scientific Gaze

While Rose's mode of communication gravitates towards intersubjectivity and reciprocity, her brother Joseph largely eschews interpersonal interaction, especially eye contact. Joseph's behaviour corresponds to a stereotypically male, hypersystemising form of autism ("Autism, Hypersystemizing, and Truth" 64), marked by an intense focus on science, astronomy, and the intricacies of the physical universe.

Joseph is notably drawn to the works of Johannes Kepler (1571-1630), celebrated for his laws of planetary motion (Bender 143). Furthermore, he is deeply engrossed in the physics of light, exploring the Sun's interactions with planetary bodies. This includes their orbital trajectories, proximity (with "perihelion" denoting a celestial body's nearest point to the Sun), and Kepler's laws relating to their motion. Joseph perceives light as indicative of scientific knowledge and the rise of rationalism. This association is underscored by Kepler's pivotal role in Europe's 17th-century scientific revolution and the subsequent Enlightenment era, the latter being synonymous with illumination, as suggested by its translation from the French *Lumières*, meaning "lights" (Peters 886).

Lemon Cake contrasts Rose's relational view of light with Joseph's objective perspective. For Rose, celestial entities like the Sun serve as conduits for human connection. She attributes palpable qualities to light, which comes to parallel her gustatory abilities in its physicality, and highlights the limitations of vision when used as an exclusive bonding mechanism. Conversely,

Joseph's intense study of light and science foreshadows his magical realist transformation, wherein he becomes intertwined with his scientific object of inquiry.

Through its magical realist elements, the novel delves into the extreme manifestations of MTS and autism in Rose and Joseph, respectively. The narrative traces Rose's quest to fathom her brother's essence and disappearance, taking the reader on an embodied journey. This exploration uncovers neuroscientific insights into the interplay between MTS, hyper-empathy, and autism. The subsequent empathic, close, and immersive investigation in *Lemon Cake* charts the milestones of Rose's experimental-experiential journey.

5.4 Embracing Darkness: Beyond Light's Illusions in the Quest for Neurological Unity

Rose's relentless pursuit to understand her brother manifests in her unwavering attentiveness during the rare moments he initiates interaction. In these instances, she embodies the role of a curious scientist, ever open to discoveries. A central moment that illustrates this occurs when Joseph reaches out to her to mutually observe the morning sky and the planet Jupiter. The mutual observation, replete with visual descriptors, including "look," "squinted," "stared," "visible," "thinnest sliver of white moon," "Jupiter," and "light" (18), melds her intersubjective perception of light with his more physicalist perspective, stressing their inherent similarities. This shared gaze momentarily bridges the chasm between them, forging a brief yet significant bond facilitated by the celestial luminance of the moon and Jupiter (Bender 17-8).⁸²

Joseph's directive gaze to the faint appearance of Jupiter offers more than a shared celestial fascination. It subtly gives Rose a glimpse into his own volatile nature. In spite of his interest in material, physical entities, his self generally recoils from interaction and touch, lest it be consumed by the outside world, as he grapples with his own materiality. Rose's reflection on

⁸² Despite their closeness, exhilarated Rose remains cautious, touching his sleeve in a way that does not annoy him, attesting to the fragility of their relationship.

Joseph's sporadic moments of engagement conflates his character with the transient visibility of Jupiter. She notes that Joseph would intermittently emerge from his aloofness for evanescent and unforeseen moments, "like when he pointed out ... Jupiter" (54).

However, the planet's true luminosity contradicts its fleeting visibility – "a pinprick of light, still faintly visible in the morning sky" (18) – echoing the duality of Joseph's essence: internal vibrancy offset by sparse interpersonal engagements.⁸³ Moreover, Jupiter's ethereal nature, predominantly composed of hydrogen – the lightest element – and inert helium, hints at its lack of solid form. This gaseous composition, coupled with its bright yet intangible light, foreshadows Joseph's eventual merger with a solid object. His struggles with finding a tangible form suggest his challenges in grounding himself, ultimately leading him to transfer his light and energy into solid matter.⁸⁴ Crucially, his characterization closely parallels Rose's. As she grapples to balance her self amidst the overwhelming emotions of others due to her hyper-empathy, Joseph similarly faces the challenge of preserving his fragile self from the external world's sensory onslaught.

Despite the brief merging of their perspectives, the apparently joint gaze is in fact skewed, as Rose incorporates both Joseph and the object of observation. In her intense effort to connect, she fully aligns her perspective with Joseph's. Instead of forging her own interpretation of Jupiter, she perceives it almost entirely through his lens, thereby blurring the boundaries between their perceptions. Since Jupiter is a substitute for Joseph, Rose and her brother are not truly observing an external entity. In a solipsistic twist, Joseph is essentially viewing a reflection of himself. The result is an unbalanced connection: rather than two individuals mutually

⁸³ Jupiter in reality ranks as the third brightest object in the Earth's night sky, surpassed only by the Moon and Venus.

⁸⁴ Importantly, there are other examples in *Lemon Cake* of transitions from immateriality to corporality, as some insubstantial phenomena are physicalised. Thus, the passage of time is reified and given a spatial dimension as it passes in "blank sheets," and air acquires corporeality as it becomes physically hefty: "the air held a tinge of ... heaviness" (197; 186, respectively).

observing an external sight, Rose absorbs both her brother and the celestial object. This episode, a pivotal step in Rose's experimental-experiential journey, underscores the necessity for empathy to be calibrated in order to be effective as a means of exploration and understanding. Without this refinement, there is a risk of one being entirely subsumed by another's essence.

Rose and Joseph's chiaroscuro play of hide and seek continues within the confines of indoor premises throughout the numerous occasions of Joseph's bouts of disappearance. Initially brief, these absences gradually lengthen, causing increasing concern. In one such episode, Joseph once again walks a fine line between exposure and concealment. While he leaves the door to his room – essentially his fortress of solitude – slightly ajar, inviting Rose in, he still avoids making eye contact.

In this manner, Rose discovers her distant brother's bedroom door in this unexpected state: “[t]o my surprise, the door to Joseph's room was propped half open. This was as rare and good as a written invitation since he'd recently installed a lock on his door, bought ... with his allowance” (46). Yet, any hope of genuine communication quickly dissipates. Joseph retreats from any semblance of connection: “[t]here was still a wisp of daylight outside, but the window shades were pulled, and he had clicked on the desk lamp instead ... Hi, I said. He looked up over his magazine. His eyes did not reach out to say hello but instead formed a loose wall between us ... He blinked at me” (46).

Joseph's choice to shun even the faintest external light – favouring controlled, artificial illumination – reiterates his autistic struggle with the outside world. Although he demonstrates a theoretical fascination with its intricacies, direct engagement remains challenging. While Joseph does glance up from his magazine, the action hints at a possible dissociative state. He seems unable to reciprocate Rose's intersubjective forages, as evidenced by the defensive posture of his eyes, denying genuine reciprocity.⁸⁵ Consequently, while Joseph might harbour a latent desire

⁸⁵ Crucially, Nakano et al. identified a relationship between eyeblinks and attentional disengagement in cognitive behaviour. During this behaviour, there is a momentary activation of the default-mode network

for connection – as indicated by his partially open door – he largely remains incapable of mobilising his volatile self to the communicational surface, instead receding behind an impervious surrounding wall.

The decisive night of Joseph's disappearance propels Rose into an active search to find her brother, both physically and metaphorically. Using light, the only tool at her disposal, she embarks on her quest. However, not satisfied with its detached properties, she lends it palpability by personifying it. On this night, contrasts between light and darkness, animacy and inanimacy, clarity and obscurity, subject and object, are undermined in an intra-active fashion. These dichotomies accentuate both the physicality of vision and luminosity, and their metaphorical extensions:

Light is a good company, when alone; I took my comfort where I found it, and the warmest yellow bulb in the living-room lamp had become a radiant babysitter all its own. But that night I wanted to locate my assigned guardian ... No lock in place, and no light on inside – only a crossbeam through his back door, from our neighbor's backyard lamp-pole, angling downward to the floor like a shaft of moonlight. It was a cave in the house (122)

The numerous metaphors of light and vision continue apace with references to observation and watching, light switches, lightbulbs and the light of the television, as well as a final significant reference to Joseph's own eyes, which are described in terms of their fatigue (122). Roaming through the gloomy house, delineated, among other things, by corners of darkness, such as caves and closets, Rose opens the door to her brother's bedroom, once again uncharacteristically unlocked, as she tries to unravel the enigma of his disappearance. Rose is literally and figuratively in the dark as to Joseph's whereabouts, which are shrouded in mystery ("so eerie a feeling") and a sense of the uncanny. To combat this uncertainty, she employs controlled, man-

coupled with a deactivation of the dorsal attention network (1). The default-mode network comprises brain regions that are collectively active when an individual is not engaged with external stimuli, typically during moments of daydreaming or mind-wandering. This insight underscores Joseph's frequent need to detach from external demands, and the physiological behaviour of his eyes further accentuates his immersion in his internal world.

made illumination – the most immediate, physical elucidating instrument at her disposal – to light up the house in the hope of finding her brother (122). While the house assumes the role of a living organism, light – “a good company” – represents Rose’s mental concentration as she attempts to exert all available perceptual and cognitive resources in order to shed light on her brother.⁸⁶

The compromised power of light to elucidate is evident when the feeble glow in Joseph’s room, resembling the moon’s reflective luminance, ironically reveals only his tired eyes, underscoring his desire to stay hidden (122). In lieu of catching a glimpse of her brother’s material self in his room, Rose, her role as a viewer undermined, feels she is being watched, as *Lemon Cake* artfully reverses the roles of subject and object, observer and observed – “[w]as someone watching me?” – while the inanimate walls immediately become a candidate viewer – “[t]he walls?” (122). The concept of a material other is likewise destabilised, being portrayed as a liminal, at once substantial and immaterial entity, when Rose senses that Joseph at once exists and does not exist in his room: “[h]e wasn’t in his room, but it felt, faintly, like he was in it” (122). The obscured, shady boundaries between artificial and natural, animate and inanimate, subject and object, and material and incorporeal once more set the stage for Joseph’s final merging with his grandmother’s chair. The latter constitutes the ultimate rupture with the world and his family, paving the way for neuroscientific insights through the shattering and rebuilding of concepts.

Joseph’s final and most dramatic disappearance is likewise portrayed through an interplay of light and darkness, openness and closeness, and presence and absence. It is in this episode that Rose scours his apartment to eventually find him merged with a chair. While light’s role as an elucidating faculty has been destabilised in previous episodes, in this incident it is invalidated

⁸⁶ One could argue that electrical light, in this context, effectively takes on the functions of electrically operated neurons, instrumental for such heightened concentration.

altogether as Rose's quest for light and illumination reveals that it is not light, but rather darkness that can partially reveal the mystery of Joseph's transformation:

The living room was dark. Empty ... All the curtains were closed except in the kitchen, where a small window sent a few late-afternoon rays onto the tiled floor, a yellow pattern of sun stripes over crisscrossing tile stripes. I left the front door open ... Quiet. Empty. I clicked on the overhead light, but it only cast a burnt yellow tinge over the dimness ... Inside his room, the light was off. I flicked it on ... He stared at me, his eyes flick-framed by those dark romantic lashes, the gaze too wide and unblinking ... He looked at me expectantly ... I ... clicked off the glare of the overhead light (182)

The dim ambiance of Joseph's flat signifies the waning of his human essence. He fades, metaphorically and literally, into the room's furnishings, sinking into a realm marked by "quiet," "emptiness," and "shadow." In her fight against the encroaching dark, Rose turns to artificial light. However, she quickly switches it off and avoids anthropomorphising or infusing it with relationality, realising light holds no answers. The unsuccessful attempts at light resuscitation are accompanied by liminality, which encapsulates a conflicting coexistence of light and darkness before the latter takes over. The Californian twilight, likened to Joseph's "romantic" eyelashes, symbolises the juxtaposition of opposites. Just as dark lashes frame the luminous eyes, the dusk exists as a fluid boundary between light and darkness. Instead of a harmonious blend, it represents a raw interplay of these opposing forces (184-5).

As the sunset lingers, with the "white air" deepening to "blue," the glow from nearby windows accentuates the palpability of the surrounding darkness. These windows, casting "rectangles of yellow light," highlight the shadowy forms of tree boughs, underscoring the depth of darkness that engulfs Rose (186). It is in this pure, unadulterated darkness that Rose truly perceives Joseph's transformation, a merging so profound that chair and man become indistinguishable: "when I looked very closely, it seemed like the chair leg vanished right into his shoe. That the chair legs went inside both legs of his pants ... and then, ostensibly, the leg of the chair ... went down to share space with his own foot, inside his shoe" (184). In this climactic revelation customary opposites intertwine and the illuminating power of light dims.

Joseph's transformation signals a paradigm shift in understanding, suggesting that true comprehension arises when accepted classifications are overturned. On her detective journey – “[she] felt a little like a detective must feel when about to turn a corner on a case” (186) – Rose emerges as a veritable scientist, open to new truths as she delves into her family's cognitive peculiarities. Although Joseph immerses himself in physics and scientific exploration, Rose, navigating through uncertainty, offers deeper insights through an experiential and embodied approach. While her heightened empathy unravels neurological enigmas, Joseph's analytical, mechanistic-objectivist viewpoint becomes self-defeating, as it disintegrates and swallows him. His “complicated experiment” (185) highlights the limitations of the scientific method when taken to an extreme, as radical aloofness could potentially result in its very opposite – a unification with the experimental object. Conversely, Rose's experiential – interpersonal and embodied – understanding challenges existing neuroscientific theories.⁸⁷

In the twilight of Joseph's existence, a momentary connection bridges the rift between the siblings. While Joseph is already precariously tethered to reality, a profound interaction ensues – his gaze “unblinking” and focused as he looks at Rose “expectantly,” acknowledging her as never before:

Are you in pain? I asked. I'm ok, he said. He turned around to look at me, with eyes big and gray ... Just go, he said. Rosie. Maybe once, in our entire childhood, had he called me Rosie. He never even called me Rose. His face, those gray eyes, so big and, for a moment, all kindness (189)

⁸⁷ Significantly, the character of George serves as a counterpoint to both the hyper-empathic extreme personified by Rose and the detached-physicalist perspective of Joseph. George strikes a balance between a personal and scientific outlook. While he displays a strong interest in physics, even studying at Caltech (to which Joseph's application was rejected), he seamlessly connects this academic interest to everyday life. His portrayal of spirals, for instance, exemplifies this blend and is a point of shared fascination with Rose. Beyond his academic inclinations, George also demonstrates aptitude in interpersonal relationships. He exudes empathy without succumbing to the overwhelming emotions that often plague Rose. His attentiveness to her, patience with Joseph, and caring demeanour towards his sister is evident in moments such as: "I moved my train closer to the kitchen and listened to George's call. He was checking on his sister, who was retarded. He said, into the phone: 'I need a new drawing of an elephant, okay? My old elephant needs a buddy'" (57).

As the last vestiges of his humanity fade – “there was only that shimmer of human leg around the leg of the chair, a soft fading halo of humanness around the sturdy metal of the chair” (189-90) – Joseph summons the strength for a final, deeply interpersonal gesture. No longer detached, Joseph bestows her with reciprocation, recognition of who she is, and compassion, as at long last he directs the power of light towards eye contact instead of scientific discovery (189-90). This newfound closeness, even if at this point it is achieved through the least visceral sense, vision, topples the barriers that once separated them. Joseph’s fleeting clarity, reminiscent of terminal lucidity preceding death, serves as both a breaking point for the family and a revelatory moment for Rose’s understanding of her brother and herself.⁸⁸

In the final stage of Rose’s journey, Joseph returns, distinctly altered: “[b]adly dehydrated. Skinnier than ever. With bluish skin, collapsed sheaths under his eyes. Silent” (285). Isolated from the intrusions of doctors, Joseph confides in Rose about his fusion with an object, a process that is interwoven with his retreat from the world: “It took time, it had taken almost constant practice. It was good while he was away, but terribly hard when he returned” (288-9).⁸⁹ By confiding that she is “the only one who knows” (288), he solidifies their unique bond and mutual understanding.

Consolidating their bond through all senses, and thus undermining the visual modality as the sole and most prominent mode of communication, the final interaction between them acquires a multisensory nature, as all modes of perception play an accumulative role to enhance their exchange and encode it more vividly. They communicate through sound, as Rose listens intently; touch, evidenced when he firmly holds her hand for the first time; smell, with the distinct scent of “laundry detergent bleach;” the shared warmth of “the sun on their hands”; and vision, as their gazes meet (289-90). In this multisensory moment, empathic Rose is maximally

⁸⁸ Rose’s family subsequently falls into utter despair in a section aptly entitled “Nightfall.”

⁸⁹ Responding to Rose’s question about his experience, he shares that he “[doesn’t] know anything, while he’s away.”

open and attuned to her brother. It is only when she is literally all ears, all skin and all nose, that he can open up to her and express the inexpressible (287-9).

This final incident serves as a turning point for Rose. Choosing not to follow in her brother's footsteps, she is on the verge of establishing a healthy equilibrium between herself and others. Subsequently, she comes to terms with her unique ability and redefines her relationships with her parents. This transition marks her journey of individuation – the process wherein an individual increasingly differentiates from a past or present relational context (Karpel 65-82).⁹⁰ Rose thus secures employment at a restaurant where the food has a wholesome taste, assists at-risk adolescents in understanding their feelings through the dishes they create, and stands on the brink of leaving her family home to live independently. Her hyper-empathy and sensory overload thus balanced, Rose gains control over her life. Although unconventional, Rose's formative journey resonates with the *Bildungsroman* (Widiss 14-16), and concurrently embodies the *Künstlerroman* as her unique gift surfaces and steers her toward creative avenues.

6. Exploratory Analysis

Unlike others who remain oblivious, Rose's profound, visceral empathy grants her the unique capacity to sense Joseph's concealed emotions. This is demonstrated when she identifies his distress in the toast he made, describing it as "blankness and graininess, something folding in on itself" (37). This empathy subsequently allows him to tentatively reveal aspects of his world to her. Contrary to Chromney's contention, the sudden emphasis on the physicalist Joseph is not a

⁹⁰ This process is intricately elaborated by Margaret Mahler. Her theory of psychological development emphasises the process of separation and individuation occurring predominantly within the first three years of life, where a child evolves from a state of symbiotic fusion with the mother towards establishing a distinct, individual self. This developmental trajectory, underscored by stages that are crucial for subsequent psychological growth, pivots on the internal drive to break free and the quality of the early interpersonal relationship, especially the emotional availability and support of the mother. Though the core developments are situated in early childhood, Mahler underscores individuation as a lifelong process, with the ego continually mediating between intrinsic needs and external realities, adjusting and forming internal representations of self and others ("Separation-Individuation, Margaret Mahler's Model").

major flaw of the novel (“The Particular Emptiness of *Lemon Cake*”). Rather, his perspective, superimposed on Rose’s intersubjective aptitude, comprises the crux of *Lemon Cake*. Rose and Joseph are ultimately two sides of the same coin. Their eventual embodied bond and mutual acknowledgment underscore this connection. While the novel is narrated through Rose’s lens, highlighting her unique ability, it is Joseph’s gradual transformation that provides her with a deeper comprehension of herself and her gift.

Rose and Joseph each embody distinct manifestations of the autistic spectrum through magical realist elements. Rose possesses a supernatural ability to taste feelings, while Joseph undergoes a literal merging with an object. These representations not only underscore the dangers of an imbalanced relationship between the self and the external world but also provide insight into opposing neuroscientific views regarding the relationship between MTS and autism.

Although Joseph displays more prototypical autistic traits, Rose’s unique and overpowering ability to sense emotions likewise resonates with the core experiences of autistic spectrum disorders. Melanie Yergeau astutely describes the challenges autism presents in balancing interactions with the world and others, illustrated as “[f]ailure to point or gesture. Pointing or gesturing too much... Oversharing. Undersharing” (x). This view presupposes a broad spectrum of phenotypic expressions in autism, including different combinations of sensory-emotional imbalances, such as hyper-empathy.

By avoiding a medicalised portrayal, Bender broadens the autistic experience to include non-traditional manifestations. As Stuart Murray suggests, the spectrum nature of autism implies multiple manifestations, resisting generalisations (23). Hyper-empathic Rose grapples with the overwhelming sensations of others, manifesting as an unbridled MTS in a magical realist guise. In contrast, Joseph faces a pervasive challenge in processing the world at large, leading to communication and social interaction deficits.

While neurotypical individuals often grapple with understanding the emotions and experiences of those on the autistic spectrum – sometimes viewing them as inscrutable “objects in the thoughts of others” (24) – it is more plausible for one autistic individual to better comprehend another. As research by Catherine J. Crompton et al. indicates, peer-to-peer understanding among autistic individuals is more effective due to matched neurotypes (1704). Therefore, despite their apparently differing experiences, their shared place on the neurodiversity spectrum facilitates mutual understanding, a connection missed by others.

The novel's thorough exploration of sensory experiences, as reflected in Rose and Joseph's journeys, sets the stage for examining the way recent neuroscientific findings correspond to or challenge the narrative's portrayal of empathy and neurodiversity. Significantly, while the novel's magical realist elements expand the reader's experiential scope, these elements find echoes in contemporary neuroscientific research. This lends credence to literature's capacity to yield insights into neuroscience, anchoring them in realistic mechanisms. For instance, the narrative's portrayal of emotions being linked with distinct scents, a seemingly unrealistic idea, has been substantiated by research from Yaara Endevelt-Shapira et al. The research shows that certain odours can convey emotions such as happiness, fear, and aggression, and distinctly affect individuals with autism (111). Given the prominent role of taste in Rose's experience and the scientifically established close relationship between smell and taste – both relying on chemosensory receptors – *Lemon Cake* highlights the pivotal role of olfaction in autism. It suggests that disruptions extend beyond visual cues such as eye contact. While Endevelt-Shapira et al.'s study offers intriguing parallels to *Lemon Cake's* narrative, it also accentuates the scientific method's limitations in fully capturing the complexities of neurodiversity.

While scientific inquiry is constrained by factors such as the pace of technological progress, which limits what can be measured, budget limitations, and other practical restrictions, literature faces no such barriers. With a wide imaginative framework at its disposal, including

genres such as magical realism, literature enables an unfettered exploration of the rich, subjective experiences of individuals with MTS and autism, expanding the understanding of these experiences, and rendering them more emotionally relatable. It is within this imaginative framework that the novel explores the nuanced sensory experiences of its protagonists, serving as a case study for literature's potential to deepen our understanding of neurodiversity.

Literature's contribution to scientific insights extends Zamir's critique from philosophy to neuroscience, suggesting that literature can reveal aspects of neurodiversity not fully accessible through traditional scientific methods. Zamir argues that unlike philosophy, which often confines itself to rigid analysis, literature captures a wider spectrum of human experience and resists being paraphrased without losing essential elements of its expression (7). This characteristic, reflecting the Aristotelian concept of the *enthymeme*, positions literature as a "knowledge-yielding" medium. An *enthymeme*, defined as "the reapplication of a principle successfully applied in another known case," is comparable to deriving insights from everyday events that shape our existence and inform our perspectives (8). By employing Zamir's framework, which values insights derived from non-deductive reasoning, this approach critiques and extends beyond the empirical limitations inherent in neuroscience.

This approach is further elucidated by Rita Copeland and complemented by Valdes. Highlighting the experiential aspect of the *enthymeme*, Copeland regards it as "a tool of persuasion to make emotion itself a form of proof." Rather than conveying a universal truth, the *enthymeme* expresses a psychological experience designed for intuitive understanding, as opposed to logical reasoning (369). Echoing this perspective, Valdes ascribes literature's capacity to generate knowledge to its power to reevaluate the world experientially, underscoring its primary function to present novel worldviews. This essence of literature, he argues, is its potential to forge new understandings and interpretations of reality (29). Against this backdrop, the portrayal of neurodiversity in *Lemon Cake* emerges as deeply rooted in an experiential understanding of knowledge, echoing Martha Nussbaum's emphasis on affective

realism in literature (33) and John Dewey's advocacy for art-induced lived experience as a foundation for inquiry and knowledge (3).

Deepening the critique of the scientific method, Latour and Woolgar question the construction of scientific facts as products of laboratory conditions rather than direct representations of objective reality, highlighting the influence of contingent factors on scientific observations (36). In a similar vein, Valdes emphasises the role of language in shaping our experiences, arguing against the possibility of accessing an uncoded version of reality, thus questioning the objectivity claimed by scientific methodologies (21).

Moreover, neuroscience, hemmed in by the scientific method and the limitations of available technological tools, often operates under the assumption that elements which cannot be quantified either do not exist or are determined by quantifiable entities. Consequently, neuroscientific research tends to confine itself to what can be measured through behavioural tests and neuroimaging techniques.⁹¹ Operational definitions of neurodivergence within neuroscience, specifying concrete, replicable procedures intended to represent theoretical constructs, inherently narrow the scope of research.⁹² Often, such constructs are ill-defined (Murray ii).⁹³ Together, these critiques lay the foundation for a broader, integrative perspective of neurodiversity. From this vantage point, literature emerges as a crucial complement to neuroscience, capable of uncovering and enriching our understanding of complex human conditions beyond what can be measured or quantified.

⁹¹ For instance, Krakauer et al. criticise the reliance on advanced technologies in the study of the brain and their efficacy in understanding brain-behaviour relationships (480), while the behaviourist revolution at the beginning of the twentieth century is considered the key obstacle for researching consciousness (Greenspan and Baars 219).

⁹² Theoretical construct is defined as an explanatory concept that is not itself directly observable but that can be inferred from observed or measured data.

⁹³ The limitations of scientific practice become apparent when different laboratories, each adhering to its own scientific theory, strive to validate their preferred models, often neglecting data that does not align with their chosen paradigm. Drawing from personal experience from my MSc in Brain Studies and Neuroscience, it is evident that laboratories frequently engage more in disputes over belief systems than in scientific disagreements.

Circumventing the pitfalls of the scientific method and embracing affective realism, *Lemon Cake's* nuanced, 'enthymemic' approach to neurodiversity lays the groundwork for a deeper understanding of empathy, through empathy, across various neurodiverse experiences. In the field of neuroscience, adherents of the empathy hypothesis assert that MTS is correlated with heightened reactive empathy – instinctual emotional responses to others. Conversely, a rival faction links this condition to autism, suggesting a diminished overall capacity for empathy. However, *Lemon Cake* suggests that these perspectives are not irreconcilable. Through Rose's credible narrative voice and affectively realist storytelling, the novel implies that MTS's coexistence with autism does not inherently negate the possibility of increased empathy.

This nuanced portrayal presents a stark contrast to Baron-Cohen's theory, which suggests that autistic individuals lean towards systematising, excelling in pattern recognition but facing challenges in social intelligence, which encompasses empathy ("The Extreme Male Brain Theory of Autism" 248). This model appears reductive, particularly with regard to its gendered implications. Given the diverse manifestations of autism (Morgan-Trimmer 10), the reading of *Lemon Cake* proposes an alternative perspective, suggesting the plausible coexistence of heightened empathy and autism. This cohabitation, while not extensively explored in neuroscience, is supported by case studies, as I will demonstrate.

A common neuroplastic mechanism – excess of neural connections – could explain the shared traits between autism and synaesthesia. Guomei Tang et al.'s research corroborates this, highlighting an overabundance of synapses in the brains of those with autism, resulting from decelerated neuroplastic "pruning" during development (1131-2). Studies examining the surplus of synapses in synaesthesia, such as those by Romke Rouw (500-18) and Kevin Mitchell (530-57), further reinforce this perspective.

The distinction between reactive empathy, an immediate emotional response to another's feelings, and cognitive empathy – the ability to understand another's emotional perspective ("Mirror-Touch Synaesthesia is Not Associated with Heightened Empathy") – is significant. At

times, the intensity of reactive empathy can overshadow its cognitive component, which lends support to Adam Smith's empathy imbalance hypothesis. The latter suggests a heightened emotional response that may eclipse cognitive empathy, aligning with an empathic imbalance rather than a straightforward empathy deficit (489). This dynamic is evident in Rose, who experiences intense reactions when tasting others' emotions in food. She grapples with processing this sensory-emotional overload cognitively in real-time, leading to her social withdrawal. Importantly, the inability of the frontal parts of the brain to inhibit emotions caused by sensory overload is a core feature of autism. (Nason 237). Thus, while Rose's challenges differ from her brother's more visible social shutdowns, internally she grapples with immense turmoil. Since this internal turbulence disrupts her social interactions, hyper-empathy does not necessarily enhance social perception abilities, contrary to Banissy's assertion (596) – at least not during the unfolding social situation. She endeavours to project a facade of normalcy and hide her condition, especially from the doctor: "I don't know why I said that, I said. I was feeling sick" (Bender 79). Such social masking, as Judith Gould notes, is particularly prevalent among autistic women (703).

There is anecdotal evidence of the cooccurrence of autism and MTS that foregrounds hyper-empathy and its supreme importance in this constellation. Thus, in an article published in *The Guardian*, an autistic therapist, who masks her neurodiversity, uses MTS as a therapeutic tool in a manner reminiscent of Rose's experiences at the conclusion of *Lemon Cake*:

Jones has the ability ... to experience not just other people's emotions but their physical sensations in her own body. And it is a skill that has been invaluable for her work. It was only after she was diagnosed with autism that she realised this was simply part of her neurodiverse profile. "It's called mirror-emotion or mirror-touch synaesthesia and is part of what being autistic means for me, as well as having hyperawareness, hyperperception, hyper-empathy and hypermemory – all of which come in very handy as a therapist," she says (Amelia Hill)

This example highlights a distinctive manifestation of autism. It not only establishes an explicit connection between autism and MTS but also positions the latter as an intrinsic aspect of the former. The wider and more diverse outlook on these conditions could potentially resolve many

misunderstandings, destigmatise them, and provide necessary support for neuroatypical individuals. In addition, it could help scientists design more accurate experiments that consider insights provided by literature. This broader understanding is crucial, especially when considering the gendered perspectives on autism.

Bender's portrayal of hyper-empathy might at first glance align with Baron-Cohen's theory in "Autism, Hypersystemizing, and Truth" (64). According to Baron-Cohen, who presupposes essentialist differences between men and women, there is a stark division between two cognitive modes – systemising and empathising – with the latter seen as a 'female advantage.' Thus, he frames autism as primarily a male cognitive difference ("Extreme Male Brain Theory of Autism" 248). However, contemporary discourse on autism focuses on the potential under-diagnosis of women, given its different manifestations in them. As Rachel Morgan-Trimmer notes, "the diagnostic criteria are skewed towards males, and stereotypically masculine interests" (3). This societal inclination to frame autism through gendered lenses is what makes Bender's nuanced portrayal so compelling.

Lemon Cake does not just stop at presenting feminine or masculine manifestations of autism; it transcends this binary, prompting readers to reevaluate preconceived notions. Given its reliable narration, serious tone, and affective realism, the novel could be interpreted as highlighting this frequently overlooked feminine manifestation. However, while Rose and Joseph initially seem to embody extreme feminine and masculine traits, their eventual mutual understanding bridges this divide. This convergence parallels the previously established blurring of boundaries between self and other, animate and inanimate, and seeing and failing to decipher. In doing so, the novel challenges strict associations between gender and autistic traits. Within this posthumanist framework, *Lemon Cake* offers a nuanced perspective on autism that moves beyond rigid gender classifications. In this context, it is the siblings' distant maternal grandmother who provides the chair with which Joseph ultimately merges. With her fixation on discarded objects that become proxies for her presence, her inability to personally connect with her family, and her

criticism of Rose for being clingy, the grandmother mirrors many of Joseph's traits. Conversely, the siblings' father is haunted by the legacy of his own father, who could "smell people" – an ability that echoes Rose's tasting emotions in food: "[m]y dad, Dad said, would walk into a store and take a whiff and he could tell a lot about whoever was in the store with that whiff. Who was happy, who was unhappy, who was sick, the works" (Bender 261).

In addition to blurring gender dichotomies, this intergenerational trait hints at the genetic underpinnings of autism, subtly emphasising the novel's implicit engagement with certain medical aspects, without overtly medicalising their portrayal. Together, the main characters emerge as a cohesive microcosm, crafting a narrative universe that champions a comprehensive perspective on autism. The comprehensive portrayal of the condition in *Lemon Cake* underscores the need for a broader understanding, crucial for grasping autism and related conditions such as MTS. Core assumptions should not stem from a narrow, restrictive view of autism.

Another common denominator between autism and synaesthesia in general is their predisposition to trauma. As both Rose and Joseph perceive the world at large as traumatic and hostile due to its overwhelming effect on them, this connection becomes especially significant. According to Nirit Haruvi-Lamdan et al., autism can increase the risk of traumatic events, which might then intensify autism symptoms. Furthermore, shared neurological and behavioural factors might underlie both conditions (290). Ward reports that synaesthesia, too, is a major risk factor for developing post-traumatic stress disorder (PTSD), stemming from cognitive differences in synaesthetes. Their heightened tendency to vividly recall sensory details and relive past events from a first-person perspective may increase their vulnerability to trauma-induced flashbacks ("Predisposing Factor" 14). While it remains to be researched what is the exact relationship between trauma and MTS, the shared vulnerability to trauma in both synaesthesia and autism underscores another parallel between these conditions.

In the literary context, *Lemon Cake* offers more than mere neuroscientific insights; it delves into the restoration of meaning within its text, anchoring itself in reality through

heightened physicality. This exploration seeks an alternative to the pervasive hermeneutics of suspicion, even as it acknowledges and confronts it. Vermeulen and van den Akker posit that post-postmodernism emerges as a counter to postmodernism, emphasising a return to sincerity, authenticity, and the pursuit of objective truths (“Notes on Metamodernism”). While it confronts postmodernism’s strong relativism and irony, it also endeavours to blend postmodern scepticism with a rejuvenated sense of meaning and depth. *Lemon Cake* aligns with this description. The novel, treading treacherous territory, fumbles together with Rose in the dark for innovative methods to restore the hermeneutics of faith. Through this journey, it ventures to find the self, as well as strike a new balance between self and other, and self and the material world in which one is situated. The palpable focus, intensified by magical realism, stands in stark contrast to the overarching scepticism typical of postmodern thought. *Lemon Cake* scrutinises the boundaries of anti-scepticism. As Rose and Joseph's perspectives and realities become increasingly consumed by others and even inanimate objects, the novel challenges the fluidity and insubstantiality rooted in relativist views. Their literal merging with people and objects exemplifies this. This approach thus positions the novel as a response to postmodern scepticism of objective truth, utilising palpable materiality and affective realism to restore a sense of reality within its narrative (Hutcheon 106).

While two opposing ideologies often necessitate a middle ground for stability, it is the post-postmodern exploration and intermingling of these extremes – overwhelming materiality and the illusoriness of reality – that make the narrative of *Lemon Cake* so compelling. Although the novel may not present a definitive answer, it embarks on a profound search for one.

Through the magical realist and post-postmodern framework of *Lemon Cake*, Bender paints a multifaceted portrayal of MTS and autism, pushing beyond traditional boundaries and challenging prevalent neuroscientific views. As literature skilfully intersects with neuroscience, it prompts a broader, more nuanced understanding of neurodiversity. Such intricate representations in literature are not merely academic exercises; they hold the power to reshape real-world

understanding of these conditions. Through the unique power of embodied resonance, literature deepens readers' empathy and understanding. By doing so, it not only challenges established neuroscientific views but also fosters a broader societal shift towards compassion and acceptance.

7. *Lemon Cake* and *Saudade*

The exploration of *Lemon Cake* parallels the study of *Saudade* thematically but accentuates different elements in its theoretical framework. Both disrupt traditional dualistic distinctions fostering a bidirectional dialogue between scientific principles and imaginative, subjective perception. While both readings are grounded in a New Materialist framework emphasising embodied interconnectedness, materiality, and intra-action, my analysis of *Saudade* situates these elements within a neuro-Romantic context. In contrast, the reading of *Lemon Cake* more directly applies New Materialism as its primary theoretical lens.

Furthermore, in *Lemon Cake*, as in *Saudade*, the seemingly unrealistic elements are not merely fanciful embellishments, but narrative strategies deeply rooted in a nuanced awareness of cognitive and perceptual difference. However, while *Saudade* utilises these elements in a neuro-Romantic attempt to forge connections with others and the world through imagination, *Lemon Cake* uses them to navigate the post-postmodern struggle with detachment and deconstruction and their opposite. The deployment of magical realism in *Lemon Cake* vividly illustrates a desperate, and at times unsuccessful, endeavour to rediscover a palpable grounding in the narrative and, ultimately, extra-narrative worlds. The novel thus alternates between portraying attempts at symbiosis with people and objects, and instances of separation from them, presenting a constant struggle to find the right balance. Consequently, while *Saudade* fluctuates between life-affirming interconnectedness and despair-driven dissociation, *Lemon Cake* explores the delicate interplay between connection and withdrawal.

Like *Saudade*, *Lemon Cake* implements an abundance of figurative tropes to express material interconnectedness and its opposite – estrangement and disengagement. However, while Vaz's novel focuses on the all-encompassing potential of imagination and its pervasiveness in the

everyday, Bender's explores, for the most part, a skewed family dynamic through which interconnectedness and its opposite are channelled.

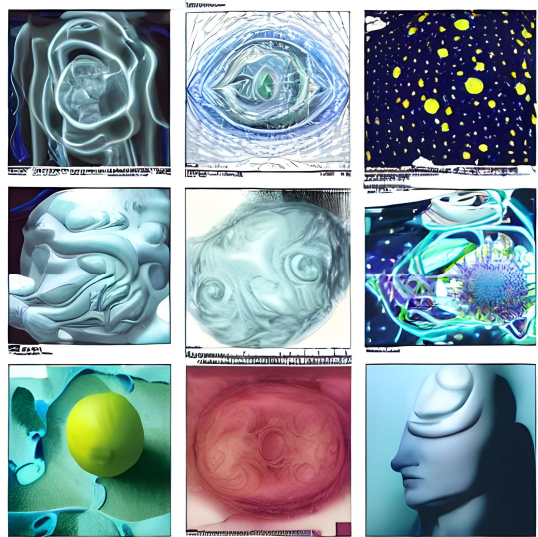
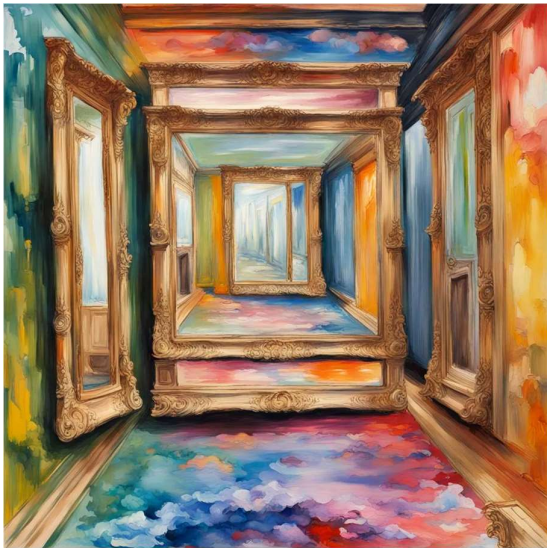
While *Saudade* delves into well-studied forms of synaesthesia such as grapheme-colour and auditory-visual, endowing them with an imaginary twist, *Lemon Cake* explores the potential of MTS. Moreover, whereas *Saudade* explores the ways synaesthesia can be induced, *Lemon Cake* focuses on its involuntary – and thus intrusive and disruptive – nature. *Lemon Cake*'s treatment of synaesthesia is part of a wider attempt to address the fantastic and imaginary extremes of neuroatypical conditions. It thereby advances an innovative blend of neuroscience and magical realism.

The next chapter, focusing on Jeffrey Moore's *The Memory Artists* (2004) and Dominic Smith's *The Beautiful Miscellaneous* (2007), likewise explores the contrasting aspects of embodied interconnectedness. While synaesthesia and the resulting hyper-memory depicted in these novels enrich and intensify human experience, brain tumours and Alzheimer's disease, a progressive neurological disorder impacting memory, thinking and behaviour (Jack Jr 345), restrict it. Approaching these experiences through the lens of neuroplasticity unveils unexpected parallels between these seemingly disparate phenomena. Through body-centred reflection on physical ailment and neurological difference, both narratives focus on creativity at large, and scientific creativity in particular, and the interplay of loss, trauma, and the essence of both material and metaphorical absence.

Unlike *Saudade* and *Lemon Cake*, which sidestep medicalised discourse, *Memory Artists* and *Beautiful Miscellaneous* engage directly with it. *Memory Artists* features an explicit debate revolving around the relative contributions of neuroscience and the humanistic thinking fostered by synaesthesia, hypermnnesia, and literature. *Beautiful Miscellaneous* intricately weaves together the perceptual-subjective and physical-neuroscientific perspectives, exploring the interplay

between synaesthesia, enhanced memory, and creativity. Similar to the analyses of *Saudade* and *Lemon Cake*, the reading of *Memory Artists* and *Beautiful Miscellaneous* accentuates the significance of reading and broader artistic creation as avenues for knowledge and understanding.

Performative metaphysics is central in these novels, illustrating the confluence of internal perceptions with external realities. Characters embody scientific and philosophical concepts through their sensory experiences, challenging traditional boundaries and underscoring the intricate interplay of imagination, embodiment, and the physical universe in shaping human understanding. Alongside the New Materialist emphasis, the novels also harken back to the legacy of *Romantische Naturphilosophie*. They bridge the art-science divide by integrating deep personal experiences, notably synaesthesia, with robust foundations in scientific findings.



3.

Between Art and Neuroscience: Synaesthesia, Memory, and Creativity in Jeffrey Moore's *The Memory Artists* and Dominic Smith's *The Beautiful Miscellaneous*

God has a brown voice, /As soft and full as beer

– Sexton, “For Eleanor Boylan Talking with God”

I see again my schoolroom in Vyra, the blue roses of the wallpaper, the open window...

Everything is as it should be, nothing will ever change, nobody will ever die.

–Nabokov, *Speak, Memory*

Only within the mind, through memory and imagination, do characters ... cope with the pain of loss.

–Boyde, *Vladimir Nabokov: The Russian Years*

1. Introduction

This chapter delves into Jeffrey Moore's *The Memory Artists* (2004) and Dominic Smith's *The Beautiful Miscellaneous* (2007); henceforth referred to as *Memory Artists* and *Beautiful Miscellaneous*, respectively. The former melds traits of a syndrome novel with post-postmodern elements. While it exhibits hallmarks of postmodern literature, it also encapsulates distinctly post-postmodern qualities. In this context, the narrative employs sincerity to mitigate irony, connecting and reconstructing disparate themes amid paradoxes. This approach offers hope in the face of adversity, providing a coherent structure that counters anti-structure through “lived experience” (Cantone et al. 481). The latter novel accentuates and prioritises these post-postmodern features, placing a greater emphasis on emotional depth,

authenticity, and realism (Waugh 24-5) over traditional postmodern features. Central to both narratives is the synergy of synaesthesia and the consequent hypermnesia, which foster an intra-active embodied entanglement. The protagonists' bodies and perceptual mechanisms are portrayed as the primary instrument through which they, and other characters, interact with the world. Coming to terms with one's individual perceptive and cognitive idiosyncrasies and learning to implement their potential, enable the characters to find a poised balance between themselves and the world. In *Memory Artists*, the synergy manifests as a profound connection between the protagonist and the universe; in *Beautiful Miscellaneous*, it serves as the foundation for the performative exploration of both science and art. Concurrently, the novels illuminate broader facets of creativity, particularly underscoring scientific innovation. Specifically, they scrutinise what it takes to attain a scientific breakthrough, even when it means resorting to unorthodox, seemingly unscientific ways to ignite a creative spark.

Memory Artists engages in an overt discourse, juxtaposing the roles of neuroscience against humanistic insights induced and heightened by synaesthesia, hypermnesia, and literature, all in pursuit of remedy for a neurological disorder. *Beautiful Miscellaneous* seamlessly intertwines perceptual-subjective with physical perspectives. Through a detailed analysis, this chapter contends that both novels not only explore the intricate dynamics between synaesthesia, memory, and creativity but also accentuate the palpable tension between an artistically enriched, embodied subjective viewpoint, and a purportedly objective, scientific lens in shaping our comprehension of reality.

Memory Artists revolves around Noel Burun, a hypermnesic synaesthete with a flawless memory. Noel perceives people's voices as vivid shapes and colours, yet grapples with the intrusiveness of his percepts. Noel's life is haunted by the memory of his father, a talented chemist who appreciated poetry and took his own life when Noel was young. Alongside friends Norval, Samira, and JJ, Noel strives to find a cure for his mother Stella, who suffers from Alzheimer's Disease (AD). The looming shadow of Dr Émile Vorta, a morally dubious

neuroscientist who has experimented on the main characters, adds layers of complexity. He presents the story as a mix of “dramatic reconstructions,” interviews, and diary entries, attempting to manipulate the reader's perception of truth (1). Going beyond mere critique, the novel not only questions the purported sanctity of scientific truths but accentuates the way science and literature can interact, positing that a creative confluence of the two might hold the key to understanding and knowledge.

Memory Artists, according to Marc André Fortin, represents a contemporary turn in Canadian literature toward texts that “investigate the implications, ethics, histories, and epistemological structures of science, scientific theories, and the linguistic and philosophical interplay between literature and science” (32). This turn is part of a more general trend in British and American fiction which attempts to incorporate the natural sciences into its work (32).⁹⁴

Beautiful Miscellaneous is, like *Memory Artists*, a profound exploration of genius, identity, and the interplay between science and personal experience. Nathan Nelson, the protagonist, acquires synaesthesia and hypermnnesia after surviving a car crash in his adolescence. Following the accident, he perceives voices as palpable, coloured shapes, experiencing the world, like Noel, with heightened, intrusive, sensitivity. While his brilliant physicist father, Samuel, pushes Nathan to harness his newfound abilities for scientific pursuits, Nathan resists, seeking his own path. As the narrative progresses, the reader encounters an ensemble of characters, each exemplifying unique facets of creativity and genius, at the fictional Brook-Mills Institute for Talent Development.

However, more than an exploration of genius, at its core the novel is a poignant *Bildungs-* and, ultimately, *Künstlerroman*. The death of his father from a brain tumour pushes Nathan into a journey of self-discovery. While science and physicalist theories form the

⁹⁴ The novel likewise belongs to the humoristic tradition of English language Quebecois novels, most prominently epitomised in the works of Mordechai Richler, with its scathing, unrelentless hilarity.

backbone of the narrative, Nathan's personal and subjective experiences bring these abstract concepts to life. In its culmination, the novel sees Nathan finding fulfilment and purpose in the realm of theatre, where he learns to intertwine his unique worldview with his father's scientific teachings.

Drawing on the various conditions mentioned, both novels examine the profound role brain mechanisms and structures play in sculpting our identity and personality. They question how much of the external world we can truly grasp given the perceptual boundaries inherent to our brains. Venturing into a body-centric exploration of physical ailments and neurological difference, the narratives contrast artistic and creative themes with those of loss, the passage of time, and the ramifications of both actual and metaphorical absences. These themes mirror the neurological polarities presented. Synaesthesia and hypermnesia amplify human experience, rendering it more intense and vivid, potentially due to enhanced structural and functional hyperconnectivity between brain regions (Rouw 500). Conversely, AD and brain tumours constrain it, as vital tissues and functions of the brain are destroyed. Thus, both novels address perceptual extremes, prompting reflection on the vast spectrum of human experience.

The connection between synaesthesia and enhanced memory is intricately explored through the intersection of literature and neuroscience. Vladimir Nabokov's literary explorations in *The Gift* (1938) and *Speak, Memory* (1951) provide a nuanced portrayal of his synaesthetic experiences. Alexander Luria's neuropsychological research in *The Mind of a Mnemonist* (1968) further anchors this phenomenon in the scientific realm by detailing the extraordinary memory capacities of Solomon Shereshevsky, tied to his synaesthetic perceptions. Building on this foundation, studies by Jamie Ward et al. highlight synaesthesia's potential to bolster long-term memory and creativity ("Meta-analysis" 1299). Neuroscientists Vilayanur Ramachandran and Edward Hubbard explore how synaesthesia might enable unique cognitive connections conducive to creativity ("Window into Perception" 32). In contrast, Catherine Malabou's concept of "destructive plasticity" delves into the adverse effects of brain

trauma, enriching our perspective on how cerebral changes can impact identity (*Ontology of the Accident* 3). Together, these scholarly contributions deepen our understanding of how neurological conditions enhance and impair cognitive capacities.

Furthermore, both novels intricately explore the ties between synaesthesia, memory, creativity, embodiment, and reading. Synaesthesia, with its association to vivid mental imagery, plays a crucial role in understanding reading, as imagery is fundamental to this process. In *Memory Artists*, the importance of reading in the creative process, intertwined with synaesthesia and hypermemory, is brought to the forefront. The protagonist embarks on a quest, guided by his unique ability to synaesthetically memorise literary fragments. This journey ultimately leads him to unravel a literary clue about the therapeutic properties of a herb mentioned in *The Arabian Nights* for enhancing memory, resulting in the identification of the precise chemical composition needed to alleviate his mother's condition. The synergy between an embodied act of reading and Noel's synaesthetic perception thus acts as the linchpin for the protagonist's scientific revelation. Fortin's corroborates this perspective, positing that in *Memory Artists*, the intersection of science and alchemy unveils "ways of knowing through the reading of literature" (43), thereby associating memory and reading with action and real-life impact. Furthermore, for Fortin, reading in the novel mirrors a synaesthetic interaction with the world, "linked to memory through both visual and auditory perception" (42).

Beautiful Miscellaneous takes the reader alongside its synaesthetic and hypermnesic protagonist on a transformative journey towards artistic self-realisation. Throughout this voyage, Nathan seeks to fathom intricate concepts like time-space, synaesthesia, and memory, a journey the author intends to be shared in tandem with the reader, all the while navigating them with imagination and experience. His exploration prioritises the arts, with a marked emphasis on storytelling, approached in a deeply embodied and imaginative manner. The concepts come to life through embodied resonance engendered by reading, engaging the reader's emotional and perceptual faculties (Rokotnitz 273).

Neither novel reaches a conclusive answer regarding the relative contributions that art and science, the subjective (“I am”) and objective (“It is”), play in the construction of valid, informed, knowledge and understanding. Instead, they adopt a modern-day, flexible version of the *Romantische Naturphilosophie* by attempting to bridge the divide between the life of the mind, inherent to the arts, and scientific descriptions of the outside world. In both *Beautiful Miscellaneous* and *Memory Artists*, the protagonists illuminate the principles of “performative metaphysics” and its relation to synaesthesia. As conceptualised by Karen Barad, this idea underscores the inseparable and mutually constitutive nature of our physical realities and the phenomena they give rise to (“Posthumanist Performativity” 814). By embodying this principle, the protagonists demonstrate that entities, or “agencies,” do not exist in isolation. Instead, they emerge through intra-action – or “the mutual constitution of entangled agencies” (814). Unlike interaction – which assumes there are separate individual agencies that precede their engagement – intra-action acknowledges that distinct agencies emerge through their meeting and co-mingling with each other (*Meeting the Universe Halfway* 33). The focus on synaesthesia and the coinciding hypermnesia provides a fertile ground to study intra-action between the subjective and the objective in the context of New Materialism. The depicted methods of intertwining of self with the outside world in *Memory Artists* and *Beautiful Miscellaneous* question the dichotomised categorisation as such of inside and outside. Moreover, the novels contest other forms of dichotomies, such as destructive and creativity facilitating plasticity, espoused by Malabou.

In *Memory Artists* both art (literature) and science (psychopharmacology) play a crucial role in creatively finding a medicine for AD. It is only through their entangled interplay that an epiphany can be reached. Similarly, in *Beautiful Miscellaneous*, even though a scientific-objective (physics-oriented) outlook vies to a considerable extent with a subjective-artistic one, the two worldviews and their respective representatives eventually become intertwined and inseparable. While the former novel, although challenging the notion of truth all along, eventually reaches a more definitive, concrete answer to the specific problem it poses through the interplay

of art and science, in the latter the protagonist reaches a personal closure and forms an artistic relationship with the world around him.

This chapter delineates the protagonists' intricate paths through art and science. Leading the reader through these embodied journeys, the authors help negotiate scepticism and the authoritativeness of the scientific establishment, allowing readers to unearth a voice uniquely shaped by the protagonists' neural distinctiveness.

2. The Redemption of Faith

2.1 *Memory Artists*: Navigating Embodied Experience amidst Scepticism and Authority

In *Memory Artists*, the interplay of synaesthesia, memory, and creativity culminates in a concrete solution – both in understanding their dynamics and in addressing the challenge of finding a cure for AD. Noel's deep and creative engagement with each discipline leads to an experiential grasp of neurological concepts. His integration of synaesthetic perceptions into scientific inquiry is exemplified when he uses his vivid recollections to investigate the potential medicinal properties of amaranth, a substance referenced in *The Arabian Nights* (203-204). By linking this memory, informed by his sensory-rich experiences, to its pharmaceutical applications, Noel directly facilitates the development of a treatment for AD. This profound understanding transcends scepticism, setting the stage for a significant scientific breakthrough.

The novel embodies what Fortin articulates as a “postsecular fusion of science and literature.” This integration questions the “aporia” of faith stemming from late-twentieth century poststructuralist views on language, knowledge, and power, particularly through Moore's exploration of how fragmented memories and multiple narrative voices challenge traditional notions of a singular, authoritative scientific truth (33). Fortin further argues that Moore's novel presents literary history and scientific knowledge as intertwined elements of a broader process of

human enlightenment, breaking free from the traditional binary oppositions and hierarchical struggles that often dominate such discourses (50). Beyond unsettling these dichotomies, I contend that *Memory Artists* effectively bridges the gap between the subjective (“I am”) and the objective (“It is”) perspectives within the interplay between science and literature.

Nonetheless, before this synthesis could be reached, numerous elements obfuscate Noel’s experience. His perceptions are often framed by dubious scientific practices and their practitioners. Moreover, the novel's postmodern features, including deconstructive techniques, intertextuality and metafictionality, are combined with the seeming inadequacy of language to convey intricate neurological concepts. This confluence hinders a clear distillation of experience from contingent factors, as when the footnote revealing the edited nature of Noel's diary entry in a scientific publication illustrates the selective presentation and inherent biases in scientific reporting (Moore 299). Importantly, however, these very challenges offer a solution to scepticism. Thus, guided by his synaesthesia and hypermnesia, Noel carves out a unique approach to scientific practice that transcends its inherent limitations. While the narrative embraces postmodern elements, it concurrently satirises and ridicules the postmodern style, effectively “deconstructing its own deconstruction” and thus tempering its critique. Furthermore, the material essence of language, similar to *Saudade*, where language vividly bridges the conceptual and the physical, rendering abstract ideas perceptibly felt through rich figurative expressions and tactile vocabulary, offsets its perceived limitations. Collectively, these factors situate *Memory Artists* within the realm of post-postmodernism, and enable Noel to creatively reach a scientific breakthrough.

Memory Artists questions the purity of scientific practice, underscoring the way experiences within its framework can be skewed by non-scientific factors. Noel's cold and aloof description of his father's death, experienced through synaesthesia, vividly illustrates the theme of scientific impurity: “[a] dry and crumbly voice like kitty litter ... a pockmark of tarnished brass, which tapered swordlike, seemed to disappear, then reappeared as a blood-red pendulum ...

Then the gravelly voice again ... the tarnished brass and then ... silence, against a backdrop of Etch-a-Sketch grey. The ‘dead mood’ I used to call it” (Moore 3). Noel’s father’s passing, a pivotal and emotionally charged event, becomes a central pillar in *Memory Artists*, significantly influencing Noel's life decisions and behaviour.

The aforementioned portrayal is revealed to be a partial and edited citation with missing parts. As indicated by Vorta’s footnote, this is an entry from Noel’s adult diary that was later incorporated into one of his scientific publications (299). This footnote serves a dual purpose: it attests to the scientific rigour with which the experience was documented and presented in a scholarly work, but it also underscores the inherent limitations in capturing and conveying the totality of such an experience. This is evident from the various transformations and omissions the account has undergone before reaching its audience. This idea resonates with Bruno Latour’s contention that scientific facts are constructed. Rather than representing a pure objective reality, the process of scientific enquiry entails a series of interpretations influenced by both sociological and logical considerations (*Laboratory Life* 36).

Furthermore, Fortin, evoking Richard Cytowic, maintains that science is not a neutral endeavour as “it has become a dominant ethical model alongside its growth as an epistemological system of truth telling.” When corporate interests and research institutions regulate medicine, as they do Vorta’s scientific work, science’s evasion of ethics “is shown to be flawed and potentially fatal” (“Jeffrey Moore’s *The Memory Artists*” 41). Just when the reader is ready to reach a conclusion regarding an occurrence in the narrative that sheds a negative light on Vorta, the authoritative scientist, a Humbert Humbert attempting to plead his innocence, is always preemptively one step ahead of her, offering an alternative, apparently scientific, explanation that undermines the reliability of characters who criticise his morality and scientific methods. The inevitable influence of sociological factors in decision-making already undermines the credibility of scientific rigour. Coupled with Vorta's unreliability and moral ambiguity, together with his jarring and intentional breach of ethical norms, Noel’s experience is further stripped of

its authenticity. When framed within the confines of scientific and academic discourse, its vital emotional truth becomes obscured.

Nevertheless, the battle against scepticism in *Memory Artists* is evident as the narrative seeks to free Noel's experience from the oppressive clutches of Vorta's tainted science. As Noel progresses on his journey, his personal experiences and distinctive creative voice become increasingly evident. This is manifested primarily through first-person narration and the (paratextual) unique font of his unedited diary entries which become more prominent as the novel progresses. Once liberated, Noel approaches scientific challenges with both originality and imagination.

Noel's self-professed feeble voice is not only stifled by Vorta's scientific constraints, but also by the novel's radically postmodern structure, which engages with and satirises traditional literary motifs and *topoi*. While the narrative ultimately adopts a post-postmodern perspective, it is the intense engagement with postmodern elements that primarily stifles Noel's expression. His voice further recedes in the face of more assertive and dominant narratives, particularly those of characters such as Norval. The novel's postmodern structure fragments the narrative voice and incorporates metafiction to interrogate the instability of meaning and the elusiveness of objective truth. This mirrors its exploration of scientific "truth" and the complexities of personal experience. As Brian McHale discusses in *Postmodernist Fiction*, postmodernist narratives destabilise distinctions between reality and fiction by constructing and deconstructing their worlds (13, 45, 100). Evidently, *Memory Artists* showcases these traits, using its unique structure to emphasise its central ambiguities.

The narrative employs multiple techniques, including diaries, third-person narration by Vorta's ghostwriter, and an overarching frame story with a foreword, and ample footnotes lending the novel an academic veneer. These varied, often unreliable, narrative strands offer differing viewpoints of the same events, creating a rich polyphony. This multi-layered narrative form hinders the reader from deciphering the authenticity of Noel's perceptual and cognitive

experiences and casts into doubt their reality. Similarly, Noel's pursuit of self-discovery and genuine connection with his inner self is redoubled, as his experiences are embedded in social construction inherent to the fragmented narratives.

Furthermore, although the characters in *Memory Artists* are highly specific, many of them are also archetypal. This undermines the uniqueness of Noel's experience as a basis for creativity and scientific breakthrough. For example, charismatic Norval epitomises both a Byronic hero and a *flaneur*, as illustrated by his strolls through the bustling streets of Montreal, observing the ebb and flow of urban life with detached curiosity. In doing so, he equally serves as a collective image of English Romanticism and French Symbolism, a reflection of the confluence of English and French heritages in Quebecois culture.

Adding to this complexity, Noel's father posits that their family lineage, named Burun, could be a play on Byron, suggesting a link to the iconic Romantic poet. Despite their individual personas, their remarkable physical resemblance baffles observers as if they were standing before a mirror. Norval even comments on their uncanny similarity, musing about the "doppelgänger phenomenon" and the human tendency to seek an "invisible twin" as a way of demystifying narcissism (Moore 29; 9; 89). As they are blended in a collective, prototypical, image, Noel almost disappears in Norval's overbearing shadow.

The literary motif of the *doppelgänger* extends beyond just Noel and Norval, pervasively piercing the novel through and through, as there are parallels also between Noel and Vorta, and between Noel and his mother, Stella. While both Noel and Vorta are attempting to discover a cure for AD, as they dabble in both science and art, Noel and Stella comprise two opposite but complementary poles of memory experience. In this intricate web, Noel's personal experience is thus attenuated by being enmeshed in the cultural products of Western literary traditions.

Noel's personal experience, especially his perception of his synaesthesia, is likewise profoundly shaped by prevailing societal perspectives. The novel echoes pivotal aspects of

synaesthesia discourse in literature as outlined by Patricia Duffy, a noted author and synaesthete. This includes its position as Romantic ideal which endows its possessor with a superpower, and indicator of pathology due to sensory overload (647-70). Thus, in a conversation between Samira – Noel’s love interest – and Norval, the latter asserts that she should not be fooled by Noel’s withdrawn and timid demeanour as he is “superhuman” since “he can visualise things with painterly awareness, summon things [she] or [he] would never be able to summon given a hundred lifetimes, things never seen in the wildest visions of a witches’ Sabbath” and “has the mind and imagination of a master artist, or master scientist” (Moore 91). Furthermore, Noel introspectively alleges that “[s]ometimes [he] thinks those who don’t have synaesthesia are missing out on something. Almost like being colour blind” (178). This Romantic view is counterbalanced with a diametrically opposite, but no less prominent, strand in the discourse of synaesthesia that regards the condition as pathological. Thus, a doctor describes Noel’s condition as showing a “[t]endency to brood, emotional numbness, [and] general confusion.” Further highlighting the challenges he faces, Noel admits that he often has to “concentrate so hard that [he] usually ends up with a horrendous migraine,” experiencing “[s]cintillating scotoma [i.e. migraine aura].” In addition, women perceive him as “retarded” (183).⁹⁵ Once again, Noel’s personal experience is not independent from, but is rather intertwined with, the social context in which the condition has been explored.

Memory Artists is replete with pastiches of Romantic, Symbolist, and Modernist literary techniques, all set against a backdrop of *fin de siècle* ambiance, psychoanalysis, occultism, and medicalisation. The styles of these intellectual orientations align with the aesthetic elements of their respective periods and with the historical eras when synaesthesia and memory became

⁹⁵ Some traits, such as tendency to ruminate and apparent emotional numbness, could suggest symptoms of autism, as examined in chapter 2. Given the interconnectedness of autism and synaesthesia, this overlap is unsurprising. Yet, the novel predominantly and explicitly emphasises synaesthesia, which remains the focal point of this analysis.

fervent topics of debate (Dann 33-6, 49). With the publication of “Correspondences” by Charles Baudelaire (1857) and “Voyelles” by Arthur Rimbaud (1883) – both prominent examples of the French symbolist movement – synaesthesia sparked a fierce debate in the nineteenth century between the proponents of the Romantic-transcendent view and the rationalist-materialist-positivist view. Whereas the former regarded synaesthesia as a gift that heralds the advent of an “immanent revolution in consciousness,” the latter regarded it as a pathology of the sensory system (165; 28). This dichotomy mirrors the dual portrayals of synaesthesia in literature, as outlined by Duffy and embodied in Noel's character.

In the early twentieth century, the discourse about synaesthesia evolved into its second phase. On the one hand, at a period rife with speculations about new forms of consciousness and tendencies to draw parallels between different realms, synaesthesia was seen as a mystery. Using synaesthesia, artists of the period, such as Wassily Kandinsky, attempted to reach deeper and “occult” levels of meaning (60-1). On the other hand, psychological studies began to view synaesthesia as an intrinsic facet of the synaesthete's cognitive process, equating it to a distinct form of thinking (82). This latter interpretation resonates with contemporary neurological understandings of the phenomenon (“Synaesthesia: A Distinct Entity”).

While this synaesthetic discourse is in the background of Clara and Helio's artistic endeavours in *Saudade, Memory Artists* directly alludes to its various strands, from its historical underpinnings to its modern interpretations. In addition, the novel pays homage to prominent literary personas, including Rimbaud, Baudelaire, Nabokov, Proust, and Kandinsky, who have either implicitly or explicitly engaged with this discourse. This reverence is evident when Norval refrains from mocking Noel's synaesthesia as “he knew Baudelaire and Rimbaud – Poe and Nabokov too – and thought his friend might one day become as great” (Moore 34). The tapestry of intertextual references extends into the visual descriptions, as evidenced when the adorned walls of Norval's room feature works such as “Kandinsky's *Blauer Ritter* [sic], Hockney's illustrations for *Six Fairy Tales of the Brothers Grimm*, a sepia image of Solomon Shereshevski”

(156). The visual element culminates in a paratextual illustration that resembles Rimbaud in a postcard addressed to Norval (22).

As the novel summons up different periods, it conjures up different coordinates of reasoning about synaesthesia and hypermnnesia. This further entrenches Noel's experience and voice in cultural, historical, and contemporary dialogues, diminishing its distinctiveness. However, the satire questions the prevailing dominance of social construction. A particularly humorous excerpt that aptly captures this trend is intricately presented through the character of Norval. Norval, a celebrated local figure renowned for acting, teaching symbolist literature, and penning a Romantic novel, simultaneously lampoons the very cultural milieu that celebrates him, all while enacting the characteristics of a moody, rebellious, and cynical Byronic hero:

“‘You’re Norval Blaquièrè,” she said, lisping with a tongue ring. ‘The actor thlash writer. You were amathing in *Rimbaud in London*. And I read your book—twithe. Tho romantic! And tho thad ... God, how I cried over that book! ... I was wondering if you have any advice for aspiring writers?’ ... ‘Yes. Don’t recount your dreams, don’t puke up your diary, don’t write anything before age thirty.’ ‘Really? That’s not what my creative writing teacher said.’ ‘That’s why he’s teaching.’ ‘And didn’t you write your novel in your twenties?’ ‘Learn from my mistake.’” (16)

As the novel relentlessly challenges and ridicules the dialogue surrounding synaesthesia and its artistic landscape, it pushes deconstruction to its limits. The unwavering examination exhausts the critical paradigm of deconstruction and dilutes its impact, allowing Noel to find his distinct voice from within the rubble of the crumbled discourse.

The intrusiveness of the scientific discourse, postmodern narratological structure, abundant intertextuality, and metafictionality mirror Noel’s intrusive synaesthetic experience, which likewise complicate his attempts to make sense of the world. Just as the sensory bombardment precludes Noel from interacting easily with his surroundings, to the point of being

considered “off his head” (4), so does this apparently postmodern pastiche impede the reader and Noel from distinguishing and distilling the latter’s voice and experience from irrelevant factors.

Despite its intrusive nature, it is synaesthesia, coupled with hypermnesia, that propels his scientific insights. The hyper-abundance of sensory stimuli proves crucial in sparking his creative epiphanies. A solution can be reached only after culling irrelevant stimuli from an excessive variety, and experience can be validated only when painfully extracted from a multitude of muddling, yet essential factors. Noel's mission, shared by the reader, is to disentangle his experiences from prevailing constructions. He seeks to glean insight from cultural artefacts like literature and poetry, using them as facilitating tools in his endeavour, rather than as doubt-inducing hindrances. To make personal and scientific progress, Noel must reclaim epistemological authority over his experience. This means achieving a harmonious balance between himself, others, and the sensory and cultural environments. Only then can he harness his burgeoning creativity and utilise the cultural tools at his disposal.

Finally, as Noel’s experience is conveyed through a linguistic medium, the novel subtly incorporates yet another postmodern concern, questioning the ability of language to grasp the complexity of various synaesthetic and mnemonic experiences. This scepticism is exemplified through the novel's use of multiple metaphors for memory loss and its opposite – hypermnesia. None seem to capture their subjects in their entirety. The fleeting mention and swift replacement of one metaphor with another suggests the insufficiency of each metaphor in truly elucidating the phenomena they depict.

For instance, in an exchange between Noel and JJ, memory is initially likened to computer data that simply needs restoration: “Like a computer her memory’s there somewhere – it never disappears, you just need a good technician to restore the data. Unerase, undelete” (131). In subsequent exchanges, JJ swiftly pivots from this digital metaphor to a financial one, stating, “[y]our mom’s overdrawn at the memory bank, while you’re a millionaire’. So you’ve got to find a way ... of transferring some of your capital” (131). Immediately after, the conversation

sees further metaphorical shifts: "terrible memory" is likened to a sieve, a goldfish bowl, while Noel describes his own memory as being "like a hermetically sealed jar ... a radioactive-waste container" (131). The novel goes on to utilise an array of metaphors for memory loss in AD: a malfunctioning TV set, described as "sometimes the colours are off, the images distorted... Sometimes, after a good shake, things might suddenly come in loud and clear. Or dead-silent and blank"; memory as an irretrievable entity; "memory holes" reminiscent of Orwell's *1984* where memory loss is depicted as a dystopian warfare: "[Stella's] memory loss [was] a war inside her... committing acts of sabotage ... controlling her by erasing or distorting her memories" (193); and finally, a chaotic "kaleidoscope turned by a madman" (61; 71; 193).

At first glance, the plethora of semantically different and at times inconsistent memory metaphors indeed undermines language's ability to accurately depict cognitive concepts and processes, reflecting further the novel's postmodern *zeitgeist*, and, specifically, its embrace of a relativistic outlook on language's capacity for representation. However, most of the aforementioned metaphors represent either tangible entities or the absence of physicality. In this way, memory is either likened to the workings or malfunction of an electronic device – a computer or a TV set, kitchenware – a penetrable sieve or a hermetically sealed jar – an absence in physicality – a hole or an irretrievable thing – and an erratically jumbled perceptual (visual) medley – a kaleidoscope. The material view of memory, aligned with Lakoff and Johnson's theory (*Metaphors* 272), implies that metaphors depicting memory as tangible entities or physical experiences reflect a conceptualisation grounded in physicality. Similar to Vaz, who touches upon the conceptual nature of metaphor, thereby deepening the connection between the sensory and the linguistic, Moore reclaims its materiality. While language has its inherent limitations, its grounding in everyday experiences absolves it of apparent duplicity and inconclusiveness, providing a tangible perspective on memory and its processes. Thus, scepticism once again fails to dominate. Instead, language is vindicated when put in a physical, experiential context, and paves the way to the prominence of the materiality of reading in Noel's scientific endeavour.

The novel's use of metaphor both adheres to and transforms Romantic traditions. Romantic literature employs metaphor to convey deep emotions, connect with nature, and articulate nuanced individual perception and imagination, aiming to organically link internal experiences with the external natural world (A. Day 102-3; 110-12). In contrast, *Memory Artists* redirects the focus of its metaphors to the material and physical aspects of human existence. However, the novel maintains the Romantic tradition by using metaphors that bridge internal experiences, such as memory, with their external, physical implementation. The novel's approach personalises the scientific exploration of cognition, similar to how Romantic poets linked individual emotions with the broader natural world. For instance, the metaphor of memory as an Etch-a-Sketch illustrates a bridging of internal experiences with their physical manifestation. This metaphor bridges the psychological experience of memory, perceived as intangible, with its physical reality governed by the brain's neural circuitry. It extends Romanticism's focus on ephemeral experiences by illustrating memory not only as fleeting but also as physically alterable, similar to how shaking an Etch-a-Sketch can reset an image.

The physical essence of memory presented in the novel resonates with Jonathan Roberts' scientific perspective where memory and consciousness are grounded not in abstract computations but in the concrete dynamic interplay of brain cell assemblies. These assemblies, intricate networks of neurons linked through strengthened synaptic connections from repeated activation, underpin our cognitive and sensory experiences. The model emphasises the brain's materiality, arguing that the subjective essence and content of consciousness are the result of spatiotemporal interactions within these neural networks (229-31). A key example in the context of *Memory Artists* is the role of the hippocampus in memory formation, illustrating the way cell assemblies integrate diverse memories into coherent narratives, thus providing a more holistic understanding of consciousness (240-1). This approach addresses the limitations of computational analogies, bridging the “explanatory gap” – the challenge explaining how

subjective experiences arise from physical brain processes – in comprehending the complex nature of conscious experience (248).

Thus, for example, the metaphor of the brain as a malfunctioning TV set vividly captures the physical processes underlying memory, paralleling the synaptic disruptions evident in conditions such as AD, where significant synapse and neuron loss in memory-critical areas including the hippocampus leads to memory impairment (Subramanian et al.). Describing memory as sometimes clear, while other times distorted or silent, mirrors these disrupted synaptic connections, effectively portraying memory's material basis in line with contemporary neurological insights.

The synthesis of Noel's experiential grasp of neurological concepts with a material view of memory lays the groundwork for the novel's exploration of the intra-action of literature and science. As they navigate obstacles shaped by scientific, social, historical, literary, and linguistic constructs, *Memory Artists*, Noel, and the reader embark on an embodied journey that progressively intertwines science and literature. This odyssey, which will be the focus of section four, culminates in the shift of the novel's paradigm from postmodernism to post-postmodernism, alongside transformations in the protagonist and the reader, ultimately leading to an applicable scientific outcome.

2.2 Beautiful Miscellaneous: Neuro-Romanticism, Neo-Phenomenology and Posthumanist Performativity

Contrasting sharply with *Memory Artists*, *Beautiful Miscellaneous* delves into the intricate nexus of synaesthesia, memory, and creativity with a distinctive and empathic first-person contemplative tone. This unique voice is deeply rooted in the embodied perceptual and emotional experiences of Nathan – the protagonist and narrator. His voice dominates the novel, notwithstanding the omnipresence of his scientist father, Samuel, with whom the former contends, clashes, and eventually comes to terms. Although the novel is to some extent a

metafictional exploration of the relationship between creativity in art and science, it is to a larger degree an experiential enactment of this relationship. Through Nathan's synesthetic experiences and the vivid portrayal of his engagement with scientific concepts and artistic expressions, the novel allows readers to viscerally experience the blending of scientific insight and artistic creativity as inseparable and co-evolving. Even though a substantial part of Nathan's story is devoted to the theoretical physics that captivates his father, these concepts are consistently illuminated through Nathan's subjective lens. His perspective is thus epitomised by posthumanist performativity, in which phenomena are not merely observed but actively co-constituted through specific material-discursive intra-actions (*Meeting the Universe Halfway* 33). These material-discursive interactions represent the inseparable intertwining of physical substances and interpretative meanings, underscoring how both material conditions and discursive practices collaboratively shape and define the emergence of phenomena ("Posthumanist Performativity" 810). While the novels explored in chapters one and two demonstrate underlying intra-action, in *Beautiful Miscellaneous*, and to some degree in *Memory Artists*, it reaches its apotheosis.

Unlike *Memory Artists*, the tone of *Beautiful Miscellaneous* lacks scepticism or ridicule, employing instead a humanistic, compassionate approach to its characters. Nathan's empathic view of his father and his shortcomings provides context for Samuel's observations about physics. These observations seem less like glimpses into objective reality and more like reflections of Samuel's cognitive limitations in perceiving the world. In contrast to Noel, Nathan stands as the sole narrator, consistently espousing a contemplative-artistic and unintrusive worldview. This self-assured stance finds its roots, at least in part, in the evident limitations of his father's strictly scientific-objectivist approach. As he narrates his journey, he both foreshadows and embodies the experiential realisations that shape his voice.

For Nathan, transformative personal experience acts as a profound vessel, navigating him towards meaning and belief. Samuel, in his quest to transcend his lumberjack origins and the

shadows of his devout Catholic father – Pop Nelson – finds solace in physics. However, when death looms, he pens a letter to God. A poignant narrative episode where Nathan's formative accident transpires – as drunken Pop crashes the Oldsmobile post-church – serves as a window for Nathan to perceive the tense dynamic between his father and grandfather and Samuel's indecisiveness with regards to faith. Witnessing his father's ambivalence towards faith, Nathan forges an alternative connection with the universe, channelled through his synaesthesia and hypermnesia.

In *Memory Artists*, the individual, embodied experience of the physical world emerges validated, vindicated, and paramount in interacting with the world and making scientific discoveries. Even more so, in *Beautiful Miscellaneous*, they metamorphose into a surrogate for religion. Echoing *Saudade*, where synaesthesia offers an alternative to traditional religious paradigms, this experience, coupled with hypermnesia, likewise serves as a spiritual framework in *Beautiful Miscellaneous*. Thus, both *Memory Artists* and *Beautiful Miscellaneous* herald a new vicissitude in the age of personal experience, marking its resurgence as the dominant lens for understanding the world. This shift echoes themes of the Romantic movement, extensively referenced in *Memory Artists*, and resonates deeply with existential phenomenology. Yet, the essence of this current wave captures not just mental experiences, but also the associated neuroscience behind perception, cognition, and creativity, underscoring the pivotal role of imagination. This makes the novels emblematic of both the neuro-Romantic trend and the modern syndrome novel, characterised by Waugh as “neo-phenomenological” (32). Thus, for example, Nathan's neuro-Romantic and neo-phenomenological experiences are vividly illustrated when, during an encounter with a neuropsychologist after his accident, he reinterprets the clinical analysis of his synaesthesia and hypermnesia, choosing to weave these insights into his own narrative and artistic expression, accentuating the primacy of personal experience over scientific authority.

The neuro-Romantic element is apparent in the fact that Nathan and Noel's percepts do not comprise a free-floating, unbridled, solipsistic imagination. They are anchored on a biological platform, giving rise to individual experiences, as we see when each of the protagonists addresses and evaluates the scientific underpinnings of synaesthesia and hypermnesia. However, while the scientific narratives surrounding synaesthesia and hypermnesia gain traction, it is the lived experience which is foregrounded, thus aligning both narratives with neo-phenomenological syndrome novels. To illustrate this point, after his accident, Nathan's encounter with the esteemed neuropsychologist, Dr. Lansky, does not waver his introspective and experiential focus. The scientist's account is not regarded by Nathan as epiphanies or cornerstones that put everything into place or play a pivotal role in his personal journey (96-8).⁹⁶ Instead, Nathan incorporates his newly found individual voice and originally fuses it with scientific knowledge on his personal and artistic journeys.

Highlighting the theme of subjective experience versus objective knowledge, from the opening pages of the novel Nathan juxtaposes his father's rigorous scientific view with his contemplative and poetic one. While Samuel methodically and meticulously elucidates the physical nature of key concepts, such as the Big Bang, time, and light, Nathan puts them in a broader context, expressionistically endowing them with his inner world (3-7). For instance, as Samuel eagerly introduces young Nathan to the solar eclipse, Nathan's gaze often drifts to nature and an intimate study of his father:

When I was nine years old ... my father and I drove to Manitoba to watch a solar eclipse. He was hoping this would mark a whole new era for me. On the nighttime drive up from Wisconsin, we passed farms banked in snow and entire prairies of ice. My father talked about the great eclipses of the past ... when he saw the yellow trail of a comet revealed as the Mid-Atlantic states were shot in half-light. His face was cast with soft light of the dash and his tangled beard – a cross between a norther woodcutter's and a German philosopher's – appeared to

⁹⁶ In Monique Truong's *Bitter in the Mouth*, the academically adept protagonist, Linda/Lihn-Dao, who possesses the ability to taste words, displays a similar perspective. Rather than immersing herself in the scientific discourse surrounding synaesthesia, she prioritises her personal, subjective experience as a synaesthete. By doing so, she critiques the somewhat patronising stance of the neurotypical establishment and researchers towards the phenomenon, asserting that their focus and inquiries are misdirected (217-30).

be glowing. He talked in bursts and then fell quiet for fifteen-minute stretches. Each time, it felt like we were passing out of the ice flats and into enormous valleys of silence (2)

Here, Nathan seamlessly weaves the tangible, external environment with his internal emotional and mental landscapes. Even before the onset of his synaesthesia, Nathan's thinking is remarkably associative, merging the light of a comet with the glow on his father's face. His linguistic and sensory intersections hint at a predisposition towards synaesthesia and, consequently, creativity: "[Samuel's] been drinking coffee straight from the thermos and his breath smelled bitter. The word *honey* smelled the worst" (3). This blending echoes Ramachandran and Hubbard's view regarding the inherent connection between synaesthesia and language, indicating that language may have evolved from earlier, synaesthetic neural mechanisms ("Window into Perception" 28-9). This synesthetic basis of language, as evidenced by Nathan's perceptual associations, also deeply resonates with Lakoff and Johnson's notion that language is rooted in our physical and sensory experiences. The narrative of *Beautiful Miscellaneous* – much like that in *Memory Artists* – counters linguistic scepticism by demonstrating that language is fundamentally predicated on our embodied, sensory experiences. This challenges the postmodern assertion that language can be fully deconstructed into arbitrary signs detached from physical reality. Furthermore, the blending of the sensory and the linguistic accords with Mulvenna's perspective that synaesthetes excel in the generation of creative ideas and follow artistic pursuits more than non-synaesthetes (621). By linking the word "honey" with the unrelated physical, bitter coffee smell perceived while it is articulated, Nathan creates a poetic, oxymoronic blend between its semantic component and its physical manifestation. Moreover, by drawing parallels between Samuel's rugged, woodcutter-like appearance and the intellectual persona typical of German philosophers, Nathan crafts a nuanced, layered perception of his father. This comparison subtly invokes figures such as Kant, who laid the philosophical foundation for Romanticism, alongside Nietzsche, its notable critic.

While Samuel focuses primarily on theoretical physics, Nathan discerns additional layers, unacknowledged dimensions of his father's personality.

While Nathan's associative and introspective mindset enables him to draw profound connections, intertwining the personal with the cosmic, Samuel's worldview remains sharply tethered to ostensibly well-defined physical measurements and phenomena. This becomes evident when he explains the complexities of the cosmos to Nathan:

'Duration will be two minutes and forty-nine seconds' ... 'in physics *that's* an eternity' ... He positioned his hands on the steering wheel at exactly ten and three o'clock ... He switched on the radio and found a hiss of static. 'The truth is, Nathan, time is fluid. Do you hear that static?' ... 'Ten percent of it is due to residual microwaves from the Big Bang. It's all still happening from that one singularity.' (3)

While Samuel clings to these static truths, anchored in well-defined metrics and theories, the rapidly evolving landscape of theoretical physics challenges such firm beliefs. His fixation on precise and orderly phenomena renders him aloof, not only from the nuanced universe around him but also from his son and wife (i.e. 29-30). Furthermore, his career-long quest is deeply rooted in the unified field theory. This theory attempts to describe all fundamental forces and the relationships between elementary particles in terms of a single theoretical network. Nathan perceives a fundamental flaw in his father's approach, seeing it as a relentless search for patterns and elegance in the cosmos. He likens it to the notion that "a neuron might be a hologram for the entire universe," suggesting that, to his father, the creation of the universe seemed as mundane as "an errand for an uninspired bureaucrat with a rubber stamp, forever replicating at various levels the cosmic ink stain" (324).⁹⁷

⁹⁷ The problematics of adhering to any physical theory is astutely elaborated by Andrew Pickering in his illuminating *Constructing Quarks*. Harking back to Latour, Pickering maintains that "[m]issing from the scientist's account ... is any apparent reference to the judgments entailed in the production of scientific knowledge" (7). He argues that physicists are biased when choosing which theory explains their data, as experimental results are subject to the beliefs of the experimenters (6). Thus, when Samuel religiously follows the unified field theory, it prevents him from flexibly and impartially appraising his scientific results.

Samuel's fallacy is corroborated by Barad – an interdisciplinary scholar who bridges theoretical physics with poststructuralist theory. She argues that with the advent of quantum physics, analogous thinking becomes obsolete, due to its dichotomising nature, which assumes the existence of well-defined, inherent categories with stable borders. These categories include distinctions such as human and nonhuman, interior and exterior, subject and object, and science and discourse. Barad cautions, "[i]t would be wrong to simply assume that people are the analogues of atoms ... [and that] biology ... is reducible to chemistry, which in turn is reducible to physics" (*Meeting the Universe Halfway* 24). The possibility of such existence is undermined by Bohr's indeterminacy principle which states that the values of complementary variables (such as position and momentum) are not simultaneously determinate (118). It calls into question, according to Barad, the atomistic belief that "the world is populated with individual things with their own independent sets of determinate properties" – a prevalent position in the history of Western metaphysics (19). Barad suggests instead that in order to account for quantum mechanical observations and implications, one needs to embrace performative metaphysics – the inseparability of the apparatuses of bodily productions and the phenomena produced – and "intra-action" or "the mutual constitution of entangled agencies" ("Posthumanist Performativity" 814), which acknowledges that distinct agencies emerge through their meeting and co-mingling with each other (*Meeting the Universe Halfway* 33).

Indeed, the particle that was discovered after Samuel's death points at anomalies or indeterminacies in "the structure." As the text reveals, "the neutrino is a particle that has mass but is also pure energy," while "the vast emptiness of space, the blackness ... is made mostly of neutrinos." These entities defy boundaries, existing as both "object and nonobject, contained in every cell of our bodies." Indeed, "we are made of pure energy and light," navigating "among the constellation of everyday things, little pockets of nonmatter who are insistent that our borders are fixed" (D. Smith 324).

Contrary to Samuel, Nathan welcomes imperfection and indeterminacy, fluidly interacting with the universe by acting as an intermediary during his stage performances, where his synaesthetic and hypermnesic abilities enable a sensory-poetic entanglement with the surrounding world. Eschewing the detached viewpoint of Newtonian physics or the Cartesian representationalist epistemology with its triadic structure of words, knowers, and things (“Posthumanist Performativity” 813), Nathan positions himself as an open receptacle. He intertwines his embodied experience with quantum processes. This openness manifests vividly when the world “[sings] hymns of information at [him],” which, thanks to synaesthesia and hypermnesia, facilitates a sensory-poetic entanglement with the universe. He insightfully comments, “[t]here is something like quantum physics going on there. At some level, when I walk around up there onstage, I merely allow the information to pass through” (D. Smith 323). Consequently, Nathan's on-stage persona becomes a bridge, merging him and the universe through his unique, synaesthetic perceptions.

Nathan's experiential philosophy resonates with the notion of being a conduit for the world, allowing it to flow through him – akin to a quantum mechanics interpretation of Coleridge's “The Eolian Harp.” In the same way as the poet likens animated creatures to “organic Harps diversely framed” that “tremble into thought” by “one intellectual breeze,” “plastic and vast,” which is in turn “[a]t once the Soul of each, and God of all” (lines 45-9), Nathan perceives himself as an acutely attuned processor of information. Information, defined by quantum physics as “the essential stuff of universe,” “trembles” him into cognition and performance. This analogy further stresses the ties to Romanticism and religiosity of the current iteration of personal experience and phenomenology.

While Noel's creativity is deeply rooted in alchemy, emphasising the transformational nature of materials in his quest to cure his mother, Nathan perceives himself as part of a vast continuum, intertwined with both (im)material entities and the vast universe. The New Materialist, Danielle Boutet, asserts in “Metaphors of the Mind” that the artistic epistemology

parallels the hermetic tradition, a philosophical and spiritual framework focused on esoteric wisdom and the unity of the cosmos, which flourished during the Renaissance. She views this tradition as an emblem of gnostic knowledge, where both artist and alchemist “think through matter,” viewing their inner worlds as microcosms reflecting the greater universe (30-1). This spatial, Medieval metaphor by Boutet, reminiscent of Samuel’s analogist thinking, paints the artist and alchemist as miniatures of a grander structure. This conflicts with Coleridge’s temporal portrayal of the ever-fluctuating, dynamic Eolian Harp. Nevertheless, in both novels, an embodied, performative, and experiential bond emerges through synaesthesia – between Nathan and the universe in *Beautiful Miscellaneous*, and between science and discourse in *Memory Artists*. Drawing from these themes of interconnectedness and transformation, reflecting the broader quest for understanding and transformation, synaesthesia's role in the early twentieth century resonates with the themes of alchemy and hermeticism. It was intertwined with occultism and alchemy, both crucial aspects of the hermetic tradition. This era highlighted the mystical connections between sensory experiences and spiritual enlightenment, positioning synaesthesia as a transformative element in accessing deeper knowledge and understanding.

3. Beyond Dichotomies: The Interplay of Destructive and Creativity-Facilitating Embodied Experiences

3.1 The Spectrum of Human Experience: From Enhanced Memory to Destructive Plasticity

Beyond critiquing the limited scope of the scientific method and advocating for a more inclusive, embodied, and interconnected understanding of reality, both novels question the dichotomy between the extremes of human existence. Both *Memory Artists* and *Beautiful Miscellaneous* chart two modes of existence and thinking that seem diametrically opposed. These dictate distinct ways of processing the world and interacting with it. While one pole is characterised by sensory

excess, hyper-resolution, and the ability to distinguish more physical features than the average individual, the other is marked by loss or absence due to psychological or organic trauma.

Historically, the connection between synaesthesia and enhanced memory has been vividly portrayed in the *oeuvre* of Vladimir Nabokov – a synaesthete and hypermnesiac himself – notably in his novel, *The Gift* (1938), and his autobiography, *Invitation of a Memory* (1951). From a neurological perspective, this connection was first described in the realm of science by the neuropsychologist Alexander Luria in his groundbreaking *The Mind of a Mnemonist* (1968) which unfolds the case study of Solomon Shereshevsky – Luria’s patient who had limitless memory founded on audio-visual synaesthesia. Vast research has followed, further establishing the co-occurrence of synaesthesia and hypermemory, and offering neuroscientific mechanisms to explain it. Thus, for example, according to Jamie Ward et al., it is uniquely recognised as the sole neurodevelopmental condition tied to a “pervasive enhancement of long-term memory” (“Meta-analysis” 1299). Beat Meier and Nicolas Rothen argue that synaesthesia may lead to supplementary retrieval cues and, as a result, to an advantage in memory tasks (“Synaesthesia and Memory” 692), while Rothen et al. maintain in an earlier study that enhanced memory in synaesthesia is coupled with wider changes in cognitive systems at the interface of perception and memory (“Enhanced Memory Ability” 1952).

Moreover, Ward and Gözde argue that there is a distinctive profile of cognitive traits that predisposes people to develop synaesthesia, which includes, in addition to enhanced episodic memory, more vivid mental imagery (134).⁹⁸ As mental imagery, according to Susan Daniels-McGhee and Gary Davis, has been traditionally linked with creativity, it is not surprising that synaesthesia has likewise been widely associated with it (151). Indeed, leading neuroscientists Ramachandran and Hubbard link synaesthesia and creativity, even though they offer a different mechanism to explain it. They argue that synaesthesia stems from an excess among brain maps.

⁹⁸ Coined by Endel Tulving, episodic memory is the memory of everyday events that can be explicitly stated or conjured. It is the collection of past personal experiences that occurred at particular times and places (1).

This surplus, depending on its location and spread in the brain, not only gives rise to synaesthesia but also fosters a tendency to connect seemingly unrelated concepts and ideas, essentially fuelling creativity (“Window into Perception” 32). Similarly, Catherine Mulvenna argues that synaesthetes excel in the generation of creative ideas and follow artistic pursuits more than non-synaesthetes; she maintains that the neural common denominator of synaesthesia and creativity might be a co-activation, or synchronous connectivity, of disparate and distal regions of the brain (621-2). In light of this connection, both novels explore the connection between synaesthesia, enhanced memory, and creativity, each unpacking this trio and the relationship between its parts to propose an original, experientially derived, explanation for the nature of their interconnectedness.

To address the opposite, negative pole of experience particularly evident in neurodegenerative diseases and brain tumours, Catherine Malabou’s *Ontology of the Accident* and *The New Wounded* will serve as a useful counterpoint. Malabou introduces the term “destructive plasticity” – a form of cerebral plasticity that severely disrupts one’s personality and identity through cerebral lesions and traumas. This concept is closely related to the themes of destruction, negativity, loss and death, and is opposed to plasticity – “[the] natural sculpting that forms our identity, an identity modelled by experience and that makes us subjects of a history, a singular, recognizable, identifiable history” (*Ontology* 3). The positive cerebral plasticity, or neuroplasticity, which accounts for the ability of the brain to change throughout an individual’s life, is at the heart of synaesthesia and creativity. Malabou’s antithetical concepts help to elucidate the schism between the negative and positive poles of the human experience apparent in *Memory Artists* and *Beautiful Miscellaneous*, while accentuating the width of its range. However, her claim that trauma invariably wreaks havoc on personality is debatable. As I intend to highlight, even changes to the brain and psyche which seemingly have devastating consequences at the outset can exhibit unpredictable and transformative potential, thus interconnecting the two extremes of brain functioning and human existence.

3.2 Sensory Excess and Hyper-Memory

A hyper-sensory way of perceiving and constructing the world has been astutely portrayed by Temple Grandin. Grandin vividly describes her unique sensory experience. She notes she translates “both spoken and written words into full-color movies, complete with sound, which run like a VCR tape in my head.” When people address her, their words “are instantly translated into pictures” (3). She states that her mode of perception is identical to Solomon Shereshevsky’s who maintained a visual image of everything he has ever heard or read (10). Similarly, Vladimir Nabokov’s intense perceptual experiences combine various forms of synaesthesia and hypermnesia (Dann 126). Dann highlights Nabokov’s exceptional memory, noting that whether it was an “anonymous servant” from his childhood, or a mere cigarette case dropped years ago, Nabokov could recall images with astonishing clarity, as if they were happening right before him, even decades later (126).⁹⁹

Grandin attributes her distinct perceptual profile primarily to autism. Yet, such heightened sensory experiences can also resonate with other neurological conditions, notably synaesthesia and hyperphantasia – a condition in which one’s mental imagery is realistic to the point of confusion with reality (Zeman et al. 426-7).¹⁰⁰ As highlighted in chapter two, there is an overlap between the synaesthetic and autistic spectra with notable comorbidity of these conditions (“Is Synaesthesia More Common in Autism?” 1). Similarly, hyperphantasiacs experience more elevated rates of synaesthesia (Zeman et al. 426). Such overlaps might be rooted in cerebral mechanisms involving hyperconnectivity between brain regions, a form of neural plasticity observed in both autism and synaesthesia. For instance, Tang et al. argue that this hyperconnectivity in autistic children stems from a lack of synaptic pruning during development

⁹⁹ This kind of vivid memory is termed eidetic, or photographic.

¹⁰⁰ Moreover, it may not be a necessary facet of autism. As elaborated in chapter two in relation to Bender’s *Lemon Cake*, autism is not a homogenous condition, and since there are, in fact, many manifestations of autism, thinking in pictures may not manifest itself in every form.

(1131-2), a notion that corroborates theories suggesting hyperconnectivity underpins the perceptual surfeit in synaesthesia (e.g., Rouw 500-18; K. Mitchell 530-57). Consequently, this neural hyperconnectivity may be the key to understanding the enriched, vivid perceptions characteristic of both autism and synaesthesia, offering a lens through which individuals discern the world with exceptional detail and intensity.

Noel's experience mirrors that of Grandin, Shereshevsky, and Nabokov. He describes the way he "sort of photograph[s] [what he hear and read]" so that if he "concentrate[s] the coloured letters or coloured voices will remain fixed in [his] mind forever" (Moore 179). Indeed, his multisensory encoding enhances his ability to retain information, as it is bolstered through multiple sensory pathways, further aiding his memory. This multidimensional perception grants him a tangible and precise understanding, as the pairing of sound with visual imagery offers richer encoding possibilities than sound alone.¹⁰¹

However, as his sensory world is substantially richer than the neurological norm, Noel, like Grandin, struggles to meet the world's communicational demands. This richness leads to an excess of information, resulting in slower processing time constants. An early scene in the novel paints a vivid picture of this. Consumed by the colours of Samira's voice, Noel becomes oblivious to Norval's attempts at conversation:

[Noel] recognised [Samira's] voice images ... [he] paused to visualise the colour of her voice ... How would you describe that mix, that merger as rare as radium?

"Noel, stop the colour wheel. I'm talking to you" (26-7).

In another striking instance, the hues emanating from people's voices eclipse entirely the purport of their speech. Thus, as a "yellow" voice invades his thoughts, Noel cannot decipher

¹⁰¹ This view of the relationship between synaesthesia and hypermnnesia accords with the dual-coding theory of cognition that postulates that the ability to encode information in two different ways increases the chance of remembering it compared to a stimulus encoded in one way only (Paivio 241).

the question a man is asking him since he observes “only pullulating worms the colour of burnt butter” (29).

3.3 Destructive Plasticity and the Loss of Self

At the other extreme of human experience, one finds the opposite of vividness and excess: a diminished biological and mental functioning. This functioning is characterised by the loss of one’s self as it existed prior to the trauma-induced destruction. Catherine Malabou’s *The New Wounded* elaborates on the relationship between trauma – organic or psychological – absence, and loss. Malabou, informed by the condition of her grandmother as she succumbed to AD, asserts that a cerebral lesion, such as skull trauma, stroke, epilepsy or AD, transforms the patient’s personality “to such a degree that it might never regain its lost form.” Disturbances of cognitive function, such as memory loss, are accompanied by and linked to affective disturbances due to severing of cerebral connections between brain regions (46-7). As this transformation occurs through destruction, Malabou claims, the patient does not regress to an earlier developmental stage as psychoanalysis would maintain happens following a stressful event, but “corresponds to the birth of a new, *unrecognizable* person” with deconstructed identity (48).

Furthermore, Malabou connects the state of detachment apparent in patients with organic lesions to “the same affective coolness, the same desertion, the same indifference associated with a total metamorphosis of identity” evident in subjects who suffer from post-traumatic stress disorder (PTSD) (xviii). Malabou thus unifies psychological and organic trauma, offering a general theory which is founded upon the traits that all of the “new wounded” have in common and caused by destructive plasticity (xix).

Delving into the narrative, the ups and especially downs that Stella, Noel’s mother, experiences due to AD become a tangible reflection of Malabou’s insights into destructive plasticity. Through Noel, who tenderly cares for Stella, and her introspective diary – which she commences after the onset of her illness and imbues with various paratextual devices – the

reader gets a glimpse into her condition. Her writing gradually fades away and becomes illegible and unintelligible, just as she progressively loses her memory and becomes a shell of her former self. In its early entries, Stella's diary showcases a sharp self-awareness of her medical situation, brimming with wit, humour, and vast general knowledge. However, at her worst, it devolves into a waned amalgamation of letters. These two incompatible states allow the reader to fathom the abyss that separates Stella's personality before and after the full onset of AD.

Upon Vorta's advice to maintain a diary as initial symptoms of AD surface – a task she's told to begin “while she still has ‘self-insight’” (48) – Stella inaugurates her entries with an apt excerpt from Coleridge's “The Rime of The Ancient Mariner.” This choice not only affirms her cognisance of her deteriorating condition but also stands as a further nod to the novel's Romantic undertones:

*Like one, that on a lonesome road Doth walk in fear and dread,
And having once turned round walks on And turns no more his
head;
Because he knows a frightful fiend Doth close behind him tread*
(qtd. in Moore 48)

Next to this literary reflection on impending doom, Stella sketches a figure: a woman beneath the precariously dangling sword of Damocles. The symbiotic interplay of text and image intensifies the message of AD's encroaching devastation. This duality in artistic medium mirrors the multisensory overlap in synaesthesia. Much like combined sensory systems amplify perceptions by channelling them through various sensory pathways, the novel eschews a largely predetermined, singular, linguistic mode, embracing both words and visuals to articulate the destructiveness of AD. By doing so, *Memory Artists* broadens the expressive avenues available to its characters. While Vorta also implements a spectrum of narratological tools to craft and master the story, his approach is calculated and manipulative. Conversely, the creative expressions of Stella and Noel are tightly knit with their authentic, lived experience.

As the disease takes its toll, Stella's diary transforms. Once peppered with vibrant cultural references, it morphs into a raw testament. What remains is a stark portrayal of a mind besieged by AD, stripped of the personality traits that once defined her. This shift becomes palpable through various instances. Thus, she writes, while still self-conscious, "I seem forever on the verge of remembering, like trying to recall a dream, when you get the faintest glimpse before the whole thing evaporates" (49). As AD progresses, Stella becomes increasingly aware of the shifts in her interactions. Conversations, once a domain where she could seamlessly share clever or amusing insights, become treacherous terrains, as crucial details often elude her. She worries about imposing repeated questions on others, sensing their concealed impatience. She remarks on this evolving reality: "you lose your confidence. Or you are afraid you have asked the same question and they are tired of repeating themselves" (49). Sadly, Stella's last entry before succumbing to full-fledged AD reads thus: "Shatterday. Will never unerstan The quick brown fox the quck b the qu ump s ove) Tththequickbrow ... ngldsj88888888888888888888 (56).

This entry enacts yet another memory metaphor, which joins the vast plethora mentioned earlier. Just as the ink of a typewriter dries out, so does memory become faint in AD. Equally, just as the writing produced on the mechanical device becomes disjointed and incoherent, so does Stella's memory, generated by her brain. Emphasising the palpable nature of this degradation, the materiality of language is highlighted: the strength of its written (printed) form – the pigment that appears on the page – ranges from robust to weak. The variable strength parallels memory, which can likewise oscillate between hypermnesia and amnesia. Drawing on the analogy further, the brain is to selfhood as the typewriter is to printed text, memory being a predominant representative and the defining feature of selfhood. As one fails – be it the brain or the typewriter – the other, the selfhood or the printed text, respectively, ceases its intact existence.

According to philosopher John Locke, a person's identity only reaches as far as her memory extends into the past. Namely, one's selfhood is decisively dependent upon what one remembers: as a person's memory begins to disappear, so does her identity (13). Indeed, the

gibberish symbols at the end of Stella's diary attest to the absence of an intending, free willed agent expressing Stella's thoughts through signs, as the characters seem to be produced mechanically, further accentuating the chasm between AD addled Stella and her former self. While Locke's view centres on the interdependence of memory and identity, New Materialism and neuroplasticity focus on the brain's dynamic interactions with its environment and its capacity for internal change as key factors in identity formation. Despite these differences, all perspectives converge in recognising the significant impact of memory on defining personal identity.

Stella's introspective, experiential account is supplemented by Noel's perspective on his mother's deterioration. While exasperated, he exclaims to Vorta: "[s]he is no longer the same person – she's not a person at all!" (86). Witnessing the vast difference between pre and post AD Stella, he registers it in his diary, and is determined to bring his mother back: "[w]ith my memory I'll restore hers" (84). This foreshadows Noel's impending creative journey to discover a cure anchored in his hypermnesia and synaesthesia.

3.4. Resilience and Reconfiguration: The Complex Interplay of Trauma, Plasticity, and Creativity

Contrary to Stella's condition, Samuel's brain tumour reveals and amplifies concealed layers of his character. In fact, the psychological and/or organic changes engendered by the brain tumour not only alter but also resynthesise Samuel's personality. While Malabou disputes the psychoanalytic paradigm of trauma-induced regression, in Samuel's case, the changes underscore the enduring nature of what remains defiant against obliteration (*New Wounded* 19). Indeed, some organic conditions bring about changes in personality without inflicting detachment or indifference on the patient. Thus, patients with brain tumours may exhibit symptoms of mania or panic attacks, which indicate a heightened sensitivity (Moise and Madhusoodanan 28) – standing in contrast to aloofness and coolness.

Thus, Samuel's concealed blue-collar background, which contrasts sharply with his physics professor façade, comes to the front as he approaches death. He begins to deeply resonate with figures like the “moribund man in the Laundromat” and Pop Nelson – lonely men emblematic of despair and longing. These individuals, associated with everyday artifacts like soup cans and newspapers, become representative of Samuel's deep-seated desires (D. Smith 240). He nostalgically opts for greasy fried chicken in a modest eatery foregoing the refined meal his wife prepared (189-90).

Furthermore, before Samuel's ultimate demise he reopens his lifelong debate with religion. In addition to referring to the meal in the lowly joint as “the last supper” (189), he writes a letter to God. This act harks back to his past arguments with his father. One such rowdy altercation resulted in Samuel pushing inebriated Pop – “a small-town man with strong opinions” (68) – into a lake, and Pop retaliating by labelling his son a “Godless skinny punk” (73). However, on his deathbed, Samuel reevaluates his long-held atheism, thus falling in line with his family traditions. In his intimate letter, he ponders the existence of a higher power, citing “*anomalies of science that can only be explained by the presence of a meta-intelligence,*” operating on a “*divine level,*” and ends with a plea for God to care for his family (300). Through his introspection, Samuel retains his former personality while attempting to reconcile his present self – the physicist – with his religious heritage. Just as Nathan embraces a contemporary form of Romanticism, founded upon ideas from quantum physics and neuroscience with a strong spiritual undertone, Samuel similarly opts for integrating religion and physics.

Moreover, Samuel's consistent care for his family reveals that he remains emotionally connected, and is not more indifferent or detached than usual, even though, in Malabou's view, indifference is a necessary feature of destructive plasticity (*New Wounded* 157). Likewise, Samuel does not lose interest in his physical research and insists on going one last time before his death to the Stanford Linear Accelerator, in a final attempt to find the “ghost particle” (194). In fact, Nathan points out that “[u]nknown particles were the closest thing [Samuel] could

imagine to the hand of God” (195), further reinforcing Samuel’s attempt at integration of the different layers of his personality.

Beyond Samuel’s introspective changes, his migraine experiences also offer insights into trauma, plasticity, and creativity. Specifically, Samuel would arrive at insights in physics following debilitating migraines, which might have been an early indication of his brain tumour, given that migraines are recognised as a risk factor, particularly in men (Chau-Hung Chen et al. 1):

usually when the pain arrived, it was so literal and pure that my father physically shrank and retreated to his study ... Surprisingly, in this state, my father would have some of his best insights about physics. He explained this once by saying that on a cloudy day you can get the worst sunburn because only the strongest solar radiation penetrates (D. Smith 11)

Implementing a physical metaphor to explicate the phenomenon, Samuel, in line with his character, imposes an apparent logic and order on the otherwise counterintuitive relationship between the palpably debilitating consequences of his migraines and the fruitful outcomes thereof. The relationship between migraines and creativity has been extensively researched, with many experts establishing a connection between the two phenomena. Arthur Eger suggests that conditions such as migraine, epilepsy, and diabetic hypoglycaemia could have acted as visual inspiration for painters throughout the centuries (*Decorative Kunst* qtd. in Klaus and Robertson 1). Similarly, Peter Wolf maintains that in the literary realm authors are inspired by their “unique aura experiences ... to create specific literary flavors like oxymora, spectacular metaphors, or the depiction of complex perceptions and states of mind” (415). It is not unlikely, therefore, that migraines, which likewise befall Noel, can produce various kinds of insights in diverse fields, including physics. In this way, migraines – believed to cause brain lesions (Bashir et al. 1260) – can potentially be related to creativity.

Another facet of the trauma-creativity nexus is seen in synaesthesia, which showcases the very essence of facilitating plasticity. In fact, synaesthesia is associated with a distinct

neurological profile, which includes predisposition to PTSD, resulting in a higher incidence of the cooccurrence of both conditions (Stuart Hoffman et al. 1). Importantly, a possible explanation for this coexistence lies in the shared individual differences of the synaesthetic cognitive profile, which include more vivid mental imagery and enhanced memory, leading to the retention of trauma (Ward and Gözde 139).

Though most cases of synaesthesia appear to be developmental, acquired cases have also been reported following traumatic brain injury, damage to the brain's white matter, strokes, brain tumours, posttraumatic blindness and diseases of the optic nerve in the eye (Brogaard). Among these fascinating cases stands Jason Padgett, a high school dropout who had never progressed beyond pre-algebra. Following a severe brain injury, he developed synaesthesia and heightened artistic and mathematical abilities. After hand-drawing his visions of “fragmented reality,” he won recognition as Best International Newcomer in the Art Basel Miami Beach Competition (Brogaard). Elaborating on his experience in his memoir *Struck by Genius: How a Brain Injury Made Me a Mathematical Marvel*, Padgett recounts his acquired savant syndrome and related mathematical synaesthesia.¹⁰² Similarly, another intriguing case showcases a Toronto man who acquired synaesthesia following a stroke. For him, “words written in a certain shade of blue” evoked disgust” while “raspberries ... tasted like blue – and blue tasted like raspberries” (St. Michael's Hospital). Literature mirrors real-life phenomena, as seen in D. Smith's inspiration for Nathan in *Beautiful Miscellaneous*. He drew from an account of a boy who, after a baseball head injury, unexpectedly became a genius (D. Smith, Q&A).

Furthermore, synaesthesia's relation to trauma, both organic and psychological, is a recurring theme in contemporary literature. Mark Salzman's *Lying Awake* (2000) depicts the story of Sister John, a Catholic nun. She begins seeing synaesthetic spiritual visions only to discover she is suffering from temporal lobe epileptic seizures. Julia Glass's *The Whole World*

¹⁰² He portrays how, for example, numbers evoke specific geometric shapes, and intricate fractal patterns emerge from the movement of tree branches as they reveal hidden mathematical designs.

Over (2006) introduces Saga, who develops synaesthesia after a head trauma. Clare Morrall's *Astonishing Splashes of Colour* (2003) centres on Kitty. Following a profound childhood trauma, she experiences people's emotions as dynamic colour sensations. As depicted in the book: "[s]he perceives certain individuals as yellow" (1). However, as emotions shift, she notes: "The yellow alters, evoking the scent of fading daffodils, the bite of vomit" (4). Moreover, in *Saudade*, trauma and loss-ridden Clara, who loses both her parents and her homeland, finds solace in synaesthetic, artistic endeavours. All of these portrayals challenge Malabou's view that trauma wreaks havoc on personality, a sentiment challenged in *Beautiful Miscellaneous* through Nathan's own journey.

Beautiful Miscellaneous depicts Nathan's journey with acquired synaesthesia and hypermnesia, demonstrating the way they amplify his artistic inclinations. Samuel anticipates Nathan's post-trauma synaesthesia and hypermnesia to produce genius-level outcomes, reminiscent of Jason Padgett's story. A specialist at the Brook-Mills Institute notes that geniuses possess an intuitive leap in learning and trust even the strangest of ideas (D. Smith 107). Although Nathan is reluctant to embrace the title of "genius," he nevertheless implements his neurological gifts in his chosen path of acting. This portrayal challenges the notion that trauma, whether physical (like a brain injury) or emotional (such as the loss of his father), inevitably leads to the destruction of one's personality.

In a similar vein of exploring trauma's impact, in *Memory Artists*, Noel notably links his hypermnesia to a tendency toward PTSD, observing that continually having unwanted memories resurface leads to post-traumatic stress disorder (Moore 181). However, his painful loss of his father and the associated PTSD symptoms, including avoidance behaviour (Rianne Stam 530), do not destroy his personality or engender indifference to the world. In fact, it is the looming loss of his mother to AD that urges him to overcome his trauma. In order to find a cure for Stella he ventures to utilise the chemistry set he had got from his chemist father and has not touched since his suicide (83). The set, combined with synaesthetic insights from literature, enables him to find the desired remedy.

In the fictional depictions and medical case studies mentioned above, there is a notable correlation between trauma, synaesthesia, and creativity. Indeed, both *Memory Artists* and *Beautiful Miscellaneous* depict the triumph of creativity and facilitating plasticity over destruction, loss and absence. Therefore, the consequences of trauma as explored in this literature are more complicated than the categorical picture presented by Malabou. Rather, trauma can facilitate positive, creativity inducing plasticity, which generates a more vivid experience of the world and others. This experience – anchored by synaesthesia and hypermnesia – brings about anything but detachment from or indifference to the world. The latter is perceived so brightly and fully that it simply cannot be avoided. *Memory Artists* and *Beautiful Miscellaneous* both emphasise the unpredictability of trauma, implying that its outcomes are not definitive.

3.4 Noel's Paradigm Shift: Posthumanist Performativity and the Fluid Boundaries of Trauma and Memory

Drawing upon Barad's terminology, it is a misconception to view trauma as a category with rigid, defined borders. There is not a one-to-one correspondence (or 'injective' relationship) between trauma and destructive plasticity, or negative outcomes more generally. Consequently, the distinction is not clear-cut between traumatic alterations to the brain or psyche and those that result in an enhanced, creative perception of the world.

In line with Barad's philosophy, both protagonists, like true scientists, do not expect or urge certain results, but let things happen. Nathan acts on stage as a receptacle of the world while letting it pass through him. Similarly, Noel attempts different chemical concoctions in his independent search for a cure and observes open-mindedly what happens in each experiment. In addition, he immerses himself in reading and becoming one with his reading material to enhance the process. Their attitude highlights the refusal to commit to and rely on established, orthodox categories and methods, whether on stage or in the lab, as they entangle themselves – their individual experience and experimentation – in the process. The refusal to commit to well

established paradigms and categories parallels the malleable and unpredictable conception of trauma and its consequences in these novels.

Moreover, Noel, like Nathan, defies analogous thinking and explores the intra-action between the physical and the mental by implementing tools from quantum mechanics. Thus, he challenges the mechanistic trope of the typewriter as an analogy for AD. This trope evokes Descartes' mechanistic philosophy that contends that everything in nature works according to mechanical laws (Descartes vii). A proponent of dualism, Descartes argued that body and mind exist as separate entities that interact in the pineal gland (xxiv). Noel's exploration into the nature of memory draws deeply from Richard Feynman's diagrams. Feynman, a Nobel Prize laureate celebrated for his contributions to particle and theoretical physics, offered insights that Noel found in his father's notes, providing him a conceptual tool for understanding memory and challenging reductionist perspectives.

The funny thing, about Feynman ... is that I got some ideas about memory loss – about memory being physical particles – after looking at a Feynman diagram in my dad's notes ... [i]t's a graphic method of representing the interactions of elementary particles, a way of calculating the processes that occur, for instance, between electrons and photons ... the standard view of neuroscience is that when we have a new thought, or a new memory, our brain has *physically changed*. With the formation of engrams, memory-traces. So the mind doesn't exist beyond that – beyond the grey mush, the nerve spaghetti of the brain ... we still have to understand the interaction between the mental – the thought or new memory forming – and the physical. How do the two influence each other? ... now scientists think that the interaction happens at the *quantum* level (Moore 176-7)

As Noel attempts to untangle the interaction of the physical and the mental, he realises that the two are interwoven. Mind does not exist beyond the physical trace of the formation of new memory, but they interact on the quantum level. Although he does not venture beyond this insight – “[w]ell, I’m ... not really at [the] level [of understanding] Feynman. And never will be” – this

realisation ultimately undermines the memory analogies pervading the novel (177).¹⁰³ By realising that such analogies are limiting, Noel reinforces the critique against views which hinge on rigid, pre-established categories. The narrative thus advocates for a more flexible, less dogmatic approach to scientific inquiry and understanding in general, by illustrating that traditional dichotomies between mind and body may no longer adequately capture the complexities of human experience. It proposes embracing scientific paradigms which reveal a more integrated and interconnected nature of existence.

As Noel eschews dichotomising, he intertwines himself, body and mind, into the experimental-experiential process of finding a cure for AD. He thus acknowledges the nuanced interplay of nature, the body, and materiality in their continuous evolution. Sidestepping the "geometries of absolute exteriority or interiority," he remains acutely conscious of the "intertwined practices of knowing and becoming" ("Posthumanist Performativity" 812).

Noel's posthumanist performativity challenges the categorical notion that trauma invariably leads to destruction and decimates personality, a view that presupposes a deterministic cause-and-effect relationship. Instead, in some instances, the effects of trauma can be reversed, while in others, the changes induced can give rise to creativity and savantism. Building on this foundation, Noel's philosophical perspective, alongside Stella's remarkable restoration of personality through Noel's treatment, offers a further counterpoint to Malabou's concept of destructive plasticity. They suggest that changes to the brain and psyche, even with seemingly devastating consequences, remain unpredictable and adaptable. Instead of viewing destructive and creativity-facilitating plasticity as distinct or opposing facets of human experience, they may intertwine and interact in complex manners.

¹⁰³ The vindication of language through tangible metaphors discussed in section two and the rejection of analogous thinking inherent to metaphors will be reconciled in section 4.2.

Noel's perspective reflects J. Cohen's monistic stance on synaesthesia, which posits a continuity between it and ordinary cross-modal perception. This stance undermines the idea of synaesthesia as a fixed category (59). Much like autism, which often coincides with synaesthesia, it is better understood as existing on a spectrum. Thus, both trauma and synaesthesia, along with what are perceived as positive and negative forms of neural plasticity, resist static categorisation and possess mutable, nebulous boundaries. All these insights underscore the interconnected nature of various brain processes and their deep ties to our mental experiences.

4. Synaesthesia and Memory: Embodied Experiences in Storytelling, Imagination, and Art

As Nathan and Noel come to embrace their unique perceptual modes, characterised by synaesthesia and hypermnesia, they cultivate a deeper connection with the universe. By the journey's end, they both engage with the world, informed and influenced by the very materiality of their bodies. Implementing posthumanist performativity and harmonising the diverse mental facets with their physical counterparts – loss and excess corresponding to destructive plasticity, and synaesthesia and hypermnesia to creativity-facilitating plasticity, respectively – they come to terms with their identities. This process helps them unlock their inherent creativity. The reserved Nathan, refusing to haste his journey, realises his passion for acting. Concurrently, Noel discovers a cure for Stella by allowing his memory and synaesthesia to flourish without constraints. However, their gifts of hypermnesia and synaesthesia only bear fruit when each reaches a pivotal moment, learning to implement their talents with flexibility, imagination, and creativity.

4.1 Interweaving Memory, Synaesthesia, Reading, and Agency: The Creative Alchemy in
Memory Artists

Before reaching his pharmacological epiphany, Noel struggles with the monolithic and alienated nature of his perceptions. In yet another vivid materialist metaphor, Noel portrays his memory as a rigid museum or library, rather than a dynamic space like a debating hall or a crucible (Moore 182). He further likens his mind to an overloaded computer, suggesting it is overburdened: “with more input than it was designed to process. Slow down, freeze, crash, reboot” (181). While the metaphor initially resonates with Cartesian dualism through its depiction of the mind as a separate, mechanical entity, it also challenges dualistic notions by illustrating how the mind's efficiency and stability are contingent on its ‘hardware’ or physical conditions. This renders the metaphor a complex, nuanced depiction that both utilises and critiques Cartesian views, ultimately inclining towards a more integrated view of mind and body. The indeterminate nature of the metaphor thus foreshadows Noel’s transformation, as he eventually embraces agential realism, hinting at the inadequacy of strict dichotomies.¹⁰⁴ It is only upon recalibrating the balance between sensory inundation and intentional agency – shifting from being overwhelmed by memory to actively and imaginatively implementing information – that Noel enacts a more fluid relationship with the world. This new dynamic allows him to harness the true potential of his unique gifts.

Corroborating the process he undergoes, Kieran Egan challenges the prevailing view that equates humans to computers – with the mind as software and memory as retrievable data (456, 458). This perspective contests Cartesian dualism as it disputes the notion of a clear separation between mind and body – where the mind is software and the body is hardware – proposing instead that cognitive processes are dynamically integrated with our physical existence. Egan

¹⁰⁴ Reflecting this challenge to conventional dichotomies, the novel itself navigates a liminal space, transitioning from postmodernism to post-postmodernism. This shift is characterised by an innovative engagement with the world, where literature's relationship with materiality is re-envisioned through agential realism.

asserts a deep-seated bond between memory and imagination, proposing that imagination sprang from our innate need to remember (456). This interconnectedness of cognitive functions indicates a holistic view of cognition. Since memory and imagination are not isolated or purely mental phenomena but are enriched and influenced by sensory experiences and emotional responses, his views reinforce the principles of embodied cognition, which posits that cognitive processes are deeply rooted in the body's interactions with the world. His perspective likewise resonates with Barad's critique of analogous thinking, particularly as Egan introduces a variable, unpredictable facet to memory: imagination.

For Egan, oral cultures, reliant on human memories for their preservation, crafted efficacious memorisation techniques. These spanned rhythm, rhyme, meter, neat formulas, and most significantly, storytelling. He views storytelling as more than a mnemonic device; it has been a stabilising force across human societies for millennia (456). Stories, by their nature, embed content within vivid, emotive imagery. Beyond merely aiding memorisation, they "evoke, stimulate, and develop the imagination" (456). Egan paints a vivid picture of the archetypal mind receptive to such stories: one enthralled by vibrant, often fantastical images, teeming with hybrid creatures and outlandish escapades (456-7). This narrative framework, replete with emotional resonance, was inherently more memorable to humans than a mere random assortment of facts (457).

Probing further into the mechanics of storytelling, Egan echoes the second generation of reader-response discourse and its emphasis on affective resonance and intersubjectivity. Such engagement did not just enthrall listeners; it drew them closer to their social circles and ingrained customs (457). In a final, profound assertion, Egan elevates imagination from being perceived as a mere ornamental addition or an artistic flourish. For him, imagination is not a secondary offshoot from disciplined thought or rationality. Instead, it sits at the very heart of impactful human cognition (458). Egan's stance resonates with a broader perspective that accentuates the inseparable connection between imagination and cognition, notably with Lakoff and Johnson's

claim that our conceptual system and usage of language are metaphorical in nature (*Metaphors* 3). Moreover, neuroscientist Antonio Damasio highlights imagination's essential role in decision-making and emotional processing (*Descartes's Error* 135-6), while cognitive scientist Mark Turner examines how narrative imagining – storytelling – is a fundamental structure of human thought. The latter proposes that the imaginative processes used in creating stories are the same processes used in everyday reasoning and understanding, linking literary narrative directly with more general cognitive functions (19-20).

Echoing Egan's focus on the relationship between memory and creativity, Noel's father, Henry, harks back to long-standing traditions, as he cites luminaries who have historically celebrated this intricate fusion. Henry, who read to Noel from a young age, extolled poetry as the zenith of creativity and perceived chemistry as a multisensory form of "earth poetry." He mused, "chemistry can be seen as a marriage of science and art, an earth poetry, a sensory kaleidoscope of smells, tastes, colours, textures," a confluence that drew in diverse artists from painters to musicians (Moore 6-7; 80). Henry ardently believed in the harmonious pursuit of both science and art, often reminiscing about figures who embraced both fields: "my father always wanted me to be ... [a] writer or doctor or preferably both. He liked to remind me how many great writers were also doctors, or were first drawn to medicine. He had great respect for people like that, and for the Renaissance ideal of excelling at both science and art" (154). Mirroring Egan's stance, Henry firmly asserted a fundamental bond between memory and creativity. He frequently drew upon ancient Greek wisdom, emphasising that artists, in their creative pursuits, leaned on the vast intellectual achievements of bygone eras. Henry believed a potent memory was not merely an asset, but a cornerstone, offering artists an enriched palette and a layered understanding. Reflecting this notion, he often cited James Joyce's words: "I invented nothing, but I forgot nothing either" (8).

Guided by this foundational understanding, Noel embarks on a quest to "rework" the "intellectual achievements of the past" (8) stored within his memory, intertwining them with

principles from chemistry. However, an early stumbling block he faces is his inability to creatively harness his memory's vast resources. This challenge becomes evident when Samira poses a question about merging imagination with memory. His response, tinged with dejection, is that he struggles to "make new patterns, new combinations" (182). Gradually, with the help of Norval, Samira, JJ and his synaesthesia, Noel's memory begins to unwind, and he eventually reaches a pharmacological breakthrough. Importantly, literary texts are paramount in his quest as he derives clues for his potion from Romantic poetry and, notably, *The Arabian Nights*, which he first memorised at the age of five (10). The connections he finds in stories and the synaesthetic act of reading, intertwined with his knowledge of chemistry, break the rigidity of his memory.

4.2. Dreaming by *Memory Artists* and *Arabian Nights*

This section unfolds an experiential-experimental detective journey alongside Noel, the protagonist of *Memory Artists*. It features a close reading of the text, within which *The Arabian Nights* is intricately nested. Mirroring Rose's investigative quest into her neurological difference in *Lemon Cake*, the analysis methodically traces literary clues, which lead to real-life discoveries.

In his vivid expedition down memory lane, Noel is engrossed in deciphering the significance of "amaranth," which proves crucial for Stella's medical recovery. Within the plot, the introduction of amaranth occurs not in botanical or medicinal contexts, but rather as a colour descriptor in a cinema scene. At this initial juncture, Norval draws Noel's attention to it, to which the latter, perhaps mechanically, expounds: "[a] dye for pharmaceuticals. Banned in North America, but not in Europe" (32). Crucially, in response to Noel's initial description, Norval alludes to amaranth as an imaginary, immortal flower, celebrated in Romantic poetry.

Subsequent to this, Noel's memories are triggered, providing a window into the workings of his brain. The term amaranth initiates a sequence of recollections, analogous to what Noel perceives as "a mad librarian's slide show." "[t]he letters of *amaranth* were strobing inside his

brain, along with piggybacking words, phrases and paragraphs from distant times” (33). Starting with Aesop's tales – where “each sentence [cascades] helically into the next, like slinky toys” (34) – that formed foundational narratives of his youth, the cognitive journey spans texts such as *Don Quixote*, where amaranth is indeed termed as “undying,” and extends to *Pinocchio*. However, it is *The Arabian Nights*, coursing “in a riverine double line, oscillating like a polygraph needle,” delineated in “lambent” sapphire letters, that takes central stage in his journey (34).

In a significant shift from abstract concepts to the embodied impact of memory, especially in the context of AD, Noel's effort to rekindle Stella's fragmented recollections with a bouquet of amaranth marks a critical point. This moment highlights the personal and emotional dimensions of memory, while foregrounding the role of physical objects in memory reconstruction and retention. Noel's gesture is rooted in his hope that the amaranth might stir recollections of Stella reading Aesop to him during his childhood. A closely related sentiment is echoed in a diary entry from Noel's youth, which tenderly draws a parallel between the eternal nature of amaranth and maternal affection: “[b]ut like a mother's love/ The amaranth lasts forever” (57). Despite the inefficacy of Noel's attempt (45-6), it is an important testament to the iterative nature of scientific discovery, accentuating the value of trial-and-error.

Continuing his diligent pursuit inspired by literary revelations and personal ties to amaranth, Noel stumbles upon another enlightening source which provides a vital clue. It comes from JJ's obscure edition of Galland's *The Arabian Nights*, specifically the story of “The Sleeper and the Awakener.” The plot references the restorative capabilities of amaranth, as the protagonist asks for “a drug often administered to men when diseased with forgetfulness” and receives from the druggist “ground up blossoms of Aleppine jasmine and Damascene nenuphar, bulbs of poet's narcissus and rootstalks of curcuma, seeds of club moss and stems of amaranth” (203-4). Upon this discovery, Noel examines the intricate phytochemical structures of the enumerated plants. This investigation reveals that amaranth possesses components conducive to memory preservation, particularly its ability to combat the adverse effects of dementia (204),

which enables him to find the right balance between the different ingredients to benefit Stella (204).¹⁰⁵ Noel's scientific pursuit culminates with a "magic pill" he aptly dubs *Nepenthe-Amaranth-56*.

Noel's journey, initially marked by septicism towards blending scientific inquiry with literary interpretation, reveals the profound implications of literature in reshaping real-world perspectives. Noel's shift in perspective, particularly facilitated through the creative applications of his synaesthesia and hypermnesia, not only transforms his understanding but also affects the readers as they engage with his journey through embodied resonance. At first hesitant to accept that a scientific discovery might stem from a fictional work, he then lets literary symbolism guide him as he views it as a validation of his father's philosophy:

I've been thinking about a skein of "coincidences" that revolve around *The Arabian Nights*. I've tried to block them out – because they're unscientific, illogical, superstitious – but they've been gnawing away at me like an unkept promise ... At the cemetery, while gazing at my father's tombstone, I calculated the time between my mom's first suspicions of memory loss and the first signs of clear improvement: two years, 9 months. Or ... 1001 days. This is courting madness, I know ... if I push this one step further – and my dad, after all, said that irrational art and rational science should never be separated – perhaps number six will relate to the memory cure itself. That its ingredients, or the treasure map leading to them, will lie within the pages of *The 1001 Nights* (202)

As he adamantly pursues his mission, while processing his father's death, he experiences an epiphany. Boundaries once perceived as inflexible now transform into gateways for new understandings, as he finally feels a loosening of his previous rigidity. In a significant realisation, Noel observes, "[w]here there were walls there are now doors," reflecting his newfound flexibility in both embracing the interplay between literature and science, and adaptively utilising his unique neurological attributes (206). The proverbial Sesame has indeed opened.

¹⁰⁵ "[amaranth's] stems and roots [contain] colloidal carbohydrates similar to those in apple pectin, which eliminate toxic metals that likely contribute to dementia."

Drawing upon insights from *The Arabian Nights*, which highlights the symbiotic relationship between memory and imagination, the text sheds light on the delicate mechanisms of memory anchoring, spatial understanding in relation to cognition, and the transformative power of imaginative storytelling. *The Arabian Nights*, revered for its seminal influence on literary history and the evolution of narrative fiction (Al-Olaqi 384), serves as a beacon for the interplay between memory and imaginative prowess. It thus confirms Egan's assertion, emphasising a profound connection between memory and imaginative storytelling. Echoing Egan's insights, *The Arabian Nights* not only serves as a mnemonic aid, but also illustrates the profound role of storytelling in stimulating and intertwining memory and imagination, thereby enriching the cognitive tapestry of human experience (456-7). To Noel, this collection embodies a “treasure map.” He embarks on a journey through its narratives with a hopeful intuition that somewhere it harbours the cure for his mother (202).

More than merely symbolic, this “treasure map” proves a tangible segue for memory. As a child, Noel employed tangible maps as a mnemonic device. In conjunction with his synaesthesia, he navigated through literature, becoming an active architect of his own mental processes. This method enabled him to tether perceptual elements into a storyline, grounding them through the tangibility of space:

It's like you're taking a walk inside your head, like in a dream. You see yourself going on a trip, right? And you drop the words or sometimes big chunks of words at different spots. Like down the hall you come to a vent, right? So you put some words down the vent and then you come under a picture, so you put some words there, and then you come to the door, or the stairs or maybe a room ... Every memory trip is different. And you just dump a bit here and a bit there and for some reason everything is clear, like a paper route when you just remember the houses, you don't look at the numbers anymore (10)

Fortin discerns a transformative quality in this method, observing that “the visual and physical nature of Noel's memory practices turns reading into an alternate form of sense perception” (42-3). Elaborating on this sentiment, Vorta identifies parallels between Noel's technique and the mnemonic strategies employed by the Greek poet Simonides, often regarded as the pioneer of the

art of memory. Cicero's account, as referenced by Vorta, expounds on Simonides' conviction that individuals could enhance memory by establishing mental landmarks in specific locales. These are associated with the items they wished to recall, so that “the places and images will be employed respectively as a writing tablet and letters” (301).

Incorporating the insights of theorists such as Felski, Sontag, Kuzmičová, and Rokotnitz, the analysis of Noel's journey in *Memory Artists* and *The Arabian Nights* practically embodies their theoretical principles. Their perspective underscores the importance of an embodied and immersive approach to literary engagement. Felski champions immersive sensory experiences to foster a deeper intersubjective connection with texts (“Enchantment” 51), resonating with Sontag's advocacy for phenomenological, sensory engagement in literary analysis (“Against Interpretation” 10). Extending these ideas into reader-response theory, Kuzmičová and Rokotnitz focus on how embodied cognition and bodily-motor experiences influence reader engagement. Kuzmičová defines readerly mental imagery and its types (275-80), while Rokotnitz discusses literature's physical effects that facilitate an active readerly participation (287-8), suggesting that literature's physical impact enhances active reader participation and deepens the cognitive and emotional connections with the text.

Noel's reading of *The Arabian Nights* effectively creates a reflection-within-a-reflection of the reading process itself, a *mise en abyme* that illustrates how individual narratives can encapsulate broader theoretical concepts in literature. Instead of concentrating solely on readers' individual experiences, which are influenced by their backgrounds and cultural contexts, the latest wave of reader-response theorists shifts focus. They turn their attention to the shared neurological foundation as a unifying factor in shaping responses. Furthermore, the integration of cognitive science and neuroscience in close reading, as highlighted by the aforementioned theorists, pave the way for understanding reader responses beyond mere cognitive reasoning. Noel's vivid navigation through his memories and experiences serves as an illustrative case study for theories of embodied cognition. His synaesthetic experiences and emotional

connections, which have been extensively discussed in terms of embodied resonance, showcase the profound impact literature can have on both the mind and body. As the analysis shifts from Noel's specific experiences to a wider discussion on the underpinnings of reading and perception, it leverages these earlier discussions. This approach highlights how individual literary experiences, such as those of Noel, can illuminate broader theoretical concepts regarding mental imagery, emotional engagement, and the corporeal aspects of reading. Thus, Noel's narrative enriches the understanding of his character, while serving as a conduit to explore the universality of these reader-response theories.

Modern insights, such as Scarry's in *Dreaming by The Book*, further elaborate the intricacies of spatial understanding, memory, and imagination. She elucidates how adept writers can sculpt mental images in their readers' minds (6), elaborating various techniques tailored to render imaginative terrains with vivid clarity.¹⁰⁶ At the core of Scarry's research is a groundbreaking finding that the processes of visual imagination and genuine perception rely on the same neural machinery. This discovery foregrounds the similarity between imagery and perception (Ganis 226) and consolidates the overlap between them.

While Scarry, investigating the intersection of literary techniques and neuroscience in evoking mental imagery, highlights the intertwined processes of imagination and perception, Marcel Proust, from his vantage point as a literary artist, demonstrates in a complementary fashion the intertwining of memory and emotions in reading, showcasing the depth of the reader's psychological engagement with the text. In a chapter of *Dreaming by The Book*, Scarry explores Proust's narrative in the opening of *Swann's Way*, detailing how he transfigures memories into tangible, spatial realities for readers ("On Solidity" 11-12). Unlike Nabokov, who

¹⁰⁶ These techniques, including motion and solidity, are employed by writers to enhance sensory engagement. Motion dynamically guides the reader through the narrative, creating a vivid scene, while solidity offers tangible qualities to objects within the story, giving them a palpable sense of reality. An example of this can be seen in how a writer constructs a "vertical floor that bears our weight and stops our inward fall into the narrative's risky projective space," effectively grounding the reader's sensory experience within the text (11-12, 14; 75).

prioritises the precision of memory – particularly through the lens of his own eidetic recall (Boyd 311) – Proust underscores its emotive essence, showcasing how past experiences can be felt anew with vivid emotional intensity (293-4). For Proust, even as the specifics of memories might evolve, they can nonetheless still evoke feelings and themes that mirror those experienced during the original event (“Walk by Swann’s Place” 207-9). Building on these literary insights, Jonah Lehrer, in his work “The Method of Memory,” posits that Proust’s perspective mirrors the dynamic, emotion-tied nature of human memories as accepted in contemporary neuroscience; they are not mere static imprints but are fluid entities that evolve over time (75-95).

Proust posits memory as instrumental in comprehending our experiences, notably emphasising that reading is an intimate dialogue between the text and our own memory and emotions. This intertwining is vividly illustrated in the opening of *Swann’s Way* and throughout the “Combray” section, where the narrator explores how a text serves both as an escape to different realms and an interface for the interweaving of memory, emotions, and imaginative projection (2; 89-91). Thus, for Proust, literary engagement intertwines seamlessly with our emotional and mnemonic existence, fusing introspection with exploration.

Proust’s focus on the emotive aspect of memory and Scarry’s elucidation of the workings of visual imagination lay distinct yet connected paths toward understanding reading’s immersive experience. Rokotnitz broadens their perspectives further to encompass any kind of embodied, notably kinetic, responses evoked during reading (237). These views resonate with Gabrielle Starr’s assertion that readers often navigate a rich tapestry of sensorimotor imagery across diverse modalities simultaneously (78). Lawrence Barsalou further reinforces the overarching embodied mechanisms of reader response, positing that mental images emerge from the reader’s direct sensorimotor experiences (618). Collectively, these views present reading as a unified neurobiological process that intertwines emotional, imagistic, and motor experiences, each contributing to this intricate puzzle of literary engagement.

Noel embarks on an investigative journey, dreaming by *The Arabian Nights*. He navigates it using the tangible maps crafted by the author(s). In neuroscience, complex networks of specialised neurons are critical for the internal representation of space within the brain, facilitating our ability to navigate and comprehend physical environments (Grieves and Jeffery 125). This neural mapping includes components such as place cells, which are known to register and code for specific locations, aiding in forming coherent spatial memories and perception (116). Engaging with vivid texts, readers embark on a mental journey through the text's spatial landscapes, employing a similar internal neural mapping. This mental exploration not only utilises but resonates with our brain's inherent mechanisms for constructing and navigating spatial realities, intertwining physical and imaginative explorations. As Noel's journey unfolds, he encounters an interplay of imagery, memory, emotion, and spatial understanding. Underpinned by the aforementioned neural machinery, this provides a narrative that mirrors complex concepts of neuroscience and cognitive psychology.

Proust, in *In Search of Lost Time*, symbolically illustrates a quest where time, which is inherently bound to memory, is the concealed treasure within the past ("Walk by Swann's Place" 207). In a parallel yet distinct journey, Noel navigates through a tangible, synaesthesia-enhanced memory map of amaranth, uncovering his own treasure: vital knowledge about its healing properties. This piece of information is discovered in "The Sleeper and the Awakener," which emerges as a crucial nexus where literature, dreams, memory, imagination, and creativity converge.¹⁰⁷ In addition to offering a direct key to memory restoration, this tale portrays the boundaries between sleep and wakefulness as flexible and permeable. Rather than presenting a dichotomous relationship, it enables a smoother transition between alternative states of consciousness, which softens the rigidity of rational thinking ("The Sleeper and the Awakener" as

¹⁰⁷ Although Noel references to the story as "The Sleeper and the Awakener," in Antoine Galland's earliest rendition the story is in fact entitled "The Story of the Sleeper Awakened."

referred to by Noel, originally “The Story of the Sleeper Awakened” in Galland 4-89).¹⁰⁸ As a result, Noel’s reading of this tale coincides with a newfound ability to follow his memory maps extemporaneously and imaginatively, so that his memory is no longer a museum or a computer “with more input than it was designed to process” (Moore 181).¹⁰⁹

In bridging the seemingly unrelated realms of literature and chemistry, Noel’s synaesthesia-driven journey alludes to the notion of creativity, as outlined by Ramachandran and Hubbard. They observe a commonality among creative people to “make links between seemingly unrelated domains.” They associate this ability with both synaesthesia – “making arbitrary links between unrelated perceptual entities, such as colors and numbers” – and metaphor – “making links between unrelated conceptual realms” (“Hearing Colors” 57). This connection explains the higher incidence of synaesthesia among artists and poets (“Window into Perception” 3) and emphasises the individual differences among readers. While most contemporary reader-response theorists highlight the neurological similarities among readers, individual differences in traits like the vividness of mental imagery still exist. For instance, hyperphantasiacs, who often have higher rates of synaesthesia (Zeman et al. 426), typically experience more vivid mental imagery, in contrast to aphantasiacs, who lack the ability to visualise images mentally. Kuzmičová underscores this, noting that one of the key factors influencing a reader’s mental imagery is the unique cognitive profile of each reader (280). Ramachandran and Hubbard’s conceptualisation evokes the Romantic ideal of originality (*Biographia Literaria* 64), spotlighting novelty as a vital facet of creativity.¹¹⁰

¹⁰⁸ The protagonist, Aben Hassan is deceived into believing he has lived a long life as a ruler. Upon awakening, he discovers that his perceived reality was actually a dream, leading to a blurred distinction between his dream state and actual life.

¹⁰⁹ The connection between dream and literary logic has also been devised by Freud, who maintained that in both domains reason ceases to police imagination (“Dream-Work,” “Creative Writers”).

¹¹⁰ It is important to note that synaesthesia is just one of many factors that can contribute to creativity. Creativity is a multifaceted phenomenon influenced by a diverse array of elements, including but not limited to personal experience, cultural background, education, and cognitive styles. This acknowledgment ensures a comprehensive understanding of creativity, beyond the specific scope of synaesthesia. The experience of

As previously shown, *Memory Artists* intricately engages with Romanticism, particularly in its exploration of literature, memory, and imagination. Indeed, the novel acknowledges the Romantic emphasis on deep emotional and spiritual connections. However, it surpasses this focus by contesting the Romantic ideal that suggests a direct, unidirectional imparting of meaning and, by implication, profound significance, from the artwork to the audience. The Romantic paradigm is epitomised by Coleridge's concept of secondary imagination, as detailed in his *Biographia Literaria*. Defined as the faculty that reorganises and synthesises the initial, raw products of perceptual processing into new creative forms (chapter XIII), secondary imagination transcends the physical sphere to establish a more profound reality (Hume 489-90). This notion posits that artists, through their engagement with secondary imagination, are not merely creators of art; they serve as intermediaries who elucidate deeper truths, acting as channels for these elevated realities to the audience. The secondary imagination is the pathway to a “world of permanence,” potentially metaphysical or symbolic in nature (493). This underscores that the artist, through this engagement, unveils aspects far more consequential than what is superficially visible. According to Robert Hume, Coleridge's construct aligns with his perception of literature's role and significance (490-2), indicating that literature, and by extension the artist, plays a role beyond mere creation. It strives to offer a deeper comprehension of the world, positioning the artist as a mediator of profound meanings and truths.

aphantasic writers, as showcased in the “Extreme Imagination: Inside the Mind’s Eye” online exhibition, reveals diverse approaches to creativity. Aphantasic writer Dustin Grinnel, for example, describes relying on concepts, outlines, and photographic references rather than visualising scenes or characters. Similarly, an excerpt from Elisabeth Tova Bailey’s book *The Sound of a Wild Snail Eating*, also featured in the exhibition, indicates her reliance on thoughts and emotions, rather than visual memory, to craft her narrative. These introspective accounts highlight the way creativity can manifest in the absence of mental imagery, emphasising conceptual, experiential, and emotional elements in the creative process. This corresponds to Kuzmičová’s exploration of different imagery modes, particularly in contexts lacking an “outer stance” – a perspective where the imager's body is situated outside the storyworld, enabling a descriptive rather than sensorimotor experience of imagery (283). Such insights underscore the diversity of creativity, which is not confined to a single cognitive style but influenced by a range of cognitive experiences.

Memory Artists, conversely, employs a neo-phenomenological approach. The latter merges the *Romantische Naturphilosophie's* focus on sensory experiences with postmodern narrative complexity. This perspective recognises the dynamic interplay in the construction of meaning, asserting that interpretation and internalisation of literary meaning are not merely received but co-created by the individual's idiosyncratic sensory experiences, cognitive processes, and cultural context. The novel thus critiques the traditional Romantic view of direct and profound transmission of meaning. Moreover, the *Memory Artists* challenges the Romantic idea of *origo ex inspiratione* (A. Roberts cxli), as Noel uncovers originality in his interaction with the classics. His journey incorporates a balance between traditional Romantic sensibilities and contemporary scientific and philosophical insights.

However, while the novel's relative emphasis is on individual perception, the second-generation reader response methodology leverages our common perceptual experiences. Mental imagery, and, more broadly, embodied resonance serve in effect as a conduit which facilitates the transmission of meaning and knowledge from the book to the reader through our shared cognitive apparatus. This process enables the reader-response approach to establish a neuroscientific grounding for the Romantic mediation process. This approach recontextualises the Romantic concept of the divine origin of secondary imagination (A. Roberts xv), positioning it not as a mystical phenomenon, but rather as a neuroscientific process.

Combining the perspective of the novel and this methodology, the triad of artist, book, and reader emerges not from divine inspiration but from complex, interdependent neuroscientific mechanisms, both shared and individual, shaped by our ongoing intra-actions with the world and with others. Embodied resonance thus allows the reader to engage with Noel's synaesthetic and hypermnestic experiences, shaped by his unique perceptual mechanisms. At the intersection of Noel's idiosyncrasies and the common cognitive mechanism lies the heart of intersubjectivity, reflecting our intra-action with other humans and the physical artefact which is the book.

In this dynamic interplay, the artist's creative vision and cognitive makeup serve as the cornerstone, initiating a fluid and evolving relationship with its readers. Each reader's interaction with a book is shaped by shared neurological mechanisms, and unique cultural background and neurological differences, resulting in a reading experience that is both individually distinct and universally connected, resonating on multiple levels. Thus, every encounter with the book becomes a unique confluence of the artist's creative expression, intertwined with the reader's personal features, and the common cognitive traits shared among all readers, epitomising the multifaceted nature of intersubjectivity.

Another Romantic element meriting examination within *Memory Artists* is its treatment of metaphor. Metaphor was a defining tool in Romantic literature, expressing deep emotions, connecting humanity with nature, and articulating individual perception and imagination. Thus, for Wordsworth, metaphor is an intrinsic element of the natural, “vitaly metaphorical” language genuinely used by people, particularly valuing its organic simplicity and direct connection to human experience. He advocates for metaphors that arise naturally from everyday speech, eschewing traditional poetic diction in favour of authentic expressions that reflect the unifying processes of human perception and thought (Hawkes 40-2). Similarly, for Coleridge, metaphor was a key manifestation of the creative imagination, essential in shaping and redefining reality in poetic expression. He regards metaphors as more than mere decorative language, viewing them as integral to revealing deeper connections and unities within the natural and human world (42 – 8).

Echoing Ramachandran and Hubbard's emphasis on metaphor as a bridge between disparate realms, Noel's synaesthetic journey is a vivid embodiment of this metaphorical connection. While analogy merely identifies similarities between two entities, metaphor, a paramount literary device, establishes a conceptual relationship that goes beyond evident resemblances. This subtlety is key to understanding why Barad dismisses analogous thinking and sheds light on Ramachandran and Hubbard's focus on metaphor: analogy adheres to existing

modes of thinking, whereas metaphor transcends them. This difference echoes Coleridge's distinction between primary and secondary imagination. The essence of the distinction lies in the role of the primary imagination as an indispensable cognitive instrument, essential for perceiving and comprehending the world. In contrast, the secondary imagination emerges as a creative and transformative power, transcending mere perception to forge novel and artistic expressions (Hume 489-90). Noel's journey to liberate his memory resonates with the concept of the secondary imagination, as he embarks on a transformative process, not just reconstructing past experiences, but creatively reinterpreting and reshaping them into new, imaginative forms.¹¹¹ Unshackling Noel's synaesthesia-enhanced memory bestows upon him voice and agency, empowering him to forge innovative connections between the ostensibly disparate realms of literature and chemistry. Through the immersive act of reading, he instigates a real-world change, ultimately finding a cure for his mother.

The connection between reading and action has been extensively explored by second-generation reader response theorists (Rokotnitz 274). Notably, Brian Massumi, in *Parables for the Virtual*, asserts that:

Enfolded in the muscular, tactile, and visceral sensations of attention are incipient perceptions. When we read, we do not see the individual letters and words. That is what learning to read is all about: learning to stop seeing letters so you can see *through* them. Through the letters, we directly experience fleeting vision-like sensations, inklings of sound, faint brushes of movement. The turning in on itself of the body, its self-referential short-circuiting of outward-projected activity, gives free rein to these incipient perceptions. In this experience of reading, conscious thought, sensation, and all the modalities of perception fold into and out of each other (139)

¹¹¹ While Noel transcends mere replication of past events, engaging in an active, creative reformulation and transformation of memories, *Memory Artists* as a whole reflects a similar departure from mechanistic views. The novel eschews mechanistic interpretations of memory and imagination, mirroring Coleridge's belief, as noted by Adam Roberts (lxxxv), that great imaginative art cannot be fully comprehended through purely scientific or mechanistic explanations. However, while Coleridge conceives of human consciousness or subjectivity as an eternal, unique essence intertwined with the divine (lxxxv), the novel anchors memory and imagination in the realm of everyday experiences. It situates language and consciousness within a tangible, experiential framework, thereby paving the way for an emphasis on the material aspects of reading in Noel's scientific journey.

Massumi's perspective on reading as an embodied act resonates with Fortin's analysis of *Memory Artists*. Fortin perceives Massumi's intertwined connection between perception (through reading) and action as pivotal and equates the act of reading to a synaesthetic experience of the world. In *Memory Artists*, the act of reading is not passive; it is "bounded by the practices of reading" (42). This implies that the characters' perceptions and interactions are intricately interwoven with their reading experiences, forming a tapestry where text and life intertwine in a continuous, dynamic exchange. Thus, as Fortin underscores, Henry reads to young Noel, not simply for entertainment or education but with the objective of nurturing him into an artist. Similarly, Noel reads to AD-afflicted Stella, hoping to stimulate her memory through the immersive, multisensory experience of the text (42). Fortin posits that "such reading practices are meant to be converted into actions" (42).

Moreover, the intersubjectivity of reading, with its ability to connect the reader to others, is reminiscent of – and perhaps continuous with – the way stories in oral cultures brought listeners closer to their social group, as confirmed by Egan (457). Similarly, Armstrong posits that reading is an inherently social endeavour, constituting a "dance" between author and reader. This interaction is described as an embodied, materially grounded phenomenon rooted in the brain's capacities for intersubjective, intermodal mapping (171). In *Memory Artists*, the circle of the participants in this intersubjective endeavour is expanded as it not only includes the author and the reader, but also represented within the text itself through Noel's parents, who initiate him into reading. Furthermore, it is only with the help of JJ's edition of *The Arabian Nights*, Norval's references to amaranth in Romantic literature, and Samira's enchanting voice that Noel is able to find what he is looking for. Samira's vocal colours and her Persian origins are the initial triggers that set Noel's quest into motion. This brings Noel out of his often overwhelming and solitary subjective experience, which parallels the perplexing and confusing world around him. His close circle of friends enables him to use

this experience creatively and to interact imaginatively with the world through the mediation of reading.

While Noel does reclaim epistemological authority over his sensory and cultural experiences, this process is intricately facilitated by others. His navigation between tradition and originality is not solitary but enriched by a tapestry of voices – those of his friends, who serve as crucial mediators. His memory, acting as a reservoir of traditional material, comprised of a rich tapestry of classic literary works spanning fables, novels, and folk tales, is challenged and complemented by external perspectives that offer a novel lens through which to interpret and engage with it. It is through this intricate balance – maintaining a fluid, intra-active dialogue between internal and external elements – that Noel achieves a newfound agency, utilising information with imaginative and flexible prowess without succumbing to its overwhelming tide.

4.3 Interweaving Melodies of Perception: Exploring the Confluence of Physics, Synaesthesia, and Jazz in Creative and Scientific Endeavours

This section examines how Nathan, following his life-altering accident, explores the interplay between physics and synaesthesia, framed within the novel's broader themes of posthumanist performativity and intra-action. It shows how his enhanced synaesthetic perceptions not only challenge traditional boundaries between the observer and the observed but also how they integrate into his scientific and artistic explorations, fostering a unique narrative of discovery. By studying these intersections, the analysis highlights the novel's innovative portrayal of how personal sensory experiences and scientific inquiry can co-evolve, reshaping our understanding of human and non-human agency.

Similar to Noel, Nathan's post-accident experience mirrors the intrusive nature of synaesthesia and memory. He mechanically recites content from books and TV (134; 90), with

his synaesthesia rendering TV themes as “a parade of cyan discs” and character voices as “platinum waves” (86). Yet, the blend of colours is disintegrated, likened to peering too closely at a smudged windowpane, missing the vista beyond (91).

In a striking analogy, Nathan equates his television-watching experience to the fractured consciousness of a coma patient: “disjointed, surreal, animated in a kind of chemical way... the seep of his mind spilling across the screen” (87). This overpowering passivity evokes Stella's experience as her AD intensifies. His overall experience thus once again brings together sensory excess and deficiency.

Much like Noel, Nathan too ultimately attains a harmonious equilibrium, effectively utilising his synaesthesia and hypermnesia to forge an embodied connection with and grasp of the external world. Just as *Memory Artists* underscores reading as a pivotal mode to gain insights, *Beautiful Miscellaneous* navigates through diverse, non-scientific, and predominantly imaginative mediums. It weaves together dreams and various art forms – most notably jazz music, poetry, and acting – placing special emphasis on storytelling.

As Nathan embarks on a journey to find his artistic voice, he encounters various philosophies before eventually sculpting his own worldview. For the majority of his journey, an objective-scientific outlook, represented by his father, vies a personalised-embodied one. Thus, for instance, even when experiencing the intimacy of his first kiss and sensing his blood rushing in his ears, he cannot help but also contemplate the objective properties of blood: “*the blood is an opaque rather viscid fluid of a bright red or scarlet color when it flows from the arteries*” (146). At the same time, Nathan explores his synaesthesia and hypermnesia. Upon discovering his artistic philosophy, he intricately weaves his neurological profile into it, utilising both in performative storytelling. What follows are significant ideational landmarks that shape Nathan's artistic outlook intermingled with his exploration of his idiosyncratic perceptual experience of the world.

Nathan's journey of reconciling the subjective with the objective finds its catalyst in a pivotal debate between Dr. Gillman and Samuel, unfolding the contrasting views on the nature of physics. Dr. Gillman underscores the role of subjectivity in physics by referencing Einstein who conceptualised theorems in his dreams (D. Smith 107). This reference serves as an illustrative example of geniuses capable of formidable, intuitive leaps and unwavering faith in their ideas, regardless of their unconventional origins. The portrayal resonates with Nathan's post-accident perception of the world. Samuel, however, firmly rooted in classic scientific views, remains sceptical of the notion that Einstein's relativity theory originated from a dream. Yet, Gillman stands by his perspective, noting, "[t]he experience of time can change with motion. That sounds dreamy to me" (107). He even likens the transition from Newtonian to Einsteinian physics to a "smoke-and-mirrors show" (107). Beyond just equating it with dreams, Gillman suggests that the elusive and illusory nature of physics has parallels with religion – a notion Samuel firmly dismisses. As Nathan navigates through these dichotomies, he eventually cultivates a balanced perspective, melding sleep with wakefulness, and objectivity with subjectivity.

Nathan's fusion of subjective and objective realms, along with its resulting advantages, resonates with Einstein's pivotal thought experiment. At sixteen, he envisioned himself chasing a light beam, and subsequently attested that this mental experiment significantly influenced his formulation of the theory of special relativity (Norton 257). While recent autotheoretical endeavours underscore the utilisation of first-person and autobiographical approaches to contest prevailing philosophical and cultural perspectives and theoretical frameworks (Fournier 643), Einstein employed his first-person, subjective viewpoint, immersing himself directly in his research, to attain groundbreaking epiphanies in physics.¹¹²

¹¹² Examples of autotheory include Maggie Nelson's *The Argonauts*, which interweaves personal narrative with theoretical insights on gender and identity; Claudia Rankine's *Citizen: An American Lyric*, which employs a blend of poetry, essay, and visual art to confront and challenge the societal perceptions of race and racism in America; and Paul B. Preciado's *Testo Junkie*, where the author uses their experiences with

In this context, Gillman's reference to Einstein's dreams brings to mind Alan Lightman's titular novel, further underscoring the concept of integrating one's self into research. In his imaginative collage, *Einstein's Dreams* (1993), Lightman illustrates the exploration of relativity through dreams, facilitating palpable engagement with the concept. As Einstein conjures various worlds from his desk at a Swiss patent office, the relativity of time materialises distinctly: in one scenario, time flows backward, ushering lives from old age to youth; in another, a spot exists where time halts, sought by those desiring to extend a specific moment (80; 54). Presented in relatable, human-centric terms, the relativity of time transitions from the theoretical physics domain, becoming accessible and comprehensible.

At first glance, Lightman's human-centric portrayal of Einstein's engagement with his research contrasts with Barad's concept of posthumanist performativity, in which the human is decentred, no longer occupying the primary position of explanation, interpretation, and understanding. As Calvert-Minor observes, the human is "reconfigured away from the central place of explanation, interpretation, intelligibility, and objectivity to make room for the epistemic importance of other material agents" (123). However, rather than comprising a detached perspective of Newtonian physics or the Cartesian representationalist epistemology, Einstein's gaze is enmeshed with the object of his enquiry, not external to it. In addition, the experience is not limited to just seeing; it encompasses other perceptual modes, creating a holistic, multisensory experience:

Dawn. A salmon fog floats through the city, carried on the breath of the river. The sun waits beyond the Nydegg Bridge, throws its long, reddened spikes along Kramgasse to the giant clock that measures time, illuminates the underside of balconies. Sounds of morning drift through the streets like the smell of bread. A child wakes and cries for her mother (65)¹¹³

testosterone as a critical lens to examine and critique the normative structures of gender and sexuality within the pharmacopornographic era. These works exemplify how autotheory uses the personal as a critical tool to engage and reshape theoretical discourse in various cultural and philosophical contexts.

¹¹³ The centrality of vision in science and its connection to detached observation has been extensively explored in *Lemon Cake*.

The depicted palpable experience allows one to almost walk the streets. It is at once poetic, synaesthetic, and anthropocentric, foregrounding the human way of perceiving time – the clock. This portrayal enables Lightman’s Einstein, as well as the reader (who dreams by the novel), to infuse themselves and merge with the physical principles of time dilation and the relativity of space and time. Both utilise the human perceptual apparatus and cognitive modes. While the perceptual apparatus and cognitive mechanisms are presented as fundamental, inherently imposing limitations as they shape and filter our perception and understanding of the world, their role is not portrayed as the unchallenged Cartesian “view from nowhere” (Nagel *View from Nowhere*).

Rather, the narrative indicates that only when the perceptual apparatus and cognitive mechanisms are truly attuned to the world outside (instead of attempting to interpret it by the classical scientific method) can one gain, through experience, insights into the workings of the universe. Thus, Einstein effectively marries space and time, as the conception of time is derived from conjuring up different worlds, namely, varied spatial configurations. This approach allows him to break the boundaries of accepted modes of thinking in an intra-active fashion.

The attunement to and enmeshment with the outside world exemplified in Einstein’s approach to physics resonates with Nathan’s eventual entanglement with the world when he finds his calling. He asserts that performing on stage is similar to quantum physics, since “when [he walks] ... onstage, [he] merely [allows] the information to pass through” with the help of his synaesthesia and hypermnesia (D. Smith 323). Combining art – acting – and the acknowledgment of the inherent physicality of the medium he inhabits, Nathan, like Einstein, eventually joins the imaginative with the physical. His performance on stage thus literally enacts the concept of performative metaphysics endorsed by Barad (“Posthumanist Performativity” 814).

Another pertinent landmark in Nathan’s artistic journey is his encounter with the inhabitants of the Brook-Mills Institute. The majority of the inhabitants embody in one way or

another a unique mode of getting in touch with the world and others. Nathan finds the works of Roger especially influential. The latter creates scale models – replica basilicas and skyscrapers – and combines them in a novel fashion:

It was an imaginary city – a basilica catty-corner from the Empire State Building, a baseball field adjacent to a Venetian chapel. It was part Gothic, part Art Deco, part modern. ... The domes of the basilica were cut from copper and tin ... Even the street signs were exact” (D. Smith 145-6)

The high spatial resolution and attention to detail of Roger’s works call to mind *Einstein’s Dreams*. The synthesis of different styles, at once realistically precise and incorporating dream logic, allows a new perspective on space. Metonymically, due to the architectonic, spatial medium, Roger brings mismatching parts together by way of imagination. While his approach differs from metaphorical representations, he, like Einstein, succeeds in breaking the boundaries of what is known and accepted, creating a conceptual fluidity of space. Roger’s synthetical model, which, like Nathan’s synaesthesia, combines apparently mismatching elements in a novel fashion, leaves an indelible impression on Nathan as he explores the structure during his personal and artistic journey (145). Through internalising various physical-creative modes of connecting with the external world, contemplative Nathan ultimately strikes a balanced harmony between himself and the universe, leveraging his synaesthesia and hypermnesia.

Nathan’s relationship with Whit – a fellow physicist to Samuel and a NASA astronaut – profoundly influences him as well.¹¹⁴ Whit’s outlook bridges objective and subjective realms,

¹¹⁴ Whit’s space adventures further consolidate the nexus between the relativity of the human gaze, dreams and creativity. Whit’s experience in space mirrors Nathan’s accident in its profound transformative effects. Both events radically alter their perspectives on life and the universe: “the space dust ... finally sent him a little nuts ... [s]omething in all that spinning” (55-6). Specifically, in space, Whit experiences gravity-free dreams. Claire Mitchell proposes that these can align with spirituality and “higher consciousness” (67). Such a heightened state of awareness is described by Roberto Assagioli as a domain where artistic insights, inspired creativity, and advanced consciousness converge, underscoring our inherent drive to fully manifest our deeper potentials (5). Moved by these profound experiences, Whit finds solace in poetry (D. Smith 57).

further impacting Nathan's evolving artistic perspective. In portraying a sunset from outer space, Whit navigates between Samuel's precise scientific perspective – commending Nathan for adopting scientific terminology – and the religiously sublime, poetic sensations he personally experienced. Whit's depiction: “the sun seemed to flatten out... Earth kept spinning... Made my blood freeze. A diamond sun-blast. I expected angels to appear” (59), captures the awe of his celestial experience. Importantly, Samuel's insistence on the term “earth dip” for sunset, emphasising “we are the ones that are moving,” not only evokes the insights of Copernicus and Galileo but ironically highlights Earth's relative insignificance in the cosmos (58). While Samuel aims to steer Nathan towards objective clarity, his very references underscore humanity's marginal position in the universe. This diminution, along with Whit's change of perspective which encouraged him to turn to art and poetise the universe, profoundly influences Nathan's artistic evolution and overall *Weltanschauung*.

Expanding on the comprehensive analysis of Nathan's fusion of art and science, the focus shifts to jazz. Its improvisational nature mirrors the inherent irregularities in particle physics, further enriching our understanding of the novel's thematic interplay. The subsequent exploration examines how Nathan's synaesthesia interacts with these musical and scientific elements to reveal new dimensions of his artistic and intellectual journey.

In the perspective of Stephon Alexander, a theoretical physicist and an accomplished jazz musician, a profound connection emerges between the spontaneous, irregular nature of jazz and the asymmetrical nature of particle physics (206). His book artfully illustrates how jazz practices and physics theories influence each other through specific examples. Alexander draws from jazz legend Sonny Rollins, highlighting that in jazz, the musician becomes an instrument of the music rather than the other way around (174). Alexander intriguingly connects jazz improvisation with the uncertainty principle, proposing moments where musicians, like quantum electrons, engage in a dance of unpredictability (175).

For Alexander, improvisation plays a pivotal role in theoretical physics, seamlessly blending irregular, creative thinking with precise mathematical calculations. He embraces the idea that the universe harbours jazz-like irregularities, disrupting its inherent symmetry. This disturbance, akin to a primordial quantum disruption, influences the propagation of sound waves and, ultimately, the genesis of matter (146). Alexander argues that the microworld and the macroworld share a profound connection through vibration, resonance, and interaction, rooted in common sound patterns (216). In essence, our physical composition, shaped by these patterns, forms an auditory link to the universe itself (216). This perspective provides a physical basis for understanding the workings of the quantum mechanical Eolian Harp. Alexander concludes by advocating for further exploration at the “intersection of physics, art, and neuroscience” to deepen our understanding of this intricate connection (228).

Although Samuel listens to jazz while doing physical calculations, he never considers the potential contribution of jazz music to the process of physical discovery and hits a brick wall. Nathan, however, pays close attention to this coupling and surmises a possible connection between his father’s “obscure physical problems” and jazz:

the house filled with the shuffling bass of Charles Mingus ... the syncopated cool of Dave Brubeck, the riffing out-of-timeness of Thelonious Monk. I think that for my father jazz offered a kind of deliverance from ordinary time, the way it bent and warped individual notes and intervals; it was a craft that could be as esoteric ... as quantum theory (D. Smith 9)

Furthermore, Nathan is intrigued by television browsing since he finds it similar to both jazz and physics: “[l]ike particle physics and jazz, channel surfing warped time. In the stop-frame dash from one channel to the next, one show bled into another” (86). Similarly, the vibrant visual patterns and auditory elements fuse harmoniously while he switches between television channels (86).

Nathan thus uncovers a connection between the blending of senses characteristic of synaesthesia and the blending enabled by the physical concept of time warping instantiated in

jazz, and channel surfing. He equates the perceptual irregularities offered by synaesthesia, which deviates from the so-called norm, with the fundamental irregularities of jazz and time warping. This temporal distortion, capable of both speeding up and slowing down, results in a perception where events and individuals from one timeline seemingly coexist within another. While television programs seamlessly blend and overlap during the brief channel-switching moment, creating an appearance that events and individuals from one temporal narrative seamlessly inhabit another, in jazz, the concept of time warping is akin to a transformative force. It distorts the original rhythmic pattern, moulding it into either acceleration or deceleration (Benadon 1). This intricate parallel establishes a link between the irregularities evident in the objects of perception – including the unpredictability of jazz improvisation and the asymmetrical nature of quantum mechanics – and the subjective irregularities intrinsic to Nathan's synaesthetic consciousness. Nathan's epiphanies of "violation" (Alexander 215), where regularity breaks down, enable him to transcend the structured certainties pursued by Samuel and find alternative, intra-active ways to creatively relate with the irregularities of the world.

Beyond its thematic references to jazz, the novel incorporates an array of narrative elements that resonate with the spirit of jazz itself. The non-linear structure of the story, at times feeling spontaneous and improvised, mirrors the improvisational nature of jazz music. It navigates seamlessly through time, initially presenting Nathan's accident as its central theme, only to revisit it with various interpretations and variations later on. These narrative techniques grant the characters the freedom to engage in spontaneous and unexpected actions, akin to a jazz musician crafting a solo. Thus, the usually staid and predictable Samuel decides on a whim to visit the Stanford Linear Accelerator on his deathbed, and spontaneously explores obscure food joints, while Nathan embarks on photographic escapades in strangers' homes, letting the camera guide him.

Within Nathan's first-person, soloist, narrative, he nevertheless skillfully incorporates the viewpoints of other characters, allowing readers to glimpse their perspectives. This

narrative polyphony mirrors the harmonious interplay of different instruments in a jazz ensemble. Just as the layers of a jazz composition weave together, the novel intertwines various storylines and character arcs, at times harmonising and at other times contrasting. These encompass, among others, the exploration of the intricate father-son relationship and Nathan's personal journey of creative discovery.¹¹⁵

Importantly, the final step in Nathan's creative journey closely mirrors Noel's. In addition to implementing the same spatial memorisation technique employed by the latter – “[i]t was simply a matter of laying each word or sound image on a pathway – the street where our house stood – and naming them as I walked the street in my mind” (D. Smith 94) – Nathan shares Noel's appreciation for the importance of storytelling to creativity. Their approach, however, sharply contrasts with Samuel's. In a striking realisation, Nathan fathoms that one of Samuel's limitations is his inability to follow a story:

[h]e hadn't read a novel since grade school and seemed incapable of investing himself in a narrative ... He had fond boyhood memories of watching Groucho Marx, the Three Stooges ... but precisely because each moment stood in its own right; they were comedies of distilled cause and effect (11)

Samuel's inability to intersubjectively immerse himself in a story is not isolated, but is closely related to his failure to gain insights into the world of physics. Rather than focusing on the process of scientific exploration as conceived by Barad, which involves dynamism, intra-action and the relinquishment of control, Samuel attempts to find a defining, dichotomising, moment of

¹¹⁵ Furthermore, the novel employs vivid, sensory descriptions to evoke an atmosphere that captures the mood of a jazz piece. It delves deeply into the characters' emotions, offering introspection and complexity akin to a soulful jazz solo. With a tone that gracefully balances melancholy and hope, echoing the emotional depth and dualities found in blues music – a foundational element of jazz – the novel encapsulates the very essence of jazz aesthetics throughout its narrative. In essence, the novel's exploration of the profound connection between synaesthesia, jazz music's improvisational character, and the irregularities of particle physics serves as a bridge between disparate realms of human experience as it enriches Nathan's creative journey.

epiphany. This moment would discretely divide one's life into a before and after, as Samuel believes that "greatness began with a purifying moment – an awakening" (4).

In contrast, Nathan's synaesthesia is characterised by the surrender of rational control:

They told me synesthesia was generated in the left hemisphere of the brain and came with a sudden drop in cortical metabolism. This meant that blood flow in the cortex decreased as compared to the normal increase during mental activity. They believed that my synesthesia was coming from the limbic brain, the old mammalian part, rather than the cortex, where logic and reason reside. Dr. Gillman told my father that my brain, based on all the physical indicators, found synesthesia very relaxing, that my brain-wave coherence increased (115-6)

This neuroscientific depiction agrees with Nathan's mental state. In embracing his new perceptual mode, Nathan's experiences align seamlessly with his reflective worldview. Samuel, who views Nathan's new experiences as "[dipping] a little deeper into the quantum soup" pushes him to put his new talent to good use. Nathan, however, insists on watching television – "info-bytes masquerading as entertainment," according to Gillman (108-9) – since it relaxes him. Like Samuel, Gillman attempts to find application for Nathan's memory and synaesthesia and put them in context, but to no avail, as Nathan contends that, just like music, information need not be useful (133).

During this purportedly passive time, however, Nathan inadvertently memorises what seems to be useless content, and, in doing so, internalises the craft of acting (323). He merges storytelling with his synaesthesia and hypermnesia, allowing information to flow through him on stage. His life transforms into an interconnected, intra-active endeavour, weaving together imagination, dreams and wakefulness. This results in a deeply embodied, performative, relationship with the physical world:

I can expand my awareness to take in all the rooms of a house at once ... I imagine I can hear the appliances – the toaster, the alarm clock – drawing current down from the walls. Each morning I sit and rehearse my lines ... I transit from sleep and dreams directly to the role at hand, to the conjured life (322-3)

Importantly, just as Noel discovers the benefits of his synaesthesia only after learning to flexibly utilise it, so too does Nathan (323). Through his synaesthesia and hypermnnesia, he is able to translate vivid acting lines into “a series of sensory experiences,” aligning closely with the intended emotions (323). The parallels in their journeys become even more pronounced since, much like Noel, Nathan's mastery over his synaesthesia emerges after grappling with his father's demise.¹¹⁶ His synaesthesia finds its “fullness” again, albeit in a “more manageable form,” once he sheds the weight of his father's passing (323). In *Lemon Cake*, Rose, having mastered her synaesthesia, is able to empathise without losing herself. Similarly, Nathan, upon achieving this balance, maintains his identity as he enmeshes himself in his character's narrative (323). Nathan thus attests that he invents words for Hamlet “to better understand his mind.” He walks “the streets and tr[ies] to find Hamlet's words for ordering bagels or coffee,” realising that “there is always a place for a story, the reflective surfaces of woven lives” (323).¹¹⁷ He concludes that “information cascades with a life of its own; its not out there waiting for grand interpretation, it's weaving stories” (235). Thus, his newfound ability to maintain a fluid, intra-active, balance between inside and outside, enables Nathan, as it does Noel, to find a firm footing in the world and fruitfully and creatively participate in it. Nathan, like Noel, learns to utilise information imaginatively and flexibly without becoming overwhelmed by it.

The current focus on experience with its emphasis on the underlying cognitive and neuroscientific processes, dominant in both *Memory Artists* and *Beautiful Miscellaneous*, is part of a more general trend in contemporary humanistic scholarship. Literary scholars have engaged with material and cognitive aspects of the text and the process of reading, thus endeavouring to situate

¹¹⁶ The relationship between synaesthesia, loss, and creativity is extensively explored in chapter one.

¹¹⁷ The relationship between synaesthesia and empathy is elaborated in chapter two.

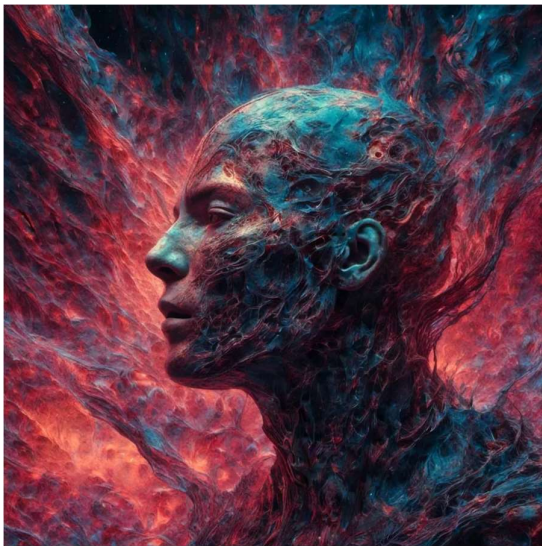
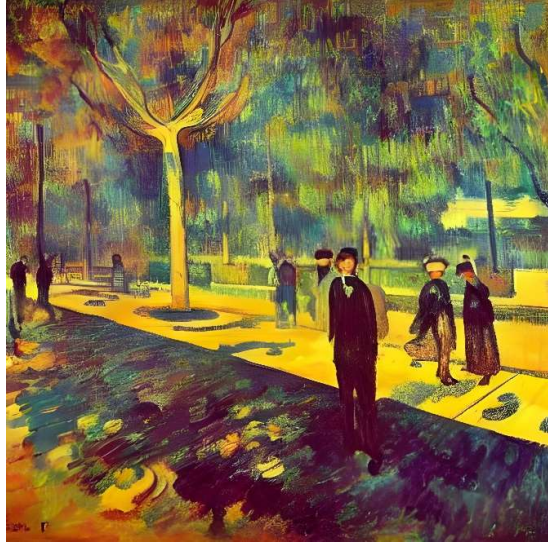
literature in a neuroscientific, physical context (see e.g. Spolsky's "Embodiment and its Entailments" and Sontag's "Against Interpretation").

Furthermore, according to Waugh, the contemporary syndrome novel reaches beyond neurological reductionism (25). By concentrating on interiority, such novels offer a "pre-reflective place which positions embodied minds in imaginary worlds and confers on them depth and thickness" (24). In this respect, *Memory Artists* and *Beautiful Miscellaneous* can be categorised as neo-phenomenological. While *Lemon Cake* shares these characteristics, its scepticism is primarily offset by overwhelming physicality. In *Memory Artists* and *Beautiful Miscellaneous*, even though physical experience remains pivotal, it is the neo-phenomenological elements that chiefly counterbalance scepticism.

In a complementary fashion, many cognitive scholars and neuroscientists have been moving towards an embodied and situated account of the mind, as they attempt to bridge the gap between body and mind through bodily experience and corporeal reality (see e.g. Shaun Gallagher's *How the Body Shapes the Mind* and Evan Thompson *Mind in Life*). It is important to remember, however, that the attempt to bridge art and science, the subjective and the objective, began with the *Romantische Naturphilosophie* in the early nineteenth century, which aptly coincided with the German Romantic movement. The *Romantische Naturphilosophie* thinkers, particularly Schelling, accentuated a connection between the life of the mind – specifically the Romantic response to sensory experiences – and scientific observations of the external world. They renounced the Newtonian and Cartesian mechanistic paradigms (Bowie). However, due to lack of scientific tools to explore nature-in-itself, these thinkers contended themselves with focusing on the appearances of nature (Bowie).

Importantly, *Romantische Naturphilosophie* had a profound impact on the philosophy of Coleridge who imported its ideas into the English-speaking world (C. Smith 38). Coleridge – considered by some a philosopher who was also a poet rather than vice versa – had "struggled throughout the latter part of his life to reconcile the two factions and construct a unified

viewpoint where the sciences and the arts held equal and complementary places” (31-2). Thus, the neuro-Romantic framework of supplementing Romantic imagination with the scientific foundation of sensory appearances extensively explored in *Saudade*, likewise dominates both *Memory Artists* and *Beautiful Miscellaneous*. This approach has a firm grounding in the thought of the Romantic period. The novels’ preoccupation with Romanticism at large and with Coleridge in particular – whether explicitly in *Memory Artists* or implicitly in *Beautiful Miscellaneous* – highlights this point. Present-day scientific knowledge enables the two novels to continue the attempt begun by *Romantische Naturphilosophie*.



Conclusion

Human experience is incarnated. I receive the surrounding world through my eyes, my ears, my hands. The structure of my perceptual organs shapes that which I apprehend. And it is via bodily means that I am capable of responding ... Relations with others are based upon our mutuality of gaze and touch, our speech, our resonances of feeling and perspective. From the most visceral of cravings to the loftiest of artistic achievements, the body plays its formative role.

[The] division of labor between *res extensa* and *res cogitans*, between the scientific and the humanistic domains, is the very basis of Cartesian ontology. Yet this is precisely what the concept of the lived body subverts. If the body as lived structure is a locus of experience, then one need not ascribe this capability to a decorporealized mind. The self is viewed as an integrated being.

–Leder, *The Absent Body*

Synesthesia shows that the brain is inherently relational in terms of cross-talk among its parts.

–Cytowic, *The Man Who Tasted Shapes*

The concept of embodied interconnectedness asserts that our sense of identity and interactions with the world are inherently linked to our bodies. This idea, central to New Materialist studies, underscores the importance of bodily experiences and the physical world's inherent value. This material turn, emerging across the social sciences, literature, and philosophy, challenges longstanding dualistic notions, such as the division between mind and body or the demarcation between humans and objects. At its heart lies the idea of intra-action, suggesting that entities emerge from their interconnected relationships, not as isolated beings.

In the literary realm, there is a renewed emphasis on appreciating texts for their sensory and immersive qualities. Concurrently, from a scientific perspective, there is an evident transition towards understanding the mind in relation to the body, underscoring their inseparability.

My research navigates the phenomenon of synaesthesia, where one sensory experience induces another, illustrating sensory interconnectedness. Broadening this definition and underscoring the all-permeating nature of this concept, Helen Palmer's notion of the topological self offers a further nuanced perspective. Her insights into sensory experiences accentuate the complex interplay between the physical and the perceptual, a theme that resonates with the exploration of synaesthesia in literature throughout this study. Palmer's conceptualisation views individual identity as an interwoven tapestry of sensory and cognitive experiences. Her exploration of topology and synaesthesia suggests a world where sensory experiences are not isolated but dynamically interconnected, akin to the mathematical study of shapes that retain their essence despite continuous deformation (Palmer). This intricate interplay, as envisioned by Palmer, mirrors the synaesthetic dynamics present in the literary narratives examined, where sensory inputs create a rich, multidimensional tapestry of perception. Palmer's framework synthesises and extends our understanding of synaesthesia into a broad, interconnected sensory-cognitive network, stressing the intricate, interrelated nature of sensory and cognitive processes, a key discussion throughout this thesis.

Synaesthesia's web of interlinked sensory experiences in the brain epitomises the broader concept of embodied interconnectedness. Even as discussions on embodied cognition and materiality flourish, the literature is still charting the intersections of scientific and literary insights into synaesthesia. Through an analysis of four synaesthesia-focused novels, this study seeks to bridge this void, exploring the juncture of scientific thought and artistic expression. These novels not only present ideas of embodied interconnectedness but also critique or enrich contemporary scientific theories. The primary aim is to cultivate a comprehensive understanding

of synaesthesia by intertwining scientific insights with literary expressions, thereby challenging traditional boundaries between science and art, as well as between thought and bodily experience.

Literary and Neuroscientific Dimensions of Synaesthesia: Exploring Embodiment, Identity, and Perception in Contemporary Novels

Saudade by Katherine Vaz demonstrates a neuro-Romantic approach that integrates imagination with embodiment and materiality. It echoes Friedrich Schelling's philosophy which posits a unity between the internal world of the subject and the external world of the object as interconnected manifestations of an underlying reality (Bowie). The novel fortifies Romantic imagination with a scientific foundation, anchoring sensory experiences in a material framework. It merges literature and science to establish material links between the body, the world, and others.

Thematically and figuratively, *Saudade* reinforces the material bond between characters and the external world through poetic vignettes. For instance, the novel intricately uses the eyes as material-imaginative bridges, enhancing the narrative's connection between characters' visual experiences and the world. The vignettes capture the scientifically established physicality of interconnectedness while preserving its imaginative nature. *Saudade* explores unorthodox, embodied modes of communicating with others and the physical world, culminating in synaesthesia. These modes supplement and enhance the potential of sensory perception and material interconnectedness.

Saudade, akin to other works by Portuguese émigrés, captures the nostalgia and sorrow experienced by its protagonists over the loss of their native land and culture. It focuses on stories of dislocation and the embodied, interconnective, mechanisms devised to cope with it. These mechanisms eventually bridge the Portuguese and American cultures, literally embodying the "immigrant circumstance of hybridity" (Cid 252).

The novel offers an innovative, embodied manner to unify the divide between subject and object, as well as between imagination and science. The idea of supplementing Romantic

imagination with the scientific foundation of sensory experiences, a core theme in this discussion, draws from Romantic philosophical thought, particularly the theories of Immanuel Kant and Schelling.

Kant's critical philosophy establishes a pivotal distinction between the phenomenal realm, accessible through sensory experience, and the noumenal realm, which remains beyond experiential reach. This foundational dichotomy greatly influenced the *Romantische Naturphilosophie* movement and thinkers such as Schelling, who endeavoured to bridge these realms. Contrary to Kant, Schelling posited that the noumenal realm is not entirely inaccessible; he viewed nature and mind as manifestations of the same underlying reality, thus advocating for a unity between subjective consciousness and the objective world. He perceived nature as a visible expression of the ideal, which seeks to manifest itself through both human cognition and the natural world itself (Bowie).

Building on Schelling's insights, *Saudade* employs modern scientific knowledge to further explore these philosophical themes. The novel serves as a literary manifestation of Schelling's aim to transcend Kant's strict dichotomy, striving for a unity between the internal world of subjective experience and the external world of objects. These are presented as interconnected expressions of an underlying reality. My reading of *Saudade* demonstrates how contemporary science can enhance our understanding of the connections between our mental states and the physical world. This scientific perspective enriches the Romantic tradition, anchoring it in a material framework that illustrates the intricate interplay between mind, body, and environment.

While idealist Romantic philosophy emphasises metaphysics, consciousness, and subjectivity, Romantic literature often expresses these concepts through vivid sensory experiences, both serving as different modes of transcending ordinary perception and understanding. However, Romantic poets often prioritise sense impressions enhanced by individual imagination rather than embodied interconnectedness with the world. For instance,

Wordsworth, who greatly values the significance of a relationship with nature (Gill xxvii), recalls the image of daffodils appearing in his mind's eye, joyfully dancing with them in serene isolation, rather than concentrating on the actual moment he observed them (lines 21-2). Contrary to the Romantic poets, *Saudade* does not privilege subjective imagination alone, but integrates it with a scientific understanding of sensory experiences.¹¹⁸ It seeks a balance between subject and object, bridging the gap through materiality and embodiment. The novel grounds subjective imagination on a common neuroscientific foundation, portraying it as a bridge to physically reconnect with the world and others. It engages with contemporary theories of perception and synaesthesia to deepen the exploration of these themes.

Imagination, the cornerstone of Romantic literary thought, forms the bedrock of *Saudade*, rooting itself in physics, biology, and predominantly neuroscience. The novel integrates astute material awareness that implicitly incorporates these disciplines. The novel creates a dynamic, two-way dialogue between science and art, constructing material-imaginative bridges. This mirrors the principles of physical psychology that propose treating the laws of physics as the origin, not the ultimate destination, of intellectual exploration. *Saudade* emerges as an imaginative exploration of the human body and its limitless potential, realised through a dynamic interplay with the physical world.

The chapter on *Saudade* delves into the synergistic relationship between the time-honoured practice of close reading and embodied resonance – the process by which literary descriptions evoke an instinctual, emotional, and physical response in readers. Embodied resonance highlights the neuroscientific mechanisms that underpin readers' emotional engagement with a text. While notable New Critics, including W.K. Wimsatt and Monroe Beardsley, dismissed Romantic reading practices focused on the author's intentions (Habib 29),

¹¹⁸ While Romantic philosophers such as Schelling sought to integrate sensory experiences with philosophical inquiry, viewing nature as both a physical and metaphysical revelation of the absolute, the empirical sciences of his era lacked the depth and tools to fully validate these metaphysical concepts.

recent scholars argue that historically, close reading is deeply entwined with the Romantic movement. Thus, Simon Frost credits Coleridge with unintentionally laying the groundwork for this method, thus setting a standard that continues to shape literary criticism today (8). The effort to weave together the inherently Romantic approach of close reading with contemporary neuroscientific perspectives on reading echoes the neuro-Romantic endeavour to merge imagination with neuroscience. Close reading parallels the embodied resonance created by *Saudade* on the reader, underlining the immersive and tangible aspects of reading. The novel's neuro-Romantic essence fosters a profound interconnectedness between the reader and the text throughout the reading experience.

The chapter offers a textual analysis that explores the various facets of embodied interconnectedness, culminating with synaesthesia. *Saudade* provides rich insight into the synaesthetic process and its pervasive nature, as it is ultimately leveraged to translate literature into various artistic expressions to foster a shared sense of belonging and offer innovative perspectives on literature. The exploration of induced synaesthesia bridges the arts and neuroscience, reflecting how subjective sensory experiences can align with, challenge or expand established neuroscientific theories. While the novel presents phenomenological counterparts to certain neuroscientific theories on multi-modality and synaesthesia, it also depicts experiences that either challenge or suggest alternatives to other established concepts and theories. This intricate portrayal enriches the literary landscape with nuanced interpretations, prompting a reevaluation of scientific understanding and fostering a productive dialogue between literature and neuroscience.

The second chapter delves into Aimee Bender's *Lemon Cake* as a complex narrative, weaving together themes of cognitive differences and embodied interconnectedness to offer a unique perspective on neurological diversity. Drawing inspiration from the foundational concept of experiential understanding, championed by scholars such as Zamir, Nussbaum and Dewey, the

novel wrestles with postmodern scepticism, countering it with palpable materiality, affective realism – the authentic portrayal of subjective emotional experiences – and embodiment.

It is pertinent to note that while neuroscience offers profound insights, its dependency on quantifiable elements, such as brain activity measurements, and technological limitations can result in a narrowed perspective. Literature, epitomised in this chapter by *Lemon Cake*, presents an intricate means to explore, experientially and corporeally, concepts like mirror-touch synaesthesia (MTS) and hyper-empathy, areas potentially elusive within the confines of a strict scientific framework. The analysis of the novel accentuates that science, despite its meticulous rigour, is constructed through a series of interpretations, a stance echoed by thinkers such as Latour and Woolgar.

In its narrative structure, *Lemon Cake* serves as a heuristic instrument, illuminating the intricate relationships between MTS, hyper-empathy, and autism. It poses challenges to conventional scientific comprehension, employing embodiment and interconnectedness as its central lens.

The theme of embodiment is paramount, resonating on several tiers. Firstly, it offers an interpretive framework for understanding *Lemon Cake*. Secondly, it proposes a comprehensive literary approach that underscores immersive text engagement. And thirdly, it emphasises the resonance between the reader and the narrative itself. The neural underpinnings of such interconnectedness, including the mirror neuron system, are intrinsically linked to MTS, reinforcing the empathetic nature of literary reception.

By adopting magical realism, the novel magnifies the experiences of cognitive differences. By focusing on the embodied experiences of neurological variations, it provides readers with a heightened sense of realism, forging a connection with the neurologically diverse experiences depicted. Themes of embodied interconnectedness, intersubjectivity, and alienation

come to the forefront through the narrative's characters, offering a deep exploration into the nuances of neuroatypical experiences.

The narrative's focus on intra-action – the interdependence and mutual influence between entities – underscores its commitment to embodied interconnectedness. This is further accentuated by the anthropomorphised objects within the storyline, which simultaneously highlight both connection and detachment, thereby enhancing the novel's post-postmodern undertones. Furthermore, the dynamics within the Edelstein family shed light on the complexities of maintaining an individual self-identity amidst profound interconnectedness, as exemplified by Rose's unique sensory perception.

Concluding with a pivot from visual comprehension to embodied knowledge, *Lemon Cake* advocates for tangible sensory experiences. The intertwined relationship between autism and synaesthesia, epitomised by the characters Rose and Joseph, showcases the profound interconnectedness of seemingly diverse neurological experiences. In essence, the novel stands as a tribute to embodied interconnectedness, with MTS at its core, bridging the domains of literature and neuroscience.

In chapter three, focusing on *Memory Artists* and *Beautiful Miscellaneous*, the authors immerse their readers in a nexus of synaesthesia, memory, creativity, embodiment, and reading. Synaesthesia, characterised by its intrinsic connection to rich mental imagery, emerges as a cardinal feature in understanding the act of reading. This mental evocation is not just supplementary, but fundamental.

In *Memory Artists*, this exploration is prominent. Here, reading forms the cornerstone of creativity, intertwined profoundly with synaesthesia and hypermemory. The protagonist, driven by his unique ability to commit literary fragments to memory using synaesthetic means, undertakes a quest that culminates in a chemical solution to alleviate his mother's ailment. Fortin articulates that in this novel, reading simulates a synaesthetic encounter with our surroundings.

He conceives reading as an act “linked to memory through both visual and auditory perception,” metamorphosing it into an “alternate form of sense perception” (42-3). This binds the science and artistry in the novel, underscoring ways literature facilitates knowledge acquisition.

Beautiful Miscellaneous also accentuates a transformative journey, navigating concepts like synaesthesia and memory through a tapestry of imagination and experience. Here, the storytelling is vivaciously alive and resonates deeply with its readers, engaging their emotions and perceptions.

Both novels refrain from providing definitive answers to the epistemic balance between art and science, or between subjectivity and objectivity, in the context of knowledge acquisition. Instead, the intertwined narratives of art and science harken back to the *Romantische Naturphilosophie*'s emphasis on bridging the internal world of the mind, as explored through art, with external scientific observations. *Memory Artists* and *Beautiful Miscellaneous* advance this endeavour, equipped with modern scientific insights.¹¹⁹

Barad's performative metaphysics offers insight into this process, elucidating how entities are not isolated but materialise through intra-action. This approach challenges the conventional dichotomy between the noumenal and phenomenal realms, suggesting a fluid dynamic where separability and individuality are not inherent but emergent from specific material-discursive practices. Her theory reimagines the foundational interplay between individuals and their environment, highlighting the interconnected nature of existence. Unlike Kant's philosophy, where the noumenal remains forever isolated from our direct understanding, Barad proposes that the process of knowing is itself an entanglement, an intra-action that helps constitute reality. For

¹¹⁹ In fact, the recurrent use of cosmological elements in each novel discussed interconnects the personal journeys of the characters with scientific concepts, in an attempt to bridge the gap between individual experiences and the external scientific world. Thus, *Saudade* portrays black holes as an expression of loss; *Lemon Cake* accentuates the characters' preoccupation with Jupiter, reflecting Rose's quest for understanding her neurological essence; *Memory Artists* examines Feynman's diagram to explore fundamental principles of memory; and *Beautiful Miscellaneous* incorporates particle physics as a central theme, aligning the microcosm of human experience with the macrocosm of the universe.

Barad, a clear division between what things are and what we can know does not exist, fundamentally differing from Kant's view and challenging the traditional philosophical separation between subject and object. In the novels discussed in the first chapter, intra-action serves as a subtle background hum, while its presence becomes more prominent in the second chapter. In the third chapter, however, intra-action is central and engages directly with the principles of physics, thereby illustrating a more pronounced intertwining of Barad's concepts with physical ideas.

The roles of art and science are crucial in both novels. In *Memory Artists*, they collaboratively result in an innovative solution to a medical ailment, whereas in *Beautiful Miscellaneous*, the intersection of these domains leads to a profound personal and artistic revelation.

The novels delineate the protagonists' navigation between art and science, traversing scepticism and scientific dogma to unearth unique neural perspectives. This emphasis on experiential embodiment, vividly portrayed in both novels, reflects the broader contemporary academic movement known as the material turn. However, it is essential to distinguish that while literature is increasingly engaging with neuroscientific contexts, it does not imply a simplistic reductionism. Instead, novels such as *Memory Artists* and *Beautiful Miscellaneous* transcend this, offering readers a nuanced experience steeped in sensory-rich details.

Waugh's conception of the neo-phenomenological features of the modern syndrome novel aptly encapsulates these narratives. These novels offer readers a layered experience anchored in palpable realities. Both *Memory Artists* and *Beautiful Miscellaneous* exhibit these neo-phenomenological characteristics, where physical experiences counterbalance scepticism.¹²⁰

¹²⁰ A novel deserving of future examination, which incorporates many elements found in most of the novels discussed, is Christina Meldrun's *Amaryllis in Blueberry*. This work encapsulates synaesthesia within the framework of posthumanist performativity, an exploration of alternative modes of knowledge, the intricate interplay between life and death, and incorporates aspects of the contemporary syndrome novel.

The theme of synaesthesia is profoundly embedded in these narratives, challenging established perceptual norms. This focus provides a rich backdrop to study the merging of the subjective and objective, particularly in light of New Materialist thought. As the characters navigate their idiosyncrasies, they unearth a harmonious balance with the world, challenging traditionally dichotomised views. Through their protagonists' unique perceptual mechanisms, these novels underscore the primacy of embodiment in understanding and interacting with the world, enriching our understanding of neurodiversity and demonstrating how it fosters innovative thinking. These narratives contextualise the scientific study of neurodiversity within everyday human experiences, demonstrating its impact on personal identity and interaction with the external world. By doing so, the novels offer a multifaceted view of how deeply interconnected and mutually influential the realms of scientific inquiry and personal experience conveyed by literature truly are.

Entangled Insights: Bridging Literature and Neuroscience in Modern Narrative Analysis

The conceptual approaches employed in this study, namely neuro-Romanticism and post-postmodernism, are intrinsically linked rather than disparate. The main distinction between a modern syndrome novel (as characterised by Waugh) and a neuro-Romantic novel lies in their focal points. While one might place a stronger focus on the syndrome itself, the other probes the interplay between neuroscientific processes, subjective experiences, and imagination. However, these emphases are not mutually exclusive; both elements can coexist in varying degrees within a single narrative, as exemplified, for instance, in *Memory Artists*.

A closer examination of these frameworks reveals that while neuro-Romanticism underscores interconnectedness through anchored imagination, neo-phenomenology – another core aspect of the modern syndrome novel according to Waugh – centres on interrelation via direct experience. In both, synaesthesia serves as a bridge, connecting the characters to the external world and others. This neurological condition facilitates artistic explorations and enhances imagination, fosters intersubjective interconnectedness through MTS, and provides

profound insights into the excessive experience of hypermemory. Together, these endeavours enrich the vividness of experience. These, however, are counterbalanced by detachment, isolation, and loss, often associated with both physical and psychological trauma.

Saudade delves into themes of loss, displacement, and despair, exemplified by characters' grappling with physical and emotional dislocation and their efforts to reestablish connections in novel circumstances, often through inventive, embodied means. In *Lemon Cake*, themes of isolation, despair, and loss manifest in Rose's hyper-empathic gift, which intimately links her to others' emotions, and Joseph's stark withdrawal. These elements underscore the challenges of navigating between deep interconnectedness and profound detachment. In *Memory Artists* and *Beautiful Miscellaneous*, neurodegenerative diseases and brain tumours represent detachment, contrasting the interconnectedness shown by synaesthesia and hypermnesia. These conditions depict isolation, loss, and despair.

Importantly, in all of the novels analysed in this work, these evident dichotomies are resolved through embracing interconnectedness, without diminishing the significance of loss, ultimately achieving a balanced synthesis. This outcome closely mirrors what psychology researchers often describe as the integrative life story model. Championed by scholars such as Dan P. McAdams, this theoretical perspective accentuates the synthesis of both positive and negative life experiences to create a holistic and meaningful narrative of one's life. Instead of viewing life events in isolation, this model suggests that individuals can achieve a deeper understanding of themselves by integrating all facets of their experiences. McAdams posits that our identities are intricately shaped by these personal narratives, and by embracing every aspect of our story – both the triumphs and the tribulations – we can cultivate a richer, more nuanced sense of self (101).

This insight could be interpreted in several ways. One perspective posits that the neuroscientific elements within the novels serve as potent metaphors for the psychological interplay of positive and negative experiences in shaping identity. The brain conditions depicted

in the narratives, from synaesthesia to neurodegenerative diseases, can be viewed as vivid representations of the psychological continuum between interconnectedness and isolation. Whereas synaesthesia entails life affirming artistic endeavours, intersubjectivity and hypermnesia, all of which entail sensory, cognitive or emotional excess, neurological diseases engender destruction and deficiency. Just as we integrate both highs and lows in our personal narratives to form a holistic self, these neurological conditions embody the very dualities McAdams underscores. An alternative interpretation of the relationship between the neurological and psychological realms regards the neurological conditions as the foundational bedrock for experience, from which the psychological aspects are derivative. Significantly, the idea that either interpretation could be adopted underscores the intricate interplay between hermeneutics in literary studies and neuroscience. This suggests an intertwined, meta-epistemological paradigm marked by mutual evolution, emergence, and intra-action. The analyses offered throughout have attempted to consistently adhere to this methodology. At times neuroscience leads the discourse, and at other times literature takes the helm, in an entangled effort to shed light on the various aspects of synaesthesia.

Thus, Clara's sensory and synaesthetic endeavours in *Saudade* exemplify, broaden, and challenge existing neuroscientific theories. The protagonist's chromatic approach to reading resonates with Liu's bottom-up theory of reading acquisition. The novel's creative exploration of the neuroscience underpinning vision and eye functioning suggests extensions beyond current theoretical confines. Clara's unique synaesthetic reading experience offers a counterpoint to Stanislas Dehaene and L. Cohen's cultural recycling of cortical maps evolutionary theory, instead illuminating a distinct merger of linguistic comprehension and visual perception. The contemporary experimental narrative in *Lemon Cake* is implicitly juxtaposed and intertwined with medicalised and neuroscientific discourse around neurological difference exemplified by autism and MTS. Eventually, Rose's neo-phenomenological account offers a more inclusive and comprehensive perspective of these conditions. In *Memory Artists* and *Beautiful Miscellaneous*

synaesthesia and hypermnnesia are likewise examined through interlaced literary-experiential and neuroscientific prisms, explicitly attempting to strike a harmonious balance between the two. In addition, *Memory Artists* offers intriguing answers to questions regarding literary theory, particularly in terms of how it relates to the reading process, through this dynamic interplay. These examples suggest that the understanding and interpretation in both domains are deeply interwoven and mutually influential, demonstrating how literature and neuroscience can collaboratively shed light on complex concepts such as synaesthesia.

In the intricate intra-action between literary interpretation and neuroscientific understanding, there are no prescribed dictates regarding where one must begin. The entry point is often arbitrary, much like in improvisational jazz addressed in chapter three. Unlike traditional scientific methodologies that may start from a foundational premise, this analytical endeavour often commences *in medias res* – delving directly into the heart of the matter without adhering to the constraints of a linear progression. Even when basic assumptions foreground the analysis, as do the conflicting neuroscientific theories regarding the relationship between autism and hyperempathy in chapter two, they by no means dictate the course of the argument. Rather, the chapter implements a quasi-scientific structure to refute existing theories using literary discourse in order to experiment with different argument frameworks that encompass both fields.

Navigating Narratives and Minds: Intersecting Neuroscience and Literary Interpretation in the Exploration of Reading and Neurological Diversity

Reading, as portrayed in the texts under scrutiny, signals an intimate engagement with literature. Drawn from diverse frameworks, from New Criticism's analytical approach to neuroscience's inquiry into cognitive mechanisms, this work illustrates reading as an intricate blend of personal and collective experiences, fusing individual interpretation and shared cognitive response.

The fusion of conventional literary practices with neuroscientific revelations yields a refined comprehension. Close reading, once a cornerstone for textual interpretation, has

transformed into empathic close reading in the light of our growing understanding of the reader's embodied journey into the text. For instance, Rokotnitz's concept of embodied resonance underpins Vernon Lee's approach to empathic close reading by showing how literature activates the brain's emotional and sensory networks, enriching the reader's interpretive experience. All the examined novels epitomise this intersection of art and science, accentuating reading as an experience deeply anchored in our neurobiological mechanisms.

Yet, the expansive domain of literature suggests even more. The narratives examined, enriched by neuroscientific examinations, highlight the transformative nature of literature. They serve as a testament to reading's unique capacity to intertwine cognition, emotion, and sensory experiences, thus deepening our appreciation of our shared, embodied, human essence and enriching our knowledge of the world. Drawing from literature can enhance and refine scientific dialogue, and reciprocally, science can illuminate literary interpretations. This symbiotic relationship fosters a continuous cycle, each iteration sharpening our comprehension of synaesthesia or any other neurological phenomenon. Therefore, the analyses offered here are by no means exhaustive or conclusive.

In the evolving landscape of post-postmodern literature, the syndrome novel places a pronounced emphasis on marrying personal introspection with neuroscientific perspectives. Novels such as *Saudade*, *Memory Artists*, and *Beautiful Miscellaneous* bridge the gap between subjective experience and imagination with material reality, offering deep insights into the interconnectedness as exemplified by the various facets of synaesthesia.

According to Tweed, recent literary works display a tendency of intertwining narrative experimentation with a medical form of realism, frequently linking cognitive variations to criminal behaviours. Such a combination might eclipse the creative autonomy of neurologically diverse protagonists and limit the breadth of representational dynamics in literary texts. However, despite common stereotyping in popular culture, modern Anglo-American authors are

innovatively moving beyond stereotypes, promising positive shifts for both future representations of neurological diversity and the evolution of contemporary literature (208-11).

While Tweed offers a broad view, Burn further examines the intricacies of narrative focus. He argues that emphasising exclusively the novel's overt themes can overshadow its broader, non-narrative dimensions, especially in the wake of the neurological revolution. Burn posits that the most illuminating syndrome novels are those that subtly embed cognitive models into their narrative fabric rather than explicitly weaving them into the plot. Hence, for a comprehensive understanding of neurological diversity's portrayal in literature, one must move beyond the evident and probe the intricate layers of the narrative. This nuance is particularly evident in works such as *Saudade* and *Lemon Cake*, which, while not directly referencing synaesthesia, subtly infuse it into the narrative structure.

Drawing from Waugh, Tweed and Burn's analyses, contemporary literature is witnessing an experimental integration of post-postmodernism within a neurologically-informed framework. Particularly in *Lemon Cake*, the narrative expertly melds the syndrome novel's themes of interior experiences with sensory nuances commonly associated with neurological diversity. The characters' interactions, which sway between the material and the elusive, mirror the broader post-postmodern oscillations, as described by both Vermeulen and van den Akker. The incorporation of genres such as magical realism in this context, showcased in *Lemon Cake*, further underscores the experimental nature of this endeavour. Magical realist elements palpably amplify cognitive differences, paradoxically inducing a sense of hyper-realism and reinforcing familiar accounts of neurological conditions to the reader, rather than portraying them as supernatural.

Such narratives underscore the artistic agency of neurologically divergent characters, pushing against mere representational politics. Merging the realms of post-postmodern thought, neuroscience, and genres such as magical realism allows for a more comprehensive exploration of literature's nuanced interplay with neuroscience.

Future Avenues

Synaesthetic Journeys: Navigating Identity and Dislocation

My study, though comprehensive in its approach to specific narratives, represents a selected cross-section of a vast thematic tapestry. The interweaving of synaesthesia and linguistic, geographical, and cultural dislocation, for instance, is not restricted to *Saudade* but evident in notable novels such as Monique Truong's *Bitter in the Mouth* (2010). The story unveils its synaesthetic protagonist, Linda Hammerick, not merely as an estranged girl from the Deep South but as Lihn-Dao, a Vietnamese adoptee grappling with repressed traumatic memories. In this narrative, trauma, embodiment, and synaesthesia are intricately linked.

Linda's synaesthesia shapes her understanding of the world. The association between taste and words is embodied, catalogued, and expressed as she seeks to uncover her true origins. Through her journey, the novel presents a character whose unique bodily experience results in the formation of an embodied archive. This archive, as an epistemological construct – a theoretical framework or system that shapes how knowledge is acquired, understood, and interpreted – facilitates a nuanced negotiation with the legacies of violence, trauma, and racial identity (Dykema 106). Her journey thus reflects those of Clara in *Saudade*, Noel in *Memory Artists*, and Nathan in *Beautiful Miscellaneous*, as each character embarks on an embodied creative quest to discover their distinct voice and reconcile with their past.

Synaesthesia and dislocation are interwoven themes in other literary works as well. For example, in Rosamund Lupton's *The Quality of Silence* (2015), Ruby, a young Londoner described as “10 fingers raised old,” travels through the depths of Alaska's winter to find her missing father. Jane Yardley's *Painting Ruby Tuesday* (2004) follows Annie's life stretching from her childhood in Essex to her adult years in London and New York, her narrative imbued with sensory crossover. Vladimir Nabokov's *The Gift* (1952) tells of Fyodor, a white émigré living in

Berlin, weaving a rich tapestry of memories and perceptions. Lastly, Holly Payne's *The Sound of Blue* (2005) chronicles the experience of Milan, a displaced synaesthetic musician, as he embarks on a quest for identity against the backdrop of the Balkan war, grappling with his mixed Serbian and Croatian heritage. The conflating neurological and geographical estrangement demonstrates that the sensory intermingling characteristic of synaesthesia parallels the blending and clashing of identities in a transnational context. This thematic intersection is indicative of the larger patterns and motifs that recur across literary landscapes, inviting further scholarly exploration beyond the scope of this analysis.

Synaesthesia's Interplay with Contemporary Philosophy, Technology, Culture, and Ecology

Venturing into future explorations of synaesthetic experiences within literature, several intriguing paths present themselves, each holding the potential to deepen the collective understanding of perception, consciousness, and the integration of technology with human senses. An important query concerns the ontological status of synaesthesia: can it teach us something about the way things really are? Some philosophers, such as Michael Sollberger, claim that synaesthesia, in fact, presents the world as it really is (179-88). Moreover, some researchers believe that it can serve a useful function in the scientific study of consciousness, offering epistemological insights by providing a new perspective on the problem and serving as a test-case for current theories (Sagiv and Frith 926). Many novels that incorporate synaesthetic experiences could shed some light on these issues.

Another paramount theme is that of blending technology and the senses. It has been explored in several recent novels such as *Innocents and Others* by Dana Spiotta (2016) and *The Quality of Silence*. While the former explores how technological devices such as the phone and the video camera become continuous with our senses and indispensable to our self-expression, the latter follows the journey of a deaf child to find her 'voice' in the letters printed on her laptop screen, which become her primary way of communicating with the world and with her mother. The analysis of *Saudade* explores the blending of technology with human senses through

sensory substitution devices (SSDs), which systematically map information from one sensory modality to another. My reading exemplifies the intersection of neurological research and literary portrayal of sensory experiences. Furthermore, the telephone in the novel transcends its conventional role for Clara, turning into an indispensable instrument for connection thanks to a bespoke colour-digit code that Helio creates. This unique system allows her to navigate the world more effectively (*Saudade* 217). These narratives underscore how technology redefines the limits of perception and human communication, engaging in a dialogue with the neuroscientific findings on brain plasticity and sensory remapping presented in my research.

A further inquiry could explore whether authors with synaesthesia imbue their works with unique characteristics reflective of their sensory experiences. Authentic depictions of synaesthesia in literature not only enhance the visibility of the synaesthetic community and enrich the general public's understanding of this unique condition, but also raise intriguing questions about the influence of synaesthesia on an author's narrative style and language choice. Such representations might lead to distinct literary genres or stylistic approaches. Thus, for example, Yardley, the author of *Painting Ruby Tuesday*, who experiences auditory-visual synaesthesia, describes her writing as characterised by an abundance of colours.¹²¹ A comparative analysis between works of synaesthetic and non-synaesthetic authors could further illuminate the distinct contributions of synaesthetic perceptions in enriching literary creativity and expression. A step in this direction has been recently undertaken by Sarah Turner and Jeanette Littlemore. Their studies synthesise the interconnections among synaesthesia, metaphor, and creativity, emphasising the significant role of emotion, evaluation, personification, and empathy in these relationships. They highlight that synaesthetes exhibit a heightened capacity for creative metaphorical thinking, driven by their unique neurological architecture, characterised by increased connectivity and emotional

¹²¹ Yardley mentioned this in an interview given as part of the Synaesthesia in Art lecture series organised by the University of St Andrews on November 8th 2023: <https://youtu.be/WtkWJu7sHYk>.

intensity in sensory processing. By comparing synaesthetes with non-synaesthetes, the research aims to better understand the nature of metaphorical creativity and its underlying mechanisms, proposing that synaesthesia provides valuable insights into associative fluency and creative expression in the general population (15-17).

Additionally, the study of multisensory experience and synaesthesia in the neuroscientific context could extend beyond the confines of European literature. Orhan Pamuk's novel *My Name is Red* (1998) serves as a pertinent example, exploring the interplay of multisensory perception and art in the sixteenth-century Ottoman Empire. The novel adeptly intertwines visual, auditory, and tactile elements within its narrative, especially through its vivid descriptions of art and painting. It distinctively highlights the confluence of Western Christian and Islamic traditions from across the Islamic world, with a particular emphasis on the latter. This exploration invites further research into how varied cultural contexts, notably within the broad and diverse Islamic world, shape the processing and interpretation of multisensory experiences.

Pamuk's novel showcases a distinct artistic tradition deeply influenced by Islamic religious practices and invites exploration into a potentially different aesthetic and epistemological tradition. Within this tradition, sensory and perceptual experiences are interpreted through the lens of Islamic aesthetics, characterised by a focus on calligraphy, intricate visual patterns, and aniconism. This approach suggests a unique method of engaging with and perhaps enhancing multisensory processing. Islamic art avoids direct representation and emphasises abstract and geometric patterns that engage the viewer's perception in ways fundamentally different from Western realistic art.¹²² Such abstraction may encourage a non-linear, holistic processing of visual information, which could theoretically enrich perceptual

¹²² I briefly explore Islamic visual art in *Saudade*, where Clara's visual translation of Whitman's works mirrors Persian rug designs, reflecting themes inspired by Persian traditions (see p. 79). However, the subject is by no means exhausted in this analysis.

integration, particularly in contexts where multiple senses are engaged. For example, the tactile implications of intricate textures and the spatial dynamics of geometric patterns in Islamic art may stimulate tactile and spatial processing areas of the brain, enhancing the sensory experience beyond mere visual observation. This hypothesis is supported by findings that the brain's visual processing centres respond differentially to various types of art, including abstract patterns (Zeki “Artistic Creativity” 51-2). Semir Zeki’s research discusses how different artistic styles can activate different brain areas, suggesting a neurological basis for the cognitive differences in processing abstract versus figurative art. Further empirical research is necessary to explore and substantiate these potential effects. Studying how individuals immersed in these traditions process artistic stimuli can provide insights into how Islamic cultural and aesthetic traditions influence cognitive and perceptual frameworks. Such research could potentially offer a fresh perspective on synaesthesia and multisensory experiences in relation to neural theories.

Another promising avenue is the integration of synaesthesia with ecocriticism, especially in the context of *Saudade* which accentuates the material bond between characters and their natural environment. Ecocriticism offers synaesthesia a valuable context for enriching literary analysis with environmental insights. Cheryll Glotfelty's pioneering work positions ecocriticism as a lens through which the interconnectedness of ecosystems can be explored (xxiv); synaesthetic descriptions in literature echo this interdependence, highlighting nature's integrated systems. Lawrence Buell's insights into the environmental imagination – a term he uses to describe how literature depicts the natural world and our place within it – epitomise its vital role in the formation of contemporary American literary identity. He contends that an environmental imagination is central to the way that natural environments are perceived and conceptualised within literature, and this in turn has the potential to shape readers' perceptions and attitudes toward the environment in their everyday lives (1-5). Extending the concept of environmental imagination, one could argue that, based on my study,

the theory of embodied cognition, as it emerges in literature, effectively complements ecocriticism's exploration of human-nature relationships. The theory emphasises our brain's engagement with environmental stimuli, which actively shapes our cognitive processes. The interconnected nature of synaesthesia enriches our embodied perception of nature, thereby strengthening the relationship between humans and their environment, and potentially cultivating a heightened ecological sensitivity among readers through embodied resonance.

Moreover, synaesthetic elements in literature can illustrate the dynamic processes of ecosystems. This capacity renders abstract environmental concepts more palpable, thus engaging readers in an active, embodied, and multisensory environmental encounter. This can inspire a deeper appreciation of our ecological relationships, fostering an ethic that transcends utilitarian views of nature, as briefly illustrated in the example of the hydrangea flowers in *Saudade*. The latter fuses vision and nature, solidifying the deep interconnectedness between humans and their environment. Furthermore, the interconnective nature of synaesthesia challenges entrenched anthropocentric views, as observed especially in *Lemon Cake* and *Beautiful Miscellaneous*, resonating with Timothy Morton's ecological theories that call for a decentring of human perception (134).¹²³ Thus, ecocriticism can harness synaesthesia to deepen the environmental narrative, urging a reconsideration of our sensory engagement with the world. This reciprocal enrichment between synaesthesia and ecocriticism not only augments literary richness but also advocates for a nuanced ecological awareness, pivotal in current environmental discourses.

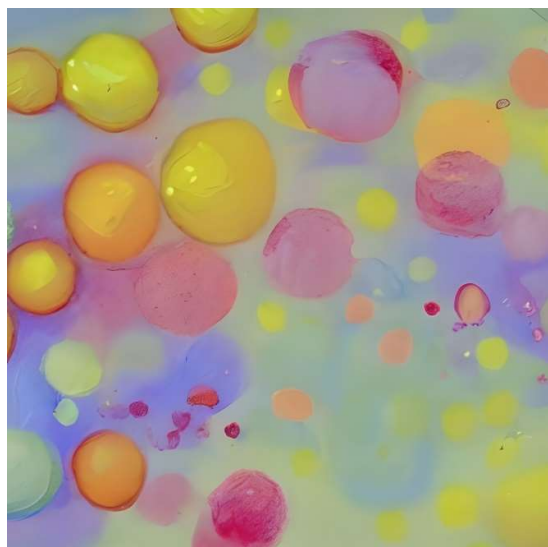
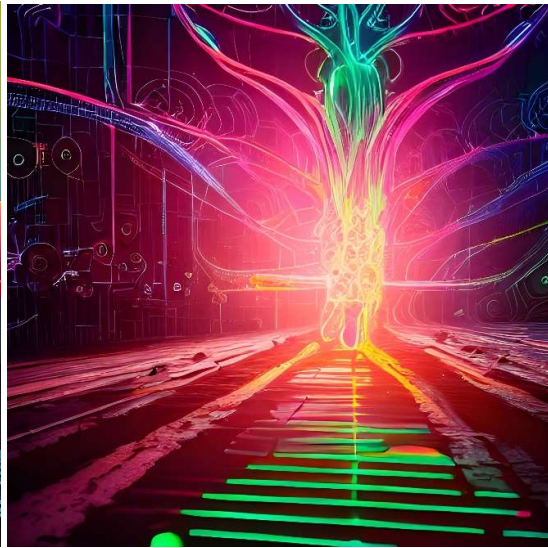
The neuroscientific aspects of synaesthesia can likewise be intertwined with ecocriticism. Ecocriticism's focus on the influence of the natural environment on humans can extend to how our brains might physically change and adapt in response to long-term

¹²³ Interestingly, Morton likewise employs the concept of the Aeolian harp to portray the narrator as a “conduit,” (134), reminiscent of the depiction of Nathan's posthumanist, intra-active artistic endeavours.

environmental interactions. In this constellation, the neuroplastic aspects of synaesthesia can shed light on these processes. In addition, neuroscience reveals that our brains are wired to respond to narratives, indicating that synaesthetic descriptions in ecocritical literature could deeply engage readers' brains, enhancing their environmental awareness.

Finally, the way our brains form cognitive maps, particularly through the hippocampus, explored in relation to synaesthesia and hypermnnesia, implies that literature emphasising environmental interconnectedness could alter how readers mentally map their relationship to the natural world, impacting their environmental consciousness. These intersections enhance literary analysis while promoting a nuanced ecological awareness, which plays a crucial role in contemporary environmental discourses. Designing scientific experiments informed by the insights of this research represents another promising future direction. Such experiments could test, for instance, the hypothesis that autistic individuals may experience either hyper- or hypo-empathy, potentially varying according to their physiological, sensory, and emotional states. Another line of experiments could focus on induced synaesthesia, deriving hypotheses from the phenomenological discoveries offered by the high-resolution dynamic development of synaesthetic perception depicted in *Saudade*. Detailed and real-time tracking of changes in behaviour and brain activity could be implemented to test the relevant hypotheses and questions and better understand the underlying mechanisms.

This study has explored the role of synaesthesia in literature, revealing its power to illuminate the deep interconnections within our sensory experiences. By examining these literary portrayals alongside scientific insights, we see that synaesthesia is not merely a blending of senses but a gateway to understanding the complex, intertwined nature of our interactions, or intra-actions, with the world. This research encourages a reevaluation of how we define and separate the disciplines of science and art, suggesting a more holistic, entangled approach to understanding the richness of human experience and of scientific processes.



Fin

Appendix I – Saudade: A Tapestry of Vision, Metaphor, and Sensory Connection

I.1. The interplay of humans and things is beautifully illustrated through architectural metaphor, shedding light on the deep connection between Clara and Helio. This bond forms a crucial landmark in Clara's artistic-synaesthetic journey, acting as a pivotal step towards healing, reconnection with the world, and transforming their new environment into a home. Early in their relationship, Helio observes that with Clara's presence, his house “has become a woman” (208), morphing into an embodiment of her. The door becomes her mouth, while the sunflower and hose manifest aspects of her appearance, bringing the house to life as an embodiment of Clara (208).

As their bond deepens, Clara expands on the architectural metaphor, seeing Helio's luminous eyes as a basilica uplifting her: “[Clara] kissed his eyelids. Over the water they were building a basilica of white light, its walls rising sheer – and she was being lifted to touch the ceiling of it” (213). Initially rootless in California, Clara and Helio find home and sanctuary in each other, with their identities interweaving into their surroundings. His house adopts Clara's form, and his eyelids transform into a basilica for her, embodying their interconnectedness.

The blending of poetic language with the material and embodied is once again evident. While German philosopher Arthur Schopenhauer relegated architecture to the lowest rung of fine arts, believing its limitations to convey ideas were due to its grounding in mass and gravity (Shapshay), Vaz offers a counterpoint by animating architectural objects. Helio's house, embodied as Clara, pulses with life and sexuality – “he would live inside her” (208). Similarly, his illuminated eyes, a light-filled basilica, elevate Clara both spiritually and physically. The literal and figurative converge, merging spiritual ascension and light with their tangible counterparts. The rigidity, mass, and gravity characterising architecture simultaneously ground and construct the relationship between Clara and Helio.

I.2. The unique “river-vision” (33) of Conceição, another eye-centric anchor in the novel, mirrors the hydrangeas-eye motif by embodying the palpable interconnectedness permeating each element and character. Dissolving solid boundaries, her “river-vision” turns the environment into a fluid continuum, enabling her to “flow” into others. Depicted as a force that can “fl[y] into everything” (7), this ability originates from a childhood incident of embarrassment in an outhouse above a pigsty, where she projected her discomfort onto the pig below (33). This experience taught her to manipulate her sight, immersing her in any entity, often reaching its core or origin (33), while morphing into a tool for explorative extension (33). Thus, Conceição's vision becomes a corporeal conduit, channelled through a physical waste product from her body.

In one incident, as Conceição and Clara each assist a man, Conceição's “river-vision” flows from the man's hand into Clara's: “Conceição's eyes swam into the starry nails on the hand she held, burrowed through muscle, and emerged through the stars that her daughter clutched on the other side of him. There Conceição's eyes rested, two eggs incubating in Clara's palm” (35).¹²⁴ Like an amoeba sending a *pseudopodium*, Conceição projects her

¹²⁴ In another illuminating instance, “[Conceição's] eyes dived into the shirt of a farmer” (33). As “she flowed backward through the fabric of the ... shirt to cotton plants in a faraway field” “[h]er river ran past a stray silk thread and glimpsed worms spinning in a tree and continued over muscles bulging with the fish and percolating

'pseudooculus' into her surroundings, establishing a material connection with others, and revealing their essential nature. Conceição's "river-vision" becomes a tangible extension of vision, merging kinesiological and physiological processes with the neuroscience of perception, offering a foundation for imagination. By creating a palpable link between physiological properties of vision and their imaginative expansion, this anchor goes beyond being an allegory or a magical realist trope. It allows the reader to identify a "primal mode of perception" by tuning into their cognitive mode of processing the world (Rokotnitz 279).

José Francisco's sea demise, the catalyst of *Saudade's* narrative of loss and recovery, is intensely felt through Conceição's eyes. She experiences severe ocular pain before her final "river-vision," which traverses from a bedside water glass to an oceanic storm (40). Here, she witnesses a gargantuan whale's explosive end, its ocular gel coating "all the fish and wrecked galleons the living creatures and the dead" and causing them to glisten like underwater stars (40).^{125,126} The mangled, gelatinous, eyes of the whale echo Conceição's eyes, inflicted with the agony of her loss, which literally can no longer bear to see, and her shattered world. Once again creating a material-imaginative bridge, Conceição's mobile eyes and the unsettling sight imprinted on them concretise the physical pain of loss and tangibly convey it to the reader.

Helio's "whale-eyes," which allude to the final "river-vision" of Conceição's, albeit carrying positive connotations, likewise constitute a captivating eye-centric anchor. Importantly, Helio's eyes and their extended abilities facilitate his relationship with Clara, which sets in

with the wine of his last meal" (33). "Her eye" then "sped along the rapids of wine and bumped over the noses of the fish" (33).

¹²⁵ The underwater stars appear to be a reflection of the stars José Francisco had painted pink, to which he is inextricably connected, testifying to his certain death and current whereabouts in the depth of the ocean.

¹²⁶ According to ancient legend, the great body of the whale was often mistaken by mariners to be an island. Ships anchored to its side were dragged down to destruction by a sudden plunge of the enormous sea creature. Consequently, the whale has come to be regarded as a symbol of the Devil and its cunning (Ferguson 26). Hence, the wrecked galleons mentioned in the passage could be a reference to the shipwrecked vessels that perished due to an encounter with a gigantic, mountainlike creature, implying what has happened to José Francisco. Considering the destructive power of everything devilish, the analogy can be taken a step further; having seen what has befallen José Francisco, Conceição wreaks havoc in the island's church, hacking the plasters of all the saints, who have failed to protect her husband, as if possessed by the Devil (*Saudade* 41).

motion the embodied process of their mutual healing and reconnection with their environment. The “whale-eyes” anchor, like Conceição “river-vision,” accentuates the para-standard faculties of sight introduced in *Saudade*. These faculties exceed the limits of normative perception and communication with the outside, deepening and physicalising the connection between one’s inner and outer worlds (*Saudade* 137).¹²⁷

Following an incident in his childhood, Helio, whose name in Greek aptly means sun – the source of all light – and whose “torchlike eyes gave him the isolated intensity of a lighthouse,” awakes one day with “a burning in [his] skull,” and discovers that he can easily sense the arrival of whales and summon them (138). “A heat in [his] brain,” which corresponds to “a faraway ripple in the water,” or a “dome of a halo” – a circle of light – signify the presence of whales (139). Helio’s interoceptive awareness – defined by Cynthia Price and Carole Hooven as the ability to accurately detect and evaluate cues related to one’s physiological states (“Interoceptive Awareness Skills”) – is thus imaginatively expanded to include the awareness of the external light producing whales (in addition to the sensation of heat in his head). The emphasis on willpower's role in influencing the external world is highlighted by Helio's acquisition of his skill: he wishes for “whale-eyes” and awakens with them the next day (*Saudade* 139). Helio's ability extends beyond sensing external events; it involves channeling an internal sensation of warmth in his brain to produce external effects, such as the appearance of whales (139). Thus, there is a material negotiation between Helio and his environment, whereby he is not merely a passive receptacle, but an active participant that gives and takes light with his natural habitat. Like José Francisco, he becomes an indispensable part of his habitat’s constitution.

¹²⁷ The longstanding tradition of whale watching in the Azores was accompanied by a legendary shout: *Baleia a vista!* meaning there is a whale in sight. Possession of “whale eyes,” is described as the ability to spot whales as easily as spotting the horizon, and is inextricably connected to the folklore of the Azores, since “[a] lot of Azoreans were given whale-eyes in the old days” (138). In an autobiographic embedded narrative *The Richness of My Eyes*, Helio describes the way he comes to acquire this extraordinary skill (163, 137 respectively). An enthusiastic whale-lover, young Helio discovers that he had been falsely summoned to the beach to contemplate whales as a ruse to get him out of the house. Angered, he is determined to wake up the following day with “a pair of whale-eyes” (139).

The “whale-eyes” anchor, like “river-vision” and hydrangea-eyes, accentuates the interplay between loss and material interconnectedness. Helio relates that he “shut down the use of [his] eyes” for many years, as they had failed to forewarn him of the accident in which he lost his wife and daughter (139). However, once he reinstates their use, he incidentally meets Clara; their palpably luminous natures draw them to each other and enable them to connect. Clara’s name in Latin means clear or bright, and thus, like Helio’s, is associated with light: “[a] dove-like halo, huge and domelike, had appeared just beyond the winery” where Clara was staying (156).¹²⁸ When she stops being afraid of and glancing away from his “torchlike eyes,” as she realises that she herself is “a keeper of a lighthouse,” their relationship begins to develop (165).

The physical consummation of their relationship – the apogee of their corporeal communion – is accomplished through the interconnectedness of their eyes: “[s]he kept her mouth clamped on his as she emptied herself fully into him, and she never broke from her eyes entering his. Straight into the legend of the whale-eyes, into the realm of him” (210). The “whales-eyes” anchor thus crystallises the notion of embodied interconnectedness. Physical light and the eyes which capture it (already touched upon in the basilica-eyes metaphor) are extended through imagination to enable tangible, corporeal union.¹²⁹

A further bout of loss and *saudades* afflicts Helio when Clara decides to part ways with him to embark on an independent journey. However, Clara reestablishes their connection by means of a “whales-eyes” stencil she constructs as part of a flower carpet in a local Catholic procession: “[m]ocha-colored balsa shavings for irises, lavender sawdust for halos around eye

¹²⁸ His grandmother urged him to “put [his] eyes to some kind of good use” (145).

¹²⁹ The intersubjective, communicative aspect of eye contact is concretised when Clara forms an attachment with her newborn baby, forming an eye-centric anchor of reciprocated gaze: “[h]er green eyes drop round pools into her son’s green eyes ... it is mirror to mirror” (88). Reciprocity of gaze, which raises physiological arousal, is crucial to forming a healthy bond and a secure attachment between parent and child, as eyes, and gaze direction and processing, play an important role in social communication (Prinsen et al.). Like with Conceição’s “river vision,” the gaze between Clara and her son is transferred through a visible, liquid medium, as round pools, echoing the round shape of the eyes, pass between two pairs of eyes, each a recursive reflection of the other, each literally a mirror of the others’ gaze.

sockets, coriander for eye lashes, shredded lilies for the whites of the eyes. She centered pictures of herself upside down in the squid ink – darkened dust of the pupils” (283). The stencil with Clara’s pictures positioned upside down for Helio’s eyes to perceive alludes to the way an image is represented on the retina due to the curved anatomical structure of the eye which bends the light. As explained by Diane Rogers-Ramachandran and Vilayanur Ramachandran, the lens in the eye “casts an upside-down image” on the retina, while the various brain system take this fact into account and adjust the image accordingly (22-3). When Clara grows drowsy, the image of the “whales-eyes” stencil lingers inside her eyelids where she “retain[s] Helio’s lavender and mocha gaze” (*Saudade* 284).

A physiological afterimage is defined by the neuropsychologist Richard Gregory as an image that continues to appear on the retina after light stimulation of the original image has ceased (13). The afterimage of the stencil eyes comprises a physical substitution for Helio’s eyes, as Clara literally holds his gaze. In addition, the shape and colours of the “whale-eyes” remain “soaked into the ground,” even after being swept away (284). In this way, the combination of Helio’s stencil “whale-eyes” registering the image of Clara, and the physical afterimage of the stencil, both inside Clara’s eyelids and on the ground, reestablishes Clara’s relationship with Helio by way of bidirectional, reciprocal gaze.¹³⁰ The anatomical properties of vision perception are thus transfigured imaginatively to create a visual artefact (the stencil) that symbolises the covenant between Helio and Clara, which is mediated by light and eyes. The Christian religious celebration is supplanted by imaginative embodiment.

I.3. A vivid example of the embodied and interconnecting nature of sounds and their association with music and liquid medium is the rhythmic, cadence-like action of hair braiding. The braiding produces a musical, whole-body experience for Clara that connects her to Helio, thus complementing their interconnectedness through light and vision. Like José Francisco, who

¹³⁰ This would ultimately make Clara write Helio a letter after years of separation and thus reestablish their relationship (288-9).

integrates imagination with physical laws, Clara materialises and literalises Helio’s biological observation that “people are mostly water” (*Saudade* 189), to imaginatively extend the sound generating properties of water filled receptacles. A drinking glass creates sound when one rubs one’s finger around its rim or strikes it with an object, as the vibrations of the glass affect the air in and around it (Murmson). Depending on the amount of water in the glass, it vibrates at a distinctive pitch (Murmson). Clara likens her various body parts to differentially filled glass receptacles – “thimblefuls in her toes, shot glasses of water in her wrists and ankles, champagne flutes of it in her arms and legs, tumblers in her belly and head” – each generating a different pitch (*Saudade* 189).¹³¹ These containers enable her body to produce music (189). The chiming “water music” is orchestrated by Helio and the girl whose hair he braids, referred to as “the two conductors above [Clara]” (189). These conductors interconnect the tap-tapping, rhythmic, metronome of the tugging sounds with Clara’s resonating water-infused body. The liquid medium of water enables once again a dynamic musical passage, as Clara “was able to feel the pathway of her music” and “follow it.”¹³² The coursing music creates a closed loop between Clara and Helio: the sounds initiated by Helio’s braiding flow through Clara’s body – “out of her head like electricity and upward into the wound helixes of the fingers” – and return to him via moving musical sounds, as she travels “through [his] arms and behind his eyes” (189). Once there, Clara switches from her musicality to Helio’s, becoming attuned to his tintinnabulation.

I.4. *Saudade* exhibits an intricate interplay between the *syuzhet* and its literary form, causing ambiguity in discerning whether a depiction discloses a sensory experience or comprises metaphorical expression. For instance, in a distressing episode for Clara, she senses the external rattling of trains as analogous to human sounds from her youth (*Saudade* 75). Amid the sighing exhaust underneath, she experiences a paradoxical “genuine silence” (75). This sensory

¹³¹ “ringing with the tones of their various fullness”

¹³² Clara’s water infused body is reminiscent of Conceição’s flowing “river vision,” albeit by means of audition, since Clara’s eyes are shut.

experience evolves into a visual metaphor: noises are envisioned as a smooth, muted sphere enclosed within a black, jagged cylinder.

Concurrently, Clara imagines Father Eiras's face as a circle, punctuated by a booming 'O' for a mouth, initiating an exploration of geometric shapes. As the train speeds forward, light is perceived as an expanding square, harmonising with the previously visualised geometric forms (75). This complex sequence suggests a fusion of Clara's sensory perception and poetic metaphor, making it challenging to determine the nature of these cross-modal portrayals.

Notably, synaesthesia has been associated with trauma, as depicted in Salman Rushdie's *Shalimar the Clown* and Clare Morrall's *Astonishing Splashes of Colour*, and discussed in the studies by Stuart Hoffman et al., and Ward and Filiz Gözde (1; 139). This adds another layer of complexity to the interpretation of these sensory metaphors, as they could also be seen as trauma-induced synaesthetic experiences.

Furthermore, the start of the third chapter, crafted as a collective commentary by an Azorean chorus, intertwines sensory and poetic elements (*Saudade* 87). The chorus pleads for guidance towards an inner light perceived within animals, ruling over heart-colours and shades of blood. This portrayal of light and colour coexists in the physical realm – the heartbeat and the flow of blood – and in the imaginative realm as symbolic, poetic entities. Morning, drenched in the crimson and purple remnants of the “night's spilling of hearts,” paints a vivid image of the external world reflecting internal emotions (87). Amidst this sensory explosion, the chorus invites us to “see and hear the secrets of the light” (87), further blurring the boundaries between auditory and visual perception.

These examples mirror the overlap between language and synaesthesia, as argued by neuroscientists and philosophers such as Ramachandran, Hubbard, Lakoff, and Johnson. These instances demonstrate that sensory phenomena naturally bleed into linguistic ones, once again underscoring the seamless continuity of sensory and linguistic processes.



Appendix II – Expanded Hearing: Interconnectedness through Sound Vibrations

This analysis explores *Saudade's* nuanced portrayal of auditory experiences, highlighting its contribution to the thematic exploration of neuro-Romantic interconnectedness. By examining the novel's engagement with phenomenological and cognitive science theories, the discussion focuses on the dynamic interplay between ecological contexts, temporality, and music's transformative power in shaping sensory perception and enriching human connections. The analytical shift from visual to auditory modalities distinguishes between sensory experiences while illustrating how these distinct modalities collaboratively forge a deeper, embodied connection with the world, showcasing their complementary characteristics.

Unlike the spatially embedded vision, auditory perception is traditionally considered to be sequential, unfolding over time, and is notably potent in evoking emotional and memory responses. This is illustrated by the phenomena of high fidelity and vividness in involuntary musical imagery, and is further supported by findings on music's impactful role in memory recall and emotional engagement in Alzheimer's Disease patients (Williamson and Jilka 666; Peck et al. 949). Auditory perception enables us to process sounds, music, and speech, capturing the rhythm and flow of experiences. Sound can evoke a sense of presence and continuity, as well as absence and distance.

The phenomenological philosopher Dan Lloyd articulates the distinct ways sight and sound inform our perception, noting vision's ability to offer a stable, continuous perspective of our environment for detailed object scrutiny, contrasted with hearing's capture of ephemeral auditory events, presenting a world of fleeting moments (206-10). This analysis is deepened through a reference to Husserl's focus on the temporal aspects of consciousness, particularly highlighting auditory perception's transient and reflective qualities (210-11). Lloyd's exploration underscores the critical role of both ecological and temporal contexts to provide a comprehensive framework for understanding the distinct modalities of perceiving our world. While the ecological context defines the physical environment's impact on sensory processing

through continuous or sporadic energy forms like light and sound, the temporal context involves the unfolding of sensory experiences over time, integrating past, present, and future for a cohesive perceptual narrative (206-11). José Francisco's auditory explorations, utilising the natural acoustics of seashells and the vastness of the sea, alongside the gradual revelation of sound's power over time, concretely manifest Lloyd's theory that sensory engagement is intricately moulded by the ecological surroundings and the temporal continuity of human experience.

Extended hearing, an aspect foreshadowed in the context of materialised words, serves as a unique mechanism for connecting with others and the world in *Saudade*. The novel interweaves the auditory process reliant on sound vibrations with the kinetic potential of the body, imaginatively broadening the inherent biological capacity of hearing. This creates a material-imaginative bridge that fosters interconnectedness between various bodily mechanisms dependent on motion, and between subjects interconnected through these mechanisms. The novel offers several instances of this auditory interconnectedness. Here, I focus on passages in which human bodies are transformed into musical instruments, underscoring the creative facets of embodiment through the distinctiveness of the auditory modality and experiences. These occur during the prelapsarian interconnectedness in Terceira before José Francisco's demise.¹³³

In addition to creating white noise, there are several episodes in the novel when José Francisco implements various creative methods to “open [Clara's] ears” in order to activate her auditory abilities (14). These examples highlight sound as a dynamic conduit between reality and imagination. By revealing sound's capacity to transcend conventional forms of communication, it not only enriches the novel's thematic fabric but significantly enhances our appreciation of sound's role in deepening human connections.

¹³³ See Appendix I.3 for an in-depth example of the way auditory interconnectedness is reclaimed within the relationship between Clara and Helio.

Thus, José Francisco invites Clara to feel the tangible vibrations of sound created in his body by singing: “[h]e sang hymns and chanteys until his bones vibrated with music. Can you feel my singing? ... He wondered if she sponged up his quavering” (14). This method proves useful as the sounds reach and touch Clara, turning her vertebrae into a musical instrument: “[o]ne morning when José Francisco was singing, Clara bolted around, touching the floor so that sounds could travel through her palms and soles, or up her spine as though it were a xylophone” (15). Consequently, an intimate, physical, and embodied father-daughter bond is forged, as air-produced sound vibrations travel through and reverberate with the rest of his body, effectively transforming him into an aeolian harp: “[h]e sang until his lungs almost burst from flooding out notes and white sounds while leaning down to let Clara position her head against his ribs ... Every night after that he danced with her for a serenade from his bones ... so she could feel ballads and nonsense-tunes converting him into a whirling tissue and purring skeleton” (15-6). The vibrations from this “body’s lullaby” reach Clara, who is closely pressed to him, allowing her to tangibly experience sounds emanating from her father (16). In this way, José Francisco connects with Clara through the kinetic effects of sounds and their energy, merging the movement of the vocal sound waves and the movement produced by the rest of his dancing body into dynamic, musical currents. The vibrating sounds and the bodily movements thus become homologous and continuous through the common currency of motion. This embodied interconnectedness and merging of sensory experience through motion resonates with Sheets-Johnstone’s assertion that kinaesthetic activity profoundly shapes our understanding of life, agency, space, time, and knowledge structure (xvii).

Another instance underscores the profound relevance of auditory experiences in transcending perceptual boundaries, offering a novel insight into our relationship with the natural world. This exploration substantially demonstrates sound's pivotal role in forging deep, emotional connections. José Francisco achieves a further expansion of sound communication with Clara as he realises that sounds can be conveyed through the mediation of a sound capturing

object – a queen conch. Inspired by the workings of his anthropomorphised immediate surroundings, the sea, which, he believes, “throws its voice into objects” (16), José Francisco tries to implement a similar mechanism of sound transmission and reception in a series of experiments. The queen conch can be seen as an ear-centric narrative anchor – its shape reminiscent of the structure of the inner ear – that conveys the inherent interconnectedness between the individual and her environment through sound.¹³⁴ Ordinarily, sound waves, propagated by the air, enter the outer ear, and after a series of complex transformations activate the auditory nerve. As explicated by the National Institute on Deafness, inside the ear, the vibrations cause the hair cells inside the cochlea – a snail-shaped structure filled with fluid – to move, thereby triggering different auditory frequencies. José Francisco relies on this basic mechanism of sound transmission, albeit imaginatively expands its potential, thereby further advancing a neuro-Romantic approach. He utilises the apparent similarity between the liquid medium in the cochlea, which fluctuates in response to sound waves in order to relay them further, and the sea, which supposedly casts its sounds into objects, as well as on the similarity between the cochlea and the conch, to build material-imaginative bridges in order to reach Clara.

Similar to long distance transmission and reception by way of a radio, the seashell connects Clara and José Francisco without them inhabiting the same proximal space (16).¹³⁵ Thus, “[h]e practiced projecting his melodies into the chorus lines of limpet and conch shells that he strewed through the house,” which jangled in return, and Clara chose the ones “set astir” (16).¹³⁶ José Francisco then gradually extends the distance the sounds travel so they can reach Clara from a ship (16). “The prize receiver and transmitter” – a queen conch – carried “its anthem of the ocean,” which blended “with the harmonies of José Francisco” (16). José Francisco’s

¹³⁴ The conch accompanies Clara through the novel, as she brings it with her to California.

¹³⁵ “[o]nce while listening to the roar of the sea caught in a nautilus shell, it occurred to [José Francisco] that if the ocean could throw its voice into objects, forcefully enough for them to retain a maritime song even when they were on land, then he could do the same” (16).

¹³⁶ Clara’s “clutching ... to feel [the shell] vibrating” indicated “which were the first to spring alive with tremors” (16).

endeavours exceed his expectations as one day his singing “skips over the shells” and reaches Clara, who acts as a receiver, directly: [her] arms raised high and unshaking above her head as antennae” (18).¹³⁷

Drawing on José Francisco’s “body’s lullaby,” the sounds transmitted to Clara are inherently associated with music and dance, acting as practical embodiments of Maxine Sheets-Johnstone’s notion on the importance of movement in cognition. The harmoniousness of music becomes coexistent with the rhythmicity and synchronicity of dance, which requires the involvement of the whole body to connect with the world. Thus, José Francisco practices to “[project] his melodies into the chorus lines of limpet and conch shells” (16), amplifying the music of his voice by a supporting dancing chorus line of marine objects to generate an interconnected community of bodies and entities. His extended sound communication, like the various eye-centric anchors, has a complementary negative counterpart since the very medium that is at the heart of his interconnective and imaginative voice transmission – the sea waves – is the place of his demise.

In these excerpts, as well as in the novel as a whole, Vaz eschews portraying subjects and objects, humans and non-humans, in a hierarchical manner. This approach resonates with Barad’s notion of agential realism, which underscores the profound and non-hierarchical entanglement of various entities (*Meeting the Universe Halfway* 814). Just as the sea supposedly transmits its sounds into objects and the conch receives them, so does José Francisco extend his voice from far away for Clara to sense. Both parallels – between José Francisco and the sea, and between Clara and the conch – equate the significance of humans to that of the objects and non-human entities in the surroundings to which they all belong.¹³⁸ Thus, Clara “springs alive with

¹³⁷ José Francisco thus “skipped over the shells and went right through her arms and into her” as reaching towards the queen conch – “a trumpet from the sea” – might have “taught Clara to extend her hands upward to claim her father’s music as her own” (18).

¹³⁸ The parallel between José Francisco and the sea alludes to the harmony between the music that has emanated from his makeshift cloth harmonica and the surges of the waves that “kept time with the pulses” the night he

tremors,” while the curtains are “nailed ... into taut eardrums,” undermining the hierarchy between subject and object (16). Everything involved – animate and inanimate – turns into a component in a signalling and communicating apparatus. The obfuscation of boundaries between subject and object creates an interconnected community, interrelated by the material and embodied essence of each constituting member.

At the same time, the excerpt cited above depicts blurred distinctions between a scientific outlook and an imaginary one, which become intertwined. José Francisco’s understanding of the nature of the sounds emanating from shells is based on a folk belief. Although these noises are indeed reminiscent of the sounds of sea waves, they are actually echoes of sounds in the immediate vicinity of the shell (Phelan). As explained by Andrew King, what we hear is, in fact, the “ambient or background noise that has been increased in amplitude by the physical properties of the seashell.” (qtd. in Phelan). However, a touch of the imaginary allows the expansion of the physical possibilities of the world. José Francisco’s imaginary persuasion that the sea sends sounds to be captured by conches is literally stretched in space by means of physical acoustic laws to broaden the communicational potential between entities.

While the apparent audible similarity between the physical sounds of the sea and the sounds emitted by the shells captures the imagination, José Francisco’s imaginary beliefs are materialised to set in motion a physically viable mechanism of sound transmission. The bridges constructed between physico-biological mechanisms and imagination can thus be seen as rationally imaginative. Imaginative rationality, a term coined by Lakoff and Johnson, is applied in their work to metaphor, as it “unites reason and imagination” (*Metaphors* 193). In this context, the auditory material-imaginative bridges are rationally imaginative, as imagination is buttressed by materiality and rationality (itself fortified by the scientific method), and physicality and biologically proven phenomena are explored and extended by imagination. Just as Lakoff and

coloured the stars pink: “[the shell’s] anthem of the ocean blend[s] with the harmonies of José Francisco” (16-7). This parallel reaches a culmination with José Francisco becoming one with the sea when he drowns.

Johnson deny the dichotomy between subjectivity and objectivity (192), Vaz infuses *Saudade* with a tangled mesh of the subjective and the objective.

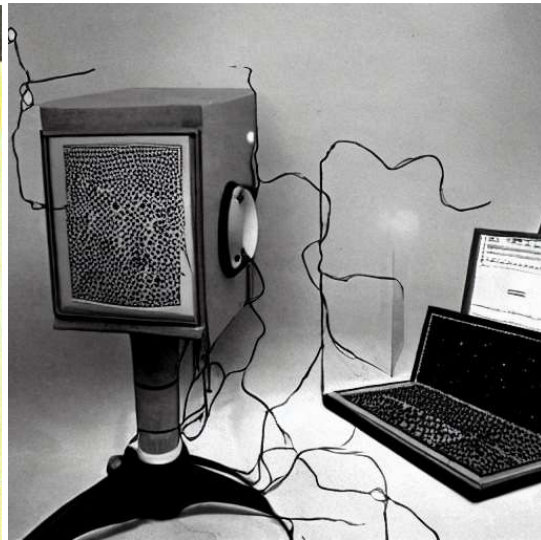
Similar to the way vision in *Saudade* extends beyond its spatially assigned limits, hearing transcends its modularly assigned temporal confines to spatially connect characters, as demonstrated by José Francisco's use of vibration and seashells to bridge distances. This auditory engagement transforms sound into a palpable medium that not only transcends physical spaces but also fosters a deep, embodied connection between individuals. Through these creative auditory practices, the novel redefines the spatial capabilities of hearing, illustrating its role in forging a neuro-romantically interconnected world. This trend agrees with Stephen Handel's view, which argues for a unified view of perception across different senses, suggesting that despite the physiological and functional differences between modalities such as vision and audition, the underlying principles of perceiving structure amid noise, and of distinguishing meaningful patterns from random fluctuations, are universal. This perspective challenges us to look beyond the surface differences between sensory modalities and to consider the commonalities in the way we construct our perceptual realities (22), laying the groundwork for synaesthetic experiences.

Furthermore, the narrative implies that sensory systems are not passive receivers but active explorers that have adapted to an information-rich environment, as postulated by Lloyd. Music, as a transformative technology, exemplifies this by subverting the natural processes of auditory perception. According to Lloyd, unlike ordinary sounds, which are segregated based on source, music blends distinct auditory events to form cohesive units, challenging the listener's perception and, in a way, enacting the stable, exploratory nature of vision in the auditory realm (217-221). He illustrates the way music might reflect a primordial form of sensory engagement, mirroring the dynamics of perception in a stable environment, and thus serving as a pre-reflective echo of human consciousness and interaction with the world (221). José Francisco's inventive use of sound, particularly through music, to bridge spatial distances,

exemplify Lloyd's idea that music transcends traditional auditory processing to offer a stable yet exploratory sensory experience, akin to vision.

Similar to vision, where mental images preserve the spatial and metrical properties of perceptual experiences, auditory imagery studies have shown that imagined music retains metric properties like pitch, rhythm, and timbre. These studies suggest that our experiences of imagining music are grounded in the same neurophysiological processes as hearing music directly, engaging the same brain regions as direct perception (Carroll et al. 45). This facilitates an embodied reading experience, where the resonance of sound profoundly shapes our engagement with and emotional response to narratives.

The various facets of hearing and, consequently, musicality, in *Saudade*, neuro-romantically combine the biological and physical properties of sound transmission and auditory perception with their imaginative transformations, to create material-imaginative bridges. Communication through hearing forms an intimate relationship between the parties participating in sound production, reception, and transmission, often involving the whole body. The utmost artistic result of sound – musicality – is imputed to the body at large in “body’s lullaby” and xylophone spine endowing it with the artistic qualities of musical instruments. The artistic potential of embodiment is explored further in the novel as the robustness of interconnectedness reaches its apotheosis in synaesthesia.



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