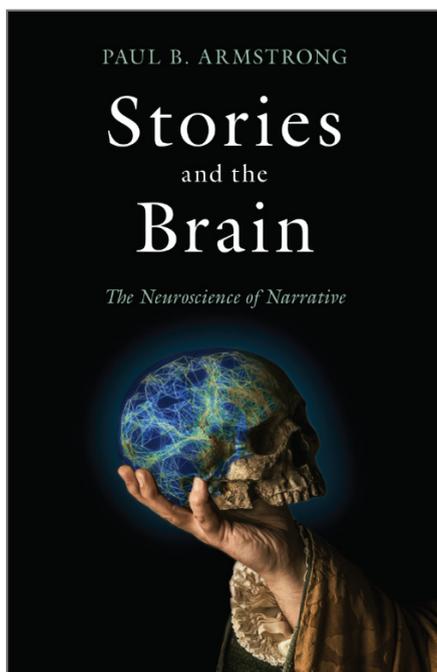


BOOKS

Paul B. Armstrong, *Stories and the Brain: The Neuroscience of Narrative*, Baltimore, John Hopkins University Press, 2020, 259 p.

The position that Paul B. Armstrong's *Stories and the Brain: The Neuroscience of Narrative* finds within the fields of poststructuralist and postcognitive narratology is particularly interesting. While it makes considerable contributions to the collective efforts of establishing an interdisciplinary dialogue between cognitive sciences and the humanities, it does – at the same time, engage in an emphatic critique of similarly oriented theories of narrative.

Even though he acknowledges the general shift from a computational model of the mind to “the 4e (embodied, enactive, embedded, and extended) view of cognition” (15), he denounces their lack of synchronization with recent neuroscientific findings on language, cognition, emotion, or narrative comprehension. To him, it appears that, “in their zeal to reject a Cartesian splitting of mind and body” (5), narratologists tend to overlook brain-based research in order to draw instead on psychological or philosophical perspectives.



In this sense, Armstrong's intention is to provide a more balanced approach to the interrelations and interdependencies between embodied cognition and narrativity. The “neurophenomenological model of narrative” (2) that he proposes is constructed on convergences he identifies between “our lived, embodied experiences as tellers and followers of stories” (2), the neurobiological processes enabling (and maybe even requiring) them, and various

narrative theories. Attuned to most recent neuroscientific findings, the cognitive model that is adopted discards the older “modular, computer-like conception of the brain” (200) and sees it, instead, as a continuous circular flux of patterns. Better fitted to “the dynamic, recursive interactions across the cortex and between brain, body, and the world” (200), this new understanding of the brain maintains that “what we have is not a logically ordered, formally structured mind but a bushy brain that is an ensemble of relationships that get fixed

over time but are open to a future of variation" (46). Subsequently, the author recurrently draws upon this redefinition in order to contest certain narrative theories and reinforce his choice for the poststructuralist, "pragmatically oriented, phenomenological theories" (46) of authors such as Paul Ricoeur, Wolfgang Iser, or Maurice Merleau-Ponty.

Moreover, the 'bushy' brain model and the relations to narrativity it enlightens are relevant to Armstrong's previous theories from *How Literature Plays with the Brain: The Neuroscience of Reading and Art* (2013) as well. Taking into consideration that neural processes are constantly caught in a tensioned to-and-fro oscillation between "[the brain's] need for pattern, synthesis, and constancy and its need for flexibility, adaptability, and openness to change" (11) and that stories are similarly structurally depend on an interplay "between harmony and dissonance" (1), it was the author's hypothesis that reading literature (and aesthetic experience in general) may have a cognitive balancing role (11). While it further explores and expands on this idea, the novelty of the present book consists in its attempts to evaluate and revise both narratological and neuroscientific concepts in the light of what its author defines as *the as- and as-if structures* of perception – "the to-and-fro circularity of seeing-as in the phenomenological process of configuring part-whole relations in a text or in life" (19). Drawn from various sources among which Heideggerian philosophy, Gestalt psychology, and Paul Ricoeur's theory of mimesis, the concept may – Armstrong argues, appropriately account for our cognitive processes and explain them in "nonschematized, interactive form[s]" (17).

The revisionary efforts of the book become explicit in the first chapter. While it discusses changes in the neuroscientific

understanding of human language – as well as its consequently modifying relation with our narrative capacities, it also engages in an assessment of the scientific validity of previous narratological hypotheses on the relation between minds and narrativity. Thus, research-based evidence that "the formalist model of language as an innate, orderly, rule-governed structure should be cast aside" (15) determines Armstrong to assert the importance of narratology to break with its structuralist legacy and [to] embrace the paradigm shift proposed by the various pragmatically oriented, phenomenological theories of narrative that have contested the formalist paradigm" (46). On this basis, the author argues that certain narrative theories are inconsistent with novel scientific findings. For example, the perspectives of David Herman and Monika Fludernik are critiqued for their efforts to reconcile the two trends of cognitive narratology and "to rescue formalism and schema theory" (16) – "the epistemological assumptions of first- and second-generation cognitive science are irreconcilably opposed: the first views meaning as a manifestation of underlying frames, scripts, and rules, while the second regards it as a product of mutually formative, historically evolving interactions between brain, body, and world" (16). In the following chapter, Brian Massumi and affect theorists' idea of "a bodily, autonomous realm of subpersonal affective processes [that are] prior to cognition" (62) is similarly criticized for being at odds with the recent neuroscience of emotions. Moreover, this chapter also attempts to clarify several long-standing issues of narratology in the light of *as-structures* and the interplay between harmony and dissonance, such as the distinctions between story and plot, story and discourse, or natural and unnatural narratives.

The following three chapters explore other important points of intersection between narrative studies and neuroscientific theories: time and temporal integration, the neural circuit connecting action and perception, and empathy. While each chapter reviews the scientific consensus on their neurobiological basis and references extremely interesting case studies, they also engage in equally telling literary analyses on works from authors such as Henry James, James Joyce, Joseph Conrad, Leo Tolstoy, or Charles Dickens. Furthermore, the as- and as-if structures of figuration and the interplay between harmony and dissonance remain important 'tools' for navigating the 'neurophenomenological' middle-ground and highlighting the searched-for correspondences between the two domains.

Relying on the neurobiology of time, the second chapter's exploration of "the decentered, asynchronous temporality of the brain" (54) sheds light not only on how the temporal dimension of stories coordinates to neural processes, but also on how narration itself has an important role in our felt unity of time. Processes of integration and reintegration, anticipation and retrospection, and remembering and forgetting are – in their perpetual recurrence, constitutive of the cognitive basis of temporal experience. However, due to their nonsimultaneity, "consciousness is inherently out of balance and is always catching up with itself" (54). The underlying temporal gaps between the (sub)conscious reception of stimuli and their cognitive integration have to be "subliminally correct[ed] and smooth[ed] over so that we typically do not notice it (otherwise we would have the weird sense that our present experience had already taken place in the past – which it indeed has, in a sense,

inasmuch as consciousness lags behind detection by up to half a second)" (59). To Armstrong, such a "play with [the] anticipation-retrospection circuit at various cognitive levels" (59) is what makes narrative experience possible (being, at the same time, reflected in their construction) – "if our brains were temporally unified and homogeneous, everything firing simultaneously and in lockstep, we could not tell each other stories because there would be no temporal gaps and no disjunctions between anticipation and retrospection for their discordant concordances to play with" (59).

Action is at least an equally important link between stories and the brain as time. In this regard, the third chapter draws together various studies that analyse how it is "fundamental to many cognitive processes that might seem remote from motor control" (106). For example, there is recent research on how perception should be understood as an exploratory process guided by difference and change (106), on how cognition is preponderantly "grounded" (Barsalou) in the sensory and motor cortical areas rather than abstract (117-8), or on how imagined actions, action words (106), action imagery, and linguistic understanding in general (114) activate the motor cortex. Thus corroborating the contemporary neuroscientific theory of "an action-perception circuit" (106), Armstrong continues by indicating the implied as-structures. He emphasizes that its intentionality renders action into meaningful, context-dependent "patterned, intentional gestalts" (110) that are usually understood through simulation processes and that justify the essential role of action in "join[ing] narration, story comprehension, and everyday embodied cognition" (105).

While intersubjectivity has been an overarching interest of the book (for instance, the second chapter explored the intersubjective dimensions of temporality), the last chapter explicitly turns to the “social powers of narrative” (150). Through a thorough analysis of the cortical complexities that make social behaviour and empathy possible, Armstrong sheds light on the as-relations entailed by processes of intersubjective understanding (doubling, simulation, identification, or mirroring – and the debates around *mirror neurons*). Subsequently, he calls for greater scepticism regarding the potential of narratives to actually “inculcate positive moral attitudes and prosocial behaviors” (150). Analyses of Merleau-Ponty’s “paradox of the alter-ego” and of the free indirect discourse are employed for further clarifications. As this chapter also highlights the technical shortcomings of neuroscientific research and their impossibility of analysing the brain in relation (with topics such as brain-to-brain connections, shared intentionality) or the felt experience of consciousness

(the qualia), Armstrong reinforces his belief that literature as a “cognitive archive” (186) could be (at least a short-term) compensating resource.

Not only carefully avoiding positivism and “neural reductionism” (5), but also assuming its narratological “disciplinary strength” (199), Armstrong’s account on the relations between stories and the brain, on their interesting structural and functional fractal-like mirroring, as well as on their mutual potential for configuring and refiguring each other can be read as an important statement on the inherently collaborative and interdisciplinary nature of both neuroaesthetics and (post) cognitive narratology. It is once again emphasized that informed dialogue both within and across their fields is productive and should become a sustained practice, especially due to their similar interests in researching language, time, action, perception, or empathy and, as the author repeatedly insists, due to their need for mutual synchronization.

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