

# 5 Cognitive Linguistics II: Image Schemata and Conceptual Metonymy

## 5.1 On Image Schemata

### 5.1.1 What are Image Schemata? Some Questions and Answers

In the previous chapter, I already touched upon the notion of image schemata. The aim of the present subsection is to provide a more explicit depiction of it. Only then can we continue to investigate the connection between ordinary language and part-whole relations, including PWO. In a nutshell, image schemata are hypothetical yet plausible, stable yet dynamic, quantitatively limited yet qualitatively extensible, preconceptual yet conceptualizable, non-representative yet visualizable spatial patterns. These spatial patterns operate on the borderline between our bodies' physical and perceptual interaction with the environment, through which image schemata are constituted, and higher functions of reasoning. The latter are on the one hand unconsciously determined by these basic spatial patterns, but can, on the other hand, consciously 'evaluate' them with a certain amount of imaginative freedom. Image schemata thus serve to bridge the gap between the outside and the inside world, between 'objective' physical causality and 'subjective' freedom of imagination, thereby providing a positive alternative to the claim that there is no mind/body/world dichotomy. Admittedly, this is a very dense characterization of image schemata. It lacks both details and examples. Let us therefore employ the knowledge we have gained so far in this chapter and ask more specific questions about image schemata in a classical Q&A fashion, in the course of which I will provide brief answers by consulting some of the literature on this topic.

#### How Do Image Schemata Come Into Existence?

The answer to this question, including a useful example, is sketched in one of Johnson's many definitions of image schemata: "An image schema is a recurring, dynamic pattern of our perceptual interactions and motor programs that gives coherence and structure to our experience. The VERTICALITY schema, for instance, emerges from our tendency to employ an UP-DOWN orientation in picking out meaningful structures of our experience. We grasp this structure of verticality repeatedly in thousands of perceptions and activities we experience every day, such as perceiving a tree, our felt sense of standing upright, the activity of climbing stairs, forming a mental image of a flagpole, measuring our children's heights, and experiencing the level of water rising in the bathtub." [Johnson 1987: xiv]

Thus, we start with meaningful experiences which we have for no other reason than the fact of our embodied being in the world. What is experienced is meaningful (what I call above a ‘meaning of’) to us (the ‘meaning for’), because in constantly coping with their environment, our bodies incorporate certain recurring basic patterns through which we can make sense of what is going on around us. These patterns ‘emerge’ through ongoing organism-environment interactions. We do not make image schemata up deliberately; we do not have a meaningful world without being embodied in it; and we do not develop image schemata just by having a body without a pre-existing, experienceable world (as a body/brain in a vat). None of our sensorimotor interactions with the world are unstructured, because image schemata are what can be formulated as the biconditional ‘if-and-only-if’-consequent of sensorimotor interactions as the antecedent.

In more figurative terms, the flow of reality cannot but reach us through structured patterns like the particles observed through a kaleidoscope cannot but appear to us as organized. As such, these particles, like the flow of reality, might actually be an unstructured manifold (I personally believe that this is not the case), but nonetheless they are always experienced as organized and more or less meaningful due to the possibilities our bodies have as organisms in engaging with their respective environment. This is why, in being determined by the sensorimotor domain, the experiential domain is always structured due to the nature and actions of our bodies. VERTICALITY or, for that matter, HORIZONTALITY, are such necessarily emerging meaningful patterns, i.e. such image schemata, that we ‘encounter’ with our bodies and incorporate as emergent patterns of body-world interactions. “They are structures that emerge as part of our meaningful interaction with things ‘outside’ us. They are structures that relate us to energies and forces that we encounter in the ongoing interactive process that constitutes our understanding, our having a world.” [id.: 205]

### How Do Image Schemata Exist?

In the perspective of Johnson’s version of cognitive linguistics, image schemata do not exist as objective entities in the outside world, and they do not exist as clear-cut propositions about either the outside world or mental states. However, image schemata do indeed *exist*, namely as the necessary intersection between our sensorimotor interactions and the experiential domain. They are *cognitively real*, because without them, we would not have any understanding, either of the reality in which we live, or of abstract reasoning that relies on image schematic patterns. “To say that a specific image schema [...] *exists* is to say that some of our experiences have a certain recurring structure by which we can understand them. [...] A crucial point here is that understanding is not only a matter of reflection, using finitary propositions, on some preexistent, already determinate experience. Rather, *understanding is the way we ‘have a world,’ the way we experience our world as a comprehensible reality.* Such understanding, therefore, involves *our whole being* [...]. In short, our understanding is our way of ‘being in the world.’” [id.: 102]

Furthermore, although image schemata do not seem to exist in a single person before they emerge by this person’s recurrent bodily interactions with the environment, Johnson does not deny that “there are foregoing apparently inborn aspects of image schemas.” [Johnson et al. 2002: 248] One of these inborn aspects could be the dispositions of our brains to absorb these basic spatial patterns and transform them into dynamic “activation patterns (or ‘contours’) in

human topological neural maps.” [Johnson 2007b: 144] Our brains are thus dispositioned to allow for the existence of image schemata, which, neurologically regarded, are non-representative models. “It [the pattern of an image schema, M.S.] is a *model of* structures of recurring organism-environment coupling, and it is a *model for* possible perceptions and actions that one might experience. Once again, however, it is *not* a model in the sense of a conceptual or propositional construct that we reflectively entertain in some inner mental theater.” [id.: 159]<sup>1</sup>

The claim that image schemata really exist and the explanation of how they exist is, among other things, what allows Johnson and Lakoff to label themselves as ‘embodied realists’. This is a position that denies both metaphysical realism (there is an objectively knowable world and we can make literally true propositions about it) and subjective idealism (we cannot know anything about the nature and existence of an outside world).<sup>2</sup> Finally, the ontological commitment to the existence of image schemata is based on their empirical plausibility, not on their provability. They are thus a well-working hypothetical construct, the existence of which is presupposed.<sup>3</sup>

### How Many Image Schemata Are There?

Image schemata are utterly basic patterns, the amount of which is restricted by our bodily constitution, our perceptual apparatus and the physical as well as spatial dimensions of the world into which we are embedded (‘enworlded’). For this reason, there is only a quantitatively limited number of image schemata. Johnson presents a partially complete list that is supposed to include “most of the more important image schemata.” [Johnson 1987: 126] This list comprises the following schemata: CONTAINER, BLOCKAGE, ENABLEMENT, PATH, CYCLE, PART-WHOLE, FULL-EMPTY, ITERATION, SURFACE, BALANCE, COUNTERFORCE, ATTRACTION, LINK, NEAR-FAR, MERGING, MATCHING, CONTACT, OBJECT, COMPULSION, RESTRAINT REMOVAL, MASS-COUNT, CENTER-PERIPHERY, SCALE, SPLITTING, SUPERIMPOSITION, PROCESS, COLLECTION. In another publication [Johnson 1989b: 115], he additionally lists UP-DOWN, POTENTIAL, RESISTANCE, COMPULSION and SCALARITY, while not mentioning several schemata from the previous list. He remarks that it “might seem as though this list of image schemata could go on indefinitely, like Plato’s problem of whether there are Forms for everything, including hair and dirt. However, the list of basic schemata of this sort is, in fact, relatively small. Many apparently distinct image schemata turn out to be projections on, or elaborations of, more basic schemata.” [id.]

In spite of the limited amount of image schemata, there is no consensus in the literature on this topic concerning their exact number. All lists that are given are explicitly non-exhaustive. As Oakley [2007: 229] states, it is not possible to agree on a definitive number of image

<sup>1</sup>Cf. the question ‘Are image schemata visualizable?’ below.

<sup>2</sup>“Embodied realism, as we understand it, is the view that the locus of experience, meaning, and thought is the ongoing series of embodied organism-environment interactions that constitute our understanding of the world. According to such a view, there is no ultimate separation of mind and body, and we are always ‘in touch’ with our world through our embodied acts and experiences.” [Johnson et al. 2002: 249]

<sup>3</sup>“When, for example, we say that a construct of cognitive science such as ‘verb’ or ‘concept’ or ‘image schema’ is ‘real,’ we mean the same thing as any scientist means: It is an ontological commitment of a scientific theory and therefore can be used to make predictions and can function in explanations. It is like the physicist’s ontological commitment to ‘energy’ and ‘charge’ as being real. Neither can be directly observed, but both play a crucial role in explanation and prediction. The same can be said of neural computation, conceptual metaphors, prototypes, phonemes, morphemes, verbs, and so on.” [Johnson et al. 1999: 109]

schemata. “At present, I see no widespread agreement on these matters, especially regarding the exact number of image schemas or even regarding the question whether some of the items appearing on Johnson’s authoritative list, such as ENABLEMENT, are bona fide image schemas.” Another difficulty for counting image schemata that has already been mentioned in the last quote from Johnson is that some image schemata appear to be reducible to more basic schemata. Johnson subsumes, for example, the relational pairs FIGURE-GROUND, SELF-OTHER, HERE-THERE, NEAR-FAR, TOWARD-AWAY FROM, IMPORTANT-UNIMPORTANT under the more basic schemata CENTER-PERIPHERY.<sup>4</sup> Oakley arrives at the “tentative conclusion that some image schemas are perceptually more primary (e.g. PATH), while others suggest a more complex structure [...]” [id.: 230]<sup>5</sup> Another way of creating a hierarchy that makes it difficult to give an exact number of image schemata is to categorize them, whereby it is then not clear if the category itself should count as a (most basic) image schema or not.<sup>6</sup>

My own conclusion is that the decision on what counts as image schema and what not or even of what is more and what is less basic is not free from a certain amount of arbitrariness. This is not necessarily a disadvantage of this theory, however, as it allows for continuing research and discussion. Still, I assume that there will never be an exhaustive inventory of image schemata with which all researchers on this topic agree. It is more the general idea and some exemplary schemata that seem to matter and might transform their hypothetical status into empirical evidence.

### **How Do We Come To Know About Image Schemata?**

Image schemata are part of the cognitive unconscious and by way of pure phenomenological introspection, it is hard to come to know everything about them. Yet, in order to arrive at a rudimentary understanding of the more apparent image schemata, we can engage in a “reflective interrogation of recurring patterns of our embodied experience. Ask yourself what the most fundamental structures of your perception, object manipulation, and bodily movement are, given that human bodies share several quite specific sensory-motor capacities keyed to the size and constitution of our bodies and to the common characteristics of the different environments we inhabit. Certain obvious patterns immediately jump at you.” [Johnson 2005: 20] Such a ‘folk phenomenology’, however, can never give a systematic picture of image schemata.

In contrast, Johnson’s main method for discovering image schemata consists of empirical linguistic research, through which he also becomes acquainted with conceptual metaphor. “The

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<sup>4</sup>Cf. Johnson [1989b: 115].

<sup>5</sup>Cf. for example Peña [1999], who shows how the FORCE schema is based upon the PATH schema and includes sub-schemata like COMPULSION, BLOCKAGE and REMOVAL OF RESTRAINT, which again include schemata such as ATTRACTION-REPULSION and ENABLEMENT. Peña argues that there are three types of image schematic subsidiarity: conceptual dependency, logical entailment, and enrichment.

<sup>6</sup>Evans et al. [2006: 190] provide such a categorization of image schemata, with the following categories: SPACE (comprising the schemata UP-DOWN, FRONT-BACK, LEFT-RIGHT, NEAR-FAR, CENTER-PERIPHERY, CONTACT, STRAIGHT, VERTICALITY), CONTAINMENT (CONTAINER, IN-OUT, SURFACE, FULL-EMPTY, CONTENT), LOCOMOTION (MOMENTUM, SOURCE-PATH-GOAL), BALANCE (AXIS BALANCE, TWIN-PAN BALANCE, POINT BALANCE, EQUILIBRIUM), FORCE (COMPULSION, BLOCKAGE, COUNTERFORCE, DIVERSION, REMOVAL OF RESTRAINT, ENABLEMENT, ATTRACTION, RESISTANCE), UNITY-MULTIPLICITY (MERGING, COLLECTION, SPLITTING, ITERATION, PART-WHOLE, COUNT-MASS, LINKAGE), IDENTITY (MATCHING, SUPERIMPOSITION), EXISTENCE (REMOVAL, BOUNDED SPACE, CYCLE, OBJECT, PROCESS). Although the authors claim that this list is incomplete, it is the most comprehensive list that I could find in the literature on this topic.

principal sources of evidence for the existence of image schemas and conceptual metaphors are studies of language, although the sources are not limited strictly to linguistic research.” [Johnson 2007b: 184 f.] One of the main types of evidence for the existence of image schemata via linguistic research entails inferential generalizations. Conceptual metaphors and image schemata “generate the inferences we make using metaphorical concepts. For example, falling is an action in which one is out of control. We thus infer that ‘falling in love’ will entail being out of control, being excited, and being scared.” [id.] From the mere fact that our bodies can fall when there are no material impediments (and from recurrent experiences of falling down and avoiding it), we can further infer basic image schemata such as VERTICALITY (UP-DOWN), BLOCKAGE, BALANCE, SURFACE and PATH-GOAL.

### **What Is the Relation Between Meaning and Image Schemata?**

Image schemata are the condition for our ability to make sense of the world around us, thus for enabling the relation between ‘meaning for’ and ‘meaning of’. The enabling of this relationship begins already in the sensorimotor domain and its reciprocation with the experiential domain. Image schemata “are an important part of what makes it possible for our bodily experiences to have meaning for us. The meaning is that of the recurring structures and patterns of our sensorimotor experience. As such, it typically operates beneath the level of our conscious awareness, although it also plays a role in our discrimination of the contours of our bodily orientation and experience.” [Johnson 2007b: 139]

The sensorimotor domain also includes our brain’s interaction with the environment. If we say that image schemata render meaning possible via our bodies, this is also because the brain and the rest of the body are interdependent and because there is no absolute, but only a gradual difference between bodily and neural structures. “An image schema is a neural structure residing in the sensorimotor system that allows us to make sense of what we experience.” [Johnson et al. 2002: 250] However, this bodily aspect may give the wrong impression that image schemata only enable meaning on a bodily level whereby this level would materialistically supersede the mind. Johnson puts it straight that “we must never equate brain with mind. The brain is *not* the mind.” [Johnson 2007b: 175] Neither are image schemata mental forms or categories that we impose on our experiences. “If you treat an image schema as merely an abstract, formal cognitive structure, then you leave out its embodied origin and its arena of operation. On the other hand, if you treat the image schema as nothing but a structure of a bodily (sensorimotor) process, you cannot explain abstract conceptualization and thought. Only when image schemas are seen as structures of sensorimotor experience that can be recruited for abstract conceptualization and reasoning [...] does it become possible to answer the key question: how can abstract concepts emerge from embodied experience without calling upon disembodied mind, autonomous language modules, or pure reason?” [Johnson 2007b: 141]

Thus image schemata, by intersecting body and mind, also enable the meaningful grasping of the experiential domains that relate to more abstract areas of thought. The sensorimotor domain and more abstract mental states, including language, are continuous instead of ontologically separated. This is especially true for propositional meaning (meaning<sub>prop</sub>) and the complex target domains for many primary metaphors, which then have to be regarded as grounded in the sensorimotor domain of image schemata. Image schemata give rise to ‘higher’

forms of meaning, they “constitute a preverbal and mostly nonconscious, emergent level of meaning.” [id.: 144]

### Are Image Schemata Private or Intersubjective?

On the one hand, although we may be predisposed for the acquisition of image schemata, every person has to learn and embody image schemata. This is done at an early stage of development and happens mostly unconsciously. Just like higher forms of reasoning, image schemata are developed by “our embodied activities, such as perception, manipulation of objects, bodily spatial orientation, and movement of our bodies through space. This kind of sensorimotor activity begins before birth, and it is the means by which even the tiniest newborn begins to develop structures of understanding and a sense of self.” [Johnson 1999 : 90]<sup>7</sup> Hence, the acquisition of image schemata is private in the sense that every person acquires them individually.

On the other hand, since we all have more or less the same bodies and live in physically similar environments, we all develop more or less the same image schemata, which we can always interpret differently, of course, due to our particular experiential domains, our intentions, our knowledge, and our respective metaphorical mappings. “For example, it is hard to imagine any creature with a body similar to ours, located within a gravitational field like the one we inhabit, that would not have some form of verticality schema, some form of balance schema, and some shared schemas of forceful interaction.” [Johnson et al. 2002: 251] Therefore, although image schemata are individually developed, they are intersubjectively shared, which also means that the particular experiential domains interpret or ‘evaluate’ image schemata in varying, often creative ways. If we assume that the semantic structures of our ordinary languages also rely on image schemata, if we take into consideration that ordinary languages are intersubjectively shared (up to the often discussed point that there can be no private language at all), and if we further consider language to be an expression of propositions and concepts, then we can characterize image schemata as “a shared basis of meaning that makes concepts and propositions possible.” [Johnson 1987: 168]

We can also see it like this: image schemata enable meaning for a subject. What is meaningful has to be understood as meaningful by a ‘meaning for’. Understanding, in the context of Johnson’s take on cognitive linguistics, consists of experience, i.e. it involves the experiential domain. And this domain is never complete without a sociocultural background with which we make sense of our experiences, thus of what is meaningful, thus of our image schemata. “To ask about the meaning of something (whether it be an experience, a word, a sentence, a story, or a theory) is to ask about our understanding of it. In short, a theory of meaning is a theory of how we understand things (of whatever sort). And we have seen that this is not merely a matter of how some *individual* might happen to understand something but rather about how an *individual as embedded in a (linguistic) community, a culture, and a historical context* understands.” [id.: 190] Thus image schemata are intersubjectively shared, both for

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<sup>7</sup>As an example, Johnson describes how a newborn (human or other animal) incorporates the CENTER-PERIPHERY schema when it “learns to direct its attention toward areas within its visual field and to highlight a figure against a background that fades off into an indefinite perceptual horizon on its periphery. [...] Our perceptual experience, then, always manifests the same recurring schematic structure consisting of a focal center surrounded by a horizon that fades off into indeterminate periphery.” [Johnson 1989b: 112]

bodily and for sociocultural reasons.

### Are Image Schemata Internally Structured and Flexible?

On the face of it, it might seem as if image schemata were just skeletal structures consisting of the most simple spatial parameters like UP and DOWN, IN and OUT, PATH and GOAL, NEAR and FAR, CYCLE and LINE, etc. This could give the impression that these parameters were inflexible and simplistic, just “invariant topological structures in various perceptual and motor maps” [Johnson 2005: 19] of our brains and bodies. However, like a skeletal formula in chemistry or a mathematical graph, the simplicity of an image schemata’s parameters might hide the fact that every image schema has an internal logic of its own that makes it analyzable, flexible and extensible.

Firstly, an image schema is not a fixed block of indistinguishable structure, but instead comprises parts and relations. “The parts might consist of a set of entities (such as people, props, events, states, sources, goals). The relations might include causal relations, temporal sequences, part-whole patterns, relative locations, agent-patient structures, or instrumental relations. Normally, however, a given schema will have a small number of parts standing in simple relations.” [Johnson 1987: 28]

Secondly, an image schema never occurs in its pure form, but always in connection with the experiential domain and its respective contents. This accounts for the internal flexibility of an image schema. As Hampe [2005: 2] formulates it, “image schemas are both *internally structured*, i.e., made up of very few related parts, and highly *flexible*. This flexibility becomes manifest in the numerous transformations they undergo in various experiential contexts, all of which are closely related to perceptual (gestalt) principles.”<sup>8</sup> Thus, “schemata are flexible in that they can take on any number of specific instantiations in varying contexts.” [Johnson 1987: 30]

Thirdly, Johnson emphasizes that image schemata possess an internal logic with which we (mostly unconsciously) reason in our daily lives. He gives the examples of the SOURCE-PATH-GOAL and the CONTAINER schemata. “Consider a case in which you are moving along a linear path toward a destination, and at time T1 you are halfway to the destination. If you then travel farther along the path and reach time T2, you will be closer to your destination at T2 than you were at T1. This is part of the spatial logic of the SOURCE-PATH-GOAL schema. Or consider what follows if your car keys are *in* your hand and you place your hand *in* your pocket. Via the transitive logic of containment, the car keys end up *in* your pocket. Such apparently trivial spatial logic is *not* trivial. On the contrary, it is just such spatial and bodily logic that makes it possible for us to make sense of, and to act intelligently within, our ordinary experience.” [Johnson 2007b: 139]

Fourthly, the internal structure and flexibility of image schemata provide the basis for their extensibility and even combinability. For example, we can extend the SOURCE-PATH-GOAL

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<sup>8</sup>For example, even seemingly simple movements from A to B are experientially manifold, because “movements are not defined merely by the internal structure of image schemas, but also by their distinctive *qualities* [the experiential domain, M.S.]. For example, my movement along a forest path is not defined only by the SOURCE-PATH-GOAL structure of my walking. In addition, my movement manifests dynamic qualities - it can be, for example, *explosive*, *graceful*, *halting*, *weak*, or *jerky*.” [Johnson 2007b: 21]

schema by adding subordinate targets<sup>9</sup> or combine it with the BLOCKAGE schema (e.g. if there are literal or figurative stumbling blocks in your way) or with the COMPULSION schema (e.g. ‘I *have to* go to the dentist today, but I’m scared of it’).

And fifthly, if we see only BLOCKAGES or COMPULSIONS in our way such that the SOURCE-PATH-GOAL schema plays no significant role anymore and is backgrounded, then we can talk of an ‘image schema transformation’, which is a “switch in focus” [Evans et al. 2007: 109] from one image schema to another and which is made possible by the internal structure and logic image schemata exhibit.

### What Is the Philosophical Background of Image Schemata?

Although most research in cognitive linguistics, even research on image schemata, does not draw on philosophical subjects such as epistemology, metaphysics or the history of philosophy, Johnson himself makes it explicitly clear that his notion of image schemata is derived from Kant’s epistemological – and in the end (meta-)ontological – question of how our supposedly a priori categories can be applied to a posteriori empirical data. As Johnson concedes: “My notion of the *image schema* is directly influenced by, and is a slight variation on, Kant’s concept of a ‘schema.’” [Johnson 1987: 156] This is not the place to give an adequate explanation or even interpretation of the schematism that Kant develops in the brief yet essential chapter ‘On the schematism of the pure concepts of the understanding’ (A137/B176 – A147/B187) of his *Critique of Pure Reason*. Suffice it to say that Kant determines time to be the commonality or homogeneity of pure concepts of the understanding and the appearances of empirical intuition. What is more important for the present context is that in Kant’s theory, a “schema is in itself only a product of imagination; but since the synthesis of the latter has as its aim not individual intuition but rather only the unity in the determination of sensibility, the schema is to be distinguished from the image.” [Kant 1998: A140/B179]

Both points, the imaginative construction and the difference between a schema and an image, are crucial for Johnson’s adaption of Kant’s schematism. The latter point I will address in the next question. The former point, the imaginative basis of image schemata, is accentuated both in Johnson’s discussion of Kant<sup>10</sup> and his own account of image schemata<sup>11</sup>. Like Kantian schemata, Johnson’s image schemata are products of imagination, whereby imagination “mediates between sense perception and our more abstractive conceptualizing capacities; it makes

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<sup>9</sup>In our daily experience in which we evolve this and all other image schemata, we often deal with subordinate targets. When we structure our daily routines from the morning (source/start) to (path) the evening (goal/destination), for instance, we add several stations (e.g. university, lunch with friends, library, sport course) with countless substations and sub-substations and trajectories in between them. This is also the case for writing a book (chapters, sections, subsections), cooking a meal, repairing a broken object, programming, etc. The image schema SOURCE-PATH-GOAL is only the most abstract pattern, as it were the least common denominator, that structures such activities.

<sup>10</sup>“What I have tried to show so far is the absolutely fundamental role Kant attributes to imagination (re-productive and productive) in our ability to have *any* meaningful and connected experience that we can comprehend and reason about. In exploring the workings of the imagination at this most basic level, we are probing the preconceptual level of our experience at which structure and form first emerge for us.” [Johnson 1987: 156]

<sup>11</sup>“Imagination is our capacity to organize mental representations (especially percepts, images, and image schemata) into meaningful, coherent unities. It thus includes our ability to general novel order.” [id.: 140]



it possible for us to conceptualize various structural aspects of our experience and to formulate propositional descriptions of them.” [Johnson 1987: 194] In my discussion of conceptual metaphors above, I avoided the topic of imagination and instead concentrated on embodiment in order to facilitate the argument, but it should be noted, in the interests of presenting a complete picture, that imagination plays a crucial role in Johnson’s framework.

Another parallel between Kant’s transcendental schemata and Johnson’s image schemata consists in the restrictions both notions provide. Kantian schemata and image schemata are not only a necessary condition for the significance (Kant) or even existence (Johnson) of concepts, but they also restrict the range of concept application and verification to what can be intuited (Kant)<sup>12</sup> or experienced bodily (Johnson)<sup>13</sup>. However, not only does Johnson not engage in the whole philosophical project of Kant’s transcendental idealism, he also more specifically rejects the strict dichotomy Kant makes between categories/forms of intuition and the manifold of empirical sense data, i.e. between the subjective and the objective spheres. “I am thus led to deny that the metaphysical and epistemological dichotomies presupposed by his system are rigid and absolute. I regard them, rather, as poles on a continuum of cognitive structure.” [id.: 170]<sup>14</sup> Although Johnson does not mention it, this disagreement with Kant’s subject-object dichotomy almost necessarily involves the rejection of both the existence of the unknowable thing in itself (*Ding an sich*) on the one hand, as they presuppose an epistemological gap with the world of phenomena, and of a priori, i.e. inborn, categories (*Verstandesbegriffe*) on the other hand, as *all* categories are reducible to image schemata, which are products of our embodied and imaginative being in the world.

### Are Image Schemata Visualizable?

In principle, it is possible and helpful to present image schemata by dint of visual diagrams. There are at least three caveats, however, that we have to keep in mind when doing so. The first caveat is closely related to Kant’s distinction between a schema and an image (i.e. a picture, a *Bild*). Whereas an image represents a particular object or concept (e.g. five dots picture the number five; a geometrical drawing of a triangular shape presents a specific class of triangles), a schema is much more general. It should be understood as “a general procedure of the imagination for providing a concept with its image” [Kant 1998: A140/B179] that works “without being restricted to any single particular shape [an] experience offers me or any possible image that I can exhibit *in concreto*.” [id.: A141/B180]. Like Kantian transcendental schemata, image schemata are not to be confused with concrete representations of objects. Johnson makes it clear that “*image schemata are not rich, concrete images or mental pictures, either*. They are structures that organize our mental representations at a level more general and abstract

<sup>12</sup>Kant concludes his discussion of transcendental schemata by stating that “although the schemata of sensibility first realize the categories, yet they likewise also restrict them, i.e., limit them to conditions that lie outside the understanding (namely, in sensibility). Hence the schema is really only the phenomenon, or the sensible concept of an object, in agreement with the category.” [Kant 1998: A146/B186]

<sup>13</sup>“Because of the nature of our bodily experience, there are certain constraints on what we are able to experience and on how we are able to understand that experience.” [Johnson 1989a: 366]

<sup>14</sup>Cf. on Johnson’s differentiation from Kant also Johnson [2005: 17]: “I have no interest in defending Kant’s general metaphysical system, which seems to me to be too laden with a disastrous set of fundamental ontological and epistemological dichotomies, such as form vs. matter, mental vs. physical, pure vs. empirical, and cognition vs. emotion. Once such dichotomies are assumed, they create absolute unbridgeable gaps that cannot capture the continuous and multi-dimensional character of our experience and understanding.”

than that at which we form particular mental images.” [Johnson 1987: 23 f.] In other words, image schemata do not represent an object in the external world. Unlike a picture, an image schema “is a flexible pattern of organism-environment interactions, and *not* some inner mental entity that somehow gets hooked up with parts of the external world by a strange relation of ‘reference’.” [Johnson et al. 2002: 250] Therefore, we have to be aware that every visualization of an image schema is not a picture of something else, but, at most, a possible yet inadequate picture of the image schemata thus represented.

The inadequacy of this picture is proven by the second caveat. A visual diagram, at least a printed one, is necessarily static and hence unable to demonstrate the dynamic aspect that is typical for image schemata. The latter “are not mere static ‘representations’ (or ‘snapshots’) of one moment in a topographic neural map. Instead, image schemas operate dynamically in and through time.” [Johnson 2007b: 144] Perhaps a computer simulation would be more appropriate for visualizing image schemata. While static diagrams can only show one ‘frozen’ model of an image schema, a moving simulation could account for their actual flexibility and dynamic fluidity.<sup>15</sup>

In any case, there is a third caveat. It is also important to know that image schemata are not supposed to be visual patterns alone, but that they relate to or exist due to all other senses and often are even cross-modal or kinesthetic in nature. Image schemata “are not tied to any single perceptual modality, though our visual schemata seem to predominate” [Johnson 1987: 25] The primary origin of the SOURCE-PATH-GOAL schema, for example, is bodily movement; the CONTAINER schema is mainly evinced by our tactile sense but also by other sense organs,<sup>16</sup> BALANCE is developed by the equilibrium sense within our ears and ATTRACTION can be related to taste, but also to any other sensual organ or cross-modal perception. A visual diagram of an image schema should therefore not imply that image schemata are reducible to sight alone. “Instead, image-schematic concepts are represented in the mind in terms of holistic sensory experiences [...]” [Evans et al. 2006: 184]<sup>17</sup>

With these three caveats in mind, knowing that the diagram is only a “distorting image of the actual schema” [id.: 33], it is advantageous to devise visual models for image schemata. The following three diagrams are taken from Johnson [1987: 32; 87; 124<sup>18</sup>] and represent contingent visualizations of the IN-OUT,<sup>19</sup> the EQUILIBRIUM, and the CENTER-PERIPHERY image schemata, respectively:

<sup>15</sup>Cf. Oakley [2007: 231 f.] on the problem of visualizing motion in diagrams of image schemata.

<sup>16</sup>“Container schemas, like other image schemas, are cross-modal. We can impose a conceptual container schema on a visual scene. We can impose a container schema on something we hear, as when we conceptually separate out one part of a piece of music from another. We can also impose container schemas on our motor movements, as when a baseball coach breaks down a batter’s swing into component parts and discusses what goes on ‘inside’ each part.” [Johnson et al. 1999: 32]

<sup>17</sup>Also cf. Lakoff [1987: 271] on the kinesthetic dimension of image schemata.

<sup>18</sup>Reproduced with kind permission of Chicago University Press.

<sup>19</sup>LM: landmark, TR: trajectory.

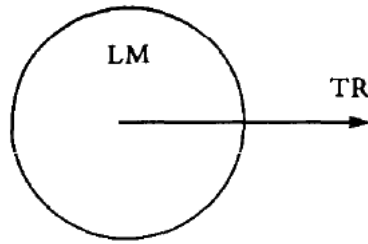


Fig. 5-1: IN-OUT

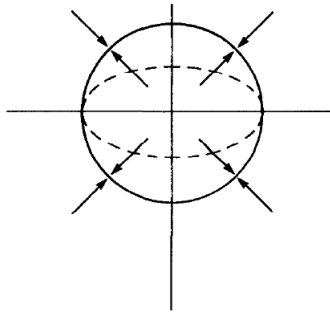


Fig. 5-2: EQUILIBRIUM

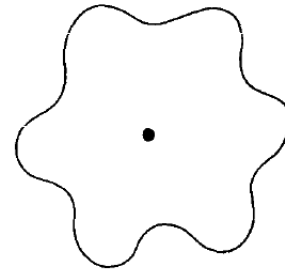


Fig. 5-3: CENTER-PERIPHERY

Johnson points out that he employs “drawings of this sort as aids in the description of particular image schemata. Such diagrams are particularly helpful in identifying the key structural features of the schemata and in illustrating their internal relationships.” [id.: 23] In so doing, we can conclude that the visual diagrams of image schemata share an important feature with visual models in general. They proffer a form of visual cognition that textual explanation alone could not provide. In that they are invaluable ‘aids in the description of particular image schemata’. Their contribution to these descriptions is even unique because, as Spelten [2008: 43] expresses it for visual models in general, “[s]eeing and understanding form a unity that exceeds a purely illustrative nature. Models do not illustrate an explanation, but give a visual explanation. The obtained cognition is itself of a visual nature and cannot be replaced with other forms of explanation.”<sup>20</sup> In my opinion, the visualizability of image schemata can be the only non-psychological<sup>21</sup> justification for using the word ‘image’ to name these basic patterns of experience. However, it is still questionable whether the stem ‘image’ of the compound ‘image schema’ does not lead to too many unwanted connotations and if a more unambiguous name should have been chosen.

### Do Image Schemata Only Give Rise to Conceptual Metaphors?

The last question about image schemata that I would like to ask and tentatively answer with the help of the relevant literature concerns the way or ways image schemata relate to ordinary language. This point is particularly important for the investigation of PWO that partly draws on empirical ordinary language analysis as a method for ontological purposes. In the preceding discussion of conceptual metaphor, we have seen that image schemata play a significant role for the formation of primary conceptual metaphors and, consequently, complex conceptual metaphors. Thus, conceptual metaphors “tend to be grounded in common patterns of our

<sup>20</sup>My own translation. The original reads: “Sehen und Verstehen bilden eine Einheit, die weit über einen illustrativen Charakter hinausgeht. Modelle illustrieren keine Erklärung, sondern geben eine visuelle Erklärung. Die gewonnene Erkenntnis ist dabei selbst visueller Natur und kann nicht durch andere Erklärungsformen ersetzt werden.”

<sup>21</sup>Evans [2007: 106] relates Johnson’s application of ‘image’ to the psychological notion of ‘imagistic experience’: “The term ‘image’ in ‘image schema’ is equivalent to the use of this term in psychology, where ‘imagistic’ experience relates to and derives from our experience of the external world. Another term for this type of experience is sensory experience.” But if ‘imagistic experience’ only relates to and derives from sensory experience (granted that sensory experience is equivalent to our experience of the external world), then I would not regard ‘imagistic experience’ and ‘sensory experience’ as synonymous. Besides, does the term ‘imagistic’ not refer to mental images, and are mental images not exactly what Johnson distinguishes from actual image schemata (first caveat)?

bodily experience that have their own corporeal or spatial logic, which are the bases for most of our abstract conceptualization and inference.” [Johnson 1995: 159] As PWO is not a conceptual metaphor, however, we need to know if there are other linguistic forms which can also be body-based like primary metaphors and, at the same time, abstract like complex metaphors.

On the one hand, if we follow Johnson’s approach to reduce philosophical theories and theorems to the language in which they are formulated and in so doing to conceptual metaphor, it seems as if this reduction also affects every ontological investigation of part-whole relations, including PWO. According to Johnson, “all philosophical theories, no matter what they may claim about themselves, are necessarily metaphoric in nature [and] this is simply a consequence of the fact that the philosophical theories make use of the same conceptual resources that make up ordinary thought.” [Johnson et al. 1999: 345] He even goes so far as to claim that “philosophy would not exist without the systems of conceptual metaphors that define its key ideas.” [Johnson 2007b: 186]

On the other hand, image schemata are preverbal and preconceptual, thus they are not metaphorical in themselves. Granted that they “play a major role in the syntax, semantics, and pragmatics of natural language” [id.: 145], we cannot simply reduce all aspects of natural language and philosophy expressed by language to conceptual metaphor alone. To do so would deprive language of its underlying conceptual diversity. Johnson himself permits at least one more conceptual category that is determined by image schemata (i.e. the sensorimotor domain) and that structures ordinary language as well as abstract reasoning: conceptual metonymy. Conceptual metonymy, the characterization of which I will give in the next section, is a “general cognitive structure” [Johnson 1987: 192] that is “of nearly equal importance with metaphor” [id.]. Contrary to Johnson’s frequent ‘metaphor-only’ claims concerning the nature of philosophy, it seems as if not only metaphor, but also metonymy underlies our abstract domains of reasoning.

The fact that Johnson concentrates on metaphor while casually mentioning metonymy is sometimes confusing, as, for example, when he writes that “our abstract concepts are defined by conceptual metaphor and metonymy. If this is so, then philosophical analysis is primarily metaphor analysis – working out the logic and inferential structure of the metaphors that ground our basic metaphorical understanding of experience. Philosophical theories, like all theoretical constructions, are elaborations of conceptual metaphors. In a very strong sense, philosophy *is* metaphor.” [Johnson 2008: 44] But does he not mention in the beginning of this quote that metonymy likewise defines our abstract concepts? So why are philosophical theories only reducible to conceptual metaphor? Be that as it may, Johnson at least opens up the possibility that image schemata not only give rise to conceptual metaphor, but also to conceptual metonymy. For the present project this means that there is at least one loophole in the dilemma that PWO is supposed to be a philosophical (ontological) notion on the one hand, but not a conceptual metaphor on the other hand. The question is what the particular image schema that gives rise to conceptual metonymy would look like, if we hypothesized that conceptual metonymy is the cognitive structure underlying ordinary language, entailing part-whole relations and PWO.

### 5.1.2 A Delineation of the PART-WHOLE Image Schema

In the literature of cognitive linguistics and particularly in Johnson, not all image schemata are discussed in equal measure. While the CONTAINER and the SOURCE-PATH-GOAL schemata, for instance, enjoy detailed analyses and examples, the PART-WHOLE schema is somewhat underrepresented, despite its apparent importance for conceptual metonymy. Whereas Johnson himself is remarkably uninformative concerning this particular image schema, Lakoff provides a brief passage about it in his 1987 study *Women, Fire and Dangerous Things*. The first characterization of the PART-WHOLE schema that he gives there corresponds with the first question I asked concerning image schemata in general: Where do they come from, or in this case, how does the PART-WHOLE schema come into existence? Not surprisingly, it is via our ‘bodily experience’: “We are whole beings with parts that we can manipulate. Our entire lives are spent with an awareness of both our wholeness and our parts. We experience our bodies as WHOLES with PARTS. In order to get around in the world, we have to be aware of the PART-WHOLE structure of other objects. In fact, we have evolved so that our basic-level perception can distinguish the fundamental PART-WHOLE structure that we need in order to function in our physical environment.” [Lakoff 1987: 273]

The information given in the first four sentences of this quote is evident, because it is easily verifiable by phenomenological introspection. In addition, the proposition of the final sentence was confirmed prior to Lakoff’s study in a set of experiments conducted by Tversky and Hemenway and published in their 1984 article ‘Objects, Parts, and Categories’. Although Lakoff does not explicitly refer to it, the findings of these experiments reveal that in our constant perception of basic-level (medium-sized, physical, familiar) objects such as chairs, tables, trees or other persons, we have a preference for describing, classifying and distinguishing such objects based on their salient and functional part-whole structures. The authors conclude that “[p]art configuration, we submit, forms the conceptual skeleton underlying and accounting for the convergence of so many different measures at the same level of abstraction. The configuration of parts, or structural description, accounts for the shapes objects may take, thus for our perceptual representations of the appearance of objects. When we interact with objects, our behavior is typically directed towards their parts. Different parts appear to have different functions, or to elicit different behaviors. We sit on the *seat* of a chair and lean against the *back*, we remove the *peel* of a banana, and eat the *pulp*.” [Tversky et al. 1984: 186–7] This perceptual and cognitive dominance of part-whole structures in basic-level objects is neither the case for abstract superordinate objects (e.g. the category ‘chair’), nor for hardly perceivable subordinate objects and categories (e.g. a bar stool as a special kind of chair).<sup>22</sup>

In connection with my second question above as to how image schemata (here: the PART-WHOLE schema) exist, Tversky et al. state that part-whole structures are not merely a subjective attribution or imposition of the perceiver, but often reside in the perceived objects themselves to guarantee their functionality.<sup>23</sup> Part-whole structures of basic-level objects are

<sup>22</sup>“Basic categories come first, and are based primarily on parts. Then, we form higher-order, superordinate groupings, that are typically based on function, not perception, where function is rather abstractly conceived. At the same time, we also subdivide basic level categories into more specific categories, on the basis of one (or very few) perceptual or functional features. In contrast to basic level categories, both more general and more specific categories do not have a basis in part configuration, nor do they always conform to mutual exclusivity.” [Tversky et al. 1984: 189]

<sup>23</sup>“But, parts and function, or parts and behavior seem to be related independent of human users. Thus, the

not the objects themselves. They are not stable and clear-cut entities, but to some extent distinguishable and often necessary features of an entity. How else could we embody, i.e. incorporate such part-whole structures and unconsciously project them into our language and abstract thinking, if they did not exist prior to our bodily cognition of them, and if they did not give a large amount of important information about the world? “Through parts, we link the world of appearance to the realm of action. Through parts, we use structure to comprehend, infer, and predict function. This, then, seems to be the knowledge that makes the basic level the most informative level: the knowledge of function that can be inferred from structure.” [id.: 190] To refer to Lakoff’s characterization, even our own body is such a basic-level object – perhaps the most primary for every perceiver – with what can be called ‘informative functionality’. This is why we can classify the PART-WHOLE image schema as *cognitively real*, because it enables us to understand the functionality, the varying saliences and the differences of basic-level objects in a meaningful way, starting with our own body and continuing with the embodiment and perception of other basic-level entities.

The seventh question above concerned the internal structure of image schemata. The answer to this question entailed every image schema consisting of (1) certain simple parameters, (2) an internal logic based on these parameters, (3) a high degree of flexibility that is related to their experiential contexts, and (4) the possibility of being combined with other image schemata. Let us look at these four points one by one in relation to the PART-WHOLE schema. To begin with (ad 1), after explaining how the part-whole image schema comes into existence, Lakoff continues his characterization of this schema by listing three ‘structural elements’ that function as the parameters of the part-whole schema: “A WHOLE, PARTS, and a CONFIGURATION.” [Lakoff 1987: 273] Furthermore, he formulates what he calls the ‘basic logic’ of the image schema in question (ad 2):

The schema is asymmetric: If *A* is a part of *B*, then *B* is not a part of *A*. It is irreflexive: *A* is not a part of *A*. Moreover, it cannot be the case that the WHOLE exists, while no PARTS of it exist. However, all the PARTS can exist, but still not constitute a WHOLE. If the PARTS exist in the CONFIGURATION, then and only then does the WHOLE exist. It follows that, if the PARTS are destroyed, then the WHOLE is destroyed. If the WHOLE is located at a place *P*, then the PARTS are located at *P*. A typical, but not necessary property: The PARTS are contiguous to one another. [id.]

Taken as such, this ‘basic logic’ covers many instances in which part-whole relations occur and are perceived. Still I think that there are at least two experiential contexts (3) and at least one possibility of combination (4) which indicate that Lakoff’s basic logic of the part-whole schema should be slightly extended. Let us begin with the latter point (ad 4). Lakoff makes the existence of the whole dependent on the existence of the parts and their configuration. F. Santibáñez argues convincingly, however, that it is possible to enrich Lakoff’s basic logic if

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leaves and trunk of a tree have different functions for the tree, the legs and trunk of an elephant behave differently and have different functions for the elephant. Because cars are inanimate, we are less likely to talk about the function of the wheels or engine for the car, but we can say that these different parts of the car are associated with different behaviors. So we would like to argue that parts underlie function for human users, but that they are also related to functions or behaviors in a nonteleological sense, regarding the organism or object as a closed, self-contained system.” [id.: 187–8]

we take into consideration that the whole gains a higher amount of independence when the part-whole schema is combined with the CENTER-PERIPHERY schema.<sup>24</sup> Then parts that are located in a whole's internal periphery are less important for the existence of the whole than parts that are located in the center of it. For example, a particular house may not exist without walls as central parts, but it may well exist without a garden or basement as peripheral parts; or a functioning human body may exist without fingers, hairs or cecum, but not without heart, head or lung. Thus the configuration of the parts can be roughly subdivided into central and peripheral, which resembles Husserl's distinction between *nearer* and more *remote* parts.<sup>25</sup>

In Husserl's part-whole ontology, however, this distinction is only relevant for dependent moments and not for independent material pieces. If we transcend the mere spatial sense of central (nearer) and peripheral (more remote) and understand them in a more embracing meaning, then they indicate a hierarchy of *more essential* and *less essential* parts. A part can be more or less essential, for example, in respect of functionality, aesthetic quality, layers of perceptual salience, or conditions of biological survival. To illustrate the latter, the trunk and the roots of an apple tree are more important for the tree's survival than the fruits it produces or its peripheral ramifications. As we have seen in subsection 2.2.6, such hierarchies of significance cannot be found in pieces. Also Santibáñez points to the fact that pieces,<sup>26</sup> contrary to moment-like parts, have arbitrary and random boundaries such that peripheral and central are indeterminable, which is why pieces cannot be classified according to their significance for the whole. This is one reason why, as indicated by Santibáñez's demonstration of the combinability of the PART-WHOLE schema with the CENTER-PERIPHERY schema and in connection with Husserl's distinction in this regard, Lakoff's 'basic logic' of the PART-WHOLE schema can be enriched with more independent wholes, because there appear to be two different kinds of part configurations: 'flat' (all parts are of equal value) and 'hierarchical' (with central, i.e. more essential and peripheral, i.e. less essential parts). To be sure, the distinction between central and peripheral parts does not entail the existence of absolutely independent wholes, only of wholes that are relatively less dependent on some of their parts than on others.

Another point of supplementation to Lakoff's basic logic of the PART-WHOLE image schema concerns the experiential context (ad 3) of the configuration parameter. In the last sentence of the 'basic logic' quoted above, Lakoff writes that it is a 'typical, but not necessary property' of a part-configuration that the parts are contiguous to one another. I would like to enlarge upon the notion of contiguity here because it is one of the most discussed characteristics of conceptual

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<sup>24</sup>“Although this [Lakoff's 'basic logic' of the part-whole schema, M.S.] is basically true, it is also true that, by virtue of the CENTRE-PERIPHERY image-schema, the destruction of peripheral parts in the configuration does not necessarily bring about the destruction of the whole.” [Santibáñez 2002: 190]

<sup>25</sup>Cf. subsection 2.2.6.

<sup>26</sup>It has to be noted that Santibáñez does not draw on Husserl's distinction between moments and pieces, but on Cruse's [1986: 157 ff.] equally notable distinction between parts and pieces. In both distinctions, pieces have vague and random borders (e.g. the shattered pieces of a cup that fell on the ground do not have predefined borders) and are not necessary for the whole's functionality (e.g. the gold rim might flake off the cup but one can still drink from it perfectly well). Husserl, however, characterizes pieces as parts that are independent from the whole in which they occur (e.g. the shattered pieces continue to exist after the destruction of the cup). For Cruse on the other hand, pieces are dependent on the whole (e.g. the shattered pieces of a destroyed cup can only be pieces of this cup because once they were integral constituents of it), while functional parts are not (e.g. the handle of a cup serves to drink from it, but can theoretically be removed and continue to exist as a handle).

metonymy.<sup>27</sup> In a strict sense, contiguous means that there is no gap between two parts of a whole. It is true that, in particular with regard to the perceived composition of a physical object, the material parts it is made up of seem to lie immediately next to one another.<sup>28</sup> For instance, the glass of a window is contiguous to its frame. If there were to be a gap in between the glass and the frame, then the window would be badly insulated and would appear as a defective or imperfect whole. Also, the particular color of the frame and the transparency of the glass, both taken as moments of the window, can be seen as juxtaposed if there is no third visible moment (another color, for example) in between them. However, Deane [1992: 64] argues that in many cases of part-whole perception, seamless contiguity of parts is only “the limiting case” of what he calls *perceptual adjacency*. “Perceptual adjacency includes but is not the same as contiguity. Perceptual adjacency is more flexible: if no salient percept intervenes between two concepts, then they are perceptually adjacent even if separated by an intervening gap.” [id.] If we take the visual perception of a sequence of Xs as a simple example, we can see that not only the almost contiguous Xs of the row (a) XXXXX, but also the adjacent Xs of the row (b) X X X X X stand out, in configuration, as a perceived whole. Only if an equally salient element such as a number of Ys fills the gaps, like in (c) X Y X Y X Y X Y, do the Xs lose the configuration that otherwise turns them into a perceivable whole.

Furthermore, Deane states that the property of perceptual adjacency not only includes perceptual contiguity, but it also involves perceptual continuity<sup>29</sup> as well as temporal stability.<sup>30</sup> Thus, whereas all of the Xs in the configuration (d)  $\begin{matrix} X & X & X \\ X & X & X \\ X & X & X \end{matrix}$  would form a perceptual whole because the three rows are continuous vertically (and adjacent horizontally), the assembly (e)  $\begin{matrix} X & X & X \\ Y & Y & Y \\ X & X & X \end{matrix}$  would not form a perceptual whole of foregrounded Xs because there is no vertical continuity, although there are two horizontal adjacencies of Xs. Neither would there be a perceptual whole if the Xs in (d) were to stay in this configuration only for a split second and then move irregularly in all directions of the visual field. Certainly, we do not look very often at Xs and Ys in our daily lives, but, for example, when we perceive a collection of people on the street as a group (e.g. of tourists, protesters, or pub crawlers), then the whole-character of the group is based, among other factors, on the parts (the single persons) standing or walking close to each other (perceptual adjacency), without being separated by many other people or dominant objects (perceptual continuity) for a noticeable duration of time (temporal stability). Since we often bodily and mentally partake in groups or perceive other configurations of part adjacencies and continuities over time, the conclusion suggests itself that such experiences are indeed constitutive of the PART-WHOLE image schema. The contiguity of parts is therefore as ‘typical’ as their adjacency, continuity, and temporal stability.

<sup>27</sup>Cf. section 5.2.

<sup>28</sup>I do not think that the empty space on the atomic level of material objects is constitutive of image schemata, because this extremely subordinate level is far from the basic-level of medium-sized objects that we perceive without auxiliary means and bodily interact with.

<sup>29</sup>“If a collection of elements forms a configuration, it should be possible to begin at any element in the configuration, proceed step by step among perceptually adjacent elements, and arrive at any other element in the configuration. If two elements are not mutually accessible in this fashion, they do not form a configuration.” [Deane 1992: 64]

<sup>30</sup>“Parts are not perceived as a whole unless they maintain the same configuration over time. While some changes are possible, they are generally variations in shape or relative distance, and not changes in the pattern of perceptual adjacency among the parts. For example, a flight of birds or a line of fenceposts will easily be perceived as wholes, but more evanescent configurations will simply fail to qualify.” [id.: 65]



It is telling that Deane explicitly invokes the findings of Gestalt theory in order to corroborate his extension of Lakoff's suggested contiguity principle.<sup>31</sup> Therefore, it would be justified to take into consideration another, perhaps *the* crucial insight of Gestalt theory (about which I will talk in more detail in the next chapter) that I think is equally constitutive for the PART-WHOLE image schema. This insight will enrich Lakoff's 'basic logic' of the part-whole schema with the possibility of finding PWO in experiential contexts (ad 3), which paves the way for, among other things, understanding PWO as an embodied phenomenon that comes into play during many of our bodily interactions with the environment. To do so, we have to address what Lakoff calls the 'asymmetry' and the 'irreflexivity' of the part-whole schema: 'If *A* is a part of *B*, then *B* is not a part of *A*' and '*A* is not a part of *A*'. At first glance, these logical principles seem to be plausible and applicable to all part-whole relations without exception. By definition, a part is a part of a whole, which entails that the whole in question cannot be a part of the part. It seems equally unlikely that something is a part of itself. A page, for example, is a part of a book, but a book is not a part of its page; a book is a part of a library, but the library is not part of the book. And how can a library be a part of itself without mysteriously duplicating itself inside itself, which is rather absurd?

When we look back at the discussion of Husserl's part-whole ontology and the characterization of PWO that followed from it, then we can see that part-whole asymmetry and irreflexivity are true in three of the four distinguished ontological regions. In a conceptual, a priori and formal sense, that includes firstly objective pieces and secondly objective moments, it would be logically, i.e. mereologically,<sup>32</sup> inconsistent not to assume part-whole asymmetry and irreflexivity. Thirdly, neither can the whole be regarded as residing in its parts or in itself when we talk about perceptible pieces, because a materially bigger object (a whole) indubitably does not fit into a materially smaller object (one of its pieces) and an object *A* that is completely identical with an object *B* cannot inhabit the same space-time region such that *A* would be part of *B*. However, the characterization of PWO that we arrived at in 2.3 suggests that in the fourth case, i.e. the case of perceptible moments, sometimes a whole can be seen not only as – metaphorically speaking – 'bigger', but also as – metaphorically speaking – 'smaller' than its moments. This is to say that PWO allows for the mereological inconsistency or paradox 'If *A* is a part of *B*, then *B* is and is not a part of *A* such that *B* can be the whole of *A* and *A* can be the whole of *B*'. There is no reason why this should not be the case even when *A* and *B* are, in an immaterial way, identical. I would like to argue that in some cases a perceptible, immaterial whole is not part of its parts because it can be distinguished from them, but it is part of its parts because it finds a certain completion in its parts; its existence is mediated through the existence of its parts and their configuration. Then *A*, or rather what makes *A* be or become *A*, can also be a dependent part of *A* itself, because it is only mediated through its parts that *A* is or becomes *A*. What makes *A* be or become *A* (*A*'s completion, i.e. *A*'s condition for being *A*) is provided by its configured parts, in each of which *A* can be said to exist in a 'contracted'<sup>33</sup> way. This idea will be illustrated as soon as I turn to the visualization of the PWO aspect of the suggested PART-WHOLE image schema shortly.

<sup>31</sup>"These properties are the sort with which Gestalt psychologists were concerned." [id.: 64]

<sup>32</sup>Next to transitivity, irreflexivity and asymmetry are two of the three main axioms in contemporary analytic mereology; cf. the relevant discussion in section 3.1 above.

<sup>33</sup>Cf. von Kues [2002: II, cap. IV].

What this implies is that a distinctive feature that is essential for the whole's existence must be found in its parts such that the parts' configuration makes the whole distinguishable from yet dependent on this configuration. M. Wertheimer, one of the most eminent figures of early Gestalt theory, writes that the "basic thesis of gestalt theory might be formulated thus: There are contexts in which what is happening to the whole cannot be deduced from the characteristics of the separate pieces<sup>34</sup>, but conversely; what happens to a part of the whole is, in clear-cut cases, determined by the laws of the inner structure of its whole." [Wertheimer 1944: 311]. In the foreword to this article by Wertheimer, Riezler makes this point more vivid by saying that "the whole breathes in every part." [id.: 306] Since I will talk about Gestalt theory more in the following chapters and since the main way in which image schemata come into existence is by body-environment interactions, let me suggest an exemplary bodily context in which a strict part-whole asymmetry does not seem to be a sufficient principle for a 'basic logic' of the part-whole schema: sport. Sport is one of the most widespread and intensive forms of body-environment interaction, and the aspect of the part-whole image schema that is derived from sporting activity extravagates any clear, asymmetric separation of parts and wholes. Be it in martial arts, where the power of our whole body should be *in* the punch or kick to make them the most efficient; be it in team sports, where every body ideally incorporates the team and its spirit as a whole; or be it in climbing, where the structure of our whole body determines and flows into the constellation of our fingers and feet, which in turn pull our whole body upwards: The body-environment interactions that are characteristic for sporting activity can make us doubt whether all part-whole relations are best thought of as asymmetrical.

In some experiential contexts of embodiment such as sport, but also in the acts of concentration, meditation or interpersonal intimacy, either our whole body *is* as a whole in parts of it in a non-physical way, or a whole beyond our bodies (an idea, a team, a cultural peculiarity, an intersubjective feeling) exists in and via our body as one part of a more embracing whole. We cannot negate such commonsensically known and therefore fundamental experiences for the sake of a consistent and formalizable 'basic logic'. To me it seems unavoidable that these kinds of body-environment interactions are highly influential for the development of the PART-WHOLE image schema, in particular for the flexibility and reversibility<sup>35</sup> this image schema provides when it comes to (mereo)logically and materially inconceivable oscillations between parts and whole. In my view, this is also one of the reasons why the PART-WHOLE schema differs from the CONTAINER schema, for which asymmetry (if entity *A* is in container *B*, then *B* cannot be in *A*) and irreflexivity (container *B* does not contain itself) are indeed necessary axioms.

As with any other image schema, it is instructive to visualize the PART-WHOLE schema, although the three caveats discussed in the ninth answer above have to be kept in mind. Firstly, no possible visual model of the PART-WHOLE schema is to be confused with a concrete image, i.e. a picture or representation of a particular object. Secondly, the part-whole schema, in particular when we interpret it with respect to PWO, is dynamical through and through. A necessarily static visual model cannot do justice to the intrinsic dynamics, which is why we have to task our imagination to make the visual model move synthetically from the parts to the whole, analytically from the whole to the parts, or internally among the parts and their configuration.

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<sup>34</sup>Also in the original German, Wertheimer uses the word *Stück* (piece) here, which allows for the interpretative freedom to draw a parallel to Husserl's terminology.

<sup>35</sup>Cf. section 7.4.

Even then, however, it is, thirdly, important to recognize the fact that part-whole relations not only appear in the visual sphere, but as all kinds of sensations, even kinesthetic ones, like when we have a plate of flavorful food in front of us that consists of different elements (e.g. fish, salad, rice, sauce) with respective ingredients. Then there is one all-encompassing eating experience, consisting of the taste, smell and appearance that are common to all elements, but at the same time there are the elements' and also the elements' respective ingredients' tastes, smells and appearances that compose the whole(s) involved. In just one fork loaded only with the fish, for example, we taste the whole meal *as* and *in* the single fish: Both are distinguishable yet inseparable. A visual model that does justice to these and other perceived part-whole perceptions is merely their most schematic denominator. Nonetheless, such a model helps us to make evident and reflect on the nature of the PART-WHOLE image schema. It can make the fundamental idea visible that is then applicable to a range of concrete cases, also beyond the empirical dimension of visibility.

Unfortunately, in his brief discussion of the part-whole schema, Lakoff does not offer a visual diagram for the part-whole schema. At least with regard to pieces, Santibáñez provides such a diagram for the FRAGMENTATION image schema, which he introduces as a subsidiary kind of the more general PART-WHOLE schema. He describes the schema and its corresponding physical conditions as follows: “The skeletal construct which we put forward corresponds to our common experience that, as a result of an object breaking, its pieces may lie scattered over an area, and also that the pieces may be rearranged in order to bring that object back into existence [...]” [Santibáñez 2002: 192]

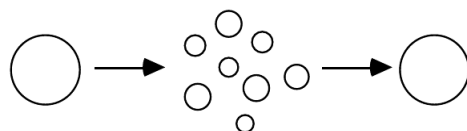


Figure 5-1: FRAGMENTATION<sup>36</sup>

Indeed, this diagram (Figure 5-1) seems to be suitable for the visualization of part-whole relations with regard to pieces that can be detached from the whole and continue to exist as an entity in itself. However, I would prefer to find a visualization for part-whole structures in which the special nature of distinguishable yet continuous moments is accentuated. Santibáñez himself does not offer such a diagram, perhaps because the one he gives represents his general understanding of image-schematic part-whole relations as being derivable from physical relations<sup>37</sup> and applicable via metaphorical cross-domain mappings to abstract objects as well as to the natural domain of moments such as colors or feelings. I will present some of his examples concerning this matter shortly.

A useful hint for the development of a visual diagram for the part-whole image schema can be found in the 2008 paper ‘Representing Part-Whole Relations in Conceptual Modeling: An Empirical Evaluation’ by Shanks et al. This paper does not directly address the notion of image

<sup>36</sup>Reproduced from Santibáñez [2002: 192], with kind permission from J. Camilo Conde Silvestre, the general editor of the journal *Atlantis*.

<sup>37</sup>“The physical arrangement of functionally specialized parts into a configuration is mapped onto the structure of abstract entities, which allows us to speak and reason about them. [...] Thus, by making use of the functionally relevant notion of ‘part’, it is possible to speak and reason about taking a complex object to pieces that may later be put together again. Part decomposition may provide useful insights into the functioning of the properly constituted whole.” [Santibáñez 2002: 191]

schemata, but it compares and evaluates two different approaches towards the visualization of part-whole relations: ‘relationship-based’ and ‘entity-based’. The authors claim that a visual diagram of part-whole relations, in which at least two components form a composite due to a certain commonality, can either display this commonality as a relationship (an association between the elements) or as an entity (a class under which the elements fall). For example, the situation that there is a ‘committee’ (the composite) in which both the ‘faculty’ as a component and a ‘grad student’ as a further component are members, is visualizable either by displaying the ‘committee’ as a relationship between ‘faculty’ and ‘grad student’,



or by accentuating the membership as an entity in its own right.



Although the authors admit that the latter approach “is *syntactically* more complex because it contains more elements” [Id.: 569], they give a number of reasons why it is preferable. All of these reasons are based on a principle they call, by drawing on a previous study on the representation of relationships,<sup>39</sup> ‘ontological clarity’. I think that this principle is a useful hint for the suggestion of a visual diagram for the PART-WHOLE image schema. Ontological clarity “is achieved only when the mapping between a set of conceptual modeling constructs and a set of ontological constructs is isomorphic.” [id.: 557] This simply means that the visual model (the ‘conceptual modeling constructs’) should conform with the data (the ‘set of ontological constructs’) that it wants to be a model of as well as possible. Now, there are four situations that could prevent such a conformity: construct overload,<sup>40</sup> construct redundancy,<sup>41</sup> construct deficit,<sup>42</sup> and construct excess.<sup>43</sup>

The authors argue that relationship-based visual part-whole models fall prey to the first unwanted situation, because here “a single modeling construct is used to represent two ontological constructs (a mutual property and a composite). As a result, ontological clarity is undermined, and [...] users of a conceptual model will have greater difficulty understanding the semantics of the real-world domain represented by the model.” [id.] Thus, the first figure is ambiguous in whether ‘committee’ is a mutual property of ‘faculty’ and ‘grad student’, or a relationship between them, or even a complex entity in itself (perhaps with its own properties?) of which the other two are members. The entity-based model avoids such confusion, although its syntax is richer. On the one hand, I do not think that either of these models are suitable when it comes to the PART-WHOLE image schema, where embodied and preconceptual experience plays a greater role than the modeling of entities and relations which are already conceptually present. After all, the authors note that their approach, including the criterion of ontological clarity, is “rooted in computational and algorithmic theories rather than *neurophysiological* theories of human visual object recognition systems” [id.] Also, if we think away the descriptive

<sup>38</sup>Cf. for the original diagrams Shanks et al. 2008: 556.

<sup>39</sup>Cf. Wand et al. [1999].

<sup>40</sup>“A single modeling construct maps to two or more ontological sources.” [Shanks et al. 2008: 557]

<sup>41</sup>“Two or more modeling constructs map to a single ontological construct.” [id.]

<sup>42</sup>“An ontological construct exists that is not the image of a mapping from any modeling construct.” [id.]

<sup>43</sup>“A modeling construct does not map onto any ontological construct.” [id.]

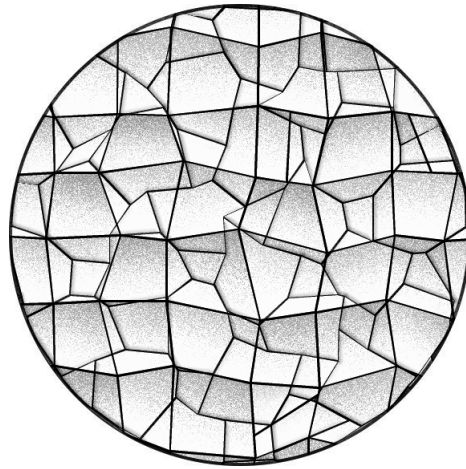
text in both models and thus make them more generally applicable, it ceases to be evident that part-whole structures are modeled and not, for example, a hierarchical taxonomy. On the other hand, as image schemata are not merely abstract patterns but also fundamental structures of our enworlded and embodied experiences, I think that the notion of ‘ontological clarity’ can help us to find a possible visual model for the PART-WHOLE image schema.

The two approaches just discussed teach us that a visual model for the PART-WHOLE schema should neither be a model of detachable pieces alone, because then the important idea of undetachable moments is underrepresented, nor should the model be based on a conceptual algorithm that is – in a cognitive linguistic framework – a later product of embodied body-world interactions. We should indeed aim for ‘ontological clarity’, but rather by ensuring that the visual model of the PART-WHOLE schema stands as close to our embodied experience of the relation between parts (pieces as well as moments) and their whole or aggregation. Let me therefore suggest a visual model that I think captures and depicts the essential thought behind both physical and empirically perceived, even phenomenologically experienced part-whole structures. This visual model is nothing but a simplified mosaic. Mosaics are part-whole formations in which both the arrangement of material pieces and the combination of colors (here expressed as darker shades that transcend single pieces) and aesthetic forms contribute to the perceptual meaning ( $\text{meaning}_{\text{perc}}$ ) of the whole. At the same time, if the  $\text{meaning}_{\text{perc}}$  of the whole did not co-exist with the configuration of the parts or if it did not jump out as being meaningful at all, then we could not grasp the meaning of the parts or arrange them, in the context of human-made artifacts, properly. The fundamental thought of a mosaic, since ancient times a recurring and still fascinating form of art, expresses many part-whole experiences beyond the realm of art proper. It captures the idea that a whole is meaningful both *although* and *because* it is composed of parts. These are either separable from the whole (in the case of material pieces) or receive their singularity or even existence from it (in the case immaterial moments). Only in the first case, is it the addition of pieces that makes up the material whole as an aggregation.<sup>44</sup> In the second case, due to their shades and aesthetic forms, the moments flow into each other and are thus incomplete in isolation.<sup>45</sup> The visualized PART-WHOLE image schema below (Figure 5-2) also illustrates how the whole (the circle) depends on each of its moments, without which the circle would either be broken (if a part of the border is removed) or at least be deprived of its expressiveness and internal structure (if a part of the general surface is missing).

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<sup>44</sup>This is probably why some prominent Gestalt theorists refer to mosaics with the claim that these would represent the summative nature of stimuli instead of the supra-summative nature of Gestalt percepts. Cf. Wertheimer [1922: 48], Koffka [1925: 511], Köhler [1920: xviii; 1925: 706, 711; 1975: 162] and Metzger [2001: 260].

<sup>45</sup>Some contemporary scholars working in the Gestalt tradition elaborate on this equally relevant aspect of mosaics. Cf. Wade [2004; 2012] and Piccolino et al. [2006a; 2006b].

Figure 5-2: *Mosaic PART-WHOLE Image Schema*

Furthermore, the mosaic-like PART-WHOLE image schema visualizes important aspects of Lakoff's 'basic logic', in due consideration of the three extensions discussed above. It symbolizes asymmetry (none of the parts have the round shape of the whole as part) and irreflexivity (neither the whole nor the parts have themselves as parts). It shows that there would not be a whole if *all of* the pieces were removed, although the removal of pieces from locations that are peripheral for the meaning of the whole as a circle, such as pieces from the middle or smaller pieces on the margin that comprise the circle line, would leave our Gestalt perception of the circle as a whole intact. Moreover, the parts of a mosaic can be either completely contiguous or just adjacent for the whole to have meaning. The necessary continuity of the parts is displayed by their transeunt distribution of hues, and the temporal stability of a mosaic is another condition required for it to be a meaningful object. Many daily experiences correspond to the basic structure of a mosaic, such as the feeling of belonging somewhere, of perceiving order and disorder (as well as order in disorder and disorder in order), of listening to a song or reading a story, of understanding that and how the most heterogeneous parts can contribute to a well-functioning whole (e.g. in a democracy or a society in general), or of the insight that any organism, including our own body, functions as a whole that depends on some of its parts while others can be replaced (transplanted) or have to be segregated. Thus I think that the schematic form of a mosaic, of which the one in Figure 5-2 is just an example that should not be confused with a concrete picture, does indeed provide the 'ontological clarity' that accounts for the isomorphism between a visual model and the world we constantly and bodily interact with.

As a further benefit of the mosaic-like model, a slight adaptation of it is sufficient to include the occurrence of PWO to result in the special case of a PART-WHOLE<sub>PWO</sub> image schema. As it stands, this model is able to account for the asymmetry and irreflexivity of many part-whole relations. However, we saw that in PWO there is this mereologically paradoxical situation that a whole is somehow contained in its parts for the whole to find completion, i.e. to exist as a whole. This circumstance violates the principles of asymmetry (the whole is not a part of its parts) and irreflexivity (the whole / a part is not part of itself). What may sound paradoxical at first glance is easily solved and visualized by a variation of the mosaic-like model to a similar model that includes self-similarity. Self-similarity is the rather new mathematical idea that the fragmentation of an entity (a fractal) yields parts that display structural features of the entity on

a smaller scale. To ‘zoom’ in on an entity that is determined as a whole reveals either identical or quasi similar iterations of the whole in all of its parts. This phenomenon is also called ‘scale invariance’, because the basic pattern of the entity comes to the foreground on every scale. In theory, this iteration may go on infinitely, like moving in a loop. The idea of mathematical fractals can also be found in natural phenomena such as coastlines and logarithmic spirals (i.e. J. Bernoulli’s *spira mirabilis*), clouds or galaxies,<sup>46</sup> in works of art as the idea of *mise en abyme* (also known as the Droste effect), or – as I indicated above – in bodily experiences such as sport, in which our whole body has to be non-physically present in and expressed by a part of it. Of course, a material/physical piece cannot contain itself as a part or be part of one of its parts. But when we look at moments and take them as structural phenomena like a repeatable pattern or the concentration of something to a particular point of it, analogously to the idea of recurring and slightly variable themes in musical compositions, then we can see that the notion of PWO, which is principally about moments, can be visualized as a model of self-similarity. The more general mosaic-like visualization of the PART-WHOLE image schema that I suggested above forms a perfect ground for this visualization of PWO as a contingent yet significant aspect of this image schema; an aspect that has its own experiential, natural and mathematical basis and that could provide an alternative to the principles of asymmetry and irreflexivity. Perhaps the famous Sierpinski triangle (Figure 5-3) is the most schematic visualization of fractals. It also has a mosaic-like form, which is why it can serve as a visual model for the PART-WHOLE<sub>pwo</sub> image schema. Of course, the movement of scaling has to be imagined, as fractals are essentially dynamic and should be presented as such.



Figure 5-3: *Sierpinski Triangle (Fractal PART-WHOLE image schema)*<sup>47</sup>

To conclude the delineation of the PART-WHOLE image schema, I would like to refer to the tenth question I asked above concerning image schemata in general: Does the PART-WHOLE schema only lead to conceptual metaphor? Does it lead to conceptual metaphor at all? It is true that towards the end of subsection 4.2.4, I had some doubts about the general possibility of reducing *any* conceptual metaphor to part-whole relations, firstly because there is always *one* experiential domain in which part-whole relations are experienced whereas conceptual metaphor, by definition, involves multiple experiential domains. Secondly, due to the correlativity of parts and whole and due to the common experiential domain in which they occur, it is unlikely for either the parts or the whole to fall into cognitive oblivion, while it is a typical feature of conceptual metaphor that the source domain is forgotten when the target domain is activated. The third reason consisted in the intuition that if *all* part-whole relations were to lead to conceptual metaphor alone, then there would be no justification for singling out this kind of relation in particular, with its special case of PWO, and determining the latter’s ontological nature. In the end it appeared that part-whole relations are neither what Johnson and Lakoff describe as an

<sup>46</sup>Cf. Falconer [2013] for these examples and a general introduction into this topic.

<sup>47</sup>This figure is taken from the Wikipedia entry ‘Sierpinski triangle’ ([https://www.wikipedia.com/en/Sierpinski\\_triangle](https://www.wikipedia.com/en/Sierpinski_triangle) (last visited on 7 December 2019)).

ontological metaphor, nor do they correspond to the CONTAINER image schema, which seemed to be the most connatural image schema for part-whole relations previous to the discussion of the proper PART-WHOLE image schema. Nonetheless, perhaps the strong conclusion that part-whole relations do not lead to *any* conceptual metaphor was too premature, while, in the face of the now delineated part-whole image schema, the more cautious conclusion that part-whole relations do *not only* lead to conceptual metaphor seems more appropriate.

The illustrations or ‘sample metaphors’ of this image schema in Lakoff’s original discussion of it are set out to demonstrate that the embodied experience of part-whole relations in which the image schema is developed can be mapped into experiential domains that are quite heterogeneous to the direct perception of body and world. Lakoff provides examples of three such experiential domains: families,<sup>48</sup> the Indian caste system,<sup>49</sup> and the abstract form of thought that is a ‘structure’.<sup>50</sup> It must be admitted that although Lakoff’s ‘basic logic’ of the PART-WHOLE image schema rather seems to focus on the notion of an detachable piece, which is only part of what ‘part’ does entail, these three examples allow for an application of the image schema in question to conceptual metaphors that describe experiential domains in which the parts, although distinguishable, are *grosso modo* not detachable from their whole. Certainly, you can split up in a marriage, but you cannot choose not to be a child or a sibling of another family member once this relationship has been biologically established. In the same manner, it is (with the exception of converting to another religion) just about impossible to abandon the Hindu caste into which one is born, which means that a caste member is rather a moment than a piece of the whole. In addition, a ‘structure’, although it is one of the most plurivalent, vague and therefore almost variable-like notions I can think of, comprises the idea that what is part of a structure has a certain function, not only a function for the functioning of the structure, but also for itself to function as (and oftentimes only as) a function.<sup>51</sup> This is certainly true for Lakoff’s example of structural isomorphism, where the meaning of the parts depends on their configuration to the whole.

Thus, granted that these examples cover the notion of dependent parts and granted that they are derived from the sensorimotor domain in which the PART-WHOLE image schema is constituted via body-environment interactions, we can still ask whether these examples really refer to conceptual metaphors. To me it seems that in the case of family relations, which is an experiential domain into which we are either born or with which we are at least pre-conceptually familiar from early childhood on, it is not implausible to remain on the level of the *constitution* of the PART-WHOLE image schema. This is because of the fact that, long before our capacity of mapping and thinking is developed, our bodies are born into a family of

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<sup>48</sup>“Families (and other social organizations) are understood as wholes with parts. For example, marriage is understood as the creation of a family (a whole) with the spouses as parts. Divorce is thus viewed as *splitting up*.” [Lakoff 1987: 273–4]

<sup>49</sup>“In India, society is conceived of as a body (the whole) with castes as parts – the highest caste being the head and the lowest cast being the feet. The caste structure is understood as being structured metaphorically according to the configuration of the body. Thus, it is believed (by those who believe the metaphor) that the maintenance of the caste structure (the configuration) is necessary to the preservation of society (the whole).” [id.: 274]

<sup>50</sup>“The general concept of structure itself is a metaphorical projection of the CONFIGURATION aspect of PART-WHOLE structure. When we understand two things as being *isomorphic*, we mean that their parts stand in the same configuration to the whole.” [id.]

<sup>51</sup>Cf. Rombach [1988: 25–44].



which we are part, which is no less a primarily unconscious body-environment interaction than the fact that we “experience our bodies as WHOLES with PARTS” [Lakoff 1987: 273] and that we perceive basic-level objects. Furthermore, the Indian caste system, into which one is born depending on the sociocultural background, is not an experiential domain that is different from the human body. There is no cross-domain mapping from the body as a source to the caste hierarchy as a target. Rather, the part-whole relations of body and caste are connected within the same experiential domain, not only because the latter receives its religious legitimization by the self-destruction of Purusha into four body parts as is passed down in the relevant *puruṣa sūkta* of the *Rigveda*, but also because the four *varna* castes metonymically *stand for* these body parts. The castes are not to be understood as a metaphor of Purusha’s body parts, i.e. the former do not stand in an implicit *as-if* or *is-like* relation to the latter, such that the experiential domain of the religious origin does not play a role anymore. The castes, as target, are rather in a metonymical *stand-for* relation with the source that is or should be co-present with the target. We will see in a second how conceptual metonymy differs from conceptual metaphor in this respect. And finally, a structure, depending on its definition, can indeed be an abstract concept that is derivable from the PART-WHOLE image schema. But a ‘structure’, at least in a purely formal sense, is not an experiential domain on its own. On second thoughts, to me it seems to be rather a heuristic tool that might originate in our sensorimotor domain, but that is just as suited to ‘evaluating’ this domain as it is to understanding any other domain. ‘Part’ and ‘whole’ are just two of the many elements that can play a heuristic role when we structure an experiential domain or when we perceive or conceptualize an experiential domain as a structure. For these reasons, I cannot conclude that ‘structure’ is a conceptual metaphor. It is rather a means to describe conceptual metaphors and their underlying experiential domains; a means that includes part-whole relations but also other notions such as hierarchy, movement, or consistency.

Apart from these remarks, however, Lakoff’s examples are instructive, because they are not only concerned with the notion of dependent parts, but also point towards the significance of conceptual metonymy as an alternative route the PART-WHOLE image schema leads us to. Certainly, it would have been easier for Lakoff to provide examples for conceptual metaphors that are exclusively based on the notion of independent parts. It is one of the merits of the paper by Santibáñez mentioned above that it shows convincingly how the PART-WHOLE image schema, provided that we understand parts solely as detachable pieces, does indeed allocate conceptual metaphors for domains that differ from the bodily one in which this image schema is constituted. ‘Part decomposition’, as he calls it, can be expressed in sentences referring to material objects,<sup>52</sup> abstract theories,<sup>53</sup> descriptions of color perceptions,<sup>54</sup> and – in the

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<sup>52</sup>E.g. “I was always very interested in how things operated and used to *take them apart* to see how they worked, but I was not so good at *putting them back together* again.” [Santibáñez 2002: 191]

<sup>53</sup>E.g. “...more radical feminist theories (such as those of Daly or Irigaray) which criticise and *take apart* the metaphysical implications inherent in philosophical conceptions of the subject.” [id.]

<sup>54</sup>E.g.: “Sensations of white, for instance, are classed together, not because we can *take them to pieces*, and say they are alike in this, and not alike in that, but because we feel them to be alike altogether, though in different degrees.” [id.: 192]

special case of the FRAGMENTATION schema he discusses – to feelings,<sup>55</sup> values<sup>56</sup> and ideals<sup>57</sup>. Although Santibáñez shows that in some cases in which the PART-WHOLE schema, interpreted as a ‘PIECE-WHOLE’ schema, is mapped into abstract experiential domains, the whole does not cease to exist when the parts are removed,<sup>58</sup> he is much less concerned with the notion of dependent parts, the existence of which presupposes the existence of the whole and vice versa. However, he demonstrates that my former doubts about the possibility of mapping part-whole relations as conceptual metaphors into different experiential domains were not justified when it comes to independent parts, because in this case we indeed employ a plenitude of metaphors to express all kinds of experiential domains.

In conclusion, image schemata are basic, cognitive patterns that come into existence through recurrent body-environment interactions. They enable us to understand the world around us as inherently meaningful and they open up the possibility for abstract thinking, conceptual metaphors and – as we shall see – conceptual metonymies. This is also the case for the PART-WHOLE image schema. As Lakoff points out, we develop this image schema through the possibility of manipulating and being aware of our body parts, as well as through our empirical perception of basic-level objects. Like the other image schemata, the PART-WHOLE schema also has an internal structure, i.e. it has a set of parameters (a WHOLE, PARTS, a CONFIGURATION of the parts), an internal logic (of which asymmetry, irreflexivity, whole-dependency, local identity between parts and wholes, and contiguity are sufficient but not necessary features), a high degree of experiential flexibility (e.g. perceptual adjacency, temporal stability, specific PWO experiences of whole-in-part), and the possibility of being combined with other image schemata (e.g. with the CENTER-PERIPHERY schema). Furthermore, and although there are a number of caveats that hold for all image schemata, it is heuristically useful to visualize the PART-WHOLE image schema. After discussing two possibilities from other scholars, one that accentuates independent parts and one that is intended for conceptual reasoning, I suggested and argued for a visual model that is inspired by the mosaic-structure found in artworks. For the sake of modeling, this structure has to be displayed in the simplest way. However, I presented a slightly more elaborated figure in order to make clear how such a visual model can combine both dependent and independent parts. As a further benefit, the mosaic-structure is able to account for the possibility of integrating PWO into the PART-WHOLE image schema by turning the mosaic into a fractal in which there is a constant (quasi) iteration or (quasi) self-similarity of the whole’s basic structure in each of its parts. In so doing, a whole can be part of itself as well as part of its parts without losing its status as a whole, which is one of the – (mereo)logically paradoxical – characteristics of PWO. Finally, I showed that the PART-WHOLE image schema can indeed lead to conceptual metaphor, but mainly in the case of independent parts. For dependent parts (moments), on which the notion of PWO hinges, there must be an alternative route into ordinary language. This route, I hypothesize for now, is entitled ‘conceptual metonymy’, and it is to this route that we must now turn in order to conclude this chapter

<sup>55</sup>E.g. “She felt as though she was dying, as though her heart was being *ripped piece by piece into shreds*, but she had to go on and finish the programme.” [id.: 194]

<sup>56</sup>E.g. “As the credibility of the DLV *lay in shreds*, the greater consequences for world sport were being considered by, among others, Norbert Laurens, the lawyer for the DLV.” [id.: 193]

<sup>57</sup>E.g. “Mrs Margaret Thatcher has struck three notes since the Communist world began to *disintegrate*.”

<sup>58</sup>E.g. in the sentence “My mother, I’m afraid, *went quite to pieces* after his death.” [id.: 194], the mother as a whole continues to exist although metaphorically she *went to pieces*.

on ordinary language analysis as a method for our investigation into the ontological nature of PWO.

## 5.2 On Conceptual Metonymy

The idea of understanding metaphor and metonymy not only as purely linguistic tropes but more holistically as embodied, cognitive phenomena with correspondent image schemata stems from Johnson and Lakoff's influential 1980 book *Metaphors we live by*. This idea heralded a turn in cognitive linguistic research.<sup>59</sup> However, Johnson and Lakoff's research, both in their groundbreaking book and later on, concentrates for the most part on conceptual metaphor and its implications for philosophy and other fields. Conceptual metonymy, although it is regarded by Johnson as having "nearly equal importance with metaphor" [Johnson 1987: 192] and although also "metonymic concepts are grounded in our experience" [Johnson et al. 1980: 39], has not enjoyed such systematic and extensive research as conceptual metaphor did. Nonetheless, there are some crucial passages in *Metaphors we live by* that not only provide valuable characterizations of conceptual metonymy by comparing it to conceptual metaphor, but that also have led to subsequent research on this topic by other scholars.

First of all, however, we have to ask: What is metonymy? In the first book-length study on metonymy, that was nota bene published only recently, Littlemore [2015: 4] defines metonymy as follows: "Metonymy is a figure of language and thought in which one entity is used to refer to, or in cognitive linguistic terms 'provide access to', another entity to which it is somehow related. [...] In a very basic sense, therefore, metonymy is a process which allows us to use one well-understood aspect of something to stand for the thing as a whole, or for some other aspect of it, or for something to which it is very closely related." In this brief description, Littlemore addresses at least three defining features of conceptual metonymy that were first touched on by Johnson and Lakoff and then discussed in more detail in the following literature on this subject matter by other scholars: (1) conceptual metonymy as a *stand-for* relation, in contrast to conceptual metaphor as an *is-like* relation, (2) the experiential homogeneity of source and target, in contrast to the heterogeneity of experiential domains in conceptual metaphor, and (3) the cognitive aspect of 'providing access to' the target by co-activating source and target, in contrast to conceptual metaphor's characteristic of losing sight of the source domain once the act of mapping is accomplished. After I have shown how these three topics are touched upon in Johnson and Lakoff's early research, I will discuss them in more detail in the subsequent subsections (5.2.1 – 5.2.3) one by one. Then I will look at how conceptual metonymy relates to the associated notion of synecdoche (5.2.4), before I conclude that conceptual metonymy is the cognitive and linguistic field where we find empirical evidence for the ontological nature of PWO as, among other things, a cognitive phenomenon that exists in ordinary language (5.3).

Ad 1) In order to illustrate the *stand-for* relation that is typical for metonymy and that makes metonymy differ from metaphor, Johnson and Lakoff [1980: 35] provide a set of example sentences:

"He likes to read the *Marquis de Sade*. (= the writings of the marquis)

He's in *dance*. (= the dancing profession)

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<sup>59</sup>Cf. Nerlich [2010: 297].

*Acrylic* has taken over the art world (= the use of acrylic paint)

The *Times* hasn't arrived at the press conference yet. (= the reporter from the *Times*).

Mrs. Grundy frowns on *blue jeans*. (= the wearing of blue jeans)

*New windshield wipers* will satisfy him. (= the state of having new wipers)"

Our everyday language is full of metonymic *stand-for* relations like the ones in these example sentences, where "one entity is being used to refer to another. Metaphor and metonymy are different *kinds* of processes. Metaphor is principally a way of conceiving one thing in terms of another, and its primary function is understanding. Metonymy, on the other hand, has primarily a referential function, that is, it allows us to use one entity to *stand for* another." [id.: 36] We have already discussed the aspect of metaphor as 'a way of conceiving one thing in terms of another' by attributing the idea of *similarity* to the notion of conceptual metaphor.<sup>60</sup> This means that when there is an experiential domain for which we do not have literal words or concepts to describe it, we map words or concepts that correspond to another, more basic experiential domain into the target domain on grounds of a similarity of the thus mapped element. We then conceive the missing element of the target domain in terms of the available and similar element of the source domain, but without thereby assuming a *general similarity* of target and source domain. This is different in the case of conceptual metonymy. What is *similarity* for conceptual metaphor, is *contiguity* for conceptual metonymy. *Contiguity*, which is one of the essential features of the PART-WHOLE image schema that is then enriched with a particular experiential domain, means that within one and the same experiential domain, there is an element *E* that is so closely related to another element *E'* in this domain or to the domain as a whole *D* such that we can substitute *D* or *E'* for *E* and still understand that actually *D* or *E'* is meant.

Ad 2) This difference between *similarity* (*is-like*) and *contiguity* (*stand-for*) leads us to the second important distinguishing feature between conceptual metaphor and conceptual metonymy highlighted by Johnson and Lakoff. "In *a metaphor*, there are two domains: the target domain, which is constituted by the immediate subject matter, and the source domain, in which important metaphorical reasoning takes place and that provides the source concepts used in that reasoning. Metaphorical language has literal meaning in the source domain. [...] In *a metonymy*, there is only one domain: the immediate subject matter." [id.: 265] The metonymic mapping takes place within the experiential domain. In the example sentences above, the *author* Marquis de Sade is in the same experiential domain as the *writings* that one reads by him; the *activity* of dance is contiguous with the *profession* of dance; the *material* acrylic can stand for its *use* because there is no experiential gap that would make any talk about the material itself a (conceptual) metaphor of the *usage* of the material – or vice versa. The homogeneity of the experiential domain holds true for the other example sentences as well. This means that instead of a cross-domain mapping, there is an intra-domain mapping in the event of conceptual metonymy.

Sometimes it is difficult to distinguish between the metaphorical and the metonymic semantics of a sentence when we focus on language alone. In both cases, there is an act of mapping going on, be it intra-domain (metonymy) or cross-domain (metaphor) mapping: "a linguistic expression with meaning A expressing meaning B. If you are mostly looking at the surface forms of the language, rather than at the conceptual systems and inferential structure, you may not

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<sup>60</sup>Cf. subsection 4.2.4.

be looking in the right place to notice the difference.” [id.: 265–6] Thus, if we just read or hear sentences like ‘He’s in dance’, ‘Acrylic has taken over the art world’, or ‘New windshield wipers will satisfy him’ without understanding the inferential structure that is lying behind the formulation of these sentences, then theoretically we could understand ‘He’s *in* dance’ as relying on a CONTAINER metaphor, ‘Acrylic has *taken over* the art world’ as a mapping of TAKING OVER from the source of WAR (conquering), and SATISFY, which is derived from a bodily action (lat. *satis-facere*: to *make* sufficient), as a metaphor to describe the target domain of an emotional state. Even when it appears that there are two different domains, such as space and time, we can take these domains either in “a single, literal frame” [id.: 266] to express a metonymy such as “San Francisco *is a half hour* from Berkeley” [id.], or we can hold the domains separate and map a spatial expression into the domain of time, like in “Chanukah *is close to* Christmas.” [id.] “The moral is this: When distinguishing metaphor and metonymy, one must not look only at the meanings of a single linguistic expression and whether there are two domains involved. Instead, one must determine how the expression is used.” [id.: 267]

Ad 3) Conceptual metaphors enhance our cognitive abilities by helping us to discover things in a new light, to conceptualize, interpret and express the meaning of experiences for which there are no literal means that directly relate to them. But conceptual metonymy also is beneficial for our faculty of understanding, namely for a better understanding of an experiential domain that we have referential access to already. Johnson and Lakoff give an example that is important for my further discussion of metonymy, because it employs the metonymy THE PART FOR THE WHOLE, which is, as we will see in subsection 5.2.2, one of the two principal ways in which a conceptual metonymy is structured (the other is THE WHOLE FOR THE PART). In the metonymy THE PART FOR THE WHOLE, “there are many parts that can stand for the whole. Which part we pick out determines which aspect of the whole we are focusing on. When we say that we need some good heads on the project, we are using ‘good heads’ to refer to ‘intelligent people.’ The point is not just to use a part (head) to stand for a whole (person) but rather to pick out a particular characteristic of the person, namely, intelligence, which is associated with the head.” [id.: 36] For this reason, conceptual metonymy in general and THE PART FOR THE WHOLE in particular “allows us to focus more specifically on certain aspects of what is being referred to. [...] Metonymic concepts (like THE PART FOR THE WHOLE) are part of the ordinary, everyday way we think and act as well as talk.” [id.: 37] Whereas all of the example sentences given above depict the opposite metonymic structure (THE WHOLE FOR THE PART), it is equally true that by using a wider scale as a source metonymy and by therefore implying the special while expressing the general, we understand better what is targeted through the source than by simply expressing the target as such. E.g. if we were to say ‘*The reporter from the Times* hasn’t arrived at the press conference yet’ instead of ‘*The Times* hasn’t arrived at the press conference yet’, then we would suppress the association that with and through the single reporter, the whole for which they work is present, or, in this case, absent. This means that “we are using ‘The Times’ not merely to refer to some reporter or other but also to suggest the importance of the institution the reporter represents.” [id.: 36] Thus, with conceptual metonymy we can enhance our understanding of one experiential domain by implying two things for the price of one.

Although the notion of conceptual metonymy pops up several times in the later works of

Johnson and Lakoff,<sup>61</sup> they mostly concentrate on conceptual metaphor and its conditions, applications and consequences.<sup>62</sup> This primary focus on conceptual metaphor may be the reason why after *Metaphors we live by*, it “took almost another twenty years to fully redress the balance between metaphor and metonymy [...]” [Dirven 2003a: 1] What has happened in this time and has been happening until the present day in the research on conceptual metonymy which can be described as an update of the just-discussed three defining features which Johnson and Lakoff address. My aim for the remainder of this section is to show how a selection of updating research on these defining features can serve the purpose of identifying the notion of PWO with the metonymic nature of our ordinary language and the embodiment that forms its ground in order to respond to the ordinary judgment aspect of what I have called above the *quaestio iuris* of meta-ontology.

### 5.2.1 Conceptual Metonymy as a *Stand-For* Relation

This distinction between a metonymic *stand-for* relation and a metaphorical *is-like* relation actually dates back at least to R. Jakobson’s influential 1956 article ‘The metaphoric and metonymic poles’. Therein, Jakobson argues that language, speech as well as human behavior and even art are based on a “bipolar structure” [Jakobson 2003: 44] that consists on the one hand of an act of selection and substitution, which is based on the similarity of what we can call experiential domains, and on the other hand of an act of combination, which is based on experiential contiguity. The absence of either one of these two poles would be a symptom of aphasic disorder, such that “[m]etaphor is alien to the similarity disorder, and metonymy to the contiguity disorder.” [id.: 42] It is true, as H. Bredin correctly remarks, that in this wide scope the distinction between metaphoric similarity and metonymic contiguity is too restrictive and inclusive, among other things because “[r]eality is a great deal more complex, its inner relationships a great deal more varied, than the linguistic concepts of similarity and contiguity are able to compass” [Bredin 1984b: 99]. But the idea as such that metaphor and metonymy are primary structures of language and thinking that could be based on similarity and contiguity has found its way into recent debates on these subject matters in cognitive linguistics. This we have seen in the previous discussion of Johnson and Lakoff. However, their first characterization of metonymy as a *stand-for* relation and metaphor as an *is-like* relation has been critically updated by later scholars, mainly in the case of conceptual metonymy, and for a number of reasons.

Already the three aspects of conceptual metonymy that are provided by Johnson and Lakoff entail one reason why contiguity does not have to be a defining attribute of conceptual metonymy. This is because the second aspect, i.e. the singularity of the experiential domain, which is more widely accepted in research on conceptual metonymy, comprises the first aspect, i.e. contiguity. It is therefore unnecessary to postulate contiguity as a further defining attribute next to domain unity. “Contiguity usually suggests spatial continuity, although, admittedly, this notion can be extended to refer to conceptual continuity. Whatever the case, since metonymy

<sup>61</sup>Cf. for example Johnson [1987: 100, 169, 171, 191–2, 209; 1989b: 113, 166; 1999: 82, 99; 2007b: 106, 170; 2008: 44] and Johnson and Lakoff [1999: 305, 481].

<sup>62</sup>Except for Lakoff [1987: 77–90], who discusses metonymy to show how salient properties of experiential domains (what he calls ICMs: Idealized Cognitive Models) serve as partlike prototypes for such domains as wholes.

is based on domain-internal conceptual connections, the notion of ‘contiguity’, whether applied to non-spatial relations or not, follows naturally as a consequence of domain inclusion, thus becoming theoretically inconsequential.” [Ruiz de Mendoza 2014: 146] This means that if it is agreed upon that we do not transcend the experiential domain in the case of conceptual metonymy, and if we understand contiguity as the fact that entities “are contiguous because they are associated in experience” [Croft 2006: 280], then – by way of Occam’s razor – there is no need to postulate contiguity as a further defining feature of conceptual metonymy.

A second reason why it is insufficient to (co-)define conceptual metonymy as being based on contiguity relates to the act of substitution that is supposedly involved when we make one entity metonymically stand for another entity. If, within an experiential domain, we substitute *X* (e.g. the German chancellor and other policy makers) for *Y* (e.g. the capital of Germany) to say that *Y* instead of *X* did *Z* (e.g. ‘Berlin sends its condolences’), then we do not just substitute one thing for another such that the meaning of *Y* would make the meaning of *X* negligible and irretrievable. Instead, as Radden et al. [1999: 19] point out, *X* and *Y* are both conceptually present when we ‘substitute’ one for the other. “Metonymy does not simply substitute one entity for another entity, but interrelates them to form a new, complex meaning. [...] Metonymic relationships should therefore more adequately be represented by using an additive notation such as *X PLUS Y* [...]” This problematization of contiguity as a *stand-for* relation makes K.-U. Panther conclude that even if in a conceptual metonymy the target meaning (e.g. the German chancellor and other policy makers) is more prominent than the source meaning (e.g. the capital of Germany in its political function), “the traditional view of metonymy as a ‘stand-for’, i.e. a *substitution* relation, is the borderline case where the target meaning has become *maximally prominent*. When this happens, there is no metonymic relation anymore, because the source meaning has simply been supplanted by the target meaning.” [Panther 2005: 370–1] We will see in subsection 5.2.3 that this co-activation of source and target within the same experiential domain enforces the third attribute of conceptual metonymy, namely its bidirectional ‘access-to’ relation.

In other publications, both Ruiz de Mendoza and Panther mention a third reason why the substitution hypothesis is insufficient. The incorrect assumption that (conceptual) metonymy can be based on a *stand-for* relationship between target and source is motivated by regarding metonymy only as being referential and not as, for example, predicational. “A corollary of the substitution theory is that the source and the target are, at some level of analysis, considered to be equivalent ways of picking out the same referent. For example, in the sentence *Buckingham Palace issued a statement this morning*, the place name *Buckingham Palace* (source) may be said to stand for the British queen or one of her spokespersons (target). Under this view, the source expression indirectly achieves the same referential purpose as the more direct referring expression *the Queen*.” [Panther 2007: 237–8] However, alongside the referential type of metonymy, there is, for example, the predicational type, for which such a *stand-for* relation does not work. We are employing a predicational metonymy “only when it is possible for a metonymic relationship to bring out a quintessential characteristic of the source to map to the target [...]” [Ruiz de Mendoza 2000: 114] In the predicational metonymy ‘He is a fine bass’, uttered by “a choir director who is really impressed by the beauty of the voice of one the members of the choir” [id.], we do not transcend the experiential domain of choir music, but instead of referring to a really existing bass as an object, we rather pick out one aspect

of a bass (fineness) and map it predicationally to the choir member in question. This is why, according to Ruiz de Mendoza, the referential metonymy ‘John is the ham sandwich’ in the experiential domain of a restaurant waiter/waitress works, but not ‘John is a ham sandwich’, because “it is difficult to find out a quintessential characteristic of a ham sandwich that will map onto John.” [id.] Thus if such an incorrect predicational metonymy is obviously not a case of a *stand-for* relationship, then neither are more plausible predicational metonymies such as ‘John is a brains’ or ‘She’s just a pretty face’.<sup>63</sup> Ergo, determining substitution as a defining principle of conceptual metonymy is inadequate, because – even if we parenthesize the two other reasons just given – substitution only defines referential metonymies but not, for example, predicational metonymies.<sup>64</sup>

These three reasons form convincing evidence that the traditional distinction between (conceptual) metaphor as an ‘is-like’ relation of similarity and (conceptual) metonymy as a ‘stands-for’ relation of contiguity should not be counted as a distinctive feature of these two categories, at least not for the latter. Whereas the third reason points to the internal insufficiency of attributing the necessity of substitution to conceptual metonymy, given that this necessity at most applies to the referential kind of metonymy, the other two reasons point to distinctive features that lie in the more basic realm of the experiential domain. The first reason makes the notion of contiguity being absorbed by the broader and more widely accepted notion of intra-domain mapping. The second reason clarifies that we misunderstand substitution when we interpret it as a disappearance of the source, instead of its being still experientially active yet backgrounded. Both the first and the second reason indicate that PWO, should it indeed be identifiable in ordinary language as conceptual metonymy, cannot be explained by a substitution relation such that a part of a whole stands for, i.e. *is replaceable with* the whole or the whole stands for, i.e. *is replaceable with* a part. If this were to be the case, then we could not speak of a proper oscillation anymore, because in an oscillation, all poles actively ensure an ongoing, positive tension during which the activation of one pole is not accompanied by the deactivation of any other pole. Thus, it would be possible to identify PWO as conceptual metonymy, but only if, firstly, the idea of intra-domain mapping comes down to a mapping of part(s) to whole and whole to part(s), if, secondly, the co-activation of all subdomains involved is accounted for, and if, thirdly, we reject the characterization of conceptual metonymy as a ‘stand-for’ relation of contiguity.

### 5.2.2 Conceptual Metonymy as Part-Whole *Intra-Domain* Mapping

Like primary conceptual metaphor, conceptual metonymy is based both on the sensorimotor domain (mainly by being determined by the PART-WHOLE image schema) and on an experiential domain to which we have direct conceptual and perceptual access. Unlike primary conceptual metaphor, conceptual metonymy does not have the function of transcending one experiential domain in order to map an element of this domain to another domain due to the supposed similarity of the element and the difference of the domains. The source and the target of metonymic mappings are located within one and the same experiential domain. The contents of this experiential domain are necessarily contiguous, which is why contiguity is not an additional

<sup>63</sup>Cf. for these and other examples Ruiz de Mendoza [2000: 114].

<sup>64</sup>As Panther [2007] demonstrates, substitution also does not define illocutionary metonymies.



defining feature of conceptual metonymy. With these aspects in mind, we can understand Radden's [2003: 413] definition of conceptual metonymy: "Any two entities, events or domains that are experienced together are conceptually contiguous and form a 'metonymy-producing relationship' [...], or, for short, a metonymic relationship. Metonymic relationships may give rise to metonymy and possibly metaphor." Such intra-domain relationships can give rise both to primary metaphors, as they likewise come into existence within one and the same experiential domain,<sup>65</sup> and complex metaphors, because they presuppose such an initial experiential domain. Moreover, Radden describes two ordinary experiential situations that give rise to two types of metonymic relationships: correlation and complementarity.

Correlation means that we often experience two or more variables of one experiential domain as interrelated such that "changes in one variable are accompanied by changes in the other variable." [id.] One example that I can think of and that everybody is familiar with concerns nighttime and daytime: It seems that as a general rule, the better we sleep, the better we function during the day and vice versa. Radden himself refers to proverbial expressions such as "*Whats good for General Motors is good for America*" [id.: 314] This and my own example are 'positive' correlations, because they imply a causal relationship between the two variables. "Negative correlations, by contrast, do not invite a causal interpretation: Thus, the proverb *The nearer the church, the farther from God* is not understood in the sense of 'someone is farther from God because he is nearer to church,' nor does the proverb *Short visits make long friends* mean 'they are long friends because they pay short visits.' The default type of correlation in our experience of phenomena in the world is that of positive correlation; this is, in fact, the only type of correlation that pertains to metaphor." [id.] Positive correlations then give rise to primary metaphors like UP IS MORE, SAD IS DOWN, ACTIVE IS ALIVE, IMPORTANT IS BIG, etc. But correlations are also crucial to understand conceptual metonymies. Although these "metonymic relationships within metaphor can, however, not be expressed as independent metonymies" [id.: 416], the metonymic relationship of correlation, positive or negative, basically underlies all conceptual metonymies. If we consider one of the most famous metonymies from the literature on this topic, 'The ham sandwich is waiting for his check', then there is an obvious correlation between the source (the meal 'ham sandwich') and the target (the person who ordered and received the ham sandwich). Had this person not ordered the ham sandwich, or had the person received and accepted a soup instead of his original order, then he could not be referred to in this manner. Thus, in the particular experiential domain belonging to the waiter/waitress who utters this sentence, the person as a whole correlates with a part of him (the having ordered and received a ham sandwich). There would be no experiential correlation, for instance, between this person and the salt shaker he used while eating his sandwich, such that 'The salt shaker is waiting for his check' would be an appropriate metonymic expression.

Complementarity is either an experienced part-part or an experienced part-whole relationship in which the experience of the one side demands the experience of the other side. Complementarity as a metonymic part-part relationship is a "relationship in which the complementary, or opposing, parts are tightly linked to each other and establish a unity." [id. 416] In the sensorimotor domain, for example, I would think of 'left hand' and 'right hand' or 'inner' and 'outer' as complementary pairs. In a similar fashion and due to the "close interdependence of body and mind" [id. 417], Radden refers to the primary conceptual metaphor THE MIND IS A BODY. This

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<sup>65</sup>Cf. subsection 4.2.1.

explains metaphoric expressions such as “*to have a strong will, to handle a situation, to turn one’s back on an issue, to swallow an idea, etc.*” [id.] In addition, I think that the body-mind-complementarity could also form the conceptual metonymy THE BODY STANDS FOR THE MIND (whereby ‘stands for’ is not a substitution relation in the sense discussed and rejected above). When we say ‘she is a brain’, ‘his fingers are all thumbs’ or ‘she has a green thumb’, then parts of the body represent parts of our mind (intelligence, a lack of skill, botanical aptitude) in order to establish a unity that embraces bodily and mental aspects. As another example, Radden refers to irony, where we often use one term to refer to its complementary term, such as in ‘this is such a *great* story’ or ‘the president is a *truly humble* man’ (my own examples). However, part-part complementarity in metonymy has its limits, because we cannot for example substitute ‘husband’ for ‘wife’ or ‘teacher’ for ‘student’ without risking communicative clarity.<sup>66</sup> Next to part-part complementarity, we daily experience part-whole complementarity: Being a husband means being part of a family, being a student means being part of a university, feeling one’s own heartbeat means being part of life as a whole. The experience of such relationships in which parts and wholes are complementary is, according to Radden, “widely exploited in metonymies in which the upper end of a scale is used to stand for the whole scale (*How old are you?* → ‘what is your age?’) and, conversely, the whole scale is used to stand for its upper end (*I am beginning to feel my age* → ‘I am beginning to feel that I am getting old’).” In the same fashion, part-whole complementarity can lead to a primary metaphor like LOVE IS UNITY (e.g. in the expression ‘they are bound together.’).<sup>67</sup>

The metonymic relations of correlation and complementarity show how directly metonymic expressions and their underlying conceptual source-target mappings are linked to and derived from the experiential domain. Contrary to the definition of conceptual metonymy as a substitution relation, intra-domain mapping is generally accepted as one of conceptual metonymy’s characteristic features by many scholars working in this field. Thereby, conceptual metonymy is often contrasted with conceptual metaphor, whereby the latter is said to involve two domains, i.e. cross-domain mapping, which is only the case, however, for complex and not for primary metaphors. Gibbs [1999a: 62], for example, writes that in “metaphor, there are two conceptual domains, and one is understood in terms of another. [...] On the other hand, metonymy involves only one conceptual domain, in that the mapping or connection between two things is within the same domain, or within the same domain matrix [...]” In a similar fashion, Barcelona [2002: 208] defines conceptual metonymy as follows: “A metonymy is a mapping, within the same overall cognitive domain, of a cognitive (sub)domain, called the source, onto another cognitive (sub)domain, called the target, so that the latter is mentally activated.”

Despite this general agreement concerning the single-domain approach towards conceptual metonymy,<sup>68</sup> there are different opinions on how many kinds of metonymic source-target mappings there are. Here we can roughly distinguish four basic positions. The first one holds that there are at least more than three kinds of metonymic source-target mappings. In *Metaphors we live by*, for instance, Johnson and Lakoff mention and give examples for the following kinds of metonymies: THE PART FOR THE WHOLE, PRODUCER FOR PRODUCT, OBJECT USED FOR USER, CONTROLLER FOR CONTROLLED, INSTITUTION FOR PEOPLE RESPONSIBLE, THE PLACE

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<sup>66</sup>Cf. Radden [2003: 417].

<sup>67</sup>Cf. id. [418].

<sup>68</sup>Cf. Barcelona [2003: 246] for a similar definition and Barnden [2010] for a rather critical stance.

FOR THE INSTITUTION, THE PLACE FOR THE EVENT, and THE INSTITUTION FOR THE PERSON RESPONSIBLE.<sup>69</sup> More recent approaches towards conceptual metonymy, however, significantly narrow down the number of possible kinds. The second position postulates only three kinds of metonymies: PART FOR WHOLE, WHOLE FOR PART, and PART FOR PART. Among those who argue for this position are G. Radden and Z. Kövecses in their detailed 1999 article ‘Towards a Theory of Metonymy’.<sup>70</sup> Thirdly, there is the position on which I will concentrate in the following, not only because it seems to be currently receiving the most affirmation, but also because it overlaps with the idea of PWO. This position only allows for two basic kinds of metonymic source-target mappings: PART FOR WHOLE and WHOLE FOR PART. Finally, K.-U. Panther defends a fourth position with only one basic kind of mapping: PART FOR WHOLE, which is “a cognitive operation of meaning *elaboration*, i.e. an expansion of source meaning into a more complex conceptual structure of which the source meaning is part.” [Panther 2005: 358] For the reasons just given, and because an *exhaustive* discussion of conceptual metonymy in cognitive linguistics is not the aim of the present project, I would like to elaborate on the third position.

The position that reduces conceptual metonymy to two basic kinds of source-target mappings, i.e. PART FOR WHOLE and WHOLE FOR PART, is based on a number of reasons. Ruiz de Mendoza, who originally suggested this position, gives at least three reasons in favor of this reduction, which are all directed against metonymic PART FOR PART mappings. Firstly, he argues that “if a mapping between two independent, discrete entities within a given conceptual structure were possible, this mapping would have more in common with metaphor than with metonymy.” [Ruiz de Mendoza 2000: 115]. Although he does not further elaborate on this argument, I think it makes sense if we relate it to primary metaphors. These indeed appear in the same ‘conceptual structure’ or, as I prefer to call it, experiential domain. In the primary metaphor MORE IS UP, for example, we can connect the independent entities of ‘income’ and ‘vertical scale’ to say that ‘his income is rising’,<sup>71</sup> whereas we would not metonymically refer to a vertical scale when we use the word ‘income’, e.g. in ‘are you happy with your income?’. Instead, we would probably not only refer to ‘income’ alone, i.e. as a naked number, but to a broader experiential context in which the income is one part along with the kind of work, the labor conditions, the colleagues, the next promotion, the tax system, etc. Secondly, if we accept PART-FOR-PART mappings, then “we would have the problem of determining why not any two entities in a conceptual structure could be mapped metonymically.” [id.] Thus, as we have seen, we can refer to a customer by naming the food they ordered, but not by naming the salt shaker they used or the chair on which they are sitting. The ordered and received food experientially or conceptually appears as a part of the customer as a whole, whereas the other objects have almost no such relation with them. A third reason against PART-FOR-PART mappings concerns anaphoric references. Let us have a look at two example sentences provided

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<sup>69</sup>Cf. Johnson et al. [1980: 38–9; 59].

<sup>70</sup>“First, the ICMs which include metonymy-producing relationships may be subsumed under two high-level conceptual configurations: (i) whole ICM and its part(s) and (ii) parts of an ICM. The whole-part configuration typically gives rise to metonymies involving things, while the part-part configuration primarily applies to metonymies involving predications in events and states. This may have to do with the conceptually autonomous status which we attach to things as opposed to the dependent status which we attach to relations, which require the presence of things to be related.” [Radden et al. 1999: 43]

<sup>71</sup>Cf. Johnson et al. [1980: 15 f.].

by Ruiz de Mendoza:

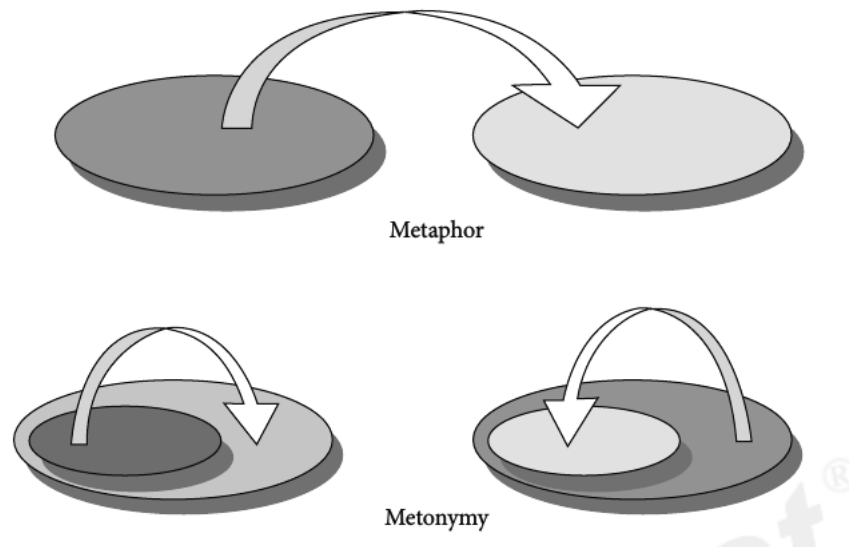
- (a) The ham sandwich is waiting for his check, and *he* is getting restless.
- (b) ?The ham sandwich is waiting for his check, and *it* looks rather stale.

We can only understand the correctness of (a) and the incorrectness of (b) when we take the customer (whole) as a target that is referred to by *he* in (a) and not referred to by *it* in (b). On the other hand, if we take ‘customer’ as one part and ‘ham sandwich’ as another part such that we have a PART-FOR-PART mapping, then we would have to draw the wrong conclusion that (b) is correct. “The reason for this probably lies in the fact that for anaphoric reference to be more workable, it is preferable to have a clear, unambiguous domain, and matrix domains usually qualify better in this respect than subdomains. Thus, the source of a metonymy of the source-in-target [WHOLE-FOR-PART, M.S.] type needs to be developed into its matrix domain [the whole, M.S.] – as in the ‘ham sandwich’ example – to be available for reference, while the target of a target-in-source [PART-FOR-WHOLE, M.S.] metonymy, which is itself a subdomain of the source, is usually too vague to be an adequate candidate for anaphoric reference – as in *Nixon bombed Hanoi*, where ‘Nixon’ refers rather imprecisely to some part of the army under Nixon’s command.”<sup>72</sup> [id.: 116–7] These three reasons indicate the plausibility of conceptual metonymy as consisting of two types of metonymic mapping: PART FOR WHOLE and WHOLE FOR PART.

The two types of metonymic mapping can also be regarded as a reduction (WHOLE-FOR-PART) or an expansion (PART-FOR-WHOLE) of a domain,<sup>73</sup> which together are often referred to as ‘domain elaboration’. An example sentence for a domain reduction would be ‘let’s have a *coffee!*’, where ‘coffee’ refers to a whole situation of chatting, eating a snack, taking a break, etc. This whole experiential domain is reduced to the simple word ‘coffee’, which is, however, just a part of the whole. An example sentence for a domain expansion would be ‘Can I use your *bathroom?*’, when you actually only intend the toilet as one part of the bathroom. In this way, it is possible to re-interpret other supposed types of metonymic mapping, for example PRODUCER-FOR-PRODUCT (e.g. ‘I want an *Apple*’, where ‘Apple’ is the whole that refers to ‘a notebook produced by Apple’) or CAUSE-FOR-EFFECT (‘Sorry, I missed the bus’ refers to the whole situation in which a person ultimately arrives too late). Such a twofold approach towards understanding the underlying dynamics of conceptual metonymy is also argued for by R. Brdar-Szabo & M. Brdar [2011]. These authors provide a helpful diagram (Figure 5-4) that not only illustrates how the intra-domain mapping of conceptual metonymy differs from the cross-domain mapping of conceptual metaphors. The diagram also shows how the former either involves PART-FOR-WHOLE and WHOLE-FOR-PART mapping, which are actually better formulated as PART-TO-WHOLE and WHOLE-TO-PART due to the inadequacy of the substitution relation and the dynamic nature of the act of metonymic mapping.

<sup>72</sup>Cf. the sentences “‘Nixon bombed Hanoi, and *he* knew what he was doing.’” and “‘?Nixon bombed Hanoi, but *they* were under orders (where ‘they’ refers to the soldiers who did the bombing).” [Ruiz de Mendoza 2000: 117] For a more recent discussion of this argument that comes to the same conclusion, cf. Ruiz de Mendoza [2014: 147].

<sup>73</sup>“[...] metonymy can be broken down into two more basic operations, domain expansion and reduction, which give rise to source-in-target and target-in-source metonymies respectively.” [Ruiz de Mendoza 2014: 149]

Figure 5-4: *Intra-Domain and Cross-Domain Mapping*<sup>74</sup>

As a further advantage, the reduction of conceptual mapping to these two possibilities establishes a clear connection between the sensorimotor domain and the experiential domain that is expressed in metonymic language. That is to say, that the act of PART-TO-WHOLE and WHOLE-TO-PART mapping can be regarded as a result of the existence and prevalence of the PART-WHOLE image schema. In one of the few articles that connects image schemata with conceptual metonymy, Díez [2001: 56] states that the PART-WHOLE “image-schema is employed whenever a part of an entity is used to stand for the whole entity [...] or vice versa (e.g. She is learning to tie her shoes, where ‘shoes’, the whole, stands for ‘shoelaces’, a part).” If we accept the twofold act of mapping, then all metonymic mappings would thus be explainable with the PART-WHOLE schema. Díez, however, also accentuates the importance of two other image schemata that could play a role in metonymic mappings: CONTAINER and EXCESS. Without going into further details, I think that in the context of conceptual metonymy, both of these image schemata can be identified as variants of the PART-WHOLE schema. Díez describes the CONTAINER schema, which is probably the image schema that is the closest to the PART-WHOLE schema, as follows: “the ‘gestaltic’ nature of this image-schema makes us see the contents as part of the whole so that we see the container as naturally embracing its contents. This way, the absence of the container entails the loss of its contents, unless the opposite is specified. For example, by saying *My suitcase was stolen* at the airport the speaker actually conveys the idea that he has lost not only the suitcase but also everything that was kept inside it.” [id.: 53] If we say that in the example of the suitcase, a container refers to the contained, then we would actually have to wrongly conclude that only the contained was stolen, but not the container itself. In contrast, if we say that in this example a part (the suitcase) refers to the whole (the suitcase with its contents), then we can draw correct conclusions about what has been stolen. Furthermore, the “EXCESS image-schema is invoked by all those expressions which convey that something is in a larger amount than would be desirable [...]” [id.: 59] For example, “[w]henver [a] container is very full, it becomes harder to keep its contents under control.” [id.] However, I would like to suggest that this kind of excess can equally be explained with

<sup>74</sup>Brdar-Szabo et al. [2011: 221]. Reproduced with the kind permission of the authors.

the PART-WHOLE image schema, in particular with its configuration parameter that is already mentioned by Lakoff. If the parts of a whole are configured in such a way that the stability of the whole is endangered, then we can speak of an excess, without – adhering to Occam’s razor – any need to further postulate or involve an ‘EXCESS’ image schema. Even if other image schemata play a role for metonymic PART-TO-WHOLE and WHOLE-TO-PART mappings, it is evident that without the PART-WHOLE image schema, no such conceptual acts could be conducted. The next and final step now is to ascertain if and where the notion of PWO, which we determined as a variation of the PART-WHOLE image schema, has its place in conceptual metonymy.

### 5.2.3 Conceptual Metonymy as Co-Activation of Source and Target

Conceptual metonymy is a cognitive process expressible in language with which we gain mental access to a whole via one of its parts (domain expansion), or to a part via the whole (domain reduction). Unlike in conceptual metaphor, in conceptual metonymy “the source is not used as a way of reasoning about the target but as a way of affording access to the target, which is always implicit, independently of the kind of metonymy we have.” [Ruiz de Mendoza 2014: 149] Instead of being a substitution relation, it would be better to classify conceptual metonymy as a connection of implication or reference, in which the “the source domain, which can either include the target or be part of it, is used as a point of access to the target domain.” [id.: 162] Due to this dynamic process of cognitively spanning and striding a range between source and target, the former is a “vehicle” [Radden et al. 1999: 19] with which we reach a desired target. The determination of the direction with which the target can be reached depends on certain salient, we could also say ‘concise’ (*prägnant*) or ‘conceptual prominent’<sup>75</sup> characteristics of it.<sup>76</sup> For example, in a PART FOR WHOLE metonymy such as ‘I go to bed’, which actually not only includes the bed as such, but a whole set of other aspects (undressing, tooth brushing, switching off the lights, etc.), we pick out the most salient aspect ‘bed’, because it represents the whole in one single word or concept. In a WHOLE FOR PART metonymy such as ‘Washington decided to build a wall’, we refer to a political institution that is located, among many other things, in Washington DC, which in turn has become a salient, i.e. symbolic, aspect of these institutions.

Whereas conceptual metaphor is rather a ‘copy-and-paste’ mapping from a source to a target, conceptual metonymy can be understood as a mental ‘shortcut’ that activates a desired target. This cognitive process is important, since “we think ‘metonymically’ because it is physically impossible to consciously activate all the knowledge that we have of a particular concept at once, so we tend to focus on a salient aspect of that concept, and use this as point of access to the whole concept. For example, when asked to picture a computer, most people will picture just the screen, rather than the hard disk, the tower, the mouse and so on.” [Littlemore 2015: 4-5] In this context, Lakoff demonstrates that metonymical reasoning is not just a matter of language, but is deeply anchored, for example in social stereotypes.<sup>77</sup> This is also why his

<sup>75</sup>Cf. Panther [2005: 369].

<sup>76</sup>Cf. Gibbs [1999a: 71].

<sup>77</sup>“[A]n additional level of prototype effects occurs in the *mother* category. The source of these effects is the stereotype of the mother as housewife. Social stereotypes are cases of metonymy where a subcategory has a socially recognized status as standing for the category as a whole, usually for the purpose of making quick judgments about people. The housewife-mother subcategory, though unnamed, exists. It defines cultural

notion of ICM (Idealized Cognitive Models), in which wholes possess more and less ‘ideal’ parts, has been picked up by scholars working on conceptual metonymy,<sup>78</sup> although I myself prefer the term ‘experiential domain’ to highlight the perceptual and cultural, not merely conceptual dimension of a domain.

However, the metaphor of the source being a ‘vehicle’ towards the target can be misleading, because it implies that once the target has been reached, there is no need for the source to be still activated. To prevent this possible misunderstanding that would put conceptual metonymy close to conceptual metaphor, Panther [2005: 370] emphasizes that “in a *prototypical* metonymy the target meaning is more prominent than the source meaning, although the source meaning must of course have a sufficient degree of salience in the context of the utterance in order to be able to activate the target. The *raison d’être* of metonymy is to make the target not only *accessible*, as suggested by the reference-point theory of metonymy, but, just as importantly, to make it *available* for the ensuing discourse.” In other words, both the part and the whole of an experiential domain must be cognitively activated for a conceptual metonymy to work and to be employed in language. This mental co-activation of part and whole within one experiential domain is a significant empirical finding that concerns the ontological nature of PWO which I want to investigate. It shows that there is at least one ontological region (embodied natural language) in which we can find a structure that displays how whole and parts can be both distinguishable and inseparable, or, in other words, both disjunctive and adjunctive. As Radden et al. [1999: 19] state, in conceptual metonymy “both the vehicle and the target are conceptually present. However, one of them is seen as being more salient than the other and is therefore selected as the vehicle.” Brdar-Szabo et al. [2011: 227] even conclude that the “phenomenon of simultaneously activating more than one topical concept, viz. a metonymic source, and one or more metonymic targets, is ubiquitous.” Thus for instance when we say that ‘the ham sandwich is waiting for his bill’, we both think about the ordered and received food *and* about the customer as a whole who wants to pay. When we, as a waiter/waitress, look at the customer, we simultaneously understand him as an integral person (whole) *and* we see the, from our perspective, salient, aspect of having ordered a ham sandwich (part). Both sides are combined yet distinguishable and lead to one another: They oscillate in mutual dependence. This is a remarkable cognitive act, which we already find in the development of the PART-WHOLE image schema, for example when a child draws a human being just by showing lines of arms, legs, trunk and head. What is perceptually present is both these simple lines as salient parts *and* a complete human body, even for the adult who studies the drawing.<sup>79</sup> In the same spirit, a good caricature accentuates salient aspects of a face through which we gain access to the whole character of the person thus depicted. Therefore, we can figuratively say that a conceptual metonymy works like a magnifying or a reducing lens with which we access the target while still being aware of the original size and scope of it as source.

Thus, conceptual metonymy allows for a simultaneous co-presence of parts and whole. This poses questions concerning the interconnection of these two sides. We have already seen that

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expectations about what a mother is supposed to be. And because of this, it yields prototype effects. On the whole in our culture, housewife-mothers are taken as better examples of mothers than nonhousewife-mothers.” [Lakoff 1987: 79–80]

<sup>78</sup>Cf. Radden et al. [1999: 20] and Littlemore [2015: 10]. For a more critical discussion of ICM for conceptual metonymy cf. Benczes [2011: 208].

<sup>79</sup>Cf. Arnheim [1974: 142–3].

there is some kind of access-relation between source and target. Once the act of metonymic mapping has gained access to the target, however, the source is still conceptually active. As both source and target are located in the same experiential domain, there must be some kind of internal process that makes the parts and the whole experientially united and distinguishable at the same time. For this phenomenon, as already for the notions of the PART-WHOLE image schema and for perceptual/conceptual salience, some scholars in cognitive linguistics draw on basic findings of Gestalt theory. In the case of the co-presence of parts and wholes in conceptual metonymy, one finding some scholars draw on is the distinction and interplay between figure and ground.<sup>80</sup> Just as a figure only appears, i.e. becomes present on a background, the target of a metonymy can only be present because the source is backgrounded rather than vanished and invisible. Accordingly, Panther et al. [2007: 242] write that a “further important property of a prototypical metonymy is that it *highlights* or *foregrounds* its target content and, accordingly, backgrounds its source content.” This means firstly that although both parts and whole are co-present, there is always one side, i.e. either the whole or one of the parts, that is gradually *more* present than the other side, without this other side being non-present. With the Husserlian terminology, we could say that in conceptual metonymy, there is a dependence relation of wholes and parts such that either side can be a continuous moment of the other side: If the whole is the target, it can be a foregrounded moment of the parts as background and vice versa. For example, if the whole customer is the target that is gained access to by ‘ham sandwich’, then the whole stands out on the backgrounded basis of one of its parts. Only in the extreme case of a complete substitution of the source by the target, i.e. if we understand metonymy as a stand-for relation, would the source be cognitively absent, as is generally the case with conceptual metaphor. Secondly however, the background-foreground relation of parts and whole in conceptual metonymy implies that we can also concentrate on the background again and make it stand out as foreground. In other words, we can ‘oscillate’ backwards to what we started out with, which is either one of the parts of the whole or the whole itself, “because the source concept is still usually retrievable (though backgrounded), even if the target concept is conventionalized in the lexicon.” [Brdar-Szabo 2011: 220] For example, when we are told ‘the ham sandwich is waiting for his check’, we can either refer to the foregrounded target and respond ‘*he* can wait a bit longer’, or we can shift back to the then foregrounded source by saying ‘*it* can wait a bit longer’, or we can even shift to another part of this experiential domain and say ‘I thought the *tomato soup* sitting next to it/him would pay today.’

This quality of shifting backward and forward between parts and whole is another important feature of conceptual metonymy which has been accentuated in the literature. Whereas conceptual metaphor’s act of mapping is characterized by being unidirectional, the relationship between source and target in conceptual metonymy is a bidirectional one. As Brdar-Szabo et al. [id.] formulate it, “[m]etonymic mappings can proceed in either direction, from the more concrete part of the domain (i.e., the subdomain) to the more abstract one, and the other way round [...]” To illustrate this point, these authors refer to their diagram (Figure 5-4) displayed above. Although this figure is helpful, I think it would be more accurate in illustrating the bidirectionality of source and target if the arrows pointing from the one to the other were to point in both directions. This would indicate that in a conceptual metonymy, we can cogni-

<sup>80</sup>“More precisely, from a gestalt perspective, metonymy turns out to be a ‘figure/ground’ effect.” [Koch 1999: 151].



tively move backward and forward, i.e. we are not dealing with a source that is immutably backgrounded, but with an ongoing process of backgrounding and foregrounding. As Brdar-Szabo et al. [id.: 240] state themselves, with “metonymy there is room for corrections, moving forward or backward, i.e., hopping from one metonymic tier to another metonymic tier in a conceptual chain.”

This bidirectional process of ‘moving forward or backward’, which leads to a “mutual accommodation of source and target” [id.: 245], makes for the reversibility of source and target. To demonstrate this reversibility, Radden gives an example of the UP FOR MORE metonymy, which is reversible to the MORE FOR UP metonymy. If an attendant at a gas station asks us ‘How much gas do you want?’, the driver can answer ‘Just fill her up’. In this case, the “customer answers a question about a quantity by metonymically naming a level of height.” [Radden 2003: 411]. Conversely, the attendant can ask ‘Shall I fill her up?’ and the driver answer ‘Yes, put in as much as she can take’, which would be a MORE FOR UP metonymy. I would say that in this case, the UP as a vertical dimension is part of the three-dimensional tank that is fillable with a certain quantity of gas. In any case, as Barnden [2010: 22] puts it by referring to several other relevant publications on this topic, “the role that the target item plays in relation to the source item is an important part of the message, not just a processing route to determining the message.” This dynamic process of back-and-forth projecting, which is imaginable as an oscillation between whole and parts taken either as source or as target respectively, is not a demanding process of abstract thinking. On the contrary, “metonymic pathways are part of the cognitive competence of normal speakers and hearers and are readily accessible in particular linguistic and extra-linguistic contexts.” [Panther 2005: 353] Thus, in the case of what we can call ‘metonymic PWO’, we commonly remain in the familiar domain of ordinary language and thinking, i.e. in the commonsensical construction and (mutual) understanding of meaning in all of its aspects.

#### 5.2.4 From Metonymy to Synecdoche and Back Again

After having identified conceptual metonymy and thus embodied language as an ontological region where PWO does occur, there is another question left to be answered: If conceptual metonymy consists both of PART-TO-WHOLE and WHOLE-TO-PART mappings, then where does synecdoche belong? For Johnson and Lakoff, for whom PART-TO-WHOLE and WHOLE-TO-PART seem to be only two kinds of metonymic mapping among many others, it is possible to “includ[e] as a special case of metonymy what traditional rhetoricians have called *synecdoche*, where the part stands for the whole [...]” [Johnson et al. 1980: 36] In this solution to the problem of how metonymy and synecdoche might relate to another, Johnson and Lakoff subsume synecdoche, as PART-TO-WHOLE or PART-FOR-WHOLE mapping, under the broader notion of metonymy. However, as for metonymy, there is not much to be found on synecdoche in the cognitive linguistic works of these two researchers. Their chosen solution may be justified by the fact that, as B. Nerlich points out,<sup>81</sup> Jakobson himself already subsumes synecdoche under metonymy. The question concerning the relationship between synecdoche and metonymy, which often includes comparisons with metaphor and results in strong positions on which one of these three could

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<sup>81</sup>Cf. Nerlich 2010: 297.

be the ‘master trope’, even dates back to P. Fontanier’s 1827 *Les Figures du discours*.<sup>82</sup> It would go beyond the scope of this project to even summarize the regular shifts in this battle for importance. It is also not always clear whether synecdoche is additionally supposed to cover WHOLE FOR PART mappings. However, we can get a glimpse of the complexity involved in this discussion when we read Nerlich’s conclusion of how the importance of synecdoche developed over time:

“Looking back at the older and newer definitions of synecdoche one can only agree with Bernard Meyer when he writes that “La catégorie de la synecdoque apparaît donc comme une classe rhétorique d’extension flottante, une nébuleuse de figures variant autour d’un noyau stable.” [...] First synecdoche was part of metaphor, then a whole trope in itself with a set of members whose number fluctuated over time, until, more recently, part of it was amalgamated with metonymy, namely the part–whole type of synecdoche. For a very long time the kernel of synecdoche consisted of two types of synecdoches: the part–whole one and the genus–species one, with the part–whole one being the epicentre, as a quick look at some reference dictionaries will confirm. Only recently has this kernel been broken up and one part of it been annexed by metonymy. In some cases the genus–species synecdoche was forgotten altogether in the process of reducing all tropes to two, namely metaphor or metonymy, and sometimes the genus–species part of the kernel was preserved to redefine synecdoche as a third member in a triplet of essential tropes, namely metaphor, metonymy and synecdoche.” [Nerlich 2010: 315]

Although I do not look back further at the history of this debate, Nerlich’s conclusion provides us with three important indications. Firstly, synecdoche traditionally not only consists of PART-TO-WHOLE mappings, but also, and perhaps less prominently, of GENUS-SPECIES relations. Secondly, with Jakobson and later with Johnson and Lakoff, the originally synecdochic PART-TO-WHOLE mappings have been subsumed under (conceptual) metonymy. Thirdly, synecdoche has ‘survived’ this subsumption, because it could keep its role for denoting genus-species relations. Thus even if metonymy now covers all PART-TO-WHOLE and WHOLE-TO-PART mappings and is therefore the most interesting trope for the present investigation of part-whole relations and PWO, there continues to be a right to exist, i.e. a proper purpose for synecdoche. In fact, even consisting of GENUS-SPECIES relations alone, synecdoche can be regarded as an important object of comparison that reveals one aspect about metonymy which we have not talked about so far, but which is nonetheless crucial for an ontological classification of metonymy: metonymy’s tendency towards reality, i.e. metonymy’s inherent realism.

When in the end of the last quote, Nerlich states that ‘the genus-species part of the kernel was preserved to redefine synecdoche’, she refers to K. Seto’s influential 1999 article ‘Distinguishing Metonymy from Synecdoche’. To me it seems that this article marks one of the most recent turning points for the determination of metonymy and synecdoche, not only explicitly in a cognitive linguistic framework, but more implicitly in an ontological framework as well. The latter is the case, because the distinction Seto makes between synecdoche and metonymy is nothing less than the drawing of an ontological borderline that divides what is in the world from

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<sup>82</sup>Cf. Fontanier [1968: 79–108] and for a historical discussion Schofer et al. [1977].

what is in the mind. Although, as Littlemore rightly criticizes<sup>83</sup> and on grounds of Johnson's refusal of a strict subject/object dichotomy,<sup>84</sup> such a clear distinction seems to be artificial and philosophically dubious, it points nonetheless to a reality-directed interpretation of conceptual metonymy, which is beneficial for the present ontological investigation. Seto's main claim is that metonymy includes, but is not exhausted by paronymies (part-of relations) and, more importantly, refers to objects existing in the outside world. Synecdoche, by contrast, refers to and is exhausted by taxonomies, which are mental categories about real and abstract objects. In Seto's own words, "Metonymy is a referential transfer phenomenon based on the spatio-temporal contiguity as conceived by the speaker between an entity and another in the (real) world" [Seto 1999: 91], whereas synecdoche "is a conceptual transfer phenomenon based on the semantic inclusion between a more comprehensive and a less comprehensive category." [id.: 92] This means that whereas metonymy is E(ntity) related, synecdoche is C(ategory) related. Synecdochic C-relations are taxonomic groupings of categories, such as the famous Linnaean classification of nature, where one sub-category is the 'kind of' of a more comprehensive category.<sup>85</sup> This is the GENUS-SPECIES relation of synecdoche that Nerlich mentions, where we have either GENUS TO SPECIES or SPECIES TO GENUS mappings (e.g. 'Look at this *dog!*' instead of 'look at this *Border Collie and Beagle crossbreed!*'). Metonymy, on the other hand, refers to relations that hold true and exist outside of the conceptual system with its more or less arbitrary classifications.

Seto then goes on to argue that paronymy is one kind of metonymy among others. As a result, he can claim that paronymy "is based on real-world constitutive relations; taxonomy is concerned with mental (re)classifications of categories. Whereas we have some, if not absolute, freedom to taxonomically (re)classify categories, we are not free to change constitutive relations in the world because the world is there just as it is." [id.: 94] Furthermore, if synecdoche refers to categories, then metonymy refers to individual entities, be they spatial,<sup>86</sup> temporal<sup>87</sup> or abstract<sup>88</sup> in nature. Unlike scholars who reduce metonymy to part-whole relations alone, Seto takes paronymies to be a kind of spatial metonymy next to CONTAINER-CONTENT and ADJACENCY relations. Here he seems to be closer to the originally stated multitude of metonymic kinds postulated by Johnson and Lakoff. This is interesting to notice but should not further concern us, as the more important and convincing lesson to learn from Seto's article is the artificial and often blurry,<sup>89</sup> yet heuristically helpful distinction between metonymy as a *real-world* directed trope and synecdoche as a *mind-directed* semantic act of categorization. As Nerlich

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<sup>83</sup>"However [...], it is often difficult to make a distinction between 'real' contiguity and contiguity 'in the mind'.

All of the information that we have about 'the real world' is filtered through mental models that reflect our world views, and this is reflected in our language. This is why, when we look at examples of part for whole relationships in real-world linguistic data, the distinction between metonymy and 'synecdoche' becomes very blurred." [Littlemore 2015: 23]

<sup>84</sup>Cf. subsection 4.1.2.

<sup>85</sup>Cf. for a more philosophical, in-depth analysis of this taxonomic form of thinking Leisegang [1951: 257], who calls it a 'pyramid of concepts' (*Begriffspyramide*).

<sup>86</sup>"Spatial entities' are understood here in the sense of physical entities which have spatial extension." [Seto 1999: 96]

<sup>87</sup>"Contours which we impose on temporal entities are metaphorical in nature. A temporal entity is bounded by a temporal frame. The term 'frame,' itself metaphorical, should give what occurs (or 'takes place') in time a beginning and an end, making it possible to capture the event as an identifiable whole." [id.: 97]

<sup>88</sup>"An abstract entity is typically a salient property of a thing." [id.: 98]

<sup>89</sup>Cf. Barnden [2010: 20].

[2010: 311] formulates it in referring to Seto: “Metonymy exploits our knowledge of how the world *is*, synecdoche of how it is *ordered* in our mind.” It is this tendency of metonymy towards realism, its ‘reality-directedness’, which makes it possible to relate metonymic part-whole relations in ordinary language, stemming from the embodied PART-WHOLE image schema in the first place, back to the world itself, which is an important cue for not only identifying PWO in language and embodied structures, but also beyond.

In fact, Seto’s paper is just one recent instance in which metonymy’s tendency towards realism is highlighted. Whereas Seto makes use of the contrast and the traditional similarities between metonymy and synecdoche, other authors either accentuate metonymy’s universal, i.e. trans-linguistic nature and/or postulate metonymy’s realism via a comparison between metonymy and metaphor. In his reflection on ‘The metaphoric and the metonymic poles’, Jakobson already not only transcends the purely linguistic aspect of metonymy (and metaphor) by relating it to aphasic speech disorders. He also relates metonymy to literary realism and to prose in general, while metaphor is supposed to be typical for the Romantic period and for poetry.<sup>90</sup> Furthermore, Jakobson extends the linguistic-textual nature of metonymy and metaphor to other forms of art such as cinema and cubism (instances of metonymic acts) as well as theater and surrealism (instances of metaphorical acts). Although Jakobson’s article has been criticized for its absolute dichotomization of metaphor and metonymy,<sup>91</sup> among other things, some contemporary scholars of cognitive linguistics clearly affirm his extension of metonymy towards other areas of reality and realism. Gibbs [1999a: 61], for example, uses an example from Balzac’s realistic novel *Père Goriot* to illustrate the nature of metonymy, because “[l]ike many 19th century fiction writers, Balzac provides wonderful examples of metonymic descriptions in which the concrete depiction of some object or person stands for or represents larger objects or domains of experience.” Barcelona [2002: 211] argues that in addition to artistic styles and narratives,<sup>92</sup> acts of metonymic mappings also underlie the function of “paralinguistic and non-linguistic” symbols and even iconic bodily gestures in which we imply a more comprehensive situation or meaning via a simple, intended bodily expression. Moreover, in ‘Towards a Theory of Metonymy’, Radden et al. [1999: 21] account for this universal and partly conceptual, partly realist nature of metonymy by holding that “[m]etonymic processes are thus not restricted to reference: they occur at the purely conceptual level (categorization, linguistic reasoning), at different levels of language (lexis, morphology, syntax, discourse), in different linguistic functions (reference, predication, speech acts), and as a linkage interrelating different ontological realms (concepts, forms, and things/events).” Littlemore confirms this

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<sup>90</sup>“The primacy of the metaphoric process in the literary schools of romanticism and symbolism has been repeatedly acknowledged, but it is still insufficiently realised that it is the predominance of metonymy which underlies and actually predetermines the so-called ‘realistic’ trend, which belongs to an intermediary stage between the decline of romanticism and the rise of symbolism and is opposed to both. Following the path of contiguous relationships, the realist author metonymically digresses from the plot to the atmosphere and from the characters to the setting in space and time. He is fond of synecdochic details. In the scene of Anna Karenina’s suicide Tolstoj’s artistic attention is focused on the heroine’s handbag; and in *War and Peace* the synecdoches ‘hair on the upper lip’ and ‘bare shoulders’ are used by the same writer to stand for the female characters to whom these features belong.” [Jakobson 2003: 43]

<sup>91</sup>Cf. Bredin [1984b].

<sup>92</sup>“In narrative and/or descriptive discourse it is quite common to mention or to allude only to certain aspects, or certain subsets, of the event sequence to be narrated or of the entities or the scenario to be described.” [Barcelona 2002: 212]

universalization of metonymy by pointing out that metonymy “has been found to play a role in a wide variety of different modes of communication and meaning creation, such as art, music, film and advertising.” [Littlemore 2015: 8] The fact that metonymic thinking, being “an everyday process which plays a key role in helping us make sense of the world” [id.: 191], is thus widespread and universal<sup>93</sup> indicates that language is not isolated from the world and its meaningful ontological and experiential domains. “Many of the principles determining vehicle selection correspond to people’s everyday experiences with the world, which illustrates an underlying cognitive linguistic premise that language is by and large both a reflection and product of our everyday interactions with the real world.” [id.: 36] Finally, Bredin argues that unlike metaphor, metonymy presupposes knowledge about the world, as the objects of a metonymic mapping must be known before the mapping takes place.<sup>94</sup>

The complex relationships between metaphor, metonymy and synecdoche are impossible to determine once and for all, particularly not within the limits of the present investigation. However, if we only regard metonymy and synecdoche and base ourselves on recent research in cognitive linguistics, it seems that metonymy both consists of PART-TO-WHOLE and WHOLE-TO-PART mappings and that it mainly concerns phenomena and objects in reality, not only ones that are conceptual-linguistic in nature. This finding is significant for the present investigation, because firstly, it shows that metonymy is a conceptual-linguistic way of thinking and expressing such that PWO is indeed identifiable in ordinary language. Secondly, the realist or reality-directed tendency of conceptual metonymy, which makes it differ from synecdoche’s now proper scope of abstract taxonomic hierarchies, indicates that metonymic part-whole relations might characterize objects and events in the world that are not only conceptualizable and linguistically expressible, but empirically perceptible and phenomenologically experienceable in the first place. The existence of the PART-WHOLE image schema, which connects mental acts of metonymic mappings with a more basic sensorimotor domain that is our bodily interaction with the world, also points in this direction.

We can now combine the research finding that there is a bidirectional co-activation of source and target within one and the same experiential domain with the research finding concerning the universal and realist nature of metonymic part-whole relations. This combination yields the conclusion that objects and events, including situations, persons, artistic styles, ways of communication, sense data, symbols, gestures, etc. are meaningful *for* us partly because we experience their inherently double-sided yet unitary nature of oscillating between (backgrounded/foregrounded) parts and (foregrounded/backgrounded) wholes as ‘meaning of’. In other words, there is a need to address the possibility of whether metonymic part-whole relations (‘metonymic PWO’) are processes that are preconceptual, prelinguistic and even exist prior to their being embodied as the PART-WHOLE image schema. These are admittedly vague

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<sup>93</sup>“Metonymy is everywhere. It shapes the way we think and the way we influence the thoughts of others. Meaning is underspecified in all forms of communication, leaving much of the interpretative work to the reader, viewer or listener. Metonymic thinking forms the core of this interpretative work and is something that we engage in all the time in order to extract meaning from language and other forms of communication.” [Littlemore 2015: 197]

<sup>94</sup>“A metonymy neither states nor implies the connection between the objects involved in it. For this reason, it relies wholly upon those relations between objects that are habitually and conventionally known and accepted. We must *already know* that the objects are related, if the metonymy is to be devised or understood. Thus, metaphor *creates* the relation between its objects, while metonymy *presupposes* that relation.” [Bredin 1984a: 57]

and speculative conclusions that transcend the appropriate research area of cognitive linguistics and suggest work partly in the field of the psychology of perception (Gestalt theory), partly in the field of ontology itself, for which the former can serve as a valid method. This direction towards Gestalt theory and/as ontology, however, is the way to go if any *comprehensive* determination of the ontological nature of PWO is to be given. Therefore, I would like to conclude this chapter in the following section and give further indications there of how to proceed given the research findings on conceptual metonymy and its enormous significance for a *preliminary* determination of PWO's ontological nature.

### 5.3 The Identification of PWO as Conceptual Metonymy

Ontological knowledge about the nature of reality is only hypothetical without an answer to the critical question of how we can have such knowledge in the first place. In this sense, the purpose of chapters 4 and 5 was Kantian in spirit. Chapter 4 started out with the hypothetical notion of PWO that followed from the conceptual analysis intrinsic to Husserl's part-whole ontology in the second chapter. This conceptual analysis was an answer to what I call the meta-ontological *quaestio facti*: Where and how do we have which ontological categories from? Before any bottom-up approach concerning the conditions for this knowledge can take place, it is necessary to factually determine which object of hypothesized knowledge it is that we are dealing with. It is impossible to justify the existence of something without firstly determining what this something is supposed to be. The second chapter's pairing of the two parameters *reality* and *part-whole* within the Husserlian ontology of the 3<sup>rd</sup> LI then led to a characterization of PWO that strongly suggested transcending the framework of conceptual analysis and turning to what I call the meta-ontological *quaestio iuris*: How can we justify the hypothetical knowledge that we have gained via a priori reasoning concerning the ontological nature of – in this case – PWO? What are the conditions for this knowledge? For several reasons, given in the first, methodological chapter, we have seen that the *quaestio iuris* is answerable by drawing on empirical findings: Firstly by research on natural language and common-sense reasoning, secondly by research on perception. The former approach, developed in the context of cognitive linguistics, showed that the notion of PWO is identifiable as conceptual metonymy and that the condition for the conceptualization and linguistic expression of PWO lies in our embodied cognition and perception of part-whole relations due to our interaction with the world around us. Let me briefly summarize the route that has led to this conclusion and give three positive characterizations of PWO as conceptual metonymy, before I indicate the next station which the *quaestio iuris* necessitates in order to be sufficiently answered.

First of all, the concentration on natural language demanded a theory or a complex of theories for the analysis to be carried out. To fulfill this need, I focused on cognitive linguistics in general and the (co-authored) works of M. Johnson in particular. The former has the advantage of not isolating language from other areas of reality, which makes it more plausible to connect this method with the other methods used in the present investigation. The latter is one of the few cognitive linguists who not only embeds this empirical approach in a philosophical framework, but who also raises questions about meaningfulness and experience of a general concern, which is what makes Johnson's take on cognitive linguistics stand on scientific, philosophical as well as

common-sense grounds. This accentuation of *meaning* and *experience*, which are the two other parameters next to *reality* and *part-whole* that form the pillars of this project around which the research question is structured, suggested distinguishing three layers of *meaning*. As I explained in subsection 4.1.1, the first layer relates to the deductive method of conceptual analysis. It takes the parameter *meaning* to be propositional meaning ( $\text{meaning}_{\text{prop}}$ ) and replaces *experience* with a priori, purely formal reasoning. Johnson argues strongly against the ‘autarchy’ of this first layer for the philosophical as well as everyday meaning of *meaning*. He does so by showing that propositional meaning is just one aspect of *meaning* in a broader sense, or rather: *as a broader sense, as sense-making of what I have called a ‘meaning of’ in interconnection and correlation with a ‘meaning for’.*

This understanding of *meaning* as general meaningfulness, i.e. as valuableness and profoundness of situations in which we take part, can already be classified as the third layer of *meaning* ( $\text{meaning}_{\text{sit}}$ ), not the second. The second layer consists in the meaning of empirical perceptions ( $\text{meaning}_{\text{perc}}$ ): visual meaning, auditory meaning, cross-modal meaning, etc. Although Johnson’s emphasis on  $\text{meaning}_{\text{sit}}$  is accurate on its merits, it is his own explicitly empirical method that prevents him from getting hold of the complete experiential dimensions of this third layer beyond what is merely perceptible with our senses and physically interactable with our bodies. However, what was needed and what Husserl’s formal part-whole ontology could only allude to was exactly what Johnson in particular and cognitive linguistics in general do propose. This was an empirical method that analyzes ordinary language and relates it both to abstract thinking (through which PWO had been hypothesized in the second chapter) and – via our body and its sense organs – to the reality with which we interact. It is in this reality in which our thinking and language are embodied and our bodies are ‘enworlded’ that dynamic part-whole structures could be situated as a condition for their implementation in our body, thinking and language. This holistic view of gradual transitions instead of ontological dichotomies then presupposes a non-dualistic unity of mind, body and world, for which Johnson argues on the empirical grounds to which his inductive method is restricted, regardless of his equally relevant accentuation of  $\text{meaning}_{\text{sit}}$  (4.1.2).

Since the better part of Johnson’s work is concerned with conceptual metaphors, the first question I wanted to ask was whether PWO can be identified in language as a conceptual metaphor (4.2). In line with the aforementioned holistic presupposition of an inseparable continuum between language, mind, body and world, we saw that a conceptual metaphor is more than just a linguistic trope. As a *primary* conceptual metaphor (4.2.1), it is deeply embedded in our bodies’ interactions with the environment. In fact, primary conceptual metaphors are the result of the unconscious connection between the sensorimotor domain (consisting of body-environment interactions and embodied image schemata) on the one hand and an experiential domain (consisting of direct Gestalt-like experience and sociocultural background) on the other hand. In the case of primary conceptual metaphors, there is a direct correspondence between or ‘conflation’ of the sensorimotor and the experiential domains. Only in a second, mostly equally unconscious step and with the occurrence of an additional experiential domain for which there are no primary metaphors available, do we map a primary metaphor from the first experiential domain, i.e. the source, to the second one, i.e. the target. The result of this unidirectional mapping is a *complex* conceptual metaphor (4.2.2). Many semantic expressions in ordinary language, in particular concerning abstract objects and events, are complex conceptual metaphors,

e.g. A PURPOSEFUL LIFE IS A JOURNEY. In this example, we have a socioculturally influenced experience of what a purposeful life entails, but in order to conceptualize and express this experience, we need to ‘import’ primary metaphors originally belonging to another, more bodily and thus more basic experiential domain: a ‘journey’, as the particular spatiotemporal movement of an object from *A* to *B* and maybe further, and a ‘purpose’, which is the destination of a journey.<sup>95</sup> This act of mapping takes place between a source domain and a target domain which differ experientially. Hence, metaphorical mapping is a *cross-domain* mapping (4.2.3). In cross-domain mappings, an element that serves as a metaphor is selected from the source domain and mapped into the target domain due to its similarity with the conceptually missing element in the latter domain. After this act of mapping, the original context of the element in the source domain is substituted by the target domain, such that the source domain is mostly not only backgrounded, but conceptually as well as experientially disappears in its entirety.

This is one of the reasons why PWO cannot be classified as a complex conceptual metaphor: The parts of an entity and the entity as a whole belong to one single experiential domain due to the necessary correlation between parts and whole. But PWO can also not be a primary conceptual metaphor. Since I am interested in an ontological determination of PWO, the only category that lends itself to this kind of determination would be what Johnson and Lakoff call ‘ontological metaphors’ (4.2.4). These are a sub-type of primary metaphors and are derived from either physical entities or physical containers in the sensorimotor domain. The characterization PWO<sub>ded</sub> in section 2.3, however, excludes it from the realm of physical-material objects, because it is pieces and not moments that are constitutive of such objects. Moreover, although PWO can easily be mistaken for the displaying structures of a physical container, it cannot be explained by such structures. This is firstly because a part as a moment in PWO is simultaneously dependent (inseparable) and independent (distinguishable) from the whole, whereas a part of a container is *either* inside the container (as a dependent part, if its existence hinges on the existence of the container) *or* outside the container (as a piece), but not both at the same time. Secondly, physical containers cannot be applied to dependent part-whole relations, because they imply that what is contained can be moved from the inside to the outside of a container and vice versa. Dependent parts of wholes, however, are not movable without alterations in the modes or conditions of their existence. Thirdly, a container can exist without containing anything, but a whole, either composed of pieces or of moments, does not exist without *any* parts, because wholes and parts are correlative. Thus, PWO is not an ontological primary conceptual metaphor and therefore neither a primary metaphor nor a complex metaphor.

In order to investigate if there is another category apart from conceptual metaphors in ordinary language and everyday thinking with which PWO can be identified, it was necessary to find an appropriate image schema beforehand (4.3). To do so, I touched upon the notion of image schemata in general (4.3.1): how they come into existence via meaningful body-environment interactions; how they exist as recurring structures of our meaningful being in the world; how many there are approximately; how they can be discovered via phenomenological introspection and linguistic research; how universal and intersubjectively shared they are; how they display a rich and flexible internal structure; how and with which caveats they are visualizable, and how they not only give rise to conceptual metaphor, but also to conceptual metonymy. Using several of these characteristics of image schemata in general, I delineated the PART-WHOLE

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<sup>95</sup>Cf. Lakoff [1994: 80].



image schema (4.3.2): how it comes into existence via the fact that our bodies have parts and via our interactions and perceptions of basic-level objects; how it is internally structured into the parameters WHOLE, PART and CONFIGURATION; how it is combinable with other image schemata; how the CONFIGURATION parameter includes both contiguity, adjacency, continuity and temporal stability; how asymmetry and irreflexivity are sufficient but not necessary laws for part-whole relations, and how the PART-WHOLE schema can be visualized as a mosaic-structure for (in)dependent part-whole relations in general and as a fractal for PWO in particular. Finally, I showed that the PART-WHOLE schema *not only* leads to conceptual metaphor (opposed to my argumentation in 4.2.4), but also to conceptual metonymy, especially when we are focusing on parts, the existence of which depends on the whole they are correlated with.

For this reason, the second question was whether or not PWO could be identified as the structure that underlies conceptual metonymy (4.4). To do so, I had to go beyond Johnson's own take on cognitive linguistics, as his works mainly concentrate on metaphor and mention metonymy only marginally in comparison. What Johnson does mention and what was informative to begin with, however, are three aspects of conceptual metonymy that have been extensively discussed in the subsequent literature on this topic: firstly conceptual metonymy as a *stand-for* or substitution relation based on contiguity in contrast to conceptual metaphor as an *is-like* relation based on similarity; secondly the sufficiency of a single experiential domain in which metonymic source-target mappings can take place in contrast to conceptual metaphor's cross-domain mapping; and thirdly the metonymic co-activation of source and target as sub-domains of the experiential domain in contrast to the deactivation of the source domain in conceptual metaphor.

The first point I discussed in 4.4.1 and concluded that, contrary to Johnson's (and Lakoff's) original approach, which was partly based on Jakobson, conceptual metonymy generally does not rely on a *stand-for* relation based on contiguity. This is because contiguity is already included in the single experiential domain approach and is therefore not an additional characteristic. Moreover, a *stand-for* relation implies that the target replaces the source instead of leaving the latter's presence intact. Also, there are kinds of metonymy (in particular predicational metonymy) in which the approach of defining metonymy as a *stand-for* relation does not work at all. This refusal of the *stand-for* relation based on contiguity allowed me to pursue further the question of whether PWO can be identified as conceptual metonymy, because, similarly to the mapping between source and target in metonymy, the interplay of parts and whole can take place only if one side is not fully substituted or superseded by the other.

Concerning the second point, I showed in 4.4.2 that current research on conceptual metonymy after Johnson and Lakoff basically confirms the one-domain hypothesis. Radden, for example, demonstrates how both correlation and complementarity occur in singular experiences and lead to metonymic reasoning. Whereas Johnson and Lakoff, however, postulate a multiplicity of metonymic kinds of source-target mappings, there is a strong tendency in the recent literature on this topic to reduce metonymic mappings to only two kinds: PART-TO-WHOLE (domain expansion) and WHOLE-TO-PART (domain reduction). Characterizing conceptual metonymy with these two kinds of mappings makes it possible to find a place for PWO in ordinary language, in particular because it does justice to the peculiar quality of PWO according to which the whole is also in the parts (how else could a part imply its whole without the whole being already somehow present or at least latent in this part?). As a further advantage, the determination of

PART-TO-WHOLE and WHOLE-TO-PART as the only two kinds of metonymic mappings accounts for a clear continuity of the sensorimotor domain with the PART-WHOLE image schema into the experiential domain in which metonymic mappings are carried out, among others as linguistic expressions. This means that, additionally to and stemming from the positive determination yielded by the deductive method in chapter 2,

PWO<sub>ded</sub> A part-whole oscillation (PWO) is the dynamic interplay of moments and whole within the same entity. It occurs when during the fusion (continuation) of moments and whole both moments and whole become distinguishable (discontinuous) as well. During their continuation, the moments and the whole stand out alternately and the entity in question displays both the qualities of the moments and the potentially different or even contradictory qualities of the whole.

the now applied inductive method with its first concentration on the cognitive structure of natural language yields three further positive determinations of PWO's ontological nature. The first additional determination, which describes the causal pathway, is the following:

PWO<sub>ind\_lang\_1</sub>: A part-whole oscillation (PWO) occurs in natural language, because due to our body/environment interactions, we develop a PART-WHOLE image schema which makes for perceptually and situationally meaningful experiences of part-whole structures. In so doing, this image schema contributes to shape our abstract thinking (our concepts) and is therefore linguistically expressible. Furthermore, the PART-WHOLE image schema has the capacity of being structured like a mosaic in general and like a fractal in particular, which means that the whole can be regarded as iterated and occurring in (one or more of) its parts.

As an alternative to a *stand-for* relation, in 4.4.3 I then presented positions that understand metonymy as a co-activation of source and target such that the source provides mental access to the target, for example by picking out one salient feature of it. To describe this co-activation of source (parts/whole) and target (whole/parts) as an *interactive* relationship, some scholars draw on Gestalt theory's notions of figure and ground, thus, in interactive terms, of *backgrounding* and *foregrounding*. The metonymic source does not disappear, but is merely backgrounded when the target is (co-)activated. Furthermore, what is in the background can be foregrounded again, which implies a bidirectional relationship between source and target. Thus, in conceptual metonymy, we can always switch from the whole to the parts and back again via acts of backgrounding and foregrounding. This remarkable phenomenon describes precisely the idea of an *oscillation* between parts and whole and therefore affirms the identification of PWO in ordinary language as conceptual metonymy.<sup>96</sup> In other words, further positive determinations

<sup>96</sup>Here it should be mentioned that conceptual metonymies are not the only linguistic instances of figure-ground relations. In his 2011 paper 'Figure-Ground Reversals in Language', M. Thiering shows in the context of embodied cognition how the perception of figure-ground relations generally influences spatial semantics in different natural languages. He argues that such relations "are very often linguistically reversed and do not follow perceptual or objectively given clues. [...] Hence, there is a mismatch between the given gestalt and the linguistic encoding pattern." [Thiering 2011: 247] This is because the latter also "depends on the speaker's choice of what s/he ascribes as being foregrounded or rather backgrounded." [id.] We do not often have such a choice in visual perception, for which objects and their arrangements are externally given. It would be worthwhile to investigate whether this kind of freedom of choice regarding the determination of figure and ground is also the case for perceptual metonymy or only for the topological relations of propositions, on which Thiering concentrates in this paper.

of the ontological status of PWO can be now be based on the following research result: PWO does exist – hypothetically among other things, which means that I remain neutral concerning its ontological status – in ordinary language as conceptual metonymy, because it unconsciously exists as one variant of the embodied PART-WHOLE image schema that itself comes into existence via certain recurring body-environment interactions relating to part-whole relations. The second positive characterization then describes PWO’s manifestation as conceptual metonymy:

PWO<sub>ind\_lang\_2</sub>: A part-whole oscillation (PWO) occurs in natural language as conceptual metonymy. Unlike a conceptual metaphor, a conceptual metonymy relates to one homogenous experiential domain and allows for a whole in / the whole of this domain to be either *backgrounded* (domain reduction: WHOLE TO PART) or *foregrounded* (domain expansion: PART TO WHOLE) such that one or more of its parts are either *foregrounded* or *backgrounded* in return. The part-whole structure of a conceptual metonymy is thus not only interdependent, but also co-active and bidirectional, i.e. both the parts and the whole are conceptually present and thus retrievable at any time. This means that they can ‘oscillate’ by continually switching into each other.

Finally, clarification was needed regarding the traditionally controversial relationship between metonymy and synecdoche. Johnson and Lakoff subsume synecdoche, as a PART-TO-WHOLE mapping, under metonymy, which comprises several other kinds of mapping in addition. However, if metonymy itself is reducible to PART-TO-WHOLE and WHOLE-TO-PART mappings, then one half of metonymy would be synecdoche and we could no longer speak of a subsumption. In current approaches to metonymy and synecdoche, a different solution has been found: Whereas PART-TO-WHOLE mappings are understood as genuinely belonging to metonymy, synecdoche is only supposed to denote taxonomic categories.<sup>97</sup> Taxonomic categories are more or less artificial hierarchies of GENUS-SPECIES classifications that have their origin in our minds, i.e. they are mind-dependent. Metonymy on the other hand is taken to be reality-dependent and generally refers to entities in the outside world. Although this distinction between mind and reality is itself artificial and can be refused, especially on cognitive linguistic grounds of embodiment, it reveals an ontological and realistic dimension of metonymy that does not often come to the surface in the rather language-centered discussions of contemporary cognitive linguistics. A rather reality-directed interpretation of metonymy on the background of a rather mind-directed take on synecdoche without thereby implying a strict dichotomy between reality and mind, however, does indeed do justice to the fact that we find metonymic PART-TO-WHOLE and WHOLE-TO-PART mappings not only in language, but – probably due to the universal PART-WHOLE image schema – also in forms of art, communication, narratives, symbols, gestures and all forms of meaning creation.<sup>98</sup> Thus, conceptual metonymy, and through it PWO, points from ordinary language, which is itself reality-based via the sensorimotor domain, to many other meaningful aspects of reality. However, cognitive linguistics is not ontology and for the most part, with the exception of, among others, Johnson and Lakoff, does not even have (and have to have) philosophical ambitions. At this point it is therefore difficult to determine in what way exactly it is permissible to extend ‘metonymic PWO’ to other areas of reality or even to conclude whether PWO can be identified as a process the existence of which does not necessarily hinge

<sup>97</sup>Cf. Seto [1999].

<sup>98</sup>Cf. Littlemore [2015: 191].

on our bodies, i.e. on the PART-WHOLE image schema that is constituted in the sensorimotor domain. Nevertheless, the reality-directedness or the inherent realism of conceptual metonymy that distinguishes it from synecdoche makes for a third positive characterization of PWO in the empirical domain of natural language as studied by cognitive linguists:

PWO<sub>ind\_lang\_3</sub>: A part-whole oscillation (PWO) as conceptual metonymy is directed towards external objects and events. It is thus a linguistic and conceptual, yet body-based device or a ‘mental shortcut’ which helps us to conceptualize and express aspects of reality itself as against taxonomic categories of the mind. With conceptual metonymy, we think and linguistically express aspects of the experienced world around us in dynamical and meaningful part-whole mappings without, like in conceptual metaphor, changing the experiential domain in the transition from source (whole/part) to target (part/whole).

One way to continue from here is to ask how exactly part-whole structures appear in empirical perception. In other words, if the experiential domain consists of Gestalt-like perceptions that lead, among others, to conceptual metonymy, then how precisely do we perceive parts, wholes and their interplay in such perceptions? We have to turn to a discipline that has made such empirical investigations one of its proper subject matters in order to find out more about and perhaps correct the findings of the previous inspection of embodied ordinary language. Only then can the meta-ontological *quaestio iuris* of how and why it is justified to determine the ontological nature of an entity or process – in this case PWO – be answered satisfactorily. So how do we empirically perceive part-whole relations, in particular part-whole relations that are not mere agglomerations of material pieces? Significant research in this area has been conducted by Gestalt theory, which therefore seems to be a promising field to turn to. In particular, Gestalt theory has been concerned with the second aspect of the ontological nature of PWO as conceptual metonymy: the interplay, switch, shift, interface, or – as I prefer to call it – *oscillation* between figure and ground in terms of backgrounding and foregrounding. Since research on conceptual metonymy often refers to this process without going into details, we can ask what Gestalt theorists have found out about this process and whether or how it is possible to integrate some of their findings into the determination of the ontological nature of PWO.

Moreover, the third aspect of PWO’s ontological nature in conceptual metonymy is its reality-directedness. There is much potential for ontological investigations into the realism involved in our everyday, body-based usage of language, especially of conceptual metonymy understood as PART-TO-WHOLE and WHOLE-TO-PART mapping. Although Johnson and Lakoff claim to defend an ‘embodied realism’ and accentuate the importance of our “being in touch with the world” [Johnson et al. 1999: 95] in a pragmatic sense, their research is explicitly centered on concepts and language,<sup>99</sup> which is implicitly the case with the less philosophical majority of

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<sup>99</sup>In Johnson et al. [2002], for example, Johnson and Lakoff refuse to be ‘traditional philosophers’ who are concerned with mind-independent entities in the outside world. Instead, their claim is “that conceptual metaphors map a source domain ontology with its inferences onto a target domain ontology - often creating new conceptual entities and forms of reason in the process. [...] But in traditional philosophy, the only real ‘ontology’ consists of mind-independent real objects in the world. If you mistakenly think we are talking about this ‘ontology’, then our claims indeed become senseless: how could a metaphor create a physical entity in the world?” [id.: 260] However, if the basis of all our thinking and language, i.e. image schemata, come into existence via body-environment interactions, then one could indeed ask the ontological question what

work in cognitive linguistics in general. Here again it is Gestalt theory that seems promising to offer a helping hand for the elucidation of a part-whole ontology within the ontological region of perceptible reality. With which ontological hypotheses does Gestalt theory explain the acts of part-whole perception and figure-ground shifting? How do part-whole relations appear with meaning in our everyday perception of the world around us? How helpful is/are Gestalt theory's understanding(s) of part-whole relations, i.e. what Albertazzi [2015: 28] calls "Gestalt mereology"? I agree with Buhrmann et al. [2015: 22], who conclude in a similar context that "the experience of agency [...] is relational in nature, i.e. fundamentally world-involving, rather than internal to the brain. It is constituted by structures or processes in our active exploration of the world, by properties or modes of the relation between agent and environment." Let us therefore turn to Gestalt research and continue to interconnect this project's four parameters *part-whole*, *meaning*, *reality* and *experience* in order to give a more complete answer to the meta-ontological *quaestio iuris* and its inductive approach concerning the ontological nature of PWO.

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it is that our bodies are interacting with. To put it plainly: What exactly is this environment, understood as reality or world? I think we should not bracket this side of the interaction when we want to discover how our thoughts are embodied, because our bodies are necessarily 'enworlded' as well.