

Article

The Medieval Problem of the Productivity of Art

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Abstract: This paper is focused on one of the key questions constituting the medieval debate about the ontological status of artefacts, which has to do with the productivity of art. We ordinarily speak about artefacts, such as statues or chairs, as *produced* by their artificers, and Aristotle describes art in general as a *productive habit*. In the first part of the paper, I look at how the proponents of the realist view of artefacts argue that the productivity of art can only be explained if we endorse their view, on which by producing an artefact an artificer brings about a new thing in the world, which is distinct from the natural things used in its production. I then turn to the reductionist account of artefacts and examine how its proponents want to show that the productivity of art can be preserved without positing that an artefact must be a new thing in the world, distinct from its natural components. In the final part of the paper, I look at one of the further corollaries of this debate, which has to do with the connection between the productivity of art and natural change.

Keywords: artefacts; art; metaphysics; medieval philosophy

1. Introduction

As the submissions in this special issue of *Philosophies* demonstrate, the ontology of artefacts was a hotly debated topic in the Middle Ages, and one that deserves much more scholarly attention than it has received so far. The main issue at stake in the debate as it unfolded in the late Middle Ages, from around 1300 to 1500 and beyond, is whether an artefact is an entity distinct from the natural things composing it, for example, if a marble statue is something over and above the piece of marble, and if a wooden chair is something over and above the pieces of wood. The debate quickly becomes split into two main camps (with further subdivisions within each camp). Thinkers whom I will be calling *artefact realists*, such as John of Pouilly, Walter Burley, and Paul of Venice, hold that an artefact is a thing distinct from the natural things composing it. By contrast, thinkers whom I would like to call *artefact nominalists*, such as William of Ockham, John Buridan, and Blasius of Parma, hold that an artefact as such does not add any new thing over and above the natural things composing it¹ [1–9].

My own view is that the debate between these two camps is best seen as a cluster of more specific problems and arguments that recur in the texts addressing this main issue, principally commentaries on Aristotle's *Physics*. For example, one of these key problems, which I will not discuss in detail here, has to do with the nature of change: what do we need to posit in the world in order to explain that this piece of marble is first not a statue of Mercury and then becomes a statue of Mercury? Investigating all of these problems at the same time would require a book-length study. My aim in the present contribution is accordingly much more modest. I would like to zoom in on the medieval debate about artefacts by taking a closer look at another problem, which has to do with the productivity of art. We ordinarily speak of artefacts as being *produced* by their artificers; and Aristotle describes art in general as a *productive habit* in Book VI of *Ethics*:

Because architecture is a kind of an art, and a kind of a habit productive with reason [*habitus cum ratione factivus*], and there is no art that would not be a habit productive with reason, nor is there such a habit that would not be an art, art



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will then be the same as a habit productive with true reason [10] (lib. VI, c. 4, 1140a6–14, p. 481).

Artefact realists argue that, in order to explain how we think of artefacts as being produced, and how Aristotle describes art in *Ethics* VI, we need to posit that the making of an artefact involves the coming-to-be of a new thing in the world. By contrast, artefact nominalists hold that both our intuitions and the Aristotelian adage can be explained in a more parsimonious fashion, whereby the making of artefacts does not involve the production of any new things in the world but rather merely a change in the state of already existing things.

The paper proceeds as follows: First, I summarise the main realist argument based on the productivity of art and the rationale behind it. Second, I turn to the nominalist camp to examine several examples of how its representatives tried to provide an alternative, more parsimonious account of the productivity of art. Third, I look at the realist criticism of these nominalist explanations. Fourth, I look at an example of a further corollary of the debate about the productivity of art, which has to do with the worry raised by some of the realists, that if one were to accept the nominalist account of the productivity of art, on which the making of an artefact does not involve the generation of any new thing, the same account could also be extended onto all kinds of natural change, both substantial and accidental, leading to the elimination of any natural generation as well.

2. Realist Argument(s) Based on the Productivity of Art

I begin by looking at a key realist argument based on the productivity of art. The structure of the argument is quite simple. Here, by way of example, is how it is formulated by one of the most influential proponents of artefact realism, Walter Burley. Burley begins by presenting his readers with the following dilemma:

1. I ask whether an artificer [a] makes something or [b] makes nothing.
Burley immediately adds that (1b) cannot be the case:
2. It cannot be posited that he makes nothing, because then art would not be a productive habit (for a habit by which nothing can be made is not productive); which would be against what the Philosopher says in Book VI of *Ethics*, where he posits that art is a productive habit.

This leaves only option (1a) on the table. Given that, Burley presents his readers with another dilemma:

3. If, on the other hand, it is posited that he makes something, then either he [a] makes something new or [b] something that already exists.
Burley thinks that (3b) is clearly absurd:
4. Not something that already exists, because then he would make something that has already been made, which is to make nothing.
This leads to the final conclusion of the argument:
5. Hence, the only option that remains is that an artificer makes something new, and as a consequence that an artificial thing includes something new that is not included in a natural thing, which is what I am arguing for² [4,7,11–13].

This passage has several particularly notable features. Firstly, Burley assumes that there are only two possibilities to choose from: either (1a) an artificer produces something new or (1b) he produces nothing; secondly, he understands (1a) *producing something* in a robust sense, that is, as *producing some new thing* that did not exist before. It is only with these two key assumptions in place that the Aristotelian adage from *Ethics* VI about the productivity of art can be employed in support of artefact realism: for given these two assumptions, if art is to be genuinely productive, it must bring about some new thing in the world. This must be so, Burley further emphasises in steps 3–4, because the only alternative would be to say that an artificer produces something that already exists, which is a contradiction. Burley thus reaches the final conclusion, that an artificer produces a new thing in the world that is distinct from natural things.

Given that the realist argument is usually presented by artefact realists as based on the Aristotelian passage from *Ethics* VI, the success of the argument could seem to be wholly dependent on the specific reading of the passage in question proposed by the realists. However, this impression is, I think, mistaken. For the realists, the Aristotelian adage simply expresses an intuitively compelling premise, one which can of course also be reached by different, less authority-based routes. Thus, for example, Nicole Oresme frames it as springing from “the common judgment of people. Whence it is as if innate to us by nature or natural prudence, as if truth itself compelled us about it, that everyone concedes that the maker of a house makes something that did not exist before; and yet he does not make stones and pieces of wood” [14] (lib. II, q. 4, p. 192).

This is usually all that we get by way of explicit justification of the above premises in the realist texts. One exception here is Paul of Venice, who does give some further rationale for endorsing premise 2, that is, for why it cannot be said that an artificer produces nothing in making an artefact. The initial stages of Paul’s argument are the same as steps 1–2 of Burley’s argument above. But, unlike Burley, Paul provides further justification for premise 2. Take the statement (which Paul finds in Book II of Aristotle’s *Physics*) that ‘Polyclitus makes a statue’ (*Policletus est statuam faciens*). There seems to be no good reason not to concede this proposition. Now, Paul adds, it is clear that the term ‘statue’ falls under the scope of the higher-level term ‘something,’ since a statue is *something*; so that, as Paul puts it, from the fact that Polyclitus makes a statue “it follows that he makes something, [since this holds as an argument] from a lower-level term to a higher-level term affirmatively without restrictions.” Simply put, Paul reasons by generalisation: If it is true that ‘Polyclitus makes a statue,’ then it must also be true that ‘Polyclitus makes something.’ Not every such case of generalisation involves a valid argument, but Paul is convinced that the case at hand does indeed make for a valid argument because it fulfils two conditions, namely it holds (i) affirmatively and (ii) without restrictions (*affirmative et sine impedimento*). Qualification (i) restricts this consequence to affirmative cases because, while the above consequence, which is affirmative, does follow, the contrary, negative consequence does not. That is to say, from ‘Polyclitus does not make a statue,’ it does not follow that ‘Polyclitus does not make something.’ Qualification (ii) covers other inference blockers, for example, universal quantification (from ‘Socrates likes all dogs’ it does not follow that ‘Socrates likes all things’) [15] (*Metaphysica*, c. 21, f. 137rb). The rest of Paul’s argument returns to the familiar tracks that we have already covered in the argument proposed by Burley, including the other key assumption, that the statement that an artificer *makes something* should be read in a strong sense, equivalent to saying that an artificer *makes some new thing* in the world.

Other ways of supporting premise 2 that we can find in primary texts include, for example, appeals to teleology. Some realists insist that, unless it is conceded that artificers produce new things in the world, it will follow that their actions are in vain. Why would this need to follow? The reasoning seems to be the following: An action that does not attain its end is in vain. But the end of each artificer’s action is the production of some thing in the world. Thus, unless such a new thing is brought about by his efforts, his work will need to be said to have been in vain, which is contrary to our experience³ [16,17].

In addition, some proponents of artefact realism supplement their considerations of the productivity of art with a reasoning advanced from a completely different angle, focused on the social implications of denying the strong reading of the axiom concerning the productivity of art. The basic idea here is that if one were to deny that artificers produce new things in the world, this would lead to the collapse of social practices, such as remuneration. For example, the fifteenth-century artefact nominalist John Aurifaber recalls that his realist opponents charge that if a house made by a housebuilder were not an entity distinct from the pieces of wood and stones used in putting it up, then “a great article of law would perish”, for the law stipulates that no reward is due to someone without any merit. But, the realists argue, someone who accepts the nominalist narrative has to admit that an artificer such as a housebuilder has no merit, since he does not produce any new

thing: “These artificers do not make or produce anything anew by their artisanship. Hence, a house that has been built has not been produced anew. Hence, a housebuilder has not made anything, and as a result, he should not be rewarded,” since he is without merit [18] (lib. II, q. 1, f. 56ra). The Parisian author from the turn of the fifteenth and sixteenth century Peter Crockaert (who, unlike Aurifaber, is himself an artefact realist) depicts this scenario rather vividly when he says that if a proponent of artefact nominalism were accused by a shoemaker of not paying his wages, he could respond to the presiding judge: “This man has never made anything for me” [19] (lib. II, q. 2, quire e4vb). Given that it undermines some of the most fundamental social rules and practices, the realists argue that artefact nominalism is unacceptable.

3. Nominalist Account of the Productivity of Art

Based on the productivity of art summarised above, the nominalist reply to the realist arguments is guided by two main objectives. On the one hand, the aim of the nominalists is to disprove these arguments and hence to show that there are no convincing reasons to posit that the productivity of art must consist in making new *things*. In other words, artefact nominalists reject the inference from ‘Art is productive’ to ‘Art makes new things,’ or from ‘Art makes something’ to ‘Art makes some new thing.’ On the other hand, the nominalists do not want to discard the axiom about the productivity of art altogether. Rather, using one of their favourite strategies, they attempt to *reinterpret* it in such a way that it will be rendered ontologically neutral; that is to say, it will not lead to the conclusion that art produces new things in the world. In a sense, then, the nominalists want to have it both ways: they want to reject the claim that art produces new things but they nevertheless want to retain the thesis that art is somehow productive.

Paul of Venice (largely following Walter Burley on this point) provides us with a useful list of four different ways in which the proponents of artefact nominalism try to reinterpret the principle concerning the productivity of art:

The defenders of Ockham, who say that artefacts are not distinct from natural things, try to overcome this argument [based on the productivity of art] in four ways.

(1) The first way is to say that an artificer makes nothing *simpliciter* but merely *secundum quid*; for he makes the bronze be such-and-such [*aliquale*] as it was not before. For he makes the bronze be a statue when the bronze was not a statue before. [...]

(2) The second way of responding is to say that an artificer makes nothing new but a new denomination. For in virtue of the action of the artificer the bronze is called a ‘statue’ after it was not called a ‘statue;’ just as something can become one-foot-long after it was half-foot-long without the acquisition of any new thing but only of a new denomination. [...]

(3) The third way of responding is to say that an artificer only makes a *complexe significabile* but no incomplex thing, so that he does not make bronze but he makes bronze be a statue. Nor does he make a statue but he makes something into a statue [*neque statuam facit sed facit statuam*], in the sense that he does not make that which is a statue but he makes that which is a statue be a statue. [...]

(4) The fourth way of responding is to say that an artificer makes nothing but a new motion or a new place; and as a result, he makes nothing new in the bronze or in some natural thing that would be an absolute [thing], denominating being a statue, but only makes motion or the relational accident of place [20] (lib. II, q. 2, quire h2vb).

These four solutions are of course not mutually exclusive; on the contrary, they are closely connected to one another. Briefly speaking, the nominalists hold that all that an artificer does is move already existent things or their parts in space (4); for example, in

making a statue, a sculptor removes some of the extended pieces of a piece of marble. In so doing, he changes the state of that piece of marble by making it be a statue or be statue-shaped (1). Thus, he brings about a new state of affairs that can be designated with a proposition: 'This piece of marble is a statue' (3). This also means that the piece of marble can now be called a 'statue' (2). These are the only senses in which artefact nominalists are willing to concede that an artificer produces something by his activity, but neither of these four ways, they hold, involves the making of any new thing.

Let us now go over these explanations in slightly more detail. All four explanations can be traced back to Ockham as their ultimate source: that the making of artefacts involves nothing more than local motion of already existent things or that their extended parts are a foundational claim of Ockham's reductive account of artefacts. For example, Ockham states that:

It should be said that artefacts are not made by the production of a new thing, but rather what suffices to make artefacts is to move locally one thing or to bring different natural things together in space or separate them in space [21] (lib. II, c, 1, par. 4, p. 219).

I plan to discuss this key thesis in more detail elsewhere, so I shall be concise here. In a nutshell, Ockham holds that (1) the making of artefacts involves nothing more than local motion; for example, the making of a marble statue involves removing extended parts of a block of marble, and the making of a wooden chair involves appropriately putting together several pieces of wood; and that (2) local motion only leads to the acquisition of a new place by the moving thing (where the new place is understood in reductionist terms, as nothing over and above the moving thing). These two steps lead him to the conclusion that the making of artefacts does not involve the production of any new thing in the world⁴ [21–23].

As well as the later artefact nominalists following him, John Buridan, also holds that the making of artefacts such as statues, chairs, and houses involves nothing more than local motion and hence does not result in the production of any new thing in the world. For example, when faced with the objection that artefact nominalism leads to a contradiction because it is committed to the claim that someone who makes a statue makes nothing, Buridan responds that what the artificer does is bring about local motion in virtue of which we can say that 'The piece of bronze becomes a statue.' It is only in this sense, namely that "he produces motion by which parts of the piece of bronze stand in such a relation to one another that the piece of bronze is called a 'statue,'" that the proposition 'The maker of a statue makes a statue' (*Statuae factor facit statuam*) can be admitted⁵ [24].

Two observations are in place here. Firstly, this passage nicely brings out a point that I have made earlier: that the four nominalist solutions are by no means mutually exclusive. Note that Buridan immediately moves from stating that what the artificer brings about is local motion (explanation 4) to pointing out that in virtue of this local motion, the extended parts of the piece of bronze stand differently than before (explanation 1) and hence receive a new denomination (explanation 2). Secondly, while both Ockham and Buridan emphasise that all that the artificer does is simply bring about local motion, the implications of this statement differ for these two thinkers. Ockham and his followers are reductionists about local motion, so when they say that the artificer brings about nothing more than local motion, this means that the artificer does not produce anything at all. By contrast, Buridan and his followers are realists about local motion, that is, they think that local motion is a thing distinct from the moving thing. Hence, when they state that all that the artificer brings about is local motion, this means that, while it is true that the artificer produces no *permanent* thing, he nevertheless produces a new *successive* thing, namely local motion⁶ [6,25–27]. (A permanent entity is one whose parts all exist at the same time. By contrast, a successive entity is one whose parts all do not exist at the same time; instead, one part exists at one time and is followed by a second part, then by another, and so on.) Some of later followers of Buridan, such as Marsilius of Inghen and Benedict Hesse, use this commitment to the reality of local motion as another way of preserving the intuition concerning the productive

character of art: they state that while art does not produce any new permanent thing, it does bring about a new successive thing in the world, namely local motion [28] (lib. II, q. 1, a. 1, f. 6ra), ref. [29] (lib. II, q. 4, p. 191). The peculiar offshoot of how the Buridanists approach permanent vs. successive artefacts is that in their theory, an action leading to the production of an artefact has more reality than the artefact that it produces. For example, we take the case of a chair being made by a carpenter, the Buridanists would concede that the action of sowing and of putting the pieces of wood together are new things brought about by the artificer but they would nevertheless deny that the chair itself is such a new thing, which seems like a rather counterintuitive conclusion.

As I have said, there is a close connection between this explanation, listed as the fourth one by Paul of Venice, and the preceding three explanations in his list. Let me focus here on one further explanation in particular, namely explanation one and its relation to explanation four. The connection between these two becomes apparent, for example, when Ockham declares that, contrary to what the realists think, artefacts cannot be said to be *generated* in the proper sense of the word, since such a generation requires the coming-to-be of a new thing, which does not occur in the making of artefacts. Rather, artefacts can only be said to be generated in a broad, improper sense. For generation in this broad sense to occur, nothing more is required than the local motion of a given thing or its extended parts, by which they acquire nothing more than a new place. For example, by being locally moved, the stones and pieces of wood gain a new state, namely becoming a house⁷ [21].

This idea, that an artificer only makes something *secundum quid*, that, is, changes the state of an already existent thing or things, is expressed over and over again in the nominalist texts. For example, the early fifteenth-century philosopher Lawrence of Lindores states that:

Art is not called *productive* because someone makes something through it but because someone makes a thing stand differently [*aliter se habere*] through it⁸ [26,30].

All that is needed for the thing transformed by an artificer to change its state is the spatial reconfiguration of its extended parts, which happens by local motion. This change is a real change, as the state of the world after it has occurred is different compared to before, but it does not involve the production (or loss) of any thing in the world. This is an important statement, because it goes against the realist account of change, on which a change derives its reality from its terminus, so that that change is real when it has a real terminus, that is, which ends at the production of a new thing in the world. In contrast to the realist account of change, artefact nominalists hold that a change can be real without resulting in the production of any new thing, but simply because it results in changing the state of things that already exist, so that the state of reality is different after it has occurred compared to before⁹ [7,17,30].

John Buridan too subscribes to this explanation in his two question-commentaries on *Physics*. For example, in his final commentary, Buridan explains how the productivity of art can be preserved by someone endorsing a reductionist account of artefacts:

Nevertheless, despite this conclusion, it could be explained how the art of house-building is productive of a house, and the art of smithery is productive of a sword. For even if fire were to make you be warm, it nevertheless does not make you [*non fecit te*]; and in the same way, the blacksmith makes steel be a sword, and the housebuilder makes stones be a house, but they do not make steel or stones [24] (lib. II, q.1, p. 246).

It is important to realise here that the point of comparison that Buridan uses is not fire *making warmth* in me but rather fire *making me be warm*. The reason why this matters is that the first case involves producing a new *res*: a new quality of warmth, which Buridan considers to be a new thing. By contrast, the second case involves what could be called a new *state of affairs*: *making me be warm*. This state of affairs is not, on Buridan's nominalist ontology, a new *res*. Drawing an analogy between this case and the case of making a sword

or of making a house serves as an illustration of how someone can be productive without producing new things. Buridan thinks, just as fire is productive with respect to *me being warm*, so a smith is productive with respect to *iron being a sword* and a housebuilder is productive with respect to *stones being a house*, but neither of these new states of affairs is itself a new thing in the world.

However, Buridan anticipates an immediate realist objection, for if, as Buridan says, *me being warm* is not something distinct from me, nor is *iron being a sword* distinct from iron or *stones being a house* from stones, then it would seem to follow that if fire makes me be warm, it makes me; or that if a smith makes steel be a sword, he makes steel; which is clearly absurd, since neither does the fire produce what it makes warm, nor do artificers produce the materials that they work on.

Buridan wants to solve this conundrum in his favourite way, by using the tools of logic. He distinguishes between two different kinds of propositions, the difference between which cannot be rendered in English:

- (1) *Faber facit securim* and *Domifactor facit domum* on the one hand and
- (2) *Securim facit faber* and *Domum facit domifactor* on the other hand.

Simply put, Buridan argues that the meaning of (1) and (2) are different. One should read (2) in an absolute sense, so that it would mean that there is a new thing, an axe or a house, that is made by an artificer, in turn meaning that there was previously no axe or a house and now one is made by the artificer. By contrast, in (1), the terms 'axe' and 'house' function connotatively. When one says, for example, that '*Domifactor facit domum*,' the full meaning of this proposition is something along the lines of '*Domifactor facit ligna et lapides esse domum*.' In other words, proposition (1) says that the artificer makes *something* into a house, and this does not require that the house be generated in an absolute sense¹⁰ [24]. This is also how Paul of Venice explains this reply in his above summary. Using the example of a sculptor making a statue (say, out of a block of marble), Paul says that on this account, the sculptor "does not make a statue but makes [something into] a statue [*neque statuam facit sed facit statuam*], in the sense that he does not make that which is a statue but he makes that which is a statue be a statue." As a result, according to Buridan, (2) should be rejected as false (since an axe or a house are not things distinct from their components, they cannot be made in an absolute sense) but (1) is true. Hence, the objection that, on the nominalist account, it would follow that, for example, 'if the smith makes steel be a sword, he makes steel,' does not hold, because the *making* in question should be understood connotatively rather than absolutely.

Buridan's distinction was also used by some of the later artefact nominalists to respond to Paul of Venice's rationale for premise 2. For example, John Dullaert denies the inference from 'Socrates makes a knife' to 'Socrates makes something.' Following Buridan, Dullaert holds that in the proposition 'Socrates makes a knife' the verb 'make' (*facere*) is used in the sense of making *secundum quid* rather than making *simpliciter*; so that when one says that 'Socrates makes a knife' (*Sortes facit cultellum*), this should be read as something along the lines of 'Socrates makes something into a knife' rather than 'Socrates makes a knife in an absolute sense.' It is only in the latter sense that the knife would be a newly produced thing. Because of this, Dullaert denies that from 'Socrates makes a knife' (*Sortes facit cultellum*) it can be inferred that Socrates makes an absolutely new thing, or that an absolutely new thing is made by Socrates¹¹ [31]. (The realists would of course remain unimpressed by such a rejoinder, principally because they do not recognise the distinction between the production *simpliciter* and *secundum quid* on which it is based. On the realist view of change and of production, every case of production is what the nominalists term production *simpliciter*, which is to say, every case of production involves the making of a new thing in the world in the proper sense. The realist rejection of the distinction in question is motivated by the arguments that I have summarised above, in Section 2.)

It will come as no surprise if I add that artefact realists are deeply unsatisfied with all of the abovementioned nominalist attempts to reinterpret the meaning of the productivity of art, since they are convinced that any compelling account of this axiom must ultimately

be committed to positing the coming-to-be of new things in the world. As an instructive example, consider Walter Burley's harsh (though rather superficial) rebuttal of the above options. After laying out the argument that I have reconstructed above, Burley adds that his nominalist opponent could perhaps try to resist it by saying that an artificer does not make any genuinely new thing but merely "makes an already existent thing be such-and-such as it was not before" (explanation 1 in Paul of Venice's list). Burley responds to this that such a reply has no force, since he may continue questioning his opponent: by changing the state of an already existent thing, the artificer either produces something new or something that already exists. The latter is impossible for the reasons that are already familiar, since this would amount to making something that has already been made, which is a contradiction; and the former commits the opponent to the admission that a new thing comes into being when an artefact is made.

Burley adds to this the following dilemma for his opponent: assume that, as the opponent would have it, the productivity of the artificer consists in changing the state of an already existent thing. In so doing, he either produces some new extramental entity or he only produces a new mental entity, namely a new proposition, such as, 'This piece of bronze is a statue.' The latter is impossible, since then the artificer would make nothing more than new propositions, and the former again leads to the conclusion that he produces some new thing in the world.

Burley then considers another possible reply to his argument, namely that the productivity of art consists of producing a new denomination (explanation 2). His reaction is hardly surprising, as he applies the same line of questioning: either this new denomination is a new extramental entity or not. If not, it follows that an artificer only makes new entities in the mind, which is absurd. If yes, this new entity is either a new thing or an already existent thing, and since the latter cannot be the case, the former must be true. Burley subsequently puts forward exactly the same criticism of the two remaining replies: that an artificer makes a new state of affairs (*complexe significabile*; explanation 3) and that he produces local motion (explanation 4)¹² [11].

As I have said, Burley's criticism, while harsh, is also rather superficial. Burley insists that there are only two options to choose from: either an artificer produces a new thing or he produces nothing. By contrast, his nominalist opponents try to insert a middle ground between these two horns, whereby an artificer would produce something but not a new thing. Deeper engagement with the nominalist explanations is quite rare among the realists. One of the few exceptions is the Parisian scholastic from the turn of the fifteenth and sixteenth centuries, Peter Crockaert, who offers the following criticism of the first of the nominalist explanations in an imaginary dialogue with a nominalist opponent. Peter begins on a very traditional note: the nominalist claims that what the artificer does is make a thing stand differently than it stood before. Crockaert hence inquires: Is this thing 'standing differently' (*aliter se habere*) something more in reality than the substance of what is said to stand differently or not? If choosing the former, we reach the realist conclusion. If choosing the latter, then it must be conceded that stones and pieces of wood are a house. The nominalist opponent replies to this by predictably opting for the second horn but also adding that it is not sufficient to just identify stones and pieces of wood with the house. Rather, the nominalist stresses, the term 'house' is a connotative term, because it connotes that the stones and pieces of wood are arranged house-wise. (In other words, it is not stones and pieces of wood as such but rather stones and pieces of wood *as arranged house-wise* that are a house.) But Crockaert does not give up just yet. Rather, he continues to question his opponent. His next question is this: if we take a proposition '*Standing in such-and-such a way*' is connoted by the name 'house', what does the subject of this proposition (i.e., 'house') stand for? Crockaert is convinced that his opponent has his back to the wall now: he cannot fall back on the previous evasion, since this would make his reply circular. Given this, the opponent must reply that in the proposition in question, the term 'house' stands for the stones and pieces of wood *and nothing more* (*pro lignis et lapidibus praecise*); but this would make it an absolute rather than a connotative term. But if this were so, there seems to be no

reason why the term 'house' could not have been an absolute rather than a connotative term in the first proposition as well, when it was said that the house is the stones and the pieces of wood¹³ [19]. Thus, if one thinks that it should not be conceded that, properly speaking, 'A house is stones and pieces of wood' (that is, that this identity holds unqualifiedly), then the nominalist evasion by means of the idea of *standing differently* is of no help.

Why, though, would it be unacceptable to the nominalists to concede that 'A house is stones and pieces of wood' unqualifiedly? One reason is that it is not stones and pieces of wood in whichever state or configuration that are a house but only stones and pieces of wood as appropriately arranged. Hence, if one dismantles a house and scatters its components, all the stones and pieces of wood may still well exist, but it will no longer be true that they are a house, or that a house is them, because their proper arrangement has been lost. That is why the nominalists need to insist that the term 'house' is not an absolute but rather a connotative term, so that it connotes the proper arrangement of things that it signifies. If one were to abandon the claim that the term 'house' is connotative, one would need to admit that it can still be used to refer to stones and pieces of wood after the proper structure has been lost and these parts were scattered.

As it concerns the different line of criticism raised by the realists, namely that accepting the nominalist interpretation of the axiom concerning the productivity of art would wreak havoc on social practices such as remuneration, artefact nominalists hold their line and insist that their account leaves other ways for grounding such practices. Some artefact nominalists state that even though it is indeed true that the artificer does not produce any new thing, he nevertheless puts his work and effort into composing things (e.g., when he makes a chair) or removing things (e.g., when he makes a statue by chipping off parts of a block of marble), and it is this labour that he is rewarded for¹⁴ [18]. In a similar way, these nominalists add, one could say that a person who is running makes a lot of effort, and could hence be praised for it, even though she does not produce any new thing by this activity¹⁵ [32]. In general, what the artificers do is not produce new things but rather change the state of things that already exist thanks to their labour, and this is enough for them to deserve remuneration¹⁶ [15,26]. Artefact nominalists point out that this would hardly be an exception, as there are other activities, too, where a person is being paid for what they did despite the fact that they did not produce a new thing. For example, someone is being paid for cleaning someone else's house, and yet this activity did not involve producing any new thing. In the same way, these authors hold, there is a perfectly good reason to pay an artificer despite the fact that he did not bring any new thing into being, given that a customer would still have other legitimate reasons compelling them to pay, which do not involve the robust ontological status of an artefact posited by the realists¹⁷ [28].

But this line of responding does not seem to me to be entirely convincing. Note that, on the realist narrative, what is at stake in the above cases, such as the building of a house or the making of a shoe, is not whether the artificer has just *done* something, that is, not whether he has performed a certain action, but rather whether he has *made*, that is, produced, a thing that he was requested to produce: a house or a shoe. The realists argue that it only makes sense to say that an artificer has produced something if he has brought about a new thing, so if he has not done so, one would be fully justified to follow the customer in Crockaert's example recalled above in saying "this man has never *made anything* for me," where 'made' stands for 'produced' rather than a broader 'done.' Thus, the case of housebuilding or shoemaking is different from the case of cleaning someone's house. In the latter, there is no expectation that the person doing the cleaning will produce anything new and this is not what they are paid for. But, in the former case, to receive a new thing produced by an artisan is precisely what the client expects and what they pay for. In addition, it seems dubious to me whether we really do pay for the effort put in by the artificer rather than for the final product. If the former were the case, it would seem that, as long as the artificer has put in enough effort, I ought to pay the same amount regardless of the final effect of that effort, which is clearly not the case.

4. Artificial Production and Natural Generation

The medieval debate about the productivity of art and, in particular, about the implications of the nominalist account of this issue, developed along different, sometimes very surprising lines. Here, I want to focus on one such surprising twist, which has to do with the connection between the productivity of art and natural change. Some of the proponents of artefact realism put forward the following objection: If one accepts the nominalist reinterpretation of artificial change as consisting in nothing more than local motion of pre-existent stuff, then the same account can (and indeed should, if one is to remain consistent) be extended to all remaining kinds of change, both substantial and accidental, so that nothing will ever be truly produced (or destroyed) in the world, which is a position that the medievals associated with some of the ancient materialists with whom Aristotle disputed in Book I of *Physics*.

What is the view of the “ancient materialists”? I have in mind here thinkers such as Parmenides, Democritus, and Melissus. I call them *materialists* because Aristotle claims that they considered matter to be the sole principle of all things. For example, in Book I of *Metaphysics*, Aristotle summarises their view in the following way:

From among the first philosophers, many considered only those things that belong to the species of matter to be the principles of all things. For that of which all things are [composed] and into which they are ultimately corrupted, while their substance remains but is changed in its affections [*passiones*], this they call the ‘element’ and ‘principle’ of things that exist. And for this reason they think that nothing is generated or corrupted, as if such a nature was always preserved; just as we do not say that Socrates is generated *simpliciter* when he becomes good or musical, nor that he is corrupted when he loses these states, because Socrates himself as a subject remains [33] (lib. I, c. 3, 983b8–19, p. 18).

Regardless of the differences in their views on what the number of these principles is (one, a finite number, or an infinite number), all of the ancient materialists agreed on one crucial point: that all of these principles are eternal parts of matter, which is the only thing that exists. Matter is that which composes all things and which is their sole substance, while all change in the world consists in the change of its affections. This, Aristotle adds, is why they think that nothing is ever genuinely generated or corrupted, because matter, which is the sole substance of all things, always remains.

The interpretation of their position, dominant in the thirteenth century, seems to have been that the ancient materialists reduced all forms to accidental forms (affections of matter) and hence all change to accidental change, explained in terms of congregation and segregation of matter¹⁸ [34]. In the fourteenth century, the interpretation seems to have changed, insofar as later interpreters also ascribed the rejection of substantial forms to the ancient materialists. This more expansive interpretation became particularly prominent from the 1340s, because of the Parisian condemnation of the views of the Cistercian monk John of Mirecourt, who argued that, were it not for the Christian faith, one could sustain a fully reductionist account of all accidents¹⁹ [35]. This view was accused of resurrecting the pernicious error of the ancient materialists. After John’s condemnation in 1347, the medieval authors, whether because of being genuinely convinced of the erroneousness of his position or simply because of deferring to ecclesiastical authority, wanted to steer clear of being associated with John’s view or the ancient error to which it was likened.

But what is the connection between the error of the ancient materialists and artefact nominalism? Among artefact realists, Walter Burley seems to have been the first one to draw an explicit comparison between the two “errors.” The ancient materialists, says Burley, claim that all cases of natural change, both substantial and accidental, can be explained purely in terms of spatial reorganisation of matter. In their view, the change in the location of different bits of matter suffices to explain both changes, such as the production of heat and the generation of a new animal. Hence, from the scholastic perspective, their ontology is devoid of any genuine forms understood as new items in the world. As a result, their

ontology has no room for genuine generation, since for it to take place, something new must come into being. Similarly, Burley thinks, Ockham argues that the production of artefacts can be satisfactorily explained solely in terms of the spatial reconfiguration of the extended parts of substances composing artefacts. For example, sculpting a statue consists of chipping away parts of a block of marble, and building a house consists of putting together stones and pieces of wood. Thus, Ockham does away with artificial forms understood as things really distinct from natural substances and claims that the production of artefacts does not consist of making any new thing²⁰ [11,36].

While Burley merely shows what the analogy between the view of Ockham and of ancient materialists is, this comparison would soon be turned into a full-fledged objection against artefact nominalism. For example, Nicole Oresme recalls the gist of Ockham's parsimonious take on artefacts:

It is in vain that something takes place by many things if it can take place by fewer things. [...] Now, by positing that such things [i.e., natural and artificial things] are not distinct, all [phenomena] can still be explained. Therefore, such a multitude is posited in vain.

Oresme responds in the following striking way:

I respond that if this argument were conclusive, then the distinction between matter and form would also be posited in vain, because [...] it could be maintained that matter and form are identical [...]. Therefore, I say that [the phenomena] cannot be explained by fewer things [14] (lib. II, q. 4, p. 196).

Oresme argues that if one were to accept the cogency of Ockham's reductionist account of artefacts and artificial forms, then the same account would need to be extended to natural things and natural forms, so that in their case, too, it could be said that instead of positing the production and loss of various forms, both substantial and accidental, there is only matter in various states; so that "there would be no generation nor something properly new"²¹ [14].

While the charge laid by Oresme is powerful, it is clear that the nominalists feel that they have sufficient resources for replying to any such accusation. The nominalists are convinced that they have a compelling criterion for establishing which metaphysical domains can, and which cannot, be subject to metaphysical reduction. While, for obvious chronological reasons, Ockham did not have a chance to respond to Oresme's accusation, he nevertheless anticipated it in his own discussion. Even before Burley drew an analogy between Ockham and the ancient materialists, it was none other than Ockham himself who did the same. In the *Expositio of Physics* Ockham used the position of the ancient materialists on natural principles and natural generation as a useful illustration of his own view of artefacts, precisely along the lines that Burley was then to follow²² [21]. Since espousing artefact nominalism while rejecting the view of the ancient materialists, he must be convinced that the former does not lead to the latter. We have already caught a glimpse of his rationale for saying so (which I plan to explore in more detail elsewhere) above. Ockham is convinced that local motion and the passage of time do not involve the production of any new thing in the world. Rather, the passage of time is reducible to local motion, which is in turn reducible to the moving body; so that when a body is moved, it does not acquire within itself any new thing but rather only moves from one place to another. Given his general methodological principle that "Plurality should not be posited without necessity" [37] (q. 118, p. 716), or, in another, more specific version, that "When a proposition is made true [*verificatur*] for things, if two things suffice to make it true, it is superfluous to posit a third thing" [38] (quodl. IV, q. 24, p. 413), Ockham proposes the following approach to any metaphysical question:

It is impossible for something to pass from contradictory to contradictory without [1] the acquisition or loss of some thing, unless this [passage] can be accounted for by [2] the passage of time and [3] local motion [38] (quodl. VII, q. 2, p. 707).

In other words, Ockham stipulates that we should only take recourse to positing new things in the world where an explanation cannot be provided purely in terms of the passage of time or local motion or the two latter changes taken together. Now, Ockham is convinced that substantial change and some cases of qualitative change cannot be explained solely in terms of passage of time or local motion; for example, “A man is first non-white and then white, and this passage is not explained by local motion or passage of time;” for this reason it must be posited that this change involves the production of a new thing in the world: the accident of whiteness. By contrast, the making of artefacts can indeed be purely explained in terms of local motion, and for this reason an account of what takes place when—for example, a piece of marble is first not a statue and then becomes a statue—does not require positing the coming-to-be of any new thing in the world. Hence, when faced with the realist accusation that accepting his account of artificial change would lead to extending it onto all kinds of natural change, and thus to the elimination of any natural generation in the world, Ockham insists that the inference does not hold, because there are cases of natural change that do not lend themselves to the reductionist account of the kind that Ockham has offered with regards to artefacts²³ [21]. The same reply to the objection was then given by other artefact nominalists, including John Buridan²⁴ [39].

5. Conclusions

How successful are the nominalist attempts to offer a more parsimonious account than the one proposed by the realists? As I have mentioned above, given that one of the main objectives of the nominalists is to preserve the intuition concerning the productivity of art, their account does not seem to me to be particularly successful since it seems to me that Nicole Oresme is correct to insist that for someone who has this intuition it will be clear that it consists in the conviction that “the maker of a house makes something that did not exist before,” and this *something* is a new entity in the world. The alternative explanations offered by the nominalists might perhaps fare better when it comes to showing how artificial change can be a real change without involving the making of any new thing in the world, but when they are applied to productivity of art, they seem to stretch our intuitions beyond reasonable limits. One could therefore wonder if it would not be a more promising path for the nominalists to simply abandon the commitment to the productivity of art altogether, but, for one reason or another, no nominalist that I am aware of decided to follow that path, perhaps because it would mean openly contradicting Aristotle, and also because, as I have just mentioned, the nominalists recognise the appeal of the intuition concerning the productivity of art and hence, rather than reject this intuition, try to reinterpret it, with varying degrees of success.

Assessing the reply that the nominalists give to the additional objection raised by the realists, namely that accepting the nominalist account of the making of artefacts would lead to reductionism about all kinds of natural change, is a tangled matter, which I can only discuss briefly here. On the one hand, the key issue here seems to be which kinds of change can, and which cannot, be explained in terms of local motion (and passage of time) alone. It seems to me that the main official motivation for denying that their reductionist account of artefacts could be extended onto all kinds of natural change that Ockham and Buridan provide us with is simply the inconceivability of how, say, the generation of animals or the change of colour could be explained purely in terms of locomotion. But if this interpretation is correct, then the nominalist account is incoherent. In their discussion of artefacts, Ockham, Buridan, and other artefact nominalists insist that, almost axiomatically, local motion does not result in the production of a new thing; it is because of this assumption that they can move very quickly, by adding just one more premise, that the making of artefacts consists in nothing more than local motion, to reach their reductionist conclusion about the status of artefacts, such as statues, chairs, and houses. The problem, however, is that at other places both Ockham and Buridan recognise cases where local motion does lead to the production of a new thing; for example, when a thing moves very fast or when two things are rubbed against each other, this results in the production of the accident of heat,

which according to both Ockham and Buridan is a new thing, distinct from the moving thing(s) [37] (q. 120, p. 722), ref. [40] (lib. II, q. 16, p. 467). By recognizing such instances Ockham and Buridan violate the thesis that local motion does not result in the production of any new thing, and thus put their reductionist programme about artefacts in jeopardy. Whether there is any way out of this predicament for artefact nominalism is a fascinating and difficult question; currently, I am certainly inclined to give a negative answer, but this matter certainly deserves further investigation in the future.

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Notes

- ¹ The main scholarly contributions on the late medieval debate about the ontology of artefacts are the following papers: ref. [1] (on Walter Burley), refs. [2,3] on (William of Ockham), ref. [4] (on the realist and nominalist reception of one of Ockham's arguments), refs. [5,6] (on the Parisian debate about artefacts), ref. [7] (on Paul of Venice), refs. [8,9] (on the post-medieval scholastic development of the debate in the seventeenth century). While this shows that there has been *some* research on our topic, it must be added that most of the medieval debate about artefacts still remains a *terra incognita*. For example, the views on artefacts of even some of the most important figures in the debate, such as Paul of Venice, have only recently begun to receive any scholarly attention. What is particularly needed, and missing so far, is a comprehensive philosophical picture of the origin and development of the debate. An anonymous referee has asked me whether the secondary sources share the same interpretation of the authors I study here. Because of the aforementioned limitations of the scholarship so far, the most accurate answer to this query seems to me to be that there is *no* established interpretation the views that the authors studied here held on artefacts. This is particularly true of the issue of the productivity of art that I intend to investigate here, since, to the best of my knowledge, it has never been studied in depth before, so there is virtually no secondary literature to rely upon or to compare myself against.
- ² See reference [11] (lib. II, q. 2, p. 135D). All translations are mine. Given the abundance of textual evidence concerning our topic, I will limit my further references to a few representative examples. For further instances of the present argument, see, e.g., [12] (Pars I, tract. 5, a. 34, pp. 219–220): “Illud quod realiter producitur per realem actionem artificis est vera res absoluta, distincta ab aliis rebus. Sed forma artificialis et omnis talis qualitas quartae speciei potest produci per talem actionem artificis. Maior est nota. Sed probatur minor, quia sexto *Ethnicorum*, «Ars est habitus factivus». Ergo artifex aliquam rem facit per actionem vel artem suam. Sed non facit solum respectum, quia nullus respectus est per se terminus alicuius actionis realis. Ergo facit rem absolutam;” [13] (Lib. II, q. 1, f. 43rb): “Dictum hoc probatur rationibus. Prima: Omnis artifex operando aut aliquid facit aut nihil. Non nihil, quia tunc ars non esset habitus factivus, quod est contra Philosophum sexto *Ethnicorum*. Si facit aliquid, aut facit aliquid antiquum, aut novum. Non antiquum, quia tunc faceret solum prius facta, quod nihil est facere. Si faciat aliquid novum, habetur propositum, quia non potest facere nisi figuram.” An anonymous referee has pointed out to me that according to Aristotle, art produces not only new objects (such as statues) but also new qualities (e.g., health) and new processes (e.g., the boiling of water), and has asked what happened to this distinction in the medieval texts. This is a complex issue, so I cannot do it justice here. For example, one of the complications is that most medieval thinkers hold that qualities such as health are properly speaking produced only by nature but not by art; for example, all that a doctor does is administer a healing potion to a patient, but it is then the natural powers of the potion that bring about the healing of the patient. But setting these complications aside, one can say, very crudely, that the realists hold that what the artificer produces by making a new artefact is a new *shape*, which, according to Aristotle in *Categories* 8, 8b25–10a26, is a quality of the fourth kind. This new shape, the realists hold, is itself a *new thing* in the world; and it is precisely because it contains such a new shape as a new thing that an artefact taken as a whole is itself a new thing in the world. For example, a statue of Mercury is a new thing compared to the piece of marble out of which it has been made because it adds over and above it a new shape, namely the shape of Mercury. The nominalists, by contrast, go on to argue that shapes are not new things in the world, and hence neither are artefacts. For more detail, see, e.g., [4,7].
- ³ See, e.g., [16] (lib. II, q. 1, mss. E. f. 61ra; M, f. 20ra; P, f. 28rb; W, f. 37vb): “Primo, si artificialia nihil reale superadderent naturalibus, sequitur quod omnis artifex ageret otiose. Consequens falsum. Falsitas patet de se. Consequentia probatur, quia secundum te nihil novi produceret in ipsis naturalibus. [...] Quarto, finis operationis realis per se intentus est quid reale. Forma artificialis est huiusmodi. Maior nota ex quinto huius et nono *Metaphysicae*. Minor probatur, quia operatio artificis dicitur frustrari

dum non attingit formam artificialem. Item, ex septimo *Metaphysicae*, forma artificialis est primum in intentione et ultimum in executione, quod est proprium finis;” [17] (q. 26, f. 26vb): “Sexto arguitur. Nisi sic esset, sequeretur quod omne agens vel saltem plura otiose agerent. Sed hoc consequens omnino est falsum et impossibile, eo quod agentia artificialia agunt propter finem, secundum quod patet secundo huius, ubi Philosophus actionem artis et naturae ad invicem comparat, eo quod quaelibet illarum agit propter finem. Consequentiam probo, nam agens artificiale in agendo artificialiter aut aliquid producit de novo, vel nihil. Si nihil, habetur propositum, videlicet quod eius actio erit otiosa. Si aliquid producit de novo, et non producit aliquam formam naturalem, sequitur ipsum agens artificiale aliquam formam artificialem de novo producere.” For the sake of brevity, I omit the critical apparatus, including variants and emendations. Given the above arguments, it seems clear that *being intentional*, that is, being an end intended by the artificer rather than an accidental by-product, is an essential condition for counting as an artefact in the proper sense of the word. Indeed, the nominalists never challenge this thesis concerning intentionality of art but merely a further claim made by the realists, namely that the intentionality of art can only be preserved if the effects that it achieves are new things in the world.

⁴ For the first claim, see, e.g., [21] (lib. II, c. 1, par. 4, p. 219); [22] (c. 14, par. 10, p. 284). For the second claim, see, e.g., [23] (lib. I, c. 20, p. 210; lib. III, c. 10, p. 282).

⁵ See [24] (lib. II, q. 3, pp. 256 and 263): “[Objection:] Item, statuae factor faciendo statuam nihil faceret, quod implicat contradictionem. Consequentia patet, quia ipse non facit aes nec facit magnitudinem, nec per consequens facit figuram, ex quo illa non esset nisi aes vel eius magnitudo. [...] [Reply:] Ad aliam dico quod statuae factor facit motum localem propter quem dicimus aes fieri statuam. Nec aliud assignare debemus per hoc quod dicimus aes fieri statuam nisi aes et partes eius sic localiter moveri.—Utrum igitur statuae factor facit statuam?—Dico quod sic, ad illum sensum et non ad alium quia facit motum per quem partes aeris taliter se habent ad invicem secundum situm quod illud aes dicitur ‘statua.’”

⁶ Buridan defends a realist view of local motion in bk. III, q. 7 of both the *Tertia lectura* and the *Ultima lectura* on *Physics*. On Buridan on local motion, see, e.g., [25]. For a contrary reading, on which Buridan’s considered view of artefacts is reductionism about both permanent and successive artefacts, see [6]. I think that Caroti’s interpretation lacks any textual basis, but I have no room here to engage with it at any more depth. The combination of these two theses, that permanent artefacts are not distinct from natural things but successive artefacts are distinct from natural things, is a commonplace in the works of later Buridanists. See, e.g., [26] (lib. II, q. 1, mss. E, f. 49ra–b; K, f. 46ra; Kl, f. 57rb; L, f. 83va; V₁, ff. 70vb–71ra; V₂, f. 99va–b): “Quantum ad secundum articulum est haec prima conclusio: Aliqua res artificialis naturae successivae differt a rebus naturalibus, capiendo ly ‘res naturalis’ primo vel secundo modo. Probatur conclusio, nam serratio vel malleatio est res talis naturae successivae, quia non est nisi motus. [...] Quarta conclusio: Omnis res artificialis naturae permanentis est res naturalis vel res naturales. Probatur conclusio, nam quaelibet res artificialis vel est una simpliciter, non aggregative, et sic est naturalis; vel est una aggregative, et sic est res naturales. Primum patet de cipro, secundum patet de domo;” [27] (lib. II, q. 1, f. 36r): “Faber non facit aliquam rem naturae permanentis, nec etiam domificator. Dicitur notanter ‘naturae permanentis,’ quia artifex in operando suum artificium bene producit aliquam rem naturae successivae, scilicet motum localem qui disponit materiam sui artificii.”

⁷ See [21] (lib. I, c. 1, par. 4, p. 220): “[Objection:] Sed contra ista videtur esse intentio Aristotelis et ratio. Nam numquam est generatio nisi per acquisitionem rei novae. Ergo cum artificialia generentur, oportet ibi esse aliquid novum. [Reply:] Ad primum istorum dicendum quod ‘generatio’ dupliciter accipitur, sicut dictum est in primo libro. Vel pro generatione alicuius novae rei secundum se totam; et illa potest vocari ‘generatio simpliciter,’ quia scilicet aliquid est de novo secundum se totum quod prius non fuit; et talis generatio est semper per acquisitionem novae rei. Aliter accipitur generatio, quando scilicet aliqua res vel aliquae res fiunt per transmutationem realem aliquales quales prius non fuerunt, ut propter talem transmutationem realem possit formari una propositio de novo vera qua denotatur res esse talis. Et ista vocatur aliquando ‘generatio secundum quid;’ et ad talem generationem non requiritur nova res secundum se totam, sed sufficit transmutatio localis alicuius vel aliquorum. Et isto secundo modo dicitur domus et cetera artificialia fieri et generari, ubi tamen nova res non requiritur sed tantum novus locus acquiritur, hoc est res sunt in aliquo loco in quo prius non fuerunt. Et propter talem transmutationem localem formatur ista propositio de novo vera ‘Ista naturalia sunt domus,’ hoc est, ista naturalia sunt taliter coniuncta localiter. Et eodem modo ista propositio ‘Domus est’ quae aequivalet isti ‘Istae res naturales taliter coniunctae localiter sunt,’ quae nunc est vera et prius non erat. Et non plus denotatur per istam propositionem ut eam intelligit Philosophus ‘Domus generatur’ nisi quod talia corpora sunt nunc taliter coniuncta localiter et prius non erant sic coniuncta localiter.”

⁸ See reference [26] (lib. II, q. 1, mss. E, f. 49rb; K, f. 46rb; Kl, f. 57va; L, f. 83va; V₁, f. 71rb; V₂, f. 99vb). See also, e.g., [30] (mss. E, 12vb; V, 27va; K, 42b): “Statuae factor non facit aliquam rem quae ante non esset [...] sed tamen facit res quae ante erant aliter se habere quam ante se habebant secundum propinquitatem vel remotionem partium.”

⁹ For Ockham, see, e.g., note 7 above. See also, e.g., [30] (lib. II, q. 1, mss. E, f. 12ra–rb; K, ff. 38b–40a; V, ff. 25rb–26ra): “[Objection:] Item, in omni transmutatione est aliquis terminus acquisitus vel deperditus. Sed in fabricatione cultelli non est res naturalis acquisita vel deperdita, cum idem sit ferrum ante et post. Ergo quod per talem transmutationem acquiritur est res artificialis distincta a re naturali. [...] [Reply:] Ad aliam concedo quod in transmutatione vel acquiritur aliqua res vel res prius existentes fiunt aliter se habentes ad invicem. Et secunda pars esset vera in facione cultelli, quia per illam transmutationem partes ferri aliter se habent ad invicem quam ante se habebant, quoniam per extensionem ferri fiunt remotiores ad invicem quam ante essent;” [17] (q. 26, ff. 26vb–27ra): “[Objection:] Contra conclusionem primam dubitatur. Omnis actionis realis est terminus realis. Sed domificatio est actio realis. Igitur eius est terminus realis. Consequenta tenet, et assumptum primum probatur, quia si non,

actio eius erit frustra, eo quod nullus ipsius est finis. Sed minor probatur, eo quod domificatio est vera actio vel alteratio. [...] [Reply:] Ex hoc respondeo ad rationes. Ad primam concedo totam rationem, quia domificationis, sicut etiam cuilibet operationis artificialis, est aliquis finis et terminus realis. Sed hic finis non est forma aliqua artificialis realiter condistincta rebus naturalibus sed finis domificationis sunt ipsae res naturales taliter se habentes.”

- 10 See [24] (lib. II, q. 1, p. 246): “[Objection:] Contra hoc obicitur, quia te esse calidum est idem quod tu. Igitur si ignis fecit te esse calidum, ipse fecit te. Similiter, lapides et ligna esse domum non est nisi lapides et ligna; et etiam ferrum esse securim non est aliud nisi ferrum. Igitur si domificator et faber faciunt lapides et ligna esse domum, et ferrum esse securim, ipsi faciunt lapides et ligna et ferrum. [...] [Reply:] Solutio. Dico quod illae consequentiae non valent propter hoc quod illi termini a parte post appellant connotationes suas. Sicut enim non sequitur: ‘Homo fit homo albus; igitur homo fit homo,’ ita non sequitur: ‘Ignis facit hominem esse calidum, igitur ignis facit hominem.’ Dico igitur quod ignis facit calidum, licet nullum calidum faciat ignis; et ignis facit hominem esse calidum, licet nullum hominem esse calidum faciat ignis. Et ita dico quod faber facit securim et domificator domum, sed nec securim facit faber nec domum domificator. Et ita domificator facit lapides et ligna esse domum, sed lapides et ligna esse domum non facit domificator.”
- 11 See [31] (lib. II, q. 1, quire e3ra): “[Objection:] Contra hanc solutionem arguitur probando illud implicare <contradictionem> quod Sortes faciat domum aut cultellum, nihil tamen faciat. Et sic arguitur: Sequitur bene: ‘Sortes facit cultellum. Ergo cultellus fit a Sorte.’ Et ultra sequitur quod ‘sAliquid fit a Sorte; et per consequens Sortes facit aliquid.’ Haec ultima consequentia est clara. Prima tenet ab activo ad passivum. Secunda tenet ab inferiori ad superius. Igitur totus discursus est bonus. [...] [Reply:] Regula [...] admissa dico quod non recte arguitur, sed oportet inferre: ‘Sortes facit cultellum. Ergo fit cultellus a Sorte,’ ut denotetur eadem factio in antecedente et in consequente. In antecedente tamen denotatur factio secundum quid, et similiter in consequente. Sed in hac: ‘Cultellus fit a Sorte’ denotatur factio simpliciter; et propterea negatur consequentia.”
- 12 See [11], (lib. II, q. 2, p. 135D–136B): “Sed forte diceretur quod artifex facit antiquum esse aliquale quale non fuit. Verbi gratia, artifex facit quod aes fit statua cum tamen prius non fuit statua.—Sed illa cavillatio non valet, quia quaero sicut prius: Aut facit aliquod novum, aut antiquum. Non antiquum, quia hoc est facere prius facta. Ergo facit aliquid novum. Item, cum artifex facit quod aes est statua, aut facit aliquam rem extra animam, vel solum facit illud complexum, scilicet ‘Aes est statua.’ Si primum, habetur propositum, quia rem extra animam prius non existentem facit; igitur facit rem novam. Si vero facit illud complexum, videlicet ‘Aes est statua,’ sequitur quod artifex nihil facit nisi novas propositiones et nova complexa, quod est valde inconueniens. Si vero dicas quod ipse facit novam denominationem, quaero: Aut illa denominatio est aliqua res extra animam, vel non. Si sit res extra animam, aut igitur nova, vel antiqua, sicut prius. Et si detur quod nihil est extra animam, sequitur quod artifex solum facit novas res in anima. Et si dicatur quod artifex non facit novas propositiones, sed facit illud quod significatur per propositionem, unde artifex facit quod ita est in re sicut ista significat, ‘Aes est statua,’—Contra: Et quaero: Aut illud quod significatur per illam, ‘Aes est statua’ est aliquid, aut nihil. Si nihil, tunc artifex nihil facit. Si aliquid, aut igitur novum, aut antiquum. Si novum, habetur propositum. Si antiquum, tunc artifex nihil ageret nisi prius facta. Item, si illud quod haec propositio ‘Aes est statua’ <significat> sit aliquid, aut est ens in anima, aut extra animam. Si sit ens in anima, tunc artifex non faceret nisi conceptus et cognitiones; et sic idem faceret artifex cogitando solum quod facit manibus operando, quod est absurdum. Si vero detur quod sit ens extra animam, aut igitur novum, vel antiquum, et deducatur sicut prius.—Sed forte aliquis diceret quod artifex facit novum motum, quia coniugit aliqua per motum suum vel removet aliquid vel facit aliqua appropinquari quae prius non erant appropinquata, et sic facit novum motum.—Contra: Et quaero: Aut artifex solum facit motum localem, aut aliquid praeter motum. Si solum facit motum localem, sequitur quod solum motus localis est finis intentus ab artifice, quia ubi nihil est actu<m> praeter operationem, ibi operatio est finis, ut patet primo *Ethicorum*. Si vero detur quod facit aliquid aliud, oportet illud esse novum, quod est propositum. Nec est dicere quod non solum facit motum sed etiam locum novum terminantem motum [motum novum terminantem non motum *ed.*]; quia sic artifex <non> faceret nec intenderet nisi loca nova vel nova ubi, quod videtur inconueniens.”
- 13 See [19] (lib. II, q. 2, quire e4rb): “Item, illud aliter se habere a parte rei vel aliquid dicit praeter substantiam rei, vel non. Si secundum, ergo lapides et ligna semper sunt domus, quia hoc nomen ‘domus’ non significat nisi lapides et ligna.—Sed dices quod cum hoc connotat quod taliter se habeant.—Tunc quaero: Pro quo supponit subiectum in hac propositione ‘Taliter se habere est connotatum per hoc nomen ‘domus’? Si dicas quod pro lapidibus et lignis praecise, ergo prius ista erat vera: ‘Lapides et ligna sunt domus.’”
- 14 See, e.g., [18] (lib. II, q. 1, f. 57ra): “Ad tertiam negatur consequentia. Ad probationem negatur minor; et dico quod nihil novi advenit et artifices nihil novi absolute producunt. Sed nihilominus quia laborant apponendo vel removendo igitur sunt appraemiandi.”
- 15 See, e.g., [32] (lib. II, q. 1, mss. K, f. 53rb; V, f. 44vb): “Ad nonam dico quod faber facit continue et tamen non facit aliquid; sicut currens continue laborat currendo et tamen nihil facit.”
- 16 See the text immediately following quote in note 15: “Dicis: Si nihil faceret, tunc ars fabrilis non esset ars factiva.—Dico quod adhuc dicitur factiva quia per talem artem res figuratur aliter quam prius. Eodem modo dicitur si aliquis diceret: Si faber nihil facit, igitur non est remunerandus”. See also, e.g., [26] (lib. II, q. 1, mss. E, f. 49rb; K, f. 46rb; Kl, f. 57va; L, f. 83va; V₁, f. 71rb; V₂, f. 99vb): “[Objection:] Secundo arguitur sic. Quia vel faber faciendo cultellum aliquid facit, vel nihil. Si nihil, sequitur quod de nihil datur sibi pecunia.—[Reply:] Ad istam rationem, quando arguitur ‘vel faber etc.,’ dicitur quod faciendo cultellum nihil facit. Et quando arguitur ‘sequitur quod de nihilo sibi datur pecunia,’ conceditur. Sed peteres: Quare ergo datur sibi

pecunia?—Respondetur quod datur sibi pecunia ex eo quod facit rem aliquam aliter se habere qualiter se non haberet etc., et etiam quia in faciendo cultellum ipse occupat tempus suum. Vel dicitur quod ad hoc quod datur sibi pecunia sufficit quod faciat aliquid etc. aliter se habere quam prius.”

- 17 See, e.g., [28] (lib. II, q. 4, pp. 191–192): “De confirmatione: Praemium non semper datur pro illo quod aliquis aliquid faceret, quia si aliquis purgat domum, datur sibi praemium, et tamen nihil facit, sed praemium debet dari propter illud quod facit rem taliter se habere qualiter se prius non habuit, et etiam propter motum suum, et quod neglexit se in aliis. Et sic licet sculptor nihil faciat, tamen quia facit rem taliter se habere qualiter se prius non habuit, et ergo est praemiandus.”
- 18 See, e.g., [34] (lib. I, lectio 2, p. 59a): “Antiqui physici non cognoverunt nisi causam materialem, de aliis autem causis parum tetigerunt. Ponebant autem formas naturales esse accidentia sicut et artificiales. Sicut ergo tota substantia artificialium est eorum materia, ita sequebatur secundum eos quod tota substantia naturalium esset eorum materia.”
- 19 On the aftermath of the condemnation of John of Mirecourt, see [35].
- 20 See [11] (lib. I, q. 7, p. 27a–b): “Intelligendum quod illi qui posuerunt solum principium materiale habuerunt dicere quod ex illo principio nihil novum fit secundum veritatem sed solum secundum apparebat esse principium. [...] Unde intelligendum est quod sicut isti antiqui posuerunt solum principium materiale in rebus naturalibus, ita quidam moderni ponunt quod in rebus artificialibus non est nisi principium materiale. Nam dicunt quod cum ex ligno fit statua, non est aliqua res totaliter nova in ligno, sed ex hoc quod aliquae partes removentur et al.iquae remanent, illud lignum dicitur esse statua, sine adventu cuiuscumque alterius rei.” Even before Burley, the comparison between Ockham and the ancient materialists, with the accusation that Ockham repeats their error, had been drawn by the Parisian bachelor of theology Michael of Massa; but, as far as I am aware, Michael does not apply this charge specifically to the case of artefacts. On Michael’s critique of Ockham, see esp. [36] (ch. 12, 13, and 15).
- 21 See reference [14] (lib. II, q. 4, p. 193–194): “Quarto confirmatur. Unde si dicatur quod artifex nihil novum facit sed solum facit rem aliter se habere artificialiter [accidentaliter *ed.*], et non est nisi ipsa res,—Tunc omnino pari ratione dicam quod natura nihil facit novum in generatione sed facit materiam aliter se habere naturaliter, quia ipsa est artifex rerum naturalium. Et ideo nihil generatur de novo.—Si tu dicas quod non est simile, quia in transmutatione naturali mutatur nomen et definitio (quia prius erat homo, postea cadaver),—Eodem modo, nec plus, nec minus, sicut per naturalem transmutationem mutatur nomen substantiale, ita etiam per artificialem mutatur nomen accidentale. Et sic nulla ratio probat formam distingui a materia quae non solvatur eodem modo sicut illa vel sicut solvuntur rationes quae probant quod cera distinguitur a figura; et per consequens materia erit tota substantia et erit forma; et sic non erit generatio nec aliquid de novo proprie dictum, sed materia variabitur de naturali forma in naturalem sicut cera de artificiali in artificialem. Et haec fuit opinio Pythagorae.”
- 22 See [21] (lib. I, c. 2, par. 2, p. 42), where, after summarising the position of the ancient materialists, Ockham adds: “Aliqui autem eorum posuerunt quod omnia fiebant ex illis principiis non per productionem alicuius rei totaliter novae sed solum per motum localem, illo modo quo dicimus quod ex ligno fit statua, et tamen hic non est aliqua res totaliter nova in ligno sed ex hoc ipso quod tales partes removentur et al.iae remanent illud lignum dicitur esse statua vel talis figurae vel talis sine adventu cuiuslibet alterius rei. Immo lignum esse talis figurae non est aliud quam non habere tales partes sed tales vel non est aliud quam coexistere tali loco vel tali, sine additione cuiuscumque rei totaliter novae. Et ita illo modo quo Philosophus ponit aes esse materiam statuae, et tamen nullum est ibi ens nisi aes, ita posuerunt ipsi aliqua esse principia, et tamen in rei veritate quidquid est ens est aliquid illorum principiorum vel illud unum principium.”
- 23 See [21] (lib. II, c. 1, par. 4, pp. 226–227): “Et si dicatur quod eadem facilitate qua dicitur quod in aere non fit aliqua res absoluta per hoc quod fit statua, diceretur quod in homine non fit aliqua res absoluta per hoc quod fit albus; et ita albedo, calor, frigus, lux et huiusmodi non essent aliae res a suis subiectis, et ita posset negari omnis qualitas,—Dicendum est, sicut tactum est in primo libro, quod non est simile de figura, statua et huiusmodi, et de albedine, nigredine, calore, luce et huiusmodi. Cuius ratio est, quia quando aliqua contradictoria possunt successive circa idem verificari, vel oportet ponere corruptionem vel productionem alicuius rei vel motum localem. Et ideo quando talia contradictoria possunt successive verificari propter solum motum localem, non oportet ponere talem rem absolutam. Huiusmodi autem sunt figura, statua et huiusmodi. Nam ad hoc quod aes fiat statua de novo sufficit solus motus localis aeris vel ablatio partium aeris; ideo talia non dicunt res alias. Non sic autem est de albo et calido. Nam quando aliquid fit album aut calidum, non sufficit ad hoc solus motus localis; et ideo oportet quod sit res aliqua nova secundum se totam. Patet etiam quod nullo moto localiter idem potest esse primo minus album et postea magis album. Non sic autem est de figura et huiusmodi. Impossibile enim est quod aes fiat statua vel quod mutetur figura vel fiat linea curva nisi propter motum localem; et motus localis sine omni alia transmutatione, scilicet alteratione et generatione, sufficit. Ideo talia non important alias res, quamvis calidum, frigidum, album, dulce et huiusmodi important alias res.”
- 24 See [39] (lib. III, q. 11, p. 114–115): “[Objection:] Quaeritur undecimo utrum actus vel habitus intellectualis sit idem quod anima intellectiva vel sit res sibi addita. Et arguitur quod sit idem. [...] Sicut nos ponimus quod haec magnitudo est idem quod haec figura, et est aliquando sphaera et aliquando cubus vel pyramis, ex eo quod aliter et al.iter se habet, absque hoc quod sphaeritas [sphaeritas *ed.*] vel cubicitas sit res sibi addita, haec etiam ligna et lapides aliquando sunt domus, aliquando non sunt domus, [...] ideo ut prius, frustra poneretur talis multitudo. [...] [Reply:] Ad hanc obiectionem responderi debet per ea quae dixi supra secundo *Physicorum*, in tertia quaestione. Nam res uno modo potest aliter et al.iter se habere prius et posterius ad aliquod extrinsecum, sine aliqua sui mutatione, per mutationem illius extrinseci. Sic enim columna prius mihi dextra sit posterius mihi sinistra. Secundo modo aliqua res dicitur aliter et al.iter se habere per hoc quod partes eius quantitativae mutant situm ad invicem per motum localem earum. Sic enim eadem magnitudo fit aliter et al.iter figurata. Et hoc est aliter et al.iter se habere ex

alietate partium ad invicem et ex motu earum partium per quem fiunt aliter figuratae, qui est etiam alius ab illis partibus et a totali magnitudine. Sed si res tertio modo dicatur aliter et aliter se habere prius et posterius, scilicet circumscriptis exterioribus et quod eius partes non mutant situm ad invicem, tunc alietas designata per ‘aliter et aliter se habere’ non potest salvari nisi per generationem vel corruptionem alicuius dispositionis sibi inhaerentis et distinctae ab ea. Sic enim est de aqua, si prius est calida et post frigida, et de materia, si prius est sub forma aquae et post sub forma ignis, et de intellectu, si prius fuit sic opinans et post contrarie. Nam homine dormiente et omni representatione sibi per sensum circumscripta, adhuc aliter haberet se posterius quam haberet se prius, quod non potest salvari nisi per alietatem illarum opinionum ab invicem et ab intellectu. Aliter non posset ostendi quin omnia essent unum modo quo opinabantur Parmenides et Melissus, sicut dixi prius.”.

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