Introduction

Kinesic humor and the dynamics of gesture

Unexpected shifts in the rhythm of gestures can trigger laughter in preverbal infants as well as loquacious adults. Motor cognition is involved in the processing of such variations. I propose in this book a theory of kinesic humor in which the experience of humor occurs in the cognitive processing of gestures. It is well established in humor studies that cognitive shifts play a central role in the experience of humor. Cognitive shifts involving the dynamics of gestures are usually prompted by motor perception in real-life situations. But they can also be triggered verbally when a text creates kinesic anticipations and unexpectedly thwarts them. The experience of humor during the act of reading about gestures, movements, and sensorimotor events in literary works is the topic of this book.

The experience of kinesic humor is grounded in the cognitive activation of perceptual simulations. I use the phrase *perceptual simulation* to refer to the activation of sensorimotor features in the cognitive processing of movements and actions (Engelen, Bouwmeester, de Bruin, and Zwaan 2011; Di Paolo, Buhrmann, and Barandiaran 2017). Perceptual simulations are central to any act of reading. Processing the verbs *to run* and *to stroll*, or *to bolt* and *to amble* triggers perceptual simulations of varying gaits linked to different rhythms of steps and to adapted levels of tonicity.

The word *tonicity* refers to the state of relative contraction of a muscle. Tonicity in the neuromuscular system persists throughout life and disappears with death. Tonicity is both permanent and constantly adapting to gravity and sensorimotor variations. "Also called *tonus*, *tone*, or *muscle tone*," tonicity

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"is particularly evident in muscles that are opposing the effects of gravity and maintaining body posture" (Kent 2006[1]).

High tonicity is inferred from the verb *to sprint*, not from the verb *to slouch*. Motor cognition is involved in the processing of such verbs (Bolens 2012a). Tonicity and rhythm in sensorimotricity are regularly co-determinant. A reference to one often implies the other, either by creating a sense of duration and pace, or by suggesting a specific degree of effort and muscular tension. Tempo and tonicity intersect in the vital movement of breathing, manifesting key aspects of the psychophysical state of a person. I use the musical term *tempo* to refer to a sense of lived and enacted pace, rhythm, or speed. It corresponds to the timing that Ezequiel Di Paolo, Marieke Rohde, and Hanne De Jaegher call "interaction rhythm" (2010: 69–71):

> Timing coordination in interaction is done at many different levels of movement, including utterances, posture maintenance, and so on. Rhythm as a term is preferred over the more general "temporality," because it captures the *active* role that these elements play in the generation and organization of social interaction. . . . [It refers] to the *possible and actual variability of timing in interaction.* (Di Paolo, Rohde, and De Jaegher 2010: 69, italics in the original)

Tempo and tonicity are cardinal in psychomotricity, as they play a crucial role in human interactions from birth to death, particularly in what has been called in French *dialogue tonique*, "tonic dialogue" (Wallon 1949; de Ajuriaguerra 2008; Bullinger 2004/2013; Robert-Ouvray 1996, 2000/2007; Rochat 1999; Corraze 2007; Gapenne 2010; Bolens 2016b). A parent or carer holding a young infant constitutes a straightforward example of tonic dialogue. The fluctuating level of tonicity in one has a direct impact on the level of tension or relaxation in the other. The tempo and tonic quality of their respective movements (breathing and vocal tones included) build their interaction in a fundamental way. It constitutes a form of communication where meaning is not propositional or representational. It is nonetheless a dialogue in its own right, made of kinesic utterances that tap into vital aspects of live interaction.[2]

The purpose of this book is to bring literary studies, cognitive studies, humor studies, and gesture studies together in an analysis of kinesic humor in literature. My focus will be on sensorimotricity in language and on the effects triggered by changes in tempo and tonicity in kinesic interactions narrated in specific historical and cultural contexts.

Kinesic humor can be found in unexpected places. I analyze in this book striking kinesic passages of Ovid's *Metamorphoses*, Chrétien de Troyes' *Yvain*, Cervantes' *Don Quixote*, Milton's *Paradise Lost*, Saint-Simon's *Mémoires*, Sterne's *Tristram Shandy*, Rousseau's *Confessions*, and Stendhal's *Le Rouge et le*

Noir. While humorous gestures may be expected in *Don Quixote* and *Tristram Shandy*, kinesic humor plays a more surprising role in such works as Rousseau's *Confessions* and Milton's *Paradise Lost*. Because these works cannot be labeled comedic, satirical, burlesque, or parodic in any straightforward way, kinesic humor in them has rarely been addressed.

COGNITION AND SENSORIMOTRICITY

A number of important collective volumes have recently been published on embodied cognition, providing access to the most recent ideas and findings in this branch of cognitive studies—for instance, *The Routledge Handbook of Embodied Cognition*, edited by Lawrence Shapiro (2014); *Foundations of Embodied Cognition*, edited by Martin H. Fischer and Yann Coello (2016, 2 vols.); and *The Oxford Handbook of 4E Cognition*, edited by Albert Newen, Leon De Bruin, and Shaun Gallagher (2018). These three titles are enough to show that embodied cognition is now an acknowledged field of research. One topic remains, however, understudied in it: humor, "arguably . . . humankind's most complex cognitive attribute" (Polimeni and Reiss 2006: 348). Leading to this statement, Polimeni and Reiss claim that "a simple joke can utilize language skills, theory-of-mind, symbolism, abstract thinking, and social perception." Interestingly, embodiment is absent from their list. My purpose is to consider embodied cognition in the perspective of humor, and to study humor in the perspective of embodied cognition.

I work with two central aspects of embodied cognition. First, "cognitive and sensorimotor mechanisms . . . are shaped by the action abilities of our bodies" (Fischer and Coello 2016: 2); and second, action understanding is elicited by perceptual simulations.[3] "A key tenet of action simulation theories is that the brain employs the same (or similar) neural resources and dynamic representations for executing, imagining, and perceiving actions" (Pezzulo et al. 2013: 270).

> Action simulation theories are not restricted to purely motor domains, as the concept of "action" is much wider than that of body movement. Action simulations can involve characteristics of actions that are not purely motoric, including their goals, sensory aspects, semantic knowledge, and various contextual factors; indeed, all these factors can modulate action simulations. However, the idea that the motor system plays a key role in action simulation and related tasks is supported by an increasing number of studies. Evidence from neuroimaging, behavioral and neurophysiological studies reveals that motor control systems in the brain are deeply active in a surprising variety of tasks, both individual and social, that were long supposed to exemplify "central" cognitive

processing, including planning, hearing music, understanding language, imitation, and understanding others' intentions.

As a consequence, the status of the motor system is being reconsidered. Once a peripheral executor of central commands, it is increasingly being regarded as a proper part of cognition. (Pezzulo et al. 2013: 273–274)

Eight years after the publication of Pezzulo's article, what was "increasingly regarded as a proper part of cognition" is now clearly recognized as central to cognition. In this perspective, the question of gestures is of particular interest.

GESTURES

Motor simulations occur in relation to gestures performed during real-life interactions as well as gestures communicated verbally. Before focusing on the cognitive retrieval of narrated gestures, I consider the cognitive dimension of gestures in real-life situations.

According to Autumn Hostetter and Martha Alibali, "speakers gesture because they simulate actions and perceptual states as they think, and these simulations involve motor plans that are the building blocks of gestures" (2019: 722). Unless their gestures are specifically representational (for example, showing the shape of an object or demonstrating how to perform a specific action), it is often the case that speakers gesture to convey the *dynamics* of the action they are communicating about, its tempo and tonic intensity. These aspects are at the core of the informative and communicative relevance of gestures.

Autumn Hostetter and Rebecca Boncoddo posit that

> Such movements [gestures] occur at the intersection of action, perception, and cognition. As movements of the body, gestures are actions, albeit representational ones that do not actually manipulate the physical environment. *As actions that often enact spatial and motor content, gestures provide perceptual experiences for both speaker and listener*. As such, gestures can affect cognition for both speakers and listeners in important ways. Thus, the single act of gesture is multifaceted—it can be considered simultaneously as both a produced action and as a perceptual experience, as both a reflection of cognitive processes and as a facilitator of those processes. (Hostetter & Boncoddo 2017: 155, italics mine)

Gestures are actions that enact motor content and, in such content, tempo and tonicity may be prominent. An important cognitive benefit of gesturing lies in the facilitation of the speaker's cognitive processing,[4] as well as in her interlocutor's retrieval of communicated features that are not conveyed verbally, such as dynamics.

David McNeill emphasizes that language and gesture "are united as a matter of thought itself" (McNeill 2016: 3). The thinking process is grounded in embodied cognition, involving sensorimotor parameters. In communication, speech and gesture participate in the same cognitive effort. However, they are "co-expressive but semiotically non-redundant. Each has its own means of packaging [a] shared idea [. . .]" (McNeill 2016: 22). Because the growth point of this connection is "inherently dynamic" (McNeill 2016: 26), "gesture coding requires close attention to kinesic details and an accurate and detailed transcription of speech" (McNeill 2016: 7). Observable facts in a gesture "include the form and timing of the gesture, and (equally important) how it fits into the immediate context of speaking. The exact timing of the gesture with speech is important" (McNeill 2016: 7–8).

Cornelia Müller, in her discussion of the ways in which gestures may be related to verbal metaphors, shows that gestures often depict the "movement dynamics" that are "encoded in the verbal metaphor" (Müller 2008: 100). She points out that a gesture may be enacting a metaphor before the latter is verbally expressed. For instance, in an interaction where a speaker is describing her strained relationship with her partner, "it is only at the very end of the utterance that she produces the verbal metaphor 'clingy,' while throughout this utterance she performs the 'clingy gesture' with the open palms repeatedly touching each other. Thus, the metaphor was present in gesture before it was verbalized" (Müller 2008: 101). The pace of the gesture is part of the communicated meaning: "The movement is slow; this is important because slowness of the detachment expresses the difficulty of separating two surfaces that are stuck together" (Müller 2008: 101). The dynamic implication of the clinginess is communicated via gestures only, never verbally. It enacts an important part of the perceptual simulation the speaker associates with the adjective "clingy."

The dynamics of gesture play a significant role in interlocutors' understanding of and participation in an interaction, as it grounds the possibility of motor anticipation. According to Lucia Maria Sacheli and colleagues, "anticipatory mechanisms might be at play during action execution as well as during action observation and may provide an internal model of the ongoing action which generates top-down expectations and predictions on its deployment" (Sacheli et al. 2015: 93). "Action anticipation is critical for self-motor control" as well as for action perception (Sacheli et al. 2015: 91). In both instances, it is elicited by "anticipatory sensorimotor simulative mechanisms" that influence "the perception of external events associated with the simulated movements" (Sacheli et al. 2015: 91). The fact that these sensorimotor simulative mechanisms are anticipatory is "suggested by the finding that the motor system simulates future postural states along the movement paths during observation of others' actions" (Sacheli et al. 2015: 93). This is also present "when reading action verbs conjugated in the future tense" (Sacheli et al. 2015: 93). In real-life situations, these mechanisms minimize sensory surprise "corresponding

to prediction error" and optimize "the ability to predictively adapt to a constantly changing world" (Sacheli et al. 2015: 96). Since these mechanisms help minimize surprise, they may also be used to *cause* surprise and, with it, a series of correlated effects, such as humor.

HUMOR AND PLAY

Humor studies have flourished in the last decades, covering interconnected issues that range from laughter (Provine 2000; Gervais & Wilson 2006; Classen 2010; Scott et al. 2014) to intellectual traditions such as learned wit (Hawley 2009) and Menippean satire (Weinbrot 2005), to genres and subgenres such as parody and gallows humor (Piemonte 2015), and to the transformation of the concept of *humor* in the eighteenth century (Pollock 2001; Hempelmann 2017). Important perspectives focus on specific fields of inquiry, such as literature (Richardot 2002; Triezenberg 2008; Nilsen & Nilsen 2008; Moura 2010; D'Arcens 2014), culture and history (Bremmer & Roodenburg 1997; Pfister 2002; Ghose 2008; Walker 2020), sociology (Kuipers 2006; Vaillant 2016), philosophy (Cohen 1999; Critchley 2002; Morreall 2009), psychology (Martin & Ford 2018; Bown 2019), and cinema (Carroll 2009; Bolens 2012b). A large portion of humor research comes from linguistics (Raskin 1985, 2008; Attardo 2001; Attardo & Raskin 2017; Ritchie 2018), with an emerging interest in pragmatics (Goatly 2012; Yus 2016; Dynel 2018), humor in interaction and conversation (Norrick & Chiaro 2009; Chovanec & Tsakona 2018), in comic strips (Gordon 2016) and cartoons (Tsakona 2009), and research on stand-up comedy foregrounding humor as performance (Allen 2002; Double 2005/2014; Ritchie 2012). Last but not least, humor on the Internet and in social media is becoming prominent (Dynel & Poppi 2020).

The three main humor theories that have prevailed since antiquity are the Superiority Theory (e.g., Hobbes, Bergson), the Relief Theory (e.g., Shaftesbury, Freud), and the Incongruity Theory (e.g., Kant, Schopenhauer).[5] New perspectives have been developed in the twentieth and twenty-first centuries (reviewed in Martin & Ford 2018). Within this rich field of research, John Morreall offers a cognitive perspective on humor that is particularly useful for a definition of kinesic humor, as it sheds light on the ways in which cognition, language, and embodiment interconnect in the experience of humor.

It has been frequently acknowledged that a basic pattern in the experience of humor is the playful enjoyment of a cognitive shift (Morreall 2009: 49).

> In the jargon of stand-up comedy, a cognitive shift involves a set-up and a punch. The set-up is our background pattern of thoughts and attitudes. The punch is

> what causes our thoughts and attitudes to change quickly. In some humor, especially jokes, the first part of the stimulus establishes the background, and the second part serves as the punch. (Morreall 2009: 50)

The importance of cognitive shifts in the processing of jokes has been amply researched (e.g., Attardo & Raskin 2017; Ritchie 2018). Morreall's perspective is interesting because it makes room for nonverbal cognitive shifts, emphasizing the importance of play in humor, including physical play. Morreall defines humor as a kind of play in the sense that it is for pleasure and not for cognitive or practical gain (2009: 64).[6] At the level of cognition, playing is possible when a fight-or-flight response is not necessary, and when it is not performed in order to achieve anything but itself. Unlike looking for food or escaping a predator, it constitutes its own purpose in the playful practices of animal species, including that of humans.

> In playing, animals do not simply go through the stereotypical motions of adult skills, but move in exaggerated ways. Colts at play don't just run, but make split-second turns at high speeds. Young monkeys play by leaping not just from branch to branch, but from trees into rivers. Children at play not only run, but skip, dance, do cartwheels, and stand on their heads. (Morreall 2009: 65)

In such plays, "young animals test the limits of their speed, balance, and coordination, and so learn to cope with unexpected situations" (Morreall 2009: 65). Morreall adds that the "activities that humans and other animals seem to find the most fun are those in which they exercise their abilities in unusual and extreme ways, but in a relatively safe setting" (Morreall 2009: 65). The very lack of purpose in play makes this phenomenon beneficial in important ways.

> This account of play helps explain the cognitive and practical benefits of humor. . . . In humor the abilities we exercise in unusual and extreme ways are those of thinking. . . . In playing with thoughts, we develop our rationality, part of which is processing our perceptions, memories, and imagined ideas in a way that is free from our here and now, and our individual perspective. . . . To become rational, early humans needed a mental mode in which they could be surprised, especially by failure, without going into fight-or-flight emotions such as fear and anger. . . . Humorous amusement is just such a mode. (Morreall 2009: 66)

"Humorous amusement involves higher-order thinking, especially seeing things from multiple perspectives. To get even simple jokes requires that we have two interpretations for a phrase in mind at the same time" (Morreall 2009: 79). Along this line, kinesic humor is related to higher-order thinking elicited by sensorimotor playful experimentation and cognitive shifts.

In her discussion of child's play, Maxine Sheets-Johnstone claims that

> In play with others, creative energies and degrees of freedom are compounded so that play can be and often is on the verge of breaking out into something new at the same time that it is intercorporeally structured in the kinetically and kinesthetically known. Playing with others at the cutting edge of innovation complexifies the fundamental pleasure, fun, and delight of movement. (Sheets-Johnstone 2003: 418)

Because the raison d'être of play is to experience sensorimotricity and "the delight of movement," Sheets-Johnstone argues that play is the very opposite of competition (2003: 413). When adults enforce competition upon children's play, they dramatically undermine the very reason why children need to play and must be allowed to play freely.

Di Paolo, Rhode, and De Jaeger "find that play is an area particularly rich for the exploration of enactive themes from emergence of identities and levels of social coordination, to manipulation of sense-making through experientially guided bodily action" (2010: 78). To play is to grasp "in an embodied manner the extent to which perception can be action-mediated" (2010: 78).

Such perspectives are instrumental to an understanding of kinesic humor. Kinesic humor is grounded in sensorimotor cognition, which is centrally related to perceptual anticipation (Noë 2004/2006; Sacheli et al. 2015; Aggelopoulos 2015). Perception is predictive. The background patterns of expectations in kinesic humor are sensorimotor; they are related to "the limits of speed, balance, and coordination," which the young typically exert when they play. In this context, surprise is also sensorimotor, and the experience of kinesic humor is due to a cognitive shift eliciting an unexpected alternative perspective regarding any aspect of movements, including kinesthetic sensations and the dynamics of gesture. *Kinesthesia* refers to the sensations one feels when moving, and *kinesis* to the perceptual dimension of motor interactions (Bolens 2012a, 2012b, 2014, 2015a, 2016b, 2018a).[7] Surprise at either a kinesic or a kinesthetic incongruity (or thwarted anticipation) triggers the experience of humor, while widening the scope of imaginable anticipations.[8] Perceptual attention and imagination are enhanced, and the ability to act and feel are as well.[9] Humor as play is conducive to creative thinking and action when it affords free and enjoyable experimentation with kinesis.[10]

In their discussion of the cognitive-perceptual processes in humor, Martin and Ford write that "scholars have debated over the characteristics that cause one to perceive a stimulus as funny," and that "most contemporary investigators would agree that the perception of 'incongruity' is at the heart of the humor experience" (Martin & Ford 2018: 4).

> The perception of incongruity in a playful, humor mind set . . . appears to characterize all forms of humor, including jokes, teasing, and witty banter, unintentional types of humor such as amusing slips of the tongue or the proverbial person slipping on the banana peel, the laughter-eliciting peek-a-boo games and rough-and-tumble play of children, and even the humor of chimpanzees and gorillas. (Martin & Ford 2018: 5)

In order to produce an experience of incongruity, a sense of congruency and the possibility of anticipation must exist. The latter correspond to the background and setup in a joke, which create a frame of reference to be overturned by the punch line. More generally, we "experience mirth and laughter when we notice a mismatch between our sensory perception of reality and our conceptual understanding of reality" (Martin & Ford 2018: 55–56). A condition for this cognitive event to be enjoyed as funny is that the context and mutual mindset are felt to be safe and playful.[11] If not, the same mismatch could induce discomfort, concern, and even fear, anxiety or anger.

Kinesic humor is based on the playful experience of surprise and incongruity arising from a predictive perception of movement, where the prediction is grounded in motor cognition, involving not only kinesthetic sensations and kinesic perception but also the kinematics of movements, mankind's ecological environment, and laws of physics such as gravity.[12] Through the practice of motor cognition from birth onward, sensorimotor knowledge develops, leading to the fact that we know that a jump is likely to lead back to the ground, not toward the moon. We know that a jump by a human or by a grasshopper or by a horse corresponds to different kinematics, owing to anatomical and physiological specificities.[13] Meanwhile, human beings are prone to play with such facts, for example when they imitate animals. A canonical example of this may be found in *Monty Python and the Holy Grail* (1975), when King Arthur (played by Graham Chapman) gallops like a horse, one hand up as if holding reins, his servant running behind him knocking coconut shells together to imitate the sound of hooves. Jacques Tati in 1974 and Eddie Izzard in 2013 also performed remarkably humorous horse routines, which I discuss in the conclusion.[14]

In kinesic humor, a cognitive prediction arising from an anticipated motor pattern is both activated and thwarted, prompting the experience of an incongruous and potentially humorous perception. The same process may be elicited in verbal interactions and texts, when shared knowledge of human and animal kinematics, laws of physics, and mankind's ecological environment are part of the communication and induce sensorimotor simulations and anticipations that end up being thwarted. Every chapter of this book delves into various aspects of this phenomenon. A main focus in each textual case will be the cognitive processing of dynamic shifts in anticipated gestures and sensorimotor events.

Markus Ostarek and Gabriella Vigliocco provide evidence concerning timing in perceptual simulations, and the "dynamic activation of visuospatial features during word comprehension" (Ostarek & Vigliocco 2017: 580). Wessel van Dam and colleagues studied the effects of motion speed in action simulations, and found that "factors like language-mediated categories can constrain sensory perception," based for example on "the amount of detail in which movement kinematics are specified by a verb" (van Dam et al. 2017: 48). "Given that movement velocity is tightly associated with the amount of effort that needs to be exerted in performing an action, language describing fast and slow human action might similarly draw on regions involved in control and timing of motor movements" (van Dam et al. 2017: 49). Therefore, "regions that are involved in the execution of motor movements and representation of action plans are also likely to play a role in processing sentences that describe dynamic events" (van Dam et al. 2017: 49). Such aspects are central to a kinesic analysis of narrated sensorimotor events.

In their recent article "Grounding language in the neglected senses of touch, taste, and smell," Laura Speed and Asifa Majid call attention to the fact that "little research has gone beyond the well-trodden senses of vision and audition in order to consider whether language interacts with other sensory modalities" (Speed & Majid 2019: 2). They rightly stress, "If these senses [touch, taste, and smell] contribute to everyday experience, then according to grounded theories, they should be recruited for language comprehension too" (Speed & Majid 2019: 2). They suggest that other topics of investigation should be studied, including kinesthesia (Speed & Majid 2019: 5). Perceptual simulations of kinesthetic sensations are prevalent in language processing, and they are manifest in conversation when gestures communicate about the dynamics of actions and events.

Speed and Majid point out that such senses as touch and kinesthesia, which have been inadequately called "lower senses," are of vital importance. They are, strictly speaking, more vital than sight and hearing. They are so prevalent that they tend paradoxically to be taken for granted and overlooked.

Even when a word or a sentence is schematic, the perceptual simulation it triggers generally carries kinesthetic information (Bolens 2014, 2015a, 2016a, 2016b, 2018a, 2019b). The cognitive process takes place pre-reflectively and tends to be ignored. But a reflective focus on the process shows that, if a semantic output is produced at all, a perceptual simulation has been triggered, which is often based on kinesthetic features. Think of the verbs *to perk up, to saunter, to lurch, to squirm, to giggle, to rush, to hop*. The cognitive processing of their semantic meaning implies perceptual simulations necessarily involving kinesthetic aspects. In the verb *to giggle* (as well as in the verbs *to guffaw*, *to*

howl, *to growl*, *to shriek*, and many more), the most relevant kinesthetic aspects revolve around the chest, throat, neck, jaws, and mouth. More abstract verbs such as *to prompt* and *to hamper* also imply a semantic processing grounded in perceptual simulations involving kinesthetic features.

Speed and Majid distinguish between "mental simulation" and "mental imagery":

> If perceptual systems are activated quickly and without volition during language comprehension, we call this "mental simulation," whereas if perceptual systems are only activated upon strategic, conscious deliberation, we call this "mental imagery." . . . In contrast, tasks that require deliberate decision-making related to the domain of interest, or that are at such a time scale that rumination about the words is possible, could instead be explained as the result of strategic mental imagery. (Speed & Majid 2019: 3)

Speed and Majid's definitions usefully show that the concept of *simulation* applies to a nonrepresentational level of cognitive processing. If readers understand the word *rumination*, for instance, they have already triggered a perceptual simulation of the general dynamics it involves, notwithstanding the figurality of its use in the above quotation. If a word makes sense, the cognitive process has already been taking place at a pre-reflective level. But if readers decide to understand how, why, and what exactly they understand by this word, they may then reflectively think about, and delve into the output of their perceptual simulation, possibly augmenting its perceptual granularity, in order to decide which features are relevant to its context of use (Zabicki et al. 2019).

Speed and Majid use the phrase *mental imagery* "*if* perceptual systems are *only* activated upon strategic, conscious deliberation" (Speed & Majid 2019: 3, italics mine). This formulation in *either* simulation *or* imagery is problematic because it overlooks the fluctuating variables involved in any cognitive processing. Referring to "simulation activities," Raymond Gibbs writes that they "are not mere neural actions that are not part of individuals' meaningful experiences. Even fast-acting, unconscious processing shapes people's thoughts, understandings, and actions" (Gibbs 2017: 236). Indeed, "the precise nature of these 'embodied simulations' may differ, sometimes in very subtle ways, depending on the background and experiences of the reader" (Gibbs 2017: 222).

Rather than a distinction based on volition and an *either* unconscious *or* conscious dichotomy, I wish to work with a distinction based on variable degrees in attention (Schettino et al. 2016). Terence Cave insists on a gradient between the *pre-reflective* and the *reflective* in cognitive processes: "An indivisible gradient" exists between an "unreflective mode of apprehension," the pre-reflective understanding of a move or a verb, and the reflective attention

to a specific cognitive output in context (Cave 2016: 23).[15] With the phrase *perceptual simulation*, I refer to the pre-reflective activation of a sensorimotor dynamic meaning, as well as to the way its output may become a focus of relative attention at any time in the process, influencing its very processing at both the reflective and pre-reflective levels.

The word *rumination* in the sense of "grass mastication" is obviously not relevant to Speed and Majid's context of use. This decision may have to be reflective if the metaphorical use of this term is new to some readers of their article, while it may happen pre-reflectively if its use is habitual enough to elicit a rapid treatment toward the meaning of durational mental attention and activation. The *Oxford English Dictionary* explains that the noun *rumination* comes from Latin *ruminatio*, "process of chewing the cud," the cud being "the food which a ruminating animal brings back into its mouth from its first stomach, and chews at leisure." From this literal meaning, a figurative meaning has developed, denoting the process of "chewing over [plans, thoughts, ideas] in the mind."[16] The figurative meaning of *rumination* has come to dominate the use of this noun in English, but not in French, where the literal act of chewing dominates.[17] If *rumination* is used figuratively in French, its connotation is negative (the chewed ideas are bound to be gloomy or bitter); not in English.

Meanwhile, in French as in English, the figural use of *rumination* as referring to mental activity is originally based on the very dynamics of the physical action of chewing, and the kinesthetic sensations implied by its rythmicality, even when the initial physical area of the mouth has semantically faded away (and even if humans do not possess several stomachs, allowing for reiterative chewing). While each user of the noun *rumination* activates the metaphor more or less vividly, its very understanding implies that its physical meaning is "alive," even if only "dormant" in the present context (Müller 2008). For native speakers of French, their first encounter with the use of *rumination* in English may trigger surprising perceptual simulations. They may have to pay attention to the output of their perceptual simulations and reflectively adapt them to the context of use, thus discarding the idea that the authors of a scientific article imply gloominess when using *rumination* to refer to iterative thinking and strategic mental imagery.

For any such cognitive processing, a variety of possibilities exist, depending not only on lexical contexts of use, but also on interlocutors' distinct imagination, linguistic practice, language fluency, kinesic literacy, as well as pragmatic and epistemological purposes and motivation (Hutchins 2010). Anita Körner, Sascha Topolinski, and Fritz Strack rightly stress that sensorimotor simulations "are generally influenced, among other things, by a person's current goal state and by situational circumstances" (Körner et al. 2015: 2).

SENSORIMOTOR CONCEPTS AND VERBAL CONCEPTS

As far as linguistic practice is concerned, languages and their syntax have discreet ways of packaging sensorimotor information. According to Hostetter and Alibali, such specificities interconnect with the dynamics of individuals' gestures, the latter corresponding to "the form of [their] underlying mental simulation" (Hostetter & Alibali 2019: 728).

> Experiences in the world often support multiple possible simulations during speaking. For example, when describing movements, speakers often describe both the path taken and the manner of motion along that trajectory. Languages differ in how they package this information syntactically. Satellite-framed languages, such as English, tend to express manner in the main verb and path in a satellite (e.g., *he rolled down*), whereas verb-framed languages, such as Turkish, tend to express path in the main verb and manner in the satellite (e.g., *he descended by rolling*). Investigations of how speakers of different languages gesture about path and manner suggest that adult speakers typically gesture in ways that mirror their speech. (Hostetter & Alibali 2019: 728)

In the context of such variations, the dynamic aspects of gestures which are relative to tonicity and tempo may be distributed differentially depending on whether the path and manner of motion are expressed in the verb (the hand primarily making a rolling gesture) or the satellite (the hand primarily making a descending gesture). But they are nonetheless expressed.

When a gesture is communicated by means of language, the choice of words and the style of the sentence prompt perceptual simulations involving a variety of inferred sensorial aspects, including kinesthetic sensations. Using the term *interoceptive* to refer to internal bodily sensations, in contrast to *exteroceptive* sensations afforded by sight, hearing, touch, and smell, Christine Wilson-Mendenhall, Alexa Henriques, Lawrence Barsalou, and Lisa Feldman Barrett "present evidence that the interoceptive system functions analogously to the exteroceptive systems: [s]imulating internal bodily sensations during a vividly imagined experience implements a pattern of neural activity in [the] primary interoceptive cortex" (Wilson-Mendenhall et al. 2019: 221). Their "results add to accumulating evidence that top-down simulation functions similarly across the different sensory systems" (221), including the interoceptive system. "Interoception refers to sensing the physiological condition of the body" (221). Examples used in experiments are listed in their article, which cover breathing pace, sweating, heartbeat, stomach sensations, tactile sensations (water on skin), kinesthetic sensations (associated with a waving gesture), proprioceptive sensations (e.g., shoulders settling after a gesture), and changes in tonicity (e.g., muscles unwinding and loosening).

Wilson-Mendenhall and colleagues confirm that perceptual simulations are integral to constructing experiences unfolding in the world (Wilson-Mendenhall et al. 2019: 230). The brain is a "large-scale predictive architecture" (Wilson-Mendenhall et al. 2019: 229), and it "coordinates this functioning by anticipating," and by grounding anticipations in "prior experiences, initiating top-down simulations that prepare the body for what might happen next, and then adjusting if necessary" (Wilson-Mendenhall et al. 2019: 230; Barrett 2017a). "The novelty in recent formulations can be found in the hypothesis that predictions are 'embodied' simulations of sensory-motor experiences" (Barrett 2017b: 7).

> Without an internal model, the brain cannot transform flashes of light into sights, chemicals into smells and variable air pressure into music. You'd be experientially blind. Thus, simulations are a vital ingredient to guide action and construct perceptions in the present. They are embodied, whole brain representations that anticipate (i) upcoming sensory events both inside the body and out as well as (ii) the best action to deal with the impending sensory events. . . . From this perspective, unanticipated information from the world (prediction error) functions as feedback for embodied simulations. . . . Error signals track the difference between the predicted sensations and those that are incoming from the sensory world (including the body's internal milieu). Once these errors are minimized, simulations also serve as inferences about the causes of sensory events and plans for how to move the body (or not) to deal with them. By modulating ongoing motor and visceromotor actions to deal with upcoming sensory events, a brain infers their likely causes. (Barrett 2017b: 7)

In this perspective, kinesic humor is an interesting case in point, as it playfully strains the limits of anticipation, perception, and inferencing, thereby increasing the flexibility of cognition and action.

It matters that "a brain implements its internal model with 'concepts' that 'categorize' sensations to give them meaning. Concepts are predictions" (Barrett 2017b: 7). "The meaning of a sensory event includes visceromotor and motor action plans to deal with that event" (Barrett 2017b: 7). We perceive what we experientially learn to perceive in feedback and feedforward loops, owing to incrementally developed concepts (or predictions) of sensations and perceptions. What is learned is the way in which sensations connect to predictive motor concepts, which in turn produce sensorimotor meanings during acts of perception. A concept at this level is sensorimotor, not verbal. This important distinction may be illustrated by the fact that it is possible to know how to perform or imitate an action without knowing how to name or describe that action verbally.[18] *A motor concept is not a verbal concept*. But languages and cultures create various connections between both kinds of

concepts. A close attention to such connections is necessary in an analysis of kinesis in literature.

If I see someone lurching, a perceptual simulation of the motor concept—or motor predictions associated with this movement—elicits sensorimotor anticipations that are integral to my ability to make sense of the dynamic event I am witnessing. And my perceptual simulation is likely to include kinesthetic sensations of what it feels like to lurch. If, in turn, I understand the verb *lurching* in a conversation or a text, a perceptual simulation is triggered (no matter how pre-reflectively and sketchily) that activates the same dynamic motor concept. This time, however, language mediates the use of the motor concept. A language is an evolving system of signs,[19] which may or may not have a word for the specific movement of lurching. French does not have a verb that denotes the exact same dynamic unfolding as *lurching*, including a sudden final acceleration in the loss of balance.[20] Because I am a native speaker of French, this fact may influence my perception of the movement I witness in a real-life situation, as well as my retrieval of the meaning of *lurching* in a text—without even mentioning the connotations that *lurch* as a verb or noun may have in idiomatic expressions, which may inflect a native speaker's or advanced learner's processing of the term.

I pay attention to such variations in several sections of this book by studying translations of rich kinesic passages. Translators are regularly confronted with discrepancies between the multiple ways motricity is encoded in different languages. A focus on their decisions offers an invaluable window onto language use and perceptual simulations of motor concepts in acts of reading and writing (Bassnett 1980/2005; Lefevere 1992; Boase-Beier 2006; Muñoz 2013; Chesterman 2016; Bolens 2018c).

From birth onward, sensorimotor experience gradually and incrementally builds predictive motor concepts. This dynamic plasticity is scaffolded by linguistic concepts that we learn progressively via human habitual interactions in sociocultural contexts and physical environments. We develop and experience connections between words and sensations that shape our perception of sensorimotor events and inflect the meaning we attribute to them (Barrett 2017a). Verbal concepts denoting sensorimotricity play a paramount role in our relation to sensations. The language we think in importantly shapes our sensations, perceptions, and awareness of kinesic events. Therefore, if I wish to develop my sensorimotor literacy, I need to develop my awareness of such connections and my ability to reflect on their implications. By *sensorimotor literacy*, I mean the capacity to perceive sensorimotor features in a focused manner, while paying attention to the ways in which they are made to correspond to verbal concepts in historical and sociocultural contexts.[21]

An important consequence of the connections between verbal concepts and sensorimotor concepts is discussed by Michael Slepian and Nalini Ambady in "Simulating sensorimotor metaphors: novel metaphors influence sensory

judgments." Slepian and Ambady show that "learning a new embodied metaphor can link sensorimotor activations to conceptual processing, and therefore sensorimotor modalities that are part of the representation of that concept will activate during conceptual processing (i.e., simulations)" (Slepian & Ambady 2014: 310). This priming effect between verbal concepts and sensorimotor concepts is bidirectional (Lee & Schwarz 2012; Moseley et al. 2016). Perception and language influence each other. Basing their discussion on Lakoff and Johnson's conceptual metaphor theory, Spike Lee and Norbert Schwarz explain that "Within a conceptual metaphor, the concrete domain projects its image-schematic, motor-schematic, and inferential structures onto the abstract domain to make sense of it, guide inferences in it, or construct new meanings about it." Meanwhile, "[a] conceptual metaphor is not just a representational structure; it also has linguistic consequences (how people talk about the concept in language) and psychological consequences (how people feel, act, and reason based on the concept)" (Lee & Schwarz 2012: 738). The concrete-to-abstract direction is often associated with the possibility of an abstract-to-concrete reverse direction. The "activation and use of metaphorically associated knowledge [. . .] can affect people's perception of, feelings about, and behavior toward an applicable target" (Lee & Schwarz 2012: 747).

A positive outcome of such bidirectional plasticity is that enriched perceptual simulations triggered verbally may enhance perception: it may help one perceive the multifarious nuances of a gesture, and become more finely attuned to an ongoing kinesic interaction.[22] But harmful effects must also be taken into account (Roesmann et al. 2020). A case in point, discussed in Chapter 7, is the devastating power of the social metaphor of "blood purity" in the age of Cervantes, according to which human blood can be clean or unclean.

Kinesis in language must be considered carefully in both the manner in which we cognitively process linguistic data by means of perceptual simulations, and the manner in which linguistic concepts (how a word or a metaphor packages sensorimotor information) influence our anticipatory mechanisms, motor perception, and processing of kinesic events. Literature offers a wealth of material in both respects, and literary studies can provide valuable information in this domain of inquiry (Cave 2016, 2017; Armstrong 2013, 2020). My claim is that literature plays an active role in the ways in which the connections between sensorimotor concepts and verbal concepts are either cemented or opened up to scrutiny and mobilized creatively in acts of perception and communication.

SENSORIAL MINDS

Writers make linguistic choices that give a direction to perceptual simulations. Jean-Jacques Rousseau offers an example of authorial concern

regarding readers' cognitive processing of sensorimotor information. In the first part of *La Nouvelle Héloïse* (1761), Julie describes milord Bomston in a letter to Saint-Preux (letter XLIV), and ends her portrait by writing, "*je lui trouve même l'esprit un peu rêche*" (2002: 178) [I find his mind to be even a little abrasive]. Rousseau supplies a note to explain the word *rêche*: "*Terme du pays, pris ici métaphoriquement. Il signifie au propre une surface rude au toucher et qui cause un frissonnement désagréable en y passant la main, comme celle d'une brosse serrée ou du velours d'Utrecht (J.-J. R.)*" (2002: 178 note 2) [Local term, here taken metaphorically. Literally, it denotes a surface that is rough to the touch, and which causes an unpleasant shudder when sweeping the hand over it, as with a thick brush or some Utrecht velvet].[23] Readers are offered this detailed explanation to make sense of Julie's appraisal of milord Bomston's mind. Rousseau selects a term, which he claims is local. It is not in fact specific to Romandy (the French-speaking part of Switzerland, *Suisse romande*), but "Rousseau may be the first to use it metaphorically."[24] By defining *rêche* the way he does, he communicates about a declared and purposeful stylistic decision, geared toward his readers' retrieval of sensorimotor features.

It is remarkable that Rousseau felt the need to write a note in his epistolary novel to prompt his readers' activation of a sensorimotor concept. The author does not discuss what it means for a mind to feel like a thick brush: he simply makes sure his readers cognitively enact the analogy with enough sensorimotor attention and precision.

The analogy is haptic: it pertains to the way in which an object feels to the palm of the hand. Haptic sensations correspond to the combination of tactile and kinesthetic sensations (Hatwell, Streri, & Gentaz 2000; Heller & Gentaz 2014; Ratcliffe 2018; Valente et al. 2019; Bolens 2019a). If I reach out to grasp an object, my movement involves kinesthetic sensations, and the contact between my hand and the object involves tactile sensations. If I then use the object or explore its shape, movements of contact will keep producing haptic feedback and feedforward sensations, combining kinesthesia and touch. Haptic effects are discussed in the chapters on Sterne, Saint-Simon, and Rousseau.

By introducing the word *rêche* to qualify a mind, Rousseau increases his readers' repertoire of verbal concepts, and their ability to categorize impressions, sensations, and emotions experienced during interpersonal interactions. His need to explain this connection illustrates the fact that there is no necessary link between kinesic events, their translation into verbal concepts, and their inferred meanings. Barrett's perspective on interoceptive sensations and emotions is useful in that respect, as it shows that emotions are not reactions to the world but a dynamically engaged interaction with it, language included (Barrett 2017b: 16). "Despite tremendous time and investment, research has not revealed a consistent bodily fingerprint for even a single

emotion. . . .Variation, not uniformity is the norm" (Barrett 2017a: 15), and this applies to the inferred meanings of verbal concepts of emotions.

What applies to real-life situations also applies to the reception of verbal artifacts. Kinesic analysis focuses on the specific ways in which a work *practices* connections between linguistic concepts and sensorimotor concepts via the perceptual simulations it is liable to elicit. In such multifaceted instances, nothing can ever be taken for granted at any time.

PRELIMINARY LITERARY EXAMPLES

In his influential masterpiece *The Consolation of Philosophy* (AD 524), Boethius stages himself (as narrator and protagonist) in a state of utter despair. The allegorical personification of Philosophy appears to him, and her salvific intervention begins with an assessment of his emotional state: *"Agnoscisne me? Quid taces? Pudore an stupore siluisti?"* (I, ii, 7–8) [Do you recognize me? Why do you say nothing? Were you silent because you were ashamed or stupefied? (Tester's translation 1973)]. Boethius is paralyzed with distress, and Lady Philosophy asks which concepts correspond to his state, one referring to a social emotion, *pudor*, and the other to his kinesic state, *stupor*. In both cases, Boethius' attitude is one and the same: he cannot move anymore, his tonicity has turned to stone. The first step of Philosophy is to re-create meaning by dint of the linguistic concept best matched to her patient's interoceptive sensations. Remarkably, this initial move is phrased by three questions, which cannot be waved aside as simply rhetorical. Philosophy's salvific intervention begins with establishing the right connections between sensorimotor and linguistic concepts to re-create meanings where they have been shattered.

The example taken from Boethius is clearly not geared toward humorous effects. In my next example, such an assessment is more difficult to make. The passage comes from the Old French *Lancelot-Grail Cycle*, a vast early-thirteenth-century prose amplification of the Arthurian corpus, which is not generally associated with humor. In it, King Arthur is sitting by a river, his feet cooling off in the water, when a knight in full armor rides from the other side of the stream to strike him with his spear. This would be chivalresque business as usual if Arthur were covered in metal and riding a horse, too. But he is not. His legs are dangling in the stream.

> In the morning they [Arthur and his court] set out, then traveled two days and on the third the king and his party pitched their tents and pavilions beside a stream. It was extremely hot, so in the evening he sat down on the bank with his legs in the water while four knights held a sheet of silk over his head; and he fell into brooding [*Et il commença a penser*, lit. and he started thinking]. At once, a heavily armed knight appeared on the other side of the stream and waded into

the water [*se mist en l'eive*]; and when he stood facing the king, he asked the others, "Who is this knight?"

The king himself answered, "Sir knight, I am the King."

"You are in fact the one I was seeking," said the man.

He spurred his horse and couched his lance to strike the king [*Il fiert lo cheval des esperons et aloigne lo glaive por lo roi ferir*]. But the water was deep and so the horse had to swim [*Et l'eive fu parfonde, si covint lo cheval a noer*]. When he drew near to the king, the knights reached out and seized the lance. One wrested it from him and struck him with it so that he almost tumbled into the water, while another rushed in and seized the horse's reins.[25]

In real-life situations, the processing of a sensorimotor concept is situated: it takes place in relation to a given environment. For instance, the action of running on sand or on rocks is performed differentially, the gait adapting to the specificity of the ground. The processing of verbal concepts denoting sensorimotricity also involves situational parameters (Barsalou 1999, 2016; Robbins & Aydede 2009). Typically, the verbs *to run* and *to swim* trigger inferences regarding the environment in which the action is taking place: solid ground and water, respectively. They correlatively induce a variety of kinesthetic anticipations, related to gait and momentum. To run on the ground and to run in a deep river induce distinct inferred sensations that may be prominent in our perceptual simulations when reading sentences referring to such actions. In English, specific verbs exist: *to walk* on the ground and *to wade* through water. Thus, the underspecified "*se mist en l'eive*" in the quoted passage—literally "[he] put himself into the water," meaning "he entered the river"—is translated by Carleton Carroll into English as "he waded into the water." The kinesthetic sensations conveyed by the verb *to wade* are not expressed in the French phrase. But they are cognitively supplied by Carroll in his act of reading and translating.

When readers of either French or English perceptually simulate riding a horse at full speed on dry land, and then in a deep river, so deep that the horse must swim, they tend to infer a loss of momentum and pace, and a change in tonicity and kinesthetic sensations. Furthermore, the shift from galloping on the ground at full speed to swimming with a fully armed knight on the back (or for the knight to charge on a swimming horse) may induce a cognitive shift due to the surprising mismatch between the anticipation of a chivalric clash and the idea of a horse trying to keep afloat while charging. This surprising mismatch between anticipation and perceptual simulation may possibly, although of course not necessarily, induce an experience of humor.

I read this passage to approximately fifty people. The majority of them responded by describing features absent from the text but occurring in their perceptual simulations (water level reaching the knight's shoulders; force of the current forcing horse and knight downstream, etc.). All reported a drop

in momentum and a sense of thwarted speed. Someone responded by stretching his neck upward, opening his eyes as wide as possible, before saying "*anxiété du cheval*" [anxiety of the horse]. I and everybody else around the table instantly laughed, which shows that our respective perceptual simulations shared enough common denominators with his that we could instantly activate the new features he suggested, and experience humor at the sight of his succinct yet telling impersonation of the horse. The gestural part of his utterance (the stretching up of his neck and widening of his eyes) constitutes an example of the way in which gestures enact perceptual simulations. His gestures expressed a strong tonic increase, his neck fictionally stretching over water level. The kinesic part of his utterance was clearly related to the dynamics of the narrated event in the form of a sudden tonic peak. It made immediate sense to us in association with the phrase "*anxiété du cheval*." It connected a predictive motor concept involving tonicity to a linguistic concept of emotion (anxiety). It is that connection that we cognitively processed. The fact that it happened very rapidly does not imply transparency: it simply manifests rapidity, the striking rapidity of motor cognition.

While the initial part of the cognitive process was pre-reflective, it became manifest at the moment when we laughed. The experience of humor implies that interlocutors become aware of the output of their own perceptual simulations. Indeed, *perceptual simulations are the actual trigger of laughter.* By this, I do not mean that we were reflectively pondering upon our perceptual simulations. Rather, I mean that cognition activates the trigger of laughter inasmuch as a perceptual simulation becomes vivid enough to elicit an experience of humor.

Every new piece of information in the horse-swimming scene potentially fuels and inflects readers' dynamic perceptual simulations. For instance, the size and depth of the river adapt to the unfolding of the narrated action. Although the stream initially seems narrow enough to make it possible for Arthur and the knight to talk after the latter has simply entered the river, it becomes suddenly larger when we understand that it must be wide enough to afford a charging knight. This perceptual change made some of my interlocutors infer that the need to swim was due to a sudden drop in the riverbed. Perceptual simulations adapt on the fly—or "on the hoof" (Cave 2016: 22).

Last but not least, the change in momentum is implicitly correlated with a shift in tonicity and tempo in the horse's movements. This may be at the core of a perceptual simulation experienced as humorous. In a master class, a student spontaneously enacted this change with gestures that we immediately understood to be referring to the horse: her hands were strenuously paddling in front of her. Again, we all laughed because of the skilled efficacy with which she conveyed the change in the horse's movements, but also because the change in dynamics clashed with our motor anticipation of a jousting

medieval knight riding at full speed against a regal adversary. Both the text and the student's performance produced a cognitive shift pertaining to kinesic humor.

The *Lancelot-Grail Cycle* is not an overtly comic work, and medievalists do not generally associate it with humor—with some notable exceptions (e.g., Burns 1994). It might be anachronistic to see the horse-swimming scene as humorous.[26] Yet, in the initial part of the cycle, which centers on Lancelot, a part written before the rest of the cycle,[27] numerous other passages contain unexpected kinesic details that may potentially trigger humorous perceptual simulations.[28] Because the experience of humor is contingent on the ways in which readers cognitively activate the text, kinesic analysis must systematically check perceptual simulations against the work as a whole in order to see whether other passages in the narrative confirm its humorous valence or not.[29]

Among several possible passages, here is another example of potential kinesic humor in the first part of the *Lancelot*: "*Et messires Gauvains refit tel duel que il s'est trois foiz pasmez an moins d'ore que l'an n'alast lo giet d'une menue pierre*" (Kennedy's ed. 1980, I: 322) [And Sir Gawain was so distressed that he fainted three times in less time than it takes to go a small stone's throw (Carroll's translation 1993: 135–136)]. The throw of a small stone (*lo giet d'une menue pierre*) is the spatio-temporal measure of the narrated event. The pace of Gauvain's repeated fainting must be inferred from it—swooning and coming back to his senses, and swooning again. Three times.

The reference to a small stone may have an impact on the general dynamics of readers' perceptual simulations. A pebble is likely to fall farther away than a heavy rock, which implies that it would take longer to reach it. Yet this longer distance and additional duration clash with a sense of speed linked to the inferred pace of a flying stone. The pace of the narrated event is accelerated because the tempo of Gauvain's fainting is measured in relation to a light flying object and the concept of *giet*, Modern French *jet*, "a throw." Literally: "And sir Gauvain made again so much grief that he fainted three times in less time than one would need to cover the trajectory, lit. to go the throw [*aller le jet*], of a small stone."

The medieval French verb *se pasmer* implies a loss of consciousness and hence a collapse in Gauvain's tonicity (whether the knight is standing or lying). And, indeed, everybody soon cries out and repeats that Gauvain is dead ["*Morz est. Morz est,*" Kennedy's edition 1980, I: 322]. A collapsed tonicity due to a loss of consciousness is an aspect that interferes with the implied muscular effort needed to cast a stone or to walk its throw. Of course, Gauvain is not casting any stone (he is busy fainting), but the pre-reflective cognitive activation, during the act of reading, of the casting gesture or of a fast walk is enough to create a sense of mismatch.[30] This clash is kinesically surprising, and may elicit perceptual simulations experienced as humorous in terms of

tempo and tonicity. A way to iron out such effects is to decide that the expressive intention here is an intensification of emotionality, the emotion being grief. Granted. But it remains true that the kinesic lexical and stylistic choices made by the anonymous author(s) of the *Lancelot* may potentially prompt readers to trigger an incongruous perceptual simulation of speedy fainting, thus thwarting psychophysical anticipations and emotive patterns regarding a loss of consciousness, in the thirteenth century as much as today.

Emotive scripts, according to Sif Rikhardsdottir, correspond to "emotive literary identities," which are "informed by particular codes of behavior that are recognizable to readers and draw their signifying potential conjointly from the readers' own internal emotional life and experiences, the cultural context (and its associated emotional mentalities) and any embedded contextual signifying patterns" (Rikhardsdottir 2017: 27). They include gestures: "The utilization of emotive gestures and expressions as literary signposts in the texts reveals a deliberate (or at least recognizable) manipulation of emotive gestures for specific literary purposes" (Rikhardsdottir 2017: 22). Interestingly, because emotive scripts ground sensorimotor and cultural anticipations in literary reception, they can be used to produce unexpected effects and change: "A text's emotive coding may defy its relevant emotional community, it may subvert it or parody it or even impact it, leading to changes across time in the emotional behavior of its readers and audiences" (Rikhardsdottir 2017: 26).[31] A text may practice an emotive script in a way that modifies that very script. The transformative power of literature can often be traced back to such processes, and kinesic humor is a particularly fruitful perspective in that respect.

THE STRUCTURE OF THE BOOK

Each chapter of this book deals with kinesic humor in complex interactions. In the passages I selected, humor merges with emotions that cannot be severed either from their embodied manifestation or from their historical context.[32] My focus is on authors' stylistic choices and the specific ways in which they interconnect sensorimotor concepts with verbal concepts. Authors' stylistic choices communicate about kinesthetic variations and sensations of speed, duration, and suspension in such situations as rushing while appearing perfectly still (Saint-Simon); trying to control one's audible breathing, and writing with a shaking hand (Rousseau); learning how to swagger and how to exhale in order to express insolence (Stendhal); lying motionless on the stomach in utter despair for a very long time, and then suddenly playing on the floor with one toe (Sterne). Saint-Simon, Rousseau, Stendhal, and Sterne write about kinesic dialogues in which shifts in tempo and tonicity ground significant and carefully crafted effects. In their works, the efforts that pervade human communication are highlighted, evincing not only ever-possible

misunderstandings, but also the enticing prospect of shared humor, affording cognitive shifts in emotive scripts.

Kinesic anticipations are shaped in part by cultural expectations and habituations. The fact that a work is traditionally perceived as important and serious is liable to block the perception of potentially humorous features afforded by the texts. For example, in Chrétien de Troyes' *Yvain*, the knight's lion intends to impale himself on Yvain's sword, and the way he dashes toward the blade is compared to the manner in which a frantic swine would run. It is often the case that critics simply ignore this simile because a lion is a regal animal in medieval lore and so cannot be thought of as demented or porcine. In Milton's *Paradise Lost*, humorous effects are conditional on readers' cognitive activation of, say, a dove sitting on a vacuum, a startled squatting cherub, or a gesturing serpent. My goal is to come to terms with the rich kinesic dimension of Milton's astounding amplification of Genesis. Last but not least, a study of one particular movement in *Don Quixote* will shed light on the sociopolitical dimension of Cervantes' masterpiece. In the second part of *Don Quixote*, Montesinos explains how he wiped off the blood from Durandarte's heart. In this scene, *limpiar* (to clean) is associated with *sangre* (blood), the text thus pointing towards the *limpieza de sangre*, a devastating ideology of blood purity based on an embodied metaphor. I argue that Cervantes' work remarkably undermines the relevance of this metaphor by means of kinesic humor.

Chapters are organized in an order that is not historically chronological. They can be read separately, but taken together they gradually add up to a fuller picture of the benefits of increasing our attention to perceptual simulations in our acts of reading.

I begin with Milton because humor is least expected from him. Milton's art triggers highly complex perceptual simulations, which surprisingly make room for the possibility of kinesic humor. I show this by focusing on a number of unsettling passages in *Paradise Lost*, which clearly entail the activation of sensorimotor events on the part of readers. My analyses lead me to the conclusion that humor plays a key role in Milton's investment in the idea of free will.

Chapter 2 focuses on a single passage of *Tristram Shandy,* in which Sterne highlights readers' active participation in the processing of sensorimotor information. The selected passage is particularly relevant to the question of motor cognition because the narrator theorizes the importance of transitions in the understanding of movements. The dynamics of gesture is declared to be of paramount significance in kinesic dialogues, and this fact is narrativized and problematized in the episode.

In Chapter 3, kinesic intelligence and kinesic style are shown to be of prime importance in Saint-Simon's *Mémoires*. In order to account for the singularity of the historical characters Saint-Simon so brilliantly portrays, a sharp form of kinesic humor is deployed to sustain readers' cognitive engagement and understanding. I focus on Saint-Simon's ability to communicate about the

surprising kinesic styles, or personal embodied dynamics, of the Duke and Duchess of Orléans.

Chapter 4 shows that readers' participation is central in Rousseau's *Confessions* as well. However, this autobiography triggers complex perceptual simulations of kinesthetic sensations primarily to enhance readers' understanding of Rousseau himself, thereby strengthening a sense of emotional intimacy. I focus on four passages that manifest Rousseau's attention to tone, tonicity, and tempo in speech as well as in writing.

Rousseau's nuanced influence on Stendhal is perceptible in the episode of *Le Rouge et le Noir* where Julien Sorel interacts with Amanda Binet and one of her lovers. In Chapter 5, I study perceptual simulations by comparing six English translations of this humorous scene. Translators are highly competent readers *and* writers, their lexical choices constituting reflective responses to the cognitive processes triggered by the text. To consider how translators grappled with Stendhal's kinesic sense of humor sheds light on the efficacy of Stendhal's writing style.

Chapter 6 bears on one episode in Chrétien de Troyes' *Yvain ou le chevalier au lion*, the lion's attempted suicide, and on various translations of it. This time, however, the translations are medieval and written in several different languages (Middle English, Old Norse, and Old Swedish). Chrétien's passage is a disruptive adaptation of Ovid's legend of Pyramus and Thisbe. In order to fully assess Chrétien's striking treatment of his source, I compare it to other medieval responses to Ovid's legend (in Old French, Middle English, and Latin), before turning to the original narrative. This intertextual and comparative approach leads me to the conclusion that Chrétien's disruptive adaptation is in fact remarkably attuned to Ovid's legend, which turns out to be already disruptive in its rewriting of a prior, more ancient source. In both Ovid and Chrétien, kinesic humor is the force that affords a significant disruption of crystalized emotive scripts.

The purpose of Chapter 7 is to analyze one gesture in *Don Quixote* by situating it within Cervantes' historical period, thus showing its particular significance in early modern Spain. Translations are also a focus of attention, as the repetition of key terms often functions in *Don Quixote* as significant cues in a context of censorship, cues that problematically disappear in translations.

Throughout the book, my goal is to pay close attention to authors' lexical choices, as such choices manifest the ways in which literary artists of different historical periods practiced remarkably crafted connections between sensorimotor concepts and verbal concepts, thus evincing a sustained investment in sensorimotor literacy.