The Space Within. Notes on the Architectonics of the Mirror.

Riccardo M. Villa

riccardo.villa@attp.tuwien.ac.at

Abstract

Since the Renaissance, perspective drawing has been established as the most 'objective' way to represent a 'subjective' point of view; it is precisely through the reflective surface of a mirror, as the space in which the self can be objectified, that such invention takes place. The apparent contradiction of an 'objective subjectivity'—which most of modern science builds upon—can be properly investigated only if such space of 'speculation' is addressed as an excluded, invisible element of a triadic setting. The paper will then try to look at modern 'rationality' as a 'projection' arising from such exclusion and externalisation—to inspect the space of the mirror as an architectonics of information. It will do so by looking at a range of examples—from architecture to philosophy, art and literature—in which this third is consciously questioned, or where it is instead 'invisibly' at work. The outline of such a "transcendental topology" will then perhaps provide the tools to address in a novel way notions such as the one of *learning*: not as the accumulation of 'objective data', but rather as the ability to make a clean slate, a tabula rasa, while still 'remembering' (or 'encrypting') the dispositions of what is *actively* being forgotten. Furthermore, such insight might also help to consider digital contemporary techniques such as architectural rendering not in opposition to a so-called 'analog' method, but rather in the common *convergence* of the two (Schmitt's *complexio oppositorum*); the metaphorical reading of 'computational space' as a new kind of 'mirror' in which forms are formalised and encoded (we could perhaps say "in-formed") might therefore be a way to cast a 'bridge' between the discreet and the continuous.

Brunelleschi's Mirror

Filippo Brunelleschi is considered by many to be the very first modern architect, the first to leave the meticulous following of the concrete construction of the building to the master builder and empower instead his role through the abstraction allowed by devices, from actual machines to drawing itself. It is through such a shift that—we will see this later on—architecture starts to be conceived as a *project* [1]. The most successful 'device' of which Brunelleschi is commonly held responsible for the invention is perhaps the one of linear perspective, or perspectival drawing. The technique was formalized ten years later in a treaty (*De Pictura*) by Leon Battista Alberti, yet it is through Brunelleschi's biography, written by Antonio Manetti around 1480, that the mythical moment of the invention of perspective has been delivered to us. Intending to paint Santa Maria del Fiore's baptistery, Brunelleschi does so on a panel through which he pierces a small hole:

> He required that whoever wanted to look at it place his eye on the reverse side where the hole was large, and while bringing the hole up to his eye with one hand, to hold a flat mirror [*specchio piano*] with the other hand in such a way that the painting would be reflected in it [2].

Why this way? Couldn't Brunelleschi just provide the looker with the sight of its painting, and let him compare it with the view of the real Baptistery instead? It would be difficult to answer such a question without understanding the importance of mirrors in Renaissance and Medieval cultures. It is in the peculiar 'space' of the mirror in fact that one can perceive an object in its pure form, *abstracted* (*abs-trahere*, to remove) from its body. What we see in the mirror has no material 'extension', to say it with the words of Descartes; the *res extensa* is discarded, only relinquishing its *image*, pure sensible data. For Brunelleschi, the importance of showing his painting in a *reflection* was then the one of showing how his method would prove itself in its capacity to outline an effective *image* of the 'object' it intended to represent [3]. Only in the space of the mirror, a topological space of angles and relationships rather than metrical distances, could then its perspective drawing be perceived as an image *tout court*.

A Separate Mind

"Everything that is received in a mirror is received as in a point" [4]. The annihilation of any material extension yet the ability to preserve a certain 'essence' of things, to be a *locus* without *extensio*, uplifted the curiosity of philosophers in the Middle Ages, from Albertus Magnus to Alhazen, whose treatises on optics would be of great influence for personalities such as Da Vinci, Galileo, and Descartes. It is not that expressions such as 'to speculate', or 'to reflect upon something' imply a metaphorical connection between the optical phenomenon of reflection and the theoretical one of thinking: the mirror is, and has always been, one of the most powerful analogies to explain and investigate thought. Like a mind, a mirror can receive any form without being transformed: any object can be reflected as an image on its surface, without the need for it to undergo a material transformation—as it would happen with the canvas in the case of a painting—and without transforming the object it receives. "If a mirror is broken in ten parts, in any of those parts the reflected form will be preserved as a whole" [5].

Yet, being the mirror itself an object rather than a subject, the analogy cannot lead to individual minds, but rather to a 'disembodied' one [6]. This is what, for instance, Averroes implied in his *Commentary* to Aristotle's writings on the soul. Yet, Averroes understood that by doing so we are not looking at an *individual* mind, but rather a *separate* one. This is what he called a 'material intellect' [7]. Not oneself, nor one's reflection in the mirror, but the transparency (its 'absolute disposition') between the two as a third (a *locus tertius*) to look at. The space that we see in the mirror is here not a cartesian space but a transcendental topology—a space *within*— and it is as such analogous to one of an 'absolute' intellect.

Such a separate intellect must not be misunderstood as the *actual* accumulation of all that can ever be known, of past, present, and future knowledge. Absolute knowledge does not mean to know every-thing, but rather to be able to comprehend it, to welcome it 'in potency'. Knowledge, in other words, is rather a *disposition* than a possession [8]. To know something—the process of learning—is then to abstract it from its *datum*, to be able to welcome it in its pure form, like the mirror does with any

'matter'. Perspective drawing is a way to abstract things from their matter, and *dispose* of them in a universal way, that is to say in a way that can be generalized and therefore learned—that can be *mathematical*, which means literally 'that which can be learned'.

This 'material intellect', as Averroes defines it, is then similar to a clay tablet, which is unwritten but nevertheless ready (*prepared*) to welcome any information in potency. A *tabula rasa*, that can be in-formed by any kind of object. The *speculation* of the mirror and the *information* of the tabula are the two main metaphors of thought in the Middle-Ages. Even if they both indicate an absolute disposition to welcome any thought in potency, an interesting difference runs between them. On one hand, the mirror and the diaphanous (the transparent medium) are devices of an absolute 'mediality', that welcomes objects in their pure form and is subject to no transformation whatsoever. On another, whatever is reflected by the mirror never really 'remains' but is discarded as soon as it quits its field of reflection. The tablet instead, once informed, can keep and withhold its information: In other words, the tablet is capable of *memory*. The substance of whatever it receives, whatever it is informed by, can be 'remembered' through this memory-as-form. To actively remember is, in these terms, to *actualize*, to draw something from the domain of the purely potential to the very here-and-now, to 'reduce' the incommensurability between the infinite scale of the possible and the definite one of the real—the so-called 'actuality'.

If 'absolute knowledge' is similar to a mirror or a *tabula rasa*, on the other hand the stocking of memories leads us to the *code*. In Roman times, c*odex* was used to indicate the interior part of a log (similarly to the *liber*, the 'book'), but also to refer to a wooden tablet covered by wax for the purpose of writing. During the Middle-Ages, however, a *codex* differed from a *liber* (a book), as it was used to indicate a new kind of support in which the original text could be complemented with a *comment*. A comment was a way to actualize the meaning of the original text, to 'translate' its substance from the time of its conception to the time in which the comment was written, without altering its original form. In the *codex*—or the 'space' of the comment, like in the 'space' of the mirror—a peculiar kind of *com-presence* takes place: just as in the mirror the one *who sees* becomes 'object' (is *what is seen*), in the comment the one *who thinks* (the author) is the one *who is thought* (by the commentator) [9]. *Vision* and *thought* assume in each of these spaces a certain degree of formal autonomy.

Actualizing Infinity

The *Trinità*, located in the Florentine church of Santa Maria Novella, is the last known work of Masaccio, yet the first one that depicts a religious subject in a perspectival space (a reason for which Brunelleschi is believed to have taken part in its genesis), an architecture made of columns and vaults. The intersection between the 'actuality' of the codex —the simultaneity between scripture and comment— and the visual one of the mirror finds in this work a triumphal manifestation, as the space opened up by the perspectival device accommodates different times and characters in the same *com-presence*. The unmeasurable distance between the human and the divine finds here a common *locus*, it shares the same place. Father, Son, and Holy Ghost—the triadic form of the most 'absolute substance' par excellence—are here actualized not once, but multiple times: first through the presence of St. John and the Holy Virgin, the ones which actualized the divine as 'word' in the gospel and the divine as 'flesh' in the womb; secondly, through the veneration of the painting's patrons, the ones that made the painting itself possible. What the 'universality' of the perspectival device allows

though is even a third kind of actualization: the one that anyone that looks at the painting operates. This com-presence of times is sealed in the inscription at the bottom of the painting, in the form of a *memento mori*: "I once was what you are and what I am you also will be." Like in a mirror, the looker finds himself as the 'object' (the one to which it is destined) of the painting [10]. Here, art is really a *techne*, a 'device': through the multiple 'gears' of its painting, Masaccio 'encodes' a way to access the divine without recurring to the golden halos and backdrops of Byzantine symbolism, freeing the expression of divinity from any material 'regality', and investing it with a certain *reality* instead.

This is the turning point of the Renaissance, and of Modernity at large: to 'kill' God, to bring its 'irrational' infinity to the 'rational' ground and to make the infinite and unmeasurable distance between the human and the divine measurable—turn it into a *countable infinity*. The space of absolute potency is here reduced to a *positive* space [11]. Masaccio's painting could perhaps be read under this light as an early trace of the European legal positivism of the 17th and 18th century that replaces a divine source of temporal power with social contracts: as something that operates a *contraction*, the contract abbreviates a distance which is now not anymore the incommensurable one between human and divine, but which is inscribed in a rather mundane dimension. At the same time, just as Renaissance perspective opens up a non-hierarchical pictorial space that addresses the looker as a 'subject', social contracts theorize a social space in which sovereignty is derived from the general will established by its own subjects (and not, for instance, from aristocracy).

Model and Picture

By articulating its modes in a dichotomy between subject (the 'objective' looker) and object (the picture), perspective drawing can perhaps be considered as an early stage of the process that turns the world into a *picture*. The mathematical nature of its technique makes it the perfect way for a 'scientific' gaze of the world *as a model* to be represented. In this sense, perspective drawing is one of the first manifestations of what Blumenberg identified as a *Weltbildverlust*, a "loss of the world-image" [12]. World-images are substantially different from the "world-picture" as Heidegger famously described it [13]: The first are a "quintessence of reality in which and through which man understands himself, orients his evaluations and his practical objectives, seizes his possibilities and his necessities and projects himself in his essential needs" [14]. In other words, they belong to the *imaginal* rather than the visual, to that diaphanous 'third space' that cannot be grasped if not through its specific projections. World-pictures instead are a mere rendering of a *Weltmodell*, or "the total representation of empirical reality that depends from the progressive status quo of natural sciences and that keeps in account all the set of its assertions" [15]. By recognizing their plurality, and therefore their substantial relativity, modern science reduces world-images to *Weltanschauungen*, to subjective 'world-views' (if not ideologies and superstitions), and offers itself as an 'objective' world-model supposedly impermeable to any ideal or transcendent characterization. The 'problem' with world-pictures is that, despite getting away from ideology, they nevertheless place us in a world which is eventually produced by technology and calculation or, in other words, where *cybernetics* (the 'calculative' process of steering) replaces metaphysics (the reflection on 'what is'). It is not by chance that, in current language, 'object' and 'thing' seem to become increasingly interchangeable notions, to the point that ontologies can appear as 'object-oriented'.

Computer graphics eloquently articulate the paradigm shift of the Heideggerian world-picture: The 'substance' they 'actualize' is *data*, something that comes in an already-given form. Yet, the 'digital' code presents some differences if compared to the codex of the comment and to the picture of perspective drawing: By keeping code and rendering on separate levels of articulation, such a device is able to actualize, not just in one way but in multiple fashions, the 'potency' of a certain set of givens. This is, for instance, what happens in websites and blogs, where a database of text and images can be rendered in different layouts. But it is also the case of three-dimensional renderings, where volumes and forms are encoded as 'entities' that can be displayed in their 'three-dimensionality', meaning not just from one point of view or from different ones, but from any, and according to different 'styles'. In this sense, the computer approximates the code back to the 'adaptiveness' of the mirror: Three-dimensional rendering techniques and perspective are not ways to draw a 'real' spatiality, but are instead actualizations of a *milieu* of pure potency [16].

On the other hand, the fostering of the division between the two modes—of 'input' and 'output' so to say—seems to further reinforce the dichotomy between model and picture, eventually charging the first (and all its kin such as data, facts, up until the platonic notion of *eidos*) with a moral-scientific value of *truthfulness*. Precisely like the mirror, this also leads to a similar kind of misconception: the expectation that what we see on the 'screen' must represent a truthful picture of reality 'as it really is' (of the 'thing in itself'), and not *an image*. It is within such a polarity that a certain critique addressed the 'virtual reality' produced technology as the *hyper-real*, a model of a real without origin or reality [17]. What medieval philosophy reminds us, though, is that the medium-space in which images 'live' is not the one of a hyper-reality (as opposed to a 'normal' one), but the one of a sensible 'mediality', of a "physics of the sensible" [18].

It is perhaps under this light that we must see and comprehend for instance the recent return of the collage technique in architectural drawing. Not as a sign of nostalgia, or a form of resistance against a mechanization that is about to take over. What it refuses is to understand computation simply as a tool of *simulation*, and take it instead as a way to encode, to actualize and bring in com-presence a set of givens that were initially belonging to different times, spaces and domains. Instead of working on a model rendered on sets of rules and parameters, they open up a space of almost absolute potentiality, as their translation is not only one of forms, but also of *formats*. Not only are such 'renderings' derived from an imaginary instead of a model, they are also constitutive of the imaginary itself—they can 'listen' and 'talk' at the same time, they *project* as much as they are projections. For these reasons, these techniques show how 'analogic' (not in the vulgar sense of pre-digital, but as from capable of analogy, of translation between domains) and digital do not oppose each other [19].

The Project as 'Image'

The 'space of analogy' opened up by the digital can then be compared with the one of the mirror as seen from Medieval philosophy, a space of analogy between vision and thought. Our individual minds—Averroes comments—act like a sort of sixth sense, that is able to 'look' (to *speculate*) into the 'crystal space' of the separate mind like our vision does when it looks at the images reflected in the mirror [20]. By no means nevertheless does this speculative intellect constrain us to a passive reception, as would the one of an 'external truth': If talking is our active ability to respond and

rephrase whatever we hear, then whatever we see by the means of vision or intellectual speculation must find somehow its 'active' counterpart. This, perhaps, is how we can conceive of the term 'project' [21].

To speculate is then not simply to observe something, but to actively *project* its form, to cast it before it. This is why theories are not just received, but produced: Theory—Paul Klee reminds us—is *sichtbar machen* (to *make* visible). This is the 'architectural' turn, the Schmittian co-constitution of order as a 'law' (*Ordnung*) as much as a spatial condition (*Ortung*) [22]. Architecture is, in this sense, *arché-tikto*, 'engendering principle': an engendering that must recur to a *cut*, a rupture of the continuous (which, in its most 'primitive' form, is always *binary*). The digital is one of the many articulations of this cut. But this cut is never an end, a *con-clusion*: It is rather a fertile one, whose engendering articulates through time the continuous that itself had to *ex-clude*. Rather than an enclosure, a *clôture* in which what is seized "can continue indefinitely" [23].

And here we come back to Brunelleschi's mirror. Perhaps never as much as in this case the 'interval' between the poles of vision and thought in their common analogy has known such a close contraction. Reason (the 'rational') and vision (the 'real') here apparently collapse on each other, but only apparently. The illusion of such a 'transparency' between the two is what held in check what we now call modernity [24]. Yet, as much as there is a *hiatus* between what we hear and what we say, there is also a 'rift' between what we see and what we cast. Looking therefore at the mirror not as a tool that perfectly displays reality, but as an instrument that is able to abstract an image, as a 'scaffold' in which forms can be accommodated but also casted, in this space that is somehow at the crossing between vision and thought, projection and speculation. A 'third' space able to encode and invent. This peculiar space of invention is the speculative power of the project.

References

1. On Brunelleschi's particular standing as a modern architect, see: Biraghi M. *L'architetto come intellettuale*. Torino: Einaudi; 2019. Aureli PV. *Intangible and Concrete: Notes on Architecture and Abstraction*. E-Flux J. 2015 Apr. Tafuri M. *Interpreting the Renaissance: princes, cities, architects*. Cambridge, Massachusetts: Yale University Press; 2006.

2. Manetti A. *The life of Brunelleschi*. University Park: Pennsylvania State University Press; 1970.

3. This thesis is also mentioned in: Edgerton SY. *The mirror, the window, and the telescope: how Renaissance linear perspective changed our vision of the universe*. Ithaca: Cornell University Press; 2009. According to Edgerton, Brunelleschi would have even painted the Baptistery itself on a mirrored surface by looking at its reflection; the result would then in fact be to look at the thing in its original symmetry.

4. Anzulewicz H, Albertus. *De forma resultante in speculo: die theologische Relevanz des Bildbegriffs und des Spiegelbildmodells in den Frühwerken des Albertus Magnus: eine textkritische und begriffsgeschichtliche Untersuchung*. Münster: Aschendorff; 1999.

5. "Si speculum frangatur in decem partes, in qualibet illarum partium erit forma tota." Anzulewicz H, Albertus.

6. This is not just the case of mirrors, but also concerns the diaphanous, a "transparent medium". On transparent media and mirrors as an analogy to a separate intellect, see: Coccia E. *La trasparenza delle immagini: Averroè e l'averroismo*. Milan: Bruno Mondadori; 2005.

7. It is important to remark the materiality of this intellect: it exists not just as an aleatory dimension of possibility, or as a pure 'trick' of human experience, but as a real substance, "the thinnest of all matters" (Coccia, p. 115)

8. In Latin, to learn is "*in-parare*", which literally means "to prepare inside".

9. Coccia.

10. "Io fui già quel che voi siete e quel ch'io sono voi ancor sarete".

11. This is of course a schematization; during Renaissance, the tension between faith and science (the 'irrational' and the 'rational') was all but a simple opposition. To this regard see: Cacciari M. *La mente inquieta: saggio sull'Umanesimo*. Torino: Einaudi; 2019.

12. Blumenberg H. *Weltbilder und Weltmodelle*. In: *Nachrichten der Giessener Hochschulgesellschaft*. Gießen: Schmitz; 1961. p. 67–75.

13. Heidegger M. *The Age of the World Picture*. In:. *Off the Beaten Track*. Cambridge: Cambridge University Press; 2002.

14. Blumenberg.

15. Blumenberg.

16. Furthermore, today's recommendation algorithms 'internalize' the speculative process, and by doing so they remove the actualization from a mere parametric understanding. It is on such basis that the "learning" algorithms work; the ability to perform a speculative process is then the quintessential feature for the acquisition of knowledge at large, be it human or artificial.

17. Baudrillard J. *Simulacres et simulation*. Paris: Galilée; 1981.

18. Coccia E. Physique du sensible. *Penser l'image au Moyen Age*. In: Alloa E, editor. Penser l'image. Dijon: Les Presses du Réel; 2010.

19. Giacomo Pala already addressed the misconception that lies at the base of such a view: Pala G. *Let's call the whole thing off* [Internet]. GIZMO Review. [cited 2018 Nov 21]. Available from: http://www.gizmoweb.org/2018/07/pala-postdigital/

20. For a further outlook on the notion of crystal space see: Pandjaitan P. *Architectonics of Crystal Space: the mediating and joining of spatialities*. [Zürich]: ETH Zürich; 2018.

21. It is in this perspective that one could perhaps try to trace an analogy between *dialogue* (as the constitution of a discourse) and *diagram* (as the constitution of an image).

22. Schmitt C. *On the Meaning of the word Nomos*. In: *The Nomos of the Earth*. Telos Press; 2003. p. 70.

23. Derrida J, Bass A. *Positions*. Paperback ed., [Nachdr.]. Chicago, Ill: Univ. Chicago Press; 1998.

24. Villa RM. *Architecture of the Diaphanous*. In: Doyle MR, Savić S, Buehlmann V, editors. *Ghosts of Transparency Shadows cast and shadows cast out*. Boston: Birkhauser; 2019. p. 183–96.