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Richard Powers's *The Echo Maker*: Reassessing the Neuronovel in American Literature

CHRISTIAN KNIRSCH

ABSTRACT

According to Marco Roth, one of the most recent subgenres of the novel, the neuronovel, unquestioningly embraces the empirical neurological worldview. One of the best known novels he lists in this category is certainly Richard Powers's *The Echo Maker* (2003). Such an interpretation of the novel though is reductionist and a crude oversimplification of its epistemological framework: on a symbolical level, *The Echo Maker* discusses the supposed dichotomy between Freudian psychology and the more empirically and anatomically oriented approaches that are predominant in contemporary neurology. This theoretical debate is centered on two neurologists' competing approaches to the treatment of Capgras, the delusional syndrome the protagonist of the novel, Mark, suffers from. As it is, one approach considers Capgras a neuro-anatomical phenomenon while the other treats it as a psychological disorder. In the assessment of the intellectual development of the two neurologists engaging in this debate lies the key to the assessment of the novel's epistemological stance.

On July 18, 1990, U.S. President George W. Bush issued Presidential Proclamation 6158 in which he declared the 1990s "the Decade of the Brain." In this proclamation, Bush identifies the brain as the "seat of human intelligence, interpreter of senses" and thus attributes to it epistemological significance. In February 2010 the Dana Foundation published *A Decade after The Decade of the Brain*, an assessment of the scientific advance that was achieved in the 1990, and how it was followed up in the 2000s. Here, Thomas R. Insel distinguishes between the 1990s, when empirical neurological research was actually conducted on a large scale, and the 2000s, "the Decade of Translation," when these empirical facts were 'translated' into other discourses. Indeed, a huge number of neurological publications that were the result of the scientific focus on the brain in the 1990s also touch upon general philosophical and epistemological questions that led to a public debate on the actual ontological and epistemological implications of neurological research.¹ This public discourse on the general significance of neurological research has in turn reached a broader cultural framework including the arts in general and literature in particular. In the first decade of the twenty-first century, a series of

¹ A relatively early example of the epistemologically oriented neuro-scientific texts is Oliver Sacks's *The Island of the Colorblind* (1997). Sacks's more recent book *Hallucinations* also fits into this category (2012)—as do Susan Greenfield's *The Mind's Eye* (2010), *Tomorrow's People: How 21st Century Technology is Changing the Way We Think and Feel* (2003), and *The Private Life of the Brain* (2002). Philosopher Paul Churchland takes up this intertwining of neurology and epistemology in his *Neurophilosophy at Work* (2007).

novels that focus on neurological questions were published, among them Rivka Galchen's *Atmospheric Disturbances* (2009), John Wray's *Lowboy* (2009), Jeffrey Eugenides's *The Marriage Plot* (2011) as well as Siri Hustvedt's *The Sorrows of an American* (2008) and *The Shaking Woman* (2009).

According to literary critic Marco Roth, in Anglophone literatures after 1997, the "neuronovel" has taken more and more the place of the traditional "novel of consciousness." In his opinion this led to the reduction of characters to mere "foils." Moreover, the neuronovel unreflectively preaches, he argues, "the loss of the self" that is often referred to in neurological publications and it thus unquestioningly accepts the neuro-empirical worldview. He vehemently criticizes this "new reductionism of mind to brain" in neurological research and in literary texts. However, what Roth seems to ignore is that the loss of the self often has been considered a consequence of Freudian psychology with its emphasis on the role of the unconscious. And Freudian theory, in turn, was a major influence on modern novels of consciousness, such as James Joyce's *A Portrait of the Artist as a Young Man*, Virginia Woolf's *The Waves*, and William Faulkner's *The Sound and the Fury*. Roth's line of argument thus leaves us with a supposed dichotomy between the Freudian novel of consciousness and the empirical neuronovel as well as between their respective epistemologies. According to Roth, Richard Powers's *The Echo Maker* is one of these neuronovels unquestioningly embracing this neurological worldview.

As I will argue in this article, such an interpretation of Richard Powers's *The Echo Maker*, published in 2003, crudely oversimplifies the epistemological framework of the novel. In fact, the novel explicitly discusses the supposed dichotomy between Freudian psychology and the more empirically and anatomically oriented approaches that are predominant in contemporary neurology. After a brief summary of the novel with a focus on the neurologically relevant aspects of the plot, I will give an overview of different psychological and neurological stances on Capgras, the delusional syndrome from which Mark, one of the protagonists of the novel, suffers. Since the key question in the epistemological assessment of *The Echo Maker* as a neuronovel depends on the novel's evaluation of Capgras, i. e., on the question of whether Capgras is seen as a psychological or neurological condition, I focus on the intellectual development of the two neurologists that are concerned with the case: Prof. Weber and Dr. Hayes. Their respective intellectual development can be seen in their shifting evaluation of Capgras as either a neurological or a psychological phenomenon—or both, as the case may be. Finally, I will draw out the logical relationship between neurological research and postmodern theory that the novel implies.

I.

After a short depiction of cranes resting in a field near Kearney, the actual plot of the novel begins with a near-fatal car accident on a remote country road. When Mark, the victim, wakes up from the ensuing emergency surgery, he immediately identifies his sister Karin as an impostor. Since Mark suffered severe

brain injuries in the accident, Dr. Hayes's diagnosis is straightforward: accident-induced Capgras. Karin doubts the young neurologist's explanation and tries to get in touch with Prof. Weber, a best-selling author and academic celebrity from New York. Attracted by the scientific interest of the case, Weber actually travels to Kearney and repeatedly discusses the different possible causes of Mark's delusion with both Dr. Hayes and Karin. These range from a psychological to a cultural to a neurological etiology, tied each to a general worldview that is based on the interpretation of the syndrome.

In 1923, Joseph Capgras, a Freudian psychologist practicing in Paris at the time, identified Capgras as another distinct syndrome within the psychological family of delusions. Initially, he considered it a possible manifestation of the Freudian defense mechanism with certain parallels to "ordinary psychosis" (119), "depressions" and "a very pronounced paranoid disposition" (128).² This Freudian perspective on the syndrome was dominant until the 1970s when a series of neurological case studies undermined its credibility. Finally, in *Phantoms of the Brain*, neurologists V.S. Ramachandran and Sandra Blakeslee develop a consistent neuro-anatomical theory. They argue that Capgras stems from a failure of the amygdala, "the gateway to the limbic system," which connects the temporal cortex, responsible for the visual perception of the outer world, and the limbic system, which gathers experiences and adds emotions to the affectively neutral perceptions (162). The correct visual perception of someone the patient knows well without the emotions usually accompanying this perception leads to the patient's conviction that the individual before him is not the actual person he or she knows but a double or "an impostor" (162).

Typically, the original person is idealized and the supposed impostor is demonized (Draaisma 280). Renitent behavior against "explorative as well as therapeutic psychiatric efforts" (Marneros 67) is apparent from the 'refusal mode' Mark is constantly in.³ Just as obvious are Mark's refutation of "Karin Two," "Kopy Karin," or "Karbon Karin" (468, 467, 354), as he usually calls the supposed "impostor" (86), and the glorification of his 'real' sister. The range of a possible cathexis in the different case studies as well as in the different theories varies enormously: Ramachandran and Blakeslee consider certain "categories of [physical] objects" (248) and even dogs potential impostors (161), Hans Förstl and Michael Hüll mention "delusional misidentifications of places" (379), and Douwe Draaisma reports a case where a woman recognizes her husband's 'impostor' even on the phone—and finally, Draaisma refers to a "blind" Capgras patient (287), which falsifies the neuro-anatomical theory that is based on a gap between visual perception and the emotions.

Doubts about the relevance of the mono-dimensional neuro-anatomical approach recently have been voiced from different fields of research. On the one

² Even in this first academic encounter with Capgras, a latent cultural dimension cannot be denied. Curiously enough, research on the syndrome has so far overlooked this cultural aspect in Joseph Capgras's original publication: here, the patient argues that the exchange of the patient's children occurred between 1914 and 1918 through a system of tunnels used by the French and British armies, whom she accuses of orchestrating the repeated exchanges (123).

³ All translations from German are mine.

hand, there are still several proponents of the classical psychiatric approach, among them the Dutch psychologist Douwe Draaisma and Mathias Berger, the latter of whom lists Capgras under “psychotic disorders” in his handbook of neurological diseases (514). On the other hand, Catherine Mackirdy and Debbie Shepherd formulate a Capgras theory that takes social and cultural factors into consideration. Their study includes both patients with and patients without neuro-anatomical evidence: “In three out of five of our cases, no organic factors were identified” (867). Four out of five patients included in their study, however, look back at a long history of “schizophrenia” and related “psychotic disorder[s]” (866, 867).

The different theories hint at various potential sources of Capgras: besides general psychological disorders, Mackirdy and Shepherd mention excessive “cannabis and alcohol abuse” as potentially contributing factors (868). Draaisma points to the wider social context or sudden “death[s] in the family” (282). Obrich et al. generally refer to an inner frustration with the “general circumstances of the patient’s life” that may lead to Capgras (514). Finally, Martin Davies suggests the possibility of a potential flight into illness or an unconscious motivation to treat a specific person as an impostor: “motivation is sometimes a factor in the aetiology of delusions” and “some cases of delusion [are] also examples of self-deception” (72). Mackirdy and Shepherd identify, next to a general psychological predisposition, possible cultural susceptibilities such as the Maori’s conception of reality: “It is possible in our group of patients that cultural differences played a role in the genesis of Capgras syndrome. The concept, for example, of a deceased person’s spirit being able to enter a living person is part of normal traditional Maori belief” (867). The culturally induced conception of reality may thus well be considered a potential factor for the development of Capgras, too, which means that this is a valid interpretation of the syndrome in the novel.

In view of this multiplicity of potential sources, Förstl and Hüll have conceived a catalog of four criteria that justify a patient’s classification as an exclusively neuro-anatomical case: first, “evidence of a cerebral disease, injury, or functional disorder that is known to come with the syndromes under discussion”; second, a temporal coincidence; third, the healing of the patient after the supposed source has been treated successfully; fourth, lack of “evidence for any other reasonable explanation for the development of the psychic syndrome” (379). If only the first two of the four conditions are met, an initial neuro-anatomical suspicion is justified; for a final diagnosis, however, all four criteria must be fulfilled.

II.

As mentioned before, Richard Powers’s *The Echo Maker* begins with Mark’s accident, in consequence of which he develops a cerebral edema. Once Mark wakes up from his coma and rejects Karin, the case is clear to Hayes: “Your brother is the first accident-induced Capgras patient I’ve ever seen” (75). During the entire treatment, Hayes is convinced of this neuro-anatomical explanation. In a discussion with Prof. Weber, who takes the role of a psychological *advoca-*

tus diaboli, Hayes strictly adheres to the neuro-anatomical logic developed by Ramachandran and Blakeslee: “‘If that’s what we’re looking at,’ Hayes said, ‘it would fit the prevailing understanding. Both the amygdala and the inferotemporal cortex intact, but a possible interruption of connection between them’” (166). In a scientific journal, Weber later identifies a case study in which medication with olanzapin healed the patient: “Butler, P. V. Seventeen-year-old man with Capgras delusions following traumatic brain injury. Treatment and outcome: Delusional ideation fully resolved within 14 days of commencement of olanzapine. 5 mg daily” (394). He then doubles the dose to a, in his view, “still-conservative 10 mg every night” (501). Because of the medication, however, Mark is not healed but develops another delusional syndrome related to Capgras, “Cotard’s” (502). This falsifies Roth’s claim that the novel supports a strictly neuro-anatomical worldview: the medication should have healed Mark and not brought on another syndrome in the form of Cotard’s.

“Severe nihilistic ideas that may even lead to the negation of one’s own existence and of the existence of the external world” are characteristic of Cotard’s syndrome (Marneros 64), and it is generally considered the most extreme among the delusional syndromes. In *The Echo Maker* Mark reflects: “I died. I passed away on the operating table, and none of the doctors noticed” (502). Yet only the first two of Förstl and Hüll’s criteria are met: first, the cerebral injury known to cause Capgras occurred in the form of the spiking of the amygdala; second, there was a temporal coincidence between the accident and the diagnosis of the delusion. Mark, however, has not been healed yet, and Freudian trauma theory presents another reasonable explanation for the development of the syndrome. A classification of Mark’s case as exclusively neuro-anatomical is thus called into question—and yet, Hayes, a neuro-empirical hardliner, sticks to his simplistic interpretation and the related worldview and is thus a legitimate target for Marco Roth’s criticism.

Prof. Weber’s case is a little different: the theoretical point of departure in his worldview, too, is neurobiological constructionism paired with an initially unshakeable neuro-anatomical positivism.⁴ What draws his attention to Mark’s case is simply the rarity and scientific exclusivity of the syndrome from which Mark suffers: “true Capgras from an accident: a phenomenon that could crown or crash any theory of consciousness” (140). On the basis of Mark’s case, Weber wants to develop “a mechanical model of memory, finding the structures behind qualia, even producing a full functional description of consciousness” (239) and thus, with the means of empirical neurology, answer philosophical questions concerning the foundational basis of human existence that have occupied philosophers and natural scientists for millennia:

⁴ Proponents of neurobiological constructionism claim to verify radically constructionist theorems with empirical means. At least as it is described in the novel, this position is rather contradictory in itself: on the one hand, Weber argues that perception and consciousness are to a large degree individual, that the perception of two different individuals can never be congruent, and that one objective reality simply does not exist; on the other hand, he considers empirical neurology to be a key to the individual consciousness and as a means to identify the mechanisms that produce each individual perspective.

How does the brain erect a mind, and how does the mind erect everything else? Do we have a free will? What is the self, and where are the neurological correlates of consciousness? Questions that had been embarrassingly speculative since the beginnings of awareness were now on the verge of an empirical answer. (170)

This firm belief in the capacity of his own research is also indicative of a strong positivistic conviction regarding the ultimate potential of neuro-empirical and neuro-anatomical research in general:

Most of neuroscience had been discovered since Weber began research. The knowledge base was doubling every decade. One might reasonably guess that *everything knowable* about brain function would be known by the time his current graduate students retired. Cognition was heading toward its prime collective achievement: *grasping itself*. (343-44; emphasis mine)

On a formal level this belief in the possibility of breaking out of the epistemological circle by gaining access to other people's consciousness finds its parallel in the narrative situation, a third-person narration with constantly changing focalizers. This grants the reader access to the consciousness of different characters, most notably the protagonists Mark, Karin, Weber, and Barbara. Taking into account the meta-reflexive style, one can refute Roth's argument of "reductionism."

III.

In the beginning Mark's test results supply evidence backing an exclusively neurological interpretation: "Accident-induced Capgras" (129). Mark not only rejects Karin, but also his dog Blackie (cf. 108). For Ramachandran and Blakeslee, the rejection of a dog is the key argument against a Freudian interpretation of Capgras, which implies a latently sexual dimension: "In my view that case demolished the Freudian explanation for Capgras' syndrome" (162). Another supposedly unerring means of empirical diagnosis is the so-called GSR-test. Mark is shown several pictures of Karin. Electrodes in his palms measure his emotional reaction to these pictures: if the patient produces sweat in his palms, he recognizes the person shown in the picture; if he does not, the emotions that should accompany the perception are missing. Mark produces the expected skin response when he is shown Karin's pictures, i. e., one part of his brain recognizes her as someone who looks like Karin while another part of his brain unconsciously rejects her: "The picture of his sister—Karin as Goth vampire—produced little conductance" (181). The telephone test, too, supports the neuro-anatomical theory. This test is based on the neurological assumption that visual and auditory impulses are processed differently by the amygdala. Mark should be able to recognize Karin on the phone—and he does: "'Hello? Who is this?' Then shocked silence. 'Oh my God! Where are you? Where have you been?'" (204). On her next visit, however, he rejects her once again. Ramachandran and Blakeslee define this test as ultimate proof of their theory: "there is a separate pathway from the auditory cortex, the hearing area of the temporal lobes, to the amygdala. One possibility is that the hearing route has not been affected by the accident—only the visual centers

have been disconnected” (168). A fourth method that is used to verify an exclusively neurological etiology is the photo-test. This test, too, leads to the predicted results: minimal deviations between the facial expressions of one person in two pictures are enough for Mark not to recognize the person anymore and to split the second ‘person’ off from the first, as Weber explains: “That woman laughed; this one’s scared. This one’s facial expressions are wrong. Doubles, aliens: splitting individuality into a hundred parts, preserving distinctions too subtle for normality to see” (156). Accordingly, Mark is not able to subsume Karin under the category ‘sister,’ but creates a new category and calls her “Karin Two” instead (354).

Based on this empirically unambiguous evidence, Weber sticks to the exclusively neuro-anatomical approach for some time. Yet, there are several hints in the novel that suggest Mark’s Capgras might be the result of psychosomatic problems that Weber plays down or consciously ignores in the beginning of Mark’s treatment. Still, the epistemological dichotomy between Freudian psychology and the neuro-empirical worldview is very prominent in the novel. In this context one focus is on the strained family history identified by Förstl and Hüll as one of the key criteria for a psychological etiology of Capgras is a case in point (379). Despite Mark’s idealization of Karin and her frequent comments on their close relationship from early childhood on, their relationship was not without complications. Their emphasis on a happy brother-sister relationship seems to be a glorification of the past. Karin’s remark that the accident gives her a “second chance to raise him right this time” (26) implies that Karin tries to manipulate Mark’s memory of the role she played in his growing-up. Mark’s attitude towards Karin, too, was obviously not entirely positive; Karin repeatedly refers to problems with her brother: “He could be such an aggressive prick. Always riding on me” (431). This is especially true for the last years before the accident, as Karin emphasizes: “Two years ago, the real Karin was a constant course of disappointment. I was forever letting him down” (431).

The problematic relationship between brother and sister is a logical consequence of an almost dysfunctional family history, including a childhood affected by the religious fanaticism of their mother (“you couldn’t say boo to her without her falling to her knees and belching some minor spirits” 469), the discovery of their father’s porn collection (“[t]he fisting stuff” 472), slight hints at sexual abuse (“Did Cappy ... did he ever touch you?” 473), doctor games between brother and sister that were discovered and punished by their father (470), Karin’s attempt to run away (475), and a forced promise to stick together forever: “He squeezed us both until it hurt, made us swear. ‘If anything ever happens—and it will—you two never, *never* give up on each other” (539). Both try to eliminate their father from their lives, a fact that also finds expression in the siblings’ speech habits: “*Your* father. Blaming him on each other” (471). Unlike Karin, Mark stayed in Kearney all his life, but in the GSR-test, he does not show any signs of recognition when he is shown a picture of his parents: “For Mark’s parents, another flat line [...]. ‘I know what you want me to say. This one looks like Harrison Ford, pretending to be my father. This one—somebody’s idea of my mother on a good day” (83). This reaction could be interpreted as a manifestation of the Freudian defense mechanism.

Another possible etiology of Capgras is a feeling of sexual attraction to a close family member such as father, mother, brother, or sister. Even Joseph Capgras suggested that “Oedipal feelings” typical of Freudian theory might be a potential source of the syndrome (Ellis et al. 130). Mark mentions the sexual attractiveness of Karin Two as an unambiguous sign for the non-identity of his sister Karin and Karin Two:

‘Not even close! Okay, so she looks a lot like Karin. But there are some obvious differences. My sister is like ... a Labor Day picnic. This one’s a business lunch. [...]. My sister makes you feel safe. Easy. This one’s totally high maintenance. Plus, Karin is heavier. Actually a bit of a tub. This woman is almost *sexy*.’ (145, emphasis added)

In an almost Freudian slip of the tongue, Weber himself remarks that Mark might “*selectively reject*” Karin (130; emphasis mine). This implies a psychological motivation for the rejection which he rationally denies at this point in time. Weber explains this selective rejection with the psychological phenomenon of confabulation: Mark, due to his illness, falsely interprets correct visual perceptions in the process of “belief formation” since the subsequent “belief revision” is omitted (Davies 72). This, however, is not an intellectual problem; Draaisma describes the patients’ conclusions as “logical but ridiculous” (275). In a later discussion with Karin, however, Weber vehemently defends the neurological stance again and denies any psychological motivation: “‘This is not about you. There is probably a lesion’” (224).

Mark considers himself the victim of a conspiracy, which is typical of Capgras patients. While Joseph Capgras’s first patient felt persecuted by foreign soldiers, Mark suspects Arab terrorists to be conspiring against him and identifies Karin as one of them: “‘You’re not the boss of me. I don’t even know where you came from. The damn Arab terrorists could have parachuted you in here, special forces, as far as I know’” (142). The reference to Arab terrorists ties the novel to a post-9/11 context and highlights the cultural dimension of Capgras. In a similar vein, the novel draws several analogies between Mark’s condition and the nation, which is also in a traumatic, Capgras-like states. When Mark scores below average in an emotional intelligence test, Weber, who was in New York on 9/11, relates the score to the whole of America: “All of America would have tests below average on that, nowadays” (198). Weber also mentions the paranoid tendencies of the American government and brings to mind that “[u]ntil the mid 1970s, many clinicians maintained that Capgras was the by-product of a paranoid condition” (199), an exclusively psychological phenomenon. Mark develops all the classic examples, among them Frégoli, Cotard and the intermetamorphosis syndrome. The multiplicity of phenomena Mark experiences falsifies a fixed mapping of etiology and syndrome as should be the case in exclusively neuro-anatomical disorders. In addition, Mark shows “flashes of paranoia” (112) not only with regard to his sister, whom he suspects is an Arab terrorist, but also during an ordinary game of cards with his friends Duane and Rupp.⁵ Still, Weber, mantra-like, repeats his initial diagnosis: “Accident-induced Capgras” (129).

⁵ “They play for IBP packing stickers; Mark’s stack vanishes like the buffalo. They keep telling him he’s already drawn cards, when he hasn’t” (84).

Technically, Weber is provided with ample evidence for a psychological diagnosis such as Mark's Oedipal feelings for his sister and his paranoid tendencies. In the beginning, however, Weber ignores this evidence and only takes up the psychological argument in order to create an impression of geniality with Hayes. In one of the first discussions with Hayes, Weber—seemingly as a matter of course—mentions the possibility that Mark's case might also be psychological: “Whatever lesion he has suffered, he's also producing psychodynamic responses to trauma. Capgras may not be caused so much by the lesion per se as by large-scale psychological reactions to the disorientation” (167-68). In a quasi-showdown with Hayes, Weber later insists on the necessity of psychological treatment—without being entirely convinced of his own arguments:

‘I'd recommend intensive, persistent cognitive behavioral therapy. It's a *conservative* course, worth pursuing.’ [...] Everything about Hayes radiated healthy skepticism. But the first rule of medicine was to do something. Useful or worthless, however irrelevant or unlikely—act. (219)

Weber does not express much conviction that Mark could be healed by psychotherapy, and, indeed, the psychological treatment does not solve Mark's problems in the end.

At this point, however, the trauma-like concomitants of both the development and the healing of Mark's Capgras suggest an exclusively psychological interpretation. At first Karin's impression that Mark still recognized her when she first arrived in the hospital seems to be insignificant: “His face knew her. But nothing came out of his mouth except a trickle of saliva. His eyes pleaded, terrified. He needed something from her, life or death” (8). Granted, this passage is in the mode of free indirect discourse and thus an expression of Karin's immediate perception of the scene. Yet, when the supposed nurse Barbara finally reveals her true identity and admits that she caused Mark's accident, Karin's supposedly subjective perception appears in a different light. Barbara remembers her arrival in the hospital: “He is still intact, still responsive. Strung with tubes, but not comatose yet. That will come later, with the excitotoxicity. The shock of this visit will bring it on. Now, as she stands by his bed in the trauma unit, he recognizes. He looks on her, terrified” (555). Mark falls into a coma and wakes up again as a Capgras-patient only after Barbara's visit, which is a clear indicator of trauma. This is especially so since Mark is healed immediately after Barbara's revelations: “When Karin Schluter enters her brother's room, the man who has been denying her is gone. In his place, a Mark she has never seen sits in a chair in striped pajamas, reading a paperback with a picture of a prairie on the cover” (560). Applying the logic of Först and Hüll, this temporal coincidence of the verbal confrontation with the course of events and Mark's healing strongly suggests that Mark developed Capgras in the context of trauma.

Still, the cognitive behavioral therapy is neither definitely verified nor definitely falsified. The healing described above could just as well be a long-term effect of the medication olanzapin, and Capgras could just as well have been caused by the swelling and the impairment in the relevant area of the brain. Ultimately, it is not possible to verify either the one or the other interpretation; this confirms

Weber's fear that Mark's case could be a "neither-both case" (133): neither the Freudian nor the neurological "grand narrative" are verified, to take up Jean-Francois Lyotard's terminus (xxiii). Rather, Mark's case represents a "little narrative" (60), the least little narrative possible, the singular case of an individual, the "empiric singularity" of the individual consciousness, as Jacques Derrida calls it (137). Therefore, *The Echo Maker* clearly transcends the epistemologically narrow boundaries of a neuronovel as defined by Marco Roth. The neuro-empirical worldview *is* articulated, but certainly not perpetuated—on the contrary, it is called into question. Thus, even though the novel relies on neuro-empirical approaches, it does not employ them in a manner that verifies the neuro-empirical world view, but as a means to emphasize its contingency with different elements from postmodern theory such as radical constructionism which argue that the external world is nothing but a construction of the individual mind.

The distinction between Mark's diseased and the so-called 'normal' consciousness is blurred, too. This blurring of the boundaries between 'pathological' and 'normal' is known as the 'continuum approach' to the human consciousness. It is a widely accepted approach in delusion-research and denies a qualitative difference between pathological and non-pathological people: "delusions are not quantitatively different from normal beliefs, but simply represent a more extreme end of the population spectrum" (Bell et al. 224). A perceptive normality simply does not exist. In the end both pathological and non-pathological people are ultimately thrown back to subjective reality and the absolute indispensability of individual consciousness.

Having heard various bits and pieces of constructionist theory from Weber, Mark applies this logic and rebels against his hospitalization and pathologization: "Why am I the only one locked up?" (106). In sight of the traumatized condition of the American nation, this question is certainly legitimate. Yet Mark does not even refer to post-9/11 America, but to a general cognitive *conditio humana*. In a discussion with Weber, he replies to Weber's question whether there is somebody else who is not what he or she seems: "You ought to know that nobody's 'What They Seem'" (146). Moreover, Mark seems to sense Weber's latent doubts regarding the unambiguousness of the neurological worldview: "You're lost here, too, aren't you?" he asks after one of Weber's neurological lectures was delivered with less pathos and conviction than usual (274).

IV.

Indeed, for Weber the distinction between Mark's 'diseased' perception and objective reality is completely blurred in the end. For example, Weber transfers a Capgras patient's inability to see beneath another person's (sur)face to the general public: "What did he know about her? [...] What did he know about anyone?" (464-65). Weber takes this personal failure as a symptom of the general logical, empirical, and neurological inability to access someone else's consciousness: "Long after his science delivered a comprehensive theory of self, no one would be a single step closer to knowing what it meant to be another" (462). No matter how

much empirical data about a patient's consciousness you collect, you will never know what it feels like to be this patient.⁶

In *The Echo Maker* this insight is not limited to the unknowability of another character's identity, but also applies to one's own identity. Karin, for example, accepts Mark's point of view and considers herself not his "real sister" anymore (117): "She'd gotten used to the doubling, to being *this woman*" (474). This leads to her looking at herself as "a void" (414): "She is nothing. No one. Worse than no one. Blank at the core" (515). Barbara, too, has accepted a certain inner emptiness and plays different roles in different contexts. Through his confrontation with Barbara, even Weber develops an identity crisis which—in combination with the collapse of his neurological worldview—grows into a fully fledged crisis of meaning. Weber loses the belief in his true identity, the core of his self: "he grows transparent, thinner than a film," as he himself thinks at the very end of the novel (565). On his flight back to New York, he even denies himself or—worse—his self, when another passenger recognizes him: "'Not me,' Weber insists" (566).

In accordance with the intertwining of psychology, neurology, and epistemology postulated in many neurological texts, this insight does not limit itself to another person's consciousness. On the contrary, it even leads to radical constructionist questions about objective proof for the existence of an external reality. "Even baseline normality has about it something hallucinatory," as Weber states in one of his books (260). Of course, this remark can be found in any neurological work that is concerned with the philosophical implications of neurological research. Nevertheless, it is very significant that Weber's *interpretation* of these 'facts,' recited like a mantra, changes in the course of the novel. While they are initially quoted to support his positivistic worldview, his insight into the relativity and constructivity of the individual consciousness finally turns against this positivistic view of empirical neurology.⁷ Both the perception and the epistemological

⁶ "What does it feel like to be a bird?" Weber asks, implicitly alluding to Thomas Nagel's provocative article "What Is It Like to Be a Bat?" Nagel argues dualistically in favor of the irreducibility of consciousness to the brain because of "the subjective character of experience" (436). Thus, based on empirical data, certain inferences about the consciousness of bats are possible, but these inferences do not tell us what the world is like "for a *bat*" (439). As a logical consequence of this assertion, things are not any different "between one man and another" (440). It is impossible to grasp another person's worldview. In the novel, Weber finally reaches the same conclusion as the postmodernist philosopher.

⁷ It is not only Weber who becomes aware of the meaning of this continuum approach. Throughout the novel, the perception of supposedly normal characters is repeatedly likened to different neuro-pathological phenomena: the confabulations of people suffering from Korsakoff are not entirely different from the interpretative process of world-making based on the combination of empirically perceived sense-data (128). Perceptions in the context of akinetopsia "have a *truth* about sight, hidden from normal eyes," as Weber emphasizes (136, emphasis added). In numerous letters to Weber, his readers report their prosopagnosia-like experiences, which lead to Weber's insight that "everyone suffered from a form of prosopagnosia" (190). Synesthesia is the result of a "signal crossing that every brain produced but that only a select few brains presented to consciousness" (289). The same proves true with regard to Bonnet's syndrome: "Bonnet's is common. Millions of people experience it" (296). Confronted with Cotard's syndrome, Bonnie declares that she has had similar perceptions: "I felt myself that way, once" (505). Karin argues

capacity of an individual are far from certain to Weber in the end. He even calls into question whether the story we are told happened at all:

It struck him that he'd invented Nebraska. The whole story: some foray into a mixed, experimental genre, a morality play masquerading as journalism. He had no reliable memory of anything that had happened there. He could accurately reconstruct exactly none of Barbara Gillespie's traits, let alone her features. (465)

Everything that seems to exist independently from his consciousness, everything he seems to perceive objectively might be a mere product of his consciousness. Even during his first visit to Kearney, Weber succumbs to the impression that his hotel room only exists for and in himself: "He went up to a room that pretended it had never been inhabited by anyone, one that promised to disappear, traceless, the instant Weber checked out" (137). Then, he thinks, he can unmask this impression as a mere fiction ("a room that *pretended*"; emphasis mine); in the end, though, Weber senses that the room might actually disappear once he leaves and does not see it anymore. Thus, the impetus of the radical constructionist doctrine of ontological and epistemological unknowability manifests itself not only in Barbara's psychological unknowability, but also in the realm of the physical world: both Barbara's face and the sheer existence of Nebraska as integral parts of the physical reality of the novel are far from self-evident.

Weber finally doubts his perception of Barbara; to him, she appears as the sole product of his consciousness: "It is as if he willed her into being" (533). Not only does he not have access to her consciousness, even Barbara's physical existence is suddenly far from certain. This extension of psychological phenomena to ontological questions concerning the existence of an external reality is also obvious in the rather uncommon transfer of Mark's Capgras symptoms to his physical surroundings: "No, no, no. This house is no Homestar," he complains when Karin leads him back to his home after he is released from the hospital (248). Even more, not only his own home but "the *whole town*" to him seems to be replaced by a duplicate (248). Finally, as mentioned before, Mark also shows signs typical of Cotard's, i. e., he develops severe nihilistic ideas and negates his own existence and the existence of the external world.

V.

The novel itself meets these psychologically and ontologically skepticist thoughts on a meta-linguistic level by applying the latently language-skeptical stance to itself. Reflecting on this issue, though, Weber at first suggests that the semiotic function of any language is a self-affirmative act of world-making and that this is the only possibility to make sense of the external world: "a life of neu-

that "the whole race suffered from Capgras" given mankind's ruthless exploitation of nature (439). Furthermore, she neutrally refers to Mark's confabulations as "theories" (88) and "ideas" (141). This ties Mark's worldview to a philosophical-epistemological context and recognizes its legitimacy to a degree. Karin thereby uses the exact same vocabulary as Davies, who emphasizes the inner logic of confabulations developed by Capgras patients (75).

rosience had proved that symbols were real. No place else to live" (448). This is reminiscent of the absoluteness of the signifying chain in poststructuralist theory in which only signifiers are considered 'real.'⁸ In this logic signifieds independent from signifiers do not exist and language does not represent the external world; instead it brings "the world into being," as Weber declares (524). The text of the novel itself is possibly the product of a diary Karin keeps during Mark's therapy: "She wrote down the therapists' routines, the relentless exercises. On page after perfect, empty page, she ordered Mark's days" (42). This explicit reference to the emptiness of the pages puts a special emphasis on the creative effect of writing that brings forth Mark's story as perceived reality. In the end Weber thinks of the plot as a product of *his* imagination: "It struck him that he'd invented Nebraska. The whole story: some foray into a mixed, experimental genre" (465). Indeed, at times, the novel reads like one of the neurological case studies.

The development from a language-optimistic stance to a language-skeptical one is met on a formal level. In the beginning the novel is a third-person narration with multiple focalizers. In the last few pages of the novel, however, the narrative situation changes to a third-person narration with a single focalizer: Weber. This instantiates the fall into subjectivism on a formal level. While in Roth's logic one might argue that Weber thus becomes a mouthpiece for the text itself, it is worth pointing out that this shift to focalization through Weber occurs only after Weber's epistemological conviction has shifted from neuro-empirical positivism to skepticism.

Next to the allusions to the textual source of the novel, the creative function of language surfaces several times. During a police interrogation, Karin denies that Mark consumes drugs. By saying it, Karin argues, it became the truth: "They wanted to know if he ever did anything more than drink. She told them no, and it felt just like the truth. She would have sworn to it in a court of law" (38). Moreover, Karin's gradual submission to Mark's refusal to accept her as his sister has—at least partially—a linguistic cause: "You couldn't call yourself someone's wife unless they agreed; [...]. Sister was no different, except technically. If he never again recognized her as his flesh and blood, what difference would all her objections make?" (98). Karin becomes Mark's sister only through the communicative act of confirmation; for her, biological 'facts' do not matter.

Neurologically, the question whether words have any meaning at all is addressed in the context of Mark's fits of echolalia. Karin first holds tight to the belief that words have meaning: "If he can say a word, it must mean something, right?" (45). Hayes replies: "Ah! You're pushing up against questions neurology can't answer yet" (46), thereby indirectly expressing the conviction that neurology will be able to do so in the near future. This belief in the epistemological relevance and bindingness of texts also appears in Mark's despaired search for the ominous message Karin found on his night desk after Mark's operation: "I am No One / but Tonight on North Line Road / GOD led me to you / so You could Live / and bring back someone else" (12). This message with its riddle-like quality is his only more or less reliable key to the accident. Later on, he has the note laminated, rendering

⁸ See Lacan, 169.

the text unchangeable and fixed. For Mark this implies a fixed meaning, too: Mark is convinced that, if he manages to decode this message, he will be able to find out what happened on this fateful February 20, 2002. This belief in the reliability of language also corresponds to Mark's "need to *say*, more than the need to *be*" (24), which elevates language to a level of truth and reality that goes even beyond his physical existence. Ultimately, though, even this conviction is shaken in the novel: Mark finds out that he himself is the author of this message. As this message also serves as a heading for the novel's five books, the novel is once again alluded to as a self-referential textual system. The insight that he is the author of the message leads to Mark's total disillusionment. Just like Weber, he even loses faith in the existence of an independent external reality: "Hate this feeling that I've made everything up. That I'm some totally invented asshole" (532).⁹

For both Mark and Weber meaning ultimately evolves not only in the production of language, but also in its reception—if at all, as Weber suggests when he wonders how different readers make sense of his stories: "The way a reader received his stories told as much about the reader's story as about the story itself. In fact, his books explored that very fact: there was no story itself. No final judgement" (279). The recipient is part of the text; meaning evolves as much in the subjective consciousness of the reader as it is written into the text itself. When it comes to the interpretation of a text, the author is only one reader among many. Thus, the stories Sylvie, Weber's wife, tells him become Weber's own stories in the act of reception: "For every story he gave Sylvie, she told him one back. But by the next morning, he felt as if he'd invented all of hers" (206).

The novel ends with Weber's final hope that his wife meets him at the airport:

He needs her to be there, on the other side of the baggage claim, though he has lost all right to hope it. There, holding his name on a little card, printed cleanly so he can read it, Man, the card must say. No: Weber. She will be the one holding it, and that is how he must find her. (569)

In this case, too, his hope for the existence of an external and objective reality independent from human consciousness is tied to its textual manifestation in the form of the name tag. The novel suggests that his hope is not fulfilled; it ends with the expression of hope.

VI.

To conclude, Richard Powers's *The Echo Maker* includes elements that are typical of neuronovels in Roth's definition. These include Mark's suffering from various 'neurological' syndromes, Dr. Hayes's unquestioning support of the neuro-positivistic worldview, and Prof. Weber's introduction of further delusional syndromes combined with the thorough explanation of their epistemological significance. What is more, the novel directly addresses the dichotomy between

⁹ Other characters, too, realize that language is not necessarily reliable in an objective sense. The arbitrariness of language, its idiosyncratic use, and its subjective meaning is foregrounded by Daniel Riegel, Karin's lover: "We can call it anything we want" (73).

Freudian psychology and the neuro-positivistic worldview that is implicit in Roth's unfavorable definition of the neuronovel. Yet this dichotomy is not unilaterally resolved in favor of the neuropositivistic worldview proposed by Hayes and, initially, by Weber, too. The reductionism of the mind to the brain mentioned by Roth is thus clearly falsified in the novel: after all, Mark's delusional state actually turns out to be a 'neither-both case' which thwarts Weber's initial hope that his research on accident-induced Capgras might solve the remaining neurological and epistemological riddles. The novel ties the epistemological discourse of the neurosciences into a general epistemological and ontological discourse as it can be found in postmodernist theory. Thus, *The Echo Maker*, to an extent, attempts to bridge the gap between the arts and the humanities and empirical neurology. Ultimately, it reveals the neuro-positivistic worldview to be similar to the post-modernist worldview prevalent in the humanities.

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