

Creative

A Short Note on the History of the Concept of Information

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1. Introduction

This paper deals with the Arabic translation *taṣawwūr* in Averroes' *Great Commentary* of the term τῶν ἀδιαίρετων νόησις ("ton adiaireton noesis", thinking of the indivisibles) in Aristotle's *De anima* and the Latin translation from Arabic with (*in-*)*formatio*, as quoted by Albertus Magnus. I briefly report on the development of the ontological (*informatio materiae*) and epistemological meanings of *informatio* in the Middle Ages, as well as on the loss of the ontological meaning in Modernity. Eventually, I interpret *informatio* in the context of Heidegger's "hermeneutical as". In the conclusion, I suggest a future research dealing with Heidegger and Mullā Sadrā, and point to Barbara Cassin's concept of the "untranslatables" as a possible path of thinking concerning "Capurro's trilemma".

2. Greek, Latin, Arabic, and Persian Roots of the Concept of Information

For a detailed analysis of what follows see [1].

Taṣawwūr and *taṣdīq* in Averroes' *Great Commentary* of Aristotle's *De anima*, were translated into Latin by Michael Scot with (*in-*)*formatio* and *fides*. The first concept addresses the representation of "indivisible things" (the "ideas"), while the second concept means the predicative judgement (*logos apophantikos*) about things using the composition of names or signs where there is right and wrong.

Informatio, or just *formatio* or "conception" (Alain de Libera), as opposed to *fides* or "assentiment" (Alain de Libera), means the "thinking of the indivisible" or of the "simple objects of thought", the Greek term being: τῶν ἀδιαίρετων νόησις ("ton adiaireton noesis"). There is no single Greek term in Aristotle's *De Anima* corresponding to the Latin translation by Michael Scot of the Arabic term(s) used by Averroes in his *Great Commentary* quoted by Albertus Magnus.

Albertus Magnus makes a short comment on the concept of *information* "apud Arabes" in the context of Aristotle's *De anima* and indirectly to Averroes, called "the Commentator" [2].

Aristotle's νόησις ("noesis") or, more precisely, νόησις τῶν ἀδιαίρετων ("noesis ton adiaireton"), thinking the indivisibles, that was translated from Greek into Arabic with *taṣawwūr*, from Arabic into Hebrew with *ḥayyur*, and from Arabic into Latin with (*in-*)*formation*, is an example of a complex history of translations of a Latin concept that has become paradigmatic for our age.

Throughout the Middle Ages, *information* and *inform* are commonly used in epistemological, ontological, and pedagogical contexts by several authors (see [3,4] for details). The Aristotelian influence on the higher-level philosophical concept of *information* is shown at best in the work of Thomas Aquinas (1225–1274). Schütz (1958) distinguishes in his *Thomas-Lexikon* between *information* in the sense of "providing something with a form" in an epistemological or ontological context and the pedagogical sense of education or instruction.

Probably the most intriguing question from the point of view of the history of ideas concerns the ontological use of *information*—both in the lower-level sense of "molding matter", as well as in the higher-level sense used by Scholastics as *informatio materiae*—which became obsolete not only

in modern languages that, like English, inherited the Latin word and slightly transformed it into *information*, retaining the epistemological meaning [5].

3. Information in Modernity

In the following I summarize some findings from [3–5].

The modern uses of information show a transition period in which the medieval ontological concept of “molding matter” is not just abandoned, but reshaped under empirical and epistemological premises.

The action of “informing” with some active or essential quality had, according to the *Oxford English Dictionary* “a quite restrictive use” not only in English, but also in other modern European languages, and references on “formation or molding of the mind or character, training, instruction, teaching” date from the 14th century.

This transition from Middle Ages to Modernity in the use of the concept of information—from “giving a (substantial) form to matter” to “communicating something to someone”—can be detected in the natural philosophy of René Descartes (1596–1650), who calls ideas the “forms of thought,” not in the sense that these are “pictured” (“depictae”) in some part of the brain, but “as far as they inform the spirit itself oriented to this part of the brain” (“sed tantum quatenus mentem ipsam in allem cerebri partem conversam informant.”) (Descartes 1996, VII, 161). But also, for instance, in German where the word *Information* was actually used in the sense of education and communication since the 15th century. *Informatio* was literally translated—first in a mystical context as *in-Bildunge* or *in-Formunge*; later on, in a general pedagogical sense, such as used by Christoph Martin Wieland (1733–1813)—with *Bildung*, a term heavily charged with higher-level meaning ([3], p. 176).

A plausible explanation for the loss of the ontological higher-level sense is the decline of Scholastic philosophy caused by the rise of modern science.

Nevertheless, the concept of information ceases to be a higher-level concept until the rise of information theory in the 20th century. Philosophers such as Francis Bacon (1561–1626), John Locke (1632–1704), George Berkeley (1685–1753), David Hume (1711–1776), and Thomas Reid (1711–1796) criticize scholastic hylomorphism and particularly the theory of abstraction.

It is interesting to observe how the concept of information is closely connected to views of knowledge. This conclusion is important with regard to the use of the concept of information in information science, because it indicates a severely neglected connection between theories of information and theories of knowledge [5].

4. Information as Hermeneutical As

The Aristotelian “thinking (of) the indivisibles” (νόησις τῶν ἀδιαίρετων, “noesis ton adiaireton”) (*taṣawwur*, (*in-*)*formatio*) that precedes the action of the intellect dealing with the composition in predication (*taṣdīq*, *fides*), can be translated into Heidegger’s difference between the “hermeneutical as” and the “apophantic as” ([6], § 33). The philosopher and theologian Thomas Sheehan writes in his “Hermeneia and Apophansis: The early Heidegger on Aristotle”:

“The noun *hermeneia* (or the verb *hermeneuo*) in Aristotle has a generic meaning and two specifications. Generically it means expression, manifestation, or communication (*semainein*). In increasingly determinate specification it can then mean: verbal *semainein*, called *lexis* or *dialectos*; and declarative verbal *semainein*, called *apophansis* or *logos apophantikos*.

That is: *hermeneia*-1 *hermeneia*-2 *hermeneia*-3 [*semainein*]: [*legein*]: [*apophainesthai*]:

self-expression or communication in any form;

self-expression or communication in discourse;

self-expression or communication in declarative sentences.”

To synthesize is to distinguish, and the assertoric synthesis-distinction (the “apophantic as” operative in *hermeneia*-3) rests on the pre-predicative synthesis-distinction of entities and their

practical essence; and for Heidegger that composition and division is performed on the basis of the original (i.e., the hermeneutical) *as*. This unified *as*-structure, rooted in *praxis*, that Heidegger retrieved from Aristotle's discussion of *hermeneia* led to the issues of transcendence and ultimately temporality. Heidegger interpreted human beings, insofar as they already know the beingness-dimension of entities, as transcendence, i.e., as being already beyond entities and disclosive of the possibilities in terms of which entities can be understood. This kinetic exceeding of entities he called the human being's *Immer-schon-vorweg-sein*, his condition of being "always already ahead" of entities.

This movement is the co-performance of disclosure in humanely primordial sense, and it corresponds to the *diairesis*-moment of the hermeneutical *as*. In the oral version of his course *Die Grundbegriffe der Metaphysik* (February 27, 1930) Heidegger said that *diairesis*, seen as human transcendence, "pulls us as under, as it [p. 80] were, and grants us a stretching-ahead, takes us away into the possible..." But at the same time the human being returns from that transcendence to entities so as to know them in terms of possibility, i.e., "so as to allow the possible—as what empowers the actual—to speak back to the actual in a binding way..., binding or bonding it: *synthesis*. Clearly the unity of *diairesis* as transcendence to the essence of beings and *synthesis* as the return to beings in their essence points to the kinetic structure that grounds the hermeneutical *as*, just as the hermeneutical *as* in turn makes possible the truth and falsehood of Aristotle's *hermeneia*-3." [7]

In other words, the "thinking (of) the indivisibles" that was translated into arabic as *taṣawwūr* and into Latin as "(*in-formatio*)", i.e., that what precedes the action of the intellect dealing with the composition and division that takes place in predication (*taṣdīq, fides*), can be translated into Heidegger's difference between "hermeneutical *as*" and "apophantic *as*".

5. Conclusions

The insight into human existence *as* time is metaphysically and theologically preceded by understanding humans *as* already being and becoming part, after death, of a divine being with or without their individuality, an issue that was and is controversial and fundamental for Greek, Latin, Arabic, Hebrew, and Persian thinkers of the Middle Ages, no less than in the Islamic and Western tradition after Averroes all the way up until today.

A comparison between Mulla Sadra (1572–1640) and Martin Heidegger seems to me an interesting topic for future research, not only concerning the relation between essence and existence, but also with regard to the relation between understanding and pre-understanding and *tasawwūr* and *tasdiq*.

I quote from Wikipedia (Mulla Sadra) [8]:

"According to Oliver Leaman, Mulla Sadra is arguably the single most important and influential philosopher in the Muslim world in the last four hundred years. [...] Mulla Sadra metaphysics gave priority "Ab initio" to existence, over quiddity. That is to say, essences are determined and variable according to existential "intensity", (to use Henry Corbin's definition), and as such essences are not immutable. The advantage to this schema is that it is acceptable to the fundamental statements of the Qur'an, even as it does not necessarily debilitate any previous Islamic philosopher's Aristotelian or Platonic foundations."

What is information? It is one of the "untranslatables" addressed by Barbara Cassin in her "Vocabulaire européen des philosophies. Dictionnaire des intraduisibles" when she writes [9]:

"Parler d'intraduisibles n'implique nullement que les termes en question, ou les expressions, les tours syntaxiques et grammaticaux, ne soient pas traduits et ne puissent pas l'être—l'intraduisible, c'est plutôt ce qu'on ne cesse pas de (ne pas) traduire. Mais cela signale que leur traduction, dans une langue ou dans l'autre, fait problème, au point de susciter parfois un néologisme ou l'imposition d'un nouveau sens sur un vieux mot: c'est un indice

de la manière don't, d'une langue à l'autre, tant les mots que les réseaux conceptuels ne sont pas superposables [. . .]" ("To speak about untranslatables does mean that the terms themselves or the expressions, their syntactic and grammatical forms, cannot be translated at all—intranslatable means what cannot cease (not) being translated. This points to the fact that their translation, from one language to the other, is problematic, even to the point when it gives rise sometimes to a neologism or to impose a new meaning over an old word: this shows that, from one language to the other, not only the words but also the conceptual networks cannot be put one over the other. (...)"

This might be a path of thought (and action) for dealing with “Capurro’s trilemma” as addressed by Peter Fleissner and Wolfgang Hofkirchner. The concept of information may have:

- The same reference in all contexts, such that qualitative changes are not grasped.
- Similar aspects between the references. In this case, there a question arises about the primary or basic reference to which analogical concepts refer.
- Finally, qualitatively distinct references may exist. In this case the concepts of information are equivocal [10].

This research is not just historically relevant but also a key issue for an intercultural philosophical dialogue about the information society.

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