

If all the songs were sets

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ABSTRACT: If you believe we are ontologically committed to works of music, you should believe that they are sets (rather than fusions of performances, or Types, or *sui generis* entities etc.). I argue that whatever theory you would otherwise prefer admits of a superior alternative, affording more explanatory power, according to which works are sets.

1. Introduction

Distinguish between a work of music (e.g. Beethoven's *Piano Sonata No. 14*) – of which there is but one such thing – and performances of a work of music (e.g. every event of someone playing *Piano Sonata No. 14*). It is controversial whether works exist (see, e.g., Kania [2008], Kleinschmidt and Ross [2012], Ridley [2003], and Rudner [1950]) but this paper will, for purpose of argument, assume that they do. It also assumes that mathematical sets exist (in line with some standard version of set theory). It argues that Setism – the thesis that every work is a set – is true on the grounds that Setism offers more explanatory power. However, whilst the caricature Setist believes works are sets of performances, I will argue that they are far more complex sets.

§2 is a preamble examining the alternatives to Setism and clarifying an important distinction concerning predication. §3 argues that whatever theory you would otherwise prefer admits of a Setist variation that affords greater explanatory power. §§4-5 examine problems for the resulting theory. §6 explains how the variant Setist theory produced in §3 can be further altered to result in a pure Setist theory that takes only worlds and performances as urelements. I briefly end with some comments about how the moves advanced in this paper can apply to ontology more generally.

2. Preamble

2.1 Competing Realist Theories

The three realist views competing with Setism are:

Irreducibilism: Works exist and are *sui generis* entities that are irreducible to entities from any other category. If God created an irreducibilist universe then he created the objects (and the sets, and the properties, and the propositions etc.) before creating the works on top. Rohrbaugh [2003] appears to be an Irreducibilist.

Typism: Works are abstract, eternal Types like *pain* or *the Polar Bear*; performances are their tokens. Dodd [2007] takes them to be abstract, eternally existing Types; others takes them to only come into existence at the point that they are composed by a composer [Levinson 1980; Walters 2013].

Fusionism: Works are identical to a fusion of performances. Caplan and Matheson [2006] defend Fusionism. Riffs on the theme include works instead being fusions of, e.g., their

scores, or their being constituted by their performances rather being fusions of them [Tillman 2011].

2.2 Predication of Works and Performances

Take the (true) sentence ‘Beethoven’s *Piano Sonata No. 14* lasts fifteen minutes or so’. No matter what realist theory we accept, no work of music appears to last that length of time – at least, not in the same way that, e.g., a song can last fifteen minutes. Consider: if Irreducibilism is true then works of music are abstract *sui generis* entities. In being outside space and time, *Piano Sonata No. 14* (*PS14* henceforth) wouldn’t ‘last’ any length of time. If Typism is true then, again, they’re either eternal (and ‘last’ forever) or they came into existence at the point of composition and lasted thereafter. *PS14* either lasts forever or has lasted just over two hundred years. If Fusionism is true then *PS14* is a fusion of performances (and is a scattered event that has existed intermittently for two hundred years or so) or a fusion of scores (and is a scattered object that has existed persistently for two hundred years or so). Again, it doesn’t ‘last’ for fifteen minutes or so.

The solution is for these realists to say that there are two predicates: one predicate – what we will call a *work predicate* (represented with a subscripted $_{mw}$) – applies to works, whilst the other predicate – what we will call a *performance predicate* (represented with a subscripted $_{pf}$) – applies to performances. Now a sentence like ‘*PS14* lasts fifteen minutes or so’ is correct because the predicate that features – ‘__lasts fifteen minutes or so $_{mw}$ ’ – is different from the predicate that sounds similar to the ear when applied to performances. A performance lasts fifteen minutes or so, but there we are using a different predicate (‘__lasts fifteen minutes or so $_{pf}$ ’). For a musical work to last fifteen minutes $_{mw}$ is different from a performance lasting fifteen minutes $_{pf}$ and it’s only the latter that demands an entity to solely occupy a region of spacetime with a temporal extent of fifteen minutes (which a performance, but not a work, can do). This, at least, is what all realists must say – so, given we’ve assumed realism from the off, there’s no impediment for my Setist theory to likewise assume there are two different predicates.

3. Setism’s Explanatory Power

3.1 Explanation

We should accept Setism as it offers us more explanatory power than the alternatives. First we need to understand exactly what I mean by ‘explanatory power’. Consider the following facts:

The window is transparent.

The ball is green.

It’s possible that a hyperintelligent baboon rules the world.

Whilst some explanations are scientific (e.g. we explain the first proposition by saying that the arrangement of the sub-atomic particles explains the window’s transparency, and similarly for the second) it is standard to accept another type of explanation: metaphysical explanation. This brand of explanation whittles down the stock of brute facts needed for explaining all facts. For instance, we may think we need to explain predication (which is one version of the Problem of Universals [Oliver 1996: 49ff]) so would say of the second proposition that the (metaphysical) explanation is that the ball is green because it has the universal *Green* as a constituent; or a green trope as a constituent; or there’s a state of affairs with the ball and *Green* as its constituents etc. Or, in the case of the last proposition, we might explain that modal fact by saying (as David Lewis [1986]

does) that there is a disconnected spacetime at which a hyperintelligent baboon rules the world, or (as various ersatzists believe) that there's a universal with such-and-such features, or so-and-so a state of affairs, or this-and-that propositions formed into a set etc.

The rest of this section argues that Setism can provide superior explanatory power in the sense of providing better metaphysical explanations for why works of music fall under the predicates_{mw} that they do. If this is right then it should, *ceteris paribus*, be preferred to its rivals. We might decide that we don't need such a theory (see, e.g., Tillman and Spencer's [2012] who argue that works are fundamental and there's no more need to explain their features than there is to explain why the cosmos has a particular entangled quantum state) but *ceteris paribus* it'd be better to have one that did.

3.2 Typism and Explanatory Power

As an example, examine Dodd's Typist theory first of all. We will develop a Setist theory (which features Types as urelements) that has superior explanatory power as a test case, and I'll end this section by, briefly, sketching how to extend the comparison to other rival theories.

Dodd accepts:

W is F_{mw} iff every properly formed performance of W would fall under the corresponding predicate_{pf}

So if every properly performed performance of *PS14* is a sonata_{pf} then the work is a sonata_{mw} and if every properly performed performance of *PS14* lasts about fifteen minutes_{pf} then *PS14* lasts about fifteen minutes_{mw}.

The first impediment to this theory giving genuine explanatory power is that we must take '___ is a properly performed performance of ___' as a primitive. That primitive looks unsuited to play an explanatory role as it's too closely connected to the thing we are trying to explain: it is near synonymous that a properly performed performance is just that performance which falls under the same predicate_{pf} as the predicate_{mw} that the work falls under. As it's nearly synonymous, it is unlikely to provide an explanation that we will find suitable. Compare to a situation where Humphrey wins an election. If we asked for an explanation of how he won, and you said that it was because he garnered the most votes, I'd be greatly dissatisfied. Whilst getting the most votes isn't the same thing as winning (as you could get more votes but still be forced to concede via unfair political bushwhacking by your opponent) they're *nearly* synonymous such that using the fact that one candidate got the most votes isn't generally going to be a satisfactory explanation of why they won. Similarly, to say that a song falls under the work predicates analogous to the performance predicates that its properly performed performances fall under appears to be an unsatisfactory explanation.

3.3 A bad Setist alternative

Start building a bad alternative (which I'll eventually make better). We'll start by saying that that every work is 'correlated' with a set of ordered pairs of the form:

$$\{ \langle w_m, x_m \rangle, \langle w_n, x_n \rangle, \dots \}$$

where the *w*s are worlds and the *x*s are performances at those worlds. Call each ordered pair an *exemplar*. Stipulate that the exemplars are such that the performance is, at the world it is paired with, a properly performed performance of the work (that is, an *exemplary* performance of that work). We can then try and explain why works fall under the predicate_{mw} that they do by saying

that if every exemplary performance is F_{pf} (at the world it is paired with) then the work is F_{mw} e.g. if each x was a sonata_{pf} (at the w it was paired with) then the work correlated with such a set would be a sonata_{mw}.¹

This theory is not a good theory in comparison to Typism, as it fails to improve upon it and indeed makes it worse! We have introduced the idea that works are ‘correlated’ with just the correct set of exemplars. But ‘correlation’ seems like a dodgy primitive, unsuited to play any role in genuine metaphysical explanation in the same way that ‘__ is a properly performed performance of __’ is unlikely to suit playing that role. Compare: if I tried to explain why some modal facts were true, one would be blasé if my ‘explanation’ was that they were ‘correlated’ with truth or falsity. Indeed, as there is no explanation of why a work is correlated with *those* sets rather than some other sets (e.g. why *PS14* is correlated with exemplars at which the performances are all sonatas_{pf} rather than being paired with exemplars where the performances are mangled hatchet jobs of Beethoven’s music) this Setist theory looks to be a poor one.

3.4 Improving the bad theory

Introduce a variation on that theory (it still won’t work but I can remedy its shortcomings). Given standard set theory whenever we have some things we have sets of those things, and whenever we have two things, we have an ordered pair of those things.² Given an ontology of possible worlds and possibilities, there are, e.g., three worlds where, at w_1 , a performance, a_1 , is a sonata_{pf}; at w_2 , a_2 is a sonata_{pf}; and, at w_3 , a_3 is a hatchet job_{pf} of the musical work and turns out not be a sonata at all (e.g. it’s a performance that was so poor it stopped halfway through). Given the tenants of set theory the following sets exist (amongst others):

$$\begin{aligned} & \{ \langle w_1, a_1 \rangle \} \\ & \{ \langle w_3, a_3 \rangle \} \\ & \{ \langle w_1, a_1 \rangle, \langle w_2, a_2 \rangle \} \\ & \{ \langle w_1, a_1 \rangle, \langle w_2, a_2 \rangle, \langle w_3, a_3 \rangle \} \end{aligned}$$

Assuming (for purpose of argument) that you are a convinced Typist and *PS14* is a Type. As there are always pairs of things, there’s an ordered pair of *PS14* and the set of exemplars where the performances are all sonatas:

$$\langle PS14, \{ \langle w_1, a_1 \rangle, \langle w_2, a_2 \rangle \} \rangle$$

We can now eliminate ‘correlation’ as a primitive:

W is F_{mw} iff W is the first member of an ordered pair where the second member is a set of exemplars, whereby every exemplar is such that the performance that is a member of it is F_{pf} (at which the world it is paired with).

This achieves four things. First thing: as both a_1 and a_2 are sonatas_{pf} (at the worlds they’re paired with) *PS14* is then a sonata_{mw}. Second thing: we’ve removed the troublesome primitive and replaced it with a relation analysed in purely set theoretical terms. Third thing: we’ve avoided the fear that the analysis is near synonymous to the analysandum (as, clearly, nothing defined in

¹ Note why I’ve paired the performances with a world: a performance might exist at many worlds, but vary from world to world such that it is non-exemplary at some, and we want to focus on the performance only in those circumstances that it is an exemplary performance.

² This isn’t true in all generality, as that entails Russell-set issues, but put aside such concerns here as those worries aren’t relevant.

purely set-theoretical terms is near synonymous in the worrying fashion). Fourth thing: we've no longer any need to ask why a work is correlated with a set of exemplars, for that is now just to ask why works end up in an ordered pair with a set of exemplars and the answer to that is easy: the laws of set theory demand it!

Better as this theory is, it's still gravely flawed for whilst works get paired with the sets that make them bear out the correct predicates_{mw} they also get paired with sets of exemplars that do the exact opposite. For instance, given set theory the following ordered pair also exists:

$$\langle PS14, \{ \langle w_3, a_3 \rangle \} \rangle$$

And, as a_3 isn't even a sonata_{pf} (at w_3) then the above analysis of predication_{mw} demands that $PS14$ isn't a sonata_{mw}. This is false (and, of course, also contradicts the fact that was entailed by the existence of the earlier pair).

However, we can remedy this. $PS14$ is a Type and the performances of $PS14$ are its tokens. The Typist then identifies the Type with $PS14$. But we can have the Type without the identification. If we retain the Type and instead identify the work with the ordered pair of the Type and the exemplars, we won't have a problem.³ Call the Type that $PS14$ was previously identified with ' T_{PS14} '. Given this new theory there are still the ordered pairs:

$$\langle T_{PS14}, \{ \langle w_1, a_1 \rangle, \langle w_2, a_2 \rangle \} \rangle$$

$$\langle T_{PS14}, \{ \langle w_3, a_3 \rangle \} \rangle$$

But we identify $PS14$ only with the first pair. The second pair still exists, but it's a *totally different* work of music. Each work is now only associated with but one set of exemplars (so the analysis no longer yields contradictory results) and, e.g., $PS14$ is only associated with the exemplars that are sonatas_{pf} at the worlds at which they are performed at. (Obviously we will have to tweak the analysis of predication_{mw} saying instead: W is F_{mw} iff W 's second member is a set of exemplars, whereby every performance that is a member of an exemplar is such that the performance is F_{pf} at the w it is paired with). You might ask why $PS14$ ends up being that pair rather than some other pair (why, for instance, it isn't identical to $\langle T_{PS14}, \{ \langle w_3, a_3 \rangle \} \rangle$) but that's only as awkward a question as it is asking the Typist why $PS14$ is some given sound structure Type (say, the one that has tokens that sound like $PS14$ rather than Bach's *Jesu, meine Freude*) or why it's one fusion of performances (performances of $PS14$) rather than some other (e.g. performances of *Jesu, meine Freude*) etc. And the answer to that awkward question is forthcoming: because $PS14$ being the first set rather than the second bears out the correct result, that is reason enough to think it's true and that ' $PS14$ ' refers to the former rather than the latter.

It might be problematic that there will be many more pairs than just those given in my example (i.e. many more exemplars than just $\langle w_1, a_1 \rangle$ and $\langle w_2, a_2 \rangle$) such that a set of any of those pairs would be just as good a candidate for being the second member of the ordered pair we want to identify $PS14$ with. For instance: stipulate that a_4 , a_5 , and a_6 are all exemplary performances at w_3 . There are also sets:

$$\langle T_{PS14}, \{ \langle w_3, a_4 \rangle, \langle w_3, a_5 \rangle \} \rangle$$

$$\langle T_{PS14}, \{ \langle w_3, a_5 \rangle, \langle w_3, a_6 \rangle \} \rangle$$

³ Some people balk at identifying things with ordered pairs because there are multiple candidates for what sets ordered pairs are to be identified with (e.g. Kuratowski's identification, Weiner's identification etc.) I deal with exactly this objection elsewhere [Effingham 2010: 263-5] so won't examine it here.

$$\langle T_{PS14}, \{ \langle w_1, a_1 \rangle, \langle w_3, a_5 \rangle, \langle w_3, a_6 \rangle \} \rangle$$

So why should we think *PS14* isn't one of those sets, for if it were then the predicates_{mw} would all be just what we, intuitively, think they should be. I don't think this is overly problematic, being analogous to the problem of the many (where there are multiple, equally qualifying, candidate pluralities for the atoms that compose me). Whatever response you rely on for the problem of the many can be relied upon here. For instance, if you say that I am composed of the biggest possible plurality of atoms, such that anything that might qualify as an atom of me should be an atom of me, then we should say of *PS14* that it is that set paired with the biggest set of exemplars, such that any pair that might be considered an exemplar must be included. (See Weatherston [2009] for more on the problem of the many and its possible solutions.)

This theory, then, is better than Typism (and the bad alternatives discussed above) for it eliminates unwanted primitives and doesn't run into the issues that the bad alternatives ran into. As it identifies works with sets (in particular, ordered pairs) it's a version of Setism. It does still deploy Types, although I explain how to rid ourselves of these in §6. There are also two problems that need dealing with, which I dispatch in §§4-5.

3.5 Extending the sketch

What we've just done for Typism, we can repeat for the alternative theories of musical works. Where we start with Typism, we arrive at a set of the form:

$$\langle T, \{ \langle w_m, x_m \rangle, \langle w_n, x_n \rangle, \dots \} \rangle$$

All of the work being done by the Setist identification is neutral on what entity is the first member of that ordered pair. Where Irredubilism identifies the work with some *sui generis* entity \mathcal{I} the argumentative line just given means the Setist variation of it will produce sets of the form

$$\langle \mathcal{I}, \{ \langle w_m, x_m \rangle, \langle w_n, x_n \rangle, \dots \} \rangle$$

And all of the work to do with explanation is still played by the set of exemplars that is the second member of that ordered pair – and that work can be carried out no matter what the first member is. Similarly, Fusionists who initially identify a work with some fusion f will apply the above thinking to arrive at believing a work is a set of the form

$$\langle f, \{ \langle w_m, x_m \rangle, \langle w_n, x_n \rangle, \dots \} \rangle$$

So the above lesson is quite general, and not specific to Typism. (You might start to wonder what work entities like T , \mathcal{I} , and f are actually doing – I return to that question below in §6.)

4. Problem One: Too Many Works

The Setist theory commits to too many works for whilst we've identified *PS14* with (e.g.)

$$\langle T_{PS14}, \{ \langle w_1, a_1 \rangle, \langle w_2, a_2 \rangle \} \rangle$$

the set

$$\langle T_{PS14}, \{ \langle w_3, a_3 \rangle \} \rangle$$

nonetheless exists. As it has T_{PS14} as its first member, every performance of *PS14* is a performance of this work. If you play *PS14* you're playing this new work as well! However, unlike *PS14*, this work sounds terrible_{mw} and isn't a sonata_{mw} – a performance of it might sound excellent, but the song itself does not (which is just the reverse of the performance sounding

terrible_{pf} but the work sounding wonderful_{mw}.) Intuitively, there is no such work and if that intuition has bite then this Setist theory must be wrong.

Perhaps we could lay out some complex conditions for a set to count as a work, such that those conditions exclude permitting sets like $\langle T_{PS14}, \{ \langle w_3, a_3 \rangle \} \rangle$ from being a work. Or we could assert, as a matter of brute fact, that some sets are works and others aren't such that $\langle T_{PS14} \{ \langle w_3, a_3 \rangle \} \rangle$ isn't and *PS14* is. I'll resist such moves, instead accepting the existence of such works as I believe I am independently, and correctly, committed to them anyhow. My argument has two parts. First, I need to show that such works could exist. Secondly, I must show that it is dialectically appropriate to say that they therefore exist.

Start with the first premise. Not every performance of a work is exemplary, and many have features that exemplary performances do not (e.g. whilst an exemplary performance of *PS14* doesn't have a seven second pause as the pianist fumbles over the keys, a poorer performance of *PS14* might well do). Indeed, there may well be *exemplary* performances that have different features (perhaps varying over impossible to hear differences). Imagine three duplicates of Beethoven on three duplicate worlds who each compose a work a lot like *PS14*. Each Beethoven agrees with the others over what counts as a performance of that work, but they disagree over what counts as an *exemplary* performance.⁴ For instance:

Beethoven Alpha: Makes a work a lot like *PS14*. He thinks there are many performances that both do and do not use the pedal mark, and thinks that it's irrelevant to an exemplary performance as to whether or not the pedal mark is used.

Beethoven Beta: Makes a work a lot like *PS14*. He says that whilst you can perform it without the pedal mark, an *exemplary* performance includes it.

Beethoven Gamma: Makes a work a lot like *PS14*. But he lives in a world with no other sonatas. He's simply overjoyed to have made a sonata – he cares about little else other than the form of the sonata. So when you ask him what counts as an exemplary performance, he doesn't even care if it sounds good. An exemplary performance is, for him, basically any of the performances that retain the sonata-esque form. That's how much in love with the sonata-esque features of the work he is.

I believe that we should say that each Beethoven has composed a similar but distinct work of music. After all, who are we to argue with these Beethovens? Imagine that everyone in each of the worlds agree with their respective Beethoven, and an entire planet places its weight of opinion behind their respective Beethoven clone. Were we to say that one world was right, and the other worlds were wrong, we'd be displaying an unwarranted prejudice. It would be arrogant to think that, say, there was only one work present – say the work with the exemplary performances that Beethoven Alpha thinks it has – and that Beethoven Beta and Gamma have got it wrong. And how bizarre it would be for Beethoven Beta and Gamma to compose a work and somehow be *wrong* about what the exemplary performances of that work are. The Beethoven

⁴ For real world examples of how we might vary over what makes an exemplary performance, see Dyck [2014].

clone scenario demonstrates that it's possible for there to be works that have the same performances but which fall under different predicates_{mw}. So a work such as

$$\langle T_{PS14}, \{ \langle w_3, a_3 \rangle \} \rangle$$

has the same performances as *PS14* but sounds awful_{mw}. If we extend the thinking of the above scenario we should say that such a work could exist.

But this merely shows it could exist, not that it does. So turn to the second premise. If you believe in possibilia, as I've already assumed, then what could exist does exist. So as there could be such works, there are such works. We have thus arrived at the conclusion: including too many works isn't a *downside* of my theory, it's instead just meeting the *demands* placed upon it by assuming that there are possibilia.

Of course, you might now take umbrage at the idea of possibilia. But there are two reasons to hesitate. Firstly, possibilia might come in for a hard time, but they're fairly popular. They appear in theories like Lewis's genuine modal realism [1986], Williamson's theory of bare possibilia [1998], and you can – as Melia [2008] has shown – make room for them in ersatz theories of possible worlds that include mathematical objects (like sets!). The second reason: at least one of the extant theories of works of music, namely Fusionism, is possibilia friendly already. Caplan and Matheson [2006] already deploy possibilia to solve certain problems. So Setism is on an equal footing with an already extant theory.

5. Problem Two: Erroneous Predication

5.1 Concrete, located works (which are also performances)

The second problem is that my theory appears to demand that works have features they're not meant to have. Every performance will be concrete_{pf}, spatiotemporally located_{pf} and a performance_{pf}, and so every exemplary performance will be likewise and every work is concrete_{mw}, spatiotemporally located_{mw} and a performance_{mw}. That seems to directly contradict the claim that works are abstract, timeless and, not performances, but works. (Similarly, if a work is a set_{mw}, as Setism demands, the analysis works the other way and demands that every exemplar must be a set – which, clearly, they are not.)

To solve this we must return to the distinction between work predicates and performance predicates. Following Dodd [2007: 46] and Wolsterstoff [1980] we should introduce a distinction between literal and analogical predicates. If, e.g., something literally lasts five minutes then we mean just that – it's an event that, from start to finish, lasts five minutes. But there's a predicate that is analogous to it that applies to other things – in this case, the works of music themselves. Whilst a performance of *PS14* may literally last fifteen minutes or so, the work itself analogously lasts fifteen minutes or so and falls under the corresponding predicate analogous to the literal predicate of lasting fifteen minutes. Clearly the literal/analogous distinction usually mirrors the work-/performance-predicate distinction (for example, where a performance is literally a sonata, and is a sonata_{pf}, the work is analogously a sonata, and is a sonata_{mw}). But whilst it usually mirrors the distinction, it does not always do so for some predicates that apply to works are literal, not analogical: a work is literally abstract, literally timeless, and literally a work.

Now we can see how to escape the problem of works being concrete_{mw}, spatiotemporally located_{mw} and performances_{mw}. With analogical and literal predication introduced, we can stop

talking about work- and performance-predicates and just talk about literal and analogical predicates. Where we previously said:

\mathcal{W} is F_{mw} iff the second member of \mathcal{W} is such that every pair that is a member of it is such that the member of that pair which is a performance is F_{pf} (at the world that it is paired with).

We should instead say

\mathcal{W} is analogically F_{mw} iff the second member of \mathcal{W} is such that every pair that is a member of it is such that the member of that pair which is a performance is literally F (at the world that it is paired with).

As for the literal predicates a work falls under, this is determined solely by our ontological theory: as works are sets, and sets are timeless abstract entities, then works are literally timeless and literally abstract.

This means that, given the thesis determining what a work is analogically, all works are analogically concrete, spatiotemporally located, and performances. But that's okay, as that's consistent with it being literally abstract, timeless, and a work. And, similarly, as it is literally, and not analogically, a set, so no exemplary performance need be a set (literally or analogically). An objection will be that it still sounds somewhat bizarre to say that in any sense whatsoever a work is concrete, located, or a performance. But I don't think this is a big problem. Some predicates we oft deploy in both their literal and analogical uses, like '___ is a sonata' and '___ sounds good'. In those cases we have developed strong intuitions about what falls under both the literal and analogous predicates, and our theories should respect those intuitions (or, at least, factor failure to respect those intuitions into the cost-benefit analysis of which theory is correct). But we are not accustomed to using every predicate in an analogical way. For instance '___ is a neutrino particle' only ever gets used literally outside of the philosophy room. Similarly '___ is concrete', '___ is located' and '___ is a performance' are almost always used literally. We may have intuitions about how they should be used literally (e.g. what things are – literally – concrete, located, and performances), and we should respect those intuitions, but we don't have any intuitions about how they are to be used analogically. What things fall under the analogical predicate is not something we've *ever* thought about, so there's no demand to respect any alleged intuitions about its use. We only ever use those predicates analogically in very strange contexts (in the same way that you're never going to find yourself using an analogical version of the predicate '___ is a neutrino' except in some really contrived and bizarre context). So it's fine for works to be analogically concrete, analogically located etc. As you'll never have to assert such things outside of the confines of an esoteric discussion about the metaphysics of musical works, it'll never prove to be an impediment, and no intuitions are challenged by this. Thus it is no cost and no objection for it to be the case.

5.2 The temporal persistence of works

Here's another problematic predication: it is (allegedly) intuitively true that every work came into existence when the composer makes it, and remains in existence from that point forth.⁵ But the exemplary performances won't all come into existence at the same time for it's not by

⁵ Maybe you think it ceases to be after a while, such as when the human race has forgotten about it [e.g. Lamarque 2002]; alter the intuition as you see fit.

necessity that, e.g., *PS14*'s exemplary performances all have to be played on a certain date. So works won't analogically come into existence when composers first composed the work. If sets are timeless entities, then they don't literally come into existence either. So Setism cannot guarantee, in any sense, the idea that works come into existence at the time of their composition.

The way to avoid the problem is a straightforward *tu quoque*. Take whatever realist theory you think bears out the desired persistence conditions and it's open to the Setist to agree with it. For instance, if (like Dodd's Typist) one thinks works are timeless, then no complaint can be levelled against Setism for saying the same. It is orthodox to think sets are timeless! Or consider Fusionism. Fusionists have as much hassle capturing the correct intuition as anyone. In the same way that the composite event consisting of the Boer War and the Second Gulf War exists at some times but not at those times between the end of the Boer War and the start of the Gulf War (i.e. doesn't exist at, say, 1954) the fusion of all performances of *PS14* 'winks' in and out of existence whenever it goes unperformed. And that seems just as unintuitive as revising our (alleged) belief that works come into existence at the point of composition. In any case, were the Fusionist to say that these were the desired persistence conditions the Setist can give up on timeless sets and (following Lewis [1991: 31-3] and Maddy [1990: 58-60]) say that sets are located where their members are, for then then Setist works would be located wherever their performances were located.⁶ Finally, some might try and capture the idea that the work comes into existence at the point of its first performance (or the first creative act leading to its creation etc.) – an Irreducibilist can simply assert that this is so of their *sui generis* entities, or a Typist might argue that a Type comes into existence alongside its first token and then exists at every moment thereafter. The Setist can mirror the same position: say that any impure set $\{ \alpha \}$ comes into existence when α comes into existence and then remains in existence thereafter – if that were so, then every work would come into existence alongside its first performance and exist at every point thereafter. One might complain that an impure set 'intuitively' doesn't do this (or some similar such claim) if you're the kind of person who thinks irreducible *sui generis* entities, or certain Types, might do similar it's hard to see how one can hold a principled ban on impure sets being likewise. Setism, then, can accommodate the intuition you desire. So say whatever you like about the persistence conditions of works, and I'll deliver you a version of Setism consistent with those demands.

A final objection is that, in conceding no fixed position on the persistence conditions of impure sets, and instead leaving it open to being fixed by the position one takes over works of music, I'm somehow being capricious or dishonest. But the persistence conditions for sets are open for debate – certainly they play no role in set theory! – so I am happy for metaphysical theorising, such as choosing an ontology of musical works, to have the casting vote over what persistence conditions they take. So I have no shame with accepting whatever a principle concerning the persistence of impure sets that bears out works having whatever persistence conditions you think they should have.

⁶ This means that as worlds are urelements, given genuine modal realism a work would be located at every spacetime containing an exemplary performance. That means that the work would last forever if any exemplary performance actually existed. Solve this by changing the pairing of performances with worlds to a pairing of performances with the (worldbound) region of spacetime that the performance event occupies.

6. Pure Setism

Let us recap: I've argued that if you previously believed a realist theory which identifies works with entities from category X, you should instead prefer a Setist theory identifying works with ordered pairs of the entity from category X and a set of exemplars. Setism is true, but it seems to be diluted or hybridised, as it features the entity from X – it'll have an indicated type or a sound-structure as an urelement, or a fusion of performances, or a *sui generis* entity etc. This section purges this impurity and leaves us with a purer Setist theory.

The entity of category X is now doing very little work. Start by imagining the Setist variant on Typism that we had at the end of §3.4, whereby a work was of the form:

$$\langle T, \{ \langle w_m, x_m \rangle, \langle w_n, x_n \rangle, \dots \} \rangle$$

The only work T is doing is to tell us which performances are performances of the work, but a set can play that role just as well. Where the y s are actual performances, we could identify a work with

$$\langle \{ y_1, y_2, \dots, y_n \}, \{ \langle w_m, x_m \rangle, \langle w_n, x_n \rangle, \dots \} \rangle$$

And say that

$$x \text{ is a performance of work } W \text{ =_{df} } x \text{ is a member of the first member of } W.$$

This won't quite do the trick as one will, rightly, complain that sets have their members essentially but it's not essential to a work that it's got the performances that it does (see, e.g., Hazlett [2012: 163] and Rohrbaugh [2003: 177]). Easily remedied: where the y s are performances at different possible worlds, the w^* s, identify a work with a set of the form:

$$\langle \{ \langle w^*_1, y_1 \rangle, \langle w^*_2, y_2 \rangle, \langle w^*_3, y_3 \rangle \dots \}, \{ \langle w_m, x_m \rangle, \langle w_n, x_n \rangle, \dots \} \rangle$$

And say that:

$$x \text{ is a performance of work } W \text{ (at world } w^*) \text{ =_{df} } \langle w^*, x \rangle \text{ is a member of the first member of } W.$$

(See also Effingham [2010] where I develop a similar line of thinking for the membership of organisations.) This compounds the proliferation of works presented in §4 for now every plurality of possible performances are the performances of some work, no matter how disparate those performances are. For instance, there's a work which has as its performances only my singing Radiohead's *Creep* in the shower and Elvis Presley's first performance of *Just Because*. But this can be solved just as we solved the problem from §4. We are tolerant of variation in performances of works to a certain degree. But from person to person, composer to composer, and culture to culture that degree of tolerance varies. Consider cover songs: is *Hurt* one work (performed by both Nine Inch Nails and Jonny Cash) or two? Some people, tolerant of what performances are performances of which work, will say the former (and that there's a work such that it has been performed by both NIN and Cash). Others may be intolerant and say the latter (i.e. NIN's performances are not performances of Cash's work and vice versa). We can even imagine a case of maximal tolerance. Imagine a culture that believed God made a single sound in the beginning, and that He dubbed it his 'Greatest Work', stipulating that all sounds from then on would be lesser imitations of this Greatest Work (i.e. that all sounds are performances of the Greatest Work). Such a culture recognises the existence of a work such that *every* sound is a performance of it – it is *maximally* tolerant. They might be wrong about whether God composed

the work (say, because He didn't exist or what have you) but mistakes about the composer have nothing to do with whether the work exists or not. They would have to conclude that there is a work such that every performance was a performance of it. Similarly, for any randomly selected (and *prima facie* disparate) performances since I'm sure we can work up a circumstance where someone, somewhere, would consider them performances of the same work. So it's possible that there are such works and, if it's possible, then we should accept that they exist.

So we can remove the Types (and performance fusions, and *sui generis* works etc.) and end up with sets built out of urelements that are only performances and worlds. We've now arrived at a pure setist theory (that is, one akin to the caricature version of Setism whereby the urelements are only performances, or other manifestations, of the work).

7. Conclusion

I've argued that Setism affords us a theory with more explanatory power – in the sense of metaphysical explanation – than the alternative theories. The above strategy needn't be limited to musical works. We could deploy it for other sorts of entities. We might deploy it with other 'lesser kinds' e.g. using it with regards to other repeatable artworks (not just musical works, but installation art, pictures, culinary dishes, plays, novels etc.), organisations, diseases, food shortages etc. The thinking might also be used to extend to things like properties or events. It is noteworthy, then, that such 'Pythagorean' manoeuvres (whereby entities are identified with sets) might not only yield benefits with regards to ontological parsimony (as we reduce the entities from that category to sets) but also with regards to explanatory power.

8. Bibliography

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