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RESEARCH ARTICLE

The Theory of Predication in Aquinas: Inherence or Identity?

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Abstract: The paper deals with Thomas Aquinas's (1225–1274) theory of predication. Aquinas's numerous works contain passages devoted to the issue of how predication works, usually in various theological or philosophical contexts. Assuming Aquinas's account of predication was sufficiently uniform in relation to essential and accidental predications, there are several distinct interpretative models of predication possible in relation to the texts. They differ in ascribing different semantic roles to the copula. The first model sees the copula as expressing inherence of a form expressed by the predicate term in the entity denoted by the subject term. The second model interprets the copula as designating identity. The third model incorporates inherence with the fact that Aquinas combines predicative and existential functions of the copula. I argue that the identity model is closest to what Aquinas has in mind when speaking about predication as opposed to extensional truth conditions.

Keywords: Copula; identity; predication; Thomas Aquinas; inherence.

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The thought of Thomas Aquinas (1225–1274), a well-known medieval philosopher and theologian, is still taught and discussed today in analytic philosophy of religion in relation to the solution to the problem of the language concerning the divine, proofs of God's existence, as well as divine attributes such as simplicity and aseity. The corresponding semantic and metaphysical theories presuppose a peculiar understanding of predication without which Aquinas's responses to these issues are not fully comprehensible. Consequently, the aim of this paper is to reconstruct a theory of singular predication found in the work of Aquinas.

This task is by no means new. It has been tried repeatedly, with varying degrees of success.[1] The problem one soon encounters in attempting to carry this task out consists in the realization that there seem to be different models of predication in Aquinas, each of which is supported by textual evidence. The model closest to contemporary logical and semantic sensibilities interprets predication as inherence of a form or nature within some supposit, i.e., in a particular thing. Another model is that of identity: the subject and predicate terms both denote the supposit, though each employs a distinct sense, so that the predication as such is a statement of numerical identity. These two models differ in several ways but particularly in that the job achieved by predication in the inherence model is, in the identity model, compressed into the semantics of terms, i.e., it is part of the semantic role of the predicate.

There are two observations one can make concerning these models. First, they can be combined, as is the case in the reconstruction of Aquinas's predication in J. Brower's recent book (Brower 2014). Second, both models are extensional in the sense that the subject and predicate denote entities in the real world. In contrast, the theory that the Thomists derive from Thomas Aquinas is hybrid, in that real and intentional entities are denoted by the terms: While the subject denotes a supposit, a real entity in the world, the predicate denotes a concept, or, more precisely, a part of a concept which is the conceptual content. The associated model of predication is that of a statement of a part-whole relationship, more precisely, a partial

[1] For a general comparison of Aristotelian and modern theories of predication see Angelelli (2004). For specific reconstructions of Aquinas's theory, see papers in the references below.

identification of the conceptual content with the supposit. Third, there is the fact that, aside from the relationship of inherence, numerical identity, or the part-whole relationship, the copula also expresses existence, according to Aquinas. This gives rise to some interesting theoretical models of predication, as in the model in G. Klima's work. In the following, we shall go through these models, concentrating on inherence and identity first, then taking up the other three models (though we will, admittedly, discuss Klima's theory only in passing), gathering textual support for each of them.

We shall focus only on singular predication of the type Fa, as expressed in predicate logic, e.g., "Socrates is white" and "Socrates is human." Theory of predication, or, one should say, the semantic theory of predication, or, semantics of predication, in short, in the realist framework concentrates on stating ontological truth conditions of singular statements. In general, there are two kinds of ontologies: constituent and relational. Constituent ontologies can be divided into substratum theories and bundle theories. The former take an individual to consist of properties plus some substratum of these, whereas the latter understand an individual as consisting of properties only, or a bundle thereof, so to speak. A typical representative of a substratum theory in contemporary analytic metaphysics is bare particularism. The substratum is a bare particular grounding numerical identity of the individual which is thus non-qualitative and trivial. In this context, 'individual' can be understood in two distinct ways. As a bare particular by itself, i.e., considered without its properties, it grounds individuality and can be taken as a "thin" individual itself. In contrast, the so-called "thick" individual is the particular plus the properties. Thin particularism differs from thick particularism in what it regards as candidates for the role of individuals in the respective ontology.

Thin and thick particularism consequently differ in what they take the subject term 'a' to denote—either thin or thick individuals. The predicate denotes a property, F-ness, which is taken to be instantiated by the thin individual but is a constitutive part of the thick individual. Thus, for obvious reasons, thin particularism presupposes an inherence theory of predication, while thick particularism favors a constitutional account of predication. Let us first outline the general statement of truth conditions and then

analyze the statements "Socrates is white" and "Socrates is human" as specimens of the general statement in turn:

a instantiates a property F-ness (inherence)
Socrates instantiates the property of whiteness.
Socrates instantiates the property of humanity.

a has F-ness as a constituent part (constitution)
Socrates has whiteness as a constituent part.
Socrates has humanity as a constituent part.

Both thin and thick particularism offer a unified account of predication, and each has its drawbacks. Thin particularism renders all properties contingent, as no property constitutes the individual. In contrast, according to thick particularism, all properties become necessary, for the individual is composed of all of them. An account which would distinguish, in accordance with common sense, contingent and necessary properties of individuals would trade one theoretical virtue for another, as it would lose the unified treatment of predication (the one-account-fits-all quality) exhibited by thin and thick particularism.

Aristotelian hylomorphism, the ontological framework of medieval scholastic semantics, can be taken to be a special kind of substratum theory. The substratum is the so-called prime matter, that which persists despite the substantial changes of corruption and generation, whereby individuals are destroyed and new ones emerge.[2] In this system, properties are the unique substantial as well as the many accidental forms.[3] However, there are two obvious differences, when compared to bare particularism. First,

[2] One can picture prime matter on analogy with energy, which is the most fundamental constituent of things, and which undergoes transformations from one thing to another or from one thing to other things.

[3] A substantial form is a metaphysical constituent (complex in itself) in virtue of which an individual is an instance of a definite species. Other features of a thing are accidental forms. Some necessarily obtain, given the substantial form (for instance, x is a nettle, and it can sting). Some depend on the environment (the state of the plant, given such environmental factors as persistent heat). Aquinas is known to adhere to the uniqueness of substantial form doctrine. This is by no means the rule in medieval Aristotelian scholasticism.

the prime matter grounds numerical distinction but not individuality; these are two different things. Thus, the "thin" individual cannot be the prime matter as such but only its combination with a substantial form. Second, as already mentioned, there are two types of forms: the substantial and the accidental. While the substantial form is compounded with prime matter, thus forming a substance, an accidental form inheres only in such a compound. So, the "thick" individual is this aggregate of substance, i.e., a compound of prime matter and substantial form, plus the accidents. This two-tier ontic structure of hylomorphism complicates matters in that it appears next to impossible to provide a unified model of both essential (substantial) and accidental predication that accounts for all semantic aspects. What this means will become clearer below.

Let us now survey Aquinas's thought on predication. When Aquinas discusses the semantics of predication, it is usually in a context where the target is the solution of some theological problem or other, in which semantic exposition amounts to a preliminary or preparatory stage only. For Aquinas, the development of a coherent semantic doctrine matters much less than the subsequent theological application, as the following text from the Summa Theologica (STh, for short) I, q. 13, a. 12 c, illustrates:[4]

[4] STh I, q. 13, a. 12 c: Ad cuius evidentiam, sciendum est quod in qualibet propositione affirmativa vera, oportet quod praedicatum et subiectum significent idem secundum rem aliquo modo, et diversum secundum rationem. Et hoc patet tam in propositionibus quae sunt de praedicato accidentali, quam in illis quae sunt de praedicato substantiali. Manifestum est enim quod homo et albus sunt idem subiecto, et differunt ratione, alia enim est ratio hominis, et alia ratio albi. Et similiter cum dico homo est animal, illud enim ipsum quod est homo, vere animal est; in eodem enim supposito est et natura sensibilis, a qua dicitur animal, et rationalis, a qua dicitur homo. Unde hic etiam praedicatum et subiectum sunt idem supposito, sed diversa ratione.

Sed et in propositionibus in quibus idem praedicatur de seipso, hoc aliquo modo invenitur; inquantum intellectus id quod ponit ex parte subiecti, trahit ad partem suppositi, quod vero ponit ex parte praedicati, trahit ad naturam formae in supposito existentis, secundum quod dicitur quod praedicata tenentur formaliter, et subiecta materialiter. Huic vero diversitati quae est secundum rationem, respondet pluralitas praedicati et subiecti, identitatem vero rei significat intellectus per ipsam compositionem.

> To prove this, we must know that in every true affirmative proposition the predicate and the subject signify in some way the same thing in reality, and different things in idea. And this appears to be the case both in propositions which have an accidental predicate, and in those which have an essential predicate. For it is manifest that "man" and "white" are the same in subject, and different in idea; for the idea of man is one thing, and that of whiteness is another. The same applies when I say, "man is an animal"; since the same thing which is man is truly animal; for in the same "suppositum" there is sensible nature by reason of which he is called animal, and the rational nature by reason of which he is called man; hence here again predicate and subject are the same as to "suppositum," but different as to idea.
>
> But in propositions where one same thing is predicated of itself, the same rule in some way applies, inasmuch as the intellect draws to the "suppositum" what it places in the subject; and what it places in the predicate it draws to the nature of the form existing in the "suppositum"; according to the saying that "predicates are to be taken formally, and subjects materially." To this diversity in idea corresponds the plurality of predicate and subject, while the intellect signifies the identity of the thing by the composition itself.

For some, this text clearly presupposes the inherence model. They draw on the fact that "inasmuch as the intellect draws to the 'suppositum' what it places in the subject; and what it places in the predicate it draws to the nature of the form existing in the 'suppositum'; according to the saying that 'predicates are to be taken formally, and subjects materially.'" They interpret the contrastive phrases, "it draws to supposit/to the nature of form," and, "to be taken materially/formally," on a par with the Fregean semantic categories of denotation and sense. The subject denotes the supposit, e.g., Socrates, or this particular man; the predicate expresses the form of whiteness or animality. When Aquinas says, "the predicate and the subject signify in some way the same thing in reality, and different things in idea," he must mean that there is just one thing in reality, i.e., a particular composition, either a thin or a thick individual having a form. There is a diversity of concepts, i.e., senses, at the intensional level.

What does "having a form" mean? There are three possibilities. One is to take "inherence" strictly, as above: The form is attached to something numerically distinct. The form of whiteness is attached to a particular man, a composite of the substantial form of humanity and prime matter. The form of humanity is attached to a numerically distinct lump of prime matter. What we get is a uniform analysis of the copula expressing the same type of relationship of strict inherence in both types of statements, essential as well as accidental predications (e.g., "Socrates is human," "Socrates is white"), yet the subject term denotes a different type of a numerically distinct object in each case. I do not say, "different individuals," because the distinct lump of prime matter is not even an individual. This interpretative option forces us to introduce a third category of individuals, a super-thin individual of a numerically distinct lump of matter. It is clearly wrong. Not only does it stretch the meaning of 'supposit', but what seems truly counterintuitive is the fact that the same subject term, e.g., 'Socrates' or 'the man' in the quotation, used in both types of statements, denotes something different in each case, either the thin or the super-thin individual.

Making the subject term refer to the same category of object, ontologically speaking, sacrifices the semantic uniformity of the copula. One can interpret 'inherence' in the looser sense, covering both inherence in the strict sense (form attachment) and the part-whole constitutive relationship. The subject most likely refers to the thin individual, i.e., the compound of prime matter and substantial form, the substance. Provided this is the case, then, depending on whether the predication is accidental or essential, the copula might express inherence proper, attachment, e.g., that of whiteness to the particular human substance, or it might express constitution, e.g., that the form of animality (or humanity, for that matter) is had as a constituent part by the very same substance.

The third option is symmetric to the first. Both subjects denote the thin and thick individuals, respectively, and both kinds of predication are interpreted as constitution. The essential predication takes the thin individual to be constituted by the form; the accidental predication understands the thick individual as having the accidental form as its constituent part. For this reason, it is not worth considering this option any further.

In view of the fact that the two-tier Aristotelian ontology is the price of non-collapsing necessary and contingent modal statements, it seems that only the second option above suits Aquinas, and that the dual analysis of the copula serves an important purpose. All essential predicative statements are interpreted as expressing constitution and are thus necessary. All accidental predications are taken as expressing inherence proper. These might be contingent, even though some are taken to be necessary, as their accidental predicates are implied (ontologically speaking – in other words, formally caused) by the essential ones.

There are other texts of Aquinas which reinforce the model of predication as inherence (in a broad sense which also covers the relationship of constitution), such as *STh* I, q. 16, a. 2 c, where predication is clearly defined as the application or removal of a form. The signification of the subject must be interpreted as denotation, and that of the predicate as sense expressed by the term:[5]

> But the intellect can know its own conformity with the intelligible thing; yet it does not apprehend it by knowing of a thing "what a thing is." When, however, it judges that a thing corresponds to the form which it apprehends about that thing, then first it knows and expresses truth. This it does by composing and dividing: for in every proposition it either applies to, or removes from the thing signified by the subject, some form signified by the predicate.

Consider also *STh* III, q. 16, a. 7, ad 4:[6]

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[5] STh I, q. 16, a. 2 c: Intellectus autem conformitatem sui ad rem intelligibilem cognoscere potest, sed tamen non apprehendit eam secundum quod cognoscit de aliquo quod quid est; sed quando iudicat rem ita se habere sicut est forma quam de re apprehendit, tunc primo cognoscit et dicit verum. Et hoc facit componendo et dividendo, nam in omni propositione aliquam formam significatam per praedicatum, vel applicat alicui rei significatae per subiectum, vel removet ab ea.

[6] STh III, q. 16, a. 7, ad 4: Ad quartum dicendum quod terminus in subiecto positus tenetur materialiter, idest pro supposito, positus vero in praedicato, tenetur formaliter, idest pro natura significata. Et ideo cum dicitur, homo factus est Deus, ipsum fieri non attribuitur humanae naturae, sed supposito humanae naturae, quod est ab aeterno Deus, et ideo non convenit ei fieri Deum. Cum autem dicitur, Deus factus est homo, factio intelligitur terminari ad ipsam humanam naturam. Et ideo,

> A term placed in the subject is taken materially, i.e., for the suppositum; placed in the predicate it is taken formally, i.e., for the nature signified.

In his *Commentary to Metaphysics*, 9, lect. II, no. 1898, Aquinas says:

> When I say, "Socrates is human," the truth of this statement is explained by the composition of the form of humanity with the individual matter by which Socrates is this human. Likewise, when I say, "Socrates is white," the explanation of its truth is the composition of whiteness with a subject. And similarly in other such cases.

Notice that Aquinas here speaks about the thin and super-thin individuals and inherence proper, i.e., attachment of a form (we have rejected that this would, by itself, be a correct model of predication, as it makes the subject term 'Socrates' equivocal). Now Aquinas states that the composition, here the inherence proper, explains the truth of the propositions. This might not be intended as an explanation of how predication functions semantically, because it states the real or factual correlate of a statement but does not say how the intellect appropriates it, as it were. Even Peter Geach, a well-known proponent of the inherence model of predication in Aquinas, is aware of the other passages (in the texts quoted, as well as in other texts) in which Aquinas draws a distinction between that which exists *in re* and the way it is appropriated at the level of the intellect within predication (the intensional level). Take note of the following once again, from *STh* I, q. 13, a. 12 c:[7]

proprie loquendo, haec est vera, Deus factus est homo, sed haec est falsa, homo factus est Deus. Sicut, si Socrates, cum prius fuerit homo, postea factus est albus, demonstrato Socrate, haec est vera, hic homo hodie factus est albus; haec tamen est falsa, hoc album hodie factum est homo. Si tamen ex parte subiecti poneretur aliquod nomen significans naturam humanam in abstracto, posset hoc modo significari ut subiectum factionis, puta si dicatur quod natura humana facta est filii Dei.

[7] STh I, q. 13, a. 12 c: Huic vero diversitati quae est secundum rationem, respondet pluralitas praedicati et subiecti, identitatem vero rei significat intellectus per ipsam compositionem.

> To this diversity in idea corresponds the plurality of predicate and subject, while the intellect signifies the identity of the thing by the composition itself.

Granting that there are two levels—the (real) facts and the concepts combined in predication—what seems surprising or puzzling is that, according to Aquinas, there is identity on the factual level, but diversity obtains only on the conceptual level. How does this square with the fact that, for Aquinas, there is a composition of form and that to which the form belongs in things? If Aquinas were on board with the inherence model of predication, he would have said something along the following lines:

> To this diversity in idea corresponds the plurality of predicate and subject, and the intellect signifies the composition in the thing by the composition of the concepts itself.

However, St. Thomas does not say that. What he seems to say is that one and the same thing is signified by two different concepts. Here, 'signifies' must be interpreted as 'denotes'. It is this real numerical identity (or identity in reality) which the copula, the sign of predication, is supposed to express in predicating the predicate of the subject.

Notice four things regarding the semantic roles of the subject and predicate terms. First, unlike what we find in the inherence model, it is not only the subject, but also the predicate term which has a referential (denotational) role to the supposit. Second, what is denoted by both terms is the supposit, so the predicate does not merely denote the form had by the supposit. There is no mention of the real composition of the supposit. That comes only when the plurality of the concepts is explained. The composition, i.e., the fact that one can distinguish various forms inhering in the supposition or constituting it (namely, the constituting forms of humanity and animality, as well as the inhering form of whiteness) explains that there could be different ways of conceptualizing what is in reality one and the same supposit. Third, since both subject and predicate function as terms denoting the supposit on the basis of ascribing a form to it, their status is that of names of the general form: *thing having F-ness*.[8] They are concrete

[8] Assuming that the subject term is not a proper name, e.g., 'Socrates', but a description (such as 'this man').

(F, e.g., man) and not abstract (F-ness, e.g., humanity). Unlike abstract terms, concrete terms denote the supposit, not merely the form. They do not abstract from the supposit completely. So, fourth, the real composition involving the supposit does not enter the semantics of predication directly (the copula does not express this composition) but indirectly, via the semantics of terms as an explanation of their difference. Of course, it is the difference in concepts which enables predication to function semantically as well as pragmatically. For a statement to convey a new piece of information (to be informative), the presupposition is that the hearer knows that one concept applies to the supposit (subject). This enables them to identify the supposit and learn that the second concept applies to it as well (predicate). In terms of Aristotelian philosophical psychology, the recognition of the real composition is something which is part of the first operation of the intellect, called simple apprehension. It has nothing to do with predication, which is the job of the second operation of the intellect (composing and dividing concepts). The analysis is as follows:

> Homo est animal.
> *Habens humanitatem est habens animalitatem.*[9]
>
> Homo est albus.
> *Habens humanitatem est habens albedinem.*[10]

The identity model is corroborated by other textual evidence, including *STh* I, q. 85, a. 5, ad 3:[11]

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[9] The man is an animal. The thing having humanity is a thing having animality.

[10] The man is white. The thing having humanity is a thing having whiteness.

[11] STh I, q. 85, a. 5, ad 3: Invenitur autem duplex compositio in re materiali. Prima quidem, formae ad materiam, et huic respondet compositio intellectus qua totum universale de sua parte praedicatur; nam genus sumitur a materia communi, differentia vero completiva speciei a forma, particulare vero a materia individuali. Secunda vero compositio est accidentis ad subiectum, et huic reali compositioni respondet compositio intellectus secundum quam praedicatur accidens de subiecto, ut cum dicitur, homo est albus. Tamen differt compositio intellectus a compositione rei, nam ea quae componuntur in re, sunt diversa; compositio autem intellectus est signum identitatis eorum quae componuntur. Non enim intellectus sic componit, ut dicat quod homo est albedo; sed dicit quod homo est albus, idest habens albedinem, idem

> First, there is the composition of form with matter; and to this corresponds that composition of the intellect whereby the universal whole is predicated of its part: for the genus is derived from common matter, while the difference that completes the species is derived from the form, and the particular from individual matter. The second comparison is of accident with subject; and to this real composition corresponds that composition of the intellect, whereby accident is predicated of subject, as when we say, "the man is white." Nevertheless, composition of the intellect differs from composition of things; for in the latter the things are diverse, whereas composition of the intellect is a sign of the identity of the components. For the above composition of the intellect does not imply that "man" and "whiteness" are identical, but the assertion, "the man is white," means that "the man is something having whiteness," and the subject, which is a man, is identified with a subject having whiteness. It is the same with the composition of form and matter, for animal signifies that which has a sensitive nature; rational, that which has an intellectual nature; man, that which has both; and Socrates that which has all these things together with individual matter; and according to this kind of identity our intellect predicates the composition of one thing with another.

Notice that Aquinas says explicitly that if predication were the expression of real composition, the predicate would have to be an abstract term ('humanity', 'whiteness'), but it clearly is not, as the statement, "the man is whiteness," does not make sense.

Now how does the inherentist Geach explain away such an unambiguous support of the identity model? Commenting on *STh* I, q. 13, a. 12 c, quoted above, he writes (Geach 1950, 478):

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autem est subiecto quod est homo, et quod est habens albedinem. Et simile est de compositione formae et materiae, nam animal significat id quod habet naturam sensitivam, rationale vero quod habet naturam intellectivam, homo vero quod habet utrumque, Socrates vero quod habet omnia haec cum materia individuali; et secundum hanc identitatis rationem, intellectus noster unum componit alteri praedicando.

> As regards the truth-conditions of an affirmative predication (compositio), [Aquinas] rejects the view that subject and predicate stand for two different objects, which we assert to be somehow combined; on the contrary, the truth of the predication requires a certain identity of reference. Thus, if the predicate "white" is to be truly attached to the subject "man" or "Socrates," there must be an identity of reference holding between "man" or "Socrates" and "thing that has whiteness" ("*quod est habens albedinem*"); the two names must be *idem subiecto*. Notice that what is here in question is the reference of a descriptive name, not of a predicate; Aquinas does not hold, indeed he expressly denies, that predicates like "white" stand for objects (*supponunt*). His theory is that if the predicate "white" is truly attached to a subject, then the corresponding descriptive name "thing that has whiteness" must somehow agree in reference with the subject.

According to Geach, then, the aforementioned identity model has to do with the expression of truth-conditions but is not a model of predication. Yet, we have just seen in the quotation from the *Commentary to Metaphysics* that just the opposite is the case: The truth conditions are the real composition in things, for Aquinas, not the expression of real identity of that which is conceptually diverse. That belongs to the intellect's appropriation of the real composition, the intellect's way of introducing this composition via predication. Our analysis of *STh* I, q. 13, a. 12 c, is also put forth by Henry B. Veatch, who is very critical of P. Geach's approach (Veatch 1974, 406–407):

> ...the white man that one might be said to be talking about or to be referring to in the predicate of the proposition "the man is white," can only be the same identical man as the one referred to in the subject of the proposition. In other words, so far as one is concerned to know what the subject and predicate terms in the proposition refer to or are about, they are about the very same thing, viz. in this instance a particular human being who happens to be white.
>
> Perhaps we might avail ourselves of a kind of metaphor here and say that this difference secundum rationem really means no

> more than that the same thing is being viewed or considered under a new or different guise or aspect.
>
> ...in each case it is one and the same thing in fact (*secundum rem*) that is nevertheless considered somewhat differently – i.e. it is considered under a different guise or aspect (*secundum rationem*).

Geach's objection to the identity approach is that the analysis of predication presupposes predication hidden at least in the predicate term, the descriptive name. What else is "a thing having whiteness" than "a thing which is white"? There are really two predications in the identity statement with descriptive names. As explained above, one answer is that descriptive names are not predications, but instances of a kind of compound name, results of the first operation of the intellect, not of the second one. In a recent book, Jeffrey E. Brower analyzes the second 'is' in terms of constitution (Brower 2014).

The following are general forms of predication, essential and accidental, according to Brower (2014, 142):

> Predication in general: Ordinary (intrinsic) predications of the form '*a* is *F*' are more perspicuously represented as of the form '*a* is numerically the same as something, *b*, having the property *F*-ness as a constituent'.
>
> Essential predication: Ordinary essential predications of the form '*a* is *F*' are more perspicuously represented as of the form '*a* is identical to something, *b*, having the property *F*-ness as a constituent'.
>
> Accidental predication: Ordinary accidental predications of the form '*a* is *F*' are more perspicuously represented as of the form '*a* is numerically the same as (but not identical) to something, *b*, having the property *F*-ness as a constituent'.

Applying the above to our example of essential and accidental predications, we get:

Socrates *is* that which *is* human.
Socrates *is* that which *is* white.

The first 'is' in the essential predication of being human is that of identity. In accidental predication it is that of pure numerical sameness, but not identity.[12] The second 'is' is treated uniformly as expressing the relationship of constitution: The predicated feature (humanity, whiteness) is a constituent of the referent of 'that'. The difference in meaning of the first copula in essential and accidental predications allows Brower to treat 'Socrates' as unambiguous, denoting the thin individual, Socrates, rather than being systematically ambiguous between two referents, the thin and thick individuals. The reason why the first 'is' in accidental predication expresses numerical sameness but not numerical identity, is that the indefinitely referential 'a white thing' picks out a thick individual.[13] In identifying Socrates with a white thing, we do not need to state their numerical identity, their being precisely the same entity with the same constituents. Rather, it suffices to state their non-distinctness: We are not saying that that particular thing and that particular bearer of whiteness among its accidents are the very same entity. In that case 'a white thing' would pick out a thin individual, and the second 'is' could not be analyzed as that of constitution, as whiteness is a constituent not of a thin individual but of a thick one. We are instead saying that the particular thing (thin individual) and the white thing (i.e., the thick individual having whiteness among its constituents) are not two distinct things.

Now there is another proposal on how predication works in Aquinas, once again based on the part-whole relationship. This time, however, predication is not understood as expressing the relationship of constitution *in re*, but rather identifies some conceptual content with a supposit. This identification is neither numerical identity nor numerical sameness, because we do not identify an individual or quasi-individual (denoted by the predicate) with an individual (picked out by the subject). Nor do we identify an individual with a concept; that would be a category mistake. What we are doing in predication is saying that an individual has a certain formal content, which is intellectually apprehended and realized in the individual. The job

[12] Identity implies numerical sameness, but not vice versa.

[13] In Brower's analysis, the ambiguity in the first "is" is related to what the demonstrative pronoun "that" refers to. It refers to the thin individual in essential predication and the thick individual in accidental predication.

of the copula is identification rather than the expression of identity. One could also say that it expresses a part-whole relationship.

Aquinas takes up the Avicennian teaching on the common nature (*natura communis*; Galluzzo 2004). A nature exists in three different states.[14] By way of an example, let us take human nature. Human nature in Socrates, Plato, and Aristotle is multiple and always particular, i.e., the natures of Socrates, Plato, and Aristotle differ in their particularity. However, generally speaking, they are the same one human nature. As such, human nature exists as a concept in the mind. As a product of abstraction, it is one and universal, i.e., capable of being predicated of a multitude of individual humans (we speak about what has later come to be known as the objective concept which is one as opposed to many formal concepts, i.e., entities in individual minds). Now one can consider human nature without its features, acquired as it exists particularized in things, or as abstracted in the form of a concept. This consideration is a kind of second-order abstraction. What we get is the so-called nature, absolutely considered. It is the same semantic core common to the nature as existing in reality and as existing intentionally as a concept. Here, Aquinas distinguishes nature absolutely considered from characteristics it has as a concept in the intellect. According to Aquinas, predication is identification of the nature absolutely considered with the same nature (semantic content) in a particular thing:[15]

[14] In the Aristotelian tradition, "nature" has the same referent as "essence", but not the same sense. The sense of the former term is "essence as the foundation or source of that which the thing with the essence does or undergoes". Essence is that metaphysical component of a thing which is responsible for its belonging to a certain kind.

[15] De ente et essentia, c. 2, 63: Et quia naturae humanae secundum suam absolutam considerationem convenit quod praedicetur de Socrate, et ratio speciei non convenit sibi secundum suam absolutam considerationem, sed est de accidentibus, quae consequuntur eam secundum esse, quod habet in intellectu, ideo nomen speciei non praedicatur de Socrate, ut dicatur: Socrates est species, quod de necessitate accideret, si ratio speciei conveniret homini secundum esse, quod habet in Socrate vel secundum suam considerationem absolutam, scilicet in quantum est homo. Quicquid enim convenit homini in quantum est homo praedicatur de Socrate.

> Further, because it belongs to human nature absolutely considered to be predicated of Socrates, and because the notion of the species does not belong to it absolutely considered but is among the accidents which follow upon it according to the existence it has in the intellect, one can see why the word 'species' is not predicated of Socrates, i.e., why it is not said that "Socrates is a species." This would of necessity be said if the notion of the species belonged to man according to the existence which man has in Socrates; or, if the notion of the species belonged to man absolutely considered, i.e., to man as man, for whatever belongs to man as man is predicated of Socrates.

This interpretation of predication in Aquinas has recently been formally developed by S. Sousedík (2014).[16] His theory draws on the scholastic Thomist understanding of predication.

Finally, there is the interpretation by G. Klima, who interprets St. Thomas's notion of predication in inherentist terms (Klima 1996, 2002).17 However, he notices a peculiar functional feature of the copula in predication in Aquinas: The 'is' of existence and the 'is' of predication are not clearly distinct in function. In his Commentary to On Interpretation, Aquinas writes:[18]

[16] It has been commented on here: https://maverickphilosopher.typepad.com/maverick_philosopher/2012/11/stanislav-sousediks-towards-a-thomistic-theory-of-predication.html

[17] Several of Klima's texts are available here: https://faculty.fordham.edu/klima/

[18] In Perihermeneias 1.5, n.22: Ideo autem dicit quod hoc verbum est consignificat compositionem, quia non eam principaliter significat, sed ex consequenti; significat enim primo illud quod cadit in intellectu per modum actualitatis absolute: nam est, simpliciter dictum, significat in actu esse; et ideo significat per modum verbi. Quia vero actualitas, quam principaliter significat hoc verbum est, est communiter actualitas omnis formae, vel actus substantialis vel accidentalis, inde est quod cum volumus significare quamcumque formam vel actum actualiter inesse alicui subiecto, significamus illud per hoc verbum est, vel simpliciter vel secundum quid: simpliciter quidem secundum praesens tempus; secundum quid autem secundum alia tempora. Et ideo ex consequenti hoc verbum est significat compositionem.

> The reason why [Aristotle] says that the verb 'is' consignifies composition is that it does not principally signify composition, but secondarily; for it primarily signifies what occurs to the mind in the way of actuality absolutely: for 'is', uttered absolutely, signifies being in act, and hence it signifies as a verb. But since actuality, which the verb 'is' principally signifies, is in general the actuality of every form, whether it is a substantial or an accidental actuality; this is why when we want to signify any form or act to actually inhere [*inesse*] in a subject, we signify this by means of the verb 'is', either absolutely, or with some qualification: absolutely, in the present tense, and with qualification in the other tenses. And thus the verb 'is' secondarily signifies composition.

Klima comments on the passage thus:

> In general, on this basis we can claim that any ordinary predication of a common term is but a qualified predication of being, in which the significate of the common term in the suppositum of the subject specifies the sense in which that significate can be said to exist… So, it seems that according to Aquinas's view, the copula is not just a merely syncategorematic particle with the sole function of joining the predicate to the subject, but it retains the primary signification of the verb "is", which predicated in itself signifies the actual existence of the thing of which it is predicated. Indeed, according to the previous passage from the On Interpretation-commentary, this is precisely the reason why we use the verb "is", rather than any other verb, also in the function of the copula, to assert in general the actuality of the suppositum of the subject in respect of what is signified in it by the predicate. But then, when it has the function of joining another predicate to the subject, the act of existence the verb "is" signifies is not the absolute existence of the suppositum of the subject, but the qualified existence of the form signified by the predicate, namely, the inherence of this form in the suppositum of the subject, which renders the suppositum actual in respect of this form. And so, since the forms signified by the predicate may be of various sorts, namely, substantial or accidental, or even not really existing

> forms but beings of reason, such as privations, the existence thus signified will be existence in various senses demanded by the nature of the forms signified. (Klima 2002, 165)

Klima's own reconstruction of Thomas's theory of predication in line with these thoughts is roughly as follows.[19] Below, the predicate 'exists' has different meanings depending on the nature of the object denoted by the subject term:

> "Socrates is human" is to be analyzed as "Socrates's humanity exists".
> "Socrates is white" is to be analyzed as "Socrates's whiteness exists".

Thus, we encounter yet a third model of predication in Aquinas. The first model treated predication as *sui generis*, as distinct from identity and existential claims. The second equated it with identity; the third, with existential statements.

I maintain Klima's theory errs precisely where the Geachean inherentist theory erred, i.e., in equating truth conditions with the semantics of predication. These seem to be two distinct things for Aquinas. Both the real inherence of a form in a supposit as well as the real (or other) existence of the particularized form are types of facts on the level of things, *in re*. In contrast, the semantics of predication deals with intellectual appropriation of these facts.[20] Hence, the only model true to Aquinas's texts is that of identity. In this, H. Veatch is right. In contrast to J. Brower, I presume there are not two *copulae*. The denotation by the predicate term and the

[19] I leave technical and formal details of Klima's presentation aside – the reader may find them in the paper cited. For an interpretation of Aquinas along similar lines (though critical of Klima) see Polsky (2019). Polsky's reading is based on In V Metaphysicorum, l. 9, 889–893.

[20] I think the two types of facts are not equivalent. Klima is right in pointing out that for Aquinas the copula signifies existence. Klima's existential fact (about the existence of a particularized form) presupposes that the form inheres in an individual or quasi-individual subject, but states something over and above this, namely, the kind (mode) of existence it has. So, Klima's existential fact is not only a necessary truth condition but also a sufficient one, unlike the Geachean fact about the form's inherence which is only a necessary truth condition. However, neither of the facts explains what goes on, semantically speaking, in predication.

corresponding conceptual appropriation of the particular supposit picked out by the subject is the act of simple apprehension (the 1st operation of the intellect), not predication (the 2nd operation of the intellect), which modern readers may liken to the act of naming rather than predicating. This naming or conceptualization is no doubt capable of being cast out in terms of predication, but this is secondary *ex post* explication. The same can be said in regard to the Thomist part-whole theory, which presents predication as the identification of a specific conceptual content with the supposit. Again, this seems to be part of conceptualization proper, *not* predication (whose corresponding mental act is composition or division). It too can be rendered in predicative terms, but it is no more than explication of the act of conceptualization, not predication. Thus, the question whether inherence or identity is *the* theory of predication in Aquinas must be answered in favor of identity, unless one is prepared to deny there is any one true theory of predication in St. Thomas. But for this denial we find no ground.

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RESEARCH ARTICLE

Humberstone on Ayer's Emotivism

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Abstract: In *The Connectives*, Lloyd Humberstone offers an interpretation of A. J. Ayer's emotivism using W. S. Cooper's semantics for ordinary logic. In this discussion note, I argue that this proposed interpretation fails to stay true to Ayer's view.

Keywords: Classical logic; dual content; emotivism; ordinary logic; transparent semantics.

1. Introduction

Ayer's emotivist account of the 'meaning' of moral sentences could arguably be summed up in the following passage:

> The presence of an ethical symbol in a proposition adds nothing to its factual content. Thus, if I say to someone, 'You acted wrongly in stealing that money', I am not stating anything more than if I had simply said, 'You stole that money'. In adding that this action is wrong I am not making any further statement about it. I am simply evincing my moral disapproval of it (Ayer 1952, 107).

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Humberstone interprets this passage as an analysis of a particular type of moral sentences that we may call instantiated moral sentences. For example, an instantiated moral sentence like:

You acted wrongly in stealing the money.

is analysed as the conjunction:

You stole the money and that action is wrong.

According to Humberstone, the first conjunct is cognitively significant – it can be judged as true or false depending on the obtaining fact. If it is a fact that you stole the money, then it is true that you stole the money; otherwise, it is false that you stole the money. The second conjunct, on the other hand, is devoid of cognitive meaning. This is so following Ayer's theory that moral sentences only evince a subject's approval or disapproval; thus, are neither true nor false.

Humberstone's interpretation does not end there, however. For him, the penultimate sentence of Ayer's passage (above) suggests that the whole conjunction makes the same claim as the first conjunct. That is, if the first conjunct is true, then the whole conjunction is true; on the other hand, if it is false, then the conjunction is false (Humberstone, 2011, 1051). We may take this interpretation as assigning (classical) semantic values to instantiated moral sentences.

In this paper, I explore the semantic framework behind Humberstone's proposed interpretation of Ayer's emotivism. Then I show some problems with this interpretation. In particular, I argue that it fails to adequately model Ayer's brand of emotivism.

2. Humberstone's interpretation

Humberstone's interpretation of Ayer's emotivism is based on the semantic framework of 'ordinary logic' (OL) due to Cooper (1968).[1] OL consists of a countable set of atomic sentences {A, B, C,...} and the set of

[1] It is interesting to note that Cooper's (1968) OL is similar to the three-valued logics proposed by C. S. Peirce and Sobociński (1952). For a discussion of Peirce's

Boolean connectives {¬, ∨, ∧}. Boolean-made compounds (i.e., ¬ A (negation), A ∨ B (disjunction), and A ∧ B (conjunction)) are defined in the usual recursive way.

OL is a three-valued semantics, where each atomic sentence, A maps into a trivalent set of semantic values, V = {1, 0.5, 0}. '1' and '0' represent the *classical* values: 'true' and 'false', respectively, and '0.5' represents the *non-classical* value of being neither true nor false.[2] Table 1 represents the OL semantics for Boolean compounds:

¬	
1	0
0.5	0.5
0	1

∨	1	0.5	0
1	1	1	1
0.5	1	0.5	0
0	1	0	0

∧	1	0.5	0
1	1	1	0
0.5	1	0.5	0
0	0	0	0

Table 1: OL Truth-tables for Boolean compounds

Note how sentences that have the 0.5 value behave in these OL truth tables. A true sentence conjoined or disjoined with a sentence that has the 0.5 value results in a true compound sentence. On the other hand, a false sentence conjoined or disjoined with a sentence that has the 0.5 results in a false sentence. The only time that compound sentences have the 0.5 value is when their constituent sentences have the 0.5 value. This latter observation does not only apply to binary connectives but also to negations. Finally, notice that dropping the 0.5 value in these OL truth-tables results in the standard Boolean truth tables in classical logic. This is right since OL is a sub-classical logic.

For Humberstone, the OL semantics, especially the truth-table for conjunction, captures the main intent of Ayer's view about instantiated moral sentences. Since the moral sentence 'You acted wrongly in stealing the money' just means 'You stole the money and that action is wrong', it follows

logic, see (Belikov, 2021) and (Fisch and Turquette, 1966); for Sobociński's logic, see (Da Ré and Szmuc, 2021) and (Joaquin, 2021).

[2] Cooper uses 'T', 'G', and 'F' to represent 'true', 'gap', and 'false', respectively (Cooper, 1968, 305). On the other hand, Humberstone uses '1', '2', and '3' (Humberstone, 2011, 1044). For our purposes, we follow the semantic representation by (Joaquin, 2021) and (Da Ré and Szmuc, 2021).

that, given the semantics, if the first conjunct is true, then the moral sentence is true; if it is false, then the moral sentence is false.

Humberstone's analysis implies then that all instantiated moral sentences have a cognitive content (that is either 1 or 0) and a non-cognitive content (that always has the 0.5 value). Let us call this the dual-content feature of instantiated moral sentences. Moreover, the semantic value of instantiated moral sentences depends on the semantic value of their cognitive content. That is, for any instantiated moral sentence M, if its cognitive content has the value 1, then M has the value 1; otherwise, M has the value 0. Thus, there is no case where M has a 0.5 value. Let us call this the transparency feature of instantiated moral sentences.

Let us distinguish instantiated moral sentences from more general moral sentences like, 'Stealing money is wrong'. Unlike the former, the latter type of moral sentences does not have a cognitive content; they only have an emotive, non-cognitive content. Given the OL semantics, this means that any general moral sentence G will always have the 0.5 value.[3]

3. Some problems with Humberstone's interpretation

Humberstone's interpretation of Ayer's emotivism is not beyond criticism. First, even if we suppose that general moral sentences always have the 0.5 value, there is still the problem of how to make sense of their negations. Let us call this the negation problem. Given the OL semantics, if 'Stealing money is wrong' has the value of 0.5, then its negation – 'Stealing is not wrong' – must have the 0.5 value. But if this so, how then could the OL semantics differentiate the emotive content of 'Stealing is wrong' from 'Stealing is not wrong'? More generally, the OL semantics does not seem to have the semantic resources to distinguish between a general moral sentence G and its negation ¬G since both have the same 0.5 value.

The negation problem is not only a problem for Humberstone's interpretation of Ayer's emotivism, but for expressivists (and noncognitivists)

[3] Humberstone reports that although Ayer takes this line for the case of general moral sentences, he would use the conjunctive analysis (discussed above) for the case of instantiated moral sentences.

who aim to provide a logic of moral sentences. The challenge is to find a non-cognitive account of how negation functions over moral sentences in a given language.[4] Ayer's intellectual heirs tried to address the problem in various ways. For example, Gibbard (1990) defined ¬G in terms of normative worlds where a person disapproves G, while Blackburn (1993) defined it in terms of a person booing G. Weintraub (2011) defined ¬G in terms of a preferential ordering, while Schroeder (2008a) defined it in terms of an even higher-order attitude of being for disapproving the G.

The basic strategy here is to treat a non-cognitive attitude as an attitudinal operator that ranges over a sentence. For example, following Blackburn (1993), let 'H!' be a positive attitude towards some action and 'B!' a negative attitude. Accordingly, 'B!(stealing money)' expresses the negative attitude towards the act of stealing money, while H!(stealing money) expresses a positive attitude towards it. Now since H! and B! are incompatible non-cognitive attitudes, it follows that expressing 'B!(stealing money) and H!(stealing money)' would be logically inconsistent.

This kind of response to the negation problem, however, does not seem to be available for Ayer and his intellectual heirs since the very notion of incompatibility seems to require even a minimal notion of cognitive content (i.e., the notion that moral sentences are truth-evaluable). Furthermore, as Roojen (1996) argued, the incompatibility of H! and B! might be more pragmatic than logical. This means that while expressing 'B!(stealing money) and H!(stealing money)' might be pragmatically inconsistent, they might not be logically inconsistent.

Second, the dual-content and transparency features of instantiated moral sentences seem to go against the main intent of Ayer's emotivism. Recall that an instantiated moral sentence M has a cognitive content and a non-cognitive, emotive content, and M's semantic value always follows its cognitive content. Thus, a conjunction like 'You acted wrongly in stealing the money and $7 + 5 = 12$' is true just in case the first conjunct's cognitive content, viz., 'You stole the money', has the value 1. On the other hand, 'You acted wrongly in stealing the money or $7 + 5 = 11$' is false if 'You stole the money' has the value 0. This idea seems to be motivated by the

[4] For further discussions of the negation problem, see (Schroeder, 2008b).

thought that the emotive content of an instantiated moral sentence adds nothing to its semantic value. That is, the semantic value of such a moral sentence is simply identical with its cognitive content (Humberstone, 2011, 1052).

However, if this is right, then it seems to go against Ayer's view that moral sentences are pseudo-sentences that express no proposition that can be either true or false (Ayer, 1952, 106). Ayer's reason for this is that there is simply no criterion by which such pseudo-sentences could be verified as true or false. One may of course resist Ayer's implied verificationism; yet, it is beside the point. The ultimate point being stressed here is that Humberstone's interpretation does not stay true to Ayer's emotivism since it implies that an instantiated moral sentence can be judged as true or false. Arguably, this implication is something that Ayer will not be happy about.[5]

4. Conclusion

Humberstone's interpretation of Ayer's emotivism is an innovative one. But as the foregoing discussions have shown, it is not without problems. And these problems stem from how general and instantiated moral sentences behave in his preferred OL semantics. It would be interesting to see how Humberstone will respond to these problems using the resources of the semantics. But until then, these problems remain unresolved.

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[5] This is in response to Humberstone's claim that 'Ayer is happy to treat "You acted wrongly in stealing the mone" as amounting to the conjunction: "You stole the money and that action was wrong"' (Humberstone, 2011, 1051).

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RESEARCH ARTICLE

Specification of the Fundamental Concepts in the Ontology of Processes; Event, Process, Activity

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Abstract: The topic of analysis of processes and events is becoming increasingly widespread not only in analytical philosophy but also in computer science, particularly in the field of artificial intelligence. Different philosophical approaches to conceptualizing events and processes are compared to obtain the basic concepts, their specification, and interrelationships in this contribution. A conceptual framework for process ontology is proposed, close to natural language and based on John Sowa's approach and the linguistic theory of verb valency frames.

Keywords: Event; process; valency frames; activity; ontology; natural language.

1. Introduction

Alfred North Whitehead (1929) made processes the primary entities in his ontology. According to his approach, the world is composed of deeply interdependent processes and events, and we can look at all the objects from a process point of view, as they undergo changes. However, in the predicate

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logic, processes are predominantly treated as relations between more stable things called objects. John Sowa (2000, 206) shows how the typical mapping of the sentence 'Brutus stabbed Caesar' is the following formula of predicate calculus: stabbed(Brutus, Caesar). He notes that this reglementation ignores many details implicit in the natural language sentence. For instance, we are using different tenses in natural language to reflect that processes are temporal phenomena. It also does not allow further relations to be linked to the verb, such as an adverb 'violently', or a prepositional phrase 'with a shiny knife'. It also cannot support cross references from other sentences, such as 'The stabbing was violent'. To be able to conceptualize all the features of processes relevant in terms of logical consequences became particularly crucial in the logical analysis of natural language.

The problem of appropriate conceptualization of processes also concerns the analytical philosophy. Rowland Stout (2018) points out that there has been a philosophical upheaval recently in our understanding of the metaphysics of the mind. The philosophy of mind and action has traditionally ignored the category of an ongoing process. However, a proper understanding of processes is required to understand subjective experience and agency. He highlights the problem that only ongoing processes can be present to a subject in the way required for conscious experience and practical self-knowledge. The conceptualization of processes and events currently represents a challenge not only for logic and the philosophy of mind but also for computer science, particularly in the field of artificial intelligence, where the reasoning of intelligent agents has temporal aspects and agents have to deal with the changes in their environment.[1] Genesereth and Nillson (1987) pointed out that the intelligent behavior of agents or applications of artificial intelligence (AI) substantially depends on an entity's knowledge of its environment. Much of this knowledge is descriptive and can be expressed in a declarative form. The formalization of knowledge in a declarative form begins with a conceptualization based on concepts and the relationships among them. The problem of appropriate conceptualization is, therefore, crucial for any representation of knowledge and involves interdisciplinary cooperation between philosophy, logic, linguistics, and computer science.

[1] More about multi-agent systems can be seen, for example, in (Wooldridge 2009).

This paper compares different approaches to processes and events specification from the philosophy of mind and computer science to propose a framework for process ontology, which is close to natural language and based on John Sowa's approach and the linguistic theory of verb valency frames. In this respect, the paper contributes to the logical analysis of natural language.

The paper is organized as follows. First, the general problem of conceptual analysis, ontology, and the related concepts are introduced in the informatics context in section 2. To obtain basic concepts for process ontology and their specifications, certain representative logical and philosophical approaches to process and event conceptualization are compared in section 3. The paper suggests that ontologies may be linguistically based, as they intend to be shared. An event is often indicated by a verb in natural language. It, therefore, seems to be appropriate to make use of the results of the linguistic analysis of verbs, specifically of the theory of verb valency frames, which is introduced in section 4. According to this theory, almost every verb is inherently connected with the so-called verb valency participants. They are parameters of the activity denoted by the verb, such as the agent of the activity (who), the objects that the activity operates on, the resources of the activity, etc. Verb valency frames roughly correspond to the senses of verbs, and through their exploitation, one obtains a fine-grained specification of an activity. John Sowa proposed a linguistically oriented approach to process specification based on his *thematic roles*, which are participants in the verb valency frame. I proceed from John Sowa's thematic roles and the theory of verb valency frames to propose the general conceptual framework for process ontology, introduced in section 5. This general framework has been successfully applied to automated natural language processing cases and agent communication in multi-agent systems.

2. Conceptualization, ontology, and knowledge representation

The topic of ontology is becoming increasingly widespread in computer science, particularly in artificial intelligence. The word ontology was taken

from philosophy and then introduced to computer science. It is currently acquiring a specific role in artificial intelligence and database theory. Emilia Currás (2014, 93) notes that

> … it was at the height of the 20th century that the term ontology was first applied to design of classification systems of a certain complexity. Computer specialists consequently turned to philosophers in order to adopt an appropriate term, the main subject matter of which was classification based on the abstraction.

Sowa (1991a, 3–4) argues that the term ontology is often used as a synonym for a taxonomy that classifies the categories or concept types in a knowledge base on the principle of generalization. In that case of generalization, the taxonomy would be a generalization hierarchy, more often called a type or subsumption hierarchy. Gruber (1995, 908) defines ontology as "an explicit specification of a conceptualization". Building on Gruber's definition, the concept of ontology is often interchanged with the result of conceptual analysis that is the basis for knowledge inference. Conceptual analysis should precede the formation of a physical model of any application, and it results from a logical analysis of a respective problem in an AI. Is there any difference, however, between ontology and conceptualization?

Borst (1997, 23) defines ontology as "a formal specification of a shared conceptualization". The main purpose of ontology building is then to capture the described area so it can be shared by a broader community of interested users. Agnieszka Konys (2018) also views ontology as a kind of knowledge conceptualization. She notes that we use the results of knowledge engineering to make gathered knowledge publicly available and reusable, especially in terms of the interoperability of the collected knowledge. Ontologies are therefore shared and mostly formalized knowledge models supporting a correct modeling of reality, semantic inter-operability and automatic derivation in software applications.

It is apparent from the above-mentioned that ontology is connected with logical analysis and conceptualization of the domain of interest. Including linguistic research in the development of ontology is very important for the possibility of proposed ontologies being shared and interoperated. Guarino (1998, 3-4) has pointed out that, in certain cases, the term ontology is:

> … just a fancy name denoting the result of familiar activities like conceptual analysis and domain modeling, carried out by means of standard methodologies. In many cases, however, so-called ontologies present their own methodological and architectural peculiarities. On the methodological side, the main peculiarity is the adoption of a highly interdisciplinary approach, where philosophy and linguistics play a fundamental role in analyzing the structure of a given reality at a high level of generality and in formulating a clear and rigorous vocabulary. On the architectural side, the most interesting aspect is the centrality of the role that an ontology can play in an information system, leading to the perspective of ontology-driven information systems.

Guarino mentions the fundamental role of linguistics in finding appropriate (rigorous and clear) terms for ontological concepts. An appropriate designation of a term is mostly based on the common use of natural language and respects the meaning that the term has in common use. This approach is very close to the analysis of the meaning of words within analytic philosophy approaches. Currás (2014, 89) also points out the fundamental role of linguistics based on the fact that "ontology is structured like a system in which the principal and primary node is the word".

To summarize the above, ontology is based on abstraction and depicts the basic concepts of the domain of interest, their properties and attributes, and the crucial relations between them. Ontologies can be more easily shared if we respect the role of concepts in natural language. However, ontological commitments and conceptualization carried out by ontology also depend on the goals and purposes of the respective application. In this sense, ontology design is also an engineering matter. Gruber (1995, 909) points out on this matter that

> … formal ontologies are designed. When we choose how to represent something in an ontology, we are making design decisions. To guide and evaluate our designs, we need objective criteria that are founded on the purpose of the resulting artifact, rather than based on *a priori* notions of naturalness of Truth.

When designing an ontology, it is very important to find a balance between the fact that the ontology is designed to achieve the goals of the application

and the ability to share such an ontology in the broader context, thus also outside of the interested team that created it. A necessary condition for an ontology to be shared is to respect the role of conceptualized terms in natural language. Moreover, when looking for the main concepts and their relations to ontology, it is also necessary to consider already established standards and existing approaches. For this reason, before proposing a general conceptual framework for process ontology, fundamental approaches will be compared in the next section.

3. Continuants, occurrents, and two approaches to processes

Whitehead (1920) distinguished enduring objects, which have a relatively stable identity over some period of time, from the constantly perishing occasions, whose successive stages may not resemble one another. However, according to Whitehead, the reality itself consists of interrelation of continuously developing processes, and it is a structure of evolving processes. Following Whitehead's approach, Sowa (2000, 71) distinguishes the dichotomy of enduring objects called *continuants* and processes or events, which do not have enduring characteristics, called *occurrents*. He defines them from the logical point of view in the following way:

> A *continuant* has stable attributes or characteristics that enable its various appearances at different times to be recognized as the same individual. An *occurrent* is in a state of flux that prevents it from being recognized by a stable set of attributes. Instead, it can only be identified by its location in some region of space-time.

Huang (2016, 16) notes that the continuant/occurrent dichotomy in philosophy corresponds to the endurant/perdurant dichotomy of top-level ontologies in computer science. This dichotomy relies crucially on the relevance of time. *Endurant* is a concept that can be defined independently of time. On the other hand, *perdurant* is a concept that must be defined dependently on time. Huang points out that it is not the shape or other perceivable physical properties, but rather the entity's continuity of existence in time

that plays a central role in the conceptual classification of our knowledge systems.[2]

Hanzal, Svátek, and Vacura (2016, 192-193) provide a general survey of ontologies for modeling events and demonstrate how the dichotomy of *continuants* (entities that persist through time as wholes) and *occurrents* (entities that are not wholly present at every moment) is incorporated into several well-known foundational ontologies. They survey KR Ontology, the Descriptive Ontology for Linguistic and Cognitive Engineering (DOLCE), PURO, and certain other chosen ontologies based on Web Ontological Language (OWL):[3] The Event Ontology, The Simple Event Model Ontology (SEM), Linking Open Descriptions of Events (LODE). They summarize that in all approaches is central the class of *events* whose instances have time properties and are connected to other entities – place, agents, etc. In the case of SEM there are some additions to this basic model, for example, the modeling of different views. Hanzal, Svátek, and Vacura suggest that classes of different things dispersed in different models are merely subsumed under the common class of events. This creates a relatively flat hierarchy, and they propose more particular classes. Below, there is their tentative classification of events into four categories to remedy the problem of a rather flat hierarchy:

- *C1 - Actions*. They assume an explicit or implicit deliberate agent performing them.
- *C2 - Happenings*. They cover the situations when "something happened", without being initiated by a deliberate agent.
- *C3 - Planned "social" events*. Besides being planned, they typically put emphasis on the spatio-temporal frame rather than on concrete participants.

[2] Endurant/perdurant dichotomy is also present in Sowa's Ontology, Basic Formal Ontology (BFO), see (Smith, 2012), Descriptive Ontology for Linguistic and Cognitive Engineering (DOLCE), see (Borgo et al, 2006, 3), The Suggested Upper Merged Ontology (SUMO), see (Niles and Pease, 2001), and many others ontologies.

[3] The Web Ontology Language (OWL) is a family of knowledge representation languages for authoring ontologies. They are built upon the World Wide Web Consortium's (W3C) XML standard for objects called the Resource Description Framework (RDF).

- *C4 - Structural components of temporal entities*. This, possibly less salient, type is inspired by the Audio Features Ontology, which has a common creator with the Event Ontology. These events are "more arbitrary" than those falling under other categories and can be viewed as "regions", however, as merely temporal (and not spatio-temporal) ones. (Hanzal, Svátek and Vacura 2016, 193).

In section 5, I follow their distinction between *action* and *happening*. I distinguish between two types of activities: activities as actions that are performed by the deliberate agent, and activities as happenings that make something happen without being initiated by a deliberate agent.

If we are concerned with the conceptualization of processes, there are two ways of approaching processes in philosophy and logic. John Sowa (2000, 213-214) distinguishes between *continuous* and *discrete* processes. In the discrete process, changes occur in discrete steps called *events*, interleaved with periods of inactivity called *states*. According to Sowa, an event is part of the discrete process where some change is realized and leads from one state to another.

On the other hand, in the *continuous* process, changes take place continuously. When a continuous process has an explicit starting point, Sowa calls it an *initiation*, one with an ending point is a *cessation*, and one whose endpoints are not being considered is a *continuation*. Sowa's approach is based on the distinction between continuous and discrete change. Discrete processes are typical for computer programs[4] or idealized approximations of physical processes.

The approach to processes as continuous entities is close to the approach of Rowland Stout (2018, 1-3) in the analytical philosophy of mind. He has developed a conception of ongoing processes as dynamic continuants. He notes that the philosophy of mind and action has traditionally treated its

[4] A similar approach is applied in informatics representations for discrete processes known as state-transition diagrams and Petri nets. In state-transition diagrams, states are called uniformly. They are graphically represented as circles, while changes of states are called *transition* and are graphically represented as arrows that connect the circles. In Petri nets, states are called *places*, and changes between them are called *transitions*.

subject matter as consisting of states and events, and completely ignored the category of the ongoing processes. For example, in the functionalistic Turing machine model, the mind is treated in terms of states, and the place for mental occurrences is only as state transitions.[5] Rowland Stout comes from linguistics and distinguishes two basic occurrences: *ongoing process* and *completed event*. This distinction is based on the distinct perspectives we have when thinking about occurrences and is reflected in language by means of the linguistic aspect. To describe the ongoing process, we use a progressive aspect, and to describe the completed events, we use a perfective aspect. Compare the following two sentences:

a) 'I was delivering' a lecture this morning.
b) 'I delivered' a lecture this morning.

In sentence a), we think about the occurrence of giving a lecture as something that was happening for a certain period of time and was happening at every moment during that period. We are thinking about occurrences from the inside. We use the progressive aspect in English. In sentence b), we think about the lecture as a completed event extended over some respective period of time. We are thinking about occurrence from a temporal perspective. We use the perfective aspect in English. Stout points out that especially for the purposes of metaphysics of the mind, a proper understanding of mental processes as ongoing processes is required to understand subjective experience and agency.

Terminological ambiguities arise as in a number of approaches, the concepts of process and event overlap, and these terms are treated as synonyms. Bach (1983) called events, states and processes collectively *eventualities*, while Barwise and Perry (1983) used the term *situation* in this context. Sowa specifies events as parts of the process where one state is changing into another state. Stout suggests that in natural language, we often use the term *event* (as opposed to the term process) to mark the distinction we are after.

Whether we may describe the processes as a series of transitions and states, or as ongoing continual processes, depends on the problem to be solved via the proposed ontology. Antony Galton (2018) suggests that there

[5] Compare this approach with John F. Sowa's discrete processes.

is a possibility to share both views to process. Galton describes as an example a situation that 'Pat sets off from home to the station in 8.30 a.m. and arrives at the station 15 minutes later'.

> This situation can be presented experientially, in answer to the question 'What is Pat doing?', or historically, in answer to the question 'What did Pat do?'. The most direct answer to the question 'What is Pat doing?', if asked at any time between 8.30 and 8.45, is 'Pat is walking'. This identifies an open process WALK which Pat is currently realizing. Similarly, the most direct answer to the question 'What did Pat do?' (where the time which is being asked about is presumably implicit in the question context) is 'Pat walked'. This identifies an event which is a 'chunk' of the open process WALK: Pat started walking, walked for a while, and then stopped walking. Any realization of the process WALK must take the form of an occurrence of an event which is a chunk of that process, but in describing it in this way we are saying nothing about how that chunk is bounded, only that it must be bounded in some way. (Galton 2018, 55)

The conceptualization of processes as ongoing continuants or as discrete steps of states interleaved by the transitions of change depends on the problems to be solved by the proposed conceptualization. To avoid terminological ambiguities, I will use the term 'transition' instead of Sowa's term 'event' when describing processes as discrete steps. From a linguistic point of view, we mostly use verbs to express activities that trigger processes. If ontologies tend to be based on natural language, a closer look at the meaning of verbs is needed for conceptualization purposes. In the following section, I will introduce the theory of verb valency frames and Sowa's thematic roles in this context

4. The category of the valency participant as relations-in-intension

As stated above, ontology is based on abstraction. It depicts the basic concepts of the domain of interest, their properties and attributes, and the

crucial relations. Ontologies can be more easily shared if we respect the role of concepts in natural language. These strategies for building ontologies, in general, are also relevant to process ontologies.

According to Tichý (1980), the event is expressed in natural language in the sentence where an *episodic* verb occurs. Tichý distinguished between *episodic* and *attributive* verbs. Episodic verbs (e.g., 'drive', 'tell', etc.) express the actions of objects or people. In contrast, *attributive* verbs (e.g., 'is dog', 'looks speedy') ascribe some empirical properties to individuals. Tichý's dichotomy of episodic/attributive verbs corresponds with the dynamic/stative dichotomy of verbs in linguistics, see for instance (Language Tool, n.d.). While *dynamic* verbs (also called action verbs or event verbs) indicate physical action (like 'jump' or 'play'), *stative* verbs convey a state of being or condition (like 'prefer' or 'have'). A major difference between dynamic and stative verbs is that stative verbs cannot be used in progressive (continuous) tenses in English. However, depending on the context, some verbs can be both dynamic and static.[6]

Based on the linguistic approach, the semantics of the respective verb is provided via its valency frame. If we want to base an ontology on the role of concepts in natural language, it could be useful to utilize the verb valency theory as a framework for conceptualizing processes. Verb valency is the ability of a verb to bind other formal units. It determines the number of arguments, so-called verb valency *participants*, controlled by the verbal predicate. These participants can play different roles. There are many classifications of the participants' categories, for instance, the Czech valency dictionaries VALLEX and Verbalex.[7] John Sowa also provides his own classification and uses the term *thematic roles* for the verb valency participants.[8]

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[6] Compare the verb 'have' in the following two sentences: 'I have a lot to tell you.' / 'I have' as the stative verb versus 'I am having lunch at 12 PM if you want to join.' / 'I am having' as the dynamic verb.

[7] VALLEX is being developed by the Institute of Formal and Applied Linguistics, Faculty of Mathematics and Physics, Charles University Prague. Verbalex is being developed by the Natural Language Processing Centre Faculty of Informatics, Masaryk University Brno.

[8] A summary of all types of thematic roles can be found in (Sowa 2000, 506-510). Three approaches to classification, according to the two valency dictionaries for the

Sowa developed the system of conceptual graphs, which are specified in (Sowa 1991b, 157), as the system of logic for representing natural language semantics. Unlike predicate calculus, which was designed for studies in the foundations of mathematics, conceptual graphs were designed to simplify the mapping to and from natural language. They are based on a graph notation for logic first developed by the philosopher and logician C. S. Peirce. The conceptual graph is represented as a labelled bipartite graph. Apart from the graph notation, there is an equivalent linear notation where boxes for concepts are represented by square brackets, and the circles for conceptual relations are represented by parentheses. Sowa distinguishes between several types of thematic roles. Below, there are examples of thematic roles of type *Agent* (Agnt), *Destination* (Dest), and *Patient* (Ptnt):

Agent as an active animate entity that voluntarily initiates an action, example: *Eve bit an apple*:

[Person: Eve] ← (Agnt) ← [Bite] → (Ptnt) → [Apple],

Destination as a goal of a spatial process, example: *Bob went to Danbury*:

[Person: Bob] ← (Agnt) ← [Go] → (Dest) → [City: Danbury],

Patient as an essential participant that undergoes some structural change as a result of event, example: *The cat swallowed a canary*:

[Cat: #] ← (Agnt) ← [Swallow] → (Ptnt) → [Canary: #],

and so on. For details, see Sowa (2000, 508-510).

In addition to above Sowa's participants in the example, we can distinguish other verb valency participants such as *Manner* as a manner of activity execution (example: measure, speed etc.)), *Beneficient* as somebody who has a benefit from an activity, *Direction 1* as the direction from where, *Direction 2* to describe which way, *Direction 3* to describe where to, and many others. When building an ontology, the number or the respective types of participants depends on the problems the concrete application has to solve.

Czech language VALLEX and VerbaLex and John Sowa's approach, are compared in detail in (Číhalová 2011).

From the logical point of view, we can deal with the category of the participant as denoting a relation-in-intension between the concept expressed by the dynamic verb and the object that plays the role of the participant. These relations should be specified as intensions because their value depends on the possible world and time.[9]

In the following section, a revised process ontology is introduced based on the theory of verb valency frames and John Sowa's approach.

5. Analysis of processes based on the verb valency frames

A proposed approach for determining the ontological category of concept is the differentiation between the *static* and *dynamic* parts of the respective domain of interest. The static part of the domain is made up of simple and non-decomposable unique objects and their characteristics, and the dynamic part is made up of the activities and their participants.

The static part comprises entities as logical individuals, characterized by their properties, attributes, and relations between them. Relations can be extensional (mathematical relations such as '$1 < 2$'), or intensional relationships as 'Peter is higher than Tom'). Based on the temporal aspect, it could be useful to distinguish between *substantive* and *accidental* characteristics of individuals. *Substantive* characteristics are those that individuals have nomically necessarily. This means that in the respective possible world, the individual has these characteristics (properties) during his/her/its whole existence. 'Being a person' is, for example, the substantive property of an individual. These properties in ontology usually form so-called ISA relationships, as in the example 'every apple is a fruit', 'every person is a mammal'.

In contrast, *accidental* characteristics are possessed by individuals purely contingently. The property of being a student is, for example,

[9] In the background theory of Transparent Intensional Logic (TIL) we view α-intensions as functions mapping possible worlds (of type ω) to type β. Type β is frequently the type of chronology of the elements of type α. These α-chronologies are, in turn, functions mapping time (of type τ) to type α. Thus, α-intensions are usually mappings of type $(\omega\rightarrow(\tau\rightarrow \alpha))$, or in TIL notation $((\alpha\tau)\omega)$,$\alpha_{\tau\omega}$ for short. The foundations of TIL can be seen in (Duží et al. 2010).

accidental; one and the same person contingently becomes a student or stops being a student. Other accidental characteristics of the person-type individuals can be, for example, attributes such as 'weight', 'height', 'age', etc. The value of accidental characteristics is time-dependent.

The dynamic part is made up of activities, i. e. concepts linguistically detected by some special types of verbs called dynamic verbs.[10] Compare the following two sentences describing two processes: 'Apple is turning red', 'Peter is running'. The phrase 'is turning red' express the activity of some apple. This activity is not intentional, because an apple is not a deliberative agent. On the other hand, the phrase 'is running' expresses an intentional action of Peter. Hazal, Svátek, and Vacura differ in these activities as *happenings* and *actions*. Hence, the activity can be a happening or an action, depending on non/deliberative agency.

Each activity has an agent (who/what is doing the activity) and can involve other objects called participants, such as *Patient*, *Manner*, *Destination*, etc. The respective type of participant expresses the role that a noun phrase plays with respect to the activity described by the governing verb. It can be specified as the relation-in-intension between an activity and the concrete object that plays the role of the respective participant. The number and the categories of the participants depend on the respective domain of interest and the functions of the application or the system of agents. [11]

In the discrete specification of process, we can define a simple process as an ordered sequence of state 1, transition, and state 2. Processes could be compounded from two or more simple processes. A state as a particular state of affairs denotes a proposition, i. e. a truth value depending on the

[10] In contrast, static verbs (e.g. 'is dog', 'looks speedy') ascribe some empirical properties to individuals. They express the accidental or substantive characteristics of individuals according to above mentioned.

[11] Note, that the static/dynamic part of domain dichotomy is not the same as the occurrent/continuant dichotomy in standard ontologies. In (Sowa 2000, 77), "occurrent categories are characterized by a predicate that depends on time or a timelike succession". According to this approach, it is problematic to capture the fact, that the property of 'student', or an attribute of 'veight' are predicates depending on time, however their bearer is not the event. The dichotomy static/dynamic corresponds with the distinction of individuals and their activities in natural language.

possible world and time. A transition, as a change from $State_n$ to $State_{n+1}$ also denotes a proposition.[12] As a simple example, consider these two processes P1 and P2:

> P1: $State_1$: Peter is standing; Transition: Peter starts running; $State_2$: Peter is running.
> P2: $State_1$: Apple is green, Transition: Apple turns red, $State_2$: Apple is red.

Each more detailed specification of some state or transition can contain other clause members based on the valency of verbs and nouns incorporated also in the static part of the domain. For instance, $State_1$ in the P1 can be described in more detail by other characteristics of the individual and his activity, such as in the example '30-year-old Peter is standing at the station'. The ontological categories of concepts are the following:

- '30-year-old': It is an accidental characteristic of individual Peter, from the logical point of view, it is the value of the attribute 'Age' of individual Peter.
- 'At the station': It is the characteristic of running activity, precisely a participant of type *Destination*. From the logical point of view, *Destination* is the relation-in-intension between activity 'is standing' and some *x,* which is the station.

$State_1$ in the P2 can be described in more detail by other characteristics, such as 'Apple on the table is green'. The ontological categories of concepts are the following:

- 'Apple': substantive characteristic, from the logical point of view it is the predicate of some *x*.
- 'Is green': accidental characteristic, from the logical point of view, it is the value of the attribute 'Colour' of some *x*.
- 'On': the relation-in-intension between *x* (characterized as an apple) and *y* (characterized as a table).

[12] The state usually has some temporal length and we can characterize it as an interval. Depending on the needs of the domain of interest, we can characterize the transition with a zero temporal length as the respective time point, or as an interval.

- ‘Table’ substantive characteristic of some individuals, from the logical point of view it is the predicate of some x.

The measure of the process’s granularity depends on the aims of the application that the ontology serves. To capture the speed changes of Peter’s running, we need to specify the process in more detail. Each speed change has to be captured by adding accelerate and decelerate actions to the ontology. So we can specify at first the $State_1$, where Peter is running at some speed, secondly the transition, where Peter accelerates, and finally, the $State_2$, where Peter is running at a higher speed.

Note, that not only transitions but also states can be specified by a certain activity and its participants, such as in the states ‘X is standing’, ‘X is going’, etc. However, states can be specified also by some entities with their accidental or substantive characteristics, such as ‘X is green’, ‘X is sour apple’, etc. In contrast, a necessary condition to specify a transition is some activity, i. e. action or happening. In other words, a transition is always produced by some activity.

The proposed approach is based on dividing the domain of interest into a *static* and a *dynamic* part. This dichotomy is based on some necessary idealization and may certainly be reductive. The world is too complex, however, and each conceptualization effort has to be reductive by its very nature. When performing conceptualization, we have to leave out the details which are not fundamental to our point of view and the aims of the intended application. However, for the purposes of conceptualizations based on natural language, this dichotomy had been successfully applied.

I suggested applying this ontology framework in a classification of the logical types of Wh-questions for multi-agent systems and the logical analysis of such questions in Transparent Intensional Logic (TIL). In (Číhalová, Duží, 2022), we proposed a new classification of Wh-questions that matches the logical structure of agents’ knowledge and the logical types of possible direct answers to Wh-questions. To this end, we distinguished questions about static entities, dynamic activities, and their characteristics. We can raise questions about activities, their participants, about substantive and accidental characteristics of objects, and, last but not least, the agents can ask for explication (refinement) of concepts themselves and thus learn new concepts and enrich their ontology.

We also have utilized this framework to provide the rules for converting natural language text into TIL-Script, the computational variant of TIL, see (Číhalová, Menšík 2021) and (Číhalová, Menšík, to appear). This function is part of the tool, which is used for appropriate textual information sources retrieval and natural language processing.

6. Conclusion

The proposed conceptual framework is based on the concept of *activity* (action or happening) and the theory of verb valency frames. If we want to build an ontology close to natural language and involve processes, it is useful to divide the domain of interest into a *static* and *dynamic* parts. The static part includes logical individuals and their substantive or accidental characteristics, and relations. The dynamic part includes activities and their participants. For the analysis of activities, it is useful to proceed from the valency of verbs and specify the relevant types of participants as a relations-in-intension between the activity and the involved objects.

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RESEARCH ARTICLE

Prior and Tichý's Concepts of Temporalism

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Abstract: At the beginning of modern logic, propositions were defined as unchangeable entities placed in a certain idealistic realm. These unchangeable propositions contain in themselves so-called indexical, i.e. the place, time and other circumstances of the utterance. This concept of the proposition, which is entitled eternalism, was and is still prevalent among analytic philosophers. Often even the term 'proposition' is identified with an idealistic entity located outside the real world. In my paper, I would like to focus on the concept of propositions of two logicians who deviated from the standard understanding of propositions, Arthur N. Prior and Pavel Tichý. They were both proponents of temporalism, i.e. the view that propositions could change their truth-value over time. The paper will discuss the reasons why they were proponents of temporalism and compare their views. It claims that in Prior's case, his metaphysical views were the main reasons he was a proponent of temporalism. In contrast, when Tichý presented his arguments for temporalism, he focused primarily on natural language.

Keywords: Temporalism; Eternalism; Arthur Norman Prior; Pavel Tichý; Time; Natural language.

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1. Introduction

In the analytic philosophy of language and logic, the concept of proposition played an important role from the very beginning. They are bearers of the truth-value, the meaning of sentences or objects of propositional attitudes such as beliefs, wishes or knowledge (see McGrath and Devin 2020). As Ciecierski (2022, 15–17) points out, propositions differ from sentences. A proposition stands for content that several sentences describe. For example, the sentence in Czech 'Linus je na rohožce', and the sentence in English 'Linus is on the mat' or the English question 'Is Linus on the mat?', represent the same state of affairs, i.e. my brother's kitten named Linus is placed on a certain piece of cloth.

The proposition 'Linus is on the mat' could be seen from two perspectives, with respect to philosophical tradition. The tradition that follows e.g. Bernard Bolzano and due to Frege is prevalent in analytic philosophy, would view any appearance of the proposition as unique. I could utter such a proposition that I saw my brother's kitten on its mat yesterday evening and also when I inform my brother today about a similar situation. According to the previously mentioned tradition, it would be understood as a unique proposition each time, as it contains indexicals in itself such as the date, place of utterance and the person who claimed it, however. Propositions, in the view of eternalism, are stable entities often placed in a certain kind of idealistic realm. An eminent representative of this approach is Frege's concept of propositions (see McGrath and Devin 2020). Consequently, when I say 'Linus is on the mat' now, it would mean 'Linus is on the mat at noon on 8 June 2022 by CET'.[1]

The other tradition would understand any utterance of 'Linus is on the mat' as the same proposition that could, however, change its truth-value in accordance with reality. The proposition could be true if Linus is on the mat and false if the kitten gets up to mischief somewhere else. The proponents of this view hold that propositions can change their truth-values over time. Representatives of the view were Aristotle, certain ancient and

[1] Central European Time (UTC+1).

medieval philosophers and also Arthur Norman Prior and Pavel Tichý[2] (see Brogaard 2012, 6; Tichý 1980b). The fact that the proponents of the latter tradition claim that certain propositions could change their truth-value over time does not mean that they argue that all propositions can change their truth-value. The proposition – 'World War Two started on 1 September 1939' is true, for example, since it was the beginning of World War Two and will be true until the end of time.[3] As Brogaard (2012, 14–16) points out, propositions that contain a certain specification of time in itself usually have a fixed truth-value.

The term 'proposition' has no fixed meaning in philosophy. One could argue that what Prior, Tichý and other representatives of temporalism refer to when they claimed that it could change its truth-value was not a proposition at all. Consequently, the bearers of the truth-value are different entities in their theory. Prior (1996b) even sometimes used the term 'statement' instead of 'proposition' when he referred to the bearer of the truth-value. The point is, however, that both were also logicians and when they addressed entities that could change their truth-values over time, they described entities that play the role of propositions in their systems of logic. Namely, propositional variables stand for these entities in Prior's (1958, 106) systems of logic, and the ascription of the truth-value with respect to time instant and possible worlds is a characteristic of propositions in Tichý's (1988, 194) Transparent Intensional Logic (further TIL).

As among in all probability all competing theories in philosophy, a discussion has developed between proponents of eternalism and temporalism on the priority of their theories. However, this paper will not argue for any side of the discussion. Its aim is to present two concepts of temporalism, Prior and Tichý's ones. The reasons for such a presentation are two. First, temporalism is less common in analytic philosophy than eternalism, and therefore the

[2] There were more proponents of temporalism in modern analytic philosophy, e.g. Richard Montague or David Kaplan (see Richard 1981, 1–2).

[3] One could distinguish between several possible worlds in which the proposition will not be true as World War Two began there at some other time or there was no World War Two at all. This would be Tichý's approach (see e.g. Tichý 1980a, 348–352). Prior (1968) was more modest concerning the ontological commitments of his theories, as will be discussed further.

position has to be more elaborate than the position which is mainstream in analytic philosophy. Second, Prior and Tichý provided different reasons for temporalism; for the sake of metaphysics in the case of Prior, or for the sake of natural language in the case of Tichý. As such, they represented two reasons for temporalism identified by Brogaard (2012, 8). Since Tichý presented his position later than Prior and to some extent developed Prior's views, Prior's concept of temporalism will be presented first and Tichý's later.

2. Prior's concept of temporalism

Prior (1996b, 47–48) referred to his concept of propositions as a view of ancient and medieval authors. He claimed that this concept of propositions is more fundamental than the concept of tenseless propositions of eternalism. Proposition whose truth-value remains the same as the previously mentioned proposition 'World War Two started on 1 September 1939' is merely a proposition that is always true by chance (or always false as the proposition 'World War Two started on 1 September 1938'). Prior's reasons for temporalism vary in four different areas. The most important were the reasons based on metaphysics. He claimed, however, that temporalism is also advantageous from the perspective of natural language, philosophy of mind, or specific use in computer science.

2.1. Metaphysics

Metaphysical reasons for favouring temporalism appear to be the most important for Prior. He strived to vindicate free will for a considerable part of his life. It was also his main motivation for introducing and developing his system of temporal logic (see Copeland 2022). Temporalism contributed to this endeavour. His choice of temporalism was, however, also motivated by his nominalism. In Prior's work, three reasons that favour temporalism can be identified; the ontological concept of propositions, the fact that eternalism implies a tapestry view of time and the view that there is a real difference between the past and future.

Frege (1956, 301–302) placed propositions in his renowned 'The Thought' in the third realm. In his view, propositions are neither part of

the physical nor of the psychological world. They cannot be experienced and are not just parts of our consciousness. Prior as a nominalist held a different concept of propositions. He argued that propositions are only logical constructions (see Prior 1971, 12–13). He denied that they are eternal objects placed in a certain kind of Platonistic realm. However, there were also proponents of eternalism, e.g. Willard Van Orman Quine (1968, 3–8), whose concept does not require Frege's third realm. Consequently, if nominalism were only Prior's reason for reintroducing the medieval concept of propositions, the proposal does not seem convincing. Despite the fact that the placement of propositions into the Platonistic realm is an important part of Frege's (and also Bolzano's) concept of propositions, it does not seem essential to eternalism. However, Prior had several other reasons for favouring temporalism.

Another metaphysical reason consists in Prior's concept of time. According to Prior (1996b, 47–48), time is dynamic. Any state of affairs that was once expected in the future is in one unique moment present and then shifts to the past. He (1996a, 45) also pointed out that time is not an object, but all entities that exist, exist in time. This view is in opposition to the tapestry view of time. The tapestry view of time is the concept in which a time-line is observed from the position of God. In this concept, all events as well as all entities that existed in the past, exist at present or will exist in the future possess a certain kind of existence (see Prior 1996b, 47–48).

Eternalism is linked to the tapestry view of time, as the propositions in this concept are stable and static, similar to the static time-line seen from the perspective of God. If my utterance: 'Linus is on the mat' is understood as 'Linus is on the mat at noon on 8 June 2022 by CET', the proposition is static and timeless. On the contrary, propositions such as 'Linus is on the mat' can dynamically change their truth-value with respect to the current position of the kitten in temporalism. Unlike eternalism and the tapestry view of time, temporalism take time seriously.

Denying the tapestry view of time, Prior also used another metaphysical position, namely logical realism.[4] Logical realism is the view that logic concerns reality. As Prior (1996a, 45) claimed in the introductory sentence of

[4] The view also impacted the formulation of Prior's temporal logic as Jakobsen (2020) argued in his paper.

his paper 'A Statement of Temporal Realism': "Philosophy, including Logic, is not primarily about language, but about the real world." As was already mentioned Prior (1996a, 45–46) argued everything that exists, exists in time. Therefore, if time is dynamic and logic could concern reality, it is more natural to describe reality from the perspective of presentism when once present event became far and far past, and temporalism where propositions are at a certain time true and then false.

Temporalism plays a role in another feature of time important to Prior. Prior believed that there is a genuine distinction between the past and the future. The distinction is essential for the cornerstone of Prior's metaphysics, his vindication of free will. While what happened in the past is already settled, the future is partially open, according to Prior. He (1996b, 48) argued:

> This belief, or prejudice of mine, is bound up with a belief in real freedom. One of the big differences between the past and the future is that once something has become past, it is, as it were, out of our reach - once a thing has happened, nothing we can do can make it not to have happened. But the future is to some extent, even though it is only to a very small extent, something we can make for ourselves. And this is a distinction which a tenseless logic is unable to express.

This openness is crucial for contingency in the future and consequently enables free will. As Prior argued in the quoted fragment, this difference cannot be stated in the tenseless language of eternalism.

As was already mentioned, the question of free will was central to Prior's philosophy and logic. There were, however, different stages of its reception by Prior. Copeland (2022) stressed that Prior began as an opponent of free will for the sake of religion. He switched his position entirely, however, in his mature work. First, he introduced temporal logic as a tool for formulating arguments against determinism. Second, Prior argued that God's omniscience problematizes the existence of free will. This could have contributed to Prior's distancing from the Presbyterian Church (see Øhrstrøm, Hasle and Jakobsen 2022).

2.2. Natural language

When Prior argued that certain metaphysical views cannot be expressed in the tenseless language of eternalism, he overlapped with the second area that is mentioned in the debates between temporalism and eternalism, natural language. Although natural language was not as important to Prior as was the metaphysics of time, he (1959) included one of these issues in the title of one of his papers: 'Thank Goodness That's Over'.

In the paper, Prior (1959, 17) argued against eternalism pointing out that supposing time indexicals appear paradoxical in certain propositions. Namely, the proposition 'Thank goodness that's over' is perfectly clear without the addition of any indexical. On the contrary, the addition of the appropriate indexical causes its paradoxicality, since it would be either 'Thank goodness the date of the conclusion of that thing is Wednesday, 8 June 8 2022' or 'Thank goodness the latest part of that is earlier than this utterance' (see Prior 1996b, 50).

2.3. Other reasons for temporalism

Apart from metaphysics and natural language, Prior also mentioned reasons for supporting temporalism from the philosophy of mind and practical use. First, Prior (1959, 17) claimed that adding a precise date to a proposition could be troublesome, as people are not always aware of the time when they assert something. However, this does not affect the soundness of their utterance. Second, Prior assumed that temporalism might be useful in computer science. He (1996a, 46) argued:

> There are practical gains to be had from this study too, for example in the representation of time-delay in computer circuits, but the greatest gain that a logic of tenses brings is the accurate philosophical description of the reality of the passage of time.

3. Tichý's concept of temporalism

In his concept of temporalism, Tichý was undoubtedly affected by Prior and the Priorean tradition. Tichý (1980b, 167) described his position as the

concept of ancient and medieval logicians similarly to Prior, and quoted his works, discussing temporalism. He (1980b, 174–177) also critically addressed the analysis of 'now' developed by Prior and his colleagues.

Despite Tichý's main focus differing from that of Prior, temporalism also plays a key-role in his concept of propositions. It is included in the concept of propositions in his system of logic TIL. TIL is typed calculus. The four basic types are:

ο - the class of truth-values (truth and falsehood)
ι - the universe of discourse, which is the class of individuals
ω - logical space, which is the class of possible worlds
τ - time-scale, which is the class of moments of time

Propositions are defined in TIL as (οτ)ω, i.e. they obtain truth-value with respect to a specific moment of time *t* and the possible world *w*. However, not every proposition has to have a truth-value. It could be the case (for instance, if Linus does not exist at a specific moment in time or possible world*)* that the proposition 'Linus is on the mat' will obtain no truth-value, i.e. there will be a truth-value gap (see Tichý 1980a, 348–349). The proposition 'Linus is on the mat' is true in all possible worlds and moments of time where the state of affairs (Linus is on the mat) is actualised. The proposition consequently changes its truth-value over time (and across possible worlds) (see Tichý 1980b, 166).

Natural language was at the centre of Tichý's interest. TIL is a precise tool that could grasp many subtleties of it (see e.g. Tichý 1980a). Natural language also occupies a prominent position in his arguments for temporalism. Although metaphysics and philosophy of mind are also mentioned, the most elaborate arguments are based on the aspects of natural language. Natural language will therefore be introduced in the former part of this section and the other arguments for temporalism in the latter.

3.1. Natural language

Tichý (1980b, 167) pointed out that, unlike previous centuries in analytic philosophy, "[t]ruth has been declared timeless, permanent, eternal" and argued against this view. He wondered whether the approach that was for centuries evident to logicians and philosophers of language really called

for denial only for the sake of logical convenience, especially, if everyday usage of natural language supports temporalism. He listed several examples that support his claims.

First, Tichý pointed out that in our daily communication people behave as if referring to the same proposition changes its truth-value. If my brother asks me: 'Is Linus on the mat?', I could answer 'Yes' or 'No', but my answer could also be more elaborate. If the kitten has recently changed its position, it is quite common to answer: '*It* was true a minute ago but *it* is no longer true.' Such sentences suggest that the pronoun 'it' stands for a proposition in the temporalists' understanding of the term. It is once true and then false. The proponent of eternalism would not use this sentence, as the pronoun 'it' would refer to two different propositions 'Linus is on the mat at 12:00 on 8 June 2022 by CET' and 'Linus is on the mat at 12:01 on 8 June 2022 by CET', in their view.

Second, people often have contrafactual wishes. For example, I could wish that Linus was on the mat at the moment when it was actually nibbling my laptop on the table. As propositions are also objects of propositional attitudes, the object of my wish is the proposition 'Linus is on the mat', which is false in the given situation. However, I could express my dissatisfaction with Linus' behaviour and it could go to its mat. Then my wish would come true and so the proposition 'Linus is on the mat'. Tichý (1980b, 168) argued that in situations like this, one could assume that there are not two propositions involved, but just one that changed its truth-value.

Third, Tichý (1988, 189–191) claimed in eternalism that it is difficult to express time-telling propositions, if every proposition should contain indexicals. The proposition 'It is noon' would then be 'It is noon at noon on 8 June 2022 by CET' in eternalism, which is absurd. Tichý (1980b, 167–169) stressed that eternalism was motivated by logical convenience, but sacrifices linguistic and epistemology for this sake. He (1980b, 169) argued: "If we do not want to trade time-telling for logical convenience we should see Russell's approach as inadequate."

Finally, Tichý (1980b, 178–179) claimed that the proponents of eternalism differentiated between the two uses of the verb 'is'. In the proposition 'Linus is on the mat', 'is' is *tensed*, as it means 'is now', while in the proposition 'Linus is on the mat at noon on 8 June 2022 by CET', 'is' is

'tenseless', i.e. eternally true. Tichý argued that there is a lack of sufficient arguments for postulation of such a distinction. He maintained that 'is' is always tensed, i.e. true at a certain time, even though in special cases, such as mathematical equations, it means being true at every moment of time.

3.2. Other Reasons for Temporalism

Similarly to Prior, Tichý also pointed out reasons for temporalism from metaphysics and philosophy of mind. Both are connected, however, with issues of natural language. First, when Tichý argued against the tenseless understanding of 'is', he also pointed out that it implies the tapestry view of time and that this concept of time is wrong. He (1980b, 179) claimed:

> Natural language is meant for time-bound speakers, not for atemporal gods. Accordingly, it knows only one "is" of predication, the one which is redundantly called "tensed". And there are, incidentally, no atemporal gods: an alleged being that is not at any particular time is not at all.

Second, Tichý (1988, 191) also acknowledged that people sometimes know when something will happen, but do not know that the time is now or vice versa. Tichý used Robinson Crusoe's case as an example. If Robinson Crusoe was oblivious as to what the date is and possessed astronomy books, he could deduce from them that there would be an eclipse of the moon on 1 January 1987 at 10 p.m., i.e. that the proposition (i) 'The moon is eclipsed on 1 January 1987 at 10 p.m' will be true. However, if the sky was overcast that day, he might not have noticed that the proposition (ii) 'The moon is eclipsed' is true, although he would know that (i) is true. On the other hand, if Robinson Crusoe had no astronomy books and the sky was clear, he could see that the proposition (ii) is true without knowing that (i) is also true. In this case, the propositions (i) and (ii) would be different propositions.

4. Tichý's Criticism of Prior's Approach

As was already mentioned, Tichý knew and quoted Prior's work. The evidence is based on inter alia on Tichý's critique of the analysis of complex

time reference that occurred in Prior's work and the work of his colleagues. Tichý (1980b, 174–177) criticised a position entitled 'double indexing'. This consists of adding an operator 'N' for 'now' in the formalisation of propositions containing complex depictions of time including 'now'.[5] Namely, he argued that the propositions as 'It will be the case that Linus is on the mat now' are formalised as:

F(N(p))

in the work of Prior and his colleagues. The operator 'N' stands in the formalisation for 'now' the operator 'F' stands for 'it will be the case' and the propositional variable for the proposition 'Linus is on the mat'.

The formalisation means that the truth-value of the proposition is evaluated with respect to two time instants 'now' and the future one. This analysis violates Tichý's concept of propositions understood as functions whose input is the respective time and a possible world and the output is a truth-value as there are two times that have to be considered.

Tichý claimed that propositions such as 'It will be the case that Linus is on the mat now' make sense only if it is already known what time 'now' is, e.g. noon on 8 June 2022 by CET. Therefore, the proposition 'It will be the case that Linus is on the mat now' represents the proposition 'It will be the case that Linus is on the mat at noon on 8 June 2022 by CET' which does not require double indexing.

Tichý also challenged the view that there could be a difference between the truth-values of *p* and *N(p)*. Despite the proponents of double indexing vindicating this difference, Tichý argued that it would be difficult to find a proposition in which this could be the case.[6] It would not be the propositions 'Linus is on the mat' and 'Linus is on the mat now' as the former would be true at any time the latter is and vice versa. Consequently, double indexing is superfluous, according to Tichý, and since it also violates his concept of propositions, he denied it.

[5] In Prior's (2003, 178) paper, the operator 'J' is used for 'it is now the case'. This might be caused by the fact that Prior used Polish notation and 'N' stands for negation in this notation.

[6] As will be demonstrated further, it is not the case in Prior's system of temporal logic.

Prior (2003, 171, 174) claimed that his temporal logic originally lacked the operator for 'now' as he viewed the present tense as redundant. Hans Kamp, however, pointed out to Prior the importance of this operator. Prior (2003, 175–176) argued that in cases when the time reference is complicated, the addition of the operator for 'it is now the case', could be useful. Prior does not have in mind simple propositions such as 'It will be the case that Linus is on the mat now', but a more complex pair such as:

> 'It is now the case that I will later be glad that I am writing the paper now.'

and

> 'It is now the case that I will later be glad that I am writing the paper then.'

where the use of the operator for the present could help to grasp the difference between these two propositions. The former proposition concerns my current work on the paper, but the latter concerns my work on the paper in the future.

The propositions that Tichý proposed and their formalisation in temporal logic cannot express the difference as Prior's (2003, 178–179) system contains as theorems:

$p \leftrightarrow N(p)$
$F(p) \leftrightarrow F(N(p))$

Prior (2003, 176) admits that although there are cases, in which 'now' is not redundant, the propositions in which it appears could be reformulated to such a form that 'now' becomes redundant. He views the operator 'now', however, as an enrichment of his system of temporal logic.

As was already mentioned, Prior had a different concept of proposition than Tichý. Propositions are logical constructions, according to him (see Prior 1971, 11–13). True propositions could be replaced by facts, i.e. 'Linus is on the mat is a true proposition' could be replaced by 'Linus is on the mat is a fact'. However, both propositions mean the same since the proposition 'Linus is on the mat'. No proposition is an abstract entity placed in the third realm. The proposition 'Linus is on the mat is a true proposition' is not about an abstract object but also about the position of the kitten.

In addition, Prior denied the existence of possible worlds and time instants. In his view, there are only world-propositions and instant-propositions. Prior defined world-propositions as follows:

> … a "world" proposition is a *maximum* proposition; if we conjoin with it the least thing that it does not imply we shall have a contradiction, since among the things it does imply will be the negation of the added item. (see Meredith and Prior 1965, 102)

Similarly to instant-propositions, in their case the conjunct at a specific time is taken into account. From the distinction between world-proposition and instant-proposition, it is also obvious that Prior considered only one parameter in his systems of logic. In temporal systems of logic, it is just respective time or times, but not possible worlds.

Therefore, he could have considered the introduction of the operator for 'now' as an interesting enrichment to his system without causing any problem to his concept of proposition. He would agree with Tichý that the use of the operator is not indispensable. However, Tichý's criticism does not entirely address Prior's aim since the introduction of the operator for 'now' was driven by more complex propositions than those presented by Tichý.

5. Conclusion

Temporalism was for centuries a prevalent view in philosophy. On the contrary, in analytic philosophy, the authors have preferred eternalism from its beginning. Certain analytic philosophers still provide, however, arguments for temporalism. The paper focused on two of them – Arthur N. Prior and Pavel Tichý and argued that Prior was driven more by metaphysics, i.e. the unacceptable metaphysical implications of eternalism, and Tichý was driven more by reasons of natural language. However, 'more' is an important word here. Prior also discussed the negative impact on natural language and Tichý on metaphysics, but these were secondary for them. Both logicians also introduced arguments from the philosophy of mind, and Prior pointed out that temporalism might have been used in certain applications in computer science.

However, their divergent concepts of temporalism also reflect Tichý's criticism of double indexing. While double-indexing opposed Tichý's concept of propositions, it does not cause any issue in Prior's one. Although it is not inevitable in Prior's systems of temporal logic, he viewed it and the operator 'N' that caused it as an enrichment of his system of logic.

The difference between Prior and Tichý is important from the point of view of evaluating of arguments for temporalism. Prior's temporalism is open to the same criticism, as is his dynamic concept of time and his vindication of free will. On the contrary, Tichý's concept has to face primarily criticism from the philosophy of language, where, for instance, Richard (1981, 2–6) pointed out that temporalism could also imply serious paradoxes. However, as Tichý's concept was considerably less known than that of Prior, the most of the criticism from the point of view of language was also addressed to Prior. Consequently, the last aim of my paper is to point out that Tichý is another unknown proponent of temporalism (if one intends to support this view) or another target of criticism (if one decides to question this position).

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RESEARCH ARTICLE

Testimonial Injustice and the Disquieting Conclusion: A Critique of the Critical Consciousness Requirement for Moral Culpability

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Abstract: In this paper, I will provide a critique of what I wish to call the "critical consciousness requirement" for moral culpability in Miranda Fricker's theory of testimonial injustice. In my view, this requirement is stronger than our usual "epistemic requirement" for moral culpability. If this is so, it is more difficult to hold agents morally culpable for their actions using Fricker's requirement. As I see it, this poses a significant threat to Fricker's overall theory. One of the key claims that I make in this paper is that the combination of Fricker's theory of testimonial injustice and her critical consciousness requirement for moral culpability leads to an undesirable outcome: a scenario where an injustice has been committed and yet nobody can be held morally responsible for it. This is problematic for this can be interpreted to mean that the combination mentioned above is committed to what I wish to call the "disquieting conclusion." Generalizing on the undesirable outcome mentioned above, we can therefore say that some injustices, like the ones entertained by Fricker, are morally permissible. If I am correct, there is only one viable option

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for Fricker: She must drop the critical consciousness requirement and adopt the weaker epistemic requirement for moral culpability.

Keywords: Critical consciousness; disquieting conclusion; Miranda Fricker; quality of will; testimonial injustice.

1. Introduction

In this paper, I will provide a critique of what I wish to call the "critical consciousness requirement" for moral culpability in Miranda Fricker's theory of testimonial injustice. In my view, this requirement is stronger than our usual "epistemic requirement" for moral culpability. If such is the case, then it is more difficult to hold agents morally culpable for their actions (or inactions) using Fricker's requirement. As I see it, this poses a significant threat to Fricker's overall theory. One of the key claims that I make in this paper is that the combination of Fricker's theory of testimonial injustice and her critical consciousness requirement for moral culpability leads to an undesirable outcome: a scenario where an injustice has been committed and yet nobody can be held morally responsible for it. This is clearly problematic, for in the worst-case scenario, this can be interpreted to mean that the combination mentioned above is committed to what I wish to call the "disquieting conclusion." Generalizing on the undesirable outcome mentioned above, we can therefore say that some injustices, like the ones entertained by Fricker in articulating her theory of testimonial injustice, are morally permissible (a conclusion that may go against our intuitive notions of blameworthiness and praiseworthiness in the sphere of human actions and interactions with each other (e.g., in testimonial exchanges between speakers and hearers)). If I am correct, there is only one viable option for Fricker. This is to drop the critical consciousness requirement and adopt the weaker, but hopefully more acceptable, epistemic requirement for moral culpability.

Essentially, this means that she should maintain that regardless of the systematic effect of a particular prejudice on individual agents due to their situatedness (i.e., their socio-historical condition), they can still be held morally culpable for the credibility judgments that they make. While this is a substantial concession on Fricker's part, I maintain that this is the only

way by which she can avoid the disquieting conclusion mentioned above, and thus, save her overall theory from a fatal flaw in its construal of moral culpability.

At the outset, it is important to note that this topic merits further investigation for at least three reasons. First, testimonial injustice is an injustice that harms people not only as epistemic agents (e.g., as givers of knowledge, as worthy participants in the process of creating knowledge) but also as moral agents. Suppose, for example, that we deny someone the right to be heard or the right to explain their position on an important issue based on a prejudice that we have regarding the social group that the person belongs to. By denying them that right, we would have, in effect, denied them as well of an essential part of their own humanity. After all, other things being equal, human beings possess rationality and autonomy, and these characteristics are constitutive of what it means to be a human being. Thus, an injustice of this kind cuts deeply since it affects the very core of what it means to be a human being. Second, as a concept, testimonial injustice provides us with a philosophical position that sheds some light on the intricate relationship between epistemology and ethics, between knowing and doing the right thing. This is so, because testimonial injustice may be seen as the result of an epistemic agent's failure to practice epistemic responsibility in the formation of their credibility judgments. This failure is significant because it harms not only the epistemic agent (e.g., the person who gives a low credibility rating to the other person's testimony because of some prejudice that they have) but also the other party involved. Finally, while Fricker's theory of testimonial injustice is a welcome contribution not only to epistemology, ethics, and politics, it still needs to be refined so that it can avoid being *overly* sympathetic to human beings' *situatedness* to such an extent that widely held prejudices at a particular point in human history can be a sufficient ground for waiving moral culpability.

Within this context, this paper is divided into the following parts. I will initially discuss Fricker's theory of testimonial injustice and along with this, Fricker's usage of the critical consciousness requirement for moral culpability. From there, I will discuss why Fricker's usage of the critical consciousness requirement leads to the disquieting conclusion. Finally, I will end this paper with some brief remarks on how adopting the epistemic requirement

for moral culpability does not lead Fricker to the same problems that arise in her adoption of the critical consciousness requirement for moral culpability.

2. Fricker on testimonial injustice

Let us begin our discussion of Fricker's position by looking at the following scenarios:

> (S1) Angus, who has been diagnosed with major depressive disorder, returns to work after taking a medical leave of absence. As he attends their department's monthly meeting, his suggestions for a project that he initiated prior to his leave are always waved away. In the end, his project is assigned to another individual.
>
> (S2) Ozzie, who has been diagnosed with bipolar disorder, informs her psychiatrist that she no longer has suicidal ideations. Her psychiatrist and her primary caregiver nod at her and ignore her as they talk about the new dosage and the effects of her medication.

In both of these cases, each individual experienced what Fricker (2007, 1) refers to as "testimonial injustice." This is so, for they were *undermined* in their capacity as sources of knowledge due to their hearers' *prejudice* towards mentally ill persons. Fricker (2007, 4) also refers to this phenomenon as "identity-prejudicial credibility deficit." Fricker (2007) claims that this occurs when a hearer gives a lowered credibility to a speaker despite the evidence that the latter is offering the truth due to the former's prejudice towards the social group that the speaker belongs to. The source of the prejudice here is a *stereotype* regarding a widely held attribute of a social group. In S1, for example, the stereotype that mentally ill persons are incapable of strenuous cognitive tasks led Angus' department head to disregard his proposals and assign his project to another member of their team. In S2, on the other hand, the stereotype that people with mental illness cannot take care of themselves led Ozzie's psychiatrist and her primary caregiver to continue their discussion without directly explaining to her the effects of her medication.

It is important to note that these two scenarios also show that testimonial injustice involves acts of *silencing* and *objectification*. In S1, we see an instance of silencing since Angus is no longer considered to be a trustworthy source of information. Hence, the members of his department pre-emptively banned him from the inquiry process. In S2, on the other hand, we see a case of objectification. Ozzie is considered as a mere source of knowledge (and not an active epistemic agent) and is not allowed to participate in the testimonial exchange.

At this point, we can already glean the epistemic and ethical components involved in testimonial injustice. Its epistemic component lies in how it is concerned with the exchange of knowledge between a speaker and a hearer. Its ethical component, on the other hand, lies in how it gauges the moral culpability of a hearer when he treats his sources of information in a testimonial exchange. Both components intersect since, as Fricker (Ibid.) states, to be fully recognized as a member of an epistemic community (i.e., to be recognized as an active participant in the exchange of knowledge) is a means of affirming one's humanity. She maintains (Ibid., 44):

> The capacity to give knowledge to others is one side of the many-sided capacity so significant in human beings: namely, the capacity for reason. We are long familiar with the idea, played out by the history of philosophy…that our rationality is what lends humanity its distinctive value. No wonder, then, that being insulted, undermined, or otherwise wronged in one's capacity as a giver of knowledge is something that can cut deep… (T)he epistemic wrong bears a social *meaning* to the effect that the subject is less than fully human. When someone suffers a testimonial injustice, they are degraded *qua* knower, and they are symbolically degraded *qua* human.

Given the aforementioned description of the harm caused by testimonial injustice, the question that arises now is how we can prevent this sort of degradation from occurring. Thus, we ask: "How do we prevent cases of testimonial injustice?" To address this, let us now introduce what Fricker (2007, 66) refers to as a "responsible hearer." For Fricker (Ibid.), a responsible hearer is someone who has trained their *testimonial sensibility* in such a way that allows them to check whether their credibility judgment of a

speaker's testimony is a byproduct of identity-prejudice. This involves the process of *habituation* on the part of the hearer so that it can become second nature to them to prevent themselves from committing testimonial injustice. As we can see, this description of how a responsible hearer develops their testimonial sensibility already hints at how Fricker uses the framework of virtue epistemology when she is dealing with cases of testimonial injustice. Such is the case, for as Fricker (2007) envisions it, the correction of testimonial injustice requires continuous socialization so that, in the end, a hearer can unreflectively prevent themselves from committing this form of injustice. With these being said, the prevention and correction of this kind of injustice is only possible if we have a responsible hearer which, in this case, translates into a virtuous hearer (i.e., a hearer who possesses and practices the virtue of testimonial justice).

At this point, it is important to note that Fricker recognizes that it may be impossible to develop the aforementioned virtue in full, or to even develop the virtue at all. It may be the case, for example, that our psychiatrist in S2 encounters patients whose combination of symptoms are unfamiliar to them. The psychiatrist may initially conclude, for instance, that these patients are only perpetuating an elaborate hoax. Yet, they may correct this initial testimonial injustice vis-à-vis a new class of mentally ill persons by further observing their behavior and arriving at the most appropriate plan for their care. Here, we can see how our psychiatrist hones their virtue of testimonial justice by practicing continuous self-monitoring and self-correction.

An instance, on the other hand, where the virtue may not be developed at all can be envisioned in the following scenario that Fricker (2007) uses as one of her examples:

> (S3) Marge Sherwood, who recently found her missing fiancé's ring in the possession of Tom Ripley, arrives at the conclusion that Tom killed Dickie. Mr. Greenleaf, Dickie's father, who recently heard from Tom that his son might have committed suicide refuses to believe Marge which eventually leads her to become hysterical.

In this scenario, Marge's suspicion is correct: Tom in fact killed Dickie. She knows this because she found Dickie's ring in Tom's possession. This is

significant since Marge gave Dickie that ring, and the latter promised her that he would never take it off. Thus, for Marge, even if Dickie is known to be an unreliable son to his father, and a known womanizer fiancé to her, she knows well enough about him (having lived with him for quite some time) in order to know some things about him (e.g., that he will not commit suicide). Unfortunately, Greenleaf, Sr. dismisses her suspicion, thinking that women tend to be emotional (and hence, for him, unreasonable) about such things. In this case, Fricker points out that the virtue of testimonial justice may not be developed at all if Greenleaf, Sr.'s socio-historical condition prevents him from being aware that there is gender prejudice involved in his assessment of Marge's testimony. What is interesting to note is that this shows us that for Fricker (2007), the existence of a critical consciousness regarding particular prejudices is required in order for the agent to practice the virtue of testimonial justice.

From the foregoing discussion, we can therefore say that Fricker (2007) adopts what I shall refer to as the critical consciousness requirement (henceforth CCR) for moral culpability. It is important to note that although Fricker herself does not provide us with a definition of critical consciousness, we can easily infer that "critical consciousness" (in CCR) involves the ability of agents to recognize, analyze, and eventually overcome (or correct) various forms of injustices and/or oppressive practices. This involves an overly complex understanding of *social power* in general, and of *identity power* in particular, in relation to various social structures and how they perpetuate various forms of injustices (e.g., pay inequity on the basis of gender, health disparities, educational inequity, testimonial injustice).

Now, what I would like to emphasize at this point is that Fricker would claim that Greenleaf, Sr. cannot be held morally culpable for his credibility judgments regarding Marge's case since the consciousness regarding a prejudice of this kind (i.e., gender prejudice) was not yet available to him at the time. Following Fricker (2007), he cannot be held morally culpable since he was not in a position to know better. Fricker (2007, 89-100) herself states this as she claims:

> Greenleaf's prejudiced perception of Marge is ultimately non-culpable because of the historical context…there might be judgments of justice that cannot be made because they require a line of

> reflection for which the concepts are not socio-historically available. If there are other virtues of justice…then perhaps their achievement would exhibit the same historical contingency…In the case of Herbert Greenleaf, we see this historical contingency played out in respect of the absence of a critical awareness of gender prejudice in the society in which his ethical and epistemic second nature were formed. While the Herbert Greenleafs of this world were always at fault in failing to exhibit the virtue, I suggest they were not culpably at fault until the requisite critical consciousness of gender became available to them. As we might put it, they were not culpably at fault until they were in a position to know better.

She further claims that in scenarios similar to S3, the hearers are experiencing *epistemic* and *moral bad luck*. It is epistemic since they were in no position to possess or even access a reason to believe Marge's claim (given their socio-historical condition). It is moral since their inability to possess or even access a reason to doubt Marge's claim affects who they are as individuals. Fricker (Ibid.) however notes that even if they are morally non-culpable, we can feel a resentment of *disappointment* towards them which she contrasts from a resentment of *blame*. This is so, for they could have gone beyond the routine discursive moves in their society in order to make exceptional discursive moves, or their counterpart, exceptional credibility judgments as opposed to merely routine credibility judgments.

3. The critical consciousness requirement and the disquieting conclusion

At this point, I hope that it is already clear why Fricker (2007) believes that Greenleaf, Sr. is not morally culpable for silencing and objectifying Marge. To reiterate, the requisite critical consciousness of gender is not yet available to him at the time, and it seems inappropriate for us to put the blame on someone who has no legitimate access to the resources (e.g., concepts, reasons) that they need in order for them to do the right thing (e.g., to neutralize the effect of a particular prejudice on one's credibility judgment, or to practice the virtue of testimonial justice).

As I see it, however, by claiming that Greenleaf, Sr. is not morally culpable for the credibility judgments that he made because of his socio-historical condition, Fricker opens a Pandora's box. As I have mentioned in the introductory part of this paper, Fricker's view leads to an unfortunate scenario where an injustice has been committed, but no one can be held morally responsible for it. This leads us to the view that some injustices, like the ones suffered by Marge in the hands of Greenleaf, Sr., are morally permissible. Let us refer to this consequence of Fricker's position as the "disquieting conclusion" (henceforth DC).

It is important to note that DC arises due to Fricker's adherence to CCR, which, in my view, is a very strong requirement for attributing moral culpability to individual agents. To be clear, adopting CCR leads to DC since no one can be held morally responsible for the *double injustice* that the speaker experiences in these kinds of testimonial exchanges. There is double injustice in these scenarios since the speaker is not merely silenced and objectified by the hearer in the testimonial exchange. In addition, no one can be held morally responsible for the silencing and objectification that the speaker experienced. In S3, we can clearly see how adopting CCR leads Fricker to DC. The speaker, Marge, is silenced and objectified by the hearer, Greenleaf, Sr. due to a prejudice that the latter has regarding Marge's gender. For Fricker, Greenleaf, Sr.'s silencing and objectification of Marge is morally non-culpable because of CCR (i.e., Greenleaf, Sr. lacks the critical consciousness required in order for him to recognize the gender prejudice behind his credibility judgment). In S3 then, the important point is this: The prejudice involved is *systemic* (i.e., societal, and not merely individual in scope), and this greatly constrains the thoughts as well as the reasons that are available to the members of the epistemic community in order to detect the prejudice and thereby correct their credibility judgments. While this is good news for Greenleaf, Sr., this is certainly bad news for Marge. After all, she has been *excluded* from the process of inquiry; she has been judged as an unworthy giver of knowledge. In my view, however, this *exclusion*, by itself, constitutes an undermining of Marge's capacity as a knower, a capacity that Fricker herself considers to be central in what it means to be a human being. To substantiate this, we can argue for the position that Greenleaf, Sr. has an *obligation* to know the truth behind his

son's death. This obligation involves, among other things, that Greenleaf, Sr. gathers as much evidence (e.g., physical, testimonial) as he can regarding his son's death. If we can agree on this point, then perhaps we can also agree that Greenleaf, Sr.'s exclusion of Marge's testimony runs counter to the aforementioned obligation. If this is correct, we can therefore say that Greenleaf, Sr. has a corresponding obligation not to exclude Marge's testimony, and to this extent, we can say that he is morally culpable for his actions and their consequences (e.g., undermining Marge's capacity as a giver of knowledge, and by extension, her humanity).

To balance things out, let us assume that Fricker is correct. If Greenleaf, Sr. is not morally culpable for his exclusion of Marge's testimony due to CCR, essentially, what this means is that Greenleaf, Sr. has no obligation not to exclude Marge's testimony in fulfilling his obligation to know the truth behind his son's death. But this is simply another way of saying that Greenleaf, Sr. is permitted to exclude Marge's testimony. If we agree that there is injustice in S3 and if Greenleaf, Sr. is permitted to exclude Marge's testimony, then DC follows as a result: some injustices, like the ones suffered by Marge in the hands of Greenleaf, Sr. are morally permissible. There is, however, a possible way out of this predicament, but it seems as disquieting as DC. If we agree that Greenleaf, Sr. is permitted to exclude Marge's testimony, then we can argue for the position that no injustice has been committed towards Marge. An important question therefore confronts us at this point: "If such is the case, how then should we make sense of Marge's experience (e.g., the degradation that she experienced by the exclusion of her testimony)?"

The foregoing discussion leads us to the following point: there is an *inconsistency* in Fricker's views regarding moral culpability, on the one hand, and the affirmation of one's humanity, on the other, and this can largely be attributed to her adoption of CCR. A problem with adopting CCR arises if we consider that it conflicts with Fricker's emphasis on how our rationality *defines* our humanity. This is so, for we can claim that an action that disregards our humanity is already a blameworthy action. We can derive this view from *quality of will* theorists such as David Shoemaker (2013) whose position Fernando Rudy-Hiller (2018, np) characterizes in the following way:

> (A)n agent is praiseworthy for an action or an attitude that accords with the demands of morality if the performance of the action or the holding of the attitude arises from proper regard or concern for another person's morally significant interest. Conversely, an agent is blameworthy for an action or attitude that conflicts with the demands of morality if the performance of the action or the holding of the attitude arises from lack of proper regard or concern for those same interests.

In this view, Greenleaf Sr. is already morally culpable for his actions towards Marge since in the process of denying her as an epistemic agent who can be the source of truthful information, he already denies her capacity for rationality, and hence, her humanity. A stronger argument that can help explain why there is something wrong with Greenleaf, Sr.'s exclusion of Marge's testimony may be found in Matthew Talbert's (2013, 234) description of agents who are considered blameworthy in the following:

> Even if a wrongdoer is ignorant of the fact that her behavior is wrong, and even if this ignorance is not her fault, her actions may still express the contemptuous judgment that certain others do not merit consideration, that their interests do not matter, and that their objections can be overlooked.

To remedy this inconsistency in Fricker's position, we can maintain that instead of adopting CCR, she can simply adopt an epistemic requirement (henceforth ER) for moral culpability. In a very general way, ER simply tells us that moral culpability requires an epistemic condition that an agent must satisfy in order to be considered blameworthy (or praiseworthy) for their actions (Rudy-Hiller 2018). Informally, this condition can be formulated in the form of a question: "Is the agent aware of what they did?" Here, "awareness" could be understood as awareness of several (but less complicated) things (in comparison to the demands of CCR), for example, the *action* itself, the *consequences* of the action, the *moral significance* of the action, the existence of *alternatives* to the action, etc. Based on these initial descriptions of CCR and ER, we have good reasons to believe that it is more difficult to ascribe moral culpability to an agent in the former in comparison to the latter. This poses a serious difficulty for Fricker's overall framework since it can easily *absolve* agents of moral culpability, including

cases where we would normally say that the agents in question deserve to be blamed for what they did.

To substantiate this claim, consider the atrocities committed in Nazi Germany (1933-1945). Wolfgang Bialas (2013, 3), for instance, argues that ordinary Germans, at the time, "became willing executioners of criminal and immoral deeds." There is, however, a catch: "As perpetrators with a clear conscience they were convinced that the humiliation, persecution, deportation and finally, killing of the Jews was the right thing to do" (Ibid.). At this juncture, the question that confronts us is this: "If they were *perpetrators with a clear conscience*, if they truly believed that they were doing the right thing, how can they be held morally culpable for their actions?" To my mind, this case has a terrifying similarity (structurally) with the situation that agents in S3 find themselves in. In S3, we can also say that Greenleaf, Sr.'s act of silencing and objectifying Marge is typical of men during that time. We can say, for example, that like Bialas' "perpetrator with a clear conscience," Greenleaf, Sr., because of his socio-historical condition, genuinely believes things like (but not limited to) the following: (1) that women's intuition is untrustworthy, (2) that women are emotional, and are thus, prone to hysterics, (3) that women need to be protected from the harsh realities of life, and (4) that women are innocent about some truths about men. If I am correct, the agents in S3 are in important ways similar to Bialas' perpetrators with a clear conscience due to their socio-historical condition. In particular, we can say, *à la* Fricker, that the requisite critical consciousness of gender (in S3) is not yet available to them at the time. Unlike Fricker however, I do not consider these agents to be morally non-culpable for their actions since we can say that they have factual awareness of their actions. As Rudy-Hiller (2018) points out, they are already aware of what they are doing as well as the probable consequences of their actions.

4. Conclusion

In this paper, I have demonstrated that Fricker's theory of testimonial injustice is weakened by her adherence to CCR. Such is the case since it leads to DC. Moreover, Fricker's adoption of CCR reveals an inconsistency

in her theory regarding the relationship between moral culpability and the affirmation of one's humanity. In doing so, I have also shown that the consistency of her theory can be regained if she adopts a weaker requirement for moral culpability, that is, ER. More specifically, I emphasized how her theory would benefit from the views of the quality of will theorists who maintain that awareness is sufficient to hold agents morally culpable for their actions. As I have mentioned in the previous section, this "awareness" involves awareness of several, but less complicated things (e.g., the *action* itself, the *consequences* of the action, the *moral significance* of the action, the existence of *alternatives* to the action, etc.) in comparison to the demands of CCR (e.g., critical consciousness regarding certain prejudices). One advantage of adopting ER is that it does not lead to DC. It also does not lead to the view that in S3 and cases similar to it, no injustice has been committed. By adopting the weaker ER, we can maintain that the speaker, Marge, suffered an injustice and the hearer, Greenleaf, Sr., is morally culpable for it. When this is applied to how we gauge moral culpability in testimonial exchanges, we can say that one is still morally responsible for one's credibility judgments even if one is unaware of the prejudice that taints these judgments. This is so, for what is emphasized in the quality of will theorists' view of moral culpability, aside from the awareness of one's actions, is the moral orientation of the individual. We can connect this to Fricker's view of rationality and humanity by saying that what guides the moral orientation of a person is their recognition that each agent in a testimonial exchange is a rational and autonomous being, and as such, deserving of our full attention and consideration. Perhaps, then, what is needed is not a critical consciousness of some specific prejudice, but the mere recognition that each individual is, to use Fricker's words, "fully human."

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