

Humanities 116: Philosophical Perspectives on the Humanities

1 A Brief Note on Form and Matter

Form and *matter* are two important concepts of Aristotelian metaphysics that we won't be reading about in great detail, though I do intend to discuss them in class. (To read the sources on this in Aristotle would take us too far afield and get us into too many complications, especially because the interpretation of the texts in question is very controversial.)

To summarize the main points briefly: at least according to all the authors we'll be reading (and subject to the qualification mentioned in footnote 2), Aristotle maintains the following. (1) All sensible substances are composed of form and matter (a sensible substance = matter with a certain form). (2) Matter never exists without form. It can't, because it has no special characteristics of its own at all—all there it to it is just the capability of receiving one or another form. (3) Substances which differ in species have different forms, whereas substances which belong to the same lowest species have identical forms.¹ (4) When a sensible substance is *corrupted* (that is, passes out of existence in a natural way), it's the *form* that goes away; the matter remains behind (with some new form). Similarly, when a sensible substance is *generated* (comes into existence in a natural way), it's the *form* that's new; the matter was already there (with some other form). Since the matter is always preserved, and there can never be matter without form, the corruption of one substance is always the generation of a new substance (or perhaps the generation of several new substances). (5) Eternal, immovable substances (gods/angels) are *immaterial*: they have forms (or are forms), but they do not have matter.²

2 Readings from ancient Neoplatonists on substance and accident

2.1 PLOTINUS³

Here Plotinus raises a problem which emerged from our Aristotle readings: if all the sensible qualities of a substance, and its quantity, as well, are accidents, then what is the substance

¹In fact, “form” and “species” are actually two different translations of the same Greek word, *eidos*, in different contexts. But don't think about that.

²Some Aristotelians use “form” and “matter” *only* in the above way. Others distinguish between “substantial form” and “accidental form,” and/or between “prime matter” and “secondary matter.” People who make such a distinction would say that the above account applies to *substantial form* and *prime matter*. We will discuss those distinctions as necessary when they come up, but the usage described above is the most important one.

³Lived 205–270 A.D., in Egypt and Italy. Wrote in Greek.

itself? He answers that a sensible substance is really just a collection of accidents (in matter). But how can a substance be made up of accidents? His (anti-Aristotelian) answer is that sensible “substances” are not really substances at all (do not have true being).

Part of the difficulty of this passage is due to the general obscurity of Plotinus’ writing style. But part of it is due to the fact that Plotinus, as he often does, is arguing with Aristotle without ever citing him or even mentioning him by name at all (he assumes that his readers will recognize the allusions). His technique is to show that the various things Aristotle says about substance and accident contradict each other. I’ve supplied footnotes to remind you what Aristotelian statements he’s alluding to, so pay attention to those if you want to follow the argument.

(A) And what is common to all of these [sensible substances] is that by which they are separated from all other things.⁴ For they are subjects to the others and not in a subject nor of another.⁵...

But if sensible substance does not exist without magnitude nor without quality, how can we nevertheless separate the accidents [from it]? For, separating these—magnitude, shape, color, dryness, moistness—what will we posit as the substance itself? For the substances themselves are of-some-quality.⁶ But what is there, which the things that make being-a-substance-of-some-quality out of being-a-substance-only pertain to as accidents? And will the whole fire not be substance, but [only] something

⁴Recall that Aristotle says, near the middle of reading (E) (in the first handout), that “none of the other categories is separable, but only it [i.e., substance] itself,” which I explained as follows: only a substance can exist independently of the other categories, so a substance can exist without (say) one of its qualities (e.g., its warmth or its color), but not vice versa.

⁵Recall that this was Aristotle’s definition of a (primary) substance: see the beginning paragraph of reading (C). Recall also that Aristotle goes on to say, at the end of (C), that, because only primary substances meet this definition, nothing at all could exist unless primary substances existed. So it seems reasonable for Plotinus to connect these two Aristotelian characterizations of substance: (i) (from reading (E)) that it is “separable” and (ii) (from reading (C)) that it is “not in a subject.” An *accident* has being only as “in a subject,” namely in a substance; therefore, if the substance didn’t exist, neither would the accident. But the substance can exist without that accident. Therefore, the substance is “separable” (capable of existing independently) and the accident is not. In the next paragraph, Plotinus will claim that this characterization of sensible substance contradicts other things Aristotle says.

⁶Recall that Aristotle, at the end of reading (W), says that a species or genus “determines a quality with respect to a substance—for it signifies a certain quality of substance.” He also says (in reading (Q)) that each *differentia* signifies “a certain quality.” So a species of substance is “a certain quality of substance,” differentiated from the other species by “a certain quality.” We discussed (based on reading (V)) the possibility that “quality” is being used in a special way in this context—in particular, that it doesn’t mean a kind of accident (a member of the category of quality) here. But remember: readings (R), (S), (T), and (U) seemed to rule out that solution. So Plotinus claims that, according to Aristotle himself, the only things that make one kind of substance different from another are accidents.

of [the fire], like a part [of it]?⁷ What could that be? Matter.⁸ But then, indeed, sensible substance will be a certain combination of qualities and matter, and all of these [qualities] compounded onto one matter will be substance, but each taken separately will be, one a quality, another a quantity; or they will be many qualities. And a [quality or quantity] which, when it is left out, does not allow the substance to become completed, is a part of that substance;⁹ but that which pertains as an accident to a substance which has [already] come to be, has its own rank, not hidden in the mixture which makes up that which is called “substance.”¹⁰ And I do not say this [meaning] that there, being with the others, completing one bulk which is so-much and of-such-a-quality, [each quality or quantity] is substance; rather, each [taken individually] not a substance there either, but [only] the whole [composed] out of all of them is a substance.¹¹

And one ought not to bring difficulties, if we make sensible substance out of non-substances.¹² For the whole [sensible substance] not a true substance, either: it is, rather, that which imitates the true [substance], which [true substance] has being without the other [properties] which are around it, and the other things even come to be from it, because it truly is.¹³ But here [in the sensible world], the subject [i.e.,

⁷If what makes a fire be *fire*, rather than some other substance (what makes it be a “substance-of-some-quality”) is an accident, e.g. heat, then what just makes it a substance, period (what makes it be a “substance-only”) must be some other part of it, besides the heat.

⁸Remember (from my note above) that what makes one species different from another is supposed to be the form. But everything that makes one species different from another has turned out to be an accident. Therefore the only left in the fire which could be make it a substance is the matter. (This also, incidentally provides an interpretation of some things Aristotle himself goes on to say about matter in the continuation of reading (T). But we didn’t read that part.)

⁹Recall that, according to Aristotle, an accident *can’t* be part of a substance: see again Aristotle, reading (B) in the first handout (definition of “in a subject,” part [b]). Moreover, a substance, according to Aristotle, can’t be *composed* of accidents (he said that in reading (T)). Plotinus has just concluded, however, that a sensible substance is *nothing but* accidents (more precisely: nothing but accidents and matter—but remember that matter is almost nothing: it has no characteristics of its own, just the potential to take on different forms). The result of all this is that there are no sensible substances of the kind we at first described (separable, not in a subject). Plotinus concludes that what we (and Aristotle) call “sensible substances” are really just bunches of accidents glommed together in matter.

¹⁰Plotinus explains why, on this view, we can still make a distinction between substance and accidents: some accidents (like heat in fire) are parts of the substance, others (like heat in water) come along after the substance is already there.

¹¹In this last sentence Plotinus makes it clear that he really does think a substance is made of accidents. Qualities and quantities are not sometimes accidents, sometimes substances; they are always accidents, even when they are parts of substances. The heat in fire, for example, is just as much an accident as the heat in water.

¹²Here Plotinus answers Aristotle’s rhetorical questions in the last paragraph of reading (T): “But how could a substance be composed of non-substances? Or how can a non-substance be prior to substance?” Answer: in the case of *sensible* substances. . .

¹³So the answer is: *true* substances are not sensible, but intelligible; not corruptible, but eternal

matter] is both sterile and not sufficient to be being, because the other [properties] do not come from it, either—but [sensible substance] is a shadow, and [a shadow] upon that which is itself a shadow, a picture and a [mere] appearing [*phainesthai*].¹⁴ (*Ennead* 6.3.8.9–37)

2.2 PORPHYRY¹⁵

Porphyry, in contrast to his teacher, Plotinus, tries to explain how sensible substances really are substances (therefore not composed of accidents), *even though* there is nothing to them but sensible qualities and matter. The explanation is that certain qualities, in certain substances, are not accidents. The main example is heat in fire: a fire can never become cold; heat is not an accident in it, but belongs to its substance. Special qualities like that are called “substantial qualities.”

A.:¹⁶ ... Now, not to be in a subject is common to both primary and secondary substances, but does not belong only to substances, but rather also to the differentiae of substances. For they [i.e., the differentiae] are not in a subject.¹⁷

Q.: But how can you say that it belongs to [all] substances in common not to be in a subject, when the parts of substances, which are substances,¹⁸ are in a subject, the whole? For the parts are in the whole.

and immovable. In the case of things like that, Aristotle is right: the properties which make them different from each other are not accidents which come from somewhere else; rather, the properties of a true substance like that all flow from its own nature. Meanwhile, the things we *call* “substances” down here in the sensible world are just imitations or images of those true substances. (This is what Plato has Socrates say in the *Republic* and elsewhere. But notice there is also an allusion to Aristotle: “substance,” Plotinus implies, is used equivocally in the two cases, just as “animal,” according to Aristotle, is used both of a human being and of a picture—imitation or image—of a human being. See Aristotle, reading (L).)

¹⁴So Plotinus’ doctrine is that sensible substances, and the whole sensible world that is made up of them, are mere appearances, or mere “phenomena” (which comes from *phainesthai*, the verb “to appear”). True substances—the things that can be called “beings” in the primary sense of the word—are not sensible.

¹⁵Lived c. 234–c. 305, in Syria and Italy. Wrote in Greek. He was a student of Plotinus and the editor of Plotinus’ works, but when he wrote his own works he defended Aristotle’s theory of the categories against Plotinus, as you can see both from the *Isagoge* (which we read a piece of last week) and, even more, from the reading here.

¹⁶Porphyry’s so-called commentary on Aristotle’s *Categories* is actually a dialogue which discusses certain issues raised in the work. The dialogue is between a teacher, who asks questions (Q.) and a pupil, who answers (A.)—i.e., it is a kind of quiz. The pupil gets all the answers right, however. We begin in the middle of one of the pupil’s answers.

¹⁷The pupil is more or less quoting Aristotle: see the end of reading (X).

¹⁸Remember that Aristotle, in reading (F), lists the parts of substances as themselves substances. Also, in reading (T), he says that substances can’t be composed of non-substances. That seems to imply that they are composed of substances.

A.: [No,] but “in a subject” is attributed to that which subsists in something, [but] *not* as a part;¹⁹ whereas the parts of substances, such as a hand or an eye, are parts in the whole. So that “being in a subject” is attributed to an accident, but the parts of substances, though in the wholes, are not in a subject, but rather exist as substances and not as accidents.

It is common to substances and to differentiae, then, not to be in a subject. But this [therefore] is not a proprium [of substance] in the way of a [true] proprium, which belongs to *all* and *only*: for “not-being-in-a-subject” belongs also to differentiae, so that it does not belong to “not-being-in-a-subject” to be a proprium [of substance] in the strictest way.²⁰

Q.: How, then, is a differentia not in a subject, though it is said of a subject?

A.: Because *bipedal* and *footed*, which are differentiae,²¹ are not in the human as accidents: for if they were as accidents, they would not be predicated of a human both according to the name and according to the definition [*logos*]. But now you would say that a human is footed, and you would say [of a human] also the definition [*logos*] of “footed,” which is “walks on the earth on legs.”²²

Therefore this, too, is common to substances and differentiae, that they are said univocally of that which they are said of.²³ But [this is not common] not to *all* substances; rather, only to the secondary ones. But an individual [*atomos*] substance, because it is not said of a subject, is not predicated univocally of anything. For it has no other subject; but to be predicated univocally of a subject would be to be predicated of a subject. So, species and genera [i.e., secondary substances], being said of subjects, the individuals, are univocally predicated of them. But similarly differentiae. . . .

Q.: If, then, a differentia is neither a substance (for you said that it is not a

¹⁹Recall again that this is part of the definition of “in a subject,” as given by Aristotle in reading (B).

²⁰Recall this was Porphyry’s own description of the strict sense of “proprium” in the *Isagoge*. (But Porphyry is basically quoting Aristotle there, so the pupil here is also quoting Aristotle.)

²¹Here Porphyry seems to accept that *bipedal* is the differentia of human. Remember that in the *Isagoge* he implied that it was *rational*. (In general, Porphyry seems to accept that one species can have more than one differentia—but I’m not sure if he really accepts that, or just sometimes talks that way for the sake of convenience.)

²²Here Porphyry (based on things Aristotle says elsewhere) gives a way of telling whether something is “said of a subject”: if *X* is “said of” *Y* as a subject, then the *definition* of *X* can also be truly predicated of *Y*. For example, because “human” is “said of” Socrates, Socrates is a bipedal footed animal (or a rational mortal animal, if that’s the definition of human). But supposed that the definition of “white” is “very light color.” Then, even if Socrates is white, he isn’t (Porphyry and Aristotle are saying) a very light color. (Actually I guess we *would* say, “Socrates is a very light color”; it’s not clear exactly how to make this test work. But you can see what they’re getting at: Socrates himself isn’t actually a color—you couldn’t paint your wall Socrates.)

²³Because not only the same name, but also the same definition (“account [*logos*] which signifies the essence”) applies in all cases. (See again Aristotle, reading (L).)

substance, although it, too, is not in a subject, just as a substance [is not in a subject]), nor an accident (for it is not “in a subject”),²⁴ but there is nothing else between substance and accident (for all beings are either in a subject or not in a subject, for all are either substances or accidents: accidents, such as the things in the nine categories; substances, such as substances are)—if, then, a differentia is neither a substance nor an accident, whatever could it be?

A.: Aristotle says that it is neither a quality only (for it would be an accident), nor a substance only (for it would be counted together with the secondary substances), but is rather this whole thing, a substantial quality. Therefore it is not predicated, of each thing it is predicated of, in the what-is-it, but rather in the what-quality-is-it.

Q.: Show, then, how a differentia is a substantial quality.

A.: Qualities which complete substances are substantial. Those qualities are completitive which, when they pass away, corrupt [i.e., destroy] their subjects. But those which, coming to be and passing away, do not corrupt [their subjects], would not be substantial. Such as, for example, that heat belongs to hot water, and belong also to fire. But it does not belong *substantially* to water—for, the heat being removed, the water, having come to be cold, is not corrupted; whereas it belongs substantially to fire—for, the heat being removed, it corrupts the fire. And differentiae are roughly the same thing as substantial qualities: for if *rational* were removed from a human, it would be corrupted, and if *of-dry-land* were removed from it, it would be corrupted, and if ever *mortal* were taken away from it, it would be corrupted, changing into an immortal.²⁵ Therefore the differentia is even taken up into the definition of substance, as being completitive of substance: those things which are completitive of substance are substances. And accidents do not indicate the substance, but the differentia indicates it. For, a human is an animal, but the differentiae indicate what quality of animal [it is].²⁶ They will therefore be substantial qualities.

Thus not-to-be-in-a-subject, though belonging to all substance, does not belong only to them. And due to that it would not be a proprium as “proprium” is most strictly said. . . .

Q.: What, then, would we most of all call a proprium of substance?

A.: To be receptive of contraries, while being numerically one and the same substance.²⁷ as for example Socrates, being numerically one, is receptive of health and

²⁴Here the teacher again alludes to the difficult reading (X), and hence to the problem it raises (categorical status of the differentiae).

²⁵Note again that it’s not clear what the differentia of *human* is, or whether there is actually more than one.

²⁶Here the pupil is gain quoting Aristotle, reading (W). This is part of Porphyry’s proof that his interpretation is good. Aristotle never actually mentions “substantial qualities,” which looks bad for Porphyry. But, Porphyry points out, Aristotle does, in reading (W), talk about a “quality of substance.”)

²⁷See Aristotle, reading (D). This is an exact quote (I changed my mind about “susceptible,”

illness, and the same soul [is receptive of] prudence [*phronēsis*] and imprudence. . . .

Q.: . . . But if a proprium is a [thing which belongs] to *all* and *only*, show that this belongs to all substances and only to substances.

A.: That [it belongs] only [to substances], I can show; that [it belongs] to all [substances], I might be able to.

Q.: Show, then, that [it belongs] only [to substances].

A.: Whichever, then, of the other [categories] one were to take, he or she would not find it to be receptive of contraries, while being one and the same numerically; only substance is capable of that. [True,] we *do* say that an action²⁸ is sometimes noble, sometimes disgraceful; but not as being the same and numerically one, but either taken at different times²⁹ or performed in one or another way. But the substance [i.e., the person who *performs* the action at different times and in different ways] would not come to be [an]other [substance], but, remaining one and the same, would be good [at one time] and disgraceful [at the other]. And similarly with respect to the other [categories].

Q.: You have shown, then, that this pertains *only* to individual substance. But if it also [pertains to] *all* [individual substances], then it would be a proprium of substance.

A.: First, I cannot show this of the eternal [substances]. For the heavens, which move always, and are a substance, would never rest; but rest is the contrary of motion. But let the discussion [*logos*] not be about eternal substances. For these are uniform and, for the most part, not receptive of contraries.³⁰

But fire, too, which is among the corruptible [substances], is receptive of heat, but not of cold; and snow is receptive of cold, but not of heat. With respect to these Aristotle would say that he says substance is receptive of [contraries], but not that it can substantiate in contraries.³¹ But fire has not received heat; rather, heat belongs to it in its substance: “receiving” is not [said] of what belongs to a thing itself, but of [what comes to it] from outside.³² Now, water, because it *doesn’t* substantiate in heat, is receptive of heat and cold; but it, too, is not receptive of moisture (as earth is), since moisture is in [water’s] substance. But moisture *isn’t* in the substance

which I used there, and decided on “receptive” instead—sorry, so much for consistent translations, but it makes things go a lot better below).

²⁸Remember that *action* is one of the nine categories of accidents.

²⁹The word for “time” here is *kairos*: the right (or wrong) time *for* something. One might translate “in different circumstances.”

³⁰As we can see from this problem, Porphyry understands “receptive of contraries” to mean: if it receives one contrary, it must also receive the other.

³¹Aristotle never says this; he never uses the odd verb “substantiate” (which Porphyry apparently invented) at all. Still Porphyry, through the pupil, is attributing his solution to Aristotle: “receiving” a quality is different from “substantiating in” in a quality.

³²I.e., the reason fire is not “receptive” of cold is that it hasn’t “received” *heat*, either; fire can’t properly be said to “receive” a characteristic, such as heat, which belongs to its own substance.

of earth, due to which [earth] is receptive also of dryness. The heavenly [bodies], too, are not receptive of contrarities which are opposite to their substantial quality. From which it follows that these [qualities of the heavenly bodies] themselves are not simply qualities, either, but rather substantial [qualities]. (*Commentary on Aristotle's Categories*, *Commentaria in Aristotelem Graeca* vol. 4, pt. 1, 94,17–96,2; 98,3–6; 98,23–99,18)

2.3 JOHN PHILOPONUS³³

Philoponus takes Porphyry's theory one step farther. On the basis that a body is a kind of substance, but also seems to be a kind of quantity (three dimensional continuous quantity, to be precise), he argues that there are not only “substantial qualities” but also “substantial quantities.”

But perhaps, again, one might raise this difficulty: that the ten categories are disjunct from each other and quantity is different from substance, and *triply-dimensioned* itself as such belongs to quantity,³⁴ but a body is a substance³⁵—so that the triply-dimensioned itself as such would not be a body, since [the triply-dimensioned] is not a substance, but a quantity. If, then, a body, insofar as it is a body, is a substance, but every body is triply-dimensioned, and is specified by that,³⁶ then there must be a subject to *triply dimensioned*, in which it comes to be, and [in which it] thus perfects the nature of body. The nature of body will then be composed out of a subject, the matter, and out of the triply-dimensioned which informs it, so that the substance of body will be what is [composed out of] both together. *Body*, then, is not simple and the basis of everything, but rather a certain incorporeal matter is subject even to this.

And³⁷ if *triply-dimensioned*, is an accident (because it is a quantity), then the heat and dryness in fire, too, will be accidents (because they are qualities), and similarly

³³Lived around the first half of the 6th century. Born possibly in Asia Minor, taught at Alexandria in Egypt. Wrote in Greek.

³⁴See Aristotle, readings (H) and (I).

³⁵See Aristotle, readings (C) and (F).

³⁶Literally, “is species-made [*eidopoieitai*] by that.” That is: three dimensionality makes it the kind (species) of substance that it is. Aristotle himself seems to say this (about body as a kind of substance) near the beginning of reading (U).

³⁷In this paragraph, Philoponus is implicitly asking a question about what he just said—namely, that *triply-dimensioned*, which is a quantity, makes up a kind of substance (namely, a body) when it is added to matter. Isn't this a problem, because isn't *triply-dimensioned* an accident? He shows that if we said that, we would also have to call (for example) heat in fire an accident, and so we would end up with Plotinus' theory (that sensible substances are nothing but accidents glommed onto matter). In the next paragraph he will claim that that theory (Plotinus') is absurd—we need to say, as Porphyry does, that heat in fire, although it *is* a quality, is *not* an accident. Therefore, Philoponus will conclude, it's OK for him to say that *triply-dimensioned* in body, although it *is* a quantity, is *not* an accident.

the cold in water, the heaviness and lightness in bodies, and things similar to these. Every corporeal substance, therefore, will turn out, as far as this argument [*logos*] goes, to be composed of matter and accidents, so that the elements of corporeal substance will be matter and the accidents.³⁸ And since the elements are prior by nature to that which is composed out of them, and often prior even in time ... therefore, too, the accidents will be prior by nature to corporeal substance. So that if the accidents are destroyed, the substance, too, will be destroyed (for if the things that something is composed of are destroyed, then it, too, is necessarily destroyed); whereas [on this view—that is, Plotinus’ view, according to which the accidents are prior], if the substance were destroyed, it could happen that the things that it is composed of—that is, the accidents—would [still] exist.

Which is impossible. For, from the nature of things itself, the opposite [of this result] is agreed upon by all: [namely, everyone agrees] that, if a substance is destroyed, its accidents are destroyed along with it, since they are not capable of subsisting separately from that to which they pertain as accidents; but [on the other hand, everyone agrees] that, if the accidents are destroyed, the substance is not destroyed³⁹—if, indeed, an accident is that which comes to be and passes away apart from the destruction of the subject.⁴⁰ But the elements, or in general the things which are completive of something, do not come to be and pass away apart from the destruction of that thing (for it subsists out of them);⁴¹ accidents, then, are not the elements of corporeal substance, nor, in general, are they [i.e., corporeal substances] completed by them. But if accidents are not the elements of body, then neither does body subsist out of them and matter.

That, therefore, it is impossible that body is composed of matter and accidents, I think is sufficiently proved from what has been said. What, then, do we say to the difficulty? That, just as not every quality is an accident, but there is, rather, also substantial quality—(For differentiae, such as rational or bipedal, we say are predicated in the what-quality-is-it of species and individuals. Whence, due to the fact that species and genus participate in the differentiae, Aristotle says in the *Categories* that they determine the quality with respect to a substance.⁴² For heat in fire, though it is a certain quality, is not an accident to the fire, but rather a substantial and constitutive differentia of it, nor is heaviness in earth, nor moisture in air and water,

³⁸Remember that this was Plotinus’ view.

³⁹This goes back again to Aristotle’s description of substance as “separable” (in reading (E)).

⁴⁰Here Philoponus alludes to Porphyry/Aristotle’s definition of “accident” (at the end of reading (K), from the *Isagoge*—but, again, Porphyry is quoting Aristotle there).

⁴¹Compare Porphyry’s definition of “substantial quality”: a quality which is “completive” of a substance. (See above, p. 6.)

⁴²This again is an allusion to what Aristotle says near the end of reading (W). Philoponus is introducing Porphyry’s interpretation, along with Porphyry’s proof that it’s a good interpretation. (See above, n. 26.)

nor sweetness in honey, nor whiteness in white lead or in snow, nor the spherical shape in the heavens. For [if they were accidents] they would come to be and pass away apart from the destruction of the subject, which is impossible. For it is not possible to think of fire without heat, according to the concept without-heat, or snow without whiteness, or the heavens without the spherical shape, or any other of the things mentioned.)—just as, therefore, there is substantial *quality*, which is not classified under quality but under substance, as a substantial differentia; so, too, indeed, there is also substantial *quantity*. And *triply-dimensioned* is that most of all: for of the things contemplated in bodies, that alone is self-subsistent and belongs to the substance of body simply: a certain triply-dimensioned bulk, indefinite with respect to magnitude or smallness. (*Against Proclus on the Eternity of the World*, 11.5)