Chapter 4
A Brief History of an Unachieved Definition

One can say that human and social sciences have been very imaginative in providing a number of different definitions of imagination since then. Stevenson (2003) has tried to group and discuss them, identifying 12 main conceptions since Aquinas to the present days:

> (1) The ability to think of something not presently perceived, but spatiotemporally real. (2) The ability to think of whatever one acknowledges as possible in the spatiotemporal world. (3) The liability to think of something that the subject believes to be real, but which is not. (4) The ability to think of things that one conceives of as fictional. (5) The ability to entertain mental images. (6) The ability to think of anything at all. (7) The nonrational operations of the mind, that is, those explicable in terms of causes rather than reasons. (8) The ability to form perceptual beliefs about public objects in space and time. (9) The ability to sensuously appreciate works of art or objects of natural beauty without classifying them under concepts or thinking of them as useful. (10) The ability to create works of art that encourage such sensuous appreciation. (11) The ability to appreciate things that are expressive or revelatory of the meaning of human life. (12) The ability to create works of art that express something deep about the meaning of life (Stevenson 2003, p. 238).

Sepper (2013) explores instead the historical development of the concept of imagination from Plato (fourth century BCE) to Castoriadis (in the late 1980s). It is an impressive historical and philosophical *tour de force* that still leaves the reader with a lot of open questions. He explains that for a long time there have been "two common, inveterate, even insidious misunderstandings of imagination. The more recent one identifies it with creativity" (Sepper 2013, p. 17). This is the current view also of those who strive for improving the "creativity" and "innovation" capability of researchers to provide "groundbreaking" discoveries. The second traditional conception understands "the prototypical model of the imaginative act has been visualizing an absent object" (ibid.). Both ideas are reductive and thus misleading, even though they can capture some features of imaginative activity. However, when it comes to provide his own definition, Sepper (2013) must face similar problems of extensionality and intensionality of definition, as those described by Stevenson (2003):

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> Imagination is a (psychologically) evocative, anticipatory, abstractional-concretional activity that follows upon actual perception. It allows the imaginer to (1) dynamically (re) position herself and incipiently explore, place, vary, connect, and re–present appearances originating within a field of concern, (2) attend to and mark the field's potentials, and (3) exploit those potentials by projecting them to other fields (possibly new) in abstracted/concreted appearances. (Sepper 2013, p. 488)

Lapoujade (1988, 2018) tries instead to move a step beyond the reconnaissance, systematization, and reformulation of historical definitions. She attempts to build a philosophical theory of imagination, by identifying it as a function of the human mind and by describing its structure. According to Lapoujade (1988), imagination is a future-oriented and intentional psychical function, with a temporal development. It plays the twofold role of mediating—between sensibility and intellect, and between will and reason—and of setting the limits of human experience while at the same time showing the possibility of transgressing them.

All the abovementioned definitions share the common goal of overcoming the traditional understanding of imagination as a mere capability of organizing sensations in visual complexes or creating a simulation of the enactment of thought (Fig. 4.1). This idea is rooted in Aristotle's theory of mind that (a) whatever is in intellect was originally in sense, and (b) there is no thinking without images. Imagination (*phantasia*) is a motion from the sense impression to the creation of mental images. One cannot think of something without first creating an attenuated, blurred, and imperfect image of the percept, a diminished sensory experience, which is defined and memorized through repetition (Schofield 1992). Imagination also goes in the opposite direction: from the inner mental work to the external reality, a preparation to action in which the organism experiences an appetite for something: a *phantasia aistetiké*, a *simulation* that the organism has before being ready for action.

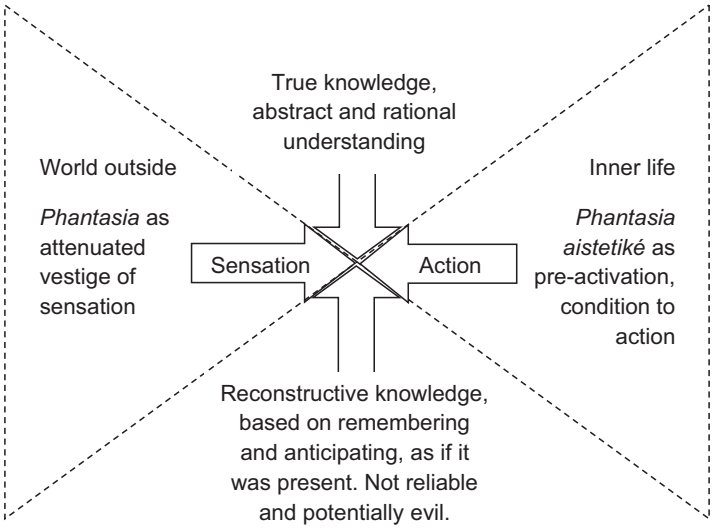

Fig. 4.1 Imagination as "in between" (adapted from Tateo 2016, p. 155)

The second heavy mortgage on imagination was established by Augustine (Cocking 2005; Lapoujade 1988). According to him, there are three different degrees of seeing: "bodily seeing, which is sensation together with consciousness of sensation, the mental representation or 'spiritual seeing'; 'spiritual seeing' on its own, without sensation, which includes what we now call imagining and dreaming; and 'intellectual seeing' or understanding" (Cocking 2005, p. 43). Imagination is placed at a lower level than understanding, while abstract knowledge is repeatedly distinguished from mental images that have no guarantee to be true.

The traditional conceptions of imagination develop along these two axes: imagination is an in-between condition, whose nature is hard to handle and even suspect. A direction that goes from senses to intellect locates imagination as the capability of creating visual representation of sense impressions, namely re-presentations of presentations. But it is also the capability of (pre)sentations of enacting and desires. In both cases, the work of imagination detaches the objects from its mental correlates. As centuries later Sartre will put it, imagination poses its own object (Lapoujade 1988). On the second axis, imagination is located in that phantasmatic realm, that Middle-earth, whose inhabitants are the dream, the vision, and the precognition. I personally find here a sort of ambiguous understanding that characterizes the classical conceptions of imagination. Because of its capability of producing images in the absence of the represented object, it is at the same time too empirical and not enough empirical. If one takes rationality as the process that matches ideas and things, inductively or deductively according to the direction one chooses, then imagination is in a certain sense undecidable, as it is neither idea nor thing. It is a particular realm in between in which intentionality constitutes a goal-oriented representation of ideas that are no longer or not-yet things.

For its generative potential, imagination was partly rehabilitated during the Renaissance, as part of the celebration of human creativity (Tateo 2016). Humanists like Marsilio Ficino (1433–1499) outlined "the notion of imagination as the artist's creative faculty" (Cocking 2005, p. 105). The flourishing of inventions and technical and artistic products was seen as a mark of human practical creative skills. Ficino established the relationship between creativity and imagination: "creativity in general is *ingenium*, just as poetic inventiveness was *ingegno*, and more specifically *alto ingegno*, for Dante" (Cocking 2005, p. 105). Ficino kept *fantasia* in between sensation and rationality, and still discriminated between passive and active features: imagination synthesizes in absentia of the real object, fantasy recognizes and combines different elements into a unitary presentation, while intelligence finally understands:

> Renaissance philosophers saw the imagination as a mediator between the body and the soul, the intellect and the senses, the appetites and the will, between the animal and natural functions of the body, motion and rest, past and future, between memories, dreams and prophecies, between nature and culture. (Giglioni 2013, p. 176)

Gianfrancesco Pico della Mirandola (1469–1533), in his *De imaginatione* (1501), first recognizes that the imagination can be culturally conditioned (Fig. 4.2).

Fig. 4.2 Portrait of Gianfrancesco II Pico della Mirandola, by anonymous painter of Italian School—Westminster College.edu, Lombardia Beni Culturali, public domain, https://commons.wikimedia.org/w/index.php?curid=6676044

As his contemporary Leonardo da Vinci, Pico della Mirandola attributes a great relevance to imagination. Nothing can be desired or understood if it is not somehow known beforehand. We cannot appreciate or want what we actually do not know. In this sense, imagination, with its capability of presenting to the intellect what is not present in matter, is the necessary cognitive activity for the formation of will and moral. However, as Pico is concerned with moral philosophy, rather than natural philosophy, he is also critical with respect to the cultural influences on imagination. Indeed, he says that the pagan culture is distorting imagination while only in Christianity imagination can give us a direct and nonintellectual access to the idea of God.

Giambattista Vico and Imagination as Force of Civilization

The next fundamental period in the history of imagination is what one could call the Vico-Descartes controversy that I have discussed at length (Tateo 2015, 2016; 2017). Both Descartes and Vico discuss imagination as a very important element in the generation of new ideas. However, Giambattista Vico (1668–1744) defends the epistemological status of imagination in generating universals in the different civilizations. For Vico, imagination is a proper and primal form of knowledge based on the three fundamental functions of the mind:

(a) *Fantasy*: the capability to imitate and change
(b) *Ingeniousness*: the capability to create correspondence between things
(c) *Memory*: the capability to remember

> All three appertain to the primary operation of the mind whose regulating art is topics, just as the regulating art of the second operation of the mind is criticism; and as the latter is the art of judging, so the former is the art of inventing. And since naturally the discovery or invention of things comes before criticism of them, it was fitting that the infancy of the world should concern itself with the first operation of the human mind, for the world then had need of all inventions for the necessities and utilities of life, all of which had been provided before the philosophers appeared. (Vico 1744/1948, p. 236)

According to Vico, imagination is an ancient form of knowledge that follows a specific logic called *poetic logic*[1] (Tateo 2016). Since primitive civilizations, such a logic, starting from an undefined feeling (e.g., primitive fear of meteorological phenomena like thunder), creates a familiar explanation rooted in the sensory (e.g., Jupiter as an omnipotent anthropomorphic being) that becomes a universal and iconic concept (e.g., divinity), acting as a self-regulatory tool for collective human action. Vico claims that through this specific mode of thought, historically situated and with its own rules, originated all forms of human civilizations. Imagination is not opposed to rationality, but represents the ground on which rationality itself could develop along the history of civilization. Hence there is the controversy with Descartes about the primacy of mathematical rationality. While the latter is useful in understanding the realm of natural sciences, it can be noxious when it comes to the understanding of human nature, which follows different laws (Tateo 2016). In this case, we must rely on the fact that we share the capability of making our own social world and so we can understand the others only by applying our "common sense," that is, the common understanding of human beings. Such an understanding can be achieved through the human capability to access the radical alterity of other civilizations through imagination (Tateo 2016). Literally, we can come to know what people in other times or other places of the world can think only if we start by imagining how it could be to live in their way. With an incredible anticipation, Vico claimed that the forms of human civilization are historically situated and cannot be understood in terms of comparing absolute traits, rather assuming the perspective of the other (Tateo 2017, 2018).

Vico's idea of imagination will be revived by Romanticism. Yet, while Vico considered human phenomena as a specific domain of knowledge, acknowledging a different epistemological status to natural sciences, the Romantic Natural Philosophy tried to develop a general theory of knowledge starting from the primacy, among the forms of knowledge, of the intuitive perception, of the direct experience of the world: as the knower "perceives the world only in himself, and himself only in the world" (Goethe 1820/1998, p. 38). Goethe revalues the epistemic value of imagination, trying to synthesize rationality and phantasy. Romanticism, instead, by claiming imagination as "all-encompassing," reproduced the opposition with rationality, whose effects we can still see today (Sepper 2013).

[1] Vico draws upon the epistemology of the word "poetic," coming from ancient Greek verb *poiein*, whose main meaning is "making." So, for Vico, poetry was a form of "making," of creating the human reality.

Looking for a Definition

We can now try to close the circle, and go back to the different definitions of imagination that we have encountered in the beginning of the chapter. One can see how the historical development of the concept of imagination has been characterized by some constants and, on the contrary, by some expansions of its meaning.

On the basis of the analysis of the previous theories, I think that two relevant features must be considered relevant: the intentional and the temporal nature of imaginative work. Imagining is an intentional activity oriented toward the future, even when we imagine the past (Fig. 4.3) (Tanggaard and Tateo 2018). What we usually consider the past-as-a-given is experienced in the forms of discursively structured forms of representations, whose verbalization is goal oriented (the past serves the future). Psychology usually collects these representations by different methodologies and considers them valid "data" only if produced at the present moment (through interviews, tests, etc.). Hence, there is the perceived asymmetry between past and future in imaginative work. Indeed, we consider the future as the realm of imagination, with its open-ended and uncertain possibilities, while the past is just a matter of more or less controversial reconstructive remembering of certain events.

If one considers instead the complementarity between imaginative and non-imaginative modes of thought in psychic activity, one can realize the relevance of the modal dimensions of psychological experience (De Luca Picione and Freda 2016). Thinking about the future implies the production of modal alternatives that recall each other. If I think about how things could be in the future, on the basis of goal-oriented intentionality, I also imagine what they could be or should *be not*.

The reconstructive activity of the past events, however, is no less based on such imaginative activity that evokes modal alternatives. The Italian writer Italo Calvino represents it in a wonderful passage of a novel, in which in an enchanted night tavern, the stories of many occasional travelers come out to be inextricably interwoven. One of the characters of the novel confesses:

> Because in this way all I did was to accumulate past after past behind me, multiplying the pasts, and if one life was too dense and ramified and embroiled for me to bear it always with me, imagine so many lives, each with its own past and the pasts of the other lives that continue to become entangled one with the other (Calvino 1981, p. 106).

The discursive structuring of a past event is at the same time evoking complementary alternatives: what happened, which is inevitably considered what *had to* happen, immediately evokes what could have or *should have not* happened. One can find this process at work both at the individual level (I studied X despite my parents wanted me to become Y, so now I am a psychologist and not a lawyer) and at the collective level (our nation X is fated to become great because our origins are Y and all the other nations are not-Y, like in the case of the nineteenth- and twentieth-century German obsession of origins; see Chap. 3).

Another important acquisition, related to the previous one, is that imagination is not limited to a reorganization of the previous experiences: the productive side of it

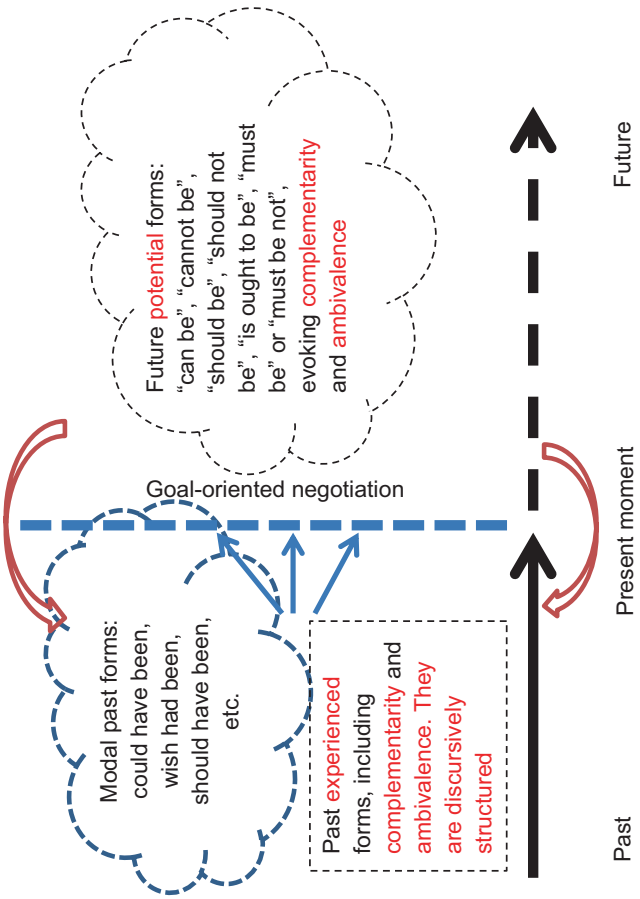

Fig. 4.3 The dance of becoming between real and unreal in irreversible time (Tangaard & Tateo 2018)

has progressively become more important than the reproductive one. According to Vygotsky (2004), imagination is the cradle of any human product. Nothing can exist in reality that before was not in the imagination. It is the "human creative activity that makes the human being a creature oriented toward the future, creating the future and thus altering his own present" (Vygotsky 2004, p. 9). The productive feature of imaginative activity becomes of course extremely important in scientific work (see for instance the case of Leonardo in Chap. 2). In the case of thought experiments, for instance, one can see how reconstructive elaboration of previous experiences or empirical knowledge is only partially useful in the production of new ideas.

> Scientific thought experiments are typically factive; they are attempts to elicit physical intuitions about what would happen under certain conditions. Such thought experiments are puzzling because they seem to describe cases where we learn something new about the physical world, even though we have no new empirical information about the world (Gendler 2000, p. 150)

In the next chapter, I will discuss in detail the example of thought experiments in science as a specimen of my theory about the relationship between imaginative processes and knowledge building. For the moment, it is suffice to notice that the scheme in Fig. 4.3 also applies to scientific work. Indeed, imaginative work in thought experiments allows not only to "*learn something new*," but also to reorganize the discursive form of previous knowledge (if imagining the case X as true, then also the previous knowledge Y could become Z).

Orthogonal to the past-future relation, I want to stress the function of relating abstract and concrete. The thought experiment is not only producing new ideas from a mix of previous and new imaginative work, but also creating an imaginary representation, an epistemic image (Lüthy and Smets 2009), of sometimes abstract concepts. At the same time, the lure of the concrete image can orient the creation of abstract concepts (Fig. 4.4).

A simple graphic representation of six equal circles around a seventh central one becomes the attractor of a number of theories in different epochs. Figure 4.4 shows the power o this image (from left to right): the perfection of the number 6 (Bradwardine 1530); the numerological logic of the six days of creation (Bongo 1585); seven worlds touching (Bruno 1584), and; atoms aggregate to form larger globules (Bruno 1591). The image is based on the idea of the circle as a symbol of perception (an abstract concept). Moreover, the seven circles form a whole in which the centers of the six peripheral circles coincide with the extremities of the three diameters crossing the center of the central circle. Besides, the six sides formed by the new figure can be inscribed into a new circle. The numerological meanings of the figures constituted the speculative basis for all the different uses of the similar images in Fig. 4.4. This mutual feeding of abstract and concrete is so powerful that one can still find it in contemporary representations of physics (Barth and Brune 1998) (Fig. 4.5).

The imaginative power of relating concrete and abstract—that we find already in the conceptions of Descartes, Vico, and Kant—will result extremely important also for the discussion of the epistemic and pedagogical role of imagining in science.

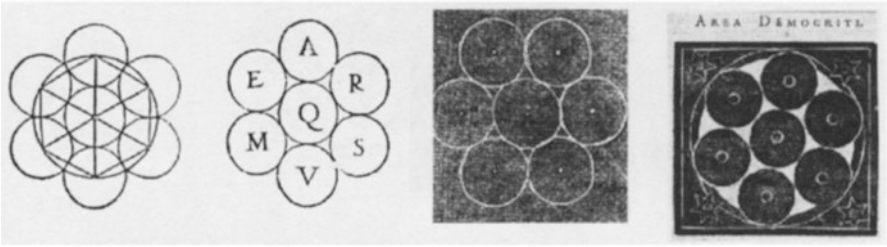

Fig. 4.4 Different images of six circles of equal diameter grouped around a seventh (Lüthy and Smets 2009, p. 407)

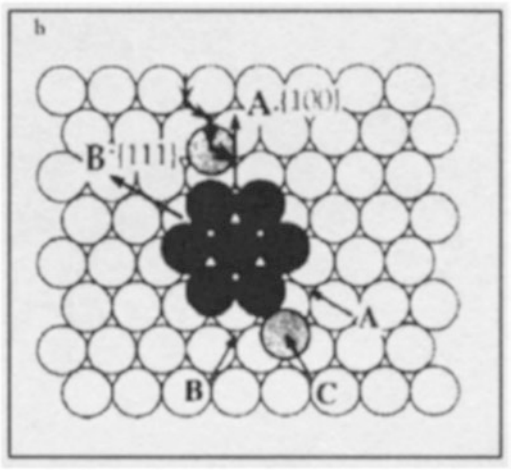

Fig. 4.5 Seven circles modelling "dendritic growth" of silver atoms (Barth & Brune, 1998, p. 256)

Imagining connects abstract and concrete in both directions (Tateo 2015, 2016). So, one can make concrete objects from abstract concepts (e.g., the personification of Justice or knowledge as Athena) or we can make abstract concepts from concrete objects (e.g., Rutherford's atomic model out of planet system image, or the cross as a symbol of Christianity). Imaginative work links both affectively and conceptually the abstract and the concrete, establishing a metonymical relationship: we produce judgments and beliefs that work for both (i.e., the abstract and the concrete). For instance, humans can kill or die for an idea or a concept as if it was real or they can let an object dominate their lives.

From the discussion of imagination along the history of ideas, we have discussed how it works to produce a mutual feeding of past into future and of concrete and abstract. In this sense, imaginative processes are not constructing different modes of existence (real versus imaginary), rather constituting mode of existence which is enriched by complementary modalities of thought (imaginative *and* non-imaginative). In the next section, we will see how the features of imaginative work are fundamental and complementary to knowledge as well as those of the understanding. But let me begin with a very simple thought experiment.

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