# HUNGARIAN PHILOSOPHICAL REVIEW

VOL. 67. (2023/2)

The Journal of the Philosophical Committee
of the Hungarian Academy of Sciences

# Teleology: Old Wine in New Skins

Edited by László Bernáth – Dániel Kodaj

# Contents

Erik Åkerlund

# Models of Finality: Aristotle, Buridan, and Averroes

The treatment of the notion of finality has been a task ripe with pitfalls for historians of philosophy. Much criticism of the notions of final cause and final causation of earlier thinkers has been a criticism of a more contemporary conception of finality rather than a criticism of the notion as found in these earlier thinkers themselves. More specifically, much criticism of Aristotle's conception of the final cause is a critique of what later philosophers have read into the conception of finality rather than what Aristotle himself wrote about it and how he understood it.

Against this background, some kind of "heuristic scheme" is necessary in order to structure the different conceptions that different thinkers have had surrounding finality. In this article, one such scheme is worked out. The basic difference between the conceptions of finality presented in the following sections is that between an *intentionalist* and a *non-intentionalist* conception. According to an intentionalist conception of finality, a (rational) agent is necessary for there to be an end or an operation for an end. In a non-intentionalist conception, no such intentional agency is needed.

Connected to this concept, a distinction can also be made regarding different basic conceptions of the nature of reality, here called "metaphysics" for short,[1] namely between *Dynamic* and *Boolean* conceptions. A Dynamic conception of metaphysics is one in which change is understood on an act-potency scheme and in which things have potentialities that become actualized. In Boolean metaphysics, on the other hand, the radical division between that which is or exists on the one hand and that which does not exist on the other is emphasized; hence, change is rather understood as the replacement of one thing (a substance or an accident) with another.

[1] Thus, the "metaphysics" of a thinker can be found in the metaphysics as well as the natural philosophy and theology (and possibly also other subjects) of a thinker, depending on how the subjects are divided. Special attention will be given, though, to the understanding of reality as it pertains or relates to nature. When the word "metaphysics" is used in some other sense (e.g., as opposed to natural philosophy or theology), this will be noted.

It is argued here that these divisions shed light on the difference with regard to the problems that different thinkers face in relation to finality and that their proposed solutions will therefore also differ. To concretize the different treatments of finality, three different thinkers who have presented different combinations of the above views are first introduced. These are the following:

- Aristotle (non-intentionalist understanding of finality combined with Dynamic metaphysics);
- Buridan (intentionalist understanding of finality combined with Boolean metaphysics); and finally
- Averroes (intentionalist understanding of finality combined with Dynamic metaphysics).[2]

These three thinkers are not treated in chronological order. The reason for this, argued for in the presentation below, is that the two first combinations (Aristotle's and Buridan's) represent "cleaner" solutions and views regarding finality. The third view, on the other hand, seemingly introduces a tension or complication, as Dynamic metaphysics presents a kind of final explanation in itself (in terms of actualization of potentialities) that at least partly covers the same explanatory space as the intentionalist account of finality does. Hence, we are presented here with a question regarding how God's intentions and the actualization of potentialities relate to one another, in the end. Therefore, it is appropriate that Averroes is presented as the last thinker of the three.

Let us now consider the three thinkers in turn and examine how finality is embedded in their three respective world views.

## I. CHANGE AND FINALITY IN ARISTOTLE

Let us start with Aristotle's *Physics* to understand what role finality[3] plays in his philosophy,[4] and especially in his philosophy of nature.[5] In his introduction to his treatment of causes *(aitiai)* in the *Physics*, Aristotle writes:

[2] The missing combination – a non-intentionalist understanding of finality combined with a Boolean metaphysics – would presumably amount to an eliminationist view of finality, i.e., that there is no genuine finality at all in the world. Ancient Epicureanism would presumably come close to this position.

[3] This term is here preferred over the term "teleology".

[4] On the importance of the notion of *telos* for Aristotle's philosophy and on its connection to the act-potency-scheme in his metaphysics, one recent commentator has concluded that "Aristotle can only really make sense of *ousia*, in relation to its basic intelligibility, through the concepts of *telos* (end) and *entelechy* (fulfilment)" (Brook 2015. 521).

[5] For a recent study on finality in Aristotle, with an overview over recent secondary literature, see Leunissen 2020.

> Knowledge is the object of our inquiry, and men do not think they know a thing till they have grasped the "why" of it (which is to grasp its primary cause). So clearly we too must do this as regards both coming to be and passing away and every kind of natural change, in order that, knowing their principles, we may try to refer to these principles each of our problems (Physics, book II, ch. 3; 194b17–23; Barnes 1984 vol. I. 332.)[6]

First of all, causes and causation have to do with an explanation of something, namely of change *(metabolē)*.[7] Thus, the fundamental question that causal accounts in natural philosophy are meant to answer is not of the kind "Why does this thing exist?" but rather "Why has this come into being?" or "Why did this thing change color?". Hence, causal explanation involves specifying the principles of change. Alternatively put, causation has to do with explaining change.

It is a salient feature of this entry into causation that it also leads to a certain "causal pluralism." Not in the sense that whichever explanation is a good explanation. But one good explanation does not preclude other good explanations. As Aristotle writes, "[a]s things are called causes in many ways, it follows that there are several causes of the same thing (not merely accidentally)" (*Physics*, book II, ch. 3; 195a4–5; Barnes 1984 vol. I. 333.).[8] The question "Why?" can be understood in many different ways, and so there are many different explanations for the same change.

It is also important to remember that we are now examining nature, as this is a book about nature *(physis)*; it is the "student of nature" who is to investigate the principles of change – change being significant for nature – and to make the proper distinctions with regard to the different meanings of "Why?".

> Now, the causes being four, it is the business of the student of nature to know about them all, and if he refers his problems back to all of them, he will assign the "why" in the way proper to his science – the matter, the form, the mover, that for the sake of which (*Physics*, book II, ch. 7; 198a22–24; Barnes 1984 vol. I. 338. ).[9]

[6] "ἐπεὶ γὰρ τοῦ εἰδέναι χάριν ἡ πραγματεία, εἰδέναι δ᾽ οὐ πρότερον οἰόμετα ἕκαστον πρὶν ἂν λάβομεν τὸ διὰ τί περὶ ἕκαστον, τοῦτο δ᾽ ἐστὶ τὸ λαβεῖν τὴν πρώτον αἰτίαν, δῆλον ὅτι καὶ ἡμῖν υοῦτο ποιητέον καὶ περὶ γενέσεος καὶ φθοπᾶς καὶ πάσηες τῆς φυσικῆς μεταβολῆς, ὅπως εἰδότες αύῶν τὰς ἀρχὰς ανἀγειν είς αύτὰς πειρὠμεθα τῶν ζητουμένον ἕκαστον."

[7] In a recent study, Nathanael Stein (2011. 707n8) enumerates a list of scholars who have held that "Becauses," "explanations" or "explanatory factors" would be a better rendering of *aitiai* than "causes," mentioning i.a. Julia Annas, Jonathan Barnes, Richard Sorabji, and Michael Frede.

[8] "συμβαίνει δὲ πολλαχῶς λεγομένον τῶν αἰτίων καὶ πολλὰ τοῦ αὐτοῦ αἴτια εἶναι οὐ κατὰ συμβεβεκός."

[9] "ἐπεὶ δ᾽ αί αἰτίαι τέτταρες, περὶ παςῶν τοῦ φυσικοῦ εἰδέναι, καὶ εἰς πάσας ἀνάγων τὸ διὰ τί ἀποδώσει φυσικῶς – τὴν ὕλην, τὸ εἶδος, τὸ κινῆσαν, τὸ οὗ ἕνεκα."

However, although proper distinctions are to be made, this does not mean that the principles in the final analysis have to differ in the individual case. In the case of the paradigmatic example for Aristotle – that of the organism[10] – the last three of the above types of causes actually coincide.

> The last three often coincide; for the what and that for the sake of which are one, while the primary source of motion is the same in species as these (*Physics*, book II, ch. 7; 198a25–26; Barnes 1984 vol. I. 338.).[11]

Hence, it would seem that in organisms – which are "self-movers"[12] – the form (which determines what a thing is) is identical with the finality ("that for the sake of which") and to that which moves (or "the principle of motion").

At this stage as well, Aristotle balances on the limits of physics in an interesting way and delineates where that which transcends physics begins. This has to do with cases in which the example of a human being begetting another human being is changed in such a way that that which causes such a change does not itself move. What we are describing here, then, is the unmoved mover, or God:[13]

> [A]nd such as are not of this kind [i.e., those who do *not* move by being themselves moved] are no longer inside the province of natural science, for they cause motion not by possessing motion or a source of motion in themselves, but being themselves incapable of motion (*Physics*, book II, ch. 7; 198a28–29; Barnes 1984 vol. I. 338.).[14]

Here, we have a case in which the principle of change in or of nature is not itself part of nature and is therefore not the study object of the *Physics* but rather that of the *Metaphysics*, which we address below.

Hence – paradoxically, it would seem at first – the study of change in nature leads us both to principles that are themselves in nature (and therefore studied in the present context) and to principles that are not themselves part of nature (and therefore are *not* treated in the *Physics*). This is further stressed by Aristotle:

[10] See Shields 2014. 96.

[11] "ἔρχεται δὲ τὰ τρία εἰς [τὸ] ἓν πολλάκις· τὸ μὲν γὰρ τί ἐστι καὶ τὸ οὗ ἕνεκα ἕν ἐστι, τὸ δ' ὅθεν ἡ κίνησις πρῶτον τῷ εἴδει ταὐτὸ τούτοις·"

[12] Cf. Shields 2014. 324. "According to Aristotle, unlike artefacts, living systems engage in their activities *spontaneously*. He thinks that living beings are spontaneous in the sense that they have an internal source *(archê)* of change. While many things move, only some things are self-movers."

[13] This identification will be argued for below.

[14] "ὅσα δὲ μὴ, οὐκέτι φυσικῆς. οὐ γὰρ ἐν αὑτοῖς ἔχοντα κίνεσις οὐδ' ἀρχὴν κινήσεως κινεῖ, ἀλλ' ἀκίνητα ὄντα."

> Now the principles which cause motion in a natural way are two, of which one is not natural, as it has no principle of motion in itself. Of this kind is whatever causes movement, not being itself moved, such as that which is completely unchangeable, the primary reality, and the essence of a thing, i.e., the form; for this is the end for the sake of which. Hence since nature is for the sake of something, we must know this cause also. (Physics, book II, ch. 7; 198a36–198b5; Barnes 1984 vol. I. 338–9.)[15]

The principles that move without themselves being moved, then, are in Aristotle's short enumeration (i) the ultimate reality and (ii) the form *(morphē)* or essence *(ti esti)* of the thing. In the case of (i), moreover, the principle is described as "completely unchangeable," implicitly stating the ability to change of forms or essences (when things come into being or perish, presumably).

Aristotle's "causal pluralism" also comes to the fore in the above quote. To ask whether finality is internal *or* external to the thing misses the point.[16] As in the case with the four kinds of causes, it depends on which "Why?" question one is asking and on the way in which one understands it. Surely, the essence itself is a final cause of the thing. In change, the thing actualizes its potentialities, which are inherent in its form or essence. But change is also an actualization (without further qualifications), in which pure actuality is the unmoved mover. That which is fully actualized cannot actualize any "more" and cannot, therefore, change or be moved – hence it is an *unmoved* mover, which is "completely unchangeable."[17]

To make this point more fully, we must move outside physics – according to Aristotle himself – to the discipline that deals with this, the area later labeled metaphysics. The treatment in the *Metaphysics* is strikingly parallel in some parts to that in the *Physics*, but for that reason, the differences also stand out all the more clearly.

In the first chapter of book VI (or E), for example, Aristotle writes:

> We are seeking the principles and the causes of the things that are, and obviously of things *qua* being (*Metaphysics*, book VI, ch. 1; 1025b3–4; Barnes 1984 vol. II. 1619.).[18]

[15] "Διτταὶ δὲ αἱ ἀρχαὶ αἱ κινοῦσαι φυσικῶς, ὧν ἡ ἑτέρα οὐ φυσική. οὐ γὰρ ἔχει κινήσεως ἀρχὴν ἐν αὑτῇ. τοιοῦτον δ᾽ ἐστὶν ἔι τι κινεῖ μὴ κινούμενον, ὥπερ το τε παντελῶς ἀκίνετον καὶ τὸ πάντων πρῶτον καὶ τὸ τί ἐστι καὶ ἡ μορφή. τέλος γὰρ καὶ οὗ ἕνεκα. ὥστε ἐπεὶ ἡ φύσις ἕνεκά του, καὶ ταύτην εἰδέναι δεῖ."

[16] On this point, Monte Ransome Johnson (2005) is wide of the mark when he pits these against each other in his otherwise brilliant study on Aristotle's teleology (Johnson 2005. 284–6). It would seem that Johnson works from the presumption that "external" finality would have to involve some kind of "intentionalist teleology," which is not the case, as is seen precisely in Aristotle. For the term "intentionalist teleology," and for an argument for the view that Aristotle places himself between an eliminativist (Democritus et al.) and an intentionalist (Anaxagoras) stance on teleology, see Shields 2014, especially 86–87.

[17] See also *Metaphysics*, book V, ch. 1; $1012^{b}34$–$1013^{a}23$; Barnes vol. II. 1599–1600.

[18] "αἱ ἀρχαὶ καὶ τὰ αἴτια ζητεῖται τῶν ὄντων, δῆλον δὲ ὅτι ᾗ ὄντα."

Thus, that which Aristotle seeks to accomplish here is strikingly similar to his search for different kinds of causes in the *Physics*, except that here he goes beyond physics. For whatever Aristotle calls what he does here –despite his not using the word "metaphysics" – this is an investigation taking him beyond the physical realm:

> But if there is something which is eternal and immovable and separable, clearly the knowledge of it belongs to a theoretical science, not, however, to natural science (for natural science deals with movable things) nor to mathematics, but to a science prior to both (*Metaphysics*, book VI, ch. 1; 1026a10–13; Barnes 1984 vol. II. 1619.).[19]

Hence, we have come here to the principle, or principles, of the highest kind. These principles do not suspend the natural principles but are rather the principles on which the natural principles, are based in turn, at least partly (as music is partly "based" on mathematical principles).[20]

Here, we also find a textual basis for claiming that Aristotle understands himself as considering God or the divine here. He writes:

> There must, then, be three theoretical philosophies, mathematics, natural science, and theology *(theologikē)*, since it is obvious that if the divine is present anywhere, it is present in things of this sort. And the highest science must deal with the highest genus, so that the theoretical sciences are superior to the other sciences, and this to the other theoretical sciences. (*Metaphysics*, book VI, ch. 1; 1026a18–23; Barnes 1984 vol. II. 1619.)[21]

In addition, to clarify his position, Aristotle provides a counterfactual argument that if nature were everything that existed, natural science would be the highest science (as is indeed held by many, if not most, thinkers today[22]):

[19] "εἰ δέ τί ἐστιν ἀΐδιον καὶ ἀκίνητον καὶ χωριστόν, φανερὸν ὅτι θεωρητικῆς τὸ γνῶναι, οὐ μέντοι φυσικῆς γε (περὶ κινητῶν γάρ τινων ἡ φυσική) οὐδὲ μαθηματικῆς, ἀλλὰ προτέρας ἀμφοῖν."

[20] Here, though, Aristotle expressly writes that we search for principles of *things*, rather than of change, which is logical given the content of discourse, as physics deals with mutable things, whereas metaphysics also (or even exclusively?) deals with immutable things.

[21] "ὥστε τρεῖς ἂν εἶεν φιλοσοφίαι θεωρητικαί, μαθηματική, φυσική, θεολογική (οὐ γὰρ ἄδηλον ὅτι εἴ που τὸ θεῖον ὑπάρχει, ἐν τῇ τοιαύτῃ φύσει ὑπάρχει), καὶ τὴν τιμιωτάτην δεῖ περὶ τὸ τιμιώτατον γένος εἶναι. αἱ μὲν οὖν θεωρητικαὶ τῶν ἄλλων ἐπιστημῶν αἱρετώταται, αὕτη δὲ τῶν θεωρητικῶν."

[22] See, e.g., the article "Naturalism" in *Stanford Encyclopedia of Philosophy*, where it is stated that the term "naturalism" as used today is used to designate the view that "reality is exhausted by nature, containing nothing 'supernatural', and that the scientific method should be used to investigate all areas of reality, including the 'human spirit'." It goes on to state that "[s]o understood, 'naturalism' is not a particularly informative term as applied to contemporary philosophers. The great majority of contemporary philosophers would happily accept naturalism as just characterized – that is, they would both reject "supernatural" entities, and

> We answer that if there is no substance other than those which are formed by nature, natural science will be the first science; but if there is an immovable substance, the science of this must be prior and must be first philosophy, and universal in this way, because it is first (*Metaphysics*, book VI, ch. 1; 1026a27–31; Barnes 1984 vol. II. 1620.).[23]

This is important because, as was seen in the *Physics*, this highest principle also comes into use when addressing natural change, in order to explain it. And the highest principle has this explanatory role also with respect to finality in nature.

Let us finally consider how human beings enter into this scheme. In the course of asking about the good of or for human beings, Aristotle places human beings exactly in the view of nature and other natural things:

> Life seems to be common even to plants, but we are seeking what is peculiar to man. Let us preclude, therefore, the life of nutrition and growth. Next there would be a life of perception, but *it* also seems to be common even to the horse, the ox, and every animal. There remains, then, an active life of the element that has a rational principle. (*Nicomachean ethics*, book I, ch. 7; 1097b34–1098a4; Barnes 1984 vol. II. 1735.)[24]

Of particular interest here is how Aristotle searches for the finality of human beings in line with how other things in nature fulfill their ends, namely by realizing that which is proper to them. That which is most proper to human beings is their rationality, and living in accordance with this, realizing this, is to live a good life (or the best life).

However, there are of course dissimilarities as well to how other entities in nature realize their capacities. This end is – in one sense – already realized in human beings. Placing the *Nicomachean ethics* next to the *De anima*, one can find this remarkable feature of human life here and now:

> Thought in this sense of it is separable, impassable, unmixed, since it is in its essential nature activity (for always the active is superior to the passive factor, the originating force to the matter).
>
> Actual knowledge is identical with its object; in the individual, potential knowledge is in time prior to actual knowledge, but absolutely it is not prior even in time. It does not sometimes think and sometimes not think. When separated it is alone just what it

---

allow that science is a possible route (if not necessarily the only one) to important truths about the 'human spirit'" (Papineau 2016).

[23] "εἰ μὲν οὖν μὴ ἔστι τις ἑτέρα οὐσία παρὰ τὰς φύσει συνεστηκυίας, ἡ φυσικὴ ἂν εἴη πρώτη ἐπιστήμη: εἰ δ᾽ ἔστι τις οὐσία ἀκίνητος, αὕτη προτέρα καὶ φιλοσοφία πρώτη, καὶ καθόλου οὕτως ὅτι πρώτη"

[24] "τὸ μὲν γὰρ ζῆν κοινὸν εἶναι φαίνεται καὶ τοῖς φυτοῖς, ζητεῖται δὲ τὸ ἴδιον. ἀφοριστέον ἄρα τήν τε θρεπτικὴν καὶ τὴν αὐξητικὴν ζωήν. ἑπομένη δὲ αἰσθητική τις ἂν εἴη, φαίνεται δὲ καὶ αὐτὴ κοινὴ καὶ ἵππῳ καὶ βοῒ καὶ παντὶ ζῴῳ. λείπεται δὴ πρακτική τις τοῦ λόγον ἔχοντος."

> is, and this alone is immortal and eternal (we do not remember because, while this is impassible, passive thought is perishable); and without this nothing thinks. (*De anima*, book III, ch. 5; 430a17–25; Barnes 1984 vol. I. 684.)[25]

Many of the properties accorded to the active intellect as presented in the above quotations are identical to those of the unmoved mover or highest principle. We need not establish the exact relationship between these in this context; suffice it to say that because rational thinking is most proper to human beings, being their end and constituting (at least partly) that which is truly good for them, they also stand in a special relation to the overarching good, that highest principle which is – in one sense – the ultimate end of everything (not precluding, as has been stated, that all things also have their own internal proper end as well).[26]

The main point of this sketch is to present the broad lines on which Aristotle has presented a concept of finality that does not, at its core, draw on an intentionalist understanding of this phenomenon.[27] Rather, intentionality in general, and rational intentionality in particular, are placed within this more overarching idea of finality, which involves the explanation of change and in which change is fundamentally understood as actualization of potentialities.

## II. BURIDAN, METAPHYSICS AND FINALITY

Buridan famously never left the arts department for higher theological studies. However, some parts of his philosophy were shaped by close contact with theological themes. One such area of his philosophy is his understanding of the status of accidental forms and, thereby, his understanding of change and motion.

As Paul Bakker has convincingly argued, Buridan's discussion of the status of accidental forms is very much informed by theological concerns.[28] More specif-

[25] "καὶ οὗτος ὁ νοῦς χωριστὸς καὶ ἀπαθὴς καὶ ἀμιγής, τῇ οὐσίᾳ ὢν ἐνέργεια. ἀεὶ γὰρ τιμιώτερον τὸ ποιοῦν τοῦ πάσχοντος καὶ ἡ ἀρχὴ τῆς ὕλης. τὸ δ' αὐτό ἐστιν ἡ κατ' ἐνέργειαν ἐπιστήμη τῷ πράγματι. ἡ δὲ κατὰ δύναμιν χρόνῳ προτέρα ἐν τῷ ἑνί, ὅλως δὲ οὐδὲ χρόνῳ, ἀλλ' οὐχ ὁτὲ μὲν νοεῖ ὁτὲ δ' οὐ νοεῖ. χωρισθεὶς δ' ἐστὶ μόνον τοῦθ' ὅπερ ἐστί, καὶ τοῦτο μόνον ἀθάνατον καὶ ἀΐδιον (οὐ μνημονεύομεν δέ, ὅτι τοῦτο μὲν ἀπαθές, ὁ δὲ παθητικὸς νοῦς φθαρτός). καὶ ἄνευ τούτου οὐθὲν νοεῖ."

[26] For an account of human mental activity as related to motion and change in Aristotle, see Shields 2007. There, Shields also points to some problems Aristotle ends up with in his account of this, in relation to his general account of change and action (see especially 159–160).

[27] Indeed, the highest principle is itself though (*nous*), according to Aristotle. However, this is only thought on thought itself (i.e., it thinks itself), and does not think about something else. Hence, this thought is not *per se* involved in some "directing" of the natural world, as it is, as an intentionalist understanding of ends in nature would have it. "Therefore it must be itself that thought thinks (since it is the most excellent of things), and its thinking is a thinking on thinking." (*Metaphyiscs*, book XII, ch. 9; 1074$^{b}$33–35; Barnes 1984 vol. II. 1698. 'αὐτὸν ἄρα νοεῖ, εἴπερ ἐστὶ τὸ κράτιστον, καὶ ἔστιν ἡ νόησις νοήσεως νόησις.')

[28] Bakker 2001, especially 252–3.

ically, it is the doctrine of the Eucharist, and the preservation of the accidental forms despite the change of the substantial form in it, that in a large part drives his discussion in this area.[29] The resulting view is one that could be called a "substantialization of accidental forms", as accidental forms are able to exist in this view without inhering in a subject.[30]

> In contrast to the Aristotelian conception of the ontological status of accidental being, Buridan offers a different theory by taking into account the point of view of the faith. Referring explicitly to the subsistence of the Eucharistic accidents *sine subiecto*, he takes his point of departure in an affirmation of Gods [sic] power to separate accidents from their substances. From this, he deduces that whiteness, in order to exist on its own *(per se)*, must be a real being, and hence that it possesses the status of a being not only while existing separately from a substance, but also while inhering in a substance. (Bakker 2001. 252–253.)[31]

This understanding of the status of accidental forms is combined in Buridan's view with an emphasis on the distinction between that which exists on the one hand and that which does not exist on the other. This can be seen, for example, in his arguments for the actuality of prime matter:

> The second conclusion is that [prime matter] is a being in act, not only in potency, because to be in potency only is not to be, but to be possible; but prime matter not only can be, but is, as was said (Buridan, *In Physicorum*, bk. I, q. 20; 202).[32]

Indeed, for matter to be able to account for anything, it needs to be real; it has to exist. As Buridan writes on causes in general:

[29] For this question as it regards Buridan, see also Sylla's (2001) contribution in the same anthology. The impact on philosophy from questions concerning the Eucharist, especially on the question of the status of accidental forms, is an important factor in the philosophy of the Late Middle Ages at large. Buridan was quite typical, then, in this respect. See Pasnau 2011, especially chs. 10 and 20.

[30] There is, of course, no necessity in this conclusion. In Marsilius of Inghen, for one, accidental forms do not acquire this status. This comes at the price, though, of more clearly separating the fields of natural philosophy, on the one hand, from the field of theology, on the other. Marsilius of Inghen thus upholds a distinction, closer to Aristotle, between substances (*quid*), on the one hand, and accidents as modifications of substances (*quale)*, on the other, in his natural philosophy. (Cf. Bakker 2001. 257–262).

[31] The quote goes on to note that Buridan has a univocal understanding of the term "being."

[32] "Secunda conclusio est quod ipsa est ens in actu, non solum in potentia, quia esse solum in potentia non est esse, sed posse esse; materia autem prima non solum potest esse, sed est, ut dictum est."

> That which is nothing is the cause of nothing (Buridan, *In Physicorum*, bk. II, q. 7; 294).[33]

Together with the understanding of the status of accidental forms, one can here see how accidental change is not so much the realization of a potentiality as it is the successive replacement of one accidental form with another. In line with accidents becoming more like substances, accidental change also becomes more like substantial change (or generation and corruption).

Calvin Normore has accounted for the difference between Buridan and Aristotle's account of change in the following way:

> Aristotle allows three kinds of change: generation/corruption, alteration, and motion. We can conceive of these in two fundamentally different ways. The first way (Aristotle's way!) is to think of them as different kinds of processes which a single thing, Socrates say, may in some sense suffer: Socrates was born, can move, can change size, can die. A second way is to conceive the different types of change as involving the creation and destruction of different kinds of things – in generation and destruction substances are created and destroyed, in movement, motions, in alterations, qualities, quantities, etc. This second picture does in a sense unify change by bringing them under the description "creation or destruction of something". Professor Adams has argued that Ockham understands the project of accounting for change in accord with the first picture. I want to argue that Buridan, on the other hand, is guided by the second and that this leads him to multiply entities but reduce modes. (Normore 1985. 195–196.)

In this unified understanding of change, connected to a univocal conception of being, all change is characterized by the destruction of one being and the introduction of another.[34] Once again, this view also precludes Aristotle's understanding of change as the realization of potentialities, as the potential simply does not exist and therefore cannot have any role to play in a causal explanation.

This is also connected to Buridan's understanding of modalities, and specifically on unrealized possibilities. Buridan underscores not only that unrealized possibilities have no existence whatsoever but also – and here we are entering the questions of final causation – that talk of unrealized possibilities only makes sense in relation to agents with free will. As Simo Knuuttila has written:

> As for the unrealized possible beings *(possibilia)*, Buridan states that they have no kind of existence and are not founded on anything (Knuuttila 2001. 71).

[33] "Quod nihil est nullius est causa."

[34] For Buridan's understanding of change, see also his *Super octo libros De generatione et corruption*, bk. I, qq. 6–9 (Buridan 2010. 77–104).

> In describing the behavior of created things, the notion of unrealized alternative possibilities is relevant only with respect to agents which have a free will (Knuuttila 2001. 72).

We have thus entered the realm of final causation. As Henrik Lagerlund has pointed out, final causation only occurs when there is a rational agent, according to Buridan.

> Obviously nothing in nature acts for the sake of the good other than humans. […] Ends are just intentions of rational agents (Lagerlund 2011. 600).

It remains, though, for Buridan to provide an account of this final causation and how it fits with the other causes.[35] Buridan does this by distinguishing what he calls "first intentions" from "second intentions."[36] When someone performs an act for an end, we can distinguish two senses of the word "end": (i) the end in the sense of the one *for the sake of* which (or whom) the action is performed *(finis gratia cuius)* on the one hand and (ii) the end in the sense of that *through* which something is achieved *(finis quo)* on the other. The end in the first sense is the primary sense of the word "end," and it is only here that we find true final causation.[37] The end in the secondary sense is rather the result of efficient and formal causation.[38]

> It is therefore to be conceded that an end said in first intention is truly a cause […] But it is also to be conceded that it is not fitting that an end said in the second intention is, properly speaking, a cause of its agents or the acts preceding it […]. (Buridan, *In Physicorum*, bk. II, q. 7; 298.)[39]

[35] For a recent, general account of Buridan on finality, see Pasnau 2020.

[36] In *In Physicorum*, bk. II, q. 7; see especially 296–298.

[37] Suárez would call this kind of end the *finis cui*, "the end for whom," reserving the term *finis cuius* for something coming close to Buridan's *finis quo* (confusingly, in this context). See, for example, *DM* XXIII.2, 2. "nam finis *cuius* dicitur cuius adipiscendi gratia homo movetur et operator, u test sanitas in curatione; finis *cui* dicitur ille cui alter finis procurator, ut test homo in intentione sanitas".

[38] Cf. Lagerlund 2011, especially 596–600. "It is ends in the second sense that Buridan dismisses since they come about through ends in the first sense, which means that they are effects and not causes." (Lagerlund 2011. 598)

[39] "Sic igitur concedendum est quod finis prima intentione dictus vere est causa […] Sed concedendum est etiam quod non oportet finem secundaria intentione dictum esse proprie loquendo causam suorum agentium vel actionum praecedentium ipsum […]."

> I therefore declare that the intention and will of the physician willing to heal Socrates does not depend on the coming about of Socrates' health. First, because this is nothing. Second, because it might be impossible for Socrates to be healed. (Buridan, *In Physicorum*, bk. II, q. 13; 345.)[40]

Thus, it is important to note that Buridan does not reject final causation but rather that he accepts final causation of a very specific kind, connected to rational agents and rational agency.

> The end in the first intention *(prima intentione)* is that which is first in the order of being, goodness, and perfection. It is that for which, or for the sake of which *(gratia cuius)*, something or someone acts. For example, it can be the man for whom the house is constructed. If we consider the whole universe, it is God who is in this sense the end of everything. (Biard 2001. 86–7)

Final causation, then, cannot really be used to explain what takes place within nature (outside human agency, one could add).[41] Here, other kinds of causes are in play.

> But as far as natural things are concerned, I believe that a swallow mating, nesting, and laying eggs does not cognize any more when it produces chicks than a tree does when it produces branches and flowers. Nor do the mating, nesting, and egg-laying activities of the swallow depend for their being and order on those chicks. Rather, the converse is true. And those chicks do not determine the swallow to act in this way, but the form and nature of the swallow, celestial bodies at certain times of the year, and supreme God in his infinite wisdom, together determine the swallow to mate, from which the production of eggs consequently follows. […] All of this comes about

[40] "Declaro igitur quod intentio et voluntas medici volentis sanare Socratem non dependet ex sanitate Socratis producenda. Primo, quia illa nihil est. Secundo, quia forte impossibile est Socratem sanari."

[41] There is a problem here, though, that Buridan does not seem to address. For if a cause has to exist in order to be a cause, how do we understand the situation in which a doctor is motivated to heal a patient that actually does not exist? In the above example, on Socrates, the patient does exist. But it could be the case that the doctor falsely assumes someone to exist, and is motivated in his or her actions to heal this person. The there is nothing that takes the place of the final cause. Hence, should we rather say that it is the *mental conception*, or something like that, that takes the place of the final cause, rather than the thing itself (e.g. Socrates)? It is questions and worries such as these that will shape the debate on final causation in the later Middle Ages. It should be noted, though, that in the most important case – that of God directing everything toward Himself as a first intention, this worry is not present, as God does exist (and if He didn't, He would not act, so the problem would not be present).

> by divine artifice, celestial bodies, and particular agents, both extrinsic and intrinsic [to the subject of the action], which are the substantial forms of these same natural agents. (Biard 2001. 88)[42]

Thus, even though God ultimately creates and upholds everything for a final end, it is formal and efficient causation that are the relevant causal categories when studying nature.

## III. AVERROES ON ENDS, GOD'S AGENCY, AND THE ACT-POTENCY SCHEME

In Averroes, we find on the one hand an evaluation of God as an intentional agent, freely creating and upholding the world and endowing it with its structure and therefore also its ends, and on the other hand an analysis of at least the sub-lunar world in accordance with the Aristotelian four-fold scheme of causes, thereby also incorporating final causes understood on the act-potency scheme.

Exactly how the different parts of Averroes' philosophy and theology do or do not fit together is of course the subject of considerable debate and has been since his own lifetime.[43] However, it suffices to argue in this context that Aver-

[42] Translation of *In Physicorum*, bk. II, q. 7 (page 347 of the edition used here, based on slightly different text variant). "Sed de naturalibus ego credo, quod hirundo coiens, nidificans et ovificans nihil plus cognoscit pullos generandos quam arbor fronds et florens producens cognoscit fructum generandum. Nec hirundinis coitum, nidificatio et ovidificatio dependent in esse et ordine eorum ab illis pullis sed e contra. Nec illi pulli determinant hirundinem ad sic operandum, sed forma et natura hirundinis et corpora celestia determinatis temporibus et Deus supremus per suam sapientiam infinitam determinant hirundinem ad coitum, ex quo consequenter sequitur generatio ovorum […] Haec ergo omnia proveniunt ab arte divina et corporibus caelestibus et agentibus particularibus tam extrinsecis qum intrinsecis, quae sunt formae substantiales ipsorum naturalium."

[43] Barry Kogan, for example, in his *Averroes and the Metaphysics of Causation* (1985), suggests that there is an esoteric reading of Averroes, that can be extracted if more independent works such as the *Tahāfut al-tahāfut* are combined with the readings of Averroes' commentaries on Aristotle, especially the later, longer commentaries. (See especially page 24 and, for a summary of Averroes' "real" view in four points, page 232.) Oliver Leaman, on the other hand, in his book *Averroes and His Philosophy*, expressly rejects an esoteric reading (Leaman 1988. 127–128), and he argues that the traditional reception of "Averroism" in the Latin west represents a fairly accurate understanding of Averroes' own views (see especially 104 and 163–164). However, according to Leaman, the inherent tensions in Averroes' thinking were not as acute for him as it would become in a later Latin context, as philosophy and theology for Averroes was more about the organization of a good society, and about leading a good life, than about coming to an abstract, theoretical truth *per se* (144, 167–169, the latter with a comment on Pomponazzi's reception of Averroes). Furthermore, terms used in philosophy and theology, respectively, are used analogically (or equivocally *pros hen*), as they are used in different contexts and for different purposes, and so seeming inconsistencies between these two areas are only surface phenomena (183–184, 196). Leaman makes a strong case for his reading, but accepting it will also make the project of understanding Averroes' view (in singular) on

roes does in fact combine what is here called dynamic metaphysics with an intentionalist understanding of finality, although the details of this combination have been omitted in this commentary.[44]

To specify further, Averroes analyzes change in the sub-lunar world in accordance with the four-cause scheme. Hence, there are ends in nature that can be understood on the act-potency scheme. These ends, viewed only in themselves, are something inherent in the things.[45] If understood under the name "wisdom," as Averroes sometimes does, the things have this "wisdom" in themselves.

> For the philosophers believe that there are four causes: agent, matter, form, and end (Averroes, *Tahāfut al-tahāfut*, Discussion three; vol. I. 89–90; 150:15–151:8).[46]

> His [i.e., al Ghazālī's] assertion that not every cause is called an agent is true, but his argument that the inanimate is not called an agent is false, for the denial that the inanimate exhibits acts excludes only the rational and voluntary act, not act absolutely, for we find that certain inanimate things have powers to actualize things like themselves; e.g. fire, which changes anything warm and dry into another fire like itself, through converting it from what it has in potency into actuality. (Averroes, *Tahāfut al-tahāfut*, Discussion three, vol. I. 92; 154: 8–14.)

> [W]hen one observes this sublunary world, one finds that what is called "living" and "knowing" moves on its own account in well-defined movements towards well-defined ends and well-defined acts from which new well-defined acts arise (Averroes, *Tahāfut al-tahāfut*, Discussion three, vol. I. 112–113; 187:15–17.).

---

some *one* issue problematic. To these two readings can also be added a third, later one, from Ruth Glasner in her *Averroes' Physics* (2009). In this, she rather tries to show a development in Averroes' physics, where what she calls an "Aristotelian atomism" (first mentioned on page 2) is developed over time. This reading, if accepted, ought also to have repercussions on the understanding on Averroes' natural philosophy as a whole, including the status of final causes and final causation.

[44] The basis for the interpretation of Averroes' view here will be his *Tahāfut al-tahāfut* ("The Incoherence of the Incoherence"), written in his "middle period" (cf. Urvoy 1991. 36–38). This work, written in the late 1170s in response to al-Ghazālī's *Tahāfut al-Falāsifa* ("The Incoherence of the Philosophers"), is often taken as an expression as Averroes' own view. See, e.g., Kogan 1985. ix, Leaman 1988. 10, Urvoy 1991. 71.

[45] One can here also note how, for Averroes, potency or potentiality precedes possibility, where the possible is grounded in the actual (Leaman 1988. 29). Averroes develops this view in explicit opposition to Avicenna and al-Ghazālī, for whom the possible precedes the potential. Averroes develops his view in continuation with Aristotle and his "principle of plenitude", where everything that is possible will also at some point be realized. (For the principle of plenitude in Averroes, and the interpretative history of this with regards to Aristotle's philosophy, see Kukkonen 2000, especially 336n 23.)

[46] The last item in the reference refers to Bouyges' edition, in the *Bibliotheca Arabica Scholasticorum* series, vol. iii, Beyrouth, 1930.

One of the most interesting arguments for the view that there is indeed real causation taking place among things in the world is that without real causation in the world, knowledge would be impossible. For we come to know of things' natures through their operations – we do not have any "direct insight" into the nature of things. Hence, if the operation – or real causation – of things were to be denied, one would also have to deny the possibility of coming to know them.

> That a stone moves downward through a quality which has been created in it, and fire upwards, and that these qualities are opposed – this is a self-evident fact, and to contradict it is pure folly. But it is still more foolish to say that the eternal Will causes the movement in these things everlastingly – without any act He deliberately chose – and that this movement is not implanted in the nature of the thing, and that this is called constraint; for if this were true, things would have no nature, no real essence, no real definition at all. For it is self-evident that the natures and definitions of things only differ through the difference of their acts. (Averroes, Tahāfut al-tahāfut, Discussion 14, 289; 475:4–11.)

Averroes believes that causation and, thereby, the act-potency scheme or structure are actually "laid down" in the things themselves; they are not merely extrinsic to them, on account of God's agency. In line with this idea, Averroes also often underscores the indirect way in which God operates in the sub-lunar world. This agency in many ways takes place primarily through the heavens, which are themselves endowed with knowledge as well as will:

> As to the second hypothesis, that God moves the heavens without having created a potency in them through which they move, this also is a very reprehensible doctrine, far from man's understanding. It would mean that God touches and moves everything which is in the sublunary world, and that the causes and effects which are perceived are all without meaning, and that man might be man through another quality than the quality God has created in him and that the same would be true of all other things. But such a denial would amount to a denial of the intelligibles, for the intellect perceives things only through their causes. (Averroes, *Tahāfut al-tahāfut*, Discussion 14, 291; 479:1–7.)

> And this is one of the arguments through which it is established that the heavenly bodies are provided with intellect and desire; and this is clear also from various other arguments (Averroes, *Tahāfut al-tahāfut*, Discussion 14, 292; 480:16–18.).

Here, we come closer to the question of final causation specifically, for it seems that things in the sublunary world act for ends they possess in and of themselves. However, more proximately than from God, these ends are indicated by the heavens and the way in which these – the living heavenly bodies – move the

world. With a division that Buridan would later employ,[47] Averroes makes a distinction between the end of the heavens as a first intention – which is God – and the end of the heavens as a second intention – as they give ends to the sublunary world:

> This movement, however, does not occur according to the philosophers in first intention for the sake of this sublunary world; that is, the heavenly body is not in first intention created for the sake of this sublunary world. For indeed this movement is the special act for the sake of which heaven is created, and if this movement occurred in first intention for the sake of the sublunary world, the body of the heavens would be created only for the sake of this sublunary world, and it is impossible, according to the philosophers, that the superior should be created for the sake of the inferior. (Averroes, *Tahāfut al-tahāfut*, Discussion 15, 295; 484: 13–18.)

> This theologian [i.e., al Ghazālī] wants to indicate the cause of this from the point of view of the final cause, not of the efficient, and none of the philosophers doubts that there is here a final cause in second intention, which is necessary for everything in the sublunary world. And although this cause has not yet been ascertained in detail, nobody doubts that every movement, every progression or regression of the stars, has an influence on sublunary existence, so that, if these movements differed, the sublunary world would become disorganized. But many of these causes are either still completely unknown or become known after a long time and long experience, as it is said that Aristotle asserted in his book *On Astrological Theorems*. (Averroes, *Tahāfut al-tahāfut*, Discussion 15, 299; 491:13–492:5.)

Thus, the sublunary world – operating in accordance with an act-potency scheme – is given its ends and its general ordering more proximately from the heavens, which operate in accordance with reason and desire. However, it is of course ultimately from God that the ends, the structure, and the ordering come.[48]

> It also becomes clear from the fact that all the spheres have the daily circular movement, although besides this movement they have, as the philosophers had ascertained, their own special movements, that He who commands this movement must be the First Principle, i.e. God, and that He commands the other principles to order the other movements to the other spheres. Through this heaven and earth are ruled as a state is ruled by the commands of the supreme monarch, which, however, are transmitted to all classes of the population by the men he has appointed for this purpose in the different affairs of the state. As it says in the Koran: "And He inspires every Heaven with

[47] See above.

[48] And it is here, then, that one can find the break with Aristotle. God does not think about anything other than himself, according to Aristotle, whereas this is the case in Averroes.

> its bidding." This heavenly injunction and this obedience are the prototypes of the injunction and obedience imposed on man because he is a rational animal. (Averroes, *Tahāfut al-tahāfut*, Discussion three; vol. I. 111–112; 185:12–186:5.)

Above, we have seen how Averroes combines an act-potency scheme in his analysis of nature with a fundamentally intentionalist understanding of finality, or – more precisely – an analysis in which the end must ultimately be provided by a rational agent.[49] This concept would then be what is called here a *Dynamic* metaphysics with an *intentionalist* understanding of finality.[50]

It does not seem that Averroes problematizes this specific combination anywhere. However, whereas the combinations found in Aristotle and Buridan and presented above represent more "clean" solutions to how metaphysics and finality can be combined, it seems that with Averroes' combination, we have a situation in which two different accounts compete for the same "explanatory space." When accounting for a change in terms of the end, we can either explicate it along more traditionally Aristotelian lines as the actualization of a potentiality or we can refer it to the will of some rational agent (to a celestial agent or to God). Although a basic answer to the question of how these different accounts can be combined could be given along the lines of the *Liber de causis*, with its distinction between first order and second order causation, there is a tension in this account of the end that is not present in Aristotle's or Buridan's thinking. This tension, and the questions that it prompts, would later play a major role in the developments of the Latin and, more broadly, the "Aristotelian" philosophical traditions.

## IV. CONCLUSIONS

Whereas Aristotle understands finality in a non-intentionalist way as the actualization of a potentiality, for Buridan, finality only emerges from the operation of a rational agent. In Averroes, the act-potency scheme used to explicate the workings of especially the sub-lunar world and its ends is combined with an intentionalist understanding of finality, in which the entire order of the world is ultimately dependent on the intentions and commands of God.

We can thus derive the following "four-field matrix":

[49] With all the *caveats* given above of how to exactly understand his combination of the philosophical and the theological perspectives.

[50] See also Cerami 2015, especially the conclusion on 672–675.

*Table 1. Four-field matrix of different conceptions of reality and conceptions of finality.*

| | | *Conception of finality* | |
|---|---|---|---|
| | | *Non-intentionalist* | *Intentionalist* |
| *Conception of reality* | *Dynamic* | Aristotle | Averroes |
| | *Boolean* | — | Buridan |

In the later Latin Middle Ages, a purely Aristotelian concept of finality was not truly accessible. Thus, what we have are understandings of the question that oscillate around "Buridanean" or "Averroist" expressions and solutions, in the sense of combining a basically intentionalist understanding with Dynamic metaphysics (in which ends can also be understood to be inherent in nature) or Boolean metaphysics (in which the ends tend to be understood as being extrinsic to things in the world).

Hopefully, the above heuristic scheme can serve to explain some of the different ways in which the notion of finality can be embedded into different world views and philosophies and also explain why different questions, problems, and challenges have been raised in relation to this notion for different thinkers in the history of philosophy.

## REFERENCES

Averroes 1954. *Tahafut al-Tahafut*. Trans. Simon van den Bergh. London, Luzac.

Bakker, Paul J. J. M. 2001. Aristotelian Metaphysics and Eucharistic Theology: John Buridan and Marsilius of Inghen on the Ontological Status of Accidental Being. In Thijssen–Zupko 2001. 247–264. https://doi.org/10.1163/9789004452893_016

Barnes, Jonathan 1984. *The Complete Works of Aristotle*. Princeton/NJ, Princeton University Press.

Biard, Joël 2001. The Natural Order in John Buridan. In Thijssen–Zupko 2001. 77–95. https://doi.org/10.1163/9789004452893_008

Brook, Angus 2015. Substance and the Primary Sense of Being in Aristotle. *The Review of Metaphysics*. 68/3. 521–544.

Buridan, Jean 2015. *Quæstiones Super Octo Libros Physicorum Aristotelis (Secundum Ultimam Lecturam): Libri I–II*. Ed. Michiel Streijger – Paul J. J. M. Bakker. Leiden, Brill.

Buridan, Jean 2010. *Quaestiones Ssuper Octo Libros De Generatione et Corruptione Aristotelis: A Critical Edition with an Introduction*. Ed. Michiel Streijger – Paul J. J. M. Bakker – Hans J. Thijssen. Leiden, Brill.

Cerami, Cristina 2015. *Génération et Substance. Aristote et Averroès entre physique et métaphysique*. Boston, de Gruyter.

Glasner, Ruth 2009. *Averroes' Physics*. Oxford, Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199567737.001.0001

Johnson, Monte Ransome 2005. *Aristotle on Teleology*. Oxford, Oxford University Press.

Knuuttila, Simo 2001. Necessities in Buridan's Natural Philosophy. In Thijssen – Zupko 2001. 65–76. https://doi.org/10.1163/9789004452893_007

Kogan, Barry S. 1985. *Averroes and the Metaphysics of Causation*. Albany, State University of New York Press.

Kukkonen, Taneli 2000. Possible World in the *Tahāfut al-Tahāfut*: Averroes on Plenitude and Possibility. *Journal of the History of Philosophy*. 38/3. 329–347.

Lagerlund, Henrik 2011. The Unity of Efficient and Final Causality: The Mind/Body Problem Reconsidered. *British Journal for the History of Philosophy*. 19/4. 587–603. https://doi.org/10.1080/09608788.2011.583413

Leaman, Oliver 1988. *Averroes and His Philosophy*. Oxford, Clarendon Press. https://doi.org/10.4324/9781315027050

Leunisse, Mariska 2020. Teleology in Aristotle. In McDonough 2020. 39–63. https://doi.org/10.1093/oso/9780190845711.003.0003

McDonough, Jeffrey K. 2020. *Teleology: A History*. Oxford, Oxford University Press. https://doi.org/10.1093/oso/9780190845711.001.0001

Normore, Calvin 1985. Buridan's Ontology. In his *How Things Are. Studies in Predication and the History of Philosophy and Science*. Dordrecht, D. Reidel. 189–203. https://doi.org/10.1007/978-94-009-5199-0_8

Papineau, David 2016. Naturalism. In Edward N. Zalta (Ed.) *The Stanford Encyclopedia of Philosophy* (Winter 2016 Edition). https://plato.stanford.edu/archives/win2016/entries/naturalism/

Pasnau, Robert 2011. *Metaphysical Themes: 1274–1671*. Oxford, Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199567911.001.0001

Pasnau, Robert 2020. Teleology in the Later Middle Ages. In McDonough 2020. 90–115. https://doi.org/10.1093/oso/9780190845711.003.0006

Shields, Christopher 2007. Aristotle on Action: The Peculiar Motion of Aristotelian Souls. *Aristotelian Society Supplementary Volume* 6. 81/1. 139–161. https://doi.org/10.1111/j.1467-8349.2007.00154.x

Shields, Christopher 2014. *Aristotle* (2nd ed.). London, Routledge. https://doi.org/10.4324/9781315863580

Stein, Nathanael 2011. Causation and Explanation in Aristotle. *Philosophy Compass*. 6/10. 699–707. https://doi.org/10.1111/j.1747-9991.2011.00436.x

Sylla, Edith Dudley 2001. *Ideo Quasi Mendicare Oportet Intellectum Humanum:* The Role of Theology in John Buridan's Natural Philosophy. In Thijssen – Zupko 2001. 221–245. https://doi.org/10.1163/9789004452893_015

Thijssen, J. M. M. Hans – Jack Zupko 2001. *The Metaphysics and Natural Philosophy of John Buridan*. Leiden, Brill. https://doi.org/10.1163/9789004452893

Urvoy, Dominique 1991. *Ibn Rushd (Averroes)*. London, Routledge.