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Brains with character: Reading and writing neuronarrative

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Publication date

2015

Document Version

Final published version

[Link to publication](#)

Citation for published version (APA):

Yaczo, T. F. (2015). *Brains with character: Reading and writing neuronarrative*. [Thesis, fully internal, Universiteit van Amsterdam].

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Acknowledgements

And you can hide under the bed but brain damage is under the bed, and you can hide in the universities but they are the very seat and soul of brain damage... Brain damage caused by bears who put your head in their foaming jaws while you are singing “Masters of War.” ...Brain damage caused by the sleeping revolution, which no one can wake up... Brain damage caused by art. I could describe it better if I weren't afflicted with it...

Skiing along on the soft surface of brain damage, never to sink, because we don't understand the danger—

Donald Barthelme, “Brain Damage”

Predictably enough, perhaps, it was probably Oliver Sacks who first alerted me of the danger, as well as the awe, the prose, and character, of brains. Thanks for that.

Mom, Dad, and Vic: all the goodness in me began with you three. So did all the curiosity. Thank you for that. I am so lucky to be a part of a family who have supported my intellectual travels all of these years. Martha Shaw, I'm blessed by the conversations and exchanges we have, and by your continued smarts and support. My aunts Marta and Mary Ann, who cheered me on earliest in this undertaking, thank you so much. The amount of gratitude for the many years of love and support from Michaela Frischherz—my greatest cross-examiner, oldest friend, and wellspring of love—as well as from Nina, Mom, and Dad, exceeds anything I can put into words here.

My supervisor Patricia and co-promoter Jan Hein, thank you both for helping me make such a neurotic and often mercurial topic workable. Although we did not know each other before this project began, I honestly cannot imagine successfully completing this dissertation without Patricia's helpful interventions, eternal energy, and inspiring dedication to academia. Thank you both for showing such patience with my interminable revisions, and for reminding me when I ought to have been satisfied with the writing I always found too incomplete.

This project's imprimatur comes from the intellectual and financial generosity of the Amsterdam School for Cultural Analysis. From my time at ASCA I'm grateful for Christoph Lindner, who was an ideal boss and director, and for Eloë Kigma and Jantine van Gogh, who

always knew how to cut through the madness that otherwise defines UvA administration. I owe a great debt to Murat Aydemir, Mireille, and Sudeep Dasgupta, for becoming some of my best teachers, challengers, and mentors. To my amazing office mates Marie Beauchamps, Mikki Stelder, Niall Martin, Hanneke Stuit, Thijs van den Berg, and Rob Allen, thank you for letting me share the spirited and warm intellectual space with you. Marie and Miriam Meissner, I am much obliged to have shared such a great time working with you both on the ASCA workshop in 2013.

This dissertation is much indebted to the inspiring forum that the Neuroaesthetics seminar provided; thank you Patricia, Julian Kiverstein, Annelies Kleinherenbrink, Stephan Besser, Abe Geil, Flora Lysen, Machiel Keestra, Daisy van de Zande, and Manon Parry for making those Thursday afternoons so stimulating. Credits are further due to my colleagues and friends Rik Spanjers, Lucy van der Wiel, Astrid van Weyenberg, Nur Ozgenulp, Noe Roi, Jules Sturm, Selçuk Balamir, Erin La Cour, Adam Chambers, Thijs Witty, Aylin Kuryel, Blandine Joret, Simon Ferdinand, Uzma Ansari, and Marjan Nijborg for making these past years at the UvA feel both like an intellectual home and a friendly home. Irina Souch and Ton, thank you both for your friendship and bright conversations. And a very special thank you is due to Esra Almas, who introduced me to Borges and has become a great friend and literary soul mate.

Several parts of this manuscript were only able to appear in a final version through a group effort. Chapter 2, especially, was abandoned and resurrected many times over. A preliminary version of it was shared at the CSAA in Sydney in 2012, and I heartily thank the participants, and especially John Frow, for the feedback and conversation. Two anonymous reviewers at *Journal of Literature and Science* guided superb edits for it as well. Additional thanks go to Stephen J. Burn and Martin Willis for their helpful comments and editorial assistance on earlier drafts of that chapter. Credits go to Melissa Littlefield and two anonymous reviewers at *Configurations* for incredibly helpful revisions to Chapter 3. The Affect and Inquiry conference in Iowa City in 2014, too, was indispensable for getting the feel of that chapter right. I shared an early version of Chapter 5 at the 2014 PCA/ACA convention in Chicago, and many thanks to the panelists and participants for a great early morning conversation on the issues within it. Kees de Jong, thank you for editing the Dutch translation! My Godmother, Piroska Taborosi, deserves a very special thank you to for introducing me to the work of Michael Gurian, and, through excellent conversation over the

years, for pressuring me to take his ideas and influence seriously. Thank you as well for taking my own academic work seriously.

Abdel-Rahman Abdelgabar and Lawrie McKay at the Netherlands Institute for Neuroscience, thank you for inviting me to participate in the fMRI experiment and for putting up with my incessant questions about it. Thanks also to Mario Severo at the NIN for asking me to participate in the EEG experiment on a wintry day.

Where the UvA's meager and cheerless libraries consistently fell short or actively hindered research, I genuflect to the staff and resources at the University of Iowa and Miami University for their attentive services and commodious collections. Without your help, so many ideas in this dissertation would have remained blockaded before even being explored.

Barrett Floore, Billy Sauerland, Lina Jarad, Rhonda Jackson, Brian McQueen, and Jamie Viars: your influences on my brain and in my heart have had more positive impact than you probably realize. Thank you immensely; I can only hope to return the love within this lifetime.

I'm deeply grateful for the long conversations, close friendship, and wonderful insights from learning and growing with Lara Mazurski, Johanna Morand, and Joe Thornton over the years. Matt Cornell, thanks for becoming a great friend, for being a cradle of creative ideas, the best cinema educator, and for aiding my Twitter literacy.

Cem Yalcinkaya, thanks for being the best Boo. Thanks for the translation help as well. For knowing me and loving me, for traveling with me and my ideas, and for understanding my selfish use of time in the last few months of this project, I am incredibly grateful. Thank you for reminding me of what's important in this life, and for wanting to share your own life with mine.

Summary

“Brains With Character: Reading and Writing Neuronarrative” tracks the concept of neuronarrative by analyzing the reciprocal and catalytic relationships between neuroscience and literary media. Crucial to understanding the contemporary stakes in these two cultural endeavors is how their relationships implicate reading and writing as concepts, operations, and activities. This dissertation examines these implications by analyzing the characters to which neuroscience gives form in culture as well as the characterizations that concomitantly shape scientific understandings of the brain. From the protagonist struggling with a brain tumor, to the villain who one comes to discover acts out of a neurochemical imbalance, stories play out cultural, technological, and highly personal excitements and anxieties about the place and importance of brain knowledge today. They invite new literacies of readers, by demanding one learns from the vocabulary of scanning machines and the latest anatomies, as well as encouraging one to think through and with accounts of everyday life that centralize the significance of brain activity.

Five objects, which index five brains with character, help me encounter the concept of neuronarrative and productively destabilize it beyond the frame of genre.

Chapter One reads a character in Richard Powers’s novel *The Echo Maker* to problematize the concepts and practices of reading and writing engendered by a ‘typical’ neuronarrative. As noted above, *The Echo Maker* features on many critics’ lists of neuronovels. Yet, by looking closer at one character, a neurologist, who, over the course of the story, rewrites himself by confronting a neurological disease, I find a productive way to encounter both the literary conceit of inscription and the neuroscientific—and philosophical—theory of material plasticity. My encounter with the novel questions the basis of cultural and scientific literacy in a pursuit to understand—through the interface of fictional characters and moldable selves—how neurologic narratives engage storytelling today.

Chapter Two analyzes a character who undergoes a change in character as a result of a surgically removed brain tumor. It engages the concept of metastasis as a productive way of revisiting the trope of metamorphosis in literature. The nun protagonist Sister John of the

Cross in Mark Salzman's novel *Lying Awake* discovers that her deeply spiritual connection with God is a result of an epilepsy-inducing meningioma. After surgical removal of the tumor, she loses this connection with God. While the narrative accords with the emergence and imbrication of neurobiology in modern narrative fiction, the novel engages the changes needed to depict character transformations when writing with and through contemporary neurobiology and psychology. Reading the concept of metastasis in dialogue with the text challenges what *Lying Awake* does to and for a tradition of writing about metamorphosed characters in literature. Rather than classifying it as an illustration of neuronarrative-as-genre or as an example of neural plasticity, this chapter's approach questions the contemporary stakes of literary metamorphosis and inspires questions about the novel's affiliations and deteriorations with politics, religion, psychology, and history as well as challenging the new forms of literacy neuroscience demands of narrative today.

Chapter Three looks to a character known as Patient S.M. in current scientific literature. Formerly pathologized as a woman who could feel no fear, the chapter closely reads a neuroscientific report from the University of Iowa that destabilizes that previously stable neurological understanding of fear. This chapter takes up the concept and presence of fear as a productive problem for both neuroscience and affect studies in the humanities. The concept and mechanics of fear proves a productive point of departure to think about affect and the careers that affect studies enjoys in contemporary scholarship. Interior to the report, from 2013, are moments of neuroscientific storytelling that expose the affective and literary conventions enfolded by scientific texts. Noting the rich disciplinary cross-literacies, the chapter questions how particular narrative patterns shape scientific research agendas about fear, as well as the methods by which neuroscience propagates and solidifies inquiries of affect in critical analyses by way of narrative conventions. What the chapter discovers is how the habits of scientific case studies themselves, alongside popular scientific and philosophical appropriations of scientific material, can be determined by affective responses formed in relation to narrative.

Chapter Four looks to a particular character introduced through the widespread appeal of popular science advocacy, and tracks its materialization from metaphor to corporeality. It analyzes how popular psychologist and corporate spokesperson Michael Gurian's creation of

the persona “bridge brain”—to describe, diagnose, and nurse parental anxieties about gender conformity—functions as pedagogical tool and neurological foil to so-called “male” and “female brains.” Gurian’s use of therapeutic anecdotes vivifies the “bridge brain” character, which exposes that ways neuroscience then writes that brain into its own archive of literature. His metaphoric ontology of “bridge brain” focuses the analysis as a way to understand the science/culture divide as well as a tool to speak back to character conventions that make use of neuronarrative.

Chapter Five locates a distributed brain with character from Jennifer Egan’s tweeted short story “Black Box,” which appeared serially on the *New Yorker’s* Twitter feed in 2012. “We could think of genres as clusters of metadata—information about how to use information—that help define the possible uses of textual materials,” writes John Frow, and in this chapter I approach the metadata that a particular brain with character produces (“Reproducibles” 1631). Twitter is a noisy and fractured forum for narrative, but it nonetheless engages many readers’ screens and thoughts with immediacy. Egan takes advantage of this aspect to deliver her story as if each tweet is the recorded mental thoughts of her protagonist. Archived outside of the text of the object—the cascade of tweeted neural bursts describing the experiences of the focalized character—are users’ own re-tweets, hashtags, and networked conversations. Thus, the narrative afterlives of Egan’s story and their method of distribution through popular social media complicate direct readings of brains with character and interrogate contemporary communication of neural-based information. Revisiting the concept of neuronarrative in a final way helps analyze the cooperative reading required to make meaning from the brain that ‘writes’ this particular story.

Samenvatting

“Breinen met Karakter: Het Lezen en Schrijven van Neuronarratief” traceert het concept van ‘neuronarratief’ door het analyseren van de wederzijds productieve relaties tussen neurowetenschappen en literaire uittingen. Cruciaal voor het begrijpen van de hedendaagse toepassingen in deze twee discursieve praktijken is hoe deze de culturele technieken lezen en schrijven impliceren. Dit proefschrift onderzoekt deze implicaties door karakters te analyseren die de neurowetenschappen in culturele uittingen heeft voortgebracht. Tegelijkertijd onderzoekt ‘Breinen met Karakter’ karakterbeschrijvingen die wetenschappelijke ideeën over de hersenen vormgeven. Van de non die met een hersentumor worstelt, tot de schurk wiens handelingen, zo komen we te weten, veroorzaakt worden door een neurochemische onbalans, brengen deze verhalen culturele, technologische, en zeer persoonlijke opwindingen en angsten tot stand over de plaats en het belang van de hersenkennis van vandaag. Ze nodigen uit tot een nieuwe manier van lezen. Niet alleen door de introductie van het jargon van scanmachines en de nieuwste anatomie, maar ze stimuleren om na te denken over de manier waarop wetenschappelijke, literaire en alledaagse verhalen elkaar vormen en veranderen.

Vijf objecten, die vijf hersenen met karakter aanduiden, maken het mij mogelijk het concept van neuronarratief te verkennen. Ook maken zij het mij mogelijk vastgeroeste genrekaders te destabiliseren.

Hoofdstuk één problematiseert de concepten van lezen en schrijven aan de hand van een personage uit de roman *The Echo Maker* van Richard Powers, een boek dat door vele critici wordt gezien als ‘typische neuronarratief.’ Door in te zoomen op een personage - een neuroloog die in de loop van het verhaal zichzelf ontdekt door de confrontatie met een neurologische ziekte - vind ik een productieve manier om de literaire erruditie van opschriften en de neurowetenschappelijke / filosofische theorie van hersenplasticiteit te duiden. In mijn ontmoeting met de roman onderzoek ik de basis van culturele en wetenschappelijke geletterdheid in een poging te begrijpen hoe—via de interface van fictieve personages en het kneedbare ‘zelf’—neurologische verhalen opgaan in de hedendaagse vertelkunst.

Hoofdstuk twee analyseert een personage die als gevolg van een chirurgisch verwijderde hersentumor een karakterverandering ondergaat. Het gaat in op het concept van metastase als een productieve manier om de stijlfiguur van de metamorfose in de literatuur te herzien. In de roman *Lying Awake* van Mark Salzman, ontdekt de hoofdpersoon, non en voorvechtster Sister John of the Cross, dat haar diep spirituele verbinding met God een gevolg is van een hersentumor die epilepsie veroorzaakt. Na het chirurgisch verwijderen van de tumor verliest ze deze verbinding met God. Hoewel het verhaal in overeenstemming is met de opkomst en de overlapping van de neurobiologie in de moderne verhalende fictie, verbindt de roman de veranderingen die nodig zijn om het karaktertransformaties te verbeelden met hedendaagse neurobiologie en psychologie. Het lezen van het concept van de metastase in dialoog met de tekst, daagt uit wat *Lying Awake* doet voor de schrijftraditie in de literatuur over personages die van gedaante zijn veranderd. Mijn analyse weerstaat de verleiding om *Lying Awake* eenvoudigweg te zien als een illustratie van neuronarratief als genre of als een voorbeeld van neurale kneedbaarheid. In plaats daarvan, onderzoekt dit hoofdstuk het hedendaagse gebruik van literaire metamorfose en inspireert het tot vragen over politiek, religie, psychologie en geschiedenis. De neurowetenschappen vragen om nieuwe vormen van geletterdheid. Dit hoofdstuk laat zien hoe *Lying Awake* deze vraag op een uitdagende manier beantwoordt.

Hoofdstuk drie kijkt naar een karakter, dat in de wetenschappelijke literatuur bekend staat als Patiënt S.M. en vroeger gepathologiseerd als een vrouw die geen angst kon voelen. Dit hoofdstuk behandelt het concept en de aanwezigheid van angst als een productief probleem voor zowel de neurowetenschappen als de geesteswetenschappen. Het doet dit aan de hand van een neurowetenschappelijk rapport van de University of Iowa, dat het standaard neurologische begrip van angst ondermijnt. Het concept en de mechanieken van angst bewijzen een productief uitgangspunt te zijn om na te denken over macht en andere onzuivere motieven die studies in de hedendaagse wetenschap beïnvloeden. Het rapport uit 2013 bevat momenten van neurowetenschappelijke verhalen die de invloedrijke en literaire conventies door wetenschappelijke teksten laten zien. Wijzend op de rijke kruisverbanden in deze discipline, onderzoekt dit hoofdstuk hoe narratieve patronen wetenschappelijk onderzoeksagenda's over angst vormgeven. Ook onderzoekt het de methoden waarmee de neurowetenschappen vragen in kritische analyses propageert en consolideert door middel van

narratieve conventies. Wat het hoofdstuk ontdekt is hoe de praktijk van wetenschappelijk onderzoek zelf—samen met populair-wetenschappelijke en filosofische toeëigening van empirisch material—bepaald kunnen worden door de emotionele reacties op case-studies.

Hoofdstuk vier kijkt naar het karakter “bridge brain” en traceert diens transformatie van metafoor naar lichamelijkheid. De bekende psycholoog en bedrijfspersoonlijkheid Michael Gurian introduceert de “bridge brain” om ouderlijke bezorgheid over ‘gender confirmity’ te beschrijven, te diagnosticeren. Het analyseert hoe de creatie van het karakter “bridge brain” functioneert als pedagogisch instrument en neurologische tegenhanger, of verhelderend contrast, voor de zogenaamde “mannelijke” en “vrouwelijke hersenen.” Gurians gebruik van therapeutische anecdotes brengt het “bridge brain” karakter tot leven en creëert op deze manier voor dit brein een eigen literair archief. Zijn metaforische ontologie van “bridge brain” gebruikt de analyse als een strategie om de kloof tussen wetenschap en cultuur te verkleinen, en als middel om stereotypische karakters uit neuronarratieven van replek te voorzien.

Hoofdstuk vijf zet een verstrooid brein aan de hand van een karakter van Jennifer Egan’s getweete korte verhaal “Black Box”, die in 2012 als serie op de *New Yorker’s* Twitter-feed verscheen. “We konden genres bedenken als clusters van metadata—informatie over hoe je informatie moet gebruiken—die mogelijke toepassingen van tekstuele materiaal helpen bepalen,” schrijft John Frow, en in dit hoofdstuk benader ik de metadata die een bepaald brein produceert (“Reproducibles” 1631). Twitter is een luidruchtig en versplinterd forum voor verhalen, maar desalniettemin—of juist daarom—vult het de schermen en gedachten van veel lezers voortdurend. Egan gebruikt dit aspect in haar voordeel voor haar verhaal, waarin elke tweet een snapshot van de mentale toestand van haar hoofdpersoon is. Gearchiveerd buiten de brontekst—in dit geval een waterval van getweete neurale uitbarstingen die de ervaringen van dit gefocaliseerde karakter beschrijven—zijn re-tweets, hashtags en correspondenties onder de volgers. De narratieve onderwereld van Egan’s verhaal en zijn wijze van distributie via de populaire sociale media, compliceren het direct ‘lezen’ van breinen met een karakter en ondervragen ze de hedendaagse communicatie van ‘neural-based’ informatie. Het herzien van het concept van neuronarratief helpt uiteindelijk het gezamenlijke lezen te analyseren dat nodig is om een brein te begrijpen dat zijn eigen verhaal schrijft.