

MENTAL IMAGERY IN THE EXPERIENCE
OF LITERARY NARRATIVE
VIEWS FROM EMBODIED COGNITION

Anežka Kuzmičová



Mental Imagery in the Experience of Literary Narrative

Views from Embodied Cognition

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*we can have mental images without reading,
or we can read without experiencing mental images,
but imaginal activity as part of reading is common
and a matter of degree. (Sadoski and Paivio 2001, 53)*

*dobro máme přijímat a nemluvit o čtení.
(Trnka 1962, 59)*

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Prague, June 2013

Chapter 1. Mental imagery and literary narrative: a bird's-eye view¹

1.1 Mental imagery

If I was deeply interested in the course of a story, the interest was so violent as to be painful; I feared – I shrunk from the conclusion, or else I forestalled it. My pleasure arose, not from curiosity, or anxiety about events and results, but from the workings of the visual imagination – from a picture daguerreotyped upon my mind; a scene in which I was at once *spectator* and *actor*, for I always identified myself with some personage or other[.] (Coleridge 1851, 345–346; my italics)²

The above is a self-biographical note by Hartley Coleridge, English poet and essayist, the eldest son of S. T. Coleridge. Although it may not capture the typical way a gentleman would experience literary narratives in the first half of the nineteenth century, or at least not the typical way a gentleman would talk about his reading experience (see also Section 1.8 below), empirical data suggests it should be fairly easy to identify with for many readers of today. Mental imagery is now one of the commonest things people remember about their narrative reading in the long term (Kuijpers under review) and it correlates reliably with various dimensions of reader response, most notably with affective and emotional appraisal (Krasny and Sadoski 2008). Even if the phenomenon of mental imagery were not interesting enough in its own right, further study would thus be warranted by its close link to emotion. Readerly emotion enjoys much renewed scholarly interest these days (see e.g. Miall

¹ A version of this chapter (Sections 1.1-1.7) is forthcoming in *Style 48* as “Literary Narrative and Mental Imagery: A View from Embodied Cognition” (Kuzmičová forthcoming). A version of Section 1.8 was published as part of my “Words and Worlds of Literary Narrative: The Trade-off between Verbal Presence and Direct Presence in the Activity of Reading”, Bernaerts, Lars, Dirk De Geest, Luc Herman, and Bart Vervaeck (eds.), *Stories and Minds: Cognitive Approaches to Literary Narrative*, Lincoln: University of Nebraska Press, 107–128 (Kuzmičová 2013a).

² I am grateful to Andrew Elfenbein and his collaborators for pointing me to this quote (Elfenbein et al. 2011).

2011). However, the same cannot be said about mental imagery.³ Therefore, this dissertation narrows in on mental imagery in the reading of literary narrative, alone and in its own right, whereas emotion and affect fall outside its general focus. This is not because I deem emotion and affect unimportant, in an intellectualist denial of Coleridge's romantic pathos. Quite the contrary: I assume them to be ubiquitous in literary reading, but also to relate to readers' discrete mental images in such a plenitude of ways that they escape systematic scrutiny. Therefore, they will not be investigated explicitly.

The dissertation will be structured as follows: The present Chapter 1 sets the general context of inquiry, while disentangling a number of key theoretical issues such as embodiment, consciousness, narrative, and the historical aspect of readers' mental imaging. Most importantly, the chapter introduces a typology of four basic imagery varieties to be further dealt with. Each of the subsequent Chapters 2 to 4, then, deals closely with one imagery variety or pair of varieties and the underlying cognitive mechanisms. It should be noted, however, that Chapters 2 to 4 do not explore the discrete imagery varieties in the sense of providing a general survey of their properties. (This is done briefly in Section 1.6 of the present chapter.) Rather, each chapter looks into the imagery variety/varieties in question from its own special angle, motivated by the nature of each imagery variety and the current state of research in literary theory. Questions asked throughout the dissertation include the following:

- a) What are the basic varieties of mental imagery in the reading of literary narrative?
- b) By what contents or narrative strategies are they most likely to be prompted?
- c) What is it like to experience a mental image of a particular variety?
- d) What are its psychophysiological underpinnings?
- e) How does a mental image of a particular variety relate to perception?
- f) How does it relate to higher-order meaning-making?

But first of all: What is mental imagery in the reading of literary narrative? In this context, mental imagery stands for the various instances in which modern silent readers of narratives come to experience near-sensory phenomena. Such experiences are common (Sadoski and Paivio 2001, 74) and largely compulsive. They come prompted by the particular narrative one is

³ In analytic aesthetics, there is an extensive literature on readerly imagination (e.g. Currie and Ravenscroft 2003; Walton 1993), where imagination is defined in terms of propositional rather than sensory content. For instance, it is possible to imagine a fictional world that differs from our own with regard to ethics or ideology, without necessarily forming a mental image of such a world. Because this dissertation deals with sensory imaging specifically, the broader term imagination will mostly be avoided.

reading rather than completely at the reader's will. Such experiences can be grounded in any sensory modality. They can deploy the external senses, i.e., the visual (sight), the auditory (hearing), the olfactory (smell), the gustatory (taste) and the tactile (touch), as well as the internal senses, i.e., the interoceptive (pain, hunger, etc.), the proprioceptive (balance, limb and organ position, etc.) or the motor/kinesthetic (movement-related proprioception: effort, acceleration, etc.). They can, and often do, combine several modalities.

More specifically, the subclass of mental imagery to be dealt with will consist in what may be called tight (rather than loose) mental images. Tight images are mental images that are tightly connected to concrete existents in the story and/or to circumscribed verbal structures in the narrative discourse. For instance, upon encountering an "apple tree" in a verbal narrative, my mind may easily wander off to grandma's delicious apple strudel and the unique odor in her kitchen. Yet this loose sort of imagery, perfectly common as it may be, cannot be accommodated by the conceptual framework of this dissertation. It is simply too difficult to predict based on narrative content and structure. This dissertation will only deal with such mental images triggered by expression "X" consisting in a sensory representation of what the reader literally understands to be X. This is what I mean by tight mental images.

One more example of loose imagery, or a phenomenon vaguely resembling such imagery: Upon the reading of a narrative, I may suddenly become aware of my pulse and breathing, and transpose their rhythm onto the temporal flow of the story, with its accelerations and decelerations, its ups and downs. For a short while, my bodily processes fuse with an image of the story at an abstract, macrostructural level.⁴ Given the avenues taken in this dissertation, such mental images will likewise be excluded because they are virtually unpredictable. Readerly experience of rhythmical pulse and breathing may very well be relevant, but only in other scenarios: Firstly, in cases when they are clearly experienced as first-person enactments of the pulse and breathing of a literary character. Secondly, in cases when they are connected to auditory imagery of a passage *qua* discourse, e.g., to the reader's vicarious hearing of "apple tree," with its specific pronunciation and prosody (a highly rhythmical and aspiratory affair). The distinction between tight and loose imagery is of course a matter of degree.

Even if narrowed down in this manner, mental imagery in the reading of literary narrative makes a sizable topic for a dissertation. The size of the

⁴ For a suggestive analysis of these and similar experiences, see a theoretical proposal made by Ellen Esrock (2004). In her article, Esrock calls these experiences "reinterpretations", whereas currently she prefers (personal communication) to call them "transomatizations". To my knowledge, the most comprehensive overview of embodied processes in literary narrative reading, largely overreaching what I have chosen to define as mental imagery combined with Esrock's transomatizations, can be found in an article by Michael Kimmel (in progress).

topic is due to the diversity of our imagery experiences, caused by the elusive variables of individual reader, text and reading situation (see also Esrock 1994, 179). But it is also due to decades of neglect within the two disciplines that have been most distinctly formative of this dissertation: literary theory and cognitive science.

With respect to mental imagery, both disciplines were founded in the twentieth century in a denial of previous traditions such as classical rhetoric, aesthetics, nineteenth-century literary criticism and so forth on the one hand, and early modern (even ancient) philosophy and nineteenth-century psychology on the other. These disciplinary predecessors acknowledged mental imagery as a legitimate, in some cases even supreme (for a review, see e.g. Sadoski and Paivio 2001, 11–41), form of human thought in general and language comprehension in particular. By contrast, most of twentieth-century literary theory avoided the topic altogether, in spite of the obvious link between literariness (broadly defined; see also Section 1.7 below) and image generation. The first principled accounts of mental imagery in literary reader response appeared in the 1990s (e.g. Scarry 1999; Esrock 1994; Collins 1991). Their number to date is far from overwhelming, but it increases steadily.

Psychology and the broader field of cognitive science picked up mental imagery somewhat earlier than did literary theory, in the late 1960s, after half a century of oblivion. But a protracted battle known as the imagery debate had to be fought before it was even established that mental imagery indeed is analogous to sensorimotor processes rather than being essentially propositional (for a review, see e.g. Kosslyn, W. Thompson, and Ganis 2006).⁵ The imagery debate concerned mental imagery at large. The evidence produced in favor of the sensorimotor (sometimes called “pictorialist”) strand consisted mainly in data from experiments in which people were simply instructed to form specific images or to solve various problems. Cognitive researchers first began to specialize in mental imagery in reading, specifically, at the turn of the millennium, although some prominent figures have been active in the field since the 1980s (e.g. Mark Sadoski; see Sadoski, Goetz, and Kangiser 1988).

Even in the relatively narrow field of literary reader response, this history of mental imagery in the past century, largely shaped by the linguistic (and later computational) turn across disciplines, has already been detailed by several authors (Gleason 2009, 424–430; Esrock 1994; Collins 1991, 30–46). Now, as a result of this history, there is too much to be said on the nature of mental images to review this history one more time. Instead, let us proceed directly to what may be considered the current situation, referencing

⁵ Strictly speaking, the imagery debate is still considered unresolved by some of its protagonists (see e.g. Pylyshyn 2004).

earlier literary theory when appropriate in the further course of argument, especially in subsequent chapters. In the past decade or so it has become common to intermingle literary scholarship with cognitive science (Cohen 2010). The contemporary second generation of cognitive science can indeed be very helpful to our advancing understanding of mental imagery and other lower-order (e.g. affective) aspects of reader response. However, its incorporation in literary and other theory is not wholly unproblematic. Before proceeding to the problems, let me briefly explain what makes contemporary cognitive science second-generation, and why it combines well with literary theoretical inquiry into mental imagery.

1.2 Embodiment

In the past, cognitive science would approach its central topics – i.e., perception, attention, language comprehension and so forth – with the assumption that the human mind works like a computer, engaging in symbolic processes at the end of which are the products we call perception, attention, language comprehension and so forth. According to such standard (so-called first-generation) cognitive science, the mind is cleanly separable from the body. So-called second-generation cognitive science, now running parallel with new developments within the standard approach, researches perception, attention, language and so forth only inasmuch as they are deeply grounded in the body. One of its major research programs is therefore known as “embodied cognition.”⁶ For instance, under the traditional, first-generation view, visual perception may be defined as something like the retrieval and symbolic encoding of detached visual information from the environment.⁷ Under the embodied, second-generation view, it may rather be understood as a process in which possible patterns of first-person bodily interaction are mapped onto the environment directly. That is to say, an environment cannot be visually cognized without the (automatic) assessment of bodily actions it invites the cognizer, in her specific situation, to *do* (see Chapter 2 for more

⁶ Alternatively, embodied cognition is also known as “grounded cognition” (Barsalou 2008) or “situated cognition” (Robbins and Aydede 2008). It should be noted that second-generation cognitive science encompasses much more than the framework of embodied cognition. Its radical departure from the mind-is-a-computer metaphor has led, for instance, to a rediscovery of affect and emotion and its decisive role in human thinking (for a groundbreaking contribution, see Damasio 1994).

⁷ There were some famous exceptions to this view in the early days of cognitive science, such as James J. Gibson, the founder of ecological psychology (Gibson 1979), cognitive linguists George Lakoff and Mark Johnson (1980), or the team consisting of Francisco Varela, Evan Thompson and Eleanor Rosch (1991).

on this issue). Cognition is thus proposed to encapsulate the body and the bodily actions afforded by its surroundings.⁸

In a sense, mental imagery amounts to the experience of actually containing within one's body a piece of the outside world. Therefore, it is rightly considered one of the hallmark phenomena, and a key piece of evidence (see e.g. Wilson 2002), in the hands of second-generation cognitive science. But apart from what has been established, the business of defining second-generation cognitive science, or its view of mental imagery, is complicated. Second-generation cognitive science does not have a canonical theory of the mechanisms behind mental imagery (but see Kosslyn, W. Thompson, and Ganis 2006 for a comprehensive proposal made from within standard cognitive neuroscience). In fact, there is little agreement to date about the exact nature and extent of embodiment at large. As for mental imagery specifically, it is still mostly treated as an *explanans* – in visual cognition, language planning, language comprehension and so forth – rather than constituting a research subject in its own right. Maybe the invariants are too few for mental imagery to be investigated in aggregate. Could it be the case that the nature of what we call mental imagery varies deeply (even within discrete sensory modalities) depending on the overall purpose and situation? This intuition underlies much of the contents in this dissertation.

Owing to the relative lack of primary focus on mental imagery and to the theoretical disparity within the research framework of embodied cognition, the primary references to cognitive research cited in this dissertation will consist in isolated reports of experimental studies (neuroimaging, psychophysiological, behavioral, pen-and-paper, and so forth) rather than full-fledged theories. More ambitious theoretical writings will also be cited, including a few of those produced within first-generation cognitive science, but it should be noted that I do not necessarily embrace each and every one of the theories as a whole. In some combinations, this might be logically impossible. What is important is that the empirical evidence these theories were originally meant to elucidate, and the wording and style with which they do so, support what I have to say about experienced embodiment in the reading of literary narrative.

In each attempt at fusing literary theoretical speculation with (experimental) cognitive science, one could identify a host of methodological problems, starting from the trivial fact that the stimuli used in cognitive experiments usually do not bear the slightest resemblance to literary narrative. To get off the ground, I have chosen to accept most of these problems as a natural part of any interdisciplinary inquiry. In cognitive science, for instance, which is an interdisciplinary field in itself, it is perfectly normal to compare findings

⁸ Under a stronger view, the physical environment itself is sometimes proposed to be an integral part of the human cognitive system (for a review, see e.g. Wilson 2002).

from studies using very different stimuli and methodologies. However, there are two problems that I would like to mention at this point. I will call them the problem of *referential bias* and the problem of *consciousness*. For illustration purposes, let me quote two phenomena that significantly furthered, in two different stages, the research program of embodied cognition. Both belong to the domain of neuroscience that incidentally began to flourish, with fMRI and other new technologies, at about the time embodied cognition first became a widely accepted research program. Both are relatively well known by now, even readily cited by literary theorists.

The first phenomenon stood at the very beginning of second-generation cognitive science. I am thinking of the 1980s/1990s discovery, made by Rizzolatti and collaborators, of so-called mirror neurons. Mirror neurons, first identified in the macaque monkey, consist in cell populations in the parietal-premotor area that fire equally when an action (e.g. the grasping of a stick) is performed and when it is merely observed in a conspecific (for a brief introduction, see Gallese and Lakoff 2005). The discovery has had wide-ranging consequences for the study of empathy and other processes of social cognition, which were traditionally thought to be based on indirect, higher-order, abstract theorizing rather than grounded in direct perception. Eventually some premotor activity corresponding to that of mirror neurons was reported to occur in the processing of action-related verbs and phrases (Aziz-Zadeh et al. 2006). But literary scholars did not await these latter findings in speculating about the workings of the mirror neuron system in the reading of literary narrative, for instance in readers' empathizing with literary characters (Keen 2006). Overall, redefinitions of literary narrative in terms of social cognition generally and empathy specifically, with or without explicit reference to mirror neurons, have gained considerable popularity (e.g. Mar 2011; Oatley 2011) ever since. In some cases these redefinitions propose that the reading of literary narrative fosters empathy and social skill (Mar et al. 2006), or even altruistic behavior (Keen 2006), in real life. Some neuroscientists specializing in mirror neurons also draw the speculative conclusion that "when we read a novel, our mirror neurons *simulate* the actions described in the novel, as if we were doing those actions ourselves" (Iacoboni 2008, 94; my italics). One neuroscientist, Vittorio Gallese, even joined forces with a literary scholar, Hannah Chappelle Wojciehowski, in authoring a full-blown literary theoretical proposal along the same lines (Chappelle Wojciehowski and Gallese 2011; more on this below).

The second phenomenon that I would like to mention is so-called somatotopic cortical activation as observed in concept and language comprehension, including reading. For about a decade, accumulated evidence has been indicating that concrete language processing "mirrors" action (and perception) not only by virtue of mirror neuron activity. Apart from the proposed mirror neuron areas and the standard language areas of the brain, additional parts of the sensorimotor cortex become activated too. Importantly, the pat-

tern of activation reflects the nature of the action or perception referred to, so that upon the processing of, e.g., the verb “grab” (when used in literal, non-idiomatic phrases such as “grab the cake”, but not when used figuratively as in “grab the offer”), activity has been detected in the specific areas of the motor cortex responsible for hand movements (e.g. Raposo et al.; Pulvermüller). Convergent evidence pointing toward a general notion of such *embodied simulation* in language comprehension is now available from a variety of experimental contexts other than neuroimaging (measurements of covert muscle activation, behavioral experiments and so forth; for a review, see Fischer and Zwaan 2008).

In one fMRI study published in 2009 (Speer et al. 2009a), somatotopic activation was also confirmed to occur in the processing of connected verbal narrative, particularly in passages where new actions or objects enter the stage. For instance, when the story protagonist is reported to pick up an object, e.g., a textbook (the story was about seven-year old Raymond and the events of a day at school), this is reflected not only in the motor, but also in the visual area of the brain that would be active if the reader actually picked up the same object. The delayed extension of such findings to narrative was due to technical constraints; fMRI studies of connected discourse still verge on the impossible because the machinery is noisy, subjects are not allowed to move, and so forth. Similarly to the mirror neuron literature, this latter reference has already been adopted by literary theory (Wells-Jopling and Oatley 2012).

Further review of experimental evidence concerning mirror neurons, somatotopic activation (as defined above), and related phenomena will be provided in subsequent chapters. Let us now turn to the two problems arising from these phenomena, or more precisely, from their growing popularity among literary and other theorists: the problem of referential bias and the problem of consciousness.

1.3 Referential bias

As much as one should be impressed by the fact that the nonverbal, referential contents of narrative literature can be traced in one’s sensorimotor cortex, or even in one’s musculature, there is evidence pointing toward somatotopic and physiological activation of yet another kind: the *verbal* kind. That is, not only do we process sentences such as “He picked up his English workbook.” (Speer et al. 2009a, 991) in ways largely resembling the situations they refer to, we also process them in ways largely resembling the activity of reading them out loud, or listening to them as overtly spoken by somebody else.

It has long been suggested that the vocal apparatus and auditory circuitry are actively involved in language comprehension including silent reading (Baddeley, Eldridge, and V. Lewis 1981). In line with this theory, recent studies have shown that listening to speech activates the recipient's tongue muscles (Watkins, Strafella, and Paus 2003; Fadiga et al. 2002),⁹ that verbal auditory imagery activates the auditory cortex (for a review, see Hubbard 2010), and crucially, that silent narrative reading activates the temporal voice areas associated with speech perception (Yao, Belin, and Scheepers 2011). Simply put, silent reading entails "voices" in one's brain. The conclusion that narrative reading is a largely simulative and sensorimotor process thus applies to the verbal medium *as much* as it applies to referential contents. From the viewpoint of literary theory, traditionally studying the many different ways in which nonverbal contents can be verbally conveyed, this should make perfect sense. Yet, interestingly, verbal simulations have enjoyed far less popularity compared to their referential counterpart. In literary theory, at least as far as narrative prose is concerned, verbal simulations (and imagery) are largely unnoticed. This is what I mean by referential bias.

In a sense, the referential bias in current literary theory may be a direct effect of the preceding decades of verbal hegemony epitomized in structuralist and poststructuralist thinking. Also, it copies a general tendency in cognitive science, including standard theories of mental imagery, to privilege referential over verbal images, and, within the referential domain, to privilege the visual over other sensory modalities.¹⁰ One notable exception from this tendency is the dual coding theory of reading proposed by Mark Sadoski and Allan Paivio (2001; see also Figure 1), a uniquely integral¹¹ theoretical project bridging the intergenerational gap in cognitive science, both diachronically and synchronically speaking. Sadoski and Paivio postulate two parallel cognitive systems, the nonverbal (in my nomenclature: the referential) and the verbal, each with a potential to yield sensorimotor effects during reading (e.g. a visual image of a cup vs. the verbal auditory image /kup/).¹² Although

⁹ It has been suggested that speech perception may likewise involve mirror neurons (for a review, see Lotto, Hickok, and Holt 2009).

¹⁰ This is in line with how the notion of imagery is widely understood by the general public (see e.g. Connell and Lynott 2012).

¹¹ To my knowledge, there is no other unified theory of reading accounting for both referential and verbal imagery.

¹² My revision to Sadoski and Paivio's nomenclature is motivated by a shift in perspective. Sadoski and Paivio primarily construct a theory of reading and literacy, and they do it at a time when most cognitive scientists consider human thought to be essentially propositional, i.e., verbal. Their emphasis on the *nonverbal* is therefore natural. Meanwhile, my theses primarily concern mental imagery and are grounded in the framework of embodied cognition, where perceptual aspects of linguistic reference are assumed vital to human thought and language comprehension. The reason why I oppose the "referential" to the "verbal" rather than to the "nonreferential" should be evident: While referents fall outside the contents proper of what I call verbal imagery, an extended verbal stimulus probably would not be processed at

a major part of their imagery examples still belong to the referential domain and visual modality, other modalities and types of imagery are cited or at least recognized.

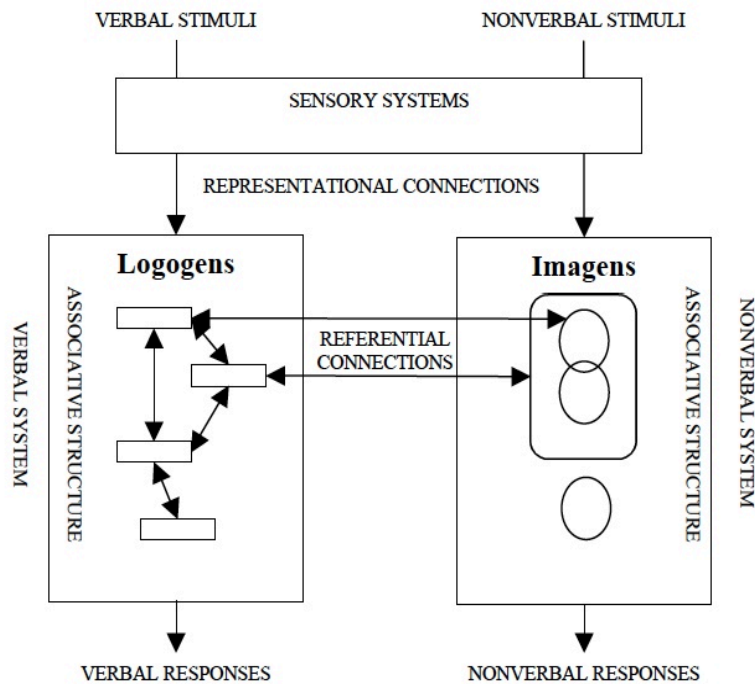


Figure 1 Sadoski and Paivio's general model of the dual coding theory (cited from Sadoski and Paivio 2001, 53). Under this model, what I have termed readers' referential imagery and simulation processes belong to the right-hand system, while the left-hand system accommodates imagery and simulation processes pertaining to the text as verbal stimulus.

In an attempt to further countervail referential bias, the present dissertation focuses on *both* referential and verbal mental imagery in the reading of literary narrative. If referential imagery is allowed more space (Chapters 2 and 3) than its verbal counterpart (Chapter 4), it is not because referential imagery is more common in the overall experience of reading (although it may be more expressly desired on the part of the reader; see Sections 1.7 and 1.8 below). It is because referential imagery is much more complicated technically. While verbal auditory imagery simply inheres in the fact that narrative

all if it were strictly non-referential, i.e., if it fully lacked reference. Moreover, terms such as "verbal auditory imagery" are relatively common in imagery research; "verbal imagery" should thus be perfectly understandable.

reading is a verbal affair, referential imagery requires additional transfer, a “referential connection” (see Figure 1) as Sadoski and Paivio might put it, between the verbal and the nonverbal cognitive systems. Verbal auditory imagery is naturally sequential, in a one-to-one analogy to reading itself. But the format of referential imagery is also spatial, one-to-many, allowing a greater variety of outcomes and lower predictability. Some conjecture that the two cognitive processes may be mutually constraining (Fischer and Zwaan 2008, 837), whereas Sadoski and Paivio suggest that the verbal and the nonverbal can operate independently of each other (Sadoski and Paivio 2001, 52). On the level of consciousness, both proposals may be correct in a sense (see Section 1.7 below).

1.4 Consciousness

Despite its undeniable positive qualities, even Sadoski and Paivio’s work is (partly) implicated in the second problem that needs to be mentioned at this point, i.e., the problem of consciousness. The problem arises whenever non-conscious mental processes on the one hand and conscious experience (i.e. processes at least partly noticeable to the subject herself) on the other are treated as if they were the same thing. For instance, neuroscience research of the kind mentioned above is often cited, especially outside the home discipline, with so much enthusiasm that the non-conscious processes central to this research – be they called “mental representation” as in first-generation cognitive science, including Sadoski and Paivio, or “simulation” as in the framework of embodied cognition – become more or less conflated with the notion of mental imagery.¹³ This happened when Speer et al.’s (2009a) fMRI study of somatotopic activation was first publicly announced in a newspaper article titled “Readers Build *Vivid* Mental Simulations of Narrative Situations, Brain Scans Suggest” (Everding 2009; my italics), stirring up a debate in literary theoretical circles (for further discussion of this event, see Ryan 2011). Obviously, the “vividness” ascribed in the article to somatotopic activation is an *experiential* category, while somatotopic activation is not. In a similar vein, literary scholar Hannah Chapelle Wojciehowski and neuroscientist Vittorio Gallese use the mirror neuron literature to support the conclusion that, “by means of the mirroring mechanisms,” literature “guides us into [...] imagined bodily *experience*” (Chapelle Wojciehowski and Gallese 2011; my italics). Without denying the importance of Speer et al.’s study or the mirror neuron paradigm, which is paramount to this dissertation, it is

¹³ Another terminological note is in place here concerning the related notion of imagination. Apart from the frequent conflation with mental imagery, imagination is also sometimes used as a synonym for consciousness (e.g. Edelman and Tononi 2000).

probably fair to say that few readers vividly experience covert muscular activity and other motor imagery *every time* they read about a boy picking up a textbook from a desk. To say that one's brain runs a simulation of X is not to say that one necessarily experiences X, or a mental image thereof. This distinction is not drawn often enough, or not explicitly enough. This is what I mean by the problem of consciousness.

In literary theory, the problem of consciousness may be explained by the simple fact that humanities in general are ill equipped, conceptually speaking, for dealing with subpersonal, i.e., non-conscious processes. Traditionally, the phenomena studied in literary theory are by definition subject to reflective thought, or some other form of conscious experience. They are amenable to self-report and introspection. The same cannot be said about cortical blood flow as monitored by fMRI. However, the conflation of mental representation/simulation with mental imagery and other conscious experience is not a problem restricted to the humanities. Cognitive experimenters themselves sometimes make similar rhetorical moves in both popular (e.g. Iacoboni 2008) and scientific (Zwaan and Madden 2005, 242) writing. While literary theorists (perhaps with the exception of psychoanalytic critics) tend to assume that consciousness is always there and directly accessible, cognitive scientists have traditionally been biased in the opposite direction. Their problem with consciousness amounts to the fact that, in the experimental cognitive sciences, the notion of consciousness has long been ignored or even expressly rejected. Only recently have experimenters begun to learn how to tackle first-person experience and introspection (Jack and Roepstorff 2003).

To return to the dual coding theory, Sadoski and Paivio are more careful than most other authors in both literary studies and cognitive science about drawing the line between non-conscious and conscious processes, but they are still ambiguous on this point. In some places (e.g. Sadoski and Paivio 2001, 53) they define imagery as a specifically conscious experience. However, they also seem to assume that the nonverbal (in my nomenclature: referential) imagery system is at work in all language comprehension, even when images are not expressly noticed by the comprehender (e.g. Sadoski and Paivio 2001, 74). This discrepancy may provoke questions: What exactly is a mental image if it is not consciously experienced? If we do not notice it, how do we know the contents are really there as an image, i.e., something to be perceived directly? How do we know they are not really a quick series of amodal propositions concerning perceptual knowledge that simply happens to be accompanied by somatotopic cortical activation or, in behavioral experiments, prime specific action?

The purpose of these questions, here and now, is mainly rhetorical. One should not worry about them too much. To some extent, mind/brain issues are always a matter of phrasing, and my own (intuitive) phrasing would not be much different from that of Sadoski and Paivio. As will soon become

evident, in what I have to say about mental imagery in the reading of literary narrative, I too rely heavily on evidence from non-conscious phenomena. In stressing the question of consciousness, my objective was not to challenge the dual coding theory, or second-generation cognitive science, or the aggregate of cognitive literary theory for that matter. My objective was to show *that* and *why* I will only be using evidence from non-conscious phenomena in order to add weight to *prior*, i.e., independent, introspective observations, or to observations loosely inspired by the theoretical questions asked in experimental cognitive science. I will only be using this evidence in order to suggest which subpersonal cognitive and psychophysiological processes may underlie the conscious experience in question. That is, I will not proceed the other way around, from non-conscious evidence to introspective support, as would be the case in standard cognitive science (and in some cognitive literary theory; see Cohen 2010 for examples). Thus, I will follow cognitive researchers Anthony Jack and Andreas Roepstorff, who argue that, “[w]here experiential phenomena are concerned, it is objective measures that must seek validation by establishing their correspondence with introspective measures, and not *vice versa*.” (Jack and Roepstorff 2003, xiii)

1.5 Rationale

It is only rational that literary theorists who draw on cognitive science in order to describe the effects of literary narrative should clearly state what their primary source of insight is, whether it is subpersonal scientific evidence or something else. With experiential phenomena such as imagery or empathy, imagery’s more popular relative, it also makes sense that the primary source of insight is not subpersonal scientific evidence. This is because experience is first-person and utterly private and it is there regardless of what comes out of a brain scan. Still, between the two above-mentioned experiential phenomena, i.e., mental imagery and empathy, mental imagery may be special in this respect, because mental imagery and empathy are not of the same order. Consider this: You cannot be wrong about having experienced a mental image, e.g., when reading about seven-year old Raymond in Speer’s experimental stimulus, picking up his English workbook from a desk. Similarly, you cannot be wrong about having responded with feeling in that moment (the episode is not totally free of affect, as Raymond acts “seemingly without any disappointment or anxiety”; Speer et al. 2009b). However, you can be wrong about your feeling having been an empathetic one. Upon further reflection, e.g., during class discussion, it can always turn out you were a poor (mind-)reader and misconstrued much of a literary char-

acter's motives and emotions.¹⁴ Of course, a mental image can also be mistaken. For a long time I used to form images of moose whenever I read "reindeer." But my moose were mental images proper, while false empathy, though still a feeling, is no empathy.

Judgements regarding the presence or absence of a mental image *qua* experience cannot be corrected from the outside, and mental imagery is therefore even more inextricably linked with consciousness than is empathy.¹⁵ The questions asked here about mental imagery in the reading of literary narrative, if they are to be meaningful at all, will necessarily be shaped by this pre-requisite. I repeat the initial list of questions from Section 1.1 above:

- a) What are the basic varieties of mental imagery in the reading of literary narrative?
- b) By what contents or narrative strategies are they likely to be prompted?
- c) What is it like to experience a mental image of a particular variety?
- d) What are its psychophysiological underpinnings?
- e) How does a mental image of a particular variety relate to perception?
- f) How does it relate to higher-order meaning-making?

Questions a) and d) have already been commented on or even partly answered in the preceding Sections 1.2 (d), 1.3 (a) and 1.4 (d). As regards question a), we have seen that mental imagery in reading can basically be divided into the referential and the verbal. As regards question d), we have seen that referential imagery presumably feeds on (among other things) somatotopic cortical activation in the sensorimotor cortex, while verbal imagery may rather feed on activity in the cortical areas specialized in hearing in general and speech perception and speech production in particular. Let us now turn to questions b) and c). By what contents or narrative strategies are the particular image varieties likely to be prompted? What is it like to experience a mental image of a particular variety? When it comes to the treatment of questions b) and c) in literary theory, relevant literature will be cited piecemeal further down, in Chapters 2-4. But because they are both specifi-

¹⁴ It is therefore doubtful that the reading of literary narrative should necessarily foster empathy, or even altruistic behavior, in the reader.

¹⁵ Also, the use value of mental imagery may be less obvious than the use value of empathy. Long-term effects of mental imagery on the reader, while perfectly plausible, are thus not in the center of researchers' attention. However inconspicuously, mental imagery is useful nevertheless, even from a practical point of view. For instance, susceptibility to mental imagery, which presumably increases with exposure to literary narrative (Kuzmičová, Dixon, and Bortolussi 2012), has long been known to enhance text comprehension and learning in children (e.g. Gambrell and Bales 1986; Anderson and Kulhavy 1972). From the viewpoint of narrative pragmatics, ideologists may be interested to know that imagery has been found to positively affect both content memorability (e.g. Marschark and Hunt 1989) and persuasiveness (e.g. Green and Brock 2000).

cally literary and empirical at bottom, a few words ought to be said at this point about how they have been approached in empirical literary studies. Empirical literary studies are as yet a relatively small research field operating at the confluence of, among other disciplines, experimental psychology and literary theory. Their primary area of interest is literary reader response, with quantitative questionnaire analyses (e.g. Bortolussi and Dixon 2003) and qualitative analyses of free verbal protocols (e.g. Miall 2006) as their principal research methodologies. Their main asset compared to standard cognitive psychology is that their experimental setups adhere more closely to the authentic reading situation. Entire literary texts or larger portions thereof are often used as stimuli.

As previously mentioned, it would be counterintuitive to claim that all the proposed embodied simulations, the referential as well as the verbal, constantly elicit mental imagery. If this were the case, the reader's mind, limited as it is in attentional resources, would be completely overtaxed. On the other hand, most of us would agree that at times, mental imagery indeed arises. So when does it happen? Based on empirical research investigating readers' responses to extended narrative (literary or otherwise), the following contents or aspects of narrative structure have been found to yield particularly strong referential imagery effects: climactic events (Sadoski et al. 1990), figurative language (Long, Winograd, and Bridge 1989), and concrete (as opposed to abstract) vocabulary (Sadoski, Goetz, and Fritz 1993; in this study, imageability is an assumed rather than measured characteristic of concrete vocabulary, while measured variables include readers' interestingness ratings and memory performance).¹⁶ To my knowledge, imagery of the verbal variety, i.e., readers' vicarious hearing of the words on a page, has not been investigated empirically in relation to narrative.¹⁷

In other words, extant empirical findings regarding imageability in narrative are neither surprising nor many. This is because primary focus on narrative imageability overall is relatively uncommon in empirical literary studies. When mental imagery is brought up at all, it is usually conceptualized as one of many dimensions on a scale devised to measure a more complex cog-

¹⁶ Concreteness has recently been proposed, in non-literary/non-narrative experimental context, to be outperformed by so-called perceptual strength. This means that abstract vocabulary is proposed to prompt just as much imagery as concrete vocabulary, provided it is perceptually salient, especially when strongly linked to one particular sense modality (e.g. "noisy"). Conversely, concrete words lacking in perceptual strength (e.g. "air") have been found to generate little imagery (Connell and Lynott 2012).

¹⁷ A few empirical studies have been conducted focusing on the effects of specific phonemic patterns on interpretation and affective response (for a review, see Miall 2006, 173–188). However, these studies are inconclusive as to whether these patterns are assumed to inform the reader's consciousness directly.

nitive phenomenon, such as narrative transportation (Green 2004)¹⁸ or perceived literariness (Miall and Kuiken 1995). As a consequence, researchers rarely ask subjects to do more than simply report if and to what extent (on a scale from 1 to n) a given stimulus text “calls up images” in their mind (e.g. Miall and Kuiken 1994). This of course tells the researchers nothing about what it is like, in terms of experience, to have these images and what they are really images of.

That is to say, although literary reader response experiments are mostly clear with regard to the problem of consciousness in that they deal with readers’ conscious self-report, they have a nested consciousness deficit in that they fail to account in any detail for the felt quality of the reported experience.¹⁹ In pursuit of their own research objectives, few researchers worry about this deficit, even though mental imagery in the reading of literary narrative is known to be, firstly, extremely common, and secondly, one of the two things people usually remember about their reading experiences in the long term (the other one being empathy; Kuijpers under review). What reader response experiments have shown about the truly experiential quality of narrative mental imagery can be mostly just gleaned from correlations. As previously mentioned, it has been found that imagery is locally correlated with affective appraisal (Krasny and Sadoski 2008; Sadoski, Goetz, and Kangiser 1988); but again, affect is not really a quality inherent to sensorimotor imagery *per se*.²⁰

This dissertation tries to come to terms with the situation. As previously said, the general approach applied here is one of introspection. Although much of it is inspired or informed by writings in the philosophical tradition of phenomenology (e.g. Casey 2000), it is certainly not strictly speaking phenomenological. Still it is meant to be principled and systematic, and to offer a reflexive but far from uninvolved (see Ihde 2012: 32) account of the straightforward experience of literary narrative reading. It is also driven by pragmatic concerns in that it starts from things ordinary readers may say about their mental imagery experiences: As I was reading such and such, it felt as if I was really *there*, people may say for instance. The descriptions were so vivid they really made me see *it*, people may say. I could hear *voices* in my head, people may also say. For what I know, this dissertation is one of

¹⁸ Transportation is a term sometimes used to refer to the depth of the reader’s overall involvement in a narrative.

¹⁹ For a remarkable exception, see the studies of Mark Sadoski and collaborators (1988) and Karen Krasny and Mark Sadoski (2008), where subjects were asked to rate imageability in general *as well as* describe it freely in more specific terms.

²⁰ To be clear, I do not wish to deny empirical literary studies their scientific merit. Yet, having also conducted an experiment in which imagery was rated on a numerical scale (Kuzmičová, Dixon, and Bortolussi 2012), I realize the paucity of information thus obtained.

relatively few attempts, in some cases (Chapter 4) perhaps the first one, to further question what lies in these statements, and how informative they are.

Stemming from literary theory initially, the approach taken in this dissertation does not meet the standards of empirical science. On the other hand, it allows one to think about phenomena that may be near-impossible to investigate experimentally (despite there currently being a progressive phenomenological strand in empirical literary studies, see e.g. Sopčák and Kuiken 2012). The above-mentioned straightforward reading experience to be accounted for is, obviously, largely my own. That makes the dissertation a risky business. Readers can always disconfirm introspective observations, partly or across the board. Experience from previous critical encounters suggests that objections may roughly follow two lines.

Firstly, some may object that the sort of imagery experiences to be described below presuppose abnormal levels of imaging and embodied awareness overall. Not all readers would spontaneously report experiencing mental imagery, vivid or not. Alternatively, some readers may recognize imagery experiences of one particular kind but not others. This criticism is fair enough. Susceptibility to mental imagery is indeed known to vary across individuals (e.g. Sadoski and Paivio 2001, 74), people are sometimes divided into visual vs. verbal learners (e.g. Sadoski and Paivio 2001, 58), some cross-cultural variation is likely, and so forth. Reams of psychological literature are available on such individual differences, although it has also been shown that there are very few non-imagers in the absolute (Marks 1973). This dissertation does not aspire to cover everybody's narrative reading experiences. It does aspire, however, to cast light on the experiences of those readers who may call themselves imagers at large.²¹ Although I have no intention to impose a norm, I do not believe mental imaging is an immature or superficial form of reader response as some literary theorists have suggested (see e.g. Esrock 1994, 180), and I am inclined to suggest that it enriches one's reading experience indiscriminately on its aesthetic dimension.

A second line of criticism may evolve in response to the contents of this dissertation. There may be readers who will agree with me on the general depth and variety of imagery phenomena to be described, but disagree with my specific descriptions of these phenomena in ways unaccounted for by the most generic cross-population differences (low vs. high imagery susceptibility, tendency for schematic vs. replete imaging, visual vs. verbal mental style, etc.). My suggestion then is that they try to formulate, publicly or only for themselves, which ones of my conclusions they disagree with, and why.

²¹ If interested, others may consider the possibility of actively boosting their own embodied awareness, and with it presumably also their imagery capacity. Interviewing strategies have recently been designed in the experimental cognitive sciences that enable participants to heighten their embodied sensitivity in a comparably non-intrusive way (Petitmengin 2006).

This would be a particularly welcome sort of critical response. It would mean that half of my objectives were fulfilled notwithstanding, i.e., the objective of turning others' attention toward what, when and how they mentally image in the course of reading. It would prove that language (in this case, the words that combine into the whole of this dissertation) can do to mental imagery what it has been proposed to do to feelings: not only describe them, but also "constitute, clarify, and enhance them," and perhaps even "induce novel and often surprising experiences" (Colombetti 2009, 4). Why may objections of the latter sort be considered a proof of the ability of language to clarify one's mental imagery experiences? Because, with some notable exceptions (Gleason 2009; Scarry 1999), there is little evidence that mental imagery in the reading of literary narrative is commonly reflected upon in such detail as below.

With regard to the sort of detail to be scrutinized, preliminary comment is still on hold for questions e) and f) in our list: How does a mental image of a particular variety relate to perception? How does it relate to higher-order meaning-making? Other detail will likewise be heeded, but these two questions are somewhat more central than others. However, the significance of each of the two questions, and thereby also their meaning, changes substantially according to which generic variety of mental imagery we are talking about – referential or verbal? – and which specific (sub-)variety of the two varieties it is. Before explaining these asymmetries, let me therefore proceed to a typology that will chart the range of mental imagery experiences in the reading of literary narrative. There will be four rather than only two basic varieties.

1.6 Mental imagery experiences: the four varieties

Until this point I have discussed two varieties of mental imagery: the referential and the verbal. The referential and the verbal may be understood as two possible values of a variable called, for instance, *the domain of imagery*. If we are to answer the questions central to this dissertation, however, identifying the domain of imagery is not enough. For instance, consider the following snippet from Ernest Hemingway's novel *The Garden of Eden*:

The breeze from the sea was blowing through the room and [David] was reading with his shoulders and the small of his back against two pillows and another folded behind his head.
(Hemingway 1995, 45)

Suppose the hypothetical reader of these two lines focuses, as most readers usually do, on the one human character present on the scene. The reader-

imager may then easily form a referential image of David as conjured from within: enacting David's familiar body posture; experiencing the breeze and the pressure of pillows against his back and head, a quick view of the pages in David's book, perhaps even a glance of the indistinct furnishings of a room. Alternatively, one may form an image of the scene as conjured from without: visualizing a sketchy male figure half-sitting on a sofa or bed, a book in his hands, a pillow behind his head (the ones behind David's back are likely occluded unless he is visualized from the side rather than *en face*). Obviously, these two images, albeit equally referential, yield qualitatively very different experiences. One puts you in David's shoes, the other does not; or, as Hartley Coleridge put it, one makes you an *actor*, the other makes you a *spectator* of sorts. Therefore, it is necessary to introduce a second variable. This second variable will henceforth be referred to as *stance*.

Stance in mental imaging can be either *inner* as in the former image of David conjured from within, or *outer* as in the latter image of David conjured from without. That is, although all mental images are necessarily internal to the imager's body, their contents differ in the degree to which the imager's body is felt to be *actively* at work. Taken together, the two variables, domain of imagery and stance,²² effectively slice up the field of our imagery experiences into four, combining in four possible ways into four distinct imagery varieties. Let us now proceed to a systematic overview, and further characterization, of the four varieties. And let us keep in mind from the very beginning that, even though separated here for the sake of clarity, the four varieties characterized below are meant to serve as prototypes only, constituting in fact a continuum of sorts (see also Section 1.6.5 below) and thus allowing for quick transitions and in-between experiences. For a demonstration, consider the continued quote:

The breeze from the sea was blowing through the room [A] and [David] was reading with his shoulders and the small of his back against two pillows and another folded behind his head [B]. He was sleepy after lunch but he felt hollow with waiting for her and he read and waited. Then he heard the door open and [Catherine] came in and for an instant he did not know her. She stood there with her hands below her breasts on the cashmere sweater and breathing as though she had been running.

"Oh, no," she said. "No."

²² There is also the important variable of sensory modality. Is the image in question visual, auditory, olfactory, gustatory, tactile, motor and so forth, or alternatively: which of these modalities does it combine? Sensory modality will, however, be treated in the present chapter as a dependent rather than independent variable, since it combines with the previous two variables in largely predetermined ways. For instance, a verbal image cannot be olfactory or gustatory. An interesting exception may perhaps be found among the anomalous experiences of synesthetic readers.

Then she was on the bed pushing her head against him saying, “No. No. Please David. Don’t you at all?”

He held her close against his chest and felt it smooth close clipped and coarsely silky and she pushed it hard against him again and again.

“What did you do, Devil?” [C]

She raised her head and looked at him and her lips pressed against his and she moved them from side to side and moved on the bed so her body was pressed against his. [D]

(Hemingway 1995, 45; my italics)

Briefly, here is what is happening in this inconspicuous but far from trivial passage (see also Chapter 4, where this excerpt is reused): David and Catherine are on honeymoon. It is the 1920s. Unexpectedly to David, Catherine comes home one day with her hair cut short in a new, provocative way.

Depending on various circumstances pertaining to the individual reader’s moods and inclinations as well as to the unique dynamics of each particular reading session, the passage may prompt the following varieties of imagery.

1.6.1 Enactment-imagery

Enactment-imagery is the former of the two varieties exemplified in 1.6 above: it belongs to the *referential* domain and it is experienced from an *inner* stance. It amounts to vicarious experiencing proper of the referential contents of a given passage. For instance, upon the reading of Segment [B] above, a reader imaging in the enactment mode may adopt David’s first-person sensorimotor experience so closely as to feel the pressure of a pillow against her neck, or squint imperceptibly in an attempt to fixate on the letters in David’s book in the shade of an afternoon (we have been told at this point that the room has sunshine in the morning).

Enactment-imagery is probably the dominant aspiration of modern literary prose with respect to referential imaging, and it is often considered one of the most aesthetically rewarding experiences (e.g. Collins 1991, 96). It tends to be experientially very rich and robust and it is commonly remembered in the long term (see Sadoski, Goetz, and Kangiser 1988). In spite of, or perhaps by virtue of, its experiential richness, it is felt to be extremely short-lived during the very act of fluent reading. It is multimodal, often fusing many different sensorimotor modalities, external (e.g. the sight of letters on a page) and internal (e.g. the position of one’s arms when holding a book, and the muscular tension therein). Whenever such fusion takes place, a sense of first-person *presence* arises relative to the virtual environment of the story (for more on the notion of presence and its ties to enactment-imagery, see Chapter 2). For a brief moment, then, you are really there, in the shoes of an experiencer, in the storyworld, physically linked to David’s (imaged) pillows behind your back and his (imaged) book in your hand. The link between the

experiencer (and thus also the reader) and the imaged environment need not be “literally” physical such as the one between David and his book. Sometimes it is enough that a literary character is simply referred to be looking at something, or even just reflecting upon it, for the reader to enact the character’s embodied stance *vis-à-vis* this something. The presence of an experiencer (or a strong implication thereof) in the text is, however, a pre-requisite of enactment-imagery.

Enactment-imagery is felt to occur spontaneously, surprising the imager at times, and seemingly without much cognitive effort. In important ways, enactment-imagery mimics direct perception, it is perceptually mimetic (for more on the notion of perceptual mimesis, see Chapter 3). It entails a sense of medium transparency. In the instant of experiencing enactment-imagery, the reader-imager comes as close as one possibly can to forgetting that the experience was in fact mediated by a string of words on a page. The imager is directly situated with regard to the storyworld, experiencing no mediating filter between her embodied mind and the referential text contents. With respect to the narrative at large, the image in turn is perfectly situated, fitting seamlessly into the surrounding flow of reading experience. The last two observations will gain further clarity upon comparison with the next imagery variety, description-imagery.

1.6.2 Description-imagery

Description-imagery is the latter of the two varieties exemplified in 1.6 above. It belongs to the *referential* domain and it is experienced from an *outer* stance. Outer stance refers not only to the fact that the internal senses are shut off in description-imagery, which employs the visual modality alone. It also points to the fact that, as a consequence, the imager’s embodied mind is situated outside the storyworld.²³ Let me restate my above example. My contention that David, in Segment [B], can also be imaged from without clearly suggests that even though the explicit or implicit presence of an experiencer (in this case, David) is a necessary pre-requisite of enactment-imagery, it is not a sufficient pre-requisite. That is, experiencers can also be imaged outwardly as objects of description, rather than inwardly as subjects of sensorimotor experience proper. This is at the core of description-imagery.

²³ A similar distinction, within the realm of free visual imaging, is drawn by philosopher Bernard Williams (1999, 39). Williams argues that one can visualize an object (e.g. a flower on a desert island) as perceptually experienced by oneself from within an imaged world (my enactment-imagery), or without any perceptual involvement in the imaged world, i.e., without imaging one’s own visual perception of the object (my description-imagery).

Description-imagery shares some characteristics of enactment-imagery in that it yields visual images of objects extended in space, but it is not enactive because the experience differs in important ways from direct perception. One of the main differences is that the verbal medium is not felt to be fully transparent. Rather than approaching the stretch of text as someone who is experiencing the contents of the mental image directly, the reader thus approaches it as someone who is being verbally informed of an object (or, in this case, a human character) having such-and-such properties or behaving in such-and-such manner. For instance, when processing Segment [B] above, the visualization of a sketchy male figure reading with a pillow behind his head is then experienced as a compliant response to somebody's (the author's or narrator's) instructions (see also Scarry 1999, 199) to form a visual image of a male figure reading with a pillow behind his head. Therefore, the image is not experienced to have arisen spontaneously, or not particularly so. Rather, the reader becomes aware of the cognitive effort invested in the imaging process. The pace of reading is felt to have slowed down as the image is being consciously conjured in the reader's mind. As a consequence, the image lacks the experiential richness of enactment-imagery.

I have suggested above that enactment-imagery is cued by references to literary characters having sensorimotor experiences, especially when physically linked to the environment by way of direct interaction (e.g. by virtue of being seated with pillows amassed behind their back, holding a book in their hand). What kind of cues, then, would typically prompt description-imagery? Given the multimodal sensuous qualities of Hemingway's prose, especially the introductory reference to breeze inviting the reader to form a cutaneous enactment-image from the outset (Segment [A]; see also Section 1.6.5 below), the rendition of David provided in Segment [B] is not a very good example. As it is, Segment [B] is much more likely to prompt enactment-imagery. But imagine an alternative version of Hemingway's passage, one in which the pillow behind David's head is minutely described in several long sentences detached from any sense of a person's perception, action or reflection, e.g., as being folded in a particular way and tilted at a particular angle, the decorative pattern of the case consisting of minuscule florals of such-and-such colors forming such-and-such complicated ornaments. In this version, that Hemingway personally would never have written, the flow of narration would be interrupted by a static, thickly descriptive bit. Such are probably the passages that most often (but far from always) prompt description-imagery, especially when centered around isolated inanimate objects (rather than people or larger spatial configurations, see also Section 1.6.5 below), which cannot be imaged from within.

To the extent that a description is noticeable as a pause in narrative, a description-image is not always organically situated (in contrast to enactment-images) with respect to the preceding flow of reading experience. It may

rather be perceived as a semi-autonomous experience. Nor is the reader-imager's embodied mind situated with respect to the referential contents directly, but only through a filter of verbal communication. At times, this filter itself becomes the object of the reader's mental imagery, while the referential contents of a description (or other text structure) fade away from, or simply never enter, the reader's conscious imagery (for more on description-imagery, see Chapter 3).

1.6.3 Speech-imagery

This is where we are entering the domain of verbal imagery. The first variety to be discussed is speech-imagery. Speech-imagery is *verbal* and it is experienced from an *outer* stance. What does it mean? It means that speech-imagery yields verbal auditory images with only a moderate degree of embodied agency. More specifically, it puts the reader in the position of a vicarious *listener*, someone who is receiving the text as if it were spoken out loud by an extraneous speaker. So, upon the reading of Segment [B], the reader may suddenly feel as though she were hearing the voice of an impersonal narrator, telling her about David spending his afternoon with a book, a bunch of pillows behind his back. In retrospect, during a brief instant of mental retention occurring now and then throughout the act of reading, the reader may even have the impression that there was actual pitch, timbre, volume, pace and so forth to the narrator's voice.

Again, given the referential suggestiveness of Hemingway's prose, this variety of imagery may not be terribly likely to occur with Segment [B] unless the reader is specially predisposed, for instance by a particular weakness for rhythm, or by having previously heard the elegant audio edition of the novel (Hemingway 2006). Speech-imagery is, on the other hand, quite likely to occur with Segment [C] in the same passage ("What did you do, Devil?"). Then of course it is not the bland voice of an impersonal narrator what the reader images to be hearing (see also Section 1.6.5 below), but the manly bass (or whatever voice type the reader happens to fancy) of a full-blooded character, David. In typical speech-imagery cues such as David's question, a higher degree of orality is detectable compared to most other instances of literary narrative, including Segment [B].

In speech-imagery, the verbal medium can never be experienced as fully transparent, because language, or human speech more specifically, constitutes the contents proper of a verbal image. However, speech-imagery may still seem comparably immediate, because it comes on quickly, spontaneously and without effort. Therefore, it may also be experienced as relatively robust in terms of experience, despite being limited to the auditory modality. Similarly to description-imagery, the situation of the reader is a communicative one rather than one of a direct (referential) experiencer. Similarly to

enactment-imagery, speech-imagery is very short-lived, as it is perfectly situated with respect to the surrounding flow of narrative experience. No lags, delays, or pauses in the flow need to arise for speech-imagery to become fully experienced.

In fact, speech-imagery marks a degree of situatedness often accompanied by referential imagery of the communicative situation (which is not to be confused with imagery of the referential contents proper). That is, the reader may not only hear David utter his question, but also *see* him do it (or alternatively see Catherine, David's interlocutor, or both as engaged in their conversation). Needless to say, this combinability of speech-images with various nonverbal images of communicative situation does not make such speech-images referential *per se*. As long as an image represents the sound of a circumscribed verbal structure ("What did you do, Devil?") rather than its nonverbal contents (hard to define as they are in the case of a question), it will always remain, with regard to that particular structure, a strictly verbal image.

1.6.4 Rehearsal-imagery

Rehearsal-imagery belongs to the *verbal* domain and it is experienced from an *inner* stance. That is, while the voice imaged in speech-imagery belongs to a speaker outside the reader's body, putting the reader in the position of a vicarious listener, the voice imaged in rehearsal-imagery belongs to the reader, putting her in the position of a vicarious *speaker*. The distinctive corporeal feature of rehearsal-imagery *vis-à-vis* speech-imagery is that it is consciously felt to deploy the reader's vocal cords and the muscles in her mouth and throat. It is literally inner in that it originates in the reader's articulatory apparatus. Thus rehearsal-imagery is not only auditory, it is also, and necessarily, kinesthetic. There need not be much of a voice for one to experience rehearsal-imagery, as long as one "feels the vibes." In fact, there cannot be as much voice as in speech-imagery (the pitch, timbre, volume, pace and so forth), because the only sound to be imaged is the reader's own subvocalizing. When it comes to hearing, subvocalization is perceptually impoverished. It may have rhythm, but not a full-fledged melody, for instance.

Compared to the other three imagery varieties, rehearsal-imagery may be slightly more difficult to predict based on text cues alone. Depending neither on the referential imageability of the text contents (as enactment- and description-imagery do) nor on the notional presence of a distinct speaker (as speech-imagery does), rehearsal may be allocated much more randomly. Still, in its context, Segment [B] may not be the most persuasive example of a sentence to prompt rehearsal-imagery. Segment [D] should work a little better: "She raised her head and looked at him and her lips pressed against

his and she moved them from side to side and moved on the bed so her body was pressed against his.” Rendering in so many words an event that intuitively should be referentially quite imageable, the length of this sentence is likely to make some readers impatient. Another way to put it: Because of its syntax, the sentence is in particular need of explicit rhythm and parsing, for both of which it depends on the reader’s articulatory apparatus. For optimal comprehension, many readers may thus experience sentences akin to the present one by way of rehearsal-imagery.

Similarly to description-imagery (as compared to enactment-imagery), the embodied experience of rehearsal-imagery entails significantly more cognitive effort as compared to speech-imagery. Reading is felt to lag behind the text as it were, because this is where the limits of the verbal medium are tried, the reader becoming fully aware of language in its opacity. With the reader’s own vocal apparatus as its medium proper, the mental image feels far from spontaneous or immediate. The reader’s experience is non-situated both with respect to the preceding flow of reading overall and with respect to the referential contents of the image. For at the very point of experiencing rehearsal-imagery, the reader imaginatively partakes neither in direct perceptual experience nor in communicative speech, as the words are being mouthed over for her to make any basic sense of them at all.²⁴ Although weak in terms of auditory perception, rehearsal-imagery is an imagery variety nevertheless. In certain markedly literary types of narrative prose (see also Section 1.7 below), it may also be the dominant variety (for more on speech-imagery and rehearsal-imagery, see Chapter 4).

²⁴ Subvocalization resembling of the corporeal basis of rehearsal-imagery is sometimes involved in what may provisionally be termed speech-enactment-imagery. For instance, as a result of Hemingway’s subtle casting of the situation, David’s question in Segment [C] can in fact be enacted from David’s perceptual *and* communicative vantage point. That is to say, the reader can adopt the doubly inner stance of a speaker-*cum*-experiencer without the verbal medium of literature seeming in the least opaque. Segment [C] taken in isolation, this imagery experience may superficially seem to correspond to rehearsal-imagery. Yet, from the viewpoint of the broader situation encompassing several sentences preceding Segment [C], it may rather be defined as anything *but* rehearsal-imagery. (I am grateful to Martin Pokorný for bringing this to my attention.) The focus of this dissertation being the basic varieties of mental imagery, a fuller analysis of such complex, composite imagery experiences has yet to be elaborated.

1.6.5 Imagery continuum and in-between experiences

<i>Variety</i>	Enactment-imagery	Description-imagery	Speech-imagery	Rehearsal-imagery
<i>Continuum</i>				
<i>Domain</i>	Referential		Verbal	
<i>Stance</i>	Inner	Outer	Outer	Inner

<i>Medium awareness</i>	Low High			
<i>Image situated (vis-à-vis preceding experience)</i>	Yes	No	Yes	No
<i>Reader's situation (vis-à-vis referential contents)</i>	Direct	Communicative	Communicative	---
<i>Typical cue</i>	Character/storyworld interaction	Static object description	Oral style	---

Figure 2 Imagery continuum

My above descriptions of the four imagery varieties are summarized in Figure 2. Apart from imposing a much needed order onto the many distinctive qualities and variables recounted above, Figure 2 puts additional emphasis on an aspect hitherto unspoken: the four imagery varieties can be conceptualized as interlinked in a single experiential continuum. That is, what the double-headed arrows in Figure 2 are meant to show is that each pair of adjacent varieties may sometimes be experienced to shade off into each other in the fluent course of reading. One could speculate that within the two basic domains of imagery, the referential and the verbal, such transitions may be experienced as relatively smooth (but see Chapter 4), whereas between the two domains, they may be more readily perceptible. Between domains, they may require an instant of imageless processing so as to allow the reader time for a (presumably cognitively taxing) figure/ground reversal from the referential to the verbal or *vice versa*. In addition, the double-headed arrows re-

mind us that what was described in Sections 1.6.1 to 1.6.4 are just prototypes, and that various kinds of in-between experiences are conceivable, at least within domains, combining the properties of two different imagery varieties.

Logically speaking, it would not make much sense to talk about “prototypical” in-between phenomena. However, let me single out one possible case of in-between imagery for each domain. Starting with the referential domain, what kind of experiences may be located in the midst of the arrow that links enactment-imagery with description-imagery? I have proposed that enactment-imagery, amounting to first-person enactment of the embodied stance of a direct experiencer, requires that the presence of an experiencer is indeed mentioned, or strongly implied, in the text. I have also proposed that description-imagery, amounting to visualization from the perspective of an extraneous spectator, is most reliably prompted by descriptions (detailed) of inanimate objects, which cannot possibly be imaged from within.

Then how about descriptions (more or less detailed) of spatial configurations such as rooms, buildings, landscapes and some such? Even though they refer to the inanimate, they certainly can be imaged from within. To the extent that an impersonal description of an uninhabited space seems compelling, the reader can therefore readily adopt the vantage point of a direct experiencer-spectator without necessarily adopting the vantage point of a literary character. This is the kind of image one may easily form for Hemingway’s Segment [A] if read in isolation (“The breeze from the sea was blowing through the room”). Technically, this image would be neither an enactment-image nor a description-image, feeding primarily on the cutaneous sense and only very little on the visual.²⁵

For some, the in-between experience may even persist throughout the subsequent Segment [B], the reader instantaneously becoming a quiet spectator watching David from somewhere in his room. That is, due to the introductory reference to breeze, the improbable description-image of David defined in Section 1.6.2 would in most cases rather correspond to this in-between variety. However, if this in-between imagery were to be reliably sustained, Segment [B] would probably need to refer to inanimate objects only, or alternatively, render the human character (or several characters, thus complicating the process of perspective-taking) more generically, e.g.:

²⁵ That is to say, I am only moderately inclined to adopt the idea (e.g. MacWhinney 2005) that all language comprehension involves distinct perspective taking, unless this idea is simply meant to suggest that human comprehenders cannot step outside their own bodies. Analogously, it is hard to imagine non-inferential, direct perception of a breeze from outside a breeze.

The breeze from the sea was blowing through the room and *a man/two people was/were* reading with *his/their* shoulders and the small of *his/their* back against two pillows and another folded behind *his/their* head.

In any case, such outer image would only persist until the first mention, in the subsequent sentence, of David's inner feelings of being sleepy and hollow. That mention reliably locates the perceptual center inside David's body, arousing enactment-imagery instead.

In-between experiences may also occur in the verbal domain. In fact, one such experience has been described (or nearly so) in Section 1.6.3 above. I am thinking of the kind of speech-imagery (or nearly so) one may experience when mentally imaging sentences that can only be attributed to impersonal narrators, e.g., the one informing us about David's quiet afternoon. The voice of this modern, ontologically indistinct sort of narrator who does not make the slightest effort to introduce him- or herself as a speaker in his or her own right (e.g. by overtly commenting on what is happening, or addressing the "Dear Reader") may often sound rather bland, impoverished, impersonal. More precisely, albeit seemingly extraneous to the reader's body, the only voice imaged in many such scenarios is the reader's own sub-vocalizing. Strictly speaking, this variety of verbal mental imaging corresponds neither to speech-imagery (it is not properly voiced) nor to rehearsal-imagery (first-person articulatory activity does not reach the reader's consciousness).

Unlike the referential kind of in-between imagery often prompted by spatial description, this verbal kind of in-between imagery cannot be easily predicted to occur with a specific type of text cue. It can only be predicted in a most generic way, by saying that it is likely to occur when the narrator is ontologically indistinct, refraining from judgement, commentary, and oral residues of the "Dear Reader" family (see also Section 1.8 below).²⁶ Like in the referential domain, the boundary between what is prototypical and what is in-between is thin, partly because transitions happen in a matter of milliseconds. It may even seem hairsplitting, which is why in-between varieties were not plotted onto the continuum in Figure 2, and why they will not be explored in subsequent chapters. Like in the referential domain, moreover, my last example of in-between imagery experience makes it obvious that the question of imageability and image variation largely boils down to the question of embodied figuration (Is there a human body felt to be acting/speaking in the text?), the explicitness thereof or, even more precisely, the degree thereof (see also Caracciolo 2011).

²⁶ Alternatively, in-between verbal imagery may be common in the reading of narratives employing stylistic strategies such as free indirect discourse and stream of consciousness, where characters' utterances are at times consistently fused or intermingled with the ones attributable to impersonal narrators.

1.6.6 The asymmetry between the referential and the verbal

With the basic and in-between imagery varieties tentatively described, this is the point to go back to questions e) and f) in our introductory list:

- e) How does a mental image of a particular variety relate to perception?
- f) How does it relate to higher-order meaning-making?

This is the point to explain that question e) will only be tackled in the referential domain (Chapters 2 and 3), while question f) will only be tackled in the verbal domain (Chapter 4). A few comments on this asymmetry will help further clarify the structure, rationale, and theoretical assumptions underlying the dissertation as a whole.

For e), let me start defending the asymmetry from the negative end, i.e., beginning with the verbal domain. While a specific theory of perception especially relevant for this dissertation will eventually need to be spelled out (see Chapter 2), “perception” will now simply stand for real (as opposed to merely imaged) sensory experiences of a world out there, without further qualification. Having said that, it is fairly easy to explain why e), a question of major interest in the philosophy of mental imagery in general, will be left aside with respect to verbal imagery. Suffice to recall the one distinctive difference already established between the two verbal imagery prototypes: speech-imagery and rehearsal-imagery. As defined above, rehearsal-imagery (in contrast to speech-imagery) has only little to do with what is commonly understood as perception proper, i.e., with the external senses, more specifically with hearing. It has already been established that rehearsal-imagery is utterly perceptually impoverished. Instead, rehearsal-imagery depends for its existence primarily on kinesthetic self-awareness directed toward the mouth and throat, from which the sense of hearing oneself subvocalize arises by association. That is, one probably knows from common linguistic experience that specific movements of one’s vocal cords, when palpable, tend to bring about specific sounds. Thus one becomes particularly prone to hearing something during subvocalization.

Moreover, unlike in the other imagery varieties, mental imagery of real auditory perception is only one part of this “something” to be heard. Most readers will hopefully agree that rehearsal-imagery often sounds more like one’s whisper than like one’s voice in fuller, externally audible performance. And as far as this whisper component is concerned, it may be difficult to determine how much of it is merely imaged and how much of it is, in fact, real. For in the experience of rehearsal-imagery, one’s vocal cords are not merely imaged to be moving, they are *really* moving, and sometimes also really, if barely perceptibly, whispering. The only thing that certainly is perceptual imagery pure and simple, then, is the occasional tone of one’s sub-

vocalization. (If rehearsal were strictly subvocal, there would never be a tone.)

Even if the relative perceptual poverty can be considered a reason enough to avoid describing rehearsal-imagery in perceptual terms primarily, substantial observations may still be made about the discrete auditory perceptual qualities of speech-imagery (the above-mentioned pitch, timbre, volume, pace and so forth). However, such observations will not be made in this dissertation but in a rather cursory manner. The reason for this is that the descriptions of the four basic imagery varieties provided in Chapters 2 to 4 are meant to be, and function best when presented as, contrastive descriptions. As may have become obvious in the introductory outline of the four imagery varieties (Sections 1.6.1 to 1.6.4 above), the nature of description-imagery becomes clear only when properly contrasted against the standard of enactment-imagery. The respective qualities of speech-imagery and rehearsal-imagery, in turn, only become clear when contrasted against each other. Since speech-imagery and rehearsal-imagery are so obviously incommensurable with regard to perception, they will further be contrasted primarily with regard to other facets of the experience, namely higher-order meaning-making (more on that soon), rather than perception.

Before question e) is abandoned for another while, let me briefly comment on its crucial role in further charting the referential domain of imagery. That enactment-imagery is in important ways analogous to actual perception is assumed and self-evident yet by no means trivial. This analogy will constitute the main topic of Chapter 2. What makes the nature of actual perception a suitable catalyst in the process of contrasting enactment-imagery with description-imagery is, among other things, the ease with which the two imagery varieties are commonly conflated in relation to real-world perceptual experience. Literary scholars and critics often speak about “vivid,” even “perceptually mimetic” or “illusionistic” visual descriptions when referring to utterly static descriptive passages. Such confluations are flawed. They are flawed not only in that they confuse vividness with meticulousity, they are also flawed in that they seem to assume that description-imagery is analogous to perception in any other than the most basic, referential sense (i.e. the sense that description-imagery refers to objects and object categories we usually know from perceptual experience). Granted, my own introductory definition of description-imagery (Section 1.6.2 above) may also appear to suggest that description-imagery is just a perceptually weaker form of enactment-imagery. Most of Chapter 3 will be dedicated to arguing against such a simplified view of description-imagery. In a certain respect, then, enactment-imagery and description-imagery may likewise be considered incommensurable with regard to perception. Given how commonly the two experiences are conflated, however, they are clearly incommensurable in a less obvious, and more productive, way than the verbal varieties of imagery.

Now let us proceed to question f): How do the discrete imagery varieties relate to higher-order meaning-making? Or rather: Why does it make sense to ask this question about verbal imagery, but not so much about referential imagery? For the time being, the following may serve as a shorthand definition of higher-order meaning-making (to be elaborated in Chapter 4): Higher-order meaning-making stands for any conscious conceptual thought experienced *simultaneously* with a mental image in the fluent course of reading. This time, let us start affirmatively rather than in the negative. Once more, let us start with rehearsal-imagery, the fourth and last imagery prototype. I have said earlier in this section that rehearsal-imagery only partly consists of imagery, because some of its contents are real, perceptual in fact. There is another way in which rehearsal-imagery is less of an autonomous imagery phenomenon when compared to the other three imagery varieties. I am thinking of its similarity to inner speech, i.e., free conceptual thought as experienced in a subvocal yet linguistic format. Inner speech is something most people engage in most of the time, not only during advanced problem solving, but also in the shower, or in the line at the grocer's when they let their minds wander freely (for a review, see e.g. Vicente and Martinez Manrique 2011).

An experiential continuum of sorts may thus be drawn between what it is like to have rehearsal-images and what it is like to simply be aware of one's own thinking, for instance in the course of interpreting a stretch of text. With speech-imagery, the situation is similar. It is similar in that speech-imagery, just like rehearsal imagery and inner speech, is propositional in nature. At the same time the situation is different, because in speech-imagery, language is imaged to occur inside one's mind yet originate elsewhere (in the vocal apparatus of an imaginary speaker). That is to say, speech-imagery and rehearsal-imagery each share important phenomenal features of inner speech proper, although they are partly different features in each case. Hence the obvious and non-trivial relevance of higher-order meaning-making to verbal imagery. This nexus between verbal imagery and higher-order meaning-making constitutes the main topic of Chapter 4, the final chapter of this dissertation.

Finally, let me elaborate on why question f) will not concern referential imagery. (A reasonably detailed exposure of this problem would require a separate treatise.) Throughout the history of literary theory, opinions diverge widely concerning the compatibility or incompatibility of higher-order meaning-making, or interpretation as they say, with referential imagery. The generations of literary scholars who denigrated referential imagery as a superficial, even immature form of reader response largely assumed referential imaging to preclude interpretation (Esrock 1994, 180). Theorists working in the wake of phenomenology suggested that the two forms of response may indeed be equally important for the overall reading experience yet mutually constraining in the course of reading (Iser 1980, 60). With the current up-

surge in embodied, second-generation cognitive approaches to literature, it is now becoming more and more common to assume that referential imagery is somehow necessary for interpretation to occur (e.g. Chapelle Wojciechowski and Gallese 2011; Spolsky 2011).

Endorsing the framework of embodied cognition, these contemporary theoretical proposals are certainly well-founded scientifically and philosophically. However, few of these proposals (for exceptions, see Caracciolo 2012; Cuddy-Keane 2010) explicitly deal with the problem of consciousness as defined above (Section 1.4). Even fewer consider the question of simultaneity: It is unclear whether they refer to bits of higher-order meaning as experienced to occur simultaneously with each discrete referential mental image, or larger complexes of interpretation arising cumulatively in retrospect, perhaps after the last mental image has vanished and the reader has closed the book. Last but not least, they tend to avoid the following questions: What is the distinctive quality of higher-order meaning-making in terms of phenomenal experience? If higher-order meaning always boils down to embodied, pre-linguistic imagery the way second-generation cognitive science suggests, how does one know at any given instant that one is really engaging in conscious interpretation rather than “just” mental imagery?

My suggested answer to these questions has already been hinted on: One basic experiential feature of the fragmentary *ad hoc* interpretations occurring now and then throughout every reading session is that they are at least partly verbal in format, similarly to verbal imagery (and similarly to inner speech). On the level of consciousness, they are borne by questions and propositions resembling the likes of “What does X mean?”, “This is significant with respect to Y.”, and so forth (see also Chapter 4). This is not to say that questions such as these must be rehearsed in full for interpretation to get going. Thought is often much quicker than that.

That conscious thought, such as occurs in interpretation, is experienced as essentially verbal is not a new idea, although in its broader applications (i.e. when applied to the non-conscious substrate of all higher-order cognition rather than limited to conscious thought experience; e.g. Fodor 1980), it is now largely rejected. Unfortunately, a detailed argument in support of this idea falls outside the scope of this dissertation. At this point the idea needs to be accepted for the sake of my further argument. Assuming it is accepted, my reason to exempt the referential domain from reflections on compatibility with higher-order meaning-making can be briefly explained by the following: Verbal imagery and conscious conceptual thought share a fundament, i.e., the verbal format. Due to this common fundament, they are presumably subject to some form of mutual interference. Referential imagery, on the other hand, is by definition nonverbal in format.

Having circled back to cognitive science, let me continue with further reference to Sadoski and Paivio’s dual coding theory (see also Section 1.3 above). Sadoski and Paivio suggest that the two parallel cognitive systems,

the nonverbal (in my nomenclature: the referential) and the verbal, albeit interconnected by the mechanisms of linguistic reference (hearing the word “cup” can activate the mental image of a cup, and *vice versa*), operate independently of each other. This is similar to what I have just suggested for referential imagery on the one hand and conscious conceptual thought on the other. Conscious conceptual thought should thus be placed on the left-hand side in Sadoski and Paivio’s schema (Figure 1 above), together with all the other verbal phenomena (Sadoski and Paivio 2001, 46–47). Importantly, this means that referential imagery may connect with conscious conceptual thought in a potentially unlimited number of ways. But without the common fundament, i.e., without the possibility of mutual interference, there is nowhere to start in theorizing the countless possible interconnections in a concise and systematic manner.

Now what exactly is meant above by mutual interference? Here is one example from the sphere of visual cognition: Under some circumstances, visual referential imagery may be more fully at work when people listen to text being read out loud compared to when they read it themselves. The standard argument for this hypothesis is that the listening mind runs lesser risk of getting visually overtaxed from simultaneous processing of letters on a page (Sadoski and Paivio 2001, 46). In my view, an analogous risk is pressing in the nexus of verbal imagery and higher-order meaning-making (too many verbal processes may need to be handled simultaneously), but not so in the referential domain. The impossibility of concise systematic theorizing apart, what does this analogy entail in practical terms? It may entail that referential imaging guarantees unrestrained, i.e., generally greater, occurrence of conscious conceptual thought as compared to verbal imaging. However, things are not as simple. Once more, the problem of consciousness complicates the matter, because it is not only the discrete modal systems (e.g. the visual or the verbal) that can get overtaxed, but also consciousness at large. Our attentional resources are notoriously limited. Consequently, during the more robust instances of enactment-imagery, one’s embodied mind is likely too busy anyway with the vicarious sensory experience to simultaneously manage higher-order meaning-making. In the brief instant one really gets to see, feel, hear or smell the storyworld, the storyworld is simply there and there may be little need or even possibility for simultaneous interpreting (see also Section 1.8 below).²⁷

To sum up, general attentional constraints being the only thing certain in the nexus between referential imagery and higher-order meaning-making, it would be too difficult to theorize that nexus in this dissertation. Having just

²⁷ Furthermore, the communicative aspect of reading remaining backgrounded (see Figure 2 above) in enactment-imagery, there may be relatively little intentionality perceived on the part of the reader, and thus no use for interpretation in the sense of disentangling an underlying intention.

devoted considerable time to the respective difficulties in addressing question e) in the verbal domain and question f) in the referential domain, let me now turn to such matters that can be addressed more productively, although they will expressly be addressed in the present chapter only. I will start with a few more reflections on the above-mentioned attentional constraints, and on how generally valid they are when it comes to the reading of literature. As a natural outcome of these reflections, the next section will also delimit and explain the one half of the main title of this dissertation (*Mental Imagery in the Experience of Literary Narrative*) that has had to remain in obscurity, namely my working notion of “literary narrative.”

1.7 Narrative, literariness, and prose

As suggested by the reference to “narrative” in my dissertation title, what has been and will be proposed regarding the workings of readerly mental imagery is not meant to apply to literary reading across the board. For certain instances of literary reading, such as the reading of much modern (non-narrative, i.e., lyric) poetry, the above proposed mechanisms of mental image generation are only valid if modified. The necessary modification will be proposed further down in this section.

On the other hand, if “literary” reading is defined loosely as reading for leisure rather than practical (e.g. educational) purposes, then my account of the basic imagery varieties is likewise valid for a great deal of *nonliterary* reading. For instance, a simple piece of journalism or a cookbook recipe may sometimes prompt more vivid mental imagery, following the patterns outlined in Section 1.6 above, compared to the most accomplished novel.²⁸ In a certain sense, then, the artistic merit of a text is not decisive for the instantaneous presence or absence of imagery, and the presence or absence of imagery is no reliable indicator of a text’s artistic merit, although mental imagery arguably is one of the things that elevate one’s reading experience to the realm of the aesthetic.

Besides, not every literary narrative (i.e. narrative written and perused for leisure rather than practical purposes) is perceived as strikingly imageable, at least not in the sense of referential imagery. In many cases, other, more highly conceptual qualities overrule one’s imagery (or more precisely, one’s embodied simulation), which then remains backgrounded and barely accessible to consciousness. Still I have settled for delimiting my imagery descriptions to literary narrative. Now, having loosely defined the literary, what

²⁸ The obvious difference being that the daily news or cookbook recipes, unlike literary narratives, are rarely read with the express objective of experiencing mental imagery.

exactly is “narrative”? Narratologist David Herman characterizes narrative as follows:

(i) a mode of representation that is situated in – must be interpreted in light of – a specific discourse context or occasion for telling. This mode of representation (ii) focuses on a structured time-course of particularized events. In addition, the events represented are (iii) such that they introduce some sort of disruption or disequilibrium into a storyworld, whether that world is presented as actual or fictional, realistic or fantastic, remembered or dreamed, etc. The representation also (iv) conveys what it is like to live through this storyworld-in-flux, highlighting the pressure of events on real or imagined consciousnesses undergoing the disruptive experience at issue. (Herman 2009, 9)

In his definition, Herman refers to typical narrative *qua* enclosed semiotic entity, e.g., a completed text or a representative excerpt thereof. The definition is compelling, particularly when confronted with the above excerpt from Hemingway’s *The Garden of Eden* (Section 1.6, reprinted further down in this section), a narrative token exemplary for many of the theses put forward in this dissertation. Considered as a whole, this Hemingway quote has all the elements proposed by Herman under i-iv. However, discrete mental images do not wait until one has finished reading the whole. They occur instantaneously in the flow of reading and are subject to modulation on the sub-sentential, even (in the case of verbal imagery) phonemic level. They may well be co-determined, through the reader’s tacit expectations based on previous reading experience, by all of Herman’s four “elements of narrative.” But in the very instant the reader is experiencing a discrete mental image, attentional constraints will likely force one of the elements to dominate over the others (see Figure 3 below): “what it’s like” (iv) for enactment-imagery, elementary “worldmaking” (iii) for description-imagery, discourse or telling (i) for speech- and rehearsal-imagery. In each instant, the other two will be relegated to outside consciousness. (Abbreviated labels in quotation marks are Herman’s own; Herman 2009, 9)

Before I go on characterizing narrative with further help from Herman’s definition, let me now briefly return to my above account of the four imagery varieties. The account suggests that in-between experiences and more or less gradual transitions are possible (Section 1.6.5), while various sorts of attentional trade-off nevertheless impinge. For instance, awareness of the verbal medium (as necessitated by Herman’s element i) is precluded in enactment-imagery. More generally, the linear continuum does not allow the two farthestmost imagery experiences, i.e., enactment-imagery and rehearsal-imagery, to meet. There is no single in-between experience to perceiving something as fully unmediated and fully mediate. In other words, the respec-

tive experiences of referential and verbal imagery may be, to a certain degree, mutually constraining.²⁹

<i>Variety</i>	Enactment-imagery	Description-imagery	Speech-imagery	Rehearsal-imagery
<i>Continuum</i>				
<i>Prominent element</i>	“What it’s like” (iv)	“Worldmaking” (iii)	“Discourse or telling” (i)	

Figure 3 Imagery continuum (basic) with Herman’s “elements of narrative”

This is the point to further modify my claims regarding the basic mechanisms, particularly the latter attentional trade-offs, in readerly mental imagery by delimiting their validity to narrative only. I will thus offer my own tentative (and consciously circular) definition of narrative, and eventually also contrast narrative mental imagery to mental imagery in (lyric) poetry, thus tentatively characterizing (lyric) poetry.

Obviously, one of Herman’s four elements fell out of my alignment with the four imagery varieties, namely what Herman himself abbreviates as “event sequencing” (ii). This is not because I fail to see its importance. Rather, I consider event sequencing, or the reader’s underlying expectations (whether constantly fulfilled or instantaneously frustrated) toward singling out “particularized events,” to be a necessary pre-requisite for the other elements to add up to narrative. While all the other elements, even in combination, may occur in the lyric or essayistic genres, and while their presence in a full-fledged narrative can sometimes be quite inconspicuous (for instance, you get relatively little sense of what it is like “to live through the story-world” from Old Norse Sagas), event sequencing is in my view the one essential and omnipresent feature of narrative and narrative reading proper (see also Meister 2008).

This is reflected in the imagery experiences narrative gives rise to: The perceptual experience propelled in enactment-imagery represents a perceptual event. Description-imagery, the impoverished cousin of enactment-imagery, stands out as a perceived lack of such events. Speech-imagery represents discourse as a speech event. Finally, the distinctive feature of rehearsal-imagery is that it is perceived as failing to do so. And the modification to be made now is the following: My continuum as reprinted in Figure

²⁹ As previously mentioned (and in contrast to Sadoski and Paivio), some researchers assume that referential and verbal imagery, or referential and verbal simulation more precisely, are mutually constraining even on cognitive levels *prior* to consciousness (Fischer and Zwaan 2008, 837).

3, and the attentional trade-offs it implies, works only as long as the reader remains to be on the lookout for discrete events *and* approaches the verbal medium as a means (Ingarden 1973a, 91) of representing such events.

In the opening of this section I drew a false opposition between narrative on the one hand and poetry on the other. The correct opposition is one between prose and poetry and between narrative and lyric, respectively. That is why the lyric has been used as an additional qualifier in brackets. For an illustration of this point, see the following bit of modern narrative (and utterly imageable) poetry, a poem entitled “Poem” by William Carlos Williams:

As the cat
climbed over
the top of

the jamcloset
first the right
forefoot

carefully
then the hind
stepped down

into the pit of
the empty
flowerpot
(W. C. Williams 1991, 253)

There are, however, particular reasons to why I have opted for the false opposition. Not only does the term “lyric” have obsolete connotations, having been traditionally reserved for such literature that draws largely on the subjective states of one or several individuals (a definition that happens to match much of modern narrative) rather than objective events. The term “poetry” brings in connotations far more important for my purposes. In fact, it is meant here to refer to such moments in a text and the reading thereof when language seizes to be perceived primarily as a mere medium serving to represent a series of events. For the most primitive of examples, consider once more my excerpt from *The Garden of Eden*, specifically David’s question:

The breeze from the sea was blowing through the room and [David] was reading with his shoulders and the small of his back against two pillows and another folded behind his head. He was sleepy after lunch but he felt hollow with waiting for her and he read and waited. Then he heard the door open and [Catherine] came in and for an instant he did not know her. She stood there with her hands below her breasts on the cashmere sweater and breathing as though she had been running.

“Oh, no,” she said. “No.”

Then she was on the bed pushing her head against him saying, “No. No. Please David. Don’t you at all?”

He held her close against his chest and felt it smooth close clipped and coarsely silky and she pushed it hard against him again and again.

“What did you do, Devil?”

She raised her head and looked at him and her lips pressed against his and she moved them from side to side and moved on the bed so her body was pressed against his.

(Hemingway 1995, 45; my italics)

“Devil” is not the commonest way of addressing a wife at honeymoon. If it is not the most inventive of metaphors, it is certainly not petrified. As such it is a perfect instance of narrative language with pronounced potential of drawing attention to itself, or what has also been known as stylistic “foregrounding.” So let us posit a reader to whom this metaphor, upon first encounter, appears very fresh and striking. While one would probably be hesitant to consider it lyric, as long as there are readers to whom it is striking, “Devil” is certainly poetic talk on David’s part, hence my previous use of the term “poetry.” Another way of putting it is that poetry (at least under the same school that coined the term “foregrounding,” i.e., structuralism) may be understood as such literary language that markedly deviates from the readers’ instantaneous stylistic expectations. A third traditional notion that comes to mind is “literariness” narrowly defined (for the notions of foregrounding and literariness, see e.g. Miall and Kuiken 1994), i.e., defined not as the opposite of practical purpose or some such (see above), but rather as a local feature of a text and its reception that can be present to lesser or greater degree. Apparently, it is not (or not primarily) literariness in this latter sense that the title of this dissertation is alluding to.

Deliberately written by its author in utterly simple sentences and limited vocabulary, *The Garden of Eden* as a whole scores relatively low on local literariness (or poetry or foregrounding) in this sense. David’s “Devil” happens to be one of very few instances of figurative language occurring throughout the book. All the more reason for our hypothetical reader to be struck by the unconventionality of it. Now, to this hypothetical reader, the metaphor seems so fresh that a shift in focus takes place, a shift from the monitoring of narrative events to reflecting upon the linguistic choices made in their representation. There comes an instant of non-narrativity as it were. What does this mean in terms of mental imagery? In other words, how may (lyric) poetry be characterized with regard to the discrete imagery varieties?

In a prototypical case of the poetic (or foregrounded or literary), here is what may happen: One, the metaphor seems so fresh that the reader has to mouth it over in subvocal rehearsal in order to make some basic sense of it (rehearsal-imagery). Two, it also seems fresh precisely by virtue of yielding a visual image of a Devil, rather than a woman who has just had her hair cut,

or a blended visual image (Gleason 2009) of both (description-imagery). Three, the reader's surprise at the metaphor informs her auditory perception of David as a speaker (speech-imagery). And four, the reader might even come to wonder how emotional David must be about his wife's haircut since he is using a metaphor as fresh and strong as this one. Consequently, the reader may identify with David and image his perceptual vantage point including his body posture, with the chunk of a pillow behind his back and the breeze from the sea against his skin (enactment-imagery). Importantly, all that may happen in a fraction of a second and be perceived as *simultaneous*. This, I would like to suggest, is distinctive about (lyric) poetry, as well as any stray poetic devices occasionally employed in prose narrative, when it comes to mental imagery. The four discrete imagery varieties are there and one may even find some intrinsic value in describing them one by one, but there is little use in trying to tease them apart into a temporal sequence. For the poetic, the initial imagery continuum should thus be graphically modified as follows:

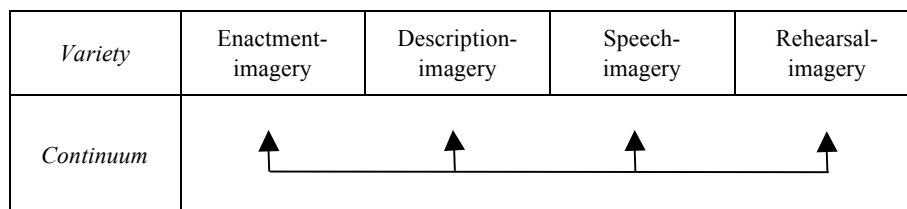


Figure 4 *Poetic imagery continuum*

The multi-headed arrow is meant to signify that the four imagery varieties may potentially be experienced to combine and intermingle rather than just sequentially phase out into each other, which is the case in narrative. In other words, in the skilled, aesthetically replete reading of poetry, our normal attentional constraints may be required to loosen up. This is probably one of the reasons why (lyric) poetry is often considered, even by many of the most perceptive readers of narrative, as enormously difficult to read. For these readers, too many things keep happening simultaneously to their mind in (lyric) poetry, including too many sorts of mental imagery. This is also why the systematic description of imagery processes in poetry, not to speak of empirical study, may prove extremely difficult to undertake.

Having previously brought up the two classical oppositions narrative vs. lyric and prose vs. poetry, a few words remain to be said about the last term in the equation, i.e., prose. Traditionally, prose is the plain style of delivery that is organized freely, without an underlying stylistic, especially rhythmi-

cal, idiosyncrasy *vis-à-vis* ordinary communication.³⁰ Given what has just been asserted regarding the poetic, prose in this technical sense, often in combination with generally prosaic, i.e., relatively mundane, imageable content matter (as found for instance in Williams' "Poem"), may serve as a concise qualifier of the kind of literary narratives this dissertation will primarily refer to, explicitly or implicitly.³¹ It will primarily refer to the large family of modern literary narrative aspiring to yield (here and there, some way or another) mental images of the referential kind. In other words, it will primarily refer to the comparably plain and down-to-earth branch of literary narrative where a storyworld is set up with enough coherence and similarity to the actual world for the reader to deploy her own perceptual experience, and where the prose representing narrative events is transparent enough for those events to mostly remain in focus at the cost of the linguistic medium. Simply put, it will primarily refer to narratives that may fairly be viewed as referentially biased in themselves. Because no matter how inadequate referential bias may be in scholarly work on mental imagery (see Section 1.3 above), the (non-scholarly) modern reader's elementary desire for referential evocation remains an established fact. One epitome of such plain, referentially evocative prose is precisely the work of Ernest Hemingway, which can be found to comment upon its own guiding principles in several places in *The Garden of Eden*, such as the following:

It was a very young boy's story, he knew, when he had finished it. He read it over and saw the gaps he must fill in to make it so that whoever read it would feel it was truly happening as it was read and he marked the gaps in the margin. (Hemingway 1995, 201)

This is not to say that literary examples in subsequent chapters will consist only in quotes from Hemingway, or only in quotes from twentieth-century fiction in English.³² For instance, a great deal of imagery phenomena (most notably in Chapter 2) will be illustrated by examples picked from another

³⁰ It should be noted, however, that ordinary spoken and presumably also unedited written communication often is rhythmically and otherwise (e.g. automatic alliteration) patterned (Jefferson 1996). Non-consciously on the part of the speaker, even the seemingly plainest of prose thus deploys poetic devices. Therefore, the opposition between poetry and prose, similarly to the opposition between narrative and lyric, must be seen as a gradient rather than a strictly categorical distinction.

³¹ In the particular case of Chapter 3, I will be referring to "literary prose" and some such interchangeably with my present usage of "literary narrative". This is because in Chapter 3, the notion of narrative also operates as a macro-level text-type within the larger genre, in a binary opposition to the notion of description.

³² If anything, this is rather to say that literary narratives systematically flouting the basic conventions of worldmaking (e.g. some of the work of Samuel Beckett), would make the opposite of good examples in the context of this dissertation.

literary tradition notoriously steeped in the perceptual, namely from the modern French novel. Nevertheless, all literary and linguistic choices below should be viewed as more or less random. The theoretical theses to be presented should resonate, in some form and with some individuals, with a wider array of modern literate cultures and readership. This of course is a statement in need of a historical disclaimer. I will provide one now, in the closing section of this chapter.

1.8 Referential vs. verbal imagery in the history of reading

Despite the general theoretical aspirations of this dissertation, it must be at least briefly acknowledged that reader response, likely including the nature of mental imagery, is historically determined. If the psychophysiological substrates of reading have been found to vary synchronically across today's cultures (Saenger 2000, 1–6), then it is more than likely that they have also been changing diachronically within the broadly conceived Western modernity (say, post-Gutenberg European and American culture) which sets the norms and boundaries of most literary theory. We cannot produce robust evidence of how silent reading was structured on a psychophysiological level in the past. But we can speculate about how it was experienced by means of deduction from the antecedents of narrative theory such as ancient rhetoric, from historians' accounts of reading practices, and from the evolution of literary narrative as such. At a glance, the three perspectives seem to converge.

In rhetoric, poetics, and other writings prefiguring narrative theory, as well as in historical scholarship dealing with the practices of reading, references to mental imagery are comparably rare. Since pre-Aristotelian antiquity (Halliwell 2002, 20), a figure of speech was in use comparing literary composition to “putting events before one's eyes.” However, a systematic account of how that process was meant to affect reception was not put forward. Rather, as far as explicit mentions of the discrete sensorimotor modalities are concerned, aural qualities enhancing verbal imagery seem clearly to prevail, starting with Aristotle's (1995, 123) comments on how Homer evokes characters' voices and continuing throughout medieval and early modern accounts of reading, whether out loud or silently, as a largely aural experience (Ong 2002, 119). Although the quality of poetic vividness (*enargeia*), most famously addressed by Demetrius (1995, 473–479) and occasionally invoked in post-medieval rhetorical writing (see e.g. G. Alexander 2010), was commonly understood to entail a readerly vision of sorts, it is unclear whether the term was ever used to denote referential imagery in my

sense, especially not in the sense of enactment-imagery. Apart from one single reference to the visual, Demetrius himself seems to present vividness as a matter of vicarious hearing pertaining mainly to verbal imagery (more specifically, speech-imagery) and of the reader's affect and higher judgement. In sum, mentions of sensorimotor processes relevant for referential imagery seem to be relatively sparse in older theoretical writings,³³ and it is unlikely that they would capture what modern narrative is capable of accomplishing in terms of vicarious perception.

To turn to the history of reading practices, cultural theoretician Walter J. Ong (2002, 155–157) asserts that literary narrative did not emancipate itself from classical, orality-driven rhetoric until as late as the 1800s. In accordance with his assertion, historians of reading suggest that the engrossed reader of the sentimental era still engaged in narrative texts as if they were instances of codified oral (and, one may thus assume, largely aural) narration, while seeking imaginary friendship with the author or protagonist (Wittmann 1999, 295–297). This sort of reading strategy seems largely to favor verbal imagery over referential imagery. Furthermore, when embodied reader response was theorized by aestheticians and physiological literary critics Edward Bain, Grant Allen, and others working in the latter half of the nineteenth century (Dames 2007, 25–69), these authors did not define readerly embodiment (such as muscular tension or neural excitation) in ways that would account for referential imagery. Rather, perceived embodiment was assumed to result from rhythm of speech, speed of narration, and other characteristics of the narrative *qua* verbal utterance – yet another fact pointing up how verbal imagery may have constituted the standard of readers' imagery experience.³⁴

Finally, clues about readers' experiences of imagery can be gleaned from the evolution of literary narrative itself. To pick just one of many examples, the French novel for instance did not see the now typical profusion of perceptible objects in characters' environments, and characters' frequent interactions with these objects so suitable for eliciting enactment-imagery, until as late as the nineteenth century. They seem to have made a sudden appearance as part of an overall shift of content, a movement away from the sublime and universal toward the particular, quotidian and experiential. This shift, which (in the case of French literature) can be traced back to the scenic

³³ It should be noted, however, that these writings were always subject to official political agendas and may not provide a truthful picture of actual cultural practices.

³⁴ On the other hand, the very generation of readers who traded listening for silent reading may also have had a strong habit of free referential imaging (or simply mind-wandering) based on their previous experience as passive audience (see also Section 1.6.6 above). In such case they may have carried over the habit into silent reading or, conversely, their referential imagery may have become fully disabled due to the novel, visually taxing way of receiving literature.

craftsmanship of Flaubert, must have had consequences for readers' expectations regarding the two domains of mental imagery and the distribution of attention between them. More specifically, the shift toward the perceptual and experiential may have relocated readers' focus from verbal imagery to referential imagery, and within referential imagery, toward imagery of the enactment variety. Moreover, there are many reasons to believe that this same shift had gradually yet irreversibly modified the practice of literary narrative reading in general, including the reading of pre-1800 narrative, making it an ever more referentially biased, multimodally embodied activity, oriented toward enactment-imagery in particular. On the level of narrative structure, the gradual exploitation of sensorimotor experience was paralleled by a phasing out of the omniscient narrator (who had still routinely addressed the "Dear Reader" at the beginning of the nineteenth century) and of other oral residues such as a linear, moral-driven plot. In other words, it was accompanied by a significant loss in overt prompters of verbal (i.e. speech-) imagery. After all, in everyday oral narrative, vivid renditions of perceptible objects and bodily interactions with such objects are comparably rarely heard.

Last but not least, the period in which such sensorimotor detail surfaced in the French novel roughly coincides with the moment in the history of reading when literary narratives, too, ceased to be commonly heard. Despite the fact that mentions of silent reading date back to the times of Saint Augustine and that silent reading was widespread in certain contexts by the end of the Middle Ages (Saenger 2000), reading aloud was presumably the mode in which literary narratives were received by a substantial part of the European public until as late as the nineteenth century (Lyons 1999, 342–344). Throughout the 1800s, there is abundant evidence that authors explicitly envisioned their novels to be read aloud, and that they read their own prose aloud when writing (see also Rubery 2008). In contrast to current criticisms of the audiobook, early phonographic recordings of novels were often hailed by commentators of the time, who perceived them as a natural continuation of established reception patterns (Camlot 2011). Around 1900, collective practices of reading aloud (in forms considered largely uncustomary only a few decades later) still occurred on a regular basis (Ong 2002, 146; 154). The subsequent abrupt disappearance of reading aloud may have further reinforced the shift in imageability imposed on the reader's mind by the novelties of literary style. It may have made vicarious voicing less readily accessible.

Assuming that the hypothesis of an attentional trade-off between referential and verbal imagery in silent reading is correct, preliminary evidence thus suggests that referential imagery is not only historically determined, but also a fairly recent phenomenon (but see my introductory quote from Hartley Coleridge, Section 1.1). This applies specifically to referential imagery in its perceptually stronger variety, i.e., enactment-imagery. Readers' inclinations

toward enactment-imagery may also have been increasing steadily throughout the twentieth century due to the sensory revolution gradually imposed upon culture by new media from photography to computerized virtual reality. In fact, these inclinations may be ever so pressing now that film and digital entertainment have gained narrative hegemony over literature. While static verbal descriptions may not have seemed so tediously slow and detached to the visual art connoisseur of the nineteenth century who was capable of spending hours in front of a single painting, they naturally do so to the digital generation, who interact with dynamic artificial narratives such as computer games on daily basis.³⁵

Ironically, although the experience of enactment-imagery may historically coincide with the rise of modern narrative theory itself, both theoretical and empirical studies have been largely negligent of its workings, as well as of the three “older” varieties description-imagery, speech-imagery, and rehearsal-imagery. This dissertation is an attempt to fill the gap.

³⁵ I am grateful to Alice Jedličková for bringing this latter point to my attention.

Chapter 2. Enactment-imagery: presence and bodily movement³⁶

By what twist did language suppress the sense most important to survival?
(Berthoz 2002, 25)

2.1 Presence and bodily movement

The present chapter deals with enactment-imagery. More specifically, it deals with such enactment-imagery that involves bodily movement. The chapter differs from the remaining two in that it deals with the underlying non-conscious simulation³⁷ processes at least as much as it deals with the conscious imagery variety at issue (for the distinction between simulation and imagery, see Chapter 1, Section 1.4). This is because its main goal is to single out one particular effect that the two mental processes have in common, an effect that can robustly inform one's aesthetic appreciation of a literary narrative at large. This effect can be built up and sustained globally throughout longer stretches of text or even entire book-length narratives, and while it is no doubt largely conscious and perfectly reportable, it usually cannot be aligned with a single stream of vivid mental images.

The effect in question will henceforth be referred to as *presence*. Presence stands for the subjective sense of having physically entered the tangible environment of a storyworld, of “being there.”³⁸ Used in this particular sense,

³⁶ This chapter is an extended and revised version of my “Presence in the Reading of Literary Narrative: A Case for Motor Enactment”, *Semiotica* 189(1/4): 23–48 (Kuzmičová 2012a). Some of the ideas presented in this chapter are further developed in my “The Words and Worlds of Literary Narrative: The Trade-off between Verbal Presence and Direct Presence in the Activity of Reading”, Bernaerts, Lars, Dirk De Geest, Luc Herman, and Bart Vervaeck (eds.), *Stories and Minds: Cognitive Approaches to Literary Narrative*, Lincoln: University of Nebraska Press, 107–128 (Kuzmičová 2013a).

³⁷ In this chapter, all references to the processes of embodied simulation will be limited to the *referential* domain only (see Chapter 1, Section 1.3, for a definition *vis-à-vis* the verbal domain).

³⁸ See also Marie-Laure Ryan's term spatio-temporal immersion (Ryan 2001, 130–139).

presence is a well-established notion in interactive media psychology (see e.g. Schubert, Biocca, and Regenbrecht 2001). In a nutshell, the central hypotheses of the present chapter can be summarized as follows: *Presence is effectively prompted by references to certain types of bodily movement. While it may become most palpable during the brief instances of motor enactment-imagery proper, it can presumably be sustained throughout longer stretches of text (especially in readers less susceptible to imagery) with the help of mere non-conscious motor simulation.* This is what motivates my extensive treatment of non-conscious processes.

Let's assume that, at least since about the times of Flaubert, many literary authors have constructed entire passages of their narratives so as to render particular situations spatially compelling. Let's also assume that, at least since about the same period, most readers have responded to these efforts in a collaborative manner, with presence, often accompanied by vivid spatial imagery, arising as a result of successful matching of reading practices to cues intrinsic to the text. Most readers would probably agree that presence is a key ingredient in the broader phenomenon of reader immersion. Leaving aside other similarly pre-conceptual components of immersion – affective appraisal (see J. Robinson 2007) and emotional response (see Miall 2006), suspense (see Gerrig 1998), or rhythm and flow of verbal imagery (Chapter 4) – this chapter will make a few elementary proposals toward how presence may be cued in narrative literature, co-producing immersion. Contrary to certain common assumptions, I will argue that there is no direct relationship between the degree of detail in spatial description on the one hand and presence on the other. In line with what has been established in Chapter 1, I will also argue that in cases when presence is propelled by discrete mental images, these images belong to the variety of enactment-imagery rather than description-imagery. Ultimately, the below descriptions of presence aim at further exposing enactment-imagery as number one ingredient, on the referential side of the imagery continuum (see Chapter 1, Section 1.6.5), in the embodied enjoyment of literary narrative.

Given that in most cases there is substantive consensus, even within literary academia, as to which narratives are particularly spatially immersive and which rather categorically resist such experience (e.g. Ryan 2001, 120–139), prototypical presence cues ought to be possible to isolate. I will make an attempt at isolating them theoretically, both in terms of narrative content (Which types of content are particularly productive at eliciting presence, and why?) and construction (Which ways of embedding this content in the narrative text are particularly well suited for such purposes?). Interactive media theorists (e.g. Biocca 2002) would classify my endeavor as an attempt at addressing what they call “the book problem,” i.e., the conundrum of how to account theoretically for the linear, low-tech medium's capacity to transport readers into virtual three-dimensional environments.

For the sake of argumentation, I will invoke theories and experimental results stemming from a plethora of disciplines: narrative theory and literary aesthetics, research in text and discourse processing, media psychology, phenomenology, cognitive and experimental psychology and neuroscience. Once again, this eclecticism is not meant to distract readers from my main object of study, which is the aesthetics of narrative literature, but rather to instrumentally narrow down their focus toward particular instances in the fluent process of reading. I am well aware of the multiple epistemological ruptures between (a) neuronal activity in real-world situations, (b) human behavior and (c) the pre-linguistic experience of such behavior on one hand, and (d) fluent readerly experience of narrative literature as based on (e) the multiple, complex operations of discourse comprehension, some of which may be traceable in (f) the neural substrates of reading, on the other. Like neuroscientist Vittorio Gallese and other specialists whose work I will be referring to, however, I am reluctant to believe that each of these phenomena constitutes an impermeable ontological domain of its own. Therefore I will draw a tentative line of inter-theoretical speculation from (a) all the way down to (f), while trying to single out when (d) is most likely to adhere phenomenally to (c). All of (a)-(f) will operate throughout the entire chapter, and the key focus will be modulated among its three main sections approximately as follows: 2 (c); 3 (c)-(d); 4 (d).

The argument will be structured so as to facilitate partial testing, and any serious attempt at experimental validation is welcome.³⁹ Literary text samples will be taken mainly (but not only) from three works of francophone novelists, all of which have been noted for their spatial, perceptual or situational qualities, as well as for their focus on the quotidian: Gustave Flaubert's (1972 [1857]) *Madame Bovary* (favoring detailed description), Alain Robbe-Grillet's (1957) *La Jalousie* (favoring detailed description) and Jean-Philippe Toussaint's (1988) *L'appareil-photo* (lacking detailed description).

As previously stated, the main idea I am advocating is that a higher degree of presence, the sense of having physically entered a tangible environment, is best achieved when certain forms of human bodily movement are rendered in the narrative, as compared to when they are not. This applies

³⁹ After an earlier version of this chapter was accepted for publication in early 2010 (Kuzmičová 2012a), a first attempt at empirical validation was carried out in collaboration with Peter Dixon and Marisa Bortolussi, University of Alberta. The results of this experiment (Kuzmičová, Dixon, and Bortolussi 2012), in which subjects read series of literary passages manipulated on a pair of variables while assessing various aspects of their immediate response, have not yet been published in print. However, they do confirm some of the basic hypotheses to be presented in this chapter, with the proviso that they do so for experienced literary readers specifically. Readers unaccustomed to reading literary narrative showed a slightly different pattern of response.

when the motor content in question is either explicitly mentioned (e.g. “John picked up his wallet and opened it.”) or very strongly implied, i.e., inevitable to infer from the viewpoint of local coherence (see McKoon and Ratcliff 1992) – such as in “John checked to see if he had enough change. But the inner pocket of his wallet was empty,” which does not make sense unless the act of grasping and opening a wallet is inferred by the reader. Gallese (2000) suggests that the human motor system should be thought of as the missing thread interconnecting the three domains of neuronal activity, behavior and experience. I suggest this thread should be thought of as extending all the way down to the vicarious experience elicited in narrative reading, a view toward which we are currently receiving some empirical clues in the form of behavioral and neuroimaging data.

Before proceeding any further, a few prerequisites must be spelled out:

1: By presence, I do not mean a detailed situational model held active in the reader’s working memory, corresponding to propositions such as: “There is another room next to the one the characters are standing in right now”; “Character X and character Y are currently present, but character Z is not.” Nor do I mean the ease of retrieving such detail when necessary, e.g., in comprehending anaphoric reference. Extensive theoretical and experimental work has been done to address these issues, and I will refer to some of it in order to support my claims. Presence is most likely a composite effect of several variables interacting with each other. But if I were to isolate one conscious cognitive phenomenon characteristic of presence, it would not be propositional knowledge of the fictional environment at issue. Rather, presence typically manifests itself as vivid yet extremely short-lived referential imagery. Although spatial modeling presumably is affected by such imagery, empirical studies have shown that experienced vividness of a stimulus does not necessarily stand in any direct relationship to memory accuracy (see Ericsson 2003, 6).

2: By referential imagery, I do not mean visual imagery only, as has been the case in nearly all theoretical work on perceived vividness in literary narrative so far (e.g. Esrock 1994; but see Esrock 2004). Imagery encompasses any conscious vicarious experience whatsoever of what is most commonly referred to as perception, i.e., the notorious five external senses, but also the internal senses, including, crucially, the senses of bodily movement. Categorization of the internal senses varies across authors and scholarly traditions. As hinted in the opening to Chapter 1, they are sometimes divided into the interoceptive (pain, hunger etc.), the proprioceptive (balance, limb and organ position etc.), and the kinesthetic (effort, acceleration etc.). For the sake of simplicity, these three categories will be collapsed in the present chapter into the broader category of *proprioception*, encompassing *all internal senses*, regardless of their relation to bodily movement. When special emphasis will be put on the motor aspects, proprioception will be referred to as *kinesthesia*, alternatively as *the motor mode*. The five external senses (sight, hearing,

smell, taste, touch) will sometimes be referred to in aggregate, and in opposition to proprioception, as *exteroception*.

2.2 Bodily movement in real-world experience

Hypothetically, the wider the range of sensorimotor modalities simultaneously active in referential imagery, the more vivid the vicarious experience. However, referential imagery does not seem to come in neatly synchronized multimodal packages. Referential imagery in general differs substantially from the structure of real-world experience, without the discrete modality tracks necessarily overlapping, or fitting into any preconceived model of spatiotemporal order. Referential imagery elicited in the strictly linear process of near-naturalistic language (i.e. fluent discourse) processing, in particular, has been suggested to follow a modulative logic of gradual meaning integration within sentences, occurring not with each and every noun or verb of sensorimotor content, but rather at distinct uniqueness points, i.e., nodes of situational disambiguation (examples will be provided further down). With constant regard to these assumptions, I suggest that minimal instances of comparable sensorimotor unity (encompassing both proprio- and exteroception) prompting multimodal referential imagery on the verge of veracity may occur, if ever, when triggered by reference to bodily movement.

What lies behind this accentuation of the motor mode is, apart from introspection, a phenomenologically and neuroscientifically informed view of movement, interaction and agency as formative of and intrinsic to all actual perception. “The world makes itself available to the perceiver through physical movement and interaction,” writes philosopher Alva Noë (2006, 1), one of a community of philosophers and scientists who have recently made an effort to reconcile the two domains of knowledge in order to advocate a centrality of bodily movement in perception, cognition, experience and subjectivity (see also Berthoz and Petit 2008; Gallagher and Zahavi 2007; Sheets-Johnstone 1999). Among many other pieces of evidence, Noë refers to the clinical cases of congenitally blind patients who remain “experientially” blind for some time after their cataracts have been removed, taking people’s faces for blurs in their visual field, because their visual sensations are still decoupled from patterns of movement. Noë infers that vision in the sense of a conscious experience of size, shape, voluminousness and distance of an object is always due to the perceiver’s sensorimotor understanding, based on previous eye- and body movements related to that or a similar object.

As for the neuroscientific branch of this rather broadly conceived – and by all means philosophically disparate – intellectual community, Rizzolatti and Gallese (1988) showed already in the 1980s that the mere process of visually attending to an object is partly based on covert preparation of a bodily action to be borne upon that object, a finding which has been repeatedly replicated ever since (see Berthoz and Petit 2008). Moreover, in real-world experience, bodily movement is formative, in a literal sense of the word, of so-called peri-personal space, i.e., the space immediately adjacent to the head, arms and legs, constrained by their instantaneous action radius. Interestingly, unlike other extraneous stimuli, any stimulus which enters the nearest strata of peri-personal space – the “gelatinous medium surrounding our bodies” (Graziano and Gross 1995, 1031) – has been found to be cortically coded in a multimodal fashion, with the very same neurons responding to the stimulus regardless of whether it is audial, visual or tactile (see Serino, Farnè, and Làdavas 2006). This phenomenon is commonly manifested in daily experience: We tend to sense the presence of new objects, let alone moving creatures, in our peri-personal space without having to see them first.

If presence is a function of spatial vividness, in which the motor and sensory modes should optimally converge, and if the physical world we live in is not truly perceived and experienced unless interacted with via bodily movement (be it overt or covert), then the reader’s sense of having physically entered a tangible environment must somehow be linked to narrative renditions of bodily movement. Furthermore, the fictional environment thus entered is unlikely to feel literally tangible unless physical stimuli are mentioned to occur within the moving literary character’s gelatinous medium, i.e., unless the furnishing of the fictional world is reached, grasped, manipulated, leaned against etc. In other words, the most stimulating movements of them all ought to be *transitive movements*, particularly when object-directed, as opposed to self- or person-directed. Moreover, these movements ought to be *volitional* rather than unintended, because volitional movements entail particular attentional focus on the environment interacted with, such that is absent from reflexive or otherwise unintended movements (see Allport 1987). As indicated above, perception is currently being viewed by scientists and philosophers alike as an auxiliary of action. I suggest that in the linear process of reading, the relation is often the reverse: the object-directed movement of a literary character may, especially under certain conditions to which I will proceed later, prompt a vivid multimodal image of the environment it is being performed in and upon.

2.3 The literary character's bodily action visualized vs. simulated

Until this point, the main claim of my argument has not diverged radically from that of philosopher Thor Grünbaum. In a contribution to narrative theory, Grünbaum (2007) draws the novel narratological distinction between “summarizing action-narration” (“In the company of a Dane and two Norwegians I left the old Lübeck in the evening...”) and narrative renditions of “bodily movements” (“He moved a thin shrunken brown hand gently in the air in time to his praise...”) on the one hand, and narrative renditions of “simple bodily actions” (“[She] pulled the blind, leaned her brow against the cool pane...”) on the other. The latter may seem to correspond roughly to what I have in mind when accentuating transitive bodily movement, because in phenomenological thought, on which Grünbaum is prone to elaborate, transitive movements (when volitional) are a subset of bodily actions, the term action referring to purposeful movement in general (e.g. Gallagher and Zahavi 2007). Simple bodily actions, Grünbaum argues, usually come short of theoretical treatment in plot-narratology (e.g. the work of Ruth Ronen), which attends mostly to summarizing action-narration, as well as in discourse-narratology (e.g. the work of Gérard Genette), which would rather tend to study the technique of rendition employed in the case of bodily movement (as defined by Grünbaum). Simple bodily actions do serve a distinct function in narrative, nevertheless, which Grünbaum identifies in rather general terms as a “visualizing” function. At this point my approach departs from Grünbaum's.

I agree that in order to stimulate the reader's referential imagery, a bodily movement must be comparably *dynamically veracious*, i.e., that the time the text passage takes to read ought to be commensurable with the duration of the movement as performed in the real world. This is in part what distinguishes “simple bodily actions” from “summarizing action-narration” and narrative renditions of “bodily movement” (the simple interaction with a window blind would span a much longer stretch of text if it were rendered in such detail as the formerly cited hand movement), although Grünbaum does not spell it out that way, his major focus resting elsewhere. What I disagree with is Grünbaum's assumption that dynamically veracious bodily actions are normally visualized from a third-person perspective, thus prompting mere description-imagery at best, which puts the reader in the position of a detached witness (mere kinematic veracity would suffice in such case; see Schwartz 1999 for the distinction). Rather, I suggest that they are often simulated from an enactive first-person perspective, which is primarily what makes them a vehicle of presence and immersion. Referential imagery, as has been pointed out, encompasses all sensorimotor modalities, including the utterly private cutaneous sense responding vicariously to the cool window-

pane mentioned in Grünbaum's window blind excerpt. Hence when I claim that the character's bodily movement prompts a vivid multimodal image in the reader, I assume that the reader experiences the phenomenon of *motor simulation* (see also Chapter 1, Section 1.2),⁴⁰ a cognitive process featuring sensory traces related to the movement in question (proprioception) and to the object it is directed at (exteroception). The resultant flash of sensorimotor unity may in some way feed on what physiologists call the motor schema (see Schmidt 1975), i.e., a relational memory schema linking action to its sensory outcome.

Motor simulation stands for the referential covert movement that has been unequivocally proven, both in behavioral and neuroimaging experimental setups, to occur when literal (i.e. non-metaphorical, non-idiomatic) bodily movement sentences are processed (see Fischer and Zwaan 2008 for a review). When people listen to or read sentences referring to bodily movement, the motor and pre-motor areas of their cortices become somatotopically activated (see also Chapter 1, Section 1.2) – the hand area of the motor strip responding to hand-related action words, the feet area to feet-related action words etc. (e.g. Raposo et al. 2009; Aziz-Zadeh et al. 2006). When they need to perform a motor task, e.g., manually rotate a knob, in order to make their way through a sentence (so-called reading-by-rotation), their motor performance is speeded up or slowed down if the sentence refers to a similar movement performed in the same or opposite direction, respectively. Numerous behavioral studies in the field have been conducted by cognitive psychologists Rolf Zwaan, Lawrence Taylor and colleagues (e.g. Zwaan, L. J. Taylor, and de Boer 2010; L. J. Taylor and Zwaan 2008; L. J. Taylor, Lev-Ari, and Zwaan 2008; Zwaan and L. J. Taylor 2006; Zwaan 2004), who have not only studied motor simulation proper, but focus equally on visual motor simulation (simulated visual perception of moving objects) and other forms of visual simulation in discourse processing. As for neuroimaging, convergent results from a study of embodied simulation in which the experimental stimuli consisted of entire narrative passages (27 clauses each) were published in 2009 (Speer et al. 2009a).

In other words, if a theory of language comprehension elaborating on the principles of naïve realism – self-evident from the viewpoint of many literary readers – would have brought about ridicule among cognitive scientists only a couple of decades ago, experimental evidence supporting such theories abounds in current (second-generation) cognitive science, adding to the research framework of embodied cognition (see also Chapter 1, Section 1.2).

⁴⁰ In the context of psycholinguistics and discourse research, embodied simulation is also known as sensorimotor resonance (e.g. L. J. Taylor and Zwaan 2008). In citing this research, I have decided to replace “resonance” with “simulation” for the sake of unity, despite the latter term's polysemous, and currently also somewhat inflationary nature.

As mentioned in Section 2.2 above, motor simulation appears – and so does reportedly its perceptual counterpart – to be modulated in accordance with gradual semantic disambiguation and instantaneous linguistic focus (e.g. L. J. Taylor and Zwaan 2008; L. J. Taylor, Lev-Ari, and Zwaan 2008; Zwaan and L. J. Taylor 2006). For example, the two sentences “John opened the beer can.”/“John opened the book.” differ substantively as to what kind of movement is covertly simulated. Indeed, simulation in such cases has been found to reach its peak of intensity as the reader is processing the point of uniqueness, i.e., the post-posed disambiguating object noun (“the beer can” vs. “the book”) and/or an action-related (“quickly”) – as opposed to merely agent-related (“obediently”) – adverb, should there be any.

These exemplary sentences call for a brief exposition on *affordance*, a phenomenon closely related to motor simulation. The term was given currency in James Gibson’s (1979) ecological theory of visual perception, capturing the utterly interactionist nature of sensory attention, eventually confirmed by Rizzolatti and Gallese (see Section 2.2 above) and many others. Affordance stands for the interaction potential of each and every object in the environment, as constrained by the object’s shape, weight, volume and other properties on the one hand, and the motor capacities of the perceiving individual on the other (the lamp switch in my office affords pressing to me, but not to my little son).

While Gibson ascribed affordance to artifacts (i.e. manufactured objects, also called tools), natural objects and animals alike (a tree affords climbing, a horse can be ridden on), current cognitive science reserves the term, alternately narrowed down to “microaffordance” (e.g. Borghi 2005; Ellis and Tucker 2000), for hand-manipulable artifacts primarily. The reasons for this terminological shift are multiple. For example, subjects in neuroimaging (e.g. Grèzes et al. 2003; Chao and Martin 2000; see Martin 2007 for a review) and behavioral (e.g. Glover et al. 2004; Tucker and Ellis 2004; Tucker and Ellis 2001; Ellis and Tucker 2000; Tucker and Ellis 1998) experiments show accurate somatotopic cortical activation (activity in the pre-motor cortex corresponding to hand movement, triggered automatically by the word “hammer”) or other signs of simulation (faster manual task response if the content of a stimulus affords the same hand movement as required by the task), respectively, when exposed to pictures or names of artifacts, but *not* when exposed to pictures or names of natural objects or animals. This is probably due to the fact that artifacts have canonical (“hammer”-“grasp the handle with a power grip, lift and pound”) and non-canonical (“hammer”-“plant in the soil”) affordances, which is not usually the case with natural objects and animals (see Borghi 2005).⁴¹

⁴¹ Also, for natural objects and animals, affordances are not as central to the cognitive processes of categorization and prototype and basic-level judgement as they are in the case of

For each individual to be capable of performing the various motor tasks of daily life, the motor circuitry is assumed to feature a vast register of distinct motor programs (e.g. Engelkamp and Zimmer 1984). Because of affordances, these motor programs are more complex and fine-grained for transitive than for intransitive movements. The difference is assumed to affect motor simulation in language processing, with transitive movements eliciting more simulation than intransitive ones, provided they are volitional. Non-volitional movement sentences such as “John stumbled.” have been predicted to elicit no simulation at all, as our repertoire of motor programs is limited to volitional movements exclusively (Zwaan, L. J. Taylor, and De Boer 2010), yet another argument in favor of the aforementioned precondition of volitionality. To operate with this precondition when studying simple bodily actions in narrative may be tricky, because utterances like “Accidentally I grasped the handle of the dagger with my hand.” are sparse in literature, with the exception of stories where the bodily movement in question connects to other events – as does for instance the movement of Emma’s lover-to-be in *Madame Bovary*: “Sans qu’il s’en aperçut, tout en causant, Léon avait posé son pied sur un des barreaux de la chaise où Madame Bovary était assise.” (Flaubert 1972 [1857]: 166) [“While he talked, Léon had unconsciously placed his foot on the bar of Madame Bovary’s chair.” (Flaubert 1995 [1950]: 97)] In other words, volition and intentionality of transitive bodily movement is rather instantaneously inferred and mostly presupposed – in the affirmative – by the reader, as is continuously guessed the action’s significance for the story plot. The issue of perceived intentionality in reading, however interesting, falls outside the scope of this chapter. Suffice to point out that, as far as real life movement observation is concerned, transitive movements are much more readily judged intentional than intransitive ones (see Jeannerod 2006, 102).

Quite naturally, in comparison to other transitive movements, those directed at objects with canonical affordances, such as beer cans, books, hammers and daggers, provide more powerful clues (eventually verified or not) to the observer or reader about what intentions may be involved. Thus in addition to being volitional, transitive and dynamically veracious, the most immersive bodily movements of them all ought to be movements directed at everyday artifacts. The more familiar the object vicariously acted upon, whether in a canonical or a non-canonical manner, the stronger is probably the movement’s immersive potential in terms of simulation and multimodal referential imagery (see also J. W. Lewis 2006).

artifacts (whatever we can sit on while leaning back qualifies as ‘chair’; see Rosch et al. 1976).

2.4 Simulation as experience: examples from non-literary motor enactment

Two important and closely interrelated questions may arise: If simulation is intrinsic to naturalistic language comprehension in general, what explanatory value do these findings have for literary aesthetics in particular? Even if hypothetically applicable to the study of literary reading, what would all these advanced neuroimaging and behavioral scientific paradigms have to tell us about the reader's *conscious experience* (see also Chapter 1, Section 1.5)? In both cases a brief version of the answer would go approximately as follows: It is my conviction that in the reading of literary narrative, embodied simulation is continuously boosted toward the threshold of consciousness. Its peaks and valleys of intensity are more robust than in non-literary reading, yet following a logic not completely dissimilar from that of situational integration within the stimulus sentences and textoids used in experimental psychology. In line with the basic conceptual distinctions drawn in Chapter 1, all simulation of such variety will further be referred to as referential mental *imagery*, more specifically as *enactment-imagery*. Enactment-imagery or any other imagery proper, unlike simulation, reaches the reader's consciousness. It is noticed.

Thanks to space-related enactment-imagery, we feel that we undergo vicarious experience even when engaging with "physical stories" (see Mar 2004), i.e., literary narratives which, similarly to Toussaint's *L'appareil-photo*, invite comparably little attribution of mental states to characters.⁴² *Motor* enactment-imagery specifically sometimes elicits a level of muscular activity that is not only amenable to self-report, but draws instant attention of the reader to itself. What the reader experiences in such instances of motor enactment is akin to what phenomenologists call the sense of movement ownership (a sense of performing a certain movement), yet decoupled from any sense of agency (a sense of being the originator of that movement), such that would normally accompany the same volitional movement in a corresponding real life situation (see Gallagher 2000). Hypothetically, whatever kind and rank of literary character can become the originator of a movement thus enacted, even an animal character can. Various factors involved in reader identification – e.g., personal sympathy, degree of conspecificity, prominence of the character in the story – may however be at play.

⁴² This is not to say that explicit access to a character's conscious thought or emotion in itself negatively affects spatial imagery. However, particularly thick mental state attribution passages probably outperform spatial imagery in the competition for the reader's finite (conscious) simulation resources.

Our ability to reflexively attune our muscular activity and proprioceptive sensations to others' becomes tangible in diverse situations outside the realms of language comprehension. One can for example dream of performing the actions of somebody else, possessing another person's body, doing things one has never done before, or even belonging to another species, with the motor content of the dream achieving as high a degree of intensity so as to become easily visible to the naked eye of a third-person observer (see also Berthoz and Petit 2008, 272). In movie and theater spectatorship, one can adopt the tactile sensations of a character, a phenomenon that has been cortically mapped in some detail (see Keysers et al. 2004), or simulate beyond the non-conscious the movements performed on stage, displaying strong efferent leakage (i.e. measurable changes in physiological reactivity; see Cuthbert, Vrana, and Bradley 1991 for a review).

Two decades ago, the discovery (by Rizzolatti, Gallese and colleagues) of several neuron populations in the parietal-premotor area, most famously of the so-called mirror neurons and canonical neurons, which fire equally during volitional action execution and during passive observation of the same action when performed by a conspecific, awoke a massive wave of interest in these and similar phenomena – ranging from empathy and social cognition to motor skill acquisition (see also Chapter 1, Section 1.2). One subclass of these neurons has been found to fire only for transitive movements involving artifacts, and another one at the mere sight of artifacts, all of these subclasses being assumed to relate in some way or another to action goals and intentions (see Gallese and Lakoff 2005 for a brief introduction). As enactment in literary reading can partly be elucidated by reference to linguistic simulation processes, so can much of spectator response in the performing arts probably be elucidated by reference to this mirroring effect intrinsic to all action observation.⁴³

The dissociation between movement ownership and agency entailed by enactment of either kind is by no means trivial. Authors sometimes characterize shared mental representations like those of motor simulation and neuronal mirroring as “neutral in the sense that they represent ‘an’ action rather than ‘my’ action, ‘your’ action or ‘x’s’ action” (Legrand 2006, 104). Such formulations may be at odds with our intuitions as to how we acquire motor skills through action observation. As a matter of fact, a violin student learns from attending to her teacher's play, not just somebody else's, neither to violin play in some disembodied sense. Her skills advance if and only if she matches her own covert movements to the teacher's. This may happen irrespective of whether the person in the teacher position is a peer of hers or an

⁴³ Likewise, a link between motor simulation in language processing and mirror neurons is assumed, but has yet to be specified (see Fischer and Zwaan 2008, 828–831).

aging virtuoso giving her a master class. Yet the two alternatives will necessarily lead to different qualitative results.

I would like to suggest that in reading, analogously, we literally incorporate the movements of other agents, despite these agents' dubious ontological status as literary characters. We can experience motor enactment of commensurable intensity when reading about Emma Bovary and Winnie-the-Pooh, or even resonate more with the latter if prompted, but the content of our experience will partly be constrained by physical properties ascribed to the particular agent (e.g. capability or incapability of prehension, respectively) as well as by other circumstances currently active in our working memory, whether explicitly mentioned or strongly implied, which may affect the manner of movement execution. If people take significantly longer time to imagine walking along a given trajectory when told they are carrying a heavy load (see Schwartz 1999), and if their imagery performance – spontaneous or not – is shaped by real biological constraints (see Parsons 1994), then simulating grasping with a bear's paw should differ qualitatively from simulating grasping with a healthy adult's hand. On a more fully experiential note, studies of interactive media have shown that people need only very little fictional stimulation to adopt a distorted view of their own bodies, our body schema appearing to be less stable than usually believed (see Biocca 2002). Of equal importance as the agent's alleged body are the readers' own physical properties and their previous sensorimotor experience, yet another precondition speaking in favor of objects such as artifacts, and events such as artifact manipulation, both belonging to a very basic level of cognition and life experience at large.

Hence bodily movement execution on the one hand and literary reading about such on the other can and ought to be – contrary to what most cognitive scientists believed until recently – viewed as two points of one experiential continuum, with even less distance in between than probably assumed by most avid readers. To endorse this view requires a move no less natural than does endorsing the thought of Marc Jeannerod (2006, 53–54), a physiologist and philosopher who defines motor imagery — in line with the main argument of the present chapter — as action that merely lacks an overt execution phase.⁴⁴ Although in reading “[Pooh] stood on a chair, and took down a very large jar of honey from the top shelf.” (Milne 1992 [1926]: 61), the reader never maintains the belief⁴⁵ that she has moved *herself*, the less in the agentic sense implied by this last transitive verb (sense of agency), she can still,

⁴⁴ Jeannerod also gives examples of pathologies in which the brain's inhibitory mechanism does not function properly. Such impairments can manifest themselves in compulsive imitation (so-called imitation behavior) or compulsive object manipulation (so-called utilization behavior).

⁴⁵ For an extensive discussion of the dissociation between immersion and belief, see Schaeffer (2010).

mostly without noticing, experience the coming into being of Winnie-the-Pooh's clumsy power grip as the bear is getting hold of the jar (sense of ownership).

2.5 Motor simulation eliciting presence

It is commonplace that literature of the nineteenth century and beyond often makes us sensitive to perceptual aspects of daily experience that are normally passed unnoticed. This belief has lied at the heart of much literary aesthetics since the early twentieth century. Defamiliarization as such, whether referential as initially captured by Viktor Shklovsky's (1990) theory of estrangement, or purely verbal as first addressed in Jan Mukařovský's (1976) theory of foregrounding, often receives the main portion of credit when a piece of written discourse is recognized for its aesthetic qualities. I have no intention to dispute this idea. Neither am I interested in delving into a history of the human sensorium, because I understand it to be just as much commonplace that presence, a perceived naturalness of spatial experience, shapes the impact of whatever narrative one is reading (see also Green 2004). What I intend to do instead is tentatively identify the optimal balance between defamiliarization and naturalness, outlining in rather general terms which literary treatment of (dynamically veracious, transitive) bodily movement may elicit presence at its best. The diachronic aspect needs to remain bracketed (but see Chapter 1, Section 1.8).

I have noted above that in motor enactment-imagery, motor simulation temporarily refrains from being non-conscious. I have also noted that it sometimes elicits a level of muscular activity that is not only amenable to self-report, but draws instant attention of the reader to itself. Hence the task of defining the forms of motor simulation which most directly induce a sense of presence, double as presence already is in its unique position in between naturalness and defamiliarization, splits into yet another two questions, whose intent differs but in degree: When does motor simulation elicit presence? (Section 2.5.2) When is presence-eliciting motor simulation most likely to transgress the threshold of readers' consciousness and manifest itself as motor enactment-imagery? (Section 2.5.3) Before these two questions are answered, further prerequisites concerning presence as such must be put forward.

2.5.1 Presence as background

Even though occasionally attended to by the reader, presence as a *continuous* function of a particular reading session or a series of some such sessions

probably operates in the background of higher cognitive processes involved in literary comprehension, analogously to what psychologist Seymour Epstein (1998) calls the experiential system. Not only so in the self-evident sense that it does not interfere with the fluency of reading, but also in that it leaves space for evaluative thought on the part of the readers, who may find themselves busy making predictions concerning the plot, or associating the events to their own private concerns, or even interpreting them more audaciously in accordance with hermeneutic or whichever semiotic patterns (see also Chapter 1, Section 1.6.6). This is possible due to the instantaneous and extremely short-lived nature of the vivid spatial imagery triggered by presence cues. Contrarily to what some adversaries of immersion theory and similar concepts might think, the idea of presence does not suggest that the reader is following the narrated events from “within” the storyworld, exclusively and consistently, throughout the entire text.

As has already been mentioned, presence seems to be positively correlated, albeit not in an uncomplicated one-to-one relation, with immersion (see also Green 2004). Any detailed account of this correlation, or of its relationship with the higher-order processes listed above, falls outside the scope of this dissertation. However, an important assertion to be made about both presence and immersion is that, similarly to Jean-Marie Schaeffer (2010), philosopher of art, I believe neither of the two to fully block the reader’s sensitivity toward the outer physical world. Quite the opposite, some veridical exteroceptive (e.g. auditory, tactile) stimuli from the environment in which one is reading can enhance or be enhanced by the vicarious stimuli triggered by the narrative. For example, while reading Emily Brontë’s *Wuthering Heights* on a windy day, one may be prone to coupling one’s auditory sensations to the fictional world of the novel. Drawing on introspection, I take it for evidence in favor of Schaeffer’s theory, according to which immersion entails augmented sensitivity altogether, that a second watching of a particularly immersive piece of footage usually awakens memories of the circumstances under which one saw it previously.

For a narrative to elicit a stable level of presence, references to comparably dynamically veracious, transitive bodily movement ought to be scattered evenly throughout the text. In this respect, there is a rather telling contrast between Toussaint’s *L’appareil-photo* and Robbe-Grillet’s *La jalousie*. Both novels begin in a scenic manner. In their opening sequences – crucial as these are for further adjustment of readerly expectations – bodily actions are being carried out in clearly indicated environments, rather than displaced or abstract events of a wider time span being summarized. If one takes a portion of text from the very beginning of *L’appareil-photo* (corresponding roughly to a volume of 4000 words) and a commensurable portion from the very beginning of *La jalousie*, and counts the number of explicit or strongly implied references to transitive bodily movement, the quantities amount to 114 for the first 21 pages of *L’appareil-photo* (about 190 words per page)

and 35 for the first 24 pages of *La jalousie* (about 170 words per page). In *L'appareil-photo*, the number of occurrences per page is comparably stable – 0 (2 pages), 1-6 (11 pages), 7-12 (8 pages) – and evenly distributed throughout the text, whereas in the sample taken from *La jalousie*, the references are accumulated in a few clusters of mostly three pages at a time. Each cluster is followed by another two to three pages with no references to transitive bodily movement whatsoever, despite the fact that acting humans are reported to be perceived. The quantities per page are: 0 (12 pages), 1-3 (9 pages), 4-6 (3 pages). These opening excerpts are representative of the two novels at large.

Toussaint refers to transitive bodily movement at least three times as often as does Robbe-Grillet, a striking disproportion, given that *La jalousie* is construed as a fine-grained, circular account of what is seen by a man obsessively observing the behavior of others. Meanwhile, *L'appareil-photo* could be characterized as a straightforward, nearly conversational, first-person account of a few episodes from everyday life. Importantly, during each of the long, fully static pauses occurring in *La jalousie*, any hitherto conceivable sense of presence collapses, leaving the reader with a strong sense of detachment instead, one that in my view prevails more or less throughout the entire novel. In terms of referential imagery, scattered description-images (and possibly some in-between enactment/description images) are the only effect thus achieved.

Hence the rules and patterns of presence seem to resemble of the mood-cue system in film structure and spectatorship outlined by film scholar Greg Smith: to sustain presence, the text must provide the reader with a “periodic diet” (G. M. Smith 2003, 42) of references to bodily movement. An optimal density of cuing seems uneasy, but also unnecessary, to define. Overexposure to raw presence cues as characterized until this point, such that would cause saturation and loss of effect, remains hypothetically possible. Yet such a narrative would most probably not invite much aesthetic appreciation, approximating a mundane instruction manual instead. I will now turn to the aforementioned balance between naturalness and defamiliarization. In so doing I will narrow down my definition of the cues in question here, and describe presence in terms of its very local and *instantaneous* – rather than global and continuous – nature, a step which will further clarify why there should be little risk of cue overdose, if any.

2.5.2 Presence as (unmarked) balance

What I mean by balance between naturalness and defamiliarization in rendering transitive bodily movement is closely related to a notion of unmarked proportion between the kinesthetic, the otherwise proprioceptive and the exteroceptive aspects of the narrated event. That is, not only should the agent-object interaction as described in the narrative ideally not transgress a

certain level of granularity, because then it would most probably slide into a kind of slow motion and cease being dynamically or kinematically veracious; it also needs to display some similarity with the distribution of attentional focus such as would normally occur in a corresponding real-world action.

With the exception of stories where artifacts themselves are invested with high conceptual significance (Edgar Allan Poe's *Stolen Letter*, Georges Perec's *Les choses*), nearly any narrative rendition of object-directed movement as such potentially constitutes a vehicle of defamiliarization – in the very general sense that it makes explicit the “gapped middle,” or “penultimate subevent” (i.e. a step that in everyday communication is naturally omitted; see Talmy 2000), a typical subgoal in a more complex sequence of actions. Classified as “minor detail” by discourse theorist Catherine Emmott (1997, 243), the sole act of, for example, pushing a door open, would usually not be included in a non-literary narrative if not implying or leading to something rather unusual, the less would it be considered a full-fledged event worth telling in daily conversation. On the other hand, in the literary cases where it fulfills the function of a presence cue, its way of rendering motor experience would not stretch too far beyond its being simply and briefly mentioned, as in the following excerpt from *L'appareil-photo*:

Profitant d'une légère accalmie, nous nous remîmes en route, et, après avoir marché une bonne demi-heure sous la pluie, comme nous passions devant un grand hôtel, je proposai à Pascale de nous y arrêter pour boire un café, ou même un thé si elle voulait, j'étais prêt à tout. A tout. Je poussai la porte de l'hôtel et aperçu un portier en habit d'apparat, redingote et gilet gris, qui faisait une petite pause dans le hall sur une chaise de service. (Toussaint 1988, 88)

[Taking advantage of a slight lull, we went on our way, and, after having walked for a good half-hour in the rain, as we passed a large hotel I asked Pascale if she would like to stop and have coffee, or even tea if she preferred, I was up for anything. For anything. I opened the hotel door [pushed the hotel door open] and caught sight of a doorman in full regalia, frock coat and gray waistcoat, who, seated in a lounge chair, was taking a break in the lobby. (Toussaint 2008, 77; my literal translation added in nested square brackets)]

For exactly in laconic mentions like this one, does it ever so closely resemble a real-world experience of motor interaction, which belongs to the domain of procedural, i.e., nonverbal and largely non-describable, knowledge. Otherwise, the right proportion between kinesthesia, other proprioception and exteroception, or the flash of sensorimotor unity as I call it elsewhere in this chapter, may fail to arise, with other effects, embodied or disembodied, arising in the reader instead.

Defining kinesthesia, physiologist Alain Berthoz poses the following rhetorical question (Berthoz 2002, 25): “By what twist did language suppress the sense most important to survival?” It is aptly answered by Anthony Mar-

cel, medical scientist and philosopher, who affirms that, as a rule, we have very poor direct proprioceptive awareness when carrying out a bodily action, and reminds us that we tend to be primarily focused on the object we are interacting with (Marcel 2003, 67). Hence my premise that simulated transitive movement may serve well to elicit a multimodal enactment-image of the outer environment acted upon, and my belief that simple mentioning of the movement does the best work in making both the movement – be it mundane (e.g. pounding a nail into a wall) or extraordinary (e.g. picking up a coin with one's foot, stepping on a nail) – and the environmental fragment as veracious as possible in the reader's mind.

A perfectly adequate distribution of attentional focus is again impossible to define, as the situations in which a movement occurs can vary endlessly. Nonetheless, based on what has just been said, one can at least assume that a sense of disproportion easily arises when inner sensations are accounted for, especially if richly so. Proprioceptive accounts may well enhance embodied empathy and draw the reader's attention to the processes inside her own body (see also Esrock 2004), but they do not in themselves elicit presence, a phenomenal sense of connection between body and environment. Here are two examples of such proprioceptive cuing from *Madame Bovary*, one brief, another slightly more elaborate:

Emma se sentait faible en marchant[.] (Flaubert 1972 [1857]: 175)

[As she walked along, Emma began to feel weak. (Flaubert 1995 [1950]: 104)]

Elle se tenait immobile, de peur que la moindre émotion ne la fit vomir. Cependant, elle sentait un froid de glace qui lui montait des pied jusqu'au coeur. (Flaubert 1972 [1857]: 459-460)

[She kept quite still, afraid that the least agitation might make her sick. She began to feel an icy coldness mounting from her feet towards her heart. (Flaubert 1995 [1950]: 327)]

Neither of these two examples renders inner sensations connected to transitive movement, pertaining to locomotion instead, and both render abnormal circumstances. To a certain degree, nearly any movement escapes verbalization in terms of proprioceptive sensations, as long as the latter conform to what is perceived as common. Still the proprioceptive element is particularly evasive to conscious awareness when the movement in question is transitive. Jeannerod (2006, 53–55) points out that object-directed actions (i.e. purposeful object-directed movements) only enter full consciousness in their own right when they are either delayed due to an obstacle, incomplete, or blocked. All of Jeannerod's examples entail pain (e.g. grasping too hot a cup) or physical impairment (e.g. loss of motor skill after a stroke). A few examples of how these kinds of experience translate into language can be found in Flaubert's novel:

Comme elle fut longtemps avant de trouver son étui, son père s'impatienta ; elle ne répondit rien, mais, tout en cousant, elle se piquait les doigts, qu'elle portait ensuite à sa bouche pour les sucer. (Flaubert 1972 [1857]: 72)

[She was so long finding her work-box that her father lost patience with her. She made no answer; but as she sewed she pricked her fingers, and then she put them to her mouth and sucked them. (Flaubert 1995 [1950]: 28)]

Emma se sentait faible en marchant ; les cailloux du trottoir la blessaient[.] (Flaubert 1972 [1857]: 175)

[As she walked along, Emma began to feel weak. The pebbles on the foot-path hurt her feet. (Flaubert 1995 [1950]: 104)]

In both of these cases, an inference is strongly invited by the text for a referential image to become complete: the object (a needle) in the first one, the transitive movement itself (a step or a series of steps) in the second one. In both cases, however, it is the object that the success or failure, normality or abnormality, of the transitive movement is measured against. The needle has been grasped improperly, the pebbles are too hard for the treading soles of Emma Bovary. Here the environment remains in focus, outperforming proprioception, which in turn has only been given the briefest mention. Given that presence stands for the sense of existence *within* a particular environment, the exteroceptive cue in the form of an object must always remain in focus if presence is to arise at all. An extensive proprioceptive account of one singular transitive movement, uneasy to imagine and difficult to find in actual narratives as it is, would violate the balance.

Yet in arousing presence, there is equally an upper limit for what qualifies as natural focus toward the exteroceptive side of the sensorimotor continuum. Contradicting the economy and selectivity intrinsic to normal attention, meticulous descriptions of the outer world may paradoxically make it quite difficult for the reader to image what is being described (see Chapter 3), or even cause her to refocus onto the linguistic medium as such rather than image anything at all. Much of this chapter, similarly to Grünbaum's article (see Section 2.3 above), stems from an effort to explain that in contrast to what is often assumed, passages of detailed visual description usually do not elicit presence. Not unless an obviously dynamic, bodily element is interspersed throughout; not as long as they are static and conform to the narrow definition of description as "a narrative pause interrupting the presentation of the chain of events" (Pflugmacher 2008, 101). Robbe-Grillet's novel, for instance, abounds in detailed static environment descriptions, such as the following:

Sur la table de la salle à manger, le boy a disposé un unique couvert, en face du buffet long et bas qui occupe presque toute la cloison entre la porte ouverte de l'office et la fenêtre fermée donnant sur la cour. Les rideaux, qui n'ont pas été tirés, laissent à découvert les six carreaux noirs de la fenêtre./ Une seule lampe éclaire la grande pièce. Elle est située sur la table, dans son angle sud-

ouest (c'est à dire du côté de l'office), illuminant la nappe blanche. A droite de la lampe, une petite tache de sauce marque la place de Franck : une empreinte allongée, sinueuse, entourée de signes plus ténus. De l'autre côté, les rayons viennent frapper perpendiculairement le mur nu, tout proche, faisant ressortir en pleine lumière l'image du mille-pattes écrasé par Franck. (Robbe-Grillet 1957, 144–145)

[On the dining room table the boy has set a single place, opposite the long, low sideboard which takes up almost the entire wall between the open pantry door and the closed window overlooking the courtyard. The curtains, which have not been drawn, reveal the six black panes of the window. / A single lamp illuminates the large room. It is placed on the southwest corner of the table (that is, toward the pantry), lighting up the white cloth. To the right of the lamp, a little spot of sauce marks Franck's place: an elongated, sinuous stain surrounded by more tenuous markings. On the other side, the lamp's beams strike perpendicularly against the nearby naked wall, showing quite clearly in the full light the image of the centipede Franck squashed. (Robbe-Grillet 1965a, 104)]

Although these descriptions may evoke the path of a traveling gaze, thus prompting an in-between enactment/description experience (see Chapter 1, Section 1.6.5), any bodily movement of the central experiencer would have to be inferred by the reader on unsteady grounds.

Thanks to the highly repetitive structure of *La jalousie*, some readers may be able to reconstruct a decently accurate spatial model by the time they reach this particular passage in the novel. Nonetheless, experimental studies have shown that even spatial modeling, i.e., the deliberate retrieval of spatial information from memory, is significantly facilitated when readers expect a story character to be reported to move, as opposed to when they do not (see Rapp, Klug, and H. A. Taylor 2006).⁴⁶ Mental modeling notwithstanding, the unusual poverty in references to bodily movement in the above passage prevents one from simulating active physical contact between body and environment, and from developing a sense of having delved into that environment. By contrast, the following passage from *L'appareil-photo* enhances presence through consistent dynamization (and, in a sense, narrativization) of the environment:

Comme elle avait vraiment très froid, elle finit par se lever, le manteau sur les épaules, et, écartant du bras un petit rideau de chintz, partit à la recherche d'un chauffage d'appoint dans un réduit minuscule, très sombre, où, dans une douche désaffectée, à côté d'un anorak azur qui pendait à un cintre, avait été

⁴⁶ Also, it is telling that when asked to spontaneously describe enclosed environments of the kind present in *La jalousie*, people often adopt a dynamic egocentric perspective, taking their interlocutors on mental tours (see H. A. Taylor and Tversky 1996; Linde and Labov 1975). They tend to address their interlocutors as “you”, telling them where to go and how to orient themselves within the environment at issue, and indicate the position of rooms and objects with respect to this moving you.

entreposées plusieurs piles de documents. Elle m'avait demandé de la suivre pour l'aider dans ses recherches et, tandis que je feuilletais pensivement quelques vieux dossiers d'inscription dans l'obscurité, elle déplaça une caisse mal fermée de laquelle dépassaient des cônes de stationnement orange et attira vers nous une bouteille de gaz, que surmontait un petit radiateur, au foyer grillagé. (Toussaint 1988, 24–25)

[As she was really cold, she got up, a coat covering her shoulders, and, pushing aside a chintz curtain [with her arm], left to look for another portable heater in a tiny dark storage room, where, in a shower no longer used, next to an azure anorak dangling on a hanger, were stacked several piles of papers. She had asked me to follow her to help her look and, while I pensively flipped through some old registration applications in the darkness, she moved a poorly closed box spilling over with orange parking cones and found [pulled toward us] a small propane tank for cooking topped with a little radiator with a grilled front. (Toussaint 2008, 22; my literal translation added in nested square brackets)]

Incidentally picking up the example of Flaubert's writing, the literary semi-otician Roland Barthes (1989) once famously commented on the indexical function of "insignificant" quotidian artifacts. Barthes argues that the mention of such artifacts in narrative helps create what he called the reality effect. If, for the sake of a thought experiment, Barthes' concept of reality effect were understood as denoting presence, his discriminating observation would only be giving one half of the picture. For references to everyday objects, particularly those less devoid of practicality than the bibelots and some such ("un polypier touffu" ["some branching coral"]) of Mr and Mrs Bovary's rooms, enhance presence only inasmuch the objects appear in the close peri-personal space of an explicitly (instantaneous presence) and/or habitually (continuous presence) moving human individual; or possibly if the narrative, through concentrated cuing, invites the reader to immediately anticipate such an event. In electrophysiological studies of mere action observation, the inchoate muscle tension intrinsic to action preparation has been found to arouse corresponding event-related potentials (i.e. a motor simulation of action preparation) in the observing individuals (see Kilner et al. 2004). This finding makes some psychologists (Zwaan, L. J. Taylor, and De Boer 2010) believe that verbal reference to action preparation may have analogous simulation effects in readers.

Put differently, in a literary narrative, implicit object affordances alone usually do not suffice for interaction dynamics, and the subsequent sense of presence, to arise. If scholars discussing presence in high-tech virtual environments can advantageously ground their reasoning in a broadly defined concept of affordance, arguing that the virtual environment "is perceived and understood by mentally combining potential patterns of actions" (Schubert, Biocca, and Regenbrecht 2001, 267), it is precisely because the computerized interfaces they study actually entail real motor interaction on the part of the user, who is kept busy manipulating the joystick, the keyboard, or the

like. As far as the book medium is concerned, interaction can only be vicariously enacted by the reader based on a character's reported motor activity.

Moreover, behavioral experiments (Borghini and Riggio 2009) show that despite the above-mentioned cortical activation detected in the processing of isolated artifact nouns, it is unlikely that in sentences or discourse, these nouns activate a particular action – i.e., one corresponding to the canonical affordance (e.g. “hammer”-“pound”) – by default, regardless of the specific task referred to in the surrounding text. Rather, the motor information activated by the object name seems to be modulated by the co-occurring verb (e.g. “see” vs. “grasp”).⁴⁷ In line with the main argument of this chapter, the same experimenters suggest that simulation is more robust and precise for action sentences than for observation sentences, based on their finding that manual response times measured on an object recognition task were faster when the response was primed by the verb “grasp” as compared to “see.” To rephrase my formulation from above: Given that presence stands for the sense of existence within an environment, not only the exteroceptive cue in the form of an object, but also the bodily movement itself must always remain in focus. As far as presence is concerned, one cannot do without the other.

How a bodily movement ought to be rendered in order to appear veracious and induce presence, has already been foreshadowed in various ways. It has also been said that if presence is to reach a peak, proprioceptive and kinesthetic cues should be comparably restricted, regardless of whether the movement in question is mundane (canonical) or not. To adopt a similarly simplistic language, these two kinds of bodily movement can be directed at two different kinds of objects: mundane (basic-level, e.g., “hammer”) or extraordinary (parts of mundane objects, or objects less commonly interacted with at a particular place and time). All these distinctions are certainly a matter of degree, and partly also of individual reception. I omit transitive movements that strongly contradict human biomechanics (e.g. picking up a hammer with one's foot) or semantic sensibility (e.g. squeezing a window; see also Klatzky et al. 1989), assuming that, albeit stimulating to the reader's embodied imagination, these may be difficult to enact.

The more mundane and/or basic-level an object, the less exteroceptive, i.e., in most cases visual, description is required. In fact, for artifacts of daily use proper, the proportion between amount of text and the sense of presence may be a roughly reverse one: only when such artifacts are passed comparably unnoticed does the environment emerge as truly lived (see also Chapter

⁴⁷ In narrative, perceived affordances are also co-determined by previous reading experience. (I am grateful to Michael Kimmel for bringing this point to my attention.) For instance, for a reader well-acquainted with vampire narratives, the mention of a pointed pole may be more stimulating in terms of referential simulation/imagery as compared to a novice.

3, Section 3.5.3), rather than contemplated upon, like in the following passage from *L'appareil-photo*:

Elle rentra aussitôt et, pendant qu'elle répondait, j'attendis en face d'elle, déplaçant des objets du bout de doigts sur son bureau, ouvrant quelque registre. Dès qu'elle eut raccroché, elle me demanda où j'en étais dans la constitution de mon dossier, et nous fîmes ensemble une manière d'inventaire de tous les documents que j'avais déjà réunis. (Toussaint 1988, 10)

[She went to answer it and, while she was talking, I waited next to her, slightly moving objects on her desk [*with my fingertips*], opening random drawers [some folders]. Once she had hung up, she asked me how my application was coming along, and together we made a sort of inventory of all the documents I had already gotten together. (Toussaint 2008, 9–10; my literal translation added in nested square brackets)]

Much has happened in cognitive science since its early times, but it will always remain true that sensory experience escapes replete verbal report into a much higher degree than other, higher forms of cognition do. Moreover, the borderline between verbally evoking and conceptualizing is especially thin when perception of quotidian artifacts is concerned, which may be known to the reader of a particular place and time inside out. In the following passage from *La jalousie*, a colonial-style table is being described way beyond immediate evocation:

La table est un disque de métal percé de trous innombrables, dont les plus gros dessinent une rosace compliquée : des S partant tous du centre, comme les rayons deux fois cintrés d'une roue, et s'enroulant chacun sur soi-même en spirale à l'autre bout, sur la périphérie du disque. / Le pied qui le supporte est constitué par une triple tige grêle dont les branches s'écartent pour converger ensuite à nouveau, par un changement de la concavité, et s'enroulent à leur tour (dans les trois plans verticaux passant par l'axe du système) en trois volutes semblables, qui reposent sur le sol par leur spire inférieure et sont accolées ensemble au moyen d'un anneau, un peu plus haut sur cette même courbe. (Robbe-Grillet 1957, 124–125)

[The table is a metal disc pierced with innumerable holes, the largest of which form a complicated rosette: a series of S's all starting at the center, like double-curved spokes of a wheel, and each spiraling at the outer end, at the periphery of the disc. / The base supporting the table consists of a slender triple stem whose strands separate to converge again, coiling (in three vertical planes through the axis of the system) into three similar volutes whose lower whorls rest on the ground and are bound together by a ring placed a little higher on the curve. (Robbe-Grillet 1965a, 94–95)]

When given too much attention, either through meticulous description or other narrative treatment (e.g. consistent anecdotal conceptualization as in Nicholson Baker's novel *The Mezzanine*), mundane objects fail to co-produce presence, prompting a series of detached, perceptually feeble description-images in the former case (see Chapter 3), or imageless proposi-

tional thought in the latter. However, one exception of sorts from this general rule should probably be mentioned here: touch and cutaneous sensations, or static implications thereof (“hold X,” “feel X,” “X in hand,” and so forth), with their double position in between proprioception and exteroception, linking the body intimately to its environment. Here is one of the many brief mentions of cutaneous perception from Toussaint’s *L’appareil-photo*, followed by a slightly more elaborate one from the same source text:

J’étais assis immobile dans la pénombre, et, dans la poche de mon manteau, je sentais le boîtier de l’appareil-photo qui faisait une petite bosse contre ma cuisse. (Toussaint 1988, 105)

[I was sitting motionless in the semi-darkness, and, in my coat pocket, I felt the camera case that juttred out against my thigh. (Toussaint 2008, 92)]

Arrivant devant les bâtiments du centre commercial, nous poussâmes la double porte vitrée de l’entrée et, accueillis par la bouffée de chaleur sèche d’un soupirail, nous nous engageâmes dans l’allée principal de la galerie marchande. (Toussaint 1988, 64)

[Arriving at the shopping center, we opened the glass double doors at the entrance and, welcomed by a gust of dry heat coming up from a floor vent, we walked down the main strip of the mall. (Toussaint 2008, 56–57)]

As one moves upwards along the mundane-extraordinary continuum, more and more verbal report is needed for the mere sake of brief mentioning – without specification, the comprehender would not know what the extraordinary object is or that it is at all. The more elaborate a static description of an object, the higher the “risk” of conceptualization and defamiliarization. For the description to be potentially formative of presence, an anthropocentric and *egocentric* (experiencer-related: e.g., “John picked up his wallet.”) – as opposed to allocentric (object-related: e.g., “The wallet lay on the floor.”) – way of locating the object, should preferably apply throughout the text passage, however fuzzy this distinction may be when it comes to discourse. This means for instance that a non-manipulable object should not be described from several angles at once when the locomotion required for such sensory experience cannot be sensibly inferred, given the specific context. A description becomes truly evocative only when it captures what can directly be seen or otherwise perceived, rather than what we merely know or guess. Albeit rarely, the latter case does occur in my literary corpus:

Ovoïde et renflée de baleines, elle [la coiffure] commençait par trois boudins circulaires ; puis s’alternaient, séparés par une bande rouge, des losanges de velours et de poils de lapin ; venait ensuite une façon de sac qui se terminait par un polygone cartonné, couvert d’une broderie en soutache compliquée, et d’où pendait, au bout d’un long cordon trop mince, un petit croisillon de fils d’or, en manière de gland. (Flaubert 1999 [1857], 56–57)

[An oval splayed out with whale-bone, it [the cap] started off with three pompons; these were followed by lozenges of velvet and rabbit’s fur alter-

nately, separated by a red band, and after that came a kind of bag ending in a polygon of cardboard with intricate braiding on it [covered with intricate braiding]; and from this there hung down like a tassel, at the end of a long, too slender cord, a little sheaf of gold threads. (Flaubert 1995 [1950]: 16; my literal translation in nested square brackets)]

The possibility to discern or infer so-called canonical perspective (see Palmer, Rosch, and Chase 1981), i.e., a perspective facilitating canonical affordance (e.g. seeing an electric iron from above rather than from beneath), or at least human interaction of some kind, may also make a description easier to integrate into a veracious mental image. Finally, it seems that a particularly effective way for an author to have that image feed into a genuine flash of sensorimotor unity is by making the dynamizing reference to bodily movement or touch immediately *after* the object or environmental fragment has been described in visual or other exteroceptive terms, rather than before. The reason for this is that in such cases, the movement to be enacted is readily disambiguated by the preceding text in terms of its dynamics, power, precision and sensory outcome, becoming thus in itself an ultimate point of uniqueness (see Section 2.3 above). See for example the following paragraph, taken from *La jalousie*:

En plein jour, l'opposition des deux couleurs grises – celle du bois nu et celle, un peu plus claire, de la peinture qui subsiste – dessine des figures compliquées aux contours anguleux, presque en dents de scie. Sur le dessus de la barre d'appui, il n'y a plus que des îlots épars, en saillie, formés par les derniers restes de peinture. Sur les balustres, au contraire, ce sont les régions dépeintes, beaucoup plus réduites et généralement situées vers le milieu de la hauteur, qui constituent les taches, en creux, où les doigts reconnaissent le fendillement vertical du bois. A la limite des plaques, de nouvelles écailles de peinture se laissent aisément enlever ; il suffit de glisser l'ongle sous le bord qui se décolle et de forcer, en pliant la phalange ; la résistance est à peine sensible. (Robbe-Grillet 1957, 28–29)

[In broad daylight, the contrast of the two shades of gray – that of the naked wood and that, somewhat lighter, of the remaining paint – creates complicated figures with angular, almost serrated outlines. On the top of the handrail, there are only scattered, protruding islands formed by the last vestiges of paint. On the balusters, though, it is the unpainted areas, much smaller and generally located toward the middle of the uprights, which constitute the spots, here incised, where the fingers recognize the vertical grain of the wood. At the edge of the patches, new scales of the paint are easy to chip off; it is enough to slip a fingernail beneath the projecting edge and pry it up by bending the first joint of the finger; the resistance is scarcely perceptible. (Robbe-Grillet 1965a, 48)]

After an elaborate visual opening, the paragraph gradually slides into a combined visual-tactile focus, only to be rounded off by a brief reference to transitive bodily movement, which ties the modalities together for a moment, creating a multimodal image of the railing as physically present within one's

reach. Immediately after, Robbe-Grillet's narrative brings the reader back to the realms of the purely visual again. This very reference to transitive bodily movement is not only typically economic when compared to the preceding exteroceptive renditions of the environment, it also exemplifies further principles of presence cuing through bodily movement, to be outlined in what remains of this chapter: It is sudden, it is comparably isolated, and it is not even grammatically bound to a particular agent or time.

2.5.3 Presence as (marked) occurrence

In his writing on the ubiquity of perspective in discourse comprehension, cognitive linguist Brian MacWhinney (2005) argues that, whereas reading "the cat licked herself" in isolation may only invite us to adopt what he calls a superficial, depictive mode of processing (corresponding to visual simulation in Zwaan 2004 and, on the level of consciousness, to description-imagery; see Chapter 3), reading the same sentence embedded in discourse is more likely to elicit what he calls a deeper, enactive mode in which the reader maps the cat's paw onto her hand etc. (corresponding to the aforementioned motor simulation, the basis of motor enactment-imagery). Along with the above Robbe-Grillet quote, the embedding MacWhinney makes up for his sentence may serve as a good example for further discussion:

The cat spotted a mockingbird perched on the feeder. She crouched down low in the grass, inching closer and closer with all her muscles tensed. Just as she pounced, the bird escaped. Disappointed, she leapt up to a garden chair, raised her paw to her tongue, and began licking it. (MacWhinney 2005, 199)

Both MacWhinney's example and the preceding Robbe-Grillet quote allow the reader to discern a unitary perspective, or even unitary focalization as some narratologists would have it, but grammatically they differ in person and tense, the former being impersonal. The stimulus sentences used in neuroscientific and behavioral simulation studies also vary in this respect. Enactment seems not to be reserved for selected verb forms. What applies to tense is also true for verb aspect: There may be a difference between imagery distribution (motor vs. sensory-motor simulation) in punctual ("sliced an onion") vs. iterative ("was slicing onions") action, as well as in action that is current vs. past with respect to the now of the narrative (see Zwaan, L. J. Taylor, and de Boer 2010; Zwaan 2008), but simulation takes place in either case. Thus when Käte Hamburger, an influential narratologist whose work opens for a view of presence as the hallmark of literature at large, famously argues that sentences such as "Quickly intent, he took out a leather portfolio" (Hamburger 1973, 63) are exactly what makes one read a text as a literary narrative, she may be quite correct, yet her argument, grounded in the

grammatical categories of (the third) person and (past) tense, does not have to be.

MacWhinney (2005, 199) seems to propose consistent focalization through the cat (“each clause links to the previous one through the perspective of the cat as the protagonist”), or simply the fact that the reader has been following the cat for a while by the time the critical sentence is reached, to be the main cause of motor simulation (or enactment) in reading “[she] began licking it.” In opposition to this explanation, I would like to argue that the perspective intrinsic to the surrounding text and the prominence of a character in a particular passage is far less important than other circumstances: Apart from dynamic veracity and brevity of reference, which have already been treated (see Sections 2.3 and 2.5.2 above), these can be subsumed under the tentative label of *sudden modality shift*. In MacWhinney the shift entails a transition from locomotion to transitive movement (beginning one sentence earlier with “she leapt up to a garden chair”), in Robbe-Grillet it entails a transition from non-movement (or at most a little inferred micro-movement implied by tactile perception) to transitive movement. In both cases, the impact of the shift may be further reinforced by its emphatic position at the end of a paragraph. Crucially, the shift in MacWhinney’s story will be preserved even if the last two sentences are replaced with a sentence referring to an animate subject other than the cat, and so will its sensorimotor appeal:

The cat spotted a mockingbird perched on the feeder. She crouched down low in the grass, inching closer and closer with all her muscles tensed. John raised the cup to his lips and took a sip of tea.

Prospection and habituation are distinctive features of all literary reading (see also Olson, Mack, and Duffy 1981). By means of integrating subtle cues, texts continuously modulate and tease the reader’s expectations. If MacWhinney’s story were rich in references to transitive bodily movement (e.g. “the cat was playing with a pine cone,” “she embraced the tree trunk as she observed the mockingbird”) from the very beginning, or if it consisted of such references exclusively, the critical sentence would not attract as much attention, its emphatic position notwithstanding. A quality of suddenness and immediacy, crucial as it seems for enactment-imagery to arise, would be missing then, the readers having become accustomed to the mode of transitive movement by the time they would reach the sentence. While this would probably not hinder basic motor simulation, a strong phenomenal boost toward the threshold of consciousness would be less likely. An interesting example of excessive recourse to transitive bodily movement can be found in one of the cue clusters in *La jalousie*. Not only does its density preclude enactment-imagery and presence; Robbe-Grillet’s way of putting discrete body parts (or their haptic extensions, i.e., tools currently in use) repeatedly

in the position of linguistic subject imposes an artificial allocentric perspective and objectifies the implied human individual, thus further challenging the movements' presence-cuing potential:

La main droite saisit le pain et le porte à la bouche, la main droite repose le pain sur la nappe blanche et saisit le couteau, la main gauche saisit la fourchette, la fourchette pique la viande, le couteau coupe un morceau de viande, la main droite pose le couteau sur la nappe, la main gauche met la fourchette dans la main droite, qui pique le morceau de viande, qui s'approche de la bouche, qui se met à mastiquer avec des mouvements de contraction et d'extension[.] (Robbe-Grillet 1957, 111–112)

[The right hand picks up the bread and raises it to the mouth, the right hand sets the bread down on the white cloth and picks up the knife, the left hand picks up the fork, the fork sinks into the meat, the knife cuts off a piece of meat, the right hand sets down the knife on the cloth, the left hand puts the fork in the right hand, which sinks the fork into the piece of meat, which approaches the mouth, which begins to chew with movements of contraction and extension. (Robbe-Grillet 1965a, 88)]

To recall Smith's metaphor of periodic diet, presence cues become effective only if moderately dosed. Not only should they appear periodically, once in a while, for a *continuous* sense of presence to arise. They should appear *just* once in a while, if presence is to be *instantaneously* elicited at all.

Speaking of immersion in general, and its spatial facets in particular, narrative theorist Marie-Laure Ryan makes the following remark: "Continuous presence [of immersion cues]⁴⁸ becomes habit, habit leads to invisibility, and invisibility is as good as absence. For immersion to retain its intensity, it needs a contrast of narrative modes, a constantly renegotiated distance from the narrative scene, a profile made of peaks and valleys." (Ryan 2001, 137) Neuroimaging experiments (e.g. Raposo et al. 2009) have shown that when processed in context, motor verbs cause weaker cortical activation in the motor strip than when they are processed in isolation. The immediacy of a sudden reference to bodily movement may somehow make it operate more like an isolated utterance. Moreover, neither in Robbe-Grillet's description of the railing nor in MacWhinney's example, is transitive bodily movement overtly linked to a previously known overarching goal, or script (see Schank and Abelson 1977), e.g., in the way "picking up a fork" may in some cases be subsumed under "having dinner." The movements occur contingently, as it were. Although the framing of pre-scripted movement (e.g. "The cat

⁴⁸ Ryan proposes three sorts of immersion cues, all pertaining to narrative structure rather than content: adverbial deictic shift, present tense, and second-person narration (Ryan 2001, 134–139). Although simulation processes seem to operate independently of grammatical categories, these cues may somehow be at work in the prompting of presence in particular, combining readily with the content-related cues proposed in the present chapter. I elaborate on this idea elsewhere (Kuzmičová 2013a, 215).

wanted to clean herself, so she raised her paw to her tongue, and began licking it.”) may be more productive at eliciting event-related potentials analogous to those occurring in action preparation, the slight surprise effect elicited by *contingent*, non-scripted movement may, on the other hand, have a reinforcing effect on simulation in a way similar to that of a sudden modality shift (see also Barthes 1989).

Discussing their results from their neuroimaging study of story comprehension, Nicole Speer and colleagues conclude that “Regions involved in processing goal-directed human activity, navigating spatial environments, and manually manipulating objects in the real world increased in activation at points when those specific aspects of the narrated events were changing.” (Speer et al. 2009a, 995). Although Speer et al.’s focus is much more fundamental and granular than mine, it points in the same direction: Where movement and dynamics occur as something new with regard to what immediately precedes, somatotopic activation clearly takes place. I suggest that where they occur as comparably striking, simulation often grows into enactment-imagery, and into presence.

Outlining his theory of action ownership, Anthony Marcel (2003) asserts that in real-world experience, a minimal sense of action ownership can always be traced to the instantaneous egocentric coordination of the senses accompanying every bodily action, i.e., every volitional movement. I suggest that in reading, conversely, reflexive enactment of transitive bodily movement imposes upon the reader an instantaneously egocentric perspective, independent of focalization, whereof a flash of sensorimotor unity arises. As it happens, in post-Flaubert literary prose, it is quite unusual that references to transitive bodily movement do not occur at all. But the quality of presence elicited varies significantly depending on how often and in what constellation they occur.

2.6 Postscript

A few concluding remarks remain to be added at this point:

1: One could bring up presence cues other than references to transitive bodily movement. Apart from the aforementioned reality effect recognized by Barthes, these include proper place names, spatial deixis, the use of the definite article and various kinds of determinate pronouns (see also Ryan 2001; Emmott 1997). References to olfaction (e.g. old cigarette smell in a poorly ventilated hotel room), a sparsely theorized sensory modality, or inarticulate sound, whether controlled by a human experiencer or not (e.g. the sound of gravel under one’s feet) also serve presence particularly well, as certainly do many other kinds of words and phrases. Similarly to the sensorimotor cues that have been treated above, their impact depends on vari-

ables such as syntax and position within paragraph or text, but also on the periodicity of cuing. The detailed description of these variables is, and in part already has been (e.g. Duchan, Bruder, and Hewitt 1995), a subject matter for a separate investigation.

2: Many empirical issues concerning embodied discourse processing at large, and thereby also motor simulation and its relationship to presence, remain to be resolved. Rolf Zwaan and colleagues (2010) have conducted experiments (reading-by-rotation tasks) to see if motor simulation arises only when the motor activity in question is reported to be overtly taking place in the narrative *now*, or if it equally arises when the motor verb refers merely to a person's intention, or to something that happened in the past, off scene. As has previously been hinted, and *against* their initial predictions, the authors did find motor simulation to occur with past actions, similar for instance to Flaubert's "Léon had unconsciously placed his foot on the bar of Madame Bovary's chair." However, they did not find it to occur with intended actions (e.g. "He wanted to lock the door.") – which, so they hypothesize in the final discussion, may be accompanied by event-related potentials intrinsic to action preparation rather than by full-fledged motor simulation. Importantly, the results indicate that on the behavioral, i.e., muscle level, motor simulation is far from occurring by default with each and every motor verb. Rather, it seems to be modulated by what is currently happening in the imaginary world of the narrative. Nonetheless, the obtained results are inconsistent with regard to Zwaan et al.'s theoretical paradigm.

What makes these empirical studies particularly interesting from the viewpoint of this chapter is that Zwaan and colleagues ground their reasoning in an unproblematic notion of the narrative now, against which they then test their predictions. From my point of view, on the other hand, the narrative now corresponds to whatever becomes subject to the sense of presence, i.e., that which is to be elucidated as problematic. Technically, there happens to be no significant conflict between the two approaches, since all of Zwaan et al.'s stimuli are indeed brief and simple, and therefore easy to determine in terms of the narrative now. However, my speculation, grounded in the experience of reading complex literary narratives, may have the potential to account for some of the empirical inconsistencies. Suffice to posit, as I have been doing throughout this chapter, that one can derive the narrative now from the particular verbs and actions that are being processed (and enacted and vicariously experienced) and the context they are embedded in, rather than the other way around.

With elementary cases like "He opened the door," behavioral motor simulation arguably occurs. With "He wanted to open the door," it does not seem to occur. But what if the latter situation was worded in a more granular way, featuring a more precise reference to transitive movement, e.g., "He looked at the exquisite china door knob. He wanted to grasp it and gently turn, just for the pleasure of hearing it click"? Here the specificity of the intended

movement and its sensory outcome may be too compelling not to address the reader's embodied understanding. And what if Flaubert had written "Léon wanted desperately to lean his foot against the bar of Emma's chair"? Studies of neuronal mirroring have shown that the intensity of mirror and canonical neuron activation in action observation stands in direct proportion to how desirable the observed action is (see also Iacoboni et al. 2005), and to its prominence within the human motor repertoire. All these factors may also be at play in the processing of motor verbs, regardless of whether the movement in question is actually being performed by a character on the scene or not.

The same principles may apply to direct speech, yet another grey zone when it comes to the narrative now: "I opened it, he said." or "As I was opening the door I thought of my grandfather, he said." would probably induce less enactment-imagery and instantaneous presence, if any, than "I had to use both my hands to turn that little china doorknob, he said," and so forth. Interestingly, much of the presence elicited by Toussaint's *L'appareil-photo* seems to be grounded precisely in such borderline cuing, as represented by the digressive relative clauses in the following passage:

[J]e remis ma chaussette en me maintenant en équilibre sur une jambe et, tandis que, sur le point de tomber par terre, je sautillais sur place sur le trottoir pour garder un semblant d'équilibre, je me trouvais en présence d'un de mes hôtes à Milan, Il Signore Gambini, celui-là même qui l'avant-veille au soir était venu m'accueillir à l'aéroport et m'avait ensuite conduit en voiture à l'hôtel. Un homme charmant du reste, qui, le soir de mon arrivée, après m'avoir installé dans ma chambre, m'avait convié à venir boire un whisky avec lui au bar international de l'hôtel afin de me remettre divers documents ainsi qu'un plan de la ville édité dans une petite brochure qu'il avait soigneusement annoté pour me faciliter la visite des différents musées de la ville, et qui, là encore, pendant que je remettais ma chaussure avec difficulté, s'inquiéta avec une extrême amabilité de savoir s'il pouvait m'être utile en quoi que ce soit (un pédicure, oh oui, m'écriai-je en lui prenant le bras). (Toussaint 1988, 18–19)

[I put my sock back on and, on the verge of falling, hopping in place on the sidewalk to keep my balance, I realized that I was in the presence of one of my hosts in Milan, Il Signore Gambini, the same man who came to the airport two nights ago to welcome me and drive me to the hotel. A charming man, to say the least, who, the night of my arrival, after showing me to my room, had invited me to have a whiskey with him at the hotel's international bar, so as to give me various documents for work, as well as a map of the city printed in a small brochure that he had meticulously annotated in order to facilitate my visits to different museums in the city, and who, still there, while I was straining to put back on my shoe, asked me with the utmost amiability and with a look of concern if he could help me with anything (a pedicure, oh yes, I exclaimed grabbing his arm). (Toussaint 2008, 16–17)]

The more distinct the transitive movement referred to, the greater is the instantaneous presence potentially felt by the reader, and the closer the act in

question – whatever its logical temporal status – to the narrative now, *experientially* speaking. Unfortunately, reading-by-rotation tasks and similar experimental setups are based on very limited sets of movements and do not allow psychologists to study general motor simulation in complex literary discourse.

3: What are then the possibilities of validating my introspective hypotheses? Psychophysiological measurements of the kind used in guided mental imagery tasks, where people are trained and explicitly instructed to vividly imagine discrete situations, may be applicable in localizing motor enactment-imagery, which may reveal itself as efferent leakage in the somato-motor system (see Cuthbert, Vrana, and Bradley 1991). Introspective self-report, whether in the form of spontaneous verbal protocol or as questionnaire data (see also Note 39 to the present chapter), would be a necessary complement to any such behavioral setup. No paradigm would probably fully eliminate the risk of experimenter demand effect, and any paradigm would probably end up defining correlations rather than causalities.

Chapter 3. Description-imagery: reference without experience⁴⁹

it would be entirely false to believe that represented objectivities appear in full vividness when aspects belonging to them are themselves described in the text of a literary work. In fact, it is quite the opposite. (Ingarden 1973b, 267)

3.1 Perceptual mimesis

The present chapter focuses on description-imagery. In order to single out its most characteristic features *vis-à-vis* enactment-imagery, I will look closely into such description-imagery that is prompted by visual descriptions narrowly defined. Considerable attention will therefore be given to delimiting visual description in terms of textual properties as well as defining the general cognitive mechanisms (beyond imagery) involved in its processing. Although any one of the four imagery varieties outlined in Chapter 1 can hypothetically be prompted by any kind of textual stimulus, I will be working with a simplified opposition between visual description and description-imagery on the one hand, and narrative narrowly defined (i.e. text representing action) and enactment-imagery on the other. In doing so, I will follow an important objective concerning previous literary scholarship on the nature of description. Namely, I will oppose the common assumption that detailed visual descriptions in literary prose necessarily prompt perceptually vivid visual imagery. Based on introspection as well as convergent support from cognitive science and other disciplines, I will argue that visual description (and the description-imagery it typically elicits), unlike narrative (and the enactment-imagery it typically elicits), often stands in no positive relation to real-world perceptual experience because it lacks a structural counterpart in

⁴⁹ This chapter is an extended and revised version of my “Fidelity without Mimesis: Mental Imagery from Visual Description”, Currie, Gregory, Petr Kořátko, and Martin Pokorný (eds.), *Mimesis: Metaphysics, Cognition, Pragmatics*, London: College Publications, 271–313 (Kuzmičová 2012b).

such experience. Focusing in particular on what may be considered prototypical visual descriptions, I will present an alternative way of defining description-imagery, and propose a number of text variables underlying the imageability or non-imageability of any such description. For the sake of brevity, I will sometimes be referring to description-imagery without qualification, although a major part of my analysis concerns description-imagery prompted by visual descriptions specifically. Indeed, visual descriptions are the most likely prompters of description-imagery overall, and most instances of description-imagery thus coincide with description-imagery prompted by visual description.

I have previously taken care to show that when we read literature, several varieties of mental imagery are at stake. One thing that bears repeating at this point is that not all of them, not even within the referential domain (see Chapter 1), are characterized by a striking resemblance to real-world perceptual experience. Among literary scholars, such resemblance is sometimes referred to as *perceptual mimesis* (see Scarry 1999). For lack of a better expression, I will adopt this term for the purposes of the present chapter. A piece of literary prose is perceptually mimetic insofar as it triggers referential images of the world as we apprehend it pre-verbally. For instance, if a verbal rendition of bright midday sunshine in high summer elicits the near-experience of needing to squint, then the passage in question is likely perceptually mimetic in the relevant sense. It should be pointed out, however, that I assume perceptual mimesis to involve the entire sensorimotor array, including the proprioceptive and kinesthetic modalities (e.g. the senses of limb and organ position, velocity, effort, acceleration and so forth) that are less frequently associated with perception proper.

Insofar as a piece of literature succeeds in eliciting sensory (especially visual) images of its content, it is generally regarded as perceptually mimetic. In the common parlance of book reviewers, essayists and literary scholars, a particularly strong perceptual effect is usually attributed to visual description (Nünning 2007, 113; Wolf 2004, 339; Collins 1991, 116–118). To my knowledge, nobody has put this near-automatic conflation of perceptual mimesis, referential imagery, and visual description to closer scrutiny. Several authors (Grünbaum 2007, 311; Scarry 1999, 55; Esrock 1994, 38) have briefly countered the widespread assumption that there is a straightforwardly direct relationship between the amount of visual detail provided through description on the one hand and the imageability of a text on the other. A few attempts (Burke 2011, 56–85; Scarry 1999; Collins 1991, 89–118) have been made to account for the mechanics of visual imagery elicited by literature at large and by narrative in particular, but there is no systematic account of the imagery elicited by visual description (when elicited at all). This chapter aims at filling the gap.

By way of introduction, I will provide an approximative definition of prototypical visual description (Section 3.2) and present a further rationale for

characterizing the description-imagery it elicits (Section 3.3). In Section 3.4, I will proceed to the main body of my argument and make the following point: Unlike instances of narrative proper, prototypical visual descriptions and the description-imagery they elicit are not perceptually mimetic, because they lack an experiential correlate in the world as apprehended pre-verbally. At this stage of the argument, special emphasis will be put on the pre-requisite of experientiality and, to a somewhat lesser degree, on the closely related pre-requisite of suspending the verbal. In Section 3.5, I will argue that even though these specific points of contrast preclude perceptual mimesis, they allow for a fruitful analogy between description-images and another kind of visual mental imagery, namely images from voluntary visualization (e.g. one's purposeful image of what a particular bike model looks like). This analogy will be based on the following: Description-images, just like images from voluntary visualization (and in contrast to those images that are perceptually mimetic), are always expected, feeble, and essentially finite. Finally, in Section 3.6 and its subsections, I will further elaborate on the analogy in order to infer a tentative set of rules of imageability generally applicable to visual description. The proposed rules will be supported by introspective analysis, aided by extant analyses of voluntary visual imagery and by research on reading and language processing at large. References to other cognitive-scientific research, as well as to literary scholarship on the general topic of description, will be made throughout the chapter when appropriate.

Reduced to the most basic questions and answers, the main argument of the chapter can thus be summarized as follows: Is description-imagery perceptually mimetic? (No.) If it has no correlate in perceptual experience, what other sort of experience does it resemble, if any? (The experience of voluntary visual imagery.) What makes prototypical visual descriptions difficult to image in the first place, and what makes the imageable ones imageable? (Visual descriptions in general tend to run athwart the experiential makeup of visual mental imagery, exceeding the limits of what can be accommodated in a visual mental image. Visual descriptions only become imageable when they operate within these limits.)

3.2 When is visual description?

The notion of description is notoriously elusive and the task of defining visual description is made only slightly less complex by the restriction to the visual. To begin with, many properties relevant to vision have implications for non-visual perception and are therefore not strictly visual. For instance, it is not difficult to tell that a coffee cup is made of china based solely on tactile exploration. Conversely, properties primarily defined through other sen-

sory modalities (e.g. weight) can often be inferred from vision alone (although such inferences can be erroneous). However, the verbal references to sensory properties that are the focus of this chapter always arrive embedded in literary discourse. And the type of literary discourse they are immediately embedded in tends to be noticed and recognized by the reader as an instance of description. When vision appears to be the predominant sensory modality from which the referred properties are derived, then it is noticed and recognized by the reader as a specifically visual description. Following are the most fundamental implications of what has just been said.

Description is not only a type of text, but also, by virtue of its intuitive noticeability, an autonomous mode of text processing. That is to say, there is more to visual descriptions than their typical features encoded in text. There is also something it is typically *like* to be reading a visual (or other) description. This experience in turn, albeit subject to many variables in its final quality, may be correlated with specific cognitive processes prior to consciousness. However, most literary scholars define all description primarily in terms of its wording (see Bal 1982 for a brief review). Although some of them also view description as a distinctive cognitive activity on the part of the originator (Herman 2009, 89–100), few have made it explicit that its distinctiveness is necessarily reflected in a distinctive mode of reception (Hamon 1982, 159). Fewer still have tried to look more specifically into what this distinctive mode of reception might entail. I will now propose a few basic characteristics of visual description processing, while attempting to answer the following question: When, rather than simply what, is visual description?

But before the answers begin to disentangle an important disclaimer is in place: I do not assume my notion of visual description processing to cover all possible visual description experiences. Depending on context and the instantaneous focus of the reader, visual descriptions as text-type can be experienced in a number of different ways. What I rather assume is a continuum of possible description experiences where my notion of visual description processing constitutes one of two extremes. The opposite extreme consists in description experiences indistinguishable, in terms of referential imagery and perceptual mimesis, from experiences of narrative proper (see Chapter 2, Section 2.2.5, for examples). As for my examples of visual description as text-type, certain types of visual descriptions, such as descriptions of human characters, landscapes or other spatial settings, will be disregarded exactly inasmuch they seem more likely to prompt experiences of a less distinctly descriptive, i.e., more enactive, kind.

In general, description can only exist against the background of other types of text and processing. In most cases, its other is indeed narrative, the dominant text-type of literary prose. It is by contrast to narrative that description is usually defined, and rightly so; it is the contrast to narrative that makes it noticeable in the first place. Description entails, first and foremost,

a marked pause in a chain of events. Description is thus commonly accused of slowing down the momentum of reading (e.g. Hamon 1981). Most attempts to explain this effect point at the fact that fictional temporality is suspended (e.g. Pflugmacher 2008) and the reader's prospection subsequently blocked (e.g. Copley 1986). Other, less obvious causes of the experienced slowness of description may include the (presumably taxing) initial shift from one mode of processing to another, or the actual deceleration of one's reading pace as an effect of a higher concentration of content words (see Just and Carpenter 1980).

In visual description in particular, this general sense of slowness may be further reinforced due to the cognitive cost of extensive referential imagery (when such imagery occurs) running parallel with baseline propositional processing. Visual imaging may even be, at least on the level of experience, more cognitively costly than referential imagery relating to the other, more immediate sensorimotor modalities (touch, smell and so forth) that are less directly interlinked with higher-order thought. Vision is, after all, the most analytical of our senses. Compared to non-sensory descriptions (referring to properties such as price, origin, affective value and so forth), visual descriptions may be experienced as significantly slower not only because the demands on visual imaging are so much higher, but also because non-sensory descriptions tend to bear a trace of narrativity. In many contexts, describing an object as "expensive" or "Japanese" is just another way of saying that a high price has been paid or that something has been brought all the way from Japan. Meanwhile, visual descriptions narrowing in on properties such as redness or rectangularity do not necessitate the conclusion that an object has actually been seen by somebody to have such-and-such visual properties.

Another objection commonly raised against description, apart from its slowness, amounts to the contention that description is always superimposed and foreign with respect to the embedding narrative, an autonomous element similar to that of a citation (e.g. Hamon 1981). Although I do not suppose that readers necessarily experience descriptions as foreign or out of place, it seems intuitively correct to define visual description processing as informed by an overall sense of macro-level autonomy. This sense of autonomy is, once again, largely temporal in nature. Description is not only slow, but also temporally self-contained. More specifically, once narrative processing has given way to visual description processing, the reader temporarily loses track of, and sometimes any connection whatsoever with, the preceding narrative. An eclipse of awareness takes place as it were; the reader focuses on one type of content only, the basic content of visual description: "that something is there and like that" (Wolf 2007, 34). In real time, this could last a fraction of a second or several minutes. It has been proposed that description, in contrast to narrative, is primarily retrospective, adding but new information on things previously introduced in the course of narration (Copley 1986, 398). From the viewpoint of the reader's instantaneous attention, however, retro-

spection may never go beyond the confines of each descriptive passage. In the vocabulary of phenomenology, visual description processing proper knows no retention beyond its own limits (see e.g. Varela 1999).

Bearing its latent trace of narrativity, non-sensory description processing runs a perpetual risk of being truncated. The people whose presumed actions make an object describable as “expensive” or “Japanese” might likely coalesce with the protagonists of the surrounding narrative, hence a possible connective, and a subsequent possible loss of autonomy. Sensory descriptions are more reliably autonomous in this respect, suggesting no preceding narrative unless one (of perception) is explicitly mentioned or very strongly implied. Among the various types of sensory descriptions, visual descriptions once again seem particularly well suited to sustaining autonomy. Because vision is the most analytical of our senses, visual properties seem to withstand abstraction (from a subject, from an object) much more easily than properties relating to other sensory modalities, especially to the ones involving proprioception (e.g. touch). Intuitively, it is easier to assume an unseen shape than an unfelt feel of a texture. Non-visual sensory descriptions, comparably rare as they are in any case, thus stand somewhere in between non-sensory descriptions and visual descriptions. In actual literary prose, the three sorts nowadays often intermingle. But if one of them epitomizes what description entails in terms of processing, it is visual description. What visual description processing entails apart from a clean-cut contrast to narrative proper, and what is meant by narrative proper, will be explored throughout the rest of this chapter.

Now that visual description has been tentatively defined via the corresponding mode of processing, it is time to define it in its textual essence. As text-types, both visual and other description must be defined as gradients. Not only are there merely instances of less or more visual description. There seems to be nothing, or very little, but instances of less or more descriptive text (Mosher 1991; Genette 1976). While no visual description is thus strictly visual or exclusively descriptive, it is perfectly possible to tell what a prototypical visual description consists in. Doing so is necessary for any further analysis of visual description processing. Following is an example of a prototypical visual description:

An oval splayed out with whale-bone, (the cap) started off with three pompons; these were followed by lozenges of velvet and rabbit’s fur alternately, separated by a red band, and after that came a kind of bag ending in a polygon of cardboard with intricate braiding on it; and from this there hung down like a tassel, at the end of a long, too slender cord, a little sheaf of gold threads. It was a new cap, with a shiny peak. (Flaubert 1995, 16)⁵⁰

⁵⁰ [Ovoïde et renflée de baleines, [la coiffure] commençait par trois boudins circulaires ; puis s’alternaient, séparés par une bande rouge, des losanges de velours et de poils de lapin ; venait ensuite une façon de sac qui se terminait par un polygone cartonné, couvert d’une broderie en

Such concentration of visual descriptive features as displayed in Flaubert's famous cap description, is rare. In other words, the prototypical visual description may not be the most typical, statistically speaking. Still it is one of the most frequently quoted passages among literary theorists of description (see Bal 1982). What are then the features that make it prototypical? Let us begin with the ones canonically attributed to description at large. Firstly, the passage ascribes "properties to entities within a mental model of the world" (Herman 2009, 90). Secondly, the entities and their properties are represented "in stasis, in simultaneous relation, and (they) are organized by spatial markers like adverbs of place.⁵¹ Verbs in the present, past, or past-progressive tenses depict states" (Mosher 1991, 442). Thirdly, references to the properties are post-positd with regard to the central entity, which thus constitutes the "global *introductory* theme" of the description (Hamon 1982, 159; my italics). Having recognized these (admittedly incongruous) salient features of description as text-type, let us now turn to the features that in my view are prototypical for visual descriptions in particular:

Firstly, the passage isolates an inanimate object rather than a person, animal, landscape or other kind of complex spatial configuration. Inanimate objects tend to be comparably insignificant in fiction insofar as they are the least likely to have direct impact on the story (see also Barthes 1989). An inanimate object cannot be readily imaged (like landscapes or other spatial configurations) or identified with (like people or animals) inwardly, by projecting one's body inside it, and with it one's mind. An inanimate object is as close as one gets to objectivity, and therefore also to a description that is purely exteroceptive, visual.

Secondly, the inanimate object described in the passage is a manufactured rather than a natural one, and like most manufactured objects described in modern prose, it is an object of daily use. Manufactured objects, i.e., artifacts, particularly artifacts of daily use and of mass production, tend to be intuitively viewed as devoid of meaning exactly because of their artificiality, their dissociation from nature. In cognitive anthropology, it has further been established that, in contrast to natural objects, manufactured objects are cognitively processed and categorized primarily according to how they can be instantaneously used or useful (Atran 1990, 63). A bucket with two big holes near the bottom is not much of a bucket, but it would do as a portable baby seat. Once it is used as a portable baby seat, it simply becomes a portable

soutache compliquée, et d'où pendait, au bout d'un long cordon trop mince, un petit croisillon de fils d'or, en manière de gland. Elle était neuve, la visière brillait. (Flaubert 1999, 56–57)] In the present chapter, non-English (i.e. French) literature will only be quoted a few times, and it will primarily be quoted for the qualities of the English translations. The original French passages will therefore appear in footnotes rather than directly in the text.

⁵¹ Or, in this particular example, by temporal adverbs functioning as spatial markers.

baby seat. Thus lacking in objective essence, manufactured objects are, to a higher degree than any other objects, little more than what they appear to be in a given situation. This makes them the perfect content for visual descriptions, the descriptions of appearance. It is probably no coincidence that in the literary cultures and historical periods when literary narrative saw a rapid increase in visual and other description, it also saw an increased frequency of reference to artifacts and other consumer goods (Heuser and Le-Khac 2011; Wall 2006).

What visual description is and what it is not, could be discussed endlessly. In this section, I have made the briefest attempt to suggest that visual or other description is not really there unless the reader is made aware. The potential of visual description is at work only when the reader has adopted the distinctive cognitive mode of visual description processing. When this is most likely to happen, can be inferred from the above prototype. All examples in this chapter will consist in visual descriptions bearing significant family resemblance to that prototype. I believe, however, that part of what I have to say about description-imagery from visual description may apply to descriptions quite remote in kind, visual or non-visual. Last but not least, it should be noted that the mode of visual description processing is assumed here to operate pre-reflectively, at the bottom of whatever attentional focus rides on top. Description-imagery is just one option. Other options include, firstly, higher-order interpretation (see also Chapter 1, Section 1.6.6; Chapter 4), and secondly, focus on the verbal medium (possibly accompanied by verbal imagery). A closer analysis falls outside the scope of this chapter.

3.3 Why visual description?

For any account of perceptual mimesis of the visual kind, visual description would seem the natural place to begin. While narrative proper may be equally, or in fact more, efficient in prompting visual referential images, visual descriptions alone (when imageable at all) secure the highest possible fidelity of referential image with respect to the text. For instance, upon reading about a “broom” with no further description, my mind may image whatever it pleases. Most often, it will image by default the kind of broom I am most familiar with from my firsthand experience of the world. Most often, this will be unproblematic. But what if the broom, or the story as a whole, turns out to be set in a foreign or otherwise distant context? In such a case my mental image may be proved incorrect anytime by a subsequent passage suggesting that the broom is to be ridden on by a medieval-style witch, or that it sweeps aboard a spaceship in zero gravity. Although my initial image is then by no means disqualified as mental experience, it fails to pertain to the storyworld in question. On the other hand, should my “broom” be de-

scribed when first mentioned, its visual description may perhaps delimit my freedom of imaging, but it prevents me from conjuring incorrect images.

Although some of the mechanics of readers' visual referential imagery have previously been accounted for by literary scholars (Burke 2011, 56–85; Scarry 1999), none of the accounts has exposed or even acknowledged visual description's unique potential to stipulate bottom-up rather than top-down processing. Drawing implicitly on a romantic notion of imagination as essentially a free activity, these scholars have treated imagery without properly considering its prosaic debt to the specific wording of a text. Michael Burke, for instance, suggests that readers tend to furnish fictional interiors with visual images based on their childhood homes and that they often do so regardless of textual counter-evidence. Such "whimsical" top-down imaging may possibly be considered truly evocative in ways largely outreaching the domain of vision (e.g. in terms of its affective impact on the reader), but from the viewpoint of content fidelity, it could just as well be regarded as mere mind-wandering. To restate one of my opening formulations with a little more precision, a piece of literary prose is perceptually mimetic insofar as it triggers referential images of the world as we apprehend it pre-verbally. But the images must also be images of certain fidelity with respect to the text. Otherwise there would be no way of determining that they really arose as an effect of a specific passage in a specific text, rather than as an effect of literary reading in general, or language use in general, or for no particular reason at all. This is why visual description would appear to be highly relevant to the study of perceptual mimesis.

An intuitive grasp of this unique ability to specify the visual is probably what makes the common association of perceptual mimesis with visual description so appealing. When checked against random intuitions about actual practices of reading, however, much of its appeal vanishes. Indeed, visual description might make us image far less frequently and far less vividly than suggested by the rhetoric of book reviews and book promotion materials. For instance, there must be a reason why non-scholarly readers, so notoriously keen on vicarious experiencing, show a tendency to skim, or even skip (Allington 2011), particularly lengthy descriptions. Furthermore, when I ask fellow literary scholars for book recommendations featuring vivid visual descriptions of, for instance, manufactured objects, they invariably cite passages in which manufactured objects are simply mentioned without being described. This may well arise from the fact that visual descriptions of manufactured objects occur less frequently than simple mentions do, but only to a certain point. I have established in Chapter 2 (see especially Section 2.5.2) that simple mentions often conjure imagery more reliably and more vividly than visual descriptions. My objective then was to account for the fundamental processes underlying the most multimodally saturated variety of referential imagery, i.e., enactment-imagery; the kind that results in the reader's instantaneous sense of *presence* in the three-dimensional world

of a story. Now is the time to explain wherein the main difference between visual descriptions and simple mentions lies, and to finally analyze description-imagery in its own right.

I now turn to the main difference between imagery from visual descriptions and imagery from simple mentions, which, I would like to argue, is not one of degree, but one of kind. That is to say, whenever my mind conjures up a visual image of an object based on my processing of its visual description, the resulting experience does not amount to some weak variety of enactment or presence in the storyworld, or a weak variety of perceptual mimesis for that matter. In fact, the resulting experience is not at all perceptually mimetic. Images prompted by visual descriptions are essentially different from other readerly visual imagery because they are generated differently. *While simple mentions and other narrative instances of fiction generate images by virtue of their experientiality, visual descriptions can only generate images by virtue of their imageability.*⁵² The former part of this assertion will be elaborated in the next section, the latter part will be elaborated subsequently. The former images belong to the variety of enactment-imagery, the latter images belong to the variety of description-imagery.

3.4 Why not perceptual mimesis?

Why is vicarious experientiality not at work in the processing of visual descriptions? A definition of perceptual experience is needed here. In line with the core ideas of Chapter 2 adopted from the framework of embodied cognition, underlying my assertion is an understanding of perception as preconditioned by bodily interaction. For the sake of clarity, let me repeat the basic theses. Continuous interaction with our immediate environment, be it overt (action, i.e., bodily movement) or covert (psychophysiological processes related to pre-conscious or conscious action simulation), has lately been identified at various levels of inquiry to be the basis of our sensorimotor apprehension of the world. A textbook example of the inextricable link between interaction and perceptual experience are the clinical cases of so-called experiential blindness. Congenitally blind patients whose vision has been restored by surgery tend to take physical objects for blurs in their visual field as long as they remain unable to couple their visual sensations with relevant sensorimotor patterns of interaction (Noë 2006, 5ff). At a non-

⁵² When aesthetician Elaine Scarry (1999) subsumes all literature-induced imagery under the (further undefined) notion of perceptual mimesis, she fails to isolate description as a distinctive text-type and mode of processing. Also, her examples of imageable prose are predominantly narrative rather than (visual) descriptive.

conscious level, there are indications that visual attention for objects involves neurophysiological processes inherent to action preparation (Rizzolatti and Gallese 1988). There are countless convergent sources supporting this view of perception, spanning vast areas and methodologies of inquiry from isolated brain imaging studies of visual and linguistic processing (see e.g. Fischer and Zwaan 2008; Martin 2007) to comprehensive enactivist phenomenologies of the self (Gallagher and Zahavi 2007). Given the strong definition of perceptual experience proposed by the framework of embodied cognition, visual description construed as stasis and as subsequent temporary detachment from the object described (see also Grünbaum 2007) has no purely experiential correlate in the actual world. For in visual description, interaction has come to a temporary halt.

That is not the case with simple mentions. Simple mentions of object names, unless we are dealing with a catalogue rather than with narrative proper, tend to be part of interaction insofar as they stand for grammatical subjects or objects attached to non-copular verbs, e.g.:

In the kitchen closet I found a practically new broom(.) (Baker 1998, 20)

This is a matter of syntactic fact rather than necessity. In not-very-elegant prose, the broom in this sentence could be minutely visually qualified, e.g.:

In the kitchen closet I found a practically new bright red ridged plastic broom.

The point is that simple mentions happen to adhere more closely to their referents as pre-verbally experienced. Upon reading the above sentences, the reader's embodied mind has no problem identifying an interaction to enact (the firsthand act of opening a door and finding a broom in the penumbra of a closet), forming thus a multimodal enactment-image, an instance of presence, a mediated experience proper of a world out there.

One could argue that all descriptions, along with the objects described, are likewise embedded in interactive situations because they belong to larger narrative wholes that always feature such situations. However, as suggested by the introductory definition of visual description as a mode of processing (Section 3.2), the surrounding story is relegated to outside the reader's consciousness as soon as a visual description is encountered and identified as such. Visual description processing means by definition an instantaneously experienced lack of continuity with any narrative (and interactive) embedding, and consequently with any enacted firsthand experience.

One could further object that by token of the theories of embodied cognition, even the seemingly most passive observation of the world entails covert interaction, and that visual descriptions are in this respect no different from the firsthand experience of such observation. One could say, in other words, that visual description simulates in the reader an act of firsthand yet passive

visual experience and that it is experiential in the same way as narrative renditions of overt interaction are, only less perspicuously. It may be particularly tempting to say so with regard to descriptive passages that are framed by explicit or very strongly implied references to acts of perceiving. For instance, the context of the visual description of Charles Bovary's cap (Section 3.2) suggests that the cap is in fact being scrutinized by the boy's contemptuous classmates. Yet again, as long as the reader's mind remains aware of such framing, which seems particularly unlikely in a description of such flamboyance, we are not dealing with visual description processing, or description-imagery, proper. Rather, we are dealing with the kind of attentional focus that produces enactment-imagery, or the various in-between enactment/description-images (see Chapter 1, Section 1.6.5). Should the same objection be raised so as to encompass all visual description regardless of framing, it must be countered by the following clarification:

In the instant of switching, for a second or a fraction of a second, from narrative to the mode of visual description processing, the linguistic nature of reading robustly emerges toward the threshold of consciousness. The reader thus assumes, if barely reflectively, the stance of someone who is being informed that a certain object has certain visual properties. In line with this argument, several literary theorists (Cobley 1986, 397; Hamon 1981, 21) have noted that description often entails the increased presence of a notional narrator. Importantly, one has no way of simultaneously maintaining the stance of someone who is approaching an object of certain properties pre-verbally, the inner stance of a perceiving experiencer. Instead, the properties are taken in as foregrounded information in a framework of communication.⁵³ Whatever the actual syntax of the description in writing, the mental propositional "syntax" (if there was such a thing) of visual description processing would follow roughly this pattern:

There is a broom. It is practically new and made of bright red ridged plastic.

rather than:

There is a practically new bright red ridged plastic broom.

Unlike in the processing of (certain instances of) narrative proper, it becomes impossible under such circumstances to bracket off this quasi-communicative dimension of visual description and achieve as it were a full, pre-verbal sense of presence. This results in the immediate noticeability of

⁵³ This part of my argument seems to dovetail with Michael Riffaterre's. Speaking of description in general, literary theorist Riffaterre maintains that description's "primary purpose is not to offer a representation, but to dictate an interpretation" (Riffaterre 1981, 125).

visual description in the course of reading, its autonomy as a receptive mode, as well as in the skimming or skipping of descriptions by impatient readers, which goes hand in hand with another typical attribute of visual description as text-type: its low memorability. Unless the wording or subject of a visual description is perceived as particularly striking, one is often left with a sense of amnesia as soon as the description is over, not to speak of one's minuscule chances of retaining the rough contents of a visual description beyond an immediately subsequent stretch of text. In language processing, memorability and imageability are usually considered as closely interconnected (e.g. Marschark and Hunt 1989).

In cognitive psychology, a pronounced trade-off has been found to operate in the (English) lexicon and its processing between referential imageability on the one hand and phonological and orthographic uniqueness on the other (Westbury and Moroschan 2009). Words with the lowest number of direct phonological neighbors, i.e., words that differ the most in their structure from the rest of the lexicon, happen to denote referents with low or no imageability (e.g. "thought"). Conversely, words with highly imageable referents are the least conspicuous as to their structure (e.g. "broom") and thereby also the most easily confused with other words ("room," "boom," "brook" etc.). Suggesting that marked "verbality" somehow interferes with referential imagery, these findings can be taken in support of the above assumption that a sense of being verbally informed of perceptual facts is necessarily discontinuous with a sense of direct perception. Overall, they further disclose how treacherous visual description is by nature. It is intuitively known by the reader to denote something quite familiar and easy to image, yet in the end it is always found to consist in a unique, unfamiliar⁵⁴ concatenation of qualifiers.

Besides, unless the qualifiers in question situate the object in uncommon context, e.g., by suggesting the kind of twig broom used by witches and others in the Middle Ages, they also happen to be more or less tangential to any sort of interaction. In most visual descriptions they will be tangential by necessity, because those properties that really matter for interaction are already encapsulated in the central object name itself. Empirical studies have shown that in the cognitive processing (and thereby also in the linguistic labeling) of manufactured objects, each object category – broom, cup or flower pot – is delimited exactly by the particular subset of its properties that are immediately relevant to interaction (Rosch et al. 1976). For instance, any container that can be used for planting flowers, qualifies as a flower pot (see also Section 3.2). Thus it would make little sense to describe a flower pot by recounting the properties of being hollow and closed at the bottom. Indeed,

⁵⁴ An interesting exception are visual descriptions by way of *epiteton constans*, which are always unified within a corpus and thus potentially familiar.

few straightforwardly prosaic descriptions take such course.⁵⁵ In general, visual descriptions tend rather to exploit the countless accidental properties, those having no direct relation to how objects are essentially interacted with.

The above-mentioned impossibility to bracket off the linguistic medium lies also in the very nature of isolated objects and their visual properties. In firsthand visual experience, as long as objects are principally apprehended as objects of interaction, visual properties are those that are self-evidently given. This may be why visual description seems to occur rarely in mundane oral narrative and conversation in general,⁵⁶ and when they do, they may mostly be meant to foreclose baseline misconception, rather than help the interlocutor walk in another perceiver's shoes. Unless I am describing an object for its purely aesthetic qualities, e.g., a work of art or a piece of clothing, the pragmatics of my infrequent spontaneous descriptions tends to be other than that of prompting imagery: I want the interlocutor to help me find my purse in the mess of my office, or to pick up the right kind of baby food at the grocery store. I want the interlocutor to know what these things look like, not necessarily to see them with the mind's eye.

Lastly, apart from being self-evident, the visual properties of an object given in firsthand experience are in most cases all simultaneous and one with the object itself. In comparison to narrative renditions of interactive situations, this puts visual description at a disadvantage *vis-à-vis* the inherent temporality of language and turns it once more into a gross abstraction from perceptual experience. Looking at the ancient broom in my childhood home kitchen, I can certainly conceive of its visual properties in a linear sequence, one by one. But I cannot do so without recourse to inner speech (see Chapter 1, Section 1.6.6; Chapter 4, Section 4.3.2), without hearing my mind briskly articulate at least some of the sounds in "brown," "wooden," "shabby," "orthogonal."

To sum up, the aim of this section was to isolate two fundamental characteristics of visual description. The two characteristics taken together disqualify visual description from perceptual mimesis and hence also from enactment-imagery. Ultimately, the two characteristics taken together bear a significant deal of responsibility for visual description's lower overall imageability when compared to narrative. Firstly, I have shown that visual description, unlike narrative proper (see also Collins 1991, 129), defies firsthand perceptual experience. Secondly, I have shown that referential imagery prompted by visual description, when prompted at all, is significantly less

⁵⁵ The opposite cases generally signal an anti-representationalist authorial agenda, resulting in estrangement.

⁵⁶ One could say, with discourse theorist William Labov (1972, 370), that the visual properties of static objects are seldom reportable, i.e., they lack the quality of being inherently worth telling. Labov (1972, 389) also expressly notes the rarity of descriptive syntactic structures in his own material, the African American Vernacular.

pre-verbal in nature than any referential imagery prompted by narrative. While the latter characteristic is a matter of degree (at a certain level of awareness, the reader always knows that he or she is dealing with a piece of verbal fiction), the former is a question of description-imagery either bluntly being or bluntly not being experiential and perceptually mimetic. But to say that description-imagery in a very particular sense is not experiential is not to say that it does not amount to experience. What sort of experience it amounts to will be suggested in the following section.

3.5 What other sort of experience?

What did I mean by saying, at the end of Section 3.3, that visual descriptions can only generate imagery by virtue of their imageability? In part I was referring to their dissociation from firsthand perceptual experience. There is no experience *in* them; there is only the experience *of* them. But I was also hinting at the one sort of experience to which imagery from visual description bears resemblance: the experience of (currently unseen) objects as visualized in a voluntary mental act of imaging. Voluntary mental imaging is the kind of imaging engaged in when one tries to image what an object (e.g. a particular bike model) looks like based on one's memory or declarative knowledge, or when one fantasizes about a perfect something.⁵⁷

It is not my intention to suggest that imagery from visual description is mimetic with regard to the above mental acts. Once again, unless the above mental acts are explicitly rendered in the text and retained as such in the reader's focus, i.e., unless the mode of processing inclines toward narrativity and fails to be one of visual description proper (see also Sections 3.2 and 3.4 above), the reader's experience is clearly dissimilar from voluntary visualizing or indulging in fantasies. For instance, the acts of voluntary imaging are temporally open-ended, the imager possessing the ultimate power to extend their duration endlessly. Imaging in visual description processing, on the other hand, is always framed by the reader's assumption that strict temporal constraints have been set beforehand. A visual descriptive stretch of text can easily turn out to feel somewhat lengthy to a reader, but a voluntary imager never continues imaging beyond what feels right for the moment. Further-

⁵⁷ Unlike philosopher Evan Thompson (2007), I assume that it is *possible*, although *not necessary*, to image an object by an act of will without simultaneously enacting, on the level of consciousness, a firsthand perceptual experience of that object (see also B. Williams 1999, 35). Voluntary visual images involving simulated perceptual experience, i.e., instances of in-between enactment/description-imagery (e.g. images of what it is like to be looking at a particular object; see Chapter 1, Section 1.6.5), will be excluded from the present discussion for lack of analogy with description-imagery (see Section 3.4 above).

more, while in the act of voluntary imagery it is the imager alone who is the originator of the experience and who thus largely exerts control over its content, imagery from visual description arises upon external instruction, with all the rigor and lack of control this entails. Given these and other discrepancies, an important clarification must be made at this point: I am going to consider similarities between voluntary mental imagery and description-imagery pertaining only to how the product (the image), not the act of production (the imaging), is experienced. Separating the two phases of experience conforms to established phenomenological practice (Casey 2000, 38).

The following questions may arise: Why voluntary visual images in the first place? Why not consider other sorts of visual images, such as the far more frequent products of compulsive imaging, the fleeting yet intense mental images that can take us by surprise whenever we happen to think of, or talk or hear about, something highly imageable? One could even wonder whether these latter images really are not closer to description-images after all, given their uncontrolled character. But they are not. They differ from voluntary visual images and from description-images prompted by visual descriptions in several respects. Firstly, they differ in that they can, and do, take us by surprise. Voluntary visual images, on the other hand, are always *expected*, and the same is true of description-images prompted by visual description. As soon as a visual description has been encountered in a text and identified as such, the (modern) reader automatically assumes that visual imagery will somehow be addressed. This is not to say that one is never surprised by the specific contents of an image prompted by a visual description, just like one can sometimes be surprised by the specific turns one's voluntary imagery has taken. But one is never surprised that an image has arisen.

Apart from always being expected, voluntary visual images as well as description-images tend to be experienced as markedly *feeble* (see also Casey 2000, 3; Scarry 1999, 4). Their feebleness distinguishes them further from involuntary visual images. Surprise alone could be the reason why images of the involuntary, fleeting kind appear as much more saturated. However, the sheer possibility of surprise lies at the heart of a yet deeper difference, one that comes down to the question of perceptual mimesis.⁵⁸ For instance, why am I surprised by the compelling image of the handlebar of my bike suddenly emerging in my consciousness as I let my mind wander freely on a tired afternoon? Why do I experience the image as strikingly vivid? I am surprised because initially I was thinking of something else than my bike and the visual details of its handlebar. Otherwise the image would have been expected. And I experience the image as strikingly vivid because this some-

⁵⁸ By contrast, Elaine Scarry (1999, 104) contends that all literature-induced imagery supersedes the feebleness of voluntary visual imaging. By way of explanation, she emphasizes that imagery in reading is *involuntary* inasmuch it is constrained by external instruction.

thing else that I was initially thinking about was in fact an instance of interactive perceptual experience: dropping off my son at daycare this morning, then biking to the station to catch the bus for the university. Consequently the involuntary image of my bike is an enactment-image of sorts. It has experiential qualities comparable to the perceptually mimetic referential imagery prompted by certain instances of narrative. These qualities are absent in any visual image resulting from a voluntary attempt to visualize a static (see also Jajdelska et al. 2010) isolated object. At the same time, these qualities seem to be constantly in demand, visual imagery being reflexively assessed by the standards of perceptual experience (and description-imagery specifically being reflexively assessed by the standards of enactment-imagery; see Chapter 1, Section 1.6.6). Hence the sense of enfeeblement inherent to description-images from visual description.

The third and last feature to be recounted in this section is *finitude*. This feature too is best conceptualized upon comparison with involuntary visual images and enactment-images from narrative. It too derives indirectly from the lack of perceptual mimesis, in the following respect: Bearing traces of perceptual experience, involuntary visual images and enactment-images from narrative are residually dynamic. This is not the case for voluntary visual images or description-images from visual description, which are static through and through. Mental images of all kinds may be considered temporal insofar as they have a certain if minimal duration, yet only the dynamic ones contain a promise of something more than what is immediately presented. For instance, when I as a reader have experienced a visual image of a broom while imaginatively enacting the experience of retrieving it from a closet, my broom image tends to recur for a little while before it fades away completely. Sometimes it changes slightly between the various stages of recurrence and then it is no longer, strictly speaking, the same image as before. Nevertheless, an image of a broom does recur without a broom being mentioned anymore. It echoes throughout the dynamic extension of my covert enactment of the bodily movements involved when stretching my arm, grasping the broomstick, retrieving the broom. When such enactment is particularly strong, perhaps outright noticeable in the muscles of my arm and hand (see Chapter 2, Section 2.4), the image can keep recurring for a considerable period of reading time.

Alas, description-images from visual description, similarly to voluntary visual images of isolated objects, do not have the same tendency to deliver promises of surplus visual experience, or to promise anything in the first place. They must be cued anew if they are to recur. In their static nature, they are destined to yield to other, dynamic and interactive imagery experiences at the very next intersection with narrative. Here are a few examples of how this can happen:

(The camera) was mounted on an altazimuth bracket above the back door. Its casing was of brushed aluminum. It had a purplish gleam in its eye. / [1] Gary returned the bottle to the liquor cabinet, moved to the sink, and ran water in a bucket. (Franzen 2001, 230)

By a pile of magazines was a coffee cup – tall, in thin white porcelain, one of a set of six [2] bought by Patrice at Henri Bendel's in New York. [3] Aldous raised it to his lips. (McEwan 2011, 97)

In cases where the immediately subsequent narrative refers to a direct interaction with the central object, the initial description-image may be transformed into a perceptually mimetic enactment-image, continuing its life in a new format. While Segment [2] in the latter passage bears but a vague resemblance to this scenario (suggesting a hypothetically direct interaction that involves, but is not limited to, the central object), Segment [3] provides a more clear-cut example of how description-images from visual description can live a narrative, enactive afterlife. In all other cases where visual description is interrupted by narrative, i.e., in the cases represented by Segment [1] above, images from visual description appear once and then vanish without extension and the reader's image experience is readily informed by this. The reader may thus experience that, apart from being expected and feeble, description-images from visual description are essentially finite, in ways that enactment-images from narrative are not.

Needed or not as my above observations may have been in themselves, the ultimate aim of this chapter is to valorize them for more practical, predictive purposes. They are meant to help determine what it might be that makes a visual description elicit description-imagery, in spite of the lack of perceptual mimesis. However, defined as expectedness, feebleness and finitude, the principal experiential features of images from visual description are still too broad to instruct a text-oriented analysis. In the next section, while I revisit visual description as text-type, a number of sub-features and further observations will be grouped with the above, in the following order: finitude (Section 3.6.1), feebleness (Section 3.6.2), expectedness (Section 3.6.3).

3.6 More on description-imagery and when it arises

In assessing the readerly experience of narrative proper, it is possible and natural to explain enactment-imagery and -imageability by reference to structural analogies between text and firsthand perceptual experience (see Chapter 2), with a vast body of empirical perception research at one's disposal. In the absence of perceptual mimesis, functional analogies (or functional discrepancies) can only be charted between text on the one hand and visual mental image on the other. Given the general elusiveness of mental

imagery, there is by contrast little empirical evidence to rely on, and introspection becomes as indispensable as ever.

Based on introspection, the idea that literature can be made imageable by emulating the inherent characteristics of voluntary imagery has previously been suggested by aesthetician Elaine Scarry. In Scarry's (1999) account, literature becomes imageable by virtue of analogy when the predicaments of voluntary imaging are made explicit (e.g. when a character is struggling to visualize a cherished face), or alternatively, when objects of certain qualities (e.g. translucence, floral supposition) are represented. Even if Scarry did take notice of the idiosyncratic mode of visual description, there would still be significant differences between her approach and mine. Most notably, Scarry singles out imageable particulars such as the visual properties of being translucent or flower-like. Meanwhile, my Sections 3.6.1 and 3.6.2 below aim at distinguishing between markedly imageable and non-imageable classes of visual properties, or parameters (e.g. color, shape), regardless of specific value (e.g. blue or yellow, rectangular or circular). The respective presence or absence of each and one of the selected parameters in an instance of visual description will be set against the default parameters and limitations of the visual mental image (voluntary or prompted by visual description), and its effect on description imageability will be predicted.

Albeit heavily dependent on the choice of visual parameters, it would be untenable to posit that description imageability is unaffected by the particular style of a visual description. For a variety of reasons, a detailed inquiry into imageable and non-imageable descriptive lexicon and syntax falls outside the scope of this chapter. Not only do visual descriptions often include an admixture of non-visual (e.g. affective) qualifiers by which the vividness, if not the content, of a resultant image may be co-determined. The question of stylistic quality becomes even more elusive when variance across languages, literatures and cultures is considered. This is why Section 3.6.3 will only consist in a cursory attempt to tackle the style of visual description, an attempt to tackle it in terms of quantity rather than in terms of quality proper.

3.6.1 Default parameters (finitude)

The experienced finitude of imagery from visual description is closely related to its experienced febleness. The former will now serve as a background for positive characterization. The latter will subsequently frame an account of what properties a mental image from visual description does not, and in some cases even cannot have.

The kind of image finitude discussed here may be further conceptualized by comparison to a picture. Description-images are *picture-like* at least in two relevant respects: Firstly, because of their static nature, they are experienced as two-dimensional (see also Casey 2000, 92). It may be by virtue of

this resemblance that one of the most prominent types of so-called *ekphrasis* (i.e. the ancient rhetorical device of visual rendition) was the verbal representation of (more or less) two-dimensional visual artworks. As objects, such artworks are largely defined by their complex pictorial surface, while they tend to be uniform in overall contour shape. Interestingly, the mundane objects visually described in modern literary prose that are presently in focus – brooms, cups, flower pots – depend more heavily on contour shape for their identity than on surface. This fact is reflected in the makeup of the correspondent referential image. When I read a description of a flower pot or simply fancy to image one out of the blue, I may or may not be able to tell afterwards how porous the earthenware was, but I will always roughly know the slope of its wall. The contour of the flower pot may be incomplete (there may be no way of telling whether or not there was a rim at the upper edge), but it will always be there and it will always be perceived as final because the flower pot will be given to me in two dimensions. By contrast, the contour shape of a flower pot imaged enactively during the processing of narrative will be perceived as open to modification due to the possibility of interaction, by means of which a virtual third dimension is brought into existence.

Secondly, mental images from visual description tend to be oriented in a way resembling of certain canonical types of pictorial representation. If their contour is to adhere to the object they represent, they cannot be, and obviously are not, multiperspectival like cubist paintings are. In their feebleness, they can hardly be said to comply with the standards of realist perspectival painting. They are imaged under a perspective nevertheless, and most often a markedly pictorial perspective at that, namely the one optimally revealing the distinctive contour shape of the object in question. In a description-image of a broom, the broom as an entity is given to me in the most perspicuous way: vertically, perhaps in a slight angle to the orthogonal axis, its bristles facing the bottom of my mental visual field (see Figure 5 below). This is how a broom is normally depicted when immediate comprehension is at stake, e.g., in pictograms or illustrated dictionaries.⁵⁹

Object orientation in involuntary images or in images prompted by narrative, by contrast, is always situated. For instance, should I image the same broom as part of a perceptual experience, e.g., in enacting the act of sweeping, the broomstick would become, in a rather compelling manner, disproportionately short and thick in my mental image and the overall contour of

⁵⁹ Also, very specific objects such as particular bike models may sometimes be imaged with recourse to one's memory of actual pictures (e.g. as previously seen in a sports equipment catalogue) rather than of the objects themselves. I am grateful to Alice Jedličková for bringing this to my attention.

the broom would alter.⁶⁰ Moreover, the image as a whole would no longer symmetrically occupy the center of my mental visual field, but rather gravitate toward its lower right hand side (I am right-handed). Albeit compelling in the mental, such a broom image would seem highly indefinite and ambiguous as to its content if transposed into an actual two-dimensional picture (see Figure 6 below). There are of course instances of perceptual mimesis in which brooms appear under the same perspective as depicted in pictograms or illustrated dictionaries. The difference is that in description-imagery, brooms are rarely oriented otherwise.



Figure 5
Broom contour in description-imagery
(default)
 © Jim Shaw

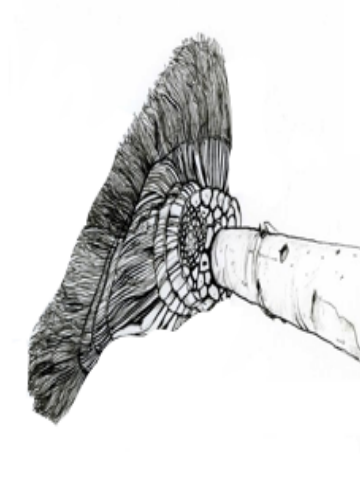


Figure 6
Broom contour in enactment-imagery
(subject to situation)
 © Schünnin

An approximate contour filled with a sketchy surface as afforded by an initial orientation is all there is to visual mental images of isolated objects such as brooms, cups or flower pots. That is to say, they are all there is by default, at the very instant a reader has understood that an object description is about to begin unfolding, but before any post-positated visual attributes have been taken in. This particular stage of imagery is what I call *the default*

⁶⁰ The perspective thus assumed would coincide with what cognitive psychologists call “canonical perspective”, i.e., a perspective by which typical interaction is facilitated (Palmer, Rosch, and Chase 1981).

description-image.⁶¹ It arises, for instance, with the underlined portions of the following examples:

(T)hree dirty mattresses, each rolled up in a blanket: which occupied one corner of the room during the day, and formed a kind of slab, on which were placed an old cracked basin, ewer, and soap-dish, of common yellow earthenware, with a blue flower(.) (Dickens 1998, 551)

My Austrian sniper's rifle with its blued octagon barrel and the lovely dark walnut, cheek-fitted, schutzen stock, hung over the two beds. (Hemingway 1962, 11)

The tablecloth was thick, smooth and blue. Heavy Indian cotton, a thin turquoise line through blue checks. Small frayed holes here and there. (Roberts 1993, 14)

Whatever parameters the reader brings in on top of contour shape and orientation pertain less to the image as such (but see Section 3.6.2 below) than to the reader's preconceived notion of the object in question. If the reader lives in a world where most brooms are brown, or if the reader assumes that most brooms are brown in the particular world of the particular narrative, then it is sheer conceptual knowledge that makes the reader tacitly believe that a fictional broom is brown. Obviously, the particular contour and orientation imposed on one's default description-image of a broom are mediated by conceptual knowledge as well. They happen to coincide with what one's culture recognizes as prototypical. The main difference from other visual parameters, e.g., color, is that contour shape and orientation alone are necessary for manufactured objects such as brooms to appear as what they are. As far as mental images of manufactured objects are considered, the other parameters are accidental. A purple emerald will no longer be an emerald, but a broom made of purple china will still appear as a broom unless its practical function is considered, which anyway never happens in visual description proper, where appearance is the only thing at stake (see also Section 3.2 above). A strawberry turned upside down will lose nothing of its essence, but a flower pot turned upside down will suddenly appear somewhat less like a flower pot. This, along with a fair deal of introspection, is what lies behind the above suggestion that contour shape and orientation is all one really sees in, rather than reads into, the default description-image.

⁶¹ For objects mentally represented in enactment-imagery, by contrast, one cannot speak about a "default enactment-image" or "default parameters", because enactment-imagery is necessarily situated, and salient visual (and other perceptual) properties are thus determined by situational context. For instance, there is the broom as visually inspected, the broom as swept with, the broom as thrown out of the window, etc.

But what does the particular status of the two closely interconnected parameters of contour shape and orientation imply for imageability in cases when contour shape or orientation are explicitly mentioned in a visual description? Paradoxically, nothing much. Their centrality to the definition of each object category (and the relatively low variability of shape within each object category) seems to make the two parameters relatively useless, and perhaps even relatively little used, in visual descriptions.

That a particular contour shape or orientation is mentioned usually implies that several different contour shapes or orientations are afforded by the object category in question. While less typical contour shapes (rectangular flower pots) need not cause difficulty for imagery, less typical orientations (chairs lying on their backrests) tend to be more treacherous but mostly viable thanks to our ability to perform mental rotation (Shepard and Metzler 1971). Importantly, unless the object of the specific contour shape and orientation is highly unexpected (spheric brooms, banana shaped coffee cups), it is accommodated by the initial mental image without resistance, but also without the reader taking particular notice (see also Section 3.6.3 below).

It has been noted by Michael Burke (2011, 145), and partly also by the proponents of the classical theory of literary estrangement (Shklovsky 1990, 1–14), that mental contents really become noticeable only when a mismatch takes place between the reader's top-down preconceptions on the one hand and bottom-up textual input on the other. Once we adopt the same idea for description-imagery, the following conclusion avails: If contour shape and orientation are the only two default parameters in mental images of isolated objects, then explicit references to these parameters should represent the only kind of textual input that can induce a match or mismatch proper, i.e., a match or mismatch concerning the image as such. Yet paradoxically, match or mismatch seems to make little difference to contour shape and orientation. Mentioned or not mentioned, matching or mismatching, it is as if the two parameters were rarely noticed in their own right exactly because their presence in the mental image is inevitable anyway. Compare for instance the following passages:

She carried the (...) dish on her upturned hands. (...) A big dish, ~~roughly oblong in shape~~, with rounded shoulders. Its thickness and heaviness were emphasized by the bold strokes of its painted decoration, dark orange, dark pink, and navy blue. (Roberts 1993, 91)

Gary (...) took the last of the six signs that a Neverest representative had sold to him. Considering the cost of a Neverest home-security system, the signs were unbelievably shoddy. The placards, roughly oblong in shape, were unevenly painted and attached by fragile aluminum rivets to posts of rolled sheet metal(.) (Franzen 2001, 225)

Above, a contour shape qualifier (“roughly oblong in shape”) was removed from the former passage and planted in the latter passage. In my view, neither one of the two mental images (of the dish, of the home-security sign) lost or gained any of its initial power, in spite of the fact that home-security signs are more likely than dishes to be roughly oblong in shape, and in spite of “roughly oblong” suggesting slightly different shapes for the two objects: an oval one for the dish, a rectangular one for the home-security sign. This is not to say that certain contour shapes or (especially) orientations are not more likely to be imaged than others. The point is simply that there is nothing about descriptions referring to contour shape or orientation *per se* that makes them either imageable or non-imageable. This is not the case for those parameters for which any possible match or mismatch pertains not to the level of the image, but to the level of invested conceptual knowledge. Those are the non-default parameters. Among them, I will argue, some truly have the power to make a visual description imageable, while others are for various reasons detrimental to description imageability. Tapping firmly into the conceptual, the non-default parameters overall seem more likely to become noticed, to capture one’s attention in the course of reading. The ones listed in the following section tend also to make a noticeable difference for one’s description-imagery.

3.6.2 Other parameters, limitations (feebleness)

The absence of each one of the below visual parameters adds to the perceived feebleness of the default description-image. By recounting these parameters, I will thus continue recounting the many ways in which description-images, especially in the default, are experienced as feeble. However, there are countless aspects to what meets the eye in perception and I have no ambition to offer a comprehensive overview of all conceivable visual parameters. Rather, my intention is to propose a general way of classifying visual parameters according to their imageability, while identifying salient representatives of each category. Throughout the proposal, new distinctions will need to be drawn between the various levels of the notion of imageability that are at play. A diagrammatic summary will finally be provided in Figure 7, where further examples of each category will also be proposed.

My ultimate aim here is to pinpoint visual parameters that may have a pronounced impact, be it positive or negative, on the imageability of a visual description of an object as encountered in literary prose. In this respect, the only thing I have been able to establish thus far is that the parameters of contour shape and orientation do not seem to have much impact. On the other hand, the parameters of contour shape and orientation obviously are imageable, even more so than any others, given their privileged status in mental imagery. The ubiquitous notion of imageability thus begins to bifur-

cate: First, there is *the basic imageability of a particular parameter* (imageability I) in itself. In this sense, a parameter either is or is not imageable depending on whether it can be readily represented in a mental image. Then, there is the impact the same parameter may or may not have on *the imageability of a visual description* (imageability III, see below). Unlike contour shape and orientation, all the below parameters have a pronounced impact. It is assumed in what follows that a negative score on basic imageability automatically entails a negative impact on description imageability. Meanwhile, a positive score on basic imageability does not, interestingly enough, guarantee a positive impact. But let us begin with the easy cases.

Some visual parameters, I would like to suggest, simply cannot be represented in description-imagery. Their presence in a visual description is then necessarily a hindrance to imagery. Rather than contributing to a visual presentation, the words referring to these parameters leave other sorts of imprints (if any) on the reader's consciousness, thus disturbing the referential image; they are reflected upon *qua* higher-order concepts or *qua* verbal expressions, or simply skimmed or skipped. Size is a salient example of this class of parameters. In explaining why size cannot be imaged, I will once more revisit Elaine Scarry. In her treatise, Scarry argues that blossoms are amongst the most easily imageable of all possible contents. For explanation, Scarry (1999, 47) refers to the typical size of a blossom, which she says is commensurable with the size of the physical space occupied by mental images, i.e., with the size of one's forehead and the space behind it.

Even though I do not share Scarry's passion for flowers, and even though I do not posit that the mental visual field is experienced to span a stretch of physical space, my assumption about the non-imageability of size is grounded in a similar premise, namely, that the magnitude of description-images is invariable across contents. That is to say, no matter how small or big an object in reality, its description-image is readily enlarged or diminished as if to nicely fill the blank of the mental visual field, leaving a perfectly proportionate margin (see also Sadoski and Paivio 2001, 48; Casey 2000, 54).⁶² Evidence from empirical studies on experimenter-guided mental imagery concurs with this intuition. People have been found to consistently image smaller objects as if they were closer and *vice versa* (Kosslyn 1978). Because the blank to be filled is not physical in any respect, I am more inclined to view mental images as sizeless rather than uniformly sized. Either way, explicit reference to size, especially when absolute (e.g. "one foot long") as opposed to relative (e.g. "long"), seems ostentatiously useless and distractive in visual description as far as the content of description-imagery is concerned. In the following examples, for instance, any hitherto conceived

⁶² This is not the case for objects mentally represented in enactment-imagery, which can be enlarged or diminished depending on the situation as well as on how large a portion of the surrounding storyworld is being imaged simultaneously.

mental image may recede or even disperse as soon as the reference to size is processed:

He showed me one of (the guns), a smoothly jagged piece of metal over a foot long. It looked like babbitting metal. (Hemingway 1962, 182)

Beyond stands the lamp, in the right corner of the table: a square base six inches on each side, a disk tangent with its sides, of the same diameter, a fluted column supporting a dark, slightly conical lampshade. (Robbe-Grillet 1965a, 144)⁶³

Yet other visual parameters are imaged with great ease and tend to have a positive impact on the imageability of a visual description. Color is a salient example of this class of parameters. That visual mental images prompted by names of manufactured objects are generally experienced to appear in shades of white and achromatic grey unless a color is explicitly mentioned, is an insight based on introspection (see also Scarry 1999, 22). There are, however, empirical indications toward such a view of the default description-image. For instance, a brain imaging study (Simmons et al. 2007) has identified a neural substrate common to the processing of object-color word pairs (e.g. “eggplant-purple”) and actual color processing. Interestingly, the same study has shown that object words decoupled from explicit color attributes do not activate the cortical areas in question. Non-consciously, objects seem to be processed as colorless. Nevertheless, while the stimuli in the above study consisted in both natural and manufactured object words, my own introspective hypothesis regarding conscious imagery does not extend beyond the latter. Rather, I am inclined to describe mental images prompted by names of natural objects – “eggplant,” “strawberry,” “emerald” – as tinted by the color typically associated with the object (see also Section 3.6.1). To be more precise, I am inclined to thus describe mental images prompted by the names of any objects that are very strongly associated with one particular color. These objects (and the specific colors they are associated with) vary in part across cultures and individuals. The group happens to coincide largely, but far from entirely, with the category of natural objects. It may include bricks, but not bell peppers.

Whether default description-images of manufactured objects really are entirely achromatic or just extremely feeble in hue, the parameter of color is essentially different from the parameter of size in that its experienced absence from the visual mental image is no necessity. Not only can color be easily accommodated by a visual mental image. It is often accommodated

⁶³ [Au-delà se dresse la lampe, dans l’angle droit de la table : un socle carré de quinze centimètre de côté, un disque de même diamètre, une colonne cannelée portant un abat-jour sombre de conicité très faible. (Robbe-Grillet 1959, 14)]

with benefit, boosting a description-image way beyond the threshold of the reader's attention. The rare potential of externally induced color to inform visual imagery is further confirmed, as it were, by empirical research into the so-called Perky effect. In the initial Perky (1910) experiment, participants were asked to produce mental images of diverse objects (e.g. a banana, a book) while unknowingly facing a white screen on which dim pictures of the same kinds of objects were being projected. The original data suggests that exposure to pictures, generally speaking, affects the content of concurrent mental imagery. Further research (Reeves 1981) has shown, however, that the Perky effect is up to six times stronger when the target picture is colored compared to when it is achromatic.

Finally, the basic imageability of color being beyond doubt, its positive impact on description-imagery is perhaps most easily avowed by recourse to practical examples. In my view, any mental image produced by these randomly chosen visual descriptions fades drastically when references to color are thought away:

Right at the back would be a narrow bed covered in ~~ultramarine~~ velvet and stacked with cushions ~~of all colours~~. (Perec 1990, 24)⁶⁴

The sofa was upholstered in ~~yellow and blue~~ satin, shiny and tight, finished with rolled ~~gold~~ cord and tassels. A hard little matching satin bolster tucked in at either end. ~~Gold~~ claws at the end of twisted wooden legs. (Roberts 1993, 54)

To encourage him, Baxter at last takes the knife from his pocket. As far as Perowne can tell, it's an old-fashioned French kitchen knife, with an ~~orange~~ wooden handle and curved blade with no sheen. (McEwan 2006, 215)

The third and final category of parameters is those that may be perfectly imageable in themselves, but have a negative impact on the perceived imageability of a visual description. The fact that such discordance is possible at all suggests that the notion of imageability, bifurcated as it already was for the purpose of the preceding analysis, in fact trifurcates. In between the basic imageability of each individual parameter and its impact on overall description imageability, there is the mediating variable of *a parameter's respective possibility or non-possibility to be accommodated in the general object image* (imageability II). This possibility or non-possibility comes down to the inherent makeup of description-imagery as specified above. Namely, it derives from the prominence of contour shape in object imagery, and from the feebleness of the surface filling the space delineated by a mentally imaged contour. More specifically, the category encompasses whatever can be im-

⁶⁴ [Tout au fond, il y aurait un lit étroit, tendu de velours outremer, garni des coussins ~~des toutes couleurs~~. (Perec 1965, 14)]

aged in its own right but cannot meet the mind's eye when an object is imaged *as a whole*. The parameters belonging to this third category all reduce, in one way or another, to surface detail and to non-contour shape, i.e., to aspects of shape that do not inform the general object contour (as projected into the two dimensions of a description-image). One salient representative of this category is what I will henceforth call, for lack of a better expression, the parameter of visual complexity. The underlined portions of the following descriptions all roughly amount to visual complexity:

The table is a metal disc pierced with innumerable holes, the largest of which form a complicated rosette: a series of S's all starting at the center, like double-curved spokes of a wheel, and each spiraling at the outer end, at the periphery of the disc. / The base supporting the table consists of a slender triple stem whose strands separate to converge again, coiling (in three vertical planes through the axis of the system) into three similar volutes whose lower whorls rest on the ground and are bound together by a ring placed a little higher on the curve. (Robbe-Grillet 1965b, 94–95)⁶⁵

A local craftsman had made the buffet for Thérèse's grandparents. (...) A solid piece in worn pine, darkened with age, satin-smooth. Its top pair of doors was carved with reliefs of oakleaf garlands. Two fat swags that hung down, one on each door. (Roberts 1993, 11)

The placards were unevenly painted and attached by fragile aluminum rivets to posts of rolled sheet metal(.) (Franzen 2001, 225)

It is fair to say that reference to visual complexity, the verbal rendition of the detailed architecture of things, is overrepresented in literary visual descriptions. Visual complexity thus adds to why visual descriptions, in aggregate, end up appearing so surprisingly non-imageable, given the reader's intuitive readiness to see with the mind's eye. It has previously been suggested by literary scholars and cognitive psychologists alike that in order to be imageable, visual descriptions of various kinds (descriptions of faces; descriptions of complex spatial settings) need to preserve a holistic (Jajdelska et al. 2010) and unitary (Lopes 1995, 23) view of what is being described. Visual complexity obviously flouts these principles, breaking objects into details of structure (such as fragile aluminum rivets) and details of surface (such as

⁶⁵ [La table est un disque de métal percé de trous innombrables, dont les plus gros dessinent une rosace compliquée : des S partant tous du centre, comme les rayons deux fois cintrés d'une roue, et s'enroulant chacun sur soi-même en spirale à l'autre bout, sur la périphérie du disque. / Le pied qui le supporte est constitué par une triple tige grêle dont les branches s'écartent pour converger ensuite à nouveau, par un changement de la concavité, et s'enroulent à leur tour (dans les trois plans verticaux passant par l'axe du système) en trois volutes semblables, qui reposent sur le sol par leur spire inférieure et sont accolées ensemble au moyen d'un anneau, un peu plus haut sur cette même courbe. (Robbe-Grillet 1957, 124–125)]

perforations forming complicated rosettes). Any initial object image is then broken down accordingly.

Although the reader may not cease to experience visual imagery while processing references to visual complexity, the images experienced are no longer experienced as images of the central object proper. A sense of discontinuity obtains (see also Casey 2000, 91; Ingarden 1973b, 267), with negative consequences for the imageability of the visual description overall. Description-imagery prompted by visual description, at least when discrete objects are considered, thus differs from perceptual experience and from perceptually mimetic mental imagery (i.e. enactment-imagery as typically prompted by narrative) in that nothing can be represented in it without simultaneously being represented as being in focus. If whatever is in focus optimally fills the visual mental field, then each mental image consists only and exclusively in whatever is in focus. Hence the necessary lack of continuity between description-images of objects and description-images of object parts.

In what remains of Section 3.6, as visual parameters recede to the background of the argument, the notion of imageability will once again be applied unambiguously. An interim diagrammatic summary of the present section is therefore shown in Figure 7 below, in which the various levels of imageability are listed. The level henceforth relevant is imageability III.

Parameter...	Is imaged	Imageability I: Is imageable	Imageability II: Can be accommodated in object image	Imageability III: Has impact on description imageability	Salient example	Further example
	By default	Yes	Yes	Neutral	Contour shape	Orientation
	Optionally	Yes	Yes	Positive	Color	Luminance; Texture
	Separately	Yes	No	Negative	Visual complexity	Occluded features
	Never	No	No	Negative	Size	Volume

Figure 7 Visual parameter imageability I-II

3.6.3 The principle of just amount (expectedness)

That a mental image is expected to arise as soon as the reader has identified an object of visual description and switched into the relevant mode of processing, also entails an instant mobilization of the many preconceptions that may possibly have bearing on the prospective description-image. So, upon encountering the word “broom,” one is given a default broom image. At the very same instant, one gets pre-reflectively ready to begin processing references to visual properties corresponding to one’s concept of the broom in question. That is to say, rather than ruling out the improbable (e.g. the possibility that the broom is purple, made of china, and so forth), one’s mind takes the much more economic course of activating the concept of a suitable broom prototype (see e.g. Rosch et al. 1976).

This is where the possibility of concept/image match or mismatch, previously mentioned in Section 3.6.2, comes in. And with it comes also one of the trickiest paradoxes concerning the imageability of visual descriptions as enclosed textual entities, namely, that one’s description-imagery runs a higher risk of being ruined by a matching than by a mismatching description. This is not to say that matching visual descriptions are *a priori* less imageable than mismatching ones. My point is rather that for each description, there is a just, adequate amount of visual information afforded by the frailty of referential imagery, and that this amount is lower for descriptions which match the reader’s expectations than for mismatching descriptions. Defined from the reader’s perspective, matching descriptions are descriptions of properties that are known or expected beforehand, while mismatching descriptions refer to properties unknown or unexpected. Accordingly, a principle of just amount may be formulated as follows: *Visual descriptions are most likely to be imageable when they expand on visual properties that are unexpected to the reader, while condensing the expected properties.* Otherwise they become incomprehensible (when condensing too much the unknown and unexpected) or redundant (when expanding too much on the known and expected).

Unexpected properties are experienced as such either because the general concept is unfamiliar (e.g. the concept “phonautograph” for most contemporary readers), or, more frequently, because the described exemplar does not match one’s *ad hoc* prototype. Below is an attempt to illustrate the principle of just amount by way of a first-person analysis of a passage consisting of two different visual descriptions linked to one and the same general concept, the ever so recurrent concept of a broom:

In the kitchen closet I found a practically new broom [1] (not one of the contemporary designs, with synthetic bristles uniformly cut at an angle [2], but one just like the kind I had grown up with, with smocked twigs bound to a wooden handle [3])(.) (Baker 1998, 20; abridged)

Once I have reached the word “broom” (Segment [1]) in this passage, my mind schematically, and barely reflectively, images what apparently is my broom prototype. It happens to coincide with what the narrator later presents as the kind of broom he grew up with. However, upon the imminent description of that very kind of broom (Segment [3]), I am no longer prompted or able to form a mental image. Rather, I feel compelled by the visual description to instantaneously reflect on how that kind of broom is made and how it looks and how it does not look and in what way it is better or worse than other kinds of brooms. I do all this in a fraction of a second, but I am not really experiencing imagery.

The reason for this may be that, because of my initial readiness to image the very same kind of broom, the visual description eventually provided of it appears excessive (see also Chapter 4, Section 4.2.4). Due to this excess of visual description, my concept of broom, so familiar and devoid of overt verbal mediation at the onset, becomes defamiliarized, estranged. It is interfered with verbally. Any hitherto conceived mental image thus disperses. Obeying the trade-off between imageability and marked verbliness (see also Section 3.4 above), it gives way to other strategies of visual description processing.

By contrast, as I initially do not expect to be reading about a broom of the modern kind, the visual description provided of that kind of broom (Segment [2]) is compelling enough to inform my mental imagery. As it mismatches my prototype and thus paradoxically avoids word/image interference, this description may have made me notice that there was a (different) prototype in the first place (see also Section 3.6.1 above). But the challenge imposed by its unexpected content sustains my mental imaging through a longer duration of time, despite the fact that it extends over roughly the same amount of text and comprises roughly the same sort of visual information. Indeed, this observation runs counter to the common assumption that there is a direct relationship between the amount of visual detail provided through description on the one hand and the imageability of a text on the other (see Section 3.1 above). That expanded visual descriptions generally pose a cognitive difficulty is in fact empirically proven. For instance, when descriptions of spatial settings abound in detail, readers have been found to refrain from spontaneously tracking spatial information (Zwaan and Van Oostendorp 1993).

Whatever their content, excessive visual descriptions thus seem to make an impact similar to the one of non-imageable visual parameters: They are reflected upon in terms of higher-order conceptual meaning or, eventually, in

terms of their quality as verbal expressions (and they are possibly imaged within the verbal domain). Ultimately they may, and very often will, be simply skimmed or skipped. The point of felt excess seems to arrive shortly after a peak level of image saturation has been reached, i.e., shortly after a maximum of visual parameters have been accommodated simultaneously.

Importantly, my introspective account demonstrates that the point of felt excess may arrive much sooner with visual descriptions that happen to match the reader's expectations when compared to mismatching descriptions, just as the peak level of image saturation is probably reached sooner in such cases. This striking frailty of matching description-images is even more so if we define image saturation as the opposite of experienced image feebleness, since one is intuitively prone to consider one's default description-images of familiar objects to be less feeble (see also Baddeley and Andrade 2000), and more saturated as it were, than mental images of objects barely known. Granted, the contour shape of an object image that has been anticipated all along (e.g. the image of a broom just like the one in my mother's kitchen) may be experienced as somewhat less incomplete, its surface somewhat less sketchy, its orientation somewhat more precisely given. And yet, unless it has been prompted by a narrative proper in the mode of enactment-imagery, it is destined to vanish all the more quickly.

An attempt to summarize these various paradoxes underlying the principle of just amount is shown in the two curvatures of Figures 8 and 9:

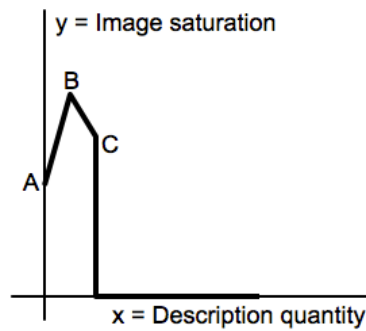


Figure 8 *Concept/Image match*
(Expected visual properties)

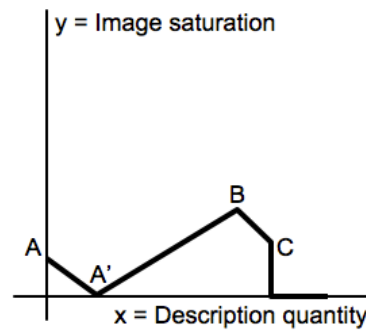


Figure 9 *Concept/Image mismatch*
(Unexpected visual properties)

- A* Formation of default description-image
- A'* Concept replacement
- B* Peak saturation
- C* Point of excess

The expectedness or unexpectedness of each image is necessarily a matter of degree. Thus, given that there is no such thing as an absolute concept/image match or mismatch, and given the number of variables at work in a visual description, it would be extremely difficult to quantify the principle of just amount with any more concreteness. Suffice to note that descriptive excess, along with the frequent occurrence of non-imageable visual parameters (see imageability II in Figure 7), is a major factor in visual descriptions' relatively low appeal for referential imagery. Conversely, imageable visual descriptions not only tend to comply with the inherent makeup of the mental image by exploiting primarily the imageable visual parameters, but also obey the principle of just amount.

3.7 Postscript

There is of course much more to visual descriptions than the above parameters. And there is endlessly more to their literary style than the quantity of properties spelled out. Not only are there parameters relevant to vision that have a strong potential to elicit enactment-imagery rather than description-imagery (e.g. weight or surface texture, both associating direct bodily interaction). There are also ways of tapping into non-imageable parameters that make a visual description appeal highly to mental imagery, for instance by employing figurative language. Consider the following example:

The camera was the size of a deck of cards. It was mounted on an altazimuth bracket above the back door. Its casing was of brushed aluminum. It had a purplish gleam in its eye. (Franzen 2001, 230)

What might have deterred visual imagery if expressed in more mundane words (i.e. with reference to exact measures) becomes perfectly imageable here by virtue of image blending (see also Gleason 2009). The reader may not be able to make much use of the parameter of size *per se*, but the fusion of a camera image with an image of a deck of cards provides enough stimulation with regard to other parameters that the non-imageability of size is easily overridden. Needless to say, this particular simile is still comparably mundane and stripped of affective connotations. But visual descriptions, just like any other discourse, can be steeped in metaphor and affective language (see e.g. Sternberg 1981; Riffaterre 1981), with various and presumably very complex consequences for mental imagery and imageability (Kimmel in progress). Another issue of relevance to literary style is descriptive syntax, for instance the question of how imageability is affected by the particular order in which visual properties are presented, or by the rhythm of the descriptive sentence. And how is a description-image constituted in the proc-

essing of descriptive sentences where visual attributes are pre-posed rather than post-posed with respect to the central object name (for an example, see Section 3.4 above)? All this remains to be explored.

Even beyond the domain of stylistics, the caveats of an analysis such as the present one are countless and so are the possible directions for further study. Like the rest of this dissertation, this chapter is largely speculative. However, I have taken care to make all formulations as amenable as possible to intersubjective validation and empirical testing. It is possible that much of the above will eventually be disconfirmed, either based on the general readership or, more radically, on pre-selected populations of readers who are particularly predisposed to experience mental imagery. For the time being, the analysis is justified by other theoretical projects such as Elaine Scarry's. An elaboration on Scarry's project, i.e., the identification of singularly imageable properties, within the framework of my own is another desideratum that has had to be disregarded throughout this chapter.

Finally, a call for a yet larger enterprise lurks in the conceptual network of the above argument, namely the call for a systematic, positive analysis of the other two attentional foci that can piggyback on visual description processing. When is a visual description more likely to address higher-order meaning-making or draw one's attention to its linguistic structure (and possibly also verbal imagery) rather than elicit description-imagery? What are the mutual relationships between the three? Such a systematic analysis, should it be viable, would significantly contribute to the charting out of the regularities of literary reading overall. Literary theorist Philippe Hamon's aphoristic remark about description "being the crucial point at which the readability of a narrative is organized" (Hamon 1982, 167) would thus acquire new, clearer significance.

Chapter 4. The verbal domain: speech-imagery, rehearsal-imagery, and interpretation⁶⁶

While phonological recoding may not be necessary for the comprehension of all print, visually processing print is regularly associated with auditory and articulatory activity in readers with hearing. (Sadoski and Paivio 2001, 123)

4.1 Verbal imagery

The present chapter maps the domain of verbal imagery, introducing and elaborating on the distinction between speech-imagery and rehearsal-imagery that has been briefly outlined in Chapter 1 (Sections 1.6.3 and 1.6.4). It differs from the preceding Chapters 2 and 3 in that it makes connections between the imagery varieties in question and other, higher-order processes of reader response, which will be subsumed under the notion of interpretation (see also Chapter 1, Section 1.6.6).

Translated into the language of narrative theory, this chapter is an attempt to account systematically for the phenomenon of voice in literary narrative in other than metaphorical sense of the term.⁶⁷ It is generally acknowledged that verbal imagery, the reader's sense of hearing the words on a page, matters in the silent reading of poetry (see e.g. Tsur 1996; Tsur 1992). Verbal imagery in the silent reading of narrative prose, on the other hand, is largely neglected by literary and other theorists. When it is mentioned at all, approaches seem to diverge widely. Some (e.g. Derrida 1974, 27–73) come close to denying it altogether. Others (e.g. Miall 2006, 173–188) consider its workings only when particular sound patterns and expressions are to be

⁶⁶ This chapter is an extended and revised version of my “Outer vs. Inner Reverberations: Verbal Auditory Imagery and Meaning-making in Literary Narrative”, *Journal of Literary Theory* 7:1, xx-xx (Kuzmičová 2013b).

⁶⁷ An established term in narratology, “voice” is commonly used as a metaphor for the reader's construal of the ontological status of a narrative utterance (Is it Leopold Bloom speaking? Or is it an impersonal narrator?).

proven special and significant from the viewpoint of global interpretation. One solitary critic (Stewart 1990) turns verbal imagery into a full-blown interpretive strategy, but fails to provide a systematic account of its spontaneous occurrence, its felt qualities or underlying mechanics. Another one (Chapman 1984) accounts for the ways in which verbal auditory and other sound experiences can be encoded by writers in literary texts, but does not detail their effects on readers' mental imagery. This chapter aims to fill the gaps.

It should be noted that I do not believe the linguistic medium to be continuously in the spotlight of the reader's attention. Nor do I believe that the medium is attended to most of the time, which may perhaps be the case in poetry. On the contrary, I agree with phenomenologist Roman Ingarden, who asserts that readers rather tend to focus on whatever the linguistic medium serves to represent (see also Chapter 1, Section 1.7), experiencing the "phonetic stratum" of language "only peripherally" (Ingarden 1973a, 12, 91). Attention in general, and attention for mental imagery in particular, evades empirical investigation. If we assume that there is an attentional trade-off (see also Kuzmičová 2013b) between full medium transparency and full medium awareness, Ingarden seems to suggest that conscious verbal images occur less frequently than conscious referential images. Alternatively, if we accept that mental imagery can sometimes be experienced as a blend of verbal images and referential images (see also Chapter 1, Section 1.6.5), Ingarden's view suggests that the verbal component is rarely dominant in the reader's consciousness.

Whichever of these two assumptions one wishes to emphasize, everybody has probably had the subjective experience of hearing the narrative they silently read. I suggest that this experience, albeit comparably subtle and probably scarce in some readers, occurs now and then with each and every narrative we read. This is a view held by many others. For instance, one of the points of criticism traditionally raised against the audiobook is its "denial of the reader's inner voice invoked by the printed page" (Rubery 2011, 11). Similarly to the authors of these criticisms, I believe verbal imagery to be vital to any experience of literary reading worth the name (see also Rosenblatt 1994, 26), although I will not make a case here for that belief. Nonetheless, I do make a case for the idea that distinctions within the domain of verbal imagery also apply to higher-order meaning-making, i.e., that discrete types of verbal imagery may be associated with discrete tendencies in spontaneous literary interpretation.

The chapter is structured as follows: After an opening note on terminology (Section 4.2.1) and a brief, selective review of psychological literature (Section 4.2.2), I will introduce what I take to be a key phenomenal distinction between the two types of embodied experience produced by such imagery. Representing two ends of one experiential continuum, these two types of verbal imagery will be referred to as speech-imagery and rehearsal-

imagery. The basic distinction between speech-imagery and rehearsal-imagery will be defined as follows: In speech-imagery, verbal imagery is experienced to originate outside the reader's body. In rehearsal-imagery, verbal imagery is experienced to originate inside it. Having described the basic corporeal (Section 4.2.3) and temporal (Section 4.2.5) qualities of these experiences and presented a few suggestions as to how they may link with discrete narrative techniques (Section 4.2.4), I will extend the scope of my description so as to include their respective relationships to higher-order meaning-making, or interpretation broadly defined (Sections 4.3.1 and 4.3.2). I will argue (with a brief reservation, in Section 4.3.3, regarding the case of the poetic) that speech-imagery agrees with interpretation inasmuch as it puts the reader in the position of a vicarious listener. Meanwhile, rehearsal-imagery may rather be incompatible with interpretation by virtue of slanting the embodied experience toward active speech production. But before this line of thought can be pursued, a much more basic question needs to be dealt with: What do we know about verbal imagery in general?

4.2 Embodied qualities

4.2.1 Terminology: VAI, simulation, verbal imagery, inner speech

First a few remarks regarding terminology. In this chapter, *verbal auditory imagery* (from now on, *VAI*) stands for the sort of mental auditory processes commonly investigated in psychology and other cognitive sciences as a sub-personal cognitive mechanism, i.e., without specific claims being made on the matter of the subject's consciousness (but with the unspoken assumption that VAI is largely non-conscious; see also Chapter 1, Section 1.4). If we were to strictly follow the terminology established in Chapters 1 to 3, VAI in this sense should thus be referred to as mere verbal *simulation* (or *representation*), rather than *imagery* proper. However, because "simulation" is not an established term in research on the cognitive processes at issue (and "representation" has the most diverse connotations for literary theorists), I have decided to preserve VAI as used by cognitive researchers to denote these processes, in all its vagueness and abstraction.

Meanwhile, when referring to the ways in which these processes inform consciousness, I will be using the term *verbal imagery* (without the qualifier in the middle) as defined in Chapter 1 and, wherever possible, the two more specific terms speech-imagery and rehearsal-imagery. For the purposes of the present chapter, verbal imagery and its two varieties should be understood to encompass more than just VAI plus consciousness. They will be

shown to feature felt embodied qualities as well as felt conceptual qualities. That is to say, there is something it is *like* to experience them not only in terms of imagery (my quasi-auditory uptake of the strings of letters on a page), but also in terms of what this particular kind of imagery suggests to me in my quest for meaning (my thoughts about what these strings of letters may convey). The former qualities will be the main subject of the present Section 4.2, while the latter qualities, as interlinked with the former, will be the main subject of Section 4.3.

An equivalent to VAI, the term *inner speech*, is sometimes used in psychological literature on language processing (e.g. Abramson and Goldinger 1997). Inner speech would have been a possible alternative to VAI and might have helped to avoid terminological confusion, had it not been frequently used in developmental and other research to denote something quite different, namely, verbal thought (e.g. my mental verbalizing as I am trying to solve the problems scrutinized in this chapter; see also Chapter 1, Section 1.6.6). This latter use of the term was first introduced by psychologist Lev Vygotsky (1987), whose ideas on the interrelations between thought and language will eventually prove useful for my argument. The term inner speech, when used below, will thus remain reserved for verbal thought and must not be confused with VAI or verbal imagery.

4.2.2 The psycho(physio)logy of verbal imagery: some fundamentals

Before verbal imagery is discussed with regard to the experience of literary narrative, any potential skepticism should be addressed from an empirical perspective. For those who may be skeptical about the grounding of verbal imagery in the reader's body, taking it perhaps to be the product of some sort of disembodied inferencing alone, there is abundant empirical evidence that VAI and verbal imagery in activities other than reading is accompanied by specific patterns of auditory cortical activation (for a review, see Hubbard 2010). Moreover, VAI is affected by impairments in cortical areas involved in actual speech reception and production (Baddeley and Logie 1992, 183–184). As for the more tangible sites of embodiment, VAI is affected, for instance, when one's tongue and lips are prevented from covert articulation (so-called subvocalization or subvocal rehearsal). Experiments have been conducted in which subjects were found to perform poorly on a verbal imagery task when chewing on candy, compared to control groups engaged in other concurrent tasks. Interference was also found when subjects had to perform a willed verbal imagery task while exposed to noise (Reisberg et al. 1989). In another series of experiments, concurrent humming, a bodily activity involving the vocal cords, was found to disable judgment as to whether a

mentally imaged consonant was voiced or unvoiced (J. D. Smith, Wilson, and Reisberg 1995).

For those who may be skeptical about the occurrence of VAI in silent reading specifically or about its effect on reading performance, there is still more evidence to be taken into account. In another experimental setup, subjects' ability to judge whether complex written sentences were meaningful or not decreased significantly when they were unable to rehearse the sentences subvocally due to a concurrent articulatory task (Baddeley and V. Lewis 1981). More generally, studies have shown that differences in phonetic length (i.e. the time required for pronunciation) between words of identical orthographic length (e.g. "bat" vs. "bad") affect the time these words take to process in silent reading (Abramson and Goldinger 1997). Prosodic elements such as rhythm, stress, and intonation, although overtly absent from normal text, have also been found to impact reading performance. An experimental study has shown that overt prosodic markers (bold type for sentence stress) enhance children's text comprehension (Beggs and Howarth 1985). In short, there are countless experimental contexts in which VAI, and conscious verbal imagery, has proven to depend (in speakers of English) on lower-order embodied processes and/or to have a pronounced effect on silent reading (see also the evidence cited in Chapter 1, Section 1.3).

Whether phonology always plays a role in silent reading or whether semantic content can also be accessed directly from orthography is the subject of debate. Some authors (Van Orden, Pennington, and Stone 1990) suggest that the phonological route cannot be bypassed, although it surfaces only when comprehension becomes especially difficult. However, the prevalent view seems to be that veridical phonology is indeed normally bypassed in silent reading (which is, after all, much faster than reading aloud) except in cases when comprehension becomes especially difficult (J. D. Smith, Wilson, and Reisberg 1995). But the kind of comprehension in question has little to do with the intricacies of literary interpretation. Rather, the above researchers refer to baseline cognitive operations (henceforth referred to as *baseline comprehension*) such as the processing of unknown vocabulary, or the disambiguation of homographs (i.e. words of different meaning but identical in spelling), or complex syntax.

Both views, the view that VAI is noticeable only when baseline comprehension is challenged and the view that VAI is not at work at all unless baseline comprehension is challenged, run into various problems when checked against the practices of literary reading. It is a fact that literary narratives, at least when contemporary to the reader, tend to pose relatively little difficulty for baseline comprehension as compared to expository text. On the other hand, although we have yet to receive systematic empirical evidence, it is also fair to say that VAI, or rather verbal imagery proper, is much more frequently noticeable to the reader of literary compared to non-literary prose.

Consistent with this estimate may be the findings of cognitive psychologist Rolf A. Zwaan. Zwaan (1993) conducted a series of experiments in which readers were presented with a number of simple but well-composed narratives. For each one of the narratives, the readers were made to believe that they were reading either a piece of journalism or literary prose. In the literary condition, the readers took longer to process the text and showed better memory for surface structure (i.e. memory for the precise wording of the text). Given that the two texts were identical, it is plausible that the increase in reading time and memory performance was partly due to additional verbal imagery, although Zwaan himself does not offer this particular explanation. After all, subvocal rehearsal is known as the ultimate auxiliary to both short-term and long-term memory (Baddeley and Logie 1992).

4.2.3 Speech-imagery vs. rehearsal-imagery

What are the basic varieties of verbal imagery as it occurs in the reading of literary narrative? What are their essential qualities? These are the central questions of this subsection.

The fundamental quality of all verbal imagery is that the linguistic medium of a written narrative enters the reader's awareness *qua* audible discourse. Although the exponents of poststructuralist philosophy would not agree, this is a perfectly natural experience. In readers with intact hearing, the first and for a long time only contact with language in life is of the oral kind. Verbal language, we are reminded by phenomenologist Don Ihde, is therefore "normatively embodied in sound and voice" (Ihde 2007, 150; see also Sadoski and Paivio 2001, 118–124). This description of verbal imagery, however apt, is not very discriminating. But as we begin to study verbal imagery experiences as they occur in the reading of literary narrative, they soon fall into two distinct varieties, or more precisely, position themselves between two ends of a continuum.

Consider (the below description of my experience of) the following passage:

[I: David]

The breeze from the sea was blowing through the room and [David] was reading with his shoulders and the small of his back against two pillows and another folded behind his head. He was sleepy after lunch but he felt hollow with waiting for her and he read and waited. Then he heard the door open and [Catherine] came in and for an instant he did not know her. She stood there with her hands below her breasts on the cashmere sweater and breathing as though she had been running.

"Oh, no," she said. "No."

Then she was on the bed pushing her head against him saying, "No. No. Please David. Don't you at all?"

He held her close against his chest and felt it smooth close clipped and coarsely silky and she pushed it hard against him again and again.

“What did you do, Devil?”

(Hemingway 1995, 45; my italics)

Once again, in this thrice quoted passage from Ernest Hemingway’s novel *The Garden of Eden*, Catherine, the young wife of a writer named David, has just had her hair cut in a wish to become more physically like her husband. Now she is showing off her extravagant (it is the 1920s) haircut to David, for whom all this is unexpected.

Did David’s question (“What did you do, Devil?”) resonate in verbal imagery the first time I read it, and how? Just before I go on describing the image I experienced, an important clarification is necessary: It is in no way presupposed that the experience to be described has normative validity with respect to the sentence in question. Obviously, susceptibility to conscious mental imagery, including verbal imagery (see also Chapman 1984, 224), varies across readers and so do readers’ instantaneous moods and inclinations. The sentence may be imaged differently by others, or it may not give rise to verbal imagery at all. The point I will *primarily* be trying to make is rather that if there is a verbal image for others in this case, or any other case, the experience of it can always be placed on a continuum between two extremities. And for this particular sentence, my own experience coincided well enough with one of these extremities.

There is, however, a *secondary* point behind my choice of literary passage. Despite individual differences, I assume that a moderate degree of intersubjective consensus is possible and I will indeed eventually (Section 4.2.4) propose a way of tracing my experience, as well as its polar opposite, to a generic class of textual cues, i.e., to objective features of the text. However, my proposal will be probabilistic rather than categorical. That said, it should be clear that I do not assume the verbal imagery triggered by discrete literary narratives to be the same across all readers, at least not on the level of isolated sentences or fairly small groups of sentences. Yet isolated sentences and small groups of sentences must form my literary examples, because there is nothing more than an isolated sentence or a small group of sentences to any one instance of verbal imagery. Unfortunately there is no way to emulate, within the present scholarly genre, the experience of continuously dipping in and out of the different varieties of verbal imagery in a larger stretch of literary prose.

The variety of verbal imagery at work in my experience of the above sentence has previously (Chapter 1, Section 1.6.3) been introduced as *speech-imagery*. The embodied qualities of speech-imagery, as exemplified by my experience of the above sentence, can be described as follows: The acoustics of the sentence flowed into my mind with notable ease. It feels as though I heard it pronounced by David, even though David is just a construct of mine

based on the preceding narrative. It feels as though I heard it *voiced* by David, even though I have difficulties describing in retrospect the very voice I heard when I was reading the sentence. The only voice I would be able to describe somewhat reliably is, again, a construct of mine based on the sparse information on David gleaned from the text thus far. My impression is that David's voice is rather deep, sonorous, of an appropriate volume for a self-conscious but considerate middle-aged American (I do not know yet that the character was raised in East Africa). I may even have felt David's voice resonate throughout the upper part of my body, perhaps with an admixture of what may have felt like my own whisper. Nevertheless, my vocal musculature most certainly felt immobile. The verbal image positively originated in David, or in an amalgam of people I have met whom I pre-reflectively imagine David to resemble, even though it was embodied in me.

For what I perceive as a pronounced contrast to speech-imagery, consider now (the below description of my experience of) the following passage:

[II: Ruth]

My name is Ruth. I grew up with my younger sister, Lucille, under the care of my grandmother, Mrs. Sylvia Foster, and when she died, of her sisters-in-law, Misses Lily and Nona Foster, and when they fled, of her daughter, Mrs. Sylvia Fischer. Through all these generations of elders we lived in one house, my grandmother's house, built for her by her husband, Edmund Foster, an employee of the railroad, who escaped this world years before I entered it. It was he who put us down in this unlikely place. He had grown up in the Middle West, in a house dug out of ground, with windows just at earth level and just at eye level, *so that from without, the house was a mere mound, no more a human stronghold than a grave, and from within, the perfect horizontality of the world in that place foreshortened the view so severely that the horizon seemed to circumscribe the sod house and nothing more.*

(M. Robinson 1981, 3; my italics)

The end of the verbal imagery spectrum to be represented by my spontaneous experience of this latter passage corresponds to what I have previously (Chapter 1, Section 1.6.4) termed *rehearsal-imagery*. The literary passage is part of the opening paragraph of Marilynne Robinson's novel *Housekeeping*, and I experienced it very differently from the Hemingway quote in terms of verbal imagery. (Verbal images may have occurred from the start but I can most distinctly remember them for the highlighted clauses.) This time a slight resistance was perceptible so that the verbal image seemed to lag behind my visual uptake of the words. The flow felt slower on average than that of a speech-image. Sheer text quantity cannot be the only cause of this, since the text feels just as slow upon the rereading of a short isolated portion commensurable in length with "What did you do, Devil?" The main overarching difference, however, lies in the scope of felt embodiment. While the speech-image was felt to originate in a vocal apparatus other than my own (that of an imaginary David), this rehearsal-image (or series of rehearsal-

images), as the label may readily suggest, was felt to originate in my subvocal rehearsal, in my own mouth and throat. It felt as though my tongue and vocal cords articulated, enacted the sounds of at least some of the words. Even my lips may have moved slightly on several occasions. This time it was not only the strictly auditory component of the image that resembled of my whisper, but also its *kinesthetic* component (i.e. motor activity in my mouth and throat). If there was a voice in this case, it was positively my own and nobody else's. It was me who uttered those words in spite of there being a Ruth to do the telling, the telling of her story and the story of her family, to me.

In contrast to the preceding speech-image, I would not be able to tell here, no matter what kind of inferencing I use, *how* the sentences in question were pronounced. With David I would be able to report in retrospect the approximate pitch, tonality or pace of his question, one indicating surprise and perhaps even a mixture of pleasure and fear. And I would have the feeling that this is really what I heard. That perceptual properties such as these can readily be encoded in silent reading, on a cognitive level prior to consciousness, has been empirically validated (see Kurby, Magliano, and Rapp 2009 for a review). With Ruth, who speaks to me through my own body only, I would not be able to report much more than the generic distribution of stress between syllables, and some of the places where I paused for longer than usual and took a breath. The contents of such a report would probably largely coincide with that of other readers'. This may seem strange at first, given that rehearsal-imagery is channeled by one's own covert articulation. But in normal overt speech (unless we are professionally trained in vocal performance), we do not access our voice from the outside either. The only way of accessing it in its clear, undistorted form is by listening to a recording, an experience which many people find horrid precisely because it strips away the inner resonance throughout their body (see also Ihde 2007, 136). In rehearsal-imagery, such resonance is key. It cannot possibly be bypassed. In speech-imagery, on the other hand, it can be bypassed quite easily. For instance, I could have read David's "What did you do, Devil?" without paying attention to the above-mentioned resonance in my torso, and still hear David's manly bass.⁶⁸

While the analogy with self-perception in overt speech does not properly explain why one is less aware of diction in rehearsal-imagery than in speech-imagery, it reminds us that an experiential dissociation between speech production and speech reception is not really as strange as it may seem. In fact, a similar dissociation has been corroborated for VAI. It has been established

⁶⁸ This kind of experience is common in the reading of narratives, personal letters etc. written by people we know well, or stories we have previously seen or heard vocally performed by others.

that in various tasks involving reading and other forms of language processing, our brain can simulate speech production without necessarily simulating the auditory output and *vice versa*. Or as psychologists have it, the “inner voice” and “inner ear” subsystems of the phonological loop, even though they sometimes operate in partnership, seem to be cleanly separable (J. D. Smith, Wilson, and Reisberg 1995). Translated into such terms, rehearsal-imagery amounts to a first-person awareness of *both the inner voice and inner ear*, while speech-imagery offers a first-person awareness of *the inner ear only*. The awareness of voice in speech-imagery is third-person, as if the voice came from the outside.

The above has provided a brief introduction of speech-imagery and rehearsal-imagery and their lower-order embodiment. Individual differences in response to the two passages notwithstanding, experienced readers hopefully recognize the general distinction. In Section 4.2.4 I will further elaborate on the distinction and make a few cursory proposals toward its grounding in narrative technique.

4.2.4 Situated speech vs. non-situated language: verbal imagery cues in text

When are speech-imagery and rehearsal-imagery, respectively, likely to arise? The reading of literary narratives is a dynamic and multilayered process, and any attempt to categorically link isolated text cues to varieties of verbal imagery, or even to verbal imagery in general, would be a simplification. As previously mentioned, the account to be presented in this section can only be approximate and probabilistic. One of its upshots, on the other hand, is that it runs independently of common narratological distinctions such as first-person vs. third-person narration, intradiegetic vs. extradiegetic narration, or internal vs. external focalization. This set of tools has been deemed more or less indispensable by narratologists tackling the notion of voice (for a review, see Aczel 1998), i.e., one’s construal of the ontological status of a narrative utterance. Unlike these narratologists, I do not assume readers to seek a specific unitary speaking self whenever one is not readily available. More crucially, my take on voice is literal, not metaphorical.⁶⁹

Since the above narrative passages were chosen for prompting (in me) the two varieties of verbal imagery at about their cleanest, it makes good sense to start by comparing these passages. What are the most obvious differences

⁶⁹ The potential to prompt either variety of verbal imagery in silent reading may be reflected in spontaneous voice modulation when a text passage is read aloud (for a critical analysis of traditional narratological categories that relies, among other things, on the practice of voice modulation in reading aloud, see Skalin 2008, 250-251).

in narrative technique that could have bearing on verbal imagery? And are the cues in question necessary for either verbal imagery variety to arise?

At first glance, there is a clear contrast between a markedly *oral* (David) and a markedly *written* (Ruth) style. Although neither of the passages is difficult in terms of baseline comprehension, Ruth's narrative is much more syntactically complex than David's question. "Devil" may not be the most typical address for a wife on honeymoon, but there is still a spoken and spontaneous quality to David's question, so typical of Hemingway's prose. What Ruth is saying, on the other hand, is ostentatiously constructed, even elevated on the lexical level. The degree of perceived orality is certainly an important factor in verbal imagery. But is it fair to say that perceived orality is a necessary precondition of speech-imagery, or that perceived literariness is a necessary precondition of rehearsal-imagery? I believe not. To provide a counterexample to the first assumption, it may be perfectly usual to engage with Hamlet's central soliloquy through speech-imagery, even though he speaks Shakespearian blank verse (see also Rossholm 2004, 234). As a counterexample to the second assumption, replace David's "Devil" with a literary address of your choosing. The context preserved, does it do much to the overall sound of his utterance?

Secondly, one could point out that, unlike Ruth, David (and also Hamlet) has grown to become a *familiar* persona⁷⁰ by the time of the utterance in question. Although we have already been given impressive detail of Ruth's family background, the sort of information which we do not have access to (yet) for David, we know nothing about what she is like as a person, what her occupation is, where she is coming from in any other than literal sense of the expression. We do not have the slightest clue of how old her physical voice may be. This lack of personal background may have joined forces with the markedly written character of the narrative in arousing my rehearsal-image.

But did it necessarily have to be so? I would indeed experience speech-imagery later on in Ruth's narrative, in spite of its relative stylistic consistency. Then does this mean that rehearsal-imagery exclusively occurs in text-initial positions, or when a new speaker is introduced? Or does it mean that so-called extradiegetic narrators (e.g. whoever is telling us that Catherine "came in and for an instant he did not know her") cannot be perceived as personalities of their own and experienced through speech-imagery? My answers to all these questions are negative. We may lack objective information about Ruth as a character, but we have been with her long enough to have a clue about what kind of speaker she is (rather solemn but far from humorless). Similarly, we may pre-reflectively attribute personality to extra-

⁷⁰ The etymology of "persona" is sometimes proposed to derive from the Latin *personare*, to sound through.

diegetic narrators (Currie 2010, 86–107), not to speak of biographical authors (Claassen 2012), based purely on how a story is told. Even in the case of David, we have probably learnt more about the character from the length and rhythm of his utterances than from what we have been expressly told about him. We have had the possibility to realize how quick-witted he is, an insight that may have readily affected the actual speed with which his utterances are processed, as suggested by empirical studies showing that the speed of silent reading can vary with the characteristics of an imagined speaker (J. D. Alexander and Nygaard 2008).

A third obvious difference at work between the two passages is best conceptualized by the classic distinction between so-called narratorial *showing* and *telling*. Whereas we know nothing about the circumstances of Ruth's narrative, a fact by which voice and style-of-speech attribution may be made difficult, David's utterance is perfectly framed by its where, when, and why. David's utterance is shown at least as much as it is told and its speech-image may very well be accompanied by a referential image (enactment- or description-imagery or anywhere in-between) of the event. It is delivered in direct discourse, the narrative strategy considered typical of showing (see e.g. Lubbock 1921). That direct discourse is especially well-suited for eliciting speech-imagery is intuitively self-evident, but it has also been corroborated by neuropsychological studies employing neuroimaging and eyetracking technology. For instance, it has been found that in silent reading, direct discourse yields stronger activations in the temporal voice areas of the auditory cortex, compared to content-equivalent indirect discourse (Yao, Belin, and Scheepers 2011). Also, behavioral studies investigating depth of processing have shown direct discourse to yield more vivid representations in readers' memory, compared to indirect discourse (Bohan et al. 2008).

In contrast to David's direct speech, Ruth's narrative, albeit first-person, reaches us via its own telling only. Yet again, it is by definition never the case that we know the circumstances of extradiegetic narration, and still it can be perceived to communicate through a personal voice, potentially giving rise to speech-imagery. Hence, the distinction between speech-imagery and rehearsal-imagery cannot be fully reduced to a distinction between speech in showing vs. speech in telling.

The three above variables, i.e., orality vs. literariness, familiarity vs. unfamiliarity, and showing vs. telling, can all be subsumed to mark different degrees and aspects of linguistic *situation* or *situatedness*. Language is situated *qua* speech when it is perceived as spoken (orality) and consistent with its source (familiarity) and its extralinguistic context (showing). If written language is, as Ihde seems to suggest (see Section 4.2.3 above), at some level always pre-reflectively assessed by the standards of voiced speech, then the modeling of linguistic situation would seem to be a key process in the reading of literary narrative, because voiced speech as we know it is normally quite situated. In voiced speech, we normally know who is talking

to us or at least why, when, where this is happening. Although we get to overhear snippets of strangers' conversations and unidentifiable fragments of news on daily basis, or even receive (initially) anonymous calls at the front door or on the phone, we tend to experience these as confusing or even uncanny. The typical opening question of a cell phone conversation with a near person aims exactly at disambiguating situation in a most literal sense of the word: "Where are you?"

Indeed, empirical research into reader response confirms what some (e.g. Coste 1990, 164) have long been proposing just in theory, i.e., that readers routinely attempt (successfully or not) to construe narrators of all narratological varieties as if they were partners in conversation. For instance, experimental studies conducted by Marisa Bortolussi and Peter Dixon have shown that, unless contradictory information is made explicit, narrators are assumed by readers to share their personal worldview and world knowledge (Bortolussi and Dixon 2003, 60–96). When there is textual evidence to the contrary, readers tend to report difficulties in grasping the basic causalities of the story.

Assuming this innate inclination toward situatedness, it would seem that speech-imagery may be generally preferred to rehearsal-imagery. My experience of rehearsal-imagery described above was not entirely unlike what one may experience when trying to concentrate on a difficult piece of expository writing in a noisy room, mouthing the words over in a desperate attempt to penetrate their meaning. Even though baseline comprehension is rarely an issue in literary narrative, a certain sense of medium opacity is inherent to rehearsal-imagery. That is to say, rehearsal-imagery entails a temporary dipping out of the linguistic situation, and a higher-level awareness of the language being processed *qua* medium. After all, the more palpably one's body is active in the sheer act of linguistic mediation, acting itself as a physical medium of sorts, the more palpably one becomes aware of language *qua* medium in the more abstract sense of the word. Conversely, speech-imagery in turn may dispense with, or even preclude, such awareness. What strikes me about David's utterance as I hear him say "What did you do, Devil?" is its naturalness, not its artificiality.

These are of course extremely short-lived, protean and fragile phenomena, subject to the reader's temperament and, crucially, to the unique dynamics of each particular text (and reading session). For instance, David's "What did you do, Devil?" would have lesser or other impact if it were surrounded by direct discourse exclusively (see also Section 4.3.2 below), if it were buried visually in additional text on the same line, and so forth. For any kind of cue to yield an effect, a certain degree of visibility is necessary, and visibility tends to decrease with insufficient variation in the text overall. Having said that, experienced readers hopefully recognize not only the general distinction between speech-imagery and rehearsal-imagery, but also the possibility

(however limited) of tracing speech-imagery and rehearsal-imagery to discrete verbal forms.⁷¹

The question of perceived mediacy brings back into focus the fact that my rehearsal-image of Ruth's narrative appears much earlier in the global text than my speech-image of David's utterance. It is certainly true that any literary style takes time to penetrate and get accustomed to (some styles take longer than others), and that attention and medium awareness is at its height at the beginning of a novel. For this reason, rehearsal-imagery may indeed be especially common in text-initial positions, or other emphatic positions (e.g. at the beginning or end of paragraphs or chapters). But this is not to say that rehearsal-images do not occur elsewhere. My experience says that they do.

So how does one tackle this experience once it has been established that, as far as verbal imagery is concerned, it is rehearsal-imagery (rather than speech-imagery) that is the marked, mediated case, the one that needs exploring? How can the textual cues of rehearsal-imagery be traced, if the concept has only been defined in negative terms so far, as a lack of orality, a lack of familiarity, a lack of narrative showing? In other words, when does the language of literary narrative become conspicuously non-situated so as to give rise to rehearsal-imagery? I would now like to propose a fourth, less obvious and more reader-centered variable at work in the two passages. While the previous three variables were related to qualitative differences in narrative technique, the fourth one comes down to the reader's *awareness of narrative quantity*. While the previous three variables were neither sufficient nor necessary, the fourth one, although probably not sufficient, may indeed be necessary. Needless to say, all are a matter of degree rather than categorical distinction.

By awareness of narrative quantity (or simply *narrative quantity*) I refer to an elusive phenomenon commonly mentioned in literary journalism but rarely investigated in scholarship, namely to the reader's sense that a story, or some circumscribed part of it, is being told in (so and so) many words. Narrative quantity is exactly what I had become aware of as Ruth's poetic rendition of her grandfather's first home began to resonate through my inner voice and ear. Still I did not consider the rendition excessive (see also Chapter 3, Section 3.6.3), or stylistically flawed. My attention only briefly (for a fraction of a second at most), and barely reflectively, turned to the fact that a considerable amount of narrative resources was being spent on a particular

⁷¹ For a further list of more particular, content-related text cues potentially productive of speech-imagery (e.g. graphic encoding of lisps and accents; overt narratorial commentary on the manner of characters' speech), see Chapman 1984. Chapman also acknowledges the fact that these cues can become counterproductive when used excessively (Chapman 1984, 31, 62).

topic. With David's utterance, one is never given a chance to make such observations.

In my Ruth example, the awareness of narrative quantity arose from the degree of instantaneous *elaboration* (reinforced by the aforementioned complexity of syntax) on what may be termed the "grandpa's first home" topic. In other cases, it may alternatively arise from *recurrence* (e.g. if grandpa's first home were described repeatedly throughout the global narrative, in the same or other words). Readers may not generally expect Grice's (1991) conversational maxims of quantity⁷² to be followed in literary narrative. Yet I believe that some narratives (the meticulous descriptions of Alain Robbe-Grillet, the trying digressions of Lawrence Sterne) eventually trigger an awareness of narrative quantity in *all* readers, regardless of their degree of literary edification. Further I believe that such awareness arises now and then during the reading of each and every narrative, although occurrences may not fully overlap across repeated readings. This means that in spite of literature's essential freedom from the imperatives of everyday communication, Gricean or others, readers do have instincts as to what narrative quantity is adequate for a topic under given circumstances. Fortunately, non-professional readers are less shy than literary scholars in confirming this intuition firsthand. Empirical research into reader response has proven them keen to dismiss a literary narrative, or a portion thereof, on the basis of its being too detailed (Allington 2011).

Awareness of narrative quantity temporarily decouples speech from situation and makes it appear non-situated, as if it were non-speech, some sort of raw linguistic material. This is not to say that such awareness automatically entails rehearsal-imagery. Rehearsal-imagery overall may be a far less frequent occurrence than awareness of narrative quantity. Awareness of narrative quantity may, however, be necessary for rehearsal-imagery to arise, given what rehearsal-imagery is. It is the active embodiment, in one's own articulatory apparatus, of displaced discourse that comes from the outside of one's body; a first-person transformation of raw language into situated speech. It is doubtful whether there are any regularities at all as to when one's awareness of narrative quantity produces the rehearsal-imagery effect and when it does not. It is also doubtful whether the typical cues toward such awareness can be established intersubjectively beyond the limit cases (the meticulous descriptions of Alain Robbe-Grillet, the trying digressions of Lawrence Sterne, and so forth). Obviously, it is a matter of individual temperament whether and where such awareness arises in response to a particular narrative passage. It may arise more readily on a first reading than on a

⁷² 1. Make your contribution as informative as is required (for the current purposes of the exchange). 2. Do not make your contribution more informative than is required. (Grice 1991, 26)

second, or *vice versa*. It may be subject to the reader's instantaneous mood or other external circumstances.

To a larger extent than most other cues, the cues toward narrative quantity thus occur in the reader as much as they occur in the text, and therefore they are subject to vast individual and cultural variation. But this is not to say that the effect they produce is of little importance in the overall aesthetics of literary reading. The latter in turn, however, is not to say that their only effective function lies in the determination of aesthetic value, as critics (professional or lay) of literature might make one believe with their lamentations over "wordy, descriptive stuff" (Allington 2011, 324) and the like. Hopefully my choice of literary example has shown clearly enough that there is no necessary link between narrative quantity and rehearsal-imagery on the one hand and the impression of stylistic failure on the other. My positive evaluation of Robinson's style persists, rehearsal-imagery notwithstanding, or partly even as a result of this imagery.

4.2.5 The dynamics of speech-imagery and rehearsal-imagery

Before moving on to Section 4.3 and to the respective implications of speech-imagery and rehearsal-imagery for interpretation, one more aspect of their cuing should be brought into focus. Compared for instance to static description-images (see Chapter 3), verbal images are particularly difficult to tackle theoretically insofar as they are more extended over time and the content of each one of them necessarily changes over its duration. While the spatial contents represented in a description-image may remain identical throughout the (typically brief) image experience, verbal imagery is not only markedly linear by virtue of representing sound, but also markedly dynamic by virtue of representing language. The following questions thus avail: Once it has been suggested when verbal imagery is likely to arise, what is there to be said about *how* it arises? Can anything specific be said at all about the inherent dynamics of speech-imagery and rehearsal-imagery?

Let us begin with rehearsal-imagery. In Section 4.2.4 above, when describing the experience of narrative quantity underlying my rehearsal-image of Ruth's narrative, I say that I *had* become aware of narrative quantity as Ruth's poetic rendition of her grandfather's first home began to resonate through my inner voice and ear. The sequence of tenses matters in this formulation. It follows from the nature of narrative quantity, defined as a sudden awareness of a certain amount of narrative resources being spent on a particular topic, that the experience emerges with a delay. That is, the onset of a rehearsal-image is certainly not simultaneous with the very introduction of the topic in question. It takes some (and sometimes considerable) amount of discourse for one to take notice of narrative quantity. This much is obvious. But there is yet another sense in which rehearsal-imagery may seem to

lag a few paces behind itself, as it were. Namely, rehearsal-imagery is also inherently delayed because it tends to operate by *backward projection*.

What I mean by backward projection cannot be properly explained without recourse to the larger issues of attention and consciousness. Evidence from experimental psychology indicates that readers' processing of text is generally very shallow. For instance, surprisingly few readers spontaneously notice the errors in questions such as "After an air crash, where should the survivors be buried?" or famously, "How many animals of each sort did Moses put in the Ark?" (see Emmott, Sanford, and Dawydiak 2007 for a review). Nevertheless, literary scholars often make it sound as if readers' awareness of linguistic choices made in a text were constantly preeminent, without pockets of inattention. Louise M. Rosenblatt, for instance, speaks of a "continuing awareness" of the text, wherein the reader pays "attention to all that these words, and no others, these words, moreover in a particular sequence, summon up" (Rosenblatt 1994, 29).

Varying interpretations of Rosenblatt's statement are possible, some stronger than others. On a very strong interpretation, one that equals text awareness to verbal imagery, Rosenblatt suggests that verbal imagery runs from page one until the end, but also that it is replete in the sense that within each verbal image, no single word is omitted. We know (as did probably Rosenblatt) that the former implication is not true, but what about the latter? It is a fact that silent reading in general is much faster than reading aloud. However, when asked about the nature of their verbal imagery, silent readers tend to report having heard uninterrupted speech. How can this be? An established explanation is that their experience is distorted in retrospect. Their focus on verbal imagery makes them believe they heard uninterrupted speech, whereas in fact they only heard a selection of key words (Field 2003, 29). Given such an explanation, what appears to have occurred in between those key words is merely a product of conceptual filling-in.

There is also an alternative account of the internal workings of verbal imagery, one implied by a theory of consciousness proposed by psychologist Susan Blackmore. If attention works the way Blackmore suggests, for most of the duration of what one takes to be a verbal image, one really does not hear anything, neither key words nor any others. In her argument against the general idea of a replete and continuous stream of consciousness, Blackmore uses the following example from everyday auditory perception:

In a noisy room full of people talking you may suddenly switch your attention because someone has said 'Guess who I saw with Anya the other day – it was Bernard'. You prick up your ears – surely not – you think. At this point you seem to have been aware of the whole sentence as it was spoken. But were you really? The fact is that you would never have noticed it at all if she had concluded the sentence with a name that meant nothing to you. (Blackmore 2002, 24)

What Blackmore proposes is that most of the time, one's mind is busy processing such a plenitude of parallel input that there is no point in trying to determine which of it was conscious or not. In her view, what we take to be the contents of a continuous stream of consciousness is just our backward projection of attention toward what in fact were, in the time of processing, non-selected stimuli. In other words, Blackmore does not believe in consciousness traditionally defined. Whatever one may think of Blackmore's theory, it elucidates some of the general mechanics of literary reading, for instance, the surprise one may experience at recognizing an (initially) inconspicuous sentence repeated verbatim from a hundred pages prior in a novel (see also Ingarden 1973a, 102). It feels strange to realize that one read this very sentence some hundred pages ago, since one does not remember noticing it *then*.

What does Blackmore's theory, and the above example, add to our understanding of rehearsal-imagery in particular? My suggestion is that rehearsal-imagery is elicited in a manner similar to one's auditory perception of Blackmore's sample sentence, except on a somewhat *larger scale*. That is to say, the actual verbal image really begins later than what the reader might guess. Given the notoriously treacherous dynamics of sentence comprehension (Sadoski and Paivio 2001, 113–117), the reader may not know beforehand that a sentence being read will result in an awareness of narrative quantity. And yet the entire sentence, *plus* a previous sentence in relation to which the current sentence is felt to be an added quantity, resonates throughout her rehearsal-image. When reading Ruth's narrative, I became aware of my rehearsal as I reached the word "grave," but the contents of the rehearsal-image seemed to encompass as much as "so that from without, the house was a mere mound, no more a human stronghold than a grave." This is what I mean by backward projection.

A relevant question is how much of a time lag there can possibly be between the onset of a rehearsal-image and the initial processing. Since readers barely notice, it cannot be too long. The answer to this question coincides with the answer to the following: What is the typical unit of rehearsal-imagery? What may be experienced as *one* rehearsal-image? The answer has already been hinted at: one or two sentences (or rhythmical/syntactic units corresponding to the length of a typical sentence). This estimate is based on introspection, my own and other theorists' (e.g. Ingarden 1973a, 34), as well as on empirical findings regarding short-term memory for coherent spoken discourse, which has been proposed to span between ten and twenty words (Wingfield and Butterworth 1984). Obviously, the highlighted parts of Ruth's narrative contain more than twenty words. Besides, Ruth's narrative continued to resonate with me beyond the above excerpt. (That is why I have previously taken care to describe my experience of the passage in the plural, as a concatenation of several rehearsal-images.) This means that rehearsal-images are not assumed here to operate by backward projection only. They

are not necessarily experienced as twenty word units in perfect isolation from each other. Once they have been taken notice of, they may be propelled for another while solely by the reader's attention, and regardless of possible shifts in topic. Strictly speaking, rehearsal-images thus operate bidirectionally, backward as well as forward.

For the sake of contrast, let us now briefly turn to speech-imagery. The general difference may be that speech-images do not operate by backward projection beyond the usual constraints of sentence comprehension, i.e., *not* on a scale larger than suggested by Blackmore's sample utterance. Firstly, they do not depend on previous discourse cumulation. Secondly, they are, as proposed above, essentially situated. And by virtue of their situatedness, they implicate the reader as participant in ways largely overreaching baseline comprehension. More specifically, the reader is cast in the position of someone who gets to overhear, as it were, somebody's speech in conversation. Often the speech is literally situated to such an extent that the physical settings are specified. That entails for instance that any referential imagery of the situation (e.g. one's visual image of David in his nicely ventilated room, asking "What did you do, Devil?") must temporally coincide with the speech-image in order for the situation to make sense. But this relative punctuality of speech-imagery seems to apply more generally, even when no settings are explicitly given. Since speech-imagery is linked to a sense of hearing somebody speak, the image simply has to run close behind the reading eye. It is implausible that one refrains from parsing, say, the famous last line of F. Scott Fitzgerald's *The Great Gatsby* into smaller units, only to replay it later for the mind's ear when it is finished. One does not likely hear Nick Caraway utter "So we beat on, boats against the current, borne back ceaselessly into the past" (Fitzgerald 1999, 180) in a single speech-image. Rather, one hears him first utter "So we beat on, boats against the current," and then continue: "borne back ceaselessly into the past."

Although a typical speech-image may span about the same amount of linguistic input as a typical rehearsal-image, I am prompted to say that speech-images probably are more granular than rehearsal-images, in the sense that they *can* be constrained to a single word. Certainly, single words depend for their meaning on the surrounding discourse, so that David's "Devil" is unique precisely inasmuch it is meant to denote his wife, and to do so in a particular situation. However, one probably does not need to hear (as I believe I did) the entire sentence resonate in a speech-image in order to enjoy the acoustic quality of such a singular address. It may be enough that one merely knows what the rest of the sentence was. This intuition is consistent with findings from experimental psychology. A qualitative-quantitative survey of mental imagery conducted by Stephen Kosslyn and colleagues (1990) has shown an inverse relation in auditory images between reported vividness (positively correlated with typicality) and length of duration. The briefer an auditory image, the more typical and vivid it tends to be. Given that part of

the difference between speech-imagery and rehearsal-imagery can indeed be defined in terms of higher levels of vividness (positively correlated with typicality) in speech-imagery, which is phenomenally richer (vividness; see also Chapter 1, Section 1.6) as well as more oral (typicality) in character, these findings may corroborate the relative granularity of speech-imagery.

To sum up, in speech-imagery, onset (and termination) is probably more abrupt and immediate, and backward projection less pronounced, compared to rehearsal-imagery. The experienced direction of movement is simply forward, with little initial lag to be noticed. In a rehearsal-image, the general feel is that of hearing (oneself utter) what one *has just read*. In a speech-image, one hears (somebody utter) what one *is just reading*. This difference has consequences for cases when a rehearsal-image shades off into a speech-image and *vice versa*. This might happen, for instance, if David were tediously outspoken about his evaluation of Catherine's new haircut, or if Ruth's description of her grandfather's first home suddenly gained a strikingly oral quality. Because of the mutual incompatibility of their inherent dynamics, even the smoothest transition from one verbal imagery variety to another will be marked by a rupture, a palpable glottal stop in between the two.

Despite the differences in inherent dynamics, I believe that in a majority of cases, even speech-imagery tends to arrive in phrases rather than in isolated words. In a majority of cases, the following description by Ihde, originally formulated to characterize verbal thought, may fit speech-imagery as neatly as it fits rehearsal-imagery: A verbal image "does not show itself a word at a time any more than does my voiced speaking. It bursts forth in rapid totalities that present themselves as an uneven 'flow'. (...) One does not attend to words as such but to a larger 'singing' of phrases and sentences." (Ihde 2007, 140)

4.3 Conceptual qualities

4.3.1 Terminology: meaning-making, implication, interpretation

How are the two varieties of verbal imagery related to meaning-making in general and interpretation in particular? That is the key question of this entire section. But before I go on to look for answers, the question itself needs clarification.

Let us begin with what I mean by meaning-making. Meaning-making stands for text comprehension at large, that is, the reader's continuous activity of converting graphic signs into semantic wholes of various kinds. However, the route between a graphic sign, e.g., a printed word, and its meaning is by no means unidirectional. And it is (among other things) precisely VAI,

the very basis of verbal imagery, what sometimes comes in between as an intermediary with the power to reverse directions. Heteronyms are a typical case in point. In isolated words such as “content,” “desert,” or “lead,” meaning remains ambiguous unless (covertly) embodied in sound. But verbal imagery can make a difference even beyond such baseline operations. One and the same sentence or group of sentences can elicit (speech-)imagery in a number of different intonations, including those barring, or significantly modifying, literal understanding. One could read David’s “What did you do, Devil?” as an expression of irony and ostentatious pretense of surprise. One could experience one’s verbal and other imagery of the situation in a way strongly suggesting that David could not care less about his wife or her haircut, for instance if David’s enunciation sounded clearly overdone (typically for an ironic speaker) or conversely if it lacked in prosody (typically for a disinterested speaker). This interpretation may be grounded in the qualities of the imaged sound alone. Alternatively (perhaps more often), the nature of the imaged sound may depend on a preconceived interpretation.

Therefore, an important proviso is in place with regard to the notion, spelled out in my opening question, that verbal imagery and meaning-making are related to one another. Although I will refer later to various “implications” of verbal imagery for interpretation, I certainly do not assume a single direction of causality between the two. Rather, I believe them to mutually affect one another, sometimes simultaneously, sometimes taking turns. For this reason, terms like “concurrencies” or “correlations” would perhaps be less confusing. However, my choice (implications) is motivated by its polysemous nature, wherein both verbs of origin, i.e., “imply” and “implicate,” have a distinct role to play. Needless to say, meaning-making and interpretation do not *have* to combine with verbal imagery. As previously mentioned, the experience of verbal imagery may be relatively scarce in some readers. On the other hand, since there cannot be reading without meaning-making, there cannot be verbal-imagery without concurrent meaning-making of one kind or another. That is why I will once again start with the two varieties of verbal imagery, only to link them with distinct aspects of meaning-making, rather than proceeding the other way around.

Last but not least, the above proviso calls for a working definition of interpretation. For many literary scholars, the term interpretation denotes a highly specialized intellectual activity, one requiring years of prior academic study. According to this view, interpretation is synonymous to systematic text analysis, which in turn cannot be fully pursued unless a text has been read in its totality. Furthermore, the personality of such a reader-interpreter is allegedly sidestepped to give way for objective insight regarding the text alone. This is not what I mean by interpretation. Firstly, given my focus on verbal imagery, I am only concerned with what happens in the fluent, *uninterrupted* course of reading. How post-reading analysis of the scholarly kind may be affected by (distant memories of) verbal imagery is a matter of too

wild a guess. Secondly, given my focus on spontaneous fluent reading, the meaning-making processes involved are assumed to largely outreach analytic, objective knowledge. The kind of meaning at stake is to be understood quite broadly, so as to include any response toward the personal relevance of the story for the individual reader and other forms of “lived” or “experienced” signification (see e.g. Miall 2006; Seilman and Larsen 1989). As one empirical study into the effects of pedagogical interventions has shown (Fialho, Zyngier, and Miall 2011), this is how the general concept of interpretation may be widely understood amongst first-year (Canadian) university students of literature. In class assessment for literature classes where personal, affective response to text was expressly encouraged, these students reported more focus on “analysis and interpretation,” compared to their assessment of classes encouraging impersonal, analytic commentary only. The systematic downplaying of experience in interpretation, and its strict separation from interpretation, is a professional habit acquired at higher levels of instruction.

As a matter of course, interpretation also comprises any activities performed by readers of advanced literary expertise, provided the reading is uninterrupted. At the other end of the spectrum of complexity, it may comprise operations as basic as the processing of a simple garden path sentence (e.g. “The old man the boat.”). For what is important in my distinction between meaning-making in general and interpretation in particular is not the complexity of the intellectual process as such. Rather, interpretation is meant here to stand for any meaning-making brought to a conscious level of awareness. In short, this is the difference: All meaning-making is amenable to backward introspection, in the sense that the reader always (or almost always) has an answer, if asked in retrospect, to the question “What does X (a word, a sentence, a sequence of sentences and so forth) mean?” Only in interpretation as presently defined, however, is this question palpably present in the very course of processing X. It may not be present literally. The reader may not be thinking the exact words “What does X mean?” But it is present indirectly, by virtue of reminiscences, associations, and dormant ideas crossing the reader’s mind in response to X. If nothing else, it is present as a vague feeling in the reader that X is somehow meaningful, and that a question such as “What does X mean?” may be worth asking in the first place. Furthermore, because baseline comprehension is rarely an issue in literary (as compared to expository) narrative, the sort of meaning thus invoked in interpretation mostly falls beyond the literal, the baseline, the self-evident.

So how are the two varieties of verbal imagery related to interpretation? Here is a brief version of my answer: Speech-imagery and interpretation mutually enhance one another. Rehearsal-imagery, on the other hand, implies that interpretation is instantaneously obstructed (and *vice versa*). This is not to say that one cannot interpret, with a certain delay, a stretch of text previously experienced through rehearsal-imagery. If this were the case, too

much meaning would be lost in reading, in spite of the constant retrospective/prospective oscillation of the reader's attention. My intention is rather to suggest that the two experiences (rehearsal-imagery and interpretation) are unlikely to occur simultaneously. Elaboration follows in Section 4.3.2.

4.3.2 Speech-imagery vs. rehearsal-imagery: implications for vs. against interpretation

Even with a loose definition of interpretation such as the above, the two literary quotes hitherto used, i.e., David and Ruth, may perhaps not be considered rich enough examples of interpretation's subtleties. Although both contain symbolically charged expressions ("Devil"; "mound," "stronghold," "grave") for the literary scholar to use in a hermeneutic venture, the events and existents they refer to are admittedly quite particular and straightforward, even mundane. Therefore, I will now introduce a third speaker, Eduard Huml:

[III: Eduard]

HUML: (---) At the same time, the moving force of every activity is that which might be described as ambition – in the broadest sense of the word – full stop. Regarding ambition, one must again distinguish between two kinds – dash – I mean colon –

BLANKA: Colon?

HUML: Yes, colon: a healthy ambition and an unhealthy one – full stop. By healthy ambition we understand a really fruitful, profound interest in a definite object – man's natural desire to fulfill himself within the sphere of his interest – full stop. On the other hand, when a desire to *use one's resources does not stem from inner motives, but is merely a means towards achieving certain superficial values* – such as power, money, publicity etc. – *we talk of unhealthy ambition – full stop.* (Halts, ponders, then turns to BLANKA.) *Listen, Blanka, what do you actually think of me?*

(Havel 1993, 146; my italics)

Let us forget that Eduard Huml, unlike David and Ruth, is a stage play character (the above passage will be treated here as experienced in solitary silent reading), and that he started his literary life not speaking English, but the Czech of Václav Havel's *The Increased Difficulty of Concentration*. The latter is inessential to what I have to convey, the former may be of tangential interest. This interest concerns the fact that stage plays in general may, in a certain respect (the nearly exclusive use of direct discourse), seem intuitively better fitted for prompting speech-imagery than other genres. This intuition may prove unsupported, however, in yet other respects (one's habituation to direct discourse as a consequence of its ubiquity; the constant visibility of the medium, with its capitalized character names and intrusive stage directions).

In any event, the sentences highlighted above did give rise, for me, to speech-imagery.⁷³ Reading them for the first time, I could suddenly hear Eduard dictate his theses for transcription in a tired yet confident voice, with two interruptions, two extensive glottal stops: one (naturally) for the stage directions and one (due to narrative quantity) during Eduard's enumeration of "superficial values" – "power, money, publicity etc.". In order to better illustrate the connection to interpretation, let me introspect a little more on how the experience evolved: I am reading *The Increased Difficulty* as quoted above, a play I am familiar with from a show performed in Czech several years ago. I know the cultural background fairly well. The conceptual and stylistic precision of the text is admirable to me, yet my enjoyment of it does not, as yet, go too far beyond such admiration. As far as I can remember, any verbal imagery experienced over the preceding pages belonged to the variety of rehearsal-imagery, even though ideas of universal human concern, quite similar to the present passage, have previously been spelled out. As a matter of fact, I have had to struggle on one or two occasions to stay on task. Then, as I am reading the first highlighted passage, I become very interested in what is being said. I get a deep sense of relevance, and, in a fraction of a second, a multitude of dormant questions simultaneously arise: Where do I stand between the healthy and the unhealthy?; How common are the healthy in politics?; Is "using one's resources" any different from "being trustworthy in a very small matter" (Luke 19:17), and is it always a good thing? And crucially: Is Eduard meant to be indirectly commenting his own position? What does it take in the storyworld of the play to be healthy? What is Eduard referring to? What does his utterance mean?

Once again, I am not saying that in order to think all this, one necessarily has to experience verbal imagery. My point is rather that the only possible variety of verbal imagery to be experienced as one is thinking it, is speech-imagery. Let me reformulate before elaborating. At every moment in the course of reading, the language of a text fluctuates between being felt as *mine*, internal to the reader, and *not mine*, external to the reader (see also Rosenblatt 1994, 53). It always comes from the outside, as it was written down and printed under circumstances over which the reader (typically) exerted no control. At the same time, it is the reader's mind, and nobody else's, what endows it with its emergent meaning, from the most basic to the most advanced semantic levels. Now, in a number of ways, the reader's mind is thoroughly grounded in the reader's body (see Chapter 1), and under

⁷³ When contrasted with Ruth's evocative house description, which prompted rehearsal-imagery, there is something nearly counterintuitive about Eduard's abstract reflections prompting speech-imagery, since heightened medium awareness (typical for rehearsal-imagery rather than speech-imagery) is normally associated with abstract rather than concrete verbal stimuli (see e.g. Sadoski and Paivio 2001; Denis 1984).

some conditions (see Section 4.2 above), its embodiment of the type non-conscious VAI becomes conscious *qua* verbal imagery. Quite naturally, the fluctuation between mine and not mine is then reflected in such embodied experience.

Quite naturally, then, the distinction between mine and not mine cuts along the line between rehearsal-imagery (mine) and speech-imagery (not mine). That is, during rehearsal-images, with their palpable activation of the articulatory apparatus, I am arguably more deeply implicated in linguistic production as a (vicarious) speaker than during speech-images, which rather put me in the position of a (vicarious) listener. The voice that reaches me in a rehearsal-image is mine at best, whereas the voice of a speech-image is never mine: It is instead David-ish, Eduard-ish, Hamlet-ish, and so forth.

All assumptions considered, my idea regarding the link between interpretation and speech-imagery (and, conversely, the rupture between rehearsal-imagery and interpretation), is the following: There may be a trade-off between one's degree of openness to interpretation and one's bodily appropriation of the language, in the sense that the more one is engaged in what X could mean, the less one can possibly be engaged in the physical saying of X, and *vice versa*. As soon as I became really interested in what Eduard has to convey, I made myself comfortable to listen. Prior to that, my sheer reading of *The Increased Difficulty* required more labor, hence the preponderance of rehearsal-images. With reference to the title of this subsection: *Speech-imagery implicates the reader qua listener, while rehearsal-imagery implicates the reader qua speaker. But the latter happens at the expense of, that is against, interpretation.* These are the points to be elaborated now.

There may be a very prosaic explanation for this trade-off, most likely with reference to cognitive load and/or attention: For instance, it has been suggested by psychologists that subvocalization (which becomes palpable in rehearsal-imagery only) is present particularly, or even exclusively, when processing becomes difficult (see Section 4.2.2 above). If spontaneous interpretation arises only at points of the reader's imminent interest, which is far from implausible (see e.g. Scarinzi 2008), then it is possible to conceive of an inverse relation between interpretation and rehearsal-imagery on the obvious basis that interesting passages are less likely to be perceived as difficult to process. Another way of accounting for such an inverse relation would be one bringing in the variable of attention. That is to say, we could speculate that subvocalization is always present in verbal imagery, with more or less constant intensity, but that it is reliably relegated outside awareness as long as the reader is busy engaging in interpretation, as a result of attentional constraints. Also, interpretation resembles speech production in that it yields propositions generated in one's mind and by oneself. This resemblance to speech production makes interpretation quite likely to interfere with inner reverberations especially (see also Chapter 1, Section 1.6.6). Clearly, these are just some of many possible suggestions.

Whatever the correct answer, the primary scope of this chapter lies not so much in explanations and non-conscious processes as in phenomenal experience, in the feeling of things rather than their psycho(physio)logical underpinning. So why should my feeling of actively emulating speech be largely incompatible with reflecting, spontaneously and simultaneously, over what is being said? To answer this question, let us consider yet another intuition: Rehearsal-images bring not only the voice, but also the meaning, the thought lying behind (and emerging from) the expression in question, towards the “mine” end of the mine/not mine continuum. Speech-images yield the opposite effect. In analogy to ordinary overt speech, when the voice is mine, then the thought is mine as well. It is only when the voice is not mine that I am left to wonder what the underlying thought and meaning might be.

Other speakers are always ambiguous to some extent, requiring some interpretation. Meanwhile, as the firsthand speaker, the originator of a completed clause or sentence, one is unambiguous to oneself (*pace* psychoanalysis), irrespective of the fact that one may often be quite surprised⁷⁴ at the turns one’s speech has taken. At least this is how it feels. When I have finished a sentence, I may feel inspired by the emergent meaning to continue in ways previously unforeseen, or I may simply want to try and make myself more precise, but I am not really reflecting, on equal terms with my interlocutors, on the many coexistent meanings of what I am saying; I know all too well what they are (or at least that is what my mind is inclined to believe). They are the situation from the midst of which I am speaking. This is why a simple question such as “What do you mean?” can be baffling, and why it can be painful and estranging to hear other people paraphrase, or even repeat verbatim, what one has said or written. This is why it may be natural *not* to interpret an utterance that one has been bodily involved in shaping through rehearsal, and to perceive an utterance as voiced by another speaker as soon as it triggers interpretation (or *vice versa*).

Indirect support for this intuition may be gleaned from various sources. In empirical studies of reader response, some indications have been received toward an inverse relation between reader-speaker identification on the one hand and perceived ambiguity of speech content on the other. For instance, Maria Kotovych and collaborators (2011) have found that first-person intradiegetic narrators who are explicit about the motives of their actions (i.e. who build up a transparent speaker personality) are somewhat paradoxically rated by readers as more difficult to identify with, compared to first-person intradiegetic narrators who refrain from revealing their motives. That is, their speech may be more likely to be perceived as external (not mine) to the reader, and its meaning (at least when it comes to the motives behind their actions) may be more likely to be viewed as ambiguous, in need of interpre-

⁷⁴ In everyday speech, when we begin a new sentence, we rarely know its exact structure beforehand.

tation.⁷⁵ But reader-speaker identification is certainly a complex and layered phenomenon, and there is much more to it than rehearsal-imagery. For instance, one could also argue that my speech-imagery of Eduard's dictation made me identify with Eduard's concerns exactly by virtue (rather than in spite) of triggering interpretation, because interpretation is arguably never (not even in the most rigorous literary scholars) entirely decoupled from the private concerns of the individual reader.

Compared to Eduard's above exposition of the concept of unhealthy ambition, other theses of his from just a few pages prior (e.g. Havel 1993, 139), which concern the relativity of human values and which I remember spontaneously imaging in rehearsal-imagery, appeared transparent and *stable* as to their meaning. They were felt to mean exactly what they declared ("it would be mistaken to set up a fixed scale of values, valid for all people and in all circumstances and at all times" and so forth), nothing more and nothing less. That is why there is no real use here in quoting them extensively. At the point of reading, interpretation of these theses did not seem worthwhile to me (but again, my articulatory apparatus was busy mouthing them over). Their felt transparency was unaffected by my (liminal) awareness of the fact that their meaning was necessarily my own guesswork to some degree, along the lines of Tolstoy's memento, quoted by Lev Vygotsky, that people who think in isolation are always so tightly "attached to their own thought" that they tend to fail perceiving alternative meanings (Vygotsky 1987, 269). What is true of the interpretive ineptitude of isolated thinkers, may be generally true of literary reception in the fleeting instances of rehearsal(i.e. isolated)-imagery.

This difference between a perceived stability vs. dynamism of meaning in rehearsal-imagery vs. speech-imagery, respectively, may be further illuminated with more help from Vygotsky himself and his influential theory of inner speech (henceforth abbreviated as IS in order to avoid confusion with speech-imagery). As stated in Section 4.2.1, Vygotsky's notion of IS is not the same as verbal imagery. Rather, it denotes what has elsewhere been referred to as verbal thought, i.e., subvocal conceptual thinking that appears, to the thinker, to feature acoustic-linguistic qualities. Vygotsky's main argument with regard to IS is that it is essentially dialogical, a product of the internalization of social (rather than so-called egocentric) overt speech. At

⁷⁵ Narrowing down reader-speaker identification to the perceived transparency of a speaker's motives, one could further speculate about the two varieties of verbal imagery, respectively, linking to the two traditionally opposed explanations of the human ability to attribute mental states to others (so-called theory of mind; see e.g. Currie 1996). So-called theory theory, according to which mental states are attributed on the basis of higher-order inferencing, caters well to speech-imagery. Meanwhile, rehearsal-imagery, in its resistance to interpretation, may rather link to so-called simulation theory, according to which the attribution of mental states is direct, non-inferential, non-interpretive.

several points in outlining the phenomenal characteristics of IS, Vygotsky comes close to describing the essence of speech (i.e. dialogical)-imagery as defined against rehearsal (i.e. non-dialogical)-imagery.

In IS “the word dies away and gives birth to thought,” Vygotsky says in his figurative idiolect, and continues: “(IS) is a dynamic, unstable, fluid phenomenon that appears momentarily between the more clearly formed and stable poles of verbal thinking, that is, between word and thought” (Vygotsky 1987, 280). Elsewhere, he observes that IS appears to be “nearly wordless” (Vygotsky 1987, 274). What would a parallel between IS and speech-imagery tell us? Here is one of many possible suggestions: Compared to rehearsal-imagery, which may be analogously labeled as “nearly thoughtless” insofar as it forecloses interpretation, a reader experiencing speech-imagery may be less focused on wording proper. By virtue of evoking a whole array of possible meanings, the particular words that reach us in speech-imagery, once processed, may be quicker in receding to outside awareness (Vygotsky’s “dying”) due to the load of concurrent meaning-making. Because of the experiential intensity of such meaning-making relative to the plain, straightforward, “literal” meaning-making associated with rehearsal-imagery, the words chosen may seem comparably insignificant, or even arbitrary. More than the words, situation is what matters.

In rehearsal-imagery, on the other hand, this impression of comparable arbitrariness is less likely, because meaning is felt to be more firmly tied, even constricted as it were, to wording proper (in the sense that I felt Eduard’s theses about the relativity of human values to mean exactly what they declared, nothing more and nothing less). This distinction may also lie behind what I introspectively observed above (Section 4.2.5) as the relative granularity of speech-imagery. Focusing on the many dynamic meanings stirred up in the mind rather than on the wording, one may be more likely to experience speech-imagery as more fragmentary, catching a word or phrase here and there, rather than hearing entire sentences.

As previously mentioned, readers’ memory for the exact wording and syntax of a text is commonly referred to, among cognitive psychologists, as memory for surface structure (e.g. Kintsch et al. 1990). Memory for surface structure is distinguished from memory for textbase (i.e. propositional content) and situation model (i.e. mental representations formed, in the course of reading, of the events and existents referred to in the text). Even though memory for surface structure is generally poor, it may indeed be slightly stronger, given what has been established, following rehearsal-imagery compared to speech-imagery. Perceived literariness (as defined against perceived orality), which is likely to enhance rehearsal-imagery (see also Section 4.2.4), has in itself been found to positively affect memory for surface structure (Zwaan 1993). Moreover, subvocalization is always beneficial to memory for words in general (see also Section 4.2.2). Speech-imagery, on the other hand, may be more efficient in securing memory for textbase

and/or situation model, which ought to be richer whenever interpretation, or a potential therefore, is felt to be at play.

I have noted above that in rehearsal-imagery, meaning is felt to be more firmly tied, even constricted as it were, to wording proper. Rather than referring to some non-conscious cognitive substrate, this was intended primarily as an introspective observation, an account of how it might feel to experience rehearsal-imagery. There are empirical indications from verbal imagery research, however, that such feelings may be traceable to discrete lower-order processes. That is to say, there are real ways in which an instance of VAI can be either more firmly or more loosely tied (prior to attention) to its meaning. Psychologist Daniel Reisberg and collaborators (1989) conducted a series of experiments in which subjects were instructed, under various conditions, to form various kinds of verbal imagery. The principal research question was whether verbal imagery is analogous to speech perception by virtue of being subject to reinterpretation (e.g. reversal in parsing from “life” to “fly” during fast repetition), or whether it is, similarly to visual mental imagery, inherently unambiguous.⁷⁶

The results obtained from these experiments differed largely across conditions. To the authors’ surprise, when subjects were instructed to image a verbal auditory stimulus as if it were pronounced by a friend, reinterpretation rates were higher compared to when the same stimulus was imaged as if it were pronounced in the subject’s own voice. In other words, auditory images of one’s own speech (corresponding, in my nomenclature, to rehearsal-imagery) were perceived as less ambiguous – more “rigid” as the authors put it – than auditory images of another’s speech (corresponding, in my nomenclature, to speech-imagery). Although the general theoretical framework of these experiments diverges from my own, they prove that all verbal imagery is not equally open to interpretation, and this particular finding is consistent with what has been proposed above about meaning-making in speech-imagery vs. rehearsal-imagery.

Willed verbal imagery of the kind investigated in psychological experiments is a valuable source of insight relative to verbal imagery in the reading of literary narrative. Yet another such source, as already shown earlier in this chapter, is verbal thought a.k.a. inner speech, Vygotskian or other. Not only does verbal thought itself constitute a major component in the contents of post-1900 literary narrative (the famous stream of consciousness technique in modernist writing), a fact that is helpful in propelling the current cognitive boom (see Cohen 2010) in literary scholarship. As a first-order rather than

⁷⁶ For experimental studies suggesting the resistance of visual mental imagery to reinterpretation, see the work of Chambers and Reisberg (1985), where subjects are reported to consistently fail reinterpreting the famous duck/rabbit drawing when mentally imaged as opposed to when perceived.

second-order (i.e. imitative) phenomenon, verbal thought is also endlessly more complex than verbal imagery. This means that there is endlessly more to be observed regarding its similarities or dissimilarities to either variety of verbal imagery than previously suggested. For instance, while verbal thought resembles speech-imagery by virtue of the relative insignificance of exact wording, it is also quite similar to rehearsal-imagery insofar as it is always perceived as “mine,” *both* bodily and conceptually. Or, as Ihde observes with typical concision:

(It remains the case that thinking is *my* activity. Hence my inner speech, just as my spoken speech during the actual time of occurrence, does not and cannot appear to me as “coming from elsewhere.” Rather it remains primitively identified with the thinking activity itself. This means that there is necessarily a phenomenological distinction between the representation of an imagined voice of someone else coming from elsewhere and the imaginative presence of my inner speech. But both presences remain imaginative activities of free variation and both, I believe, properly belong to *auditory* imagination. (Ihde 2007, 214; Ihde’s italics)

In the following section, a brief remark will be presented concerning how the divide between speech-imagery and rehearsal-imagery, so similar to Ihde’s divide between “imagined voice” and “inner speech,” may be probed and tried when a narrative expression is noted for its poetic quality.

4.3.3 Speech *and* rehearsal: The dual scope of the poetic

I opened this chapter by stating the obvious: Whereas verbal imagery in the silent reading of narrative prose is largely neglected, its importance in poetry (both classical and modern) has always been taken for granted. Apart from a couple of metaphors, the prose of my three literary examples is conspicuously non-poetic. That is to say, it refrains from frustrating general linguistic expectations for written prose, and yet it clearly made me aware, in various ways and to varying degrees, of the linguistic medium. This seems to contradict the widely circulated stylistic theory of so-called foregrounding, which is based on a notion of literary (more specifically, poetic) language, initially adapted from the structuralist critic Jan Mukařovský and significantly broadened by English and other literary scholarship. In one of its more influential versions, advocated by Geoffrey Leech and Mick Short (2007, 41), foregrounding theory suggests that all literary language including narrative prose, whenever spontaneously noticeable *qua* medium, necessarily deviates from the reader’s unspoken stylistic norms (see also Chapter 1, Section 1.7).

With a little goodwill, this may at best accommodate my description of rehearsal-imagery as typically offset by narrative quantity, since narrative

quantity may be termed a deviance of sorts from the reader's immediate expectations. But what about speech-imagery? Despite all that has been said about the relative arbitrariness of wording in speech-imagery, the sound in my mind's ear of David's "What did you do, Devil!" was nevertheless a palpable reminder of the linguistic medium. At the same time, the utterance felt far from unnatural or unexpected. In short, Hemingway's (Robinson's, Havel's, and many other prose writers') virtuously transparent and yet somehow conspicuous linguistic choices point at a serious problem in foregrounding theory, one likely stemming from the fact that the original notion of foregrounding was designed for the study of poetry alone. Statistical deviance is *not* necessary for the linguistic medium to be at the forefront of one's awareness.

However, the very transparent styles of Hemingway, Robinson and Havel as previously quoted point at a general weakness in my own theory of verbal imagery as well, my random selection of literary examples being perhaps more slanted and less random than desirable. The weakness of the theory is exactly that it probably does not hold for poetry broadly defined, i.e., for markedly innovative linguistic structures (across generic boundaries).⁷⁷ In order to better explain which part of the theory it is that may not hold, let me quote one last literary example. This time it is Hemingway's Catherine, David's wife, speaking to her husband and triggering verbal images in my mind:

[IV: Catherine]

"Do you think it would be fun if I went back to being a boy again? It wouldn't be any trouble."

(---)

"No. Not now."

"Thank you for the not now. Should I make love this time as a girl and then do it?"

"You're a girl. You are a girl. You're my lovely girl Catherine."

"Yes I am your girl and I love you and I love you and I love you."

"Don't talk."

"Yes I will. I'm your girl Catherine and I love you please I love you always always always--"

"You don't have to keep saying it. I can tell."

"I like to say it and I have to say it and I've been a fine girl and a good girl and I will again. I promise I will again."

"You don't have to say it."

"Oh yes I do. I say it and I said it and you said it. *You now please. Please you.*"

(Hemingway 1995, 55; my italics)

⁷⁷ This definition of the poetic is not meant to encompass all instances of what is commonly referred to as poetry.

In the final sentences of this dialogue, Catherine speaks poetry proper, artfully deviating from English syntax spoken and written. The very last sentence recurs later on in yet another exchange between her and David (Hemingway 1995, 86), an incantation as it were. It is clear from the context that Catherine has much to convey by her utterance. The utterance is deeply situated in her turmoil of erotic sassiness and devotion, and a good fit for spontaneous interpretation. Meanwhile, its ungrammaticality makes it non-situated, disclosing language as raw building material. Moreover, the stressed ambiguity of “please” when syntactically misplaced, especially in a dialogue revolving around sex, would probably not go unnoticed in an interpretation of the scholarly, analytical kind. Then what variety of verbal imagery did the utterance give rise to?

Theoretically, one would be inclined to suggest that it is difficult to spontaneously form a vivid speech-image, even at will, of an utterance deviating to such a degree that it obstructs baseline comprehension. Rather, a rehearsal-image, similar to what one may experience when struggling to penetrate a piece of expository writing (see also Sections 4.2.2 and 4.2.4), would seem more likely to occur. For an utterance such as “You now please. Please you.” is not only non-imageable in terms of mere auditory input, it is also non-imaginable in a broader sense of the word, in terms of its conceptual purport. That is to say, an utterance this deviant is not only unlikely to have been previously heard by the reader. It is also an utterance that most readers will probably identify, if barely consciously, as somewhat unlikely overall. It simply does not make sense (unless recited in a way disregarding the traditional punctuation, inserting dramatic pauses in between the words). In analogy to the visual non-imageability of, say, square circles, this utterance ought to be difficult to merely image in the mind’s ear inasmuch as one has difficulty imagining *that* it is uttered (for the basic distinction between imagining and imagining-that, see Casey 2000, 41–44).

In line with this intuition, a rehearsal-image was indeed what occurred when I first read Catherine’s affirmations. My reading pace had slowed down notably for my articulatory apparatus to silently mouth them over. On the other hand, the apparent nonsensicality of Catherine’s syntax made her perplexed situation all the more compelling, endowing it with hints of surplus meaning (toward innocent domestic play as well as a not-so-innocent mental disorder). Hence, in one of those fortuitous scenarios when linguistic deviance appears fully motivated (a scenario which I deem relatively infrequent, contrary to assumptions common within literary academia), Catherine’s voice was clearer to my mind’s ear than ever before, echoing in a speech-image as well. Distinctive personal styles being notoriously contagious, her poetic idiolect could have easily impacted my own speech and thought for a brief period after reading. Corporeally, it was neither mine nor not mine, and yet it was both.

Throughout decades of modern literary theory, various kinds of binary oppositions have been declared to collapse (or to collapse more distinctly) as a symptom of poetic as compared to prosaic or non-poetic language (see also Chapter 1, Section 1.7), from the classical content/form divide⁷⁸ to the structuralist combination/selection principles and beyond. My own distinction between speech-imagery and rehearsal-imagery may thus be seen as yet another addition to the list. The typically poetic experience may be defined as one in which the reader cannot tell whether sound and its meaning is coming from the outside or the inside, and which part of the reading body, the ear or the throat, is its primary locus. This duality in turn (along with the usual factors of prosody and other sound patterning) may contribute to the relative prominence of auditory experience in the silent reading of poetry, and to the exclusion of narrative prose from the scholarly discussion of auditory imagery in literary reading overall, a discussion that has yet to become integral and systematic.

4.4 Postscript

To sum up briefly, this chapter proposes a way to describe the experience of verbal imagery in the reading of literary narrative by locating it between the two poles of speech-imagery and rehearsal-imagery. Speech-imagery puts the reader in the position of a vicarious listener, feeding on activity in the mind's ear alone. Rehearsal-imagery, on the other hand, reaches the mind's ear via covert articulatory activity in the reader's mouth and throat. While speech-images represent text as situated speech and may accommodate perceptual detail of the imaginary voice, rehearsal-images rather represent text as raw language, where the only perceptual qualities to be explored are those of first-person subvocal speech production. On the level of higher-order meaning-making, the two types of imagery link with the presence or absence of spontaneous interpretation, respectively.

This chapter has done for verbal imagery what the previous two chapters together did for referential imagery. Similarly to Chapters 2 and 3 combined, it has identified the two opposite ends within one of the domains of imagery (see Chapter 1, Section 1.6.5): 1) The immediate end, corresponding to speech-imagery in the verbal domain and to enactment-imagery in the refer-

⁷⁸ The content/form divide also maps onto my distinction between speech-imagery and rehearsal-imagery, to the extent that wording may appear more arbitrary (see Section 4.3.2) in speech-imagery compared to rehearsal-imagery. Encouraging interpretation, speech-images may thus be perceived as more form-transparent and/or content-laden, while the opposite applies to rehearsal-images.

ential domain, and 2) the mediate end, corresponding to rehearsal-imagery in the verbal domain and to description-imagery in the referential domain. While speech-images are onset quickly and without effort in creating the sense of auditory perception, rehearsal-images appear comparably labored as they have to be mediated by subvocalization. Analogously, while enactment-images always arise unexpectedly, emulating the most vivid direct experience possible, description-images defy perceptual immediacy by their very nature. Speech-images are fit to contain more perceptual information (pitch, timbre, tonality) compared to rehearsal-images, just like enactment-images may give us a much fuller experience (of the environment as an interface for action) when compared to the picture-like nature of description-images.

But despite these analogies, the two domains of imagery – the referential and the verbal – remain fundamentally distinct, and this is also reflected in the reversal of roles for the motor and kinesthetic modalities. In the referential domain, vicarious kinesthetic activity in the reader's body elicits a sense of immediacy and facilitates enactment. In the verbal domain, the sense of immediate auditory perception is suppressed, rather than enhanced, by the kinesthetic experience of subvocal rehearsal, constitutive of rehearsal-imagery. While vicarious doing helps readers experience the storyworld, vicarious talking seems rather to remind them of its artificiality.

However, this chapter has also outgrown the scope of the two previous chapters in that it attempts to link mental imagery to higher-order meaning-making. Yet it has not gone far enough in this respect. Some will likely object to my simplistic notion of interpretation. To name just one possible objection, I have purposely underestimated, for the sake of brevity, the number of intentionality levels that may be simultaneously present in the reader's interpreting mind. As speakers, the characters or narrators of a literary story are not autonomous. They are constructed by an author (and sometimes also mediated by a narrator), and at some level of awareness, the reader always knows this (see also Claassen 2012). At times, the reader may thus have the impression that there is more than one voice to an utterance, more than one diction (say, an Eduard-ish and a Havel-ish one), and that its possible meanings multiply (and perhaps diverge) accordingly. Also, what may appear as tedious narrative quantity at one of these levels of intentionality, giving rise to rehearsal-imagery, may seem perfectly natural and situated as an utterance at the other level. Moreover, one of the distinctive attractions of good storytelling is that the levels sometimes hardly separate, remaining all simultaneously prominent in the recipient's experience. Throughout the chapter, my descriptions of the two discrete varieties of verbal imagery obviously fail to account for such subtleties.

Yet other aspects of my hypotheses have had to remain fully disregarded, most notably the question of their intersubjective validity. Individual differences in susceptibility to imagery are known to be significant. Moreover, verbal images are probably more difficult to research empirically than refer-

ential imagery. Their two basic dimensions, the embodied and the conceptual one, could perhaps be operationalized separately in a reader response questionnaire and then crosschecked for correlation, but the process of stimuli selection would be highly complicated due to the fragility of verbal imagery's inherent dynamics as well as the large number of context variables. While the occurrence of referential imagery (e.g. visual, olfactory, gustatory, or even nonverbal auditory images) may be relatively easy to predict on the basis of text content, verbal imagery is less tightly interlinked with meaning than it is with sound, and sound may follow with any word. Verbal images are thus potentially everywhere and therefore relatively unpredictable, with the exception of the few regularities proposed in Sections 4.2.4 and 4.3.3 above. Due to the essentially temporal and dynamic nature of verbal imagery, an experimental study of verbal imagery will probably require fairly veridical staging of the fluent reading scenario, with its rhythmical dipping in and out of impressions and experiences, and this will be a great methodological challenge. But any attempt whatsoever at empirical validation is more than welcome. The latter applies to every single hypothesis presented in this dissertation.

Bibliography

- Abramson, Marianne, and Stephen D. Goldinger. 1997. 'What the Reader's Eye Tells the Mind's Ear: Silent Reading Activates Inner Speech'. *Perception & Psychophysics* 59 (7): 1059–1068.
- Aczel, Richard. 1998. 'Hearing Voices in Narrative Texts'. *New Literary History* 29 (3): 467–500.
- Alexander, Gavin. 2010. 'Seeing Through Words in Theories of Poetry: Sidney, Puttenham, Lodge'. In *A Companion to Tudor Literature*, edited by Kent Cartwright, 350–363. Chichester: Wiley-Blackwell.
- Alexander, Jessica D., and Lynne C. Nygaard. 2008. 'Reading Voices and Hearing Text: Talker-specific Auditory Imagery in Reading'. *Journal of Experimental Psychology. Human Perception and Performance* 34 (2): 446–459.
- Allington, Daniel. 2011. "'It Actually Painted a Picture of the Village and the Sea and the Bottom of the Sea": Reading Groups, Cultural Legitimacy, and Description in Narrative (with Particular Reference to John Steinbeck's *The Pearl*)'. *Language and Literature* 20 (4): 317–332.
- Allport, Allan. 1987. 'Selection for Action: Some Behavioral and Neurophysiological Considerations of Attention and Action'. In *Perspectives on Perception and Action*, edited by Herbert Heuer and Andries F. Sanders, 395–419. Hillsdale: Lawrence Erlbaum.
- Anderson, Richard C., and Raymond W. Kulhavy. 1972. 'Imagery and Prose Learning'. *Journal of Educational Psychology* 63: 242–243.
- Aristotle. 1995. 'Poetics'. In *Aristotle: Poetics; Longinus: On the Sublime; Demetrius: On Style*, translated by Stephen Halliwell, W. H. Fyfe, and Doreen C. Innes, 1–141. Cambridge, MA: Harvard University Press.
- Atran, Scott. 1990. *Cognitive Foundations of Natural History: Towards an Anthropology of Science*. Cambridge: Cambridge University Press.
- Aziz-Zadeh, Lisa, Stephen M. Wilson, Giacomo Rizzolatti, and Marco Iacoboni. 2006. 'Congruent Embodied Representations for Visually Presented Actions and Linguistic Phrases Describing Actions'. *Current Biology* 16 (18): 1818–1823.
- Baddeley, Alan D., and Jackie Andrade. 2000. 'Working Memory and the Vividness of Imagery'. *Journal of Experimental Psychology: General* 129 (1): 126–145.
- Baddeley, Alan D., Marge Eldridge, and Vivien Lewis. 1981. 'The Role of Subvocalisation in Reading'. *The Quarterly Journal of Experimental Psychology Section A: Human Experimental Psychology* 33 (4): 439–454.
- Baddeley, Alan D., and Vivien Lewis. 1981. 'Inner Active Processes in Reading: The Inner Voice, The Inner Ear, and the Inner Eye'. In *Interactive Processes in Reading*, edited by Alan M. Lesgold and Charles A. Perfetti, 107–129. Hillsdale: Erlbaum.
- Baddeley, Alan D., and Robert Logie. 1992. 'Auditory Imagery and Working Memory'. In *Auditory Imagery*, edited by Daniel Reisberg, 179–197. Hillsdale: Lawrence Erlbaum.

- Baker, Nicholson. 1998. *The Mezzanine*. London: Granta.
- Bal, Mieke. 1982. 'On Meanings and Descriptions'. *Studies in 20th Century Literature* 6 (1-2): 100–148.
- Barsalou, Lawrence W. 2008. 'Grounded Cognition'. *Annual Review of Psychology* 59: 617–645.
- Barthes, Roland. 1989. 'The Reality Effect'. In *The Rustle of Language*, translated by Richard Howard, 141–148. Berkeley: University of California Press.
- Beggs, W.D.A., and Philippa N. Howarth. 1985. 'Inner Speech as a Learned Skill'. *Journal of Experimental Child Psychology* 39 (2): 396–411.
- Berthoz, Alain. 2002. *The Brain's Sense of Movement*. Translated by Giselle Weiss. Cambridge, MA: Harvard University Press.
- Berthoz, Alain, and Jean-Luc Petit. 2008. *The Physiology and Phenomenology of Action*. Translated by Christopher Macann. New York: Oxford University Press.
- Biocca, Frank. 2002. 'The Evolution of Interactive Media: Toward "Being There" in Nonlinear Narrative Worlds'. In *Narrative Impact: Social and Cognitive Foundations*, edited by Melanie C. Green, Jeffrey L. Strange, and Timothy C. Brock, 97–130. Mahwah: Lawrence Erlbaum.
- Blackmore, Susan. 2002. 'There Is No Stream of Consciousness'. *Journal of Consciousness Studies* 9 (5-6): 17–28.
- Bohan, Jason, Anthony J. Sanford, Susan Cochrane, and Alison J. S. Sanford. 2008. 'Direct and Indirect Speech Modulates Depth of Processing' presented at the *14th Annual Conference on Architectures and Mechanisms for Language Processing*, September 4, Cambridge, UK.
- Borghi, Anna M. 2005. 'Object Concepts and Action'. In *Grounding Cognition: The Role of Perception and Action in Memory, Language and Thinking*, edited by Diane Pecher and Rolf A. Zwaan, 8–34. Cambridge: Cambridge University Press.
- Borghi, Anna M., and Lucia Riggio. 2009. 'Sentence Comprehension and Simulation of Object Temporary, Canonical and Stable Affordances'. *Brain Research* 1253: 117–128.
- Bortolussi, Marisa, and Peter Dixon. 2003. *Psychonarratology: Foundations for the Empirical Study of Literary Response*. Cambridge: Cambridge University Press.
- Burke, Michael. 2011. *Literary Reading, Cognition, and Emotion: An Exploration of the Oceanic Mind*. New York: Routledge.
- Camlot, Jason. 2011. 'The Three-Minute Victorian Novel: Remediating Dickens into Sound'. In *Audiobooks, Literature, and Sound Studies*, edited by Matthew Rubery, 25–43. New York: Routledge.
- Caracciolo, Marco. 2011. 'The Reader's Virtual Body: Narrative Space and Its Reconstruction'. *StoryWorlds: A Journal of Narrative Studies* 3: 117–138.
- . 2012. 'Notes for A(nother) Theory of Experientiality'. *Journal of Literary Theory* 6 (1): 177–194.
- Casey, Edward S. 2000. *Imagining: A Phenomenological Study*. Bloomington: Indiana University Press.
- Chambers, Deborah, and Daniel Reisberg. 1985. 'Can Mental Images Be Ambiguous?' *Journal of Experimental Psychology: Human Perception and Performance* 11 (3): 317–328.
- Chao, Linda L., and Alex Martin. 2000. 'Representation of Manipulable Man-Made Objects in the Dorsal Stream'. *NeuroImage* 12 (4): 478–484.
- Chapelle Wojciehowski, Hannah, and Vittorio Gallese. 2011. 'How Stories Make Us Feel: Toward an Embodied Narratology.' *California Italian Studies* 2 (1). <http://www.escholarship.org/uc/item/3jg726c2>

- Chapman, Raymond. 1984. *The Treatment of Sounds in Language and Literature*. Oxford: Blackwell.
- Claassen, Eefje. 2012. *Author Representations in Literary Reading*. Amsterdam: John Benjamins.
- Cobley, Evelyn. 1986. 'Description in Realist Discourse: The War Novel in Narrative Poetics'. *Style* 20 (3): 395–410.
- Cohen, Patricia. 2010. 'Next Big Thing in English: Knowing They Know That You Know'. *The New York Times*, April 1, sec. Books. <http://www.nytimes.com/2010/04/01/books/01lit.html>.
- Coleridge, Hartley. 1851. *Essays and Marginalia Edited by His Brother*. Vol 1. London: Edward Moxon.
- Collins, Christopher. 1991. *The Poetics of the Mind's Eye: Literature and the Psychology of Imagination*. Philadelphia: University of Pennsylvania Press.
- Colombetti, Giovanna. 2009. 'What Language Does to Feelings'. *Journal of Consciousness Studies* 16 (9): 4–26.
- Connell, Louise, and Dermot Lynott. 2012. 'Strength of Perceptual Experience Predicts Word Processing Performance Better Than Concreteness or Imageability'. *Cognition* 125 (3): 452–465.
- Coste, Didier. 1990. *Narrative as Communication*. Minneapolis: University of Minnesota Press.
- Cuddy-Keane, Melba. 2010. 'Narration, Navigation, and Non-Conscious Thought: Neuroscientific and Literary Approaches to the Thinking Body'. *University of Toronto Quarterly* 79 (2): 680–701.
- Currie, Gregory. 1996. 'Simulation-theory, Theory-theory and the Evidence from Autism'. In *Theories of Theories of Mind*, edited by Peter Carruthers and Peter K. Smith, 242–256. Cambridge University Press.
- . 2010. *Narratives and Narrators: A Philosophy of Stories*. Oxford: Oxford University Press.
- Currie, Gregory, and Ian Ravenscroft. 2003. *Recreative Minds: Imagination in Philosophy and Psychology*. Oxford: Oxford University Press.
- Cuthbert, Bruce N., Scott R. Vrana, and Margaret M. Bradley. 1991. 'Imagery: Function and Physiology'. *Advances in Psychophysiology: A Research Annual* 4: 1–42.
- Damasio, Antonio. 1994. *Descartes' Error: Emotion, Reason, and the Human Brain*. New York: G. P. Putnam's Sons.
- Dames, Nicholas. 2007. *The Physiology of the Novel: Reading, Neural Science, and the Form of Victorian Fiction*. New York: Oxford University Press.
- Demetrius. 1995. 'On Style'. In *Aristotle: Poetics; Longinus: On the Sublime; Demetrius: On Style*, translated by Stephen Halliwell, W. H. Fyfe, and Doreen C. Innes, 309–525. Cambridge, MA: Harvard University Press.
- Denis, Michel. 1984. 'Imagery and Prose: A Critical Review of Research on Adults and Children'. *Text* 4 (4): 381–401.
- Derrida, Jacques. 1974. *Of Grammatology*. Translated by Gayatri Chakravorty Spivak. Baltimore: The Johns Hopkins University Press.
- Dickens, Charles. 1998. *The Pickwick Papers*. Hertfordshire: Wordsworth Classics.
- Duchan, Judith F., Gail A. Bruder, and Lynne E. Hewitt. 1995. *Deixis in Narrative: A Cognitive Science Perspective*. Hillsdale: Lawrence Erlbaum.
- Edelman, Gerald M., and Giulio Tononi. 2000. *A Universe of Consciousness: How Matter Becomes Imagination*. New York: Basic Books.
- Elfenbein, Andrew, Katelin Krieg, Leslie Nightingale, and Trenton Olson. 2011. 'Records of Reading Fiction in the Nineteenth Century: A Database'. University of Minnesota.

- Ellis, Rob, and Mike Tucker. 2000. 'Micro-affordance: The Potentiation of Components of Action by Seen Objects'. *British Journal of Psychology* 91: 451–471.
- Emmott, Catherine. 1997. *Narrative Comprehension: A Discourse Perspective*. Oxford: Oxford University Press.
- Emmott, Catherine, Anthony J. Sanford, and Eugene J. Dawydiak. 2007. 'Stylistics Meets Cognitive Science: Studying Style in Fiction and Readers' Attention from an Inter-disciplinary Perspective'. *Style* 41 (2): 204–226.
- Engelkamp, Johannes, and Hubert D. Zimmer. 1984. 'Motor Programme Information as a Separable Memory Unit'. *Psychological Research* 46 (3): 283–299.
- Epstein, Seymour. 1998. 'Cognitive-Experiential Self-Theory'. In *Advanced Personality*, edited by David F. Barone, Michel Hersen, and Vincent B. Van Hasselt, 211–238. New York: Plenum Press.
- Ericsson, K. Anders. 2003. 'Valid and Non-Reactive Verbalization of Thoughts During Performance of Tasks: Towards a Solution to the Central Problems of Introspection as a Source of Scientific Data'. *Journal of Consciousness Studies* 10 (9-10): 1–18.
- Esrock, Ellen J. 1994. *The Reader's Eye: Visual Imaging as Reader Response*. Baltimore: The Johns Hopkins University Press.
- . 2004. 'Embodying Literature'. *Journal of Consciousness Studies* 11 (5-6): 79–89.
- Everding, Gerry. 2009. 'Readers Build Vivid Mental Simulations of Narrative Situations, Brain Scans Suggest'. *Record: News for the WUSTL Community*, January 26. <http://news.wustl.edu/news/Pages/13325.aspx>.
- Fadiga, Luciano, Laila Craighero, Giovanni Buccino, and Giacomo Rizzolatti. 2002. 'Speech Listening Specifically Modulates the Excitability of Tongue Muscles: A TMS Study'. *European Journal of Neuroscience* 15 (2): 399–402.
- Fialho, Olivia, Sonia Zyngier, and David Miall. 2011. 'Interpretation and Experience: Two Pedagogical Interventions Observed'. *English in Education* 45 (3): 236–253.
- Field, John. 2003. *Psycholinguistics: A Resource Book for Students*. London: Routledge.
- Fischer, Martin H., and Rolf A. Zwaan. 2008. 'Embodied Language: A Review of the Role of the Motor System in Language Comprehension'. *The Quarterly Journal of Experimental Psychology* 61 (6): 825–850.
- Fitzgerald, F. Scott. 1999. *The Great Gatsby*. New York: Scribner.
- Flaubert, Gustave. 1995. *Madame Bovary*. Translated by Allan Russell. London: Penguin Popular Classics.
- . 1999. *Madame Bovary*. Paris: Librairie Générale Française.
- Fodor, Jerry A. 1980. *The Language of Thought*. Cambridge, MA: Harvard University Press.
- Franzen, Jonathan. 2001. *The Corrections*. New York: Picador.
- Gallagher, Shaun. 2000. 'Philosophical Conceptions of the Self: Implications for Cognitive Science'. *Trends in Cognitive Sciences* 4 (1): 14–21.
- Gallagher, Shaun, and Dan Zahavi. 2007. *The Phenomenological Mind: An Introduction to Philosophy of Mind and Cognitive Science*. New York: Routledge.
- Gallese, Vittorio. 2000. 'The Inner Sense of Action'. *Journal of Consciousness Studies* 7 (10): 23–40.
- Gallese, Vittorio, and George Lakoff. 2005. 'The Brain's Concepts: The Role of the Sensory-Motor System in Conceptual Knowledge'. *Cognitive Neuropsychology* 22 (3/4): 455–479.

- Gambrell, Linda B., and Ruby J. Bales. 1986. 'Mental Imagery and the Comprehension-Monitoring Performance of Fourth- and Fifth-Grade Poor Readers'. *Reading Research Quarterly* 21 (4): 454–464.
- Genette, Gérard. 1976. 'Boundaries of Narrative'. Translated by Ann Levonas. *New Literary History* 8 (1): 1–13.
- Gerrig, Richard J. 1998. *Experiencing Narrative Worlds: On the Psychological Activities of Reading*. Boulder: Westview Press.
- Gibson, James J. 1979. *The Ecological Approach To Visual Perception*. Hillsdale: Lawrence Erlbaum.
- Gleason, Daniel W. 2009. 'The Visual Experience of Image Metaphor: Cognitive Insights into Imagist Figures'. *Poetics Today* 30 (3): 423–470.
- Glover, Scott, David A. Rosenbaum, Jeremy Graham, and Peter Dixon. 2004. 'Grasping the Meaning of Words'. *Experimental Brain Research* 154 (1): 103–108.
- Graziano, Michael S. A., and Charles G. Gross. 1995. 'The Representation of Extrapersonal Space: a Possible Role for Bimodal, Visual-tactile Neurons'. In *The Cognitive Neurosciences*, edited by Michael S. Gazzaniga, 1021–1034. Cambridge, MA: MIT Press.
- Green, Melanie C. 2004. 'Transportation into Narrative Worlds: The Role of Prior Knowledge and Perceived Realism'. *Discourse Processes* 38 (2): 247–266.
- Green, Melanie C., and Timothy C. Brock. 2000. 'The Role of Transportation in the Persuasiveness of Public Narratives'. *Journal of Personality and Social Psychology* 79 (5): 701–721.
- Grèzes, Julie, Mike Tucker, Jorge Armony, Rob Ellis, and Richard E. Passingham. 2003. 'Objects Automatically Potentiate Action: An fMRI Study of Implicit Processing'. *European Journal of Neuroscience* 17 (12): 2735–2740.
- Grice, Paul. 1991. *Studies in the Way of Words*. Cambridge, MA: Harvard University Press.
- Grünbaum, Thor. 2007. 'Action Between Plot and Discourse'. *Semiotica* 165 (1/4): 295–314.
- Halliwell, Stephen. 2002. *The Aesthetics of Mimesis: Ancient Texts and Modern Problems*. Princeton: Princeton University Press.
- Hamburger, Käte. 1973. *The Logic of Literature*. Translated by Marilynn J. Rose. Bloomington: Indiana University Press.
- Hamon, Philippe. 1981. 'Rhetorical Status of the Descriptive'. Translated by Patricia Baudoin. *Yale French Studies* 61: 1–26.
- . 1982. 'What Is a Description?' In *French Literary Theory Today: A Reader*, edited by Tzvetan Todorov, translated by R. Carter, 147–178. Cambridge: Cambridge University Press.
- Havel, Václav. 1993. 'The Increased Difficulty of Concentration'. In *The Garden Party and Other Plays*, translated by Vera Blackwell, 131–182. New York: Grove Press.
- Hemingway, Ernest. 1962. 'A Farewell to Arms'. In *Three Novels*, 1–332. New York: Scribner.
- . 1995. *The Garden of Eden*. New York: Scribner.
- . 2006. *The Garden of Eden (Unabridged): Read by Patrick Wilson*. New York: Simon & Shuster Audio.
- Herman, David. 2009. *Basic Elements of Narrative*. Chichester: Wiley-Blackwell.
- Heuser, Ryan, and Long Le-Khac. 2011. 'Abstract Values in the 19th-Century British Novel: Decline and Transformation of a Semantic Field' presented at the 26th International Conference on Narrative, April 9, St. Louis, MO.

- Hubbard, Timothy L. 2010. 'Auditory Imagery: Empirical Findings'. *Psychological Bulletin* 136 (2): 302–329.
- Iacoboni, Marco. 2008. *Mirroring People: The New Science of How We Connect with Others*. New York: Farrar, Straus and Giroux.
- Iacoboni, Marco, Istvan Molnar-Szakacs, Vittorio Gallese, Giovanni Buccino, John C. Mazziotta, and Giacomo Rizzolatti. 2005. 'Grasping the Intentions of Others with One's Own Mirror Neuron System'. *PLoS Biology* 3 (3): 529–535.
- Ihde, Don. 2007. *Listening and Voice: Phenomenologies of Sound*. Albany: State University of New York Press.
- . 2012. *Experimental Phenomenology. Second Edition: Multistabilities*. Albany: State University of New York Press.
- Ingarden, Roman. 1973a. *The Cognition of the Literary Work of Art*. Translated by Ruth Ann Crowley and Kenneth Olsen. Evanston: Northwestern University Press.
- . 1973b. *The Literary Work of Art*. Translated by George G. Grabowicz. Evanston: Northwestern University Press.
- Iser, Wolfgang. 1980. 'The Reading Process: A Phenomenological Approach'. In *Reader-Response Criticism: From Formalism to Post-Structuralism*, edited by Jane P. Tompkins, translated by Catherine Macksey and Richard Macksey, 50–69. Baltimore: The Johns Hopkins University Press.
- Jack, Anthony I., and Andreas Roepstorff. 2003. 'Why Trust the Subject?' *Journal of Consciousness Studies* 10 (9-10): v–xx.
- Jajdelska, Elspeth, Christopher Butler, Steve Kelly, Allan McNeill, and Katie Overy. 2010. 'Crying, Moving, and Keeping It Whole: What Makes Literary Description Vivid?' *Poetics Today* 31 (3): 433–463.
- Jeannerod, Marc. 2006. *Motor Cognition: What Actions Tell the Self*. New York: Oxford University Press.
- Jefferson, Gail. 1996. 'On the Poetics of Ordinary Talk'. *Text and Performance Quarterly* 16 (1): 1–61.
- Just, Marcel A., and Patricia A. Carpenter. 1980. 'A Theory of Reading: From Eye Fixations to Comprehension'. *Psychological Review* 87: 329–354.
- Keen, Suzanne. 2006. 'A Theory of Narrative Empathy'. *Narrative* 14 (3): 207–236.
- Keyers, Christian, Bruno Wicker, Valeria Gazzola, Jean-Luc Anton, Leonardo Fogassi, and Vittorio Gallese. 2004. 'A Touching Sight: SII/PV Activation During the Observation and Experience of Touch'. *Neuron* 42 (2): 335–346.
- Kilner, James M., Claudia Vargas, Sylvie Duval, Sarah- Jayne Blakemore, and Angela Sirigu. 2004. 'Motor Activation Prior to Observation of a Predicted Movement'. *Nature Neuroscience* 7 (12): 1299–1301.
- Kimmel, Michael. In progress. 'Textual Sources of Embodied Literary Reading: From somatization types to the cue-effect matrix'.
- Kintsch, Walter, David Welsch, Franz Schmalhofer, and Susan Zimny. 1990. 'Sentence Memory: A Theoretical Analysis'. *Journal of Memory and Language* 29 (2): 133–159.
- Klatzky, Roberta L., James W. Pellegrino, Brian P. McCloskey, and Sally Doherty. 1989. 'Can You Squeeze a Tomato? The Role of Motor Representations in Semantic Sensibility Judgements'. *Journal of Memory and Language* 28 (1): 56–77.
- Kosslyn, Stephen M., Carol Seger, John R. Pani, and Lynn A. Hillger. 1990. 'When Is Imagery Used in Everyday Life? A Diary Study'. *Journal of Mental Imagery* 14 (3-4): 131–152.
- Kosslyn, Stephen M., William Thompson, and Giorgio Ganis. 2006. *The Case for Mental Imagery*. New York: Oxford University Press.

- Kosslyn, Steven M. 1978. 'Measuring the Visual Angle of the Mind's Eye'. *Cognitive Psychology* 10 (3): 356–389.
- Kotovych, Maria, Peter Dixon, Marisa Bortolussi, and Mark Holden. 2011. 'Textual Determinants of a Component of Literary Identification'. *Scientific Study of Literature* 1 (2): 260–291.
- Krasny, Karen A., and Mark Sadoski. 2008. 'Mental Imagery and Affect in English/French Bilingual Readers: A Cross-linguistic Perspective'. *Canadian Modern Language Review/La Revue canadienne des langues vivantes* 64 (3): 399–428.
- Kuijpers, Moniek M. Under review. 'Measuring Narrative Absorption: Development of a New Scale to Measure Absorption in Narrative Literature'
- Kurby, Christopher A., Joseph P. Magliano, and David N. Rapp. 2009. 'Those Voices in Your Head: Activation of Auditory Images During Reading'. *Cognition* 112 (3): 457–461.
- Kuzmičová, Anežka. Forthcoming. 'Literary Narrative and Mental Imagery: A View from Embodied Cognition'. *Style* 48.
- . 2012a. 'Presence in the Reading of Literary Narrative: A Case for Motor Enactment'. *Semiotica* 189 (1/4): 23–48.
- . 2012b. 'Fidelity Without Mimesis: Mental Imagery from Visual Description'. In *Mimesis: Metaphysics, Cognition, Pragmatics*, edited by Gregory Currie, Petr Kořátko, and Martin Pokorný. London: College Publications.
- . 2013a. 'The Words and Worlds of Literary Narrative: The Trade-off Between Verbal Presence and Direct Presence in the Activity of Reading'. In *Stories and Minds: Cognitive Approaches to Literary Narrative*, edited by Lars Bernaerts, Dirk De Geest, Luc Herman, and Bart Vervaeck, 107–128. Lincoln: University of Nebraska Press.
- . 2013b. 'Outer vs. Inner Reverberations: Verbal Auditory Imagery and Meaning-making in Literary Narrative'. *Journal of Literary Theory* 7 (1): xx–xx.
- Kuzmičová, Anežka, Peter Dixon, and Marisa Bortolussi. 2012. 'Length x Embodiment Interaction in Readers' Assessment of Description Imageability' presented at the *13th Biennial Conference of the International Society for the Empirical Study of Literature and Media*, July 9, Montreal, QC.
- Labov, William. 1972. *Language in the Inner City: Studies in the Black English Vernacular*. Philadelphia: University of Pennsylvania Press.
- Lakoff, George, and Mark Johnson. 1980. *Metaphors We Live By*. Chicago: Chicago University Press.
- Leech, Geoffrey, and Mick Short. 2007. *Style in Fiction: A Linguistic Introduction to English Fictional Prose*. Harlow: Pearson.
- Legrand, Dorothée. 2006. 'The Bodily Self: The Sensori-motor Roots of Pre-reflective Self-consciousness'. *Phenomenology and the Cognitive Sciences* 5 (1): 89–118.
- Lewis, James W. 2006. 'Cortical Networks Related to Human Use of Tools'. *The Neuroscientist* 12 (3): 211–231.
- Linde, Charlotte, and William Labov. 1975. 'Spatial Networks as a Site for the Study of Language and Thought'. *Language* 51 (4): 924–939.
- Long, Shirley A., Peter N. Winograd, and Connie A. Bridge. 1989. 'The Effects of Reader and Text Characteristics on Imagery Reported During and After Reading'. *Reading Research Quarterly* 24 (3): 353–372.
- Lopes, José Manuel. 1995. *Foregrounded Description in Prose Fiction: Five Cross-Literary Studies*. Toronto: University of Toronto Press.

- Lotto, Andrew J., Gregory S. Hickok, and Lori L. Holt. 2009. 'Reflections on Mirror Neurons and Speech Perception'. *Trends in Cognitive Sciences* 13 (3): 110–114.
- Lubbock, Percy. 1921. *The Craft of Fiction*. London: Jonathan Cape.
- Lyons, Martyn. 1999. 'New Readers in the Nineteenth Century: Women, Children, Workers'. In *A History of Reading in the West*, edited by Guglielmo Cavallo and Roger Chartier, translated by Lydia G. Cochrane, 313–344. Cambridge: Polity Press.
- MacWhinney, Brian. 2005. 'The Emergence of Grammar from Perspective'. In *Grounding Cognition: The Role of Perception and Action in Memory, Language and Thinking*, edited by Diane Pecher and Rolf A. Zwaan, 198–223. Cambridge: Cambridge University Press.
- Mar, Raymond A. 2004. 'The Neuropsychology of Narrative: Story Comprehension, Story Production and Their Interrelation'. *Neuropsychologia* 42 (10): 1414–1434.
- . 2011. 'The Neural Bases of Social Cognition and Story Comprehension'. *Annual Review of Psychology* 62: 103–134.
- Mar, Raymond A., Keith Oatley, Jacob Hirsh, Jennifer dela Paz, and Jordan B. Peterson. 2006. 'Bookworms Versus Nerds: Exposure to Fiction Versus Nonfiction, Divergent Associations with Social Ability, and the Simulation of Fictional Social Worlds'. *Journal of Research in Personality* 40 (5): 694–712.
- Marcel, Anthony. 2003. 'The Sense of Agency: Awareness and Ownership of Action'. In *Agency and Self-Awareness: Issues in Philosophy and Psychology*, edited by Johannes Roessler and Naomi Eilan, 48–93. Oxford: Clarendon.
- Marks, David F. 1973. 'Visual Imagery Differences in the Recall of Pictures'. *British Journal of Psychology* 64 (1): 17–24.
- Marschark, Marc, and R. Reed Hunt. 1989. 'A Reexamination of the Role of Imagery in Learning and Memory'. *Journal of Experimental Psychology: Learning, Memory, and Cognition* 15 (4): 710–720.
- Martin, Alex. 2007. 'The Representation of Object Concepts in the Brain'. *Annual Review of Psychology* 58: 25–45.
- McEwan, Ian. 2006. *Saturday*. New York: Anchor Books.
- . 2011. *Solar*. New York: Random House.
- McKoon, Gail, and Roger Ratcliff. 1992. 'Inference During Reading'. *Psychological Review* 99 (3): 440–466.
- Meister, Jan Christoph. 2008. 'Minimal Narrative'. In *The Routledge Encyclopedia of Narrative Theory*, edited by David Herman, Manfred Jahn, and Marie-Laure Ryan, 312. London: Routledge.
- Miall, David S. 2006. *Literary Reading: Empirical & Theoretical Studies*. New York: Peter Lang.
- . 2011. 'Emotions and the Structuring of Narrative Responses'. *Poetics Today* 32 (2): 323–348.
- Miall, David S., and Don Kuiken. 1994. 'Foregrounding, Defamiliarization, and Affect: Response to Literary Stories'. *Poetics* 22 (5): 389–407.
- . 1995. 'Aspects of Literary Response: A New Questionnaire'. *Research in the Teaching of English* 29 (1): 37–58.
- Milne, A. A. 1992. *Winnie-the-Pooh*. New York: Penguin.
- Mosher, Harold F. 1991. 'Toward a Poetics of "Descriptized" Narration'. *Poetics Today* 12 (3): 425–445.
- Mukařovský, Jan. 1976. *On Poetic Language*. Translated by John Burbank and Peter Steiner. Amsterdam: John Benjamins.
- Noë, Alva. 2006. *Action in Perception*. Cambridge, MA: The MIT Press.

- Nünning, Ansgar. 2007. 'Towards a Typology, Poetics and History of Description in Fiction'. In *Description in Literature and Other Media*, edited by Werner Wolf and Walter Bernhart, 91–128. Amsterdam: Rodopi.
- Oatley, Keith. 2011. *Such Stuff as Dreams: The Psychology of Fiction*. Chichester: Wiley-Blackwell.
- Olson, Gary M., Robert L. Mack, and Susan A. Duffy. 1981. 'Cognitive Aspects of Genre'. *Poetics* 10 (2-3): 283–315.
- Ong, Walter J. 2002. *Orality and Literacy*. London: Routledge.
- Van Orden, Guy C., Bruce F. Pennington, and Gregory O. Stone. 1990. 'Word Identification in Reading and the Promise of Subsymbolic Psycholinguistics'. *Psychological Review* 97 (4): 488–522.
- Palmer, Stephen E., Eleanor Rosch, and Paul Chase. 1981. 'Canonical Perspective and the Perception of Objects'. In *Attention and Performance IX: Proceedings of the Ninth International Symposium on Attention and Performance, Jesus College, Cambridge, England, July 13-18, 1980*, 135–151. Hillsdale: Lawrence Erlbaum.
- Parsons, Lawrence M. 1994. 'Temporal and Kinematic Properties of Motor Behavior Reflected in Mentally Simulated Action'. *Journal of Experimental Psychology* 20 (4): 709–730.
- Perec, Georges. 1965. *Les choses: une histoire des années soixante*. Paris: René Julliard.
- . 1990. *Things: A Story of the Sixties*. Translated by David Bellos. Boston: Godine.
- Perky, Cheves West. 1910. 'An Experimental Study of Imagination'. *The American Journal of Psychology* 21 (3): 422–452.
- Petitmengin, Claire. 2006. 'Describing One's Subjective Experience in the Second Person: An Interview Method for the Science of Consciousness'. *Phenomenology and the Cognitive Sciences* 5 (3-4): 229–269.
- Pflugmacher, Torsten. 2008. 'Description'. In *The Routledge Encyclopedia of Narrative Theory*, edited by David Herman, Manfred Jahn, and Marie-Laure Ryan, 101–102. New York: Routledge.
- Pulvermüller, Friedemann. 1999. 'Words in the Brain's Language'. *Behavioral and Brain Sciences* 22 (2): 253–279.
- Pylyshyn, Zenon. 2004. 'Mental Imagery'. In *The Oxford Companion to the Mind. Second Edition*, edited by Richard L. Gregory, 582–585. Oxford: Oxford University Press.
- Raposo, Ana, Helen E. Moss, Emmanuel A. Stamatakis, and Lorraine K. Tyler. 2009. 'Modulation of Motor and Premotor Cortices by Actions, Action Words and Action Sentences'. *Neuropsychologia* 47 (2): 388–396.
- Rapp, David N., Jessica L. Klug, and Holly A. Taylor. 2006. 'Character Movement and the Representation of Space During Narrative Comprehension'. *Memory & Cognition* 34 (6): 1206–1220.
- Reeves, Adam. 1981. 'Visual Imagery Lowers Sensitivity to Hue-Varying, but Not to Luminance-Varying, Visual Stimuli'. *Attention, Perception, & Psychophysics* 29 (3): 247–250.
- Reisberg, Daniel, J. David Smith, David A. Baxter, and Marcia Sonenshine. 1989. "'Enacted" Auditory Images Are Ambiguous; "Pure" Auditory Images Are Not'. *The Quarterly Journal of Experimental Psychology Section A: Human Experimental Psychology* 41 (3): 619–641.
- Riffaterre, Michael. 1981. 'Descriptive Imagery'. *Yale French Studies* 61: 107–125.
- Rizzolatti, Giacomo, and Vittorio Gallese. 1988. 'Mechanisms and Theories of Spatial Neglect'. *Handbook of Neuropsychology* 1: 223–246.

- Robbe-Grillet, Alain. 1957. *La jalousie*. Paris: Minuit.
- . 1959. *Dans le labyrinthe*. Paris: Minuit.
- . 1965a. 'Jealousy'. In *Two Novels by Robbe-Grillet*, translated by Richard Howard, 33–138. New York: Grove Press.
- . 1965b. 'In the Labyrinth'. In *Two Novels by Robbe-Grillet*, translated by Richard Howard, 139–272. New York: Grove Press.
- Robbins, Philip, and Murat Aydede (eds.). 2008. *The Cambridge Handbook of Situated Cognition*. Cambridge: Cambridge University Press.
- Roberts, Michèle. 1993. *Daughters of the House*. London: Virago.
- Robinson, Jenefer. 2007. *Deeper Than Reason: Emotion and Its Role in Literature, Music, and Art*. New York: Oxford University Press.
- Robinson, Marilynne. 1981. *Housekeeping*. London: Faber and Faber.
- Rosenblatt, Louise M. 1994. *The Reader, the Text, the Poem: The Transactional Theory of the Literary Work*. Carbondale: Southern Illinois University Press.
- Rosch, Eleanor, Caroline B. Mervis, Wayne Gray, David M. Johnson, and Penny Boyes-Braem. 1976. 'Basic Objects in Natural Categories'. *Psychology* 7: 573–605.
- Rossholm, Göran. 2004. *To Be and Not to Be: On Interpretation, Iconicity and Fiction*. Bern: Peter Lang.
- Rubery, Matthew. 2008. 'Play It Again, Sam Weller: New Digital Audiobooks and Old Ways of Reading'. *Journal of Victorian Culture* 13 (1): 58–79.
- . 2011. 'Introduction: Talking Books'. In *Audiobooks, Literature, and Sound Studies*, edited by Matthew Rubery, 1–21. New York: Routledge.
- Ryan, Marie-Laure. 2001. *Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media*. Baltimore: The Johns Hopkins University Press.
- . 2011. 'Narratology and Cognitive Science: A Problematic Relation'. *Style* 44 (4): 469–495.
- Sadoski, Mark, Ernest T. Goetz, and Joyce B. Fritz. 1993. 'Impact of Concreteness on Comprehensibility, Interest, and Memory for Text: Implications for Dual Coding Theory and Text Design'. *Journal of Educational Psychology* 85 (2): 291–304.
- Sadoski, Mark, Ernest T. Goetz, and Suzanne Kangiser. 1988. 'Imagination in Story Response: Relationships Between Imagery, Affect, and Structural Importance'. *Reading Research Quarterly* 23 (3): 320–336.
- Sadoski, Mark, Ernest T. Goetz, Arturo Olivarez, Sharon Lee, and Nancy M. Roberts. 1990. 'Imagination in Story Reading: The Role of Imagery, Verbal Recall, Story Analysis, and Processing Levels'. *Journal of Literacy Research* 22 (1): 55–70.
- Sadoski, Mark, and Allan Paivio. 2001. *Imagery and Text*. Mahwah: Lawrence Erlbaum.
- Saenger, Paul. 2000. *Space Between Words: The Origins of Silent Reading*. Stanford: Stanford University Press.
- Scarinzi, Alfonsina. 2008. 'Evoking Interest, Evoking Meaning: The Literary Theme and the Cognitive Function of Stylistic Devices'. In *The State of Stylistics*, edited by Greg Watson, 137–153. Amsterdam: Rodopi.
- Scarry, Elaine. 1999. *Dreaming by the Book*. New York: Farrar, Straus and Giroux.
- Schaeffer, Jean-Marie. 2010. *Why Fiction?* Translated by Dorrit Cohn. Lincoln: University of Nebraska Press.
- Schank, Roger C., and Robert P. Abelson. 1977. *Scripts, Plans, Goals, and Understanding: An Inquiry into Human Knowledge Structures*. Hillsdale: Lawrence Erlbaum.

- Schmidt, Richard A. 1975. 'A Schema Theory of Discrete Motor Learning'. *Psychological Review* 82 (4): 225–259.
- Schubert, Thomas, Frank Biocca, and Holger Regenbrecht. 2001. 'The Experience of Presence: Factor Analytic Insights'. *Presence: Teleoperators & Virtual Environments* 10 (3): 266–281.
- Schwartz, Daniel L. 1999. 'Physical Imagery: Kinematic Versus Dynamic Models'. *Cognitive Psychology* 38 (3): 433–464.
- Seilman, Uffe, and Steen F. Larsen. 1989. 'Personal Resonance to Literature: A Study of Reminders While Reading'. *Poetics* 18 (1–2): 165–177.
- Serino, Andrea, Alessandro Farnè, and Elisabetta Làdavas. 2006. 'Visual Peripersonal Space'. In *Imagery and Spatial Cognition: Methods, Models, and Cognitive Assessment*, edited by Tomasso Vecchi and Gabriella Bottini, 323–335. Amsterdam: John Benjamins.
- Sheets-Johnstone, Maxine. 1999. *The Primacy of Movement*. Amsterdam: John Benjamins.
- Shepard, Roger N., and Jacqueline Metzler. 1971. 'Mental Rotation of Three-Dimensional Objects'. *Science* 171 (3972): 701–703.
- Shklovsky, Viktor. 1990. *Theory of Prose*. Translated by Benjamin Sher. Normal: Dalkey Archive Press.
- Simmons, W. Kyle, Vimal Ramjee, Michael S. Beauchamp, Ken McRae, Alex Martin, and Lawrence W. Barsalou. 2007. 'A Common Neural Substrate for Perceiving and Knowing About Color'. *Neuropsychologia* 45 (12): 2802–2810.
- Skalin, Lars-Åke. 2008. "'Telling a Story": Reflections on Fictional and Non-Fictional Narratives'. In *Narrativity, Fictionality, and Literariness: The Narrative Turn and the Study of Literary Fiction*, edited by Lars-Åke Skalin, 201–260. Örebro: Örebro University.
- Smith, Greg M. 2003. *Film Structure and the Emotion System*. Cambridge: Cambridge University Press.
- Smith, J. David, Margaret Wilson, and Daniel Reisberg. 1995. 'The Role of Subvocalization in Auditory Imagery'. *Neuropsychologia* 33 (11): 1433–1454.
- Sopčák, Paul, and Don Kuiken. 2012. 'Readers' Engagement with Virginia Woolf's Mrs Dalloway: From Knowing About Death to the Experience of Finitude'. *Mémoires du livre/Studies in Book Culture* 3 (2). <http://www.erudit.org/revue/memoires/2012/v3/n2/1009348ar.html>.
- Speer, Nicole K., Jeremy R. Reynolds, Khena M. Swallow, and Jeffrey M. Zacks. 2009a. 'Reading Stories Activates Neural Representations of Visual and Motor Experiences'. *Psychological Science* 20 (8): 989–999.
- . 2009b. 'Reading Stories Activates Neural Representations of Visual and Motor Experiences: Stimuli (Course Work)'. <http://dcl.wustl.edu/DCL/stimuli.html>.
- Spolsky, Ellen. 2011. 'An Embodied View of Misunderstanding in Macbeth'. *Poetics Today* 32 (3): 489–520.
- Sternberg, Meir. 1981. 'Ordering the Unordered: Time, Space, and Descriptive Coherence'. *Yale French Studies* 61: 60–88.
- Stewart, Garrett. 1990. *Reading Voices: Literature and the Phonotext*. Berkeley: University of California Press.
- Talmy, Leonard. 2000. 'The Windowing of Attention in Language'. In *Toward a Cognitive Semantics, Volume I: Concept Structuring Systems*, 257–309. Cambridge, MA: The MIT Press.
- Taylor, Holly A., and Barbara Tversky. 1996. 'Perspective in Spatial Descriptions'. *Journal of Memory and Language* 35 (3): 371–391.

- Taylor, Lawrence J., Shiri Lev-Ari, and Rolf A. Zwaan. 2008. 'Inferences About Action Engage Action Systems'. *Brain and Language* 107 (1): 62–67.
- Taylor, Lawrence J., and Rolf A. Zwaan. 2008. 'Motor Resonance and Linguistic Focus'. *The Quarterly Journal of Experimental Psychology* 61 (6): 896–904.
- Thompson, Evan T. 2007. 'Look Again: Phenomenology and Mental Imagery'. *Phenomenology and the Cognitive Sciences* 6: 137–170.
- Toussaint, Jean-Philippe. 1988. *L'appareil-photo*. Paris: Minuit.
- . 2008. *Camera*. Translated by Matthew B. Smith. Champaign: Dalkey Archive Press.
- Trnka, Jiří. 1962. *Zahrada*. Praha: Albatros.
- Tsur, Reuven. 1992. *What Makes Sound Patterns Expressive? The Poetic Mode of Speech Perception*. Durham: Duke University Press.
- . 1996. 'Rhyme and Cognitive Poetics'. *Poetics Today* 17 (1): 55–87.
- Tucker, Mike, and Rob Ellis. 1998. 'On the Relations Between Seen Objects and Components of Potential Actions'. *Journal of Experimental Psychology: Human Perception and Performance* 24 (3): 830–846.
- . 2001. 'The Potentiation of Grasp Types During Visual Object Categorization'. *Visual Cognition* 8 (6): 769–800.
- . 2004. 'Action Priming by Briefly Presented Objects'. *Acta Psychologica* 116 (2): 185–203.
- Varela, Francisco J. 1999. 'The Specious Present: A Neurophenomenology of Time Consciousness'. In *Naturalizing Phenomenology: Issues in Contemporary Phenomenology and Cognitive Science*, edited by Jean Petitot, Francisco J. Varela, Bernard Pachoud, and Jean-Michel Roy, 266–314. Stanford: Stanford University Press.
- Varela, Francisco J., Evan T. Thompson, and Eleanor Rosch. 1991. *The Embodied Mind: Cognitive Science and Human Experience*. New edition. Cambridge, MA: The MIT Press.
- Vicente, Agustin, and Fernando Martinez Manrique. 2011. 'Inner Speech: Nature and Functions'. *Philosophy Compass* 6 (3): 209–219.
- Vygotsky, Lev Semenovich. 1987. 'Thinking and Speech'. In *The Collected Works of L. S. Vygotsky, Volume 1: Problems of General Psychology*, edited by Robert W. Rieber and Aaron S. Carton, translated by Norris Minick. New York: Plenum Press.
- Wall, Cynthia. 2006. *The Prose of Things: Transformations of Description in the Eighteenth Century*. Chicago: University of Chicago Press.
- Walton, Kendall L. 1993. *Mimesis as Make-Believe: On the Foundations of the Representational Arts*. Cambridge, MA: Harvard University Press.
- Watkins, Kate E., Antonio P. Strafella, and Tomáš Paus. 2003. 'Seeing and Hearing Speech Excites the Motor System Involved in Speech Production'. *Neuropsychologia* 41 (8): 989–994.
- Wells-Jopling, Rebecca, and Keith Oatley. 2012. 'Metonymy and Intimacy'. *Journal of Literary Theory* 6 (1): 235–252.
- Westbury, Chris, and Gail Moroschan. 2009. 'Imageability x Phonology Interactions During Lexical Access: Effects of Modality, Phonological Neighbourhood, and Phonological Processing Efficiency'. *The Mental Lexicon* 4 (1): 115–145.
- Williams, Bernard. 1999. 'Imagination and the Self'. In *Problems of the Self*, 26–45. Cambridge: Cambridge University Press.
- Williams, William Carlos. 1991. *The Collected Poems of William Carlos Williams, Volume 1: 1909-1939*. Edited by A. Walton Litz and Christopher MacGowan. New York: New Directions.

- Wilson, Margaret. 2002. 'Six Views of Embodied Cognition'. *Psychonomic Bulletin & Review* 9 (4): 625–636.
- Wingfield, Arthur, and Brian Butterworth. 1984. 'Running Memory for Sentences and Parts of Sentences: Syntactic Parsing as a Control Function in Working Memory'. In *Attention and Performance X: Control of Language Processes*, edited by Herman Bouma and Don G. Bouwhuis, 351–364. Hillsdale: Lawrence Erlbaum.
- Wittmann, Reinhard. 1999. 'Was There a Reading Revolution at the End of the Eighteenth Century?' In *A History of Reading in the West*, edited by Guglielmo Cavallo and Roger Chartier, translated by Lydia G. Cochrane, 284–312. Cambridge: Polity Press.
- Wolf, Werner. 2004. 'Aesthetic Illusion as an Effect of Fiction'. *Style* 38 (3): 325–351.
- . 2007. 'Description as a Transmedial Mode of Representation: General Features and Possibilities of Realization in Painting, Fiction and Music'. In *Description in Literature and Other Media*, edited by Walter Bernhart, 1–87. Amsterdam: Rodopi.
- Yao, Bo, Pascal Belin, and Christoph Scheepers. 2011. 'Silent Reading of Direct Versus Indirect Speech Activates Voice-selective Areas in the Auditory Cortex'. *Journal of Cognitive Neuroscience* 23 (10): 3146–3152.
- Zwaan, Rolf A. 1993. *Aspects of Literary Comprehension: A Cognitive Approach*. Amsterdam: John Benjamins.
- . 2008. 'Time in Language, Situation Models, and Mental Simulations'. *Language Learning* 58 (Suppl. 1): 13–26.
- Zwaan, Rolf A., and Carol J. Madden. 2005. 'Embodied Sentence Comprehension'. In *Grounding Cognition: The Role of Perception and Action in Memory, Language, and Thinking*, edited by Diane Pecher and Rolf A. Zwaan, 224–245. Cambridge: Cambridge University Press.
- Zwaan, Rolf A., and Herre Van Oostendorp. 1993. 'Do Readers Construct Spatial Representations in Naturalistic Story Comprehension?' *Discourse Processes* 16 (1-2): 125–143.
- Zwaan, Rolf A., and Lawrence J. Taylor. 2006. 'Seeing, Acting, Understanding: Motor Resonance in Language Comprehension'. *Journal of Experimental Psychology: General* 135 (1): 1–11.
- Zwaan, Rolf A., Lawrence J. Taylor, and Mirte de Boer. 2010. 'Motor Resonance as a Function of Narrative Time: Further Tests of the Linguistic Focus Hypothesis'. *Brain and Language* 112 (3): 143–149.

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