

## Abstracta and Abstraction in Trope Theory

A.R.J. FISHER

**Abstract:** Trope theory is a leading metaphysical theory in analytic ontology. One of its classic statements is found in the work of Donald C. Williams who argued that tropes qua abstract particulars are the very alphabet of being. The concept of an abstract particular has been repeatedly attacked in the literature. Opponents and proponents of trope theory alike have levelled their criticisms at the abstractness of tropes and the associated act of abstraction. In this paper I defend the concept of a trope qua abstract particular by rejecting arguments that purport to show that tropes should not be understood as abstract and by arguing that the abstractness of tropes plays an indispensable role in one of our more promising trope-theoretic analyses of universals and of concrete objects.

### Introduction

Trope theory is a leading metaphysical theory in analytic ontology. On this view, the category of trope is the one fundamental category of being from which every other ontic category is derived. This view is typically called a ‘one-category’ ontology.<sup>1</sup> It is ontically simpler than dualist rivals and enjoys great explanatory power. In this sense it is an attractive metaphysic. One of its classic statements is found in the work of Donald C. Williams who famously argued that tropes qua *abstract* particulars are the ‘very alphabet of being’ (1953a, 7; 1966, 78). Let us call his version of the view ‘classical trope theory’. In this paper, I defend classical trope theory by rejecting arguments that imply tropes should not be understood as abstract and by arguing that abstractness plays an indispensable role in one of our more promising trope-theoretic analyses of universals and of concrete objects.

For classical trope theorists, tropes are *abstract particular natures*. The concept of a nature is a primitive (unanalysable) notion that applies directly to tropes.<sup>2</sup> In order to grasp the concept of a nature let us begin with an example. Consider my Australian rules football. It is red. The redness of the football, or better this redness, is a nature (more precisely, a qualitative nature).<sup>3</sup> We can think of the football’s total nature as the complex of its natures summed together and think of this redness as one of those natures. This redness contributes to the nature of the football (Campbell 1990, 10).

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<sup>1</sup> I restrict the phrase ‘trope theory’ to one-category versions of trope ontology. This meaning rules out ontologies that posit tropes in addition to some other fundamental category. One such view is the substance-mode ontology of John Heil and C.B. Martin (1999).

<sup>2</sup> The concept of a nature is conceptually primitive. It is a primitive concept within the conceptual system of classical trope theory. Furthermore, the concept of a nature is of something that is categorially primitive. With respect to the categorial structure of our ontology, natures are members of the primitive or fundamental category of being. Of course, not every nature is metaphysically primitive or fundamental.

<sup>3</sup> I employ a broad sense of the notion of qualitiveness: contrast it with non-qualitiveness or bareness such as the bareness of the bare particular. In this broad sense quantitative natures count as qualitative.

The football has this redness as a nature, but this redness does *not* have a nature of its own. It just *is* a nature (Armstrong 1989, 129).

We can grasp the notion of a nature further by seeing it at work in our theory. It is often used to expound the view that resemblance is an internal relation (Armstrong 1989, 44-45). Roughly, if resemblance is an internal relation, it supervenes on the natures of its relata (taken separately). Suppose we have two red footballs such that each football has its own red trope. The fact that the footballs resemble each other supervenes on the fact that the red tropes resemble each other. The fact that the red tropes resemble each other supervenes on the nature of this red trope and that red trope, but really it just supervenes on the tropes, because each trope is identical with its nature.

Surrounding the concept of a nature are two fundamental facts that are true of a nature: that a nature is abstract and that a nature is particular. This redness is not only a qualitative nature it is also a particular nature and an abstract nature. Hence Williams, with G.F. Stout (1923, 114) behind him, called tropes ‘abstract particulars’, and Keith Campbell, following Williams, aptly titled his book on tropes *Abstract Particulars* (1990).<sup>4</sup>

However, the idea that tropes are abstract has been repeatedly attacked. Opponents of trope theory, such as Chris Daly (1997), argue that Williams’s use of ‘abstract’ and the role it plays in classical trope theory is incoherent. Daly’s criticism is most pressing because his objections are often cited and seconded in the literature (see for instance Edwards 2014, 50). Proponents of trope theory are equally damning of the abstractness of tropes. Anna-Sofia Maurin argues that Williams’s use of ‘abstract’ is empty and uninformative and that abstractness can be dispensed with (Maurin 2002, 21-24). What is more, metaphysicians have constructed trope theories that do not make reference to the fact that tropes are abstract. Maurin herself says the distinguishing mark of tropes is that they are ‘qualities particularised’ (Maurin 2002, 23). Kathe Trettin thinks tropes are ‘individual qualities’ (Trettin 2000, 284). Peter Simons regards a trope as an ‘individual property instance’ (Simons 1994, 553). Kris McDaniel believes: ‘A trope is both a particular and a quality’ (McDaniel 2009, 327). Douglas Ehring does not discuss the abstractness of tropes at any point in his book *Tropes* (Ehring 2011, 247). Jani Hakkarainen and Markku Keinänen conceive of tropes as ‘thin’ natures and do not posit abstractness as a feature of tropes (Hakkarainen & Keinänen 2017, 648). The concept of a trope qua abstract particular has fallen out of favour and is presently a minority position.

In what follows, I present the theory as it is articulated by Williams, drawing from his published and unpublished writings; along the way I respond to Daly’s objections

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<sup>4</sup> Talk of abstractness is to be interpreted nominalistically. Tropes do not have the property of *being abstract*. Rather, the predicate ‘... is abstract’ applies directly to each trope. Each trope is the truthmaker for the fact that it is abstract. The particularity of tropes receives a similar treatment. An elaboration of this involves a discussion of the simplicity of tropes, which is beyond the scope of this paper. For discussion on simplicity, see (Hakkarainen & Keinänen 2017; Maurin 2005). For discussion on particularity, see (Keinänen & Hakkarainen 2014).

(§§1-2).<sup>5</sup> I reply to Maurin’s objection by arguing that abstractness is indispensable to one of our more promising trope-theoretic analyses of universals and of concrete objects (§3). I conclude that the classical concept of a trope is defensible and that classical trope theory remains an attractive metaphysic (§4).

### 1. Abstracta

The word ‘abstract’ is vague, imprecise, and ambiguous, like many other words in our philosophical theories and ordinary language. There is no one conception of abstracta, just like there is no one conception of properties or propositions, as David Lewis pointed out (Lewis 1986b, 55, 185). Classical trope theorists begin with the broadest use of ‘abstract’, the sense of the word that stems from its literal meaning in Latin. As Williams says: ‘At its broadest the “true” meaning of “abstract” is *partial, incomplete, or fragmentary*, the trait of what is less than its including whole’ (Williams 1953a, 15; 1966, 85, his italics). This use of ‘abstract’ contrasts with a more prevalent understanding of the term: the idea of something lacking spatiotemporal location or causal efficacy. Sometimes this more prevalent understanding is interpreted as the traditional Platonic meaning of the word, which associates abstract entities with the feature of being universal or general.

Having specified the meaning of ‘abstract’ as one concerning entities that are partial aspects or incomplete parts of a whole, classical trope theorists refine it because, on this broad specification, the top half of my football counts as abstract as well as its redness, its shape, and its mass. For the top half is just as much a part of the football as this redness. Hence, Williams says, of the notion of concrete, ‘One thing, if not the main thing which this means is that, however discontinuous the place-time, or “plime”, which just contains such an object, the object exhausts or is the whole content of it’ (1986[1960], 3). And that ‘abstract entities differ from concreta in that many of them can and do occupy the same plime’ (Williams 1986[1960], 3). More schematically:

(C) Entity  $e$  is concrete iff and because  $e$  exhausts the content of the region it occupies or is identical with the content of that region.

(A) Entity  $e$  is abstract iff and because  $e$  fails to exhaust the content of the region it occupies or is merely part of the content of that region.

The notion of a content of a region does not presuppose a specific theory of space and time. In our theorising it is prior to the hypothesis that the actual world is spatiotemporal or composed of analogously spatiotemporal relations or an immaterial manifold. Our starting manifold (a web of distance and direction relations if you will) is compat-

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<sup>5</sup> I hesitate to attribute classical trope theory in its entirety to Campbell because I am not sure he would adopt all of it. Since I do not have space to compare the differences and similarities between his view and Williams’s, I focus on Williams’s formulation of trope theory. However, I appeal to Campbell’s work where appropriate.

ible with these cosmological hypotheses. If the actual world is spatiotemporal, (A) and (C) are about spatiotemporal regions in the actual world. But this does not make it analytic that our definitions are of spatiotemporal regions. Henceforth I simply talk of regions.

To be clear, our starting manifold sits within the domain of analytic ontology, not speculative cosmology.<sup>6</sup> It is not neutral with respect to competing theories in analytic ontology, especially views that use the notion of a manifold and regions to construct an alternative hypothesis about the categorial structure of reality such as Sam Cowling's (2014) theory that the category of property and hence of trope is derived from the (more fundamental) category of location (dubbed 'locationism').<sup>7</sup>

Let us now explore (A) and (C). In non-far-fetched cases both disjuncts of the disjunction on the right-hand side of (A) and (C) describe the same thing. This redness fails to exhaust the content of the region it occupies, or equivalently, it is merely part of the content of that region. The football exhausts the content of the region it occupies, or equivalently, it is identical with the content of that region. The top half of the football is a concrete part because the top half exhausts the content of a region that is a sub-region of the region that the football occupies.<sup>8</sup> In contrast, this redness occupies its region without having parts that occupy sub-regions of that region or without occupying a sub-region of that region. Put differently, using the second disjunct of the right-hand side of (A), this redness is merely part of the content of the region it occupies, whereas the top half of the football is not a proper part of the content of the region it occupies (where 'the region it occupies' refers to a proper sub-region of the region that the football occupies). This redness is, Williams tells us, 'pervasively present' (Williams 1986[1960], 5). This redness is an extended simple, if colour is not complex or if this redness is not taken to be composed of the redness of (say) the top half of the football and the redness of the bottom half of the football.<sup>9</sup> To allay worries about our

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<sup>6</sup> Analytic ontology and speculative cosmology are two separate branches of metaphysics. The former is an a priori study of reality's most general categories. The latter is an a posteriori, inductive investigation of slightly less general kinds but still in pursuit of world-hypotheses. Trope theory falls under analytic ontology. Materialism and naturalism fall under speculative cosmology.

<sup>7</sup> It is beyond the scope of this paper to compare Cowling's locationism with classical trope theory. Briefly though, the explanatory aims of each theory differ. Cowling is specifically concerned with theories of instantiation. Also, he motivates his view off the back of criticisms that target theories that posit a primitive instantiation relation. Bundle theories (like classical trope theory), which do away with a primitive instantiation relation, are set aside (Cowling 2014, 668, n. 5). Furthermore, I am sceptical that Cowling can do without some primitive notion of qualitiveness because the locations that make up his quality-space are fundamentally qualitative. (I am referring to the broad sense of qualitiveness, the sense that is contrasted with non-qualitiveness or bareness.) We can rightfully ask: what is it about this location such that when occupied it confers a certain qualitative character on the thing that occupies it? I suspect that locationism and classical trope theory both have some (broad) primitive notion of qualitiveness – what I call nature-hood – and a primitive notion of occupation (although classical trope theorists take occupation relations as tropes).

<sup>8</sup> I assume any sub-regions of region  $R$  are not identical with  $R$ . Call sub-region  $R1$  of  $R$  a 'proper sub-region'.

<sup>9</sup> Not all tropes are extended simples; it is possible that some tropes are unextended complexes (for discussion, see Pickup 2016). Our toy example is not perfect because it might be reasonable to suppose that this redness *is* composed of the redness of the top half and the redness of the bottom half of the football (cf. Robb 2005, 476-77). This suggests that some concrete wholes have their abstract parts in

toy example (which stem from it being an ordinary, complex object), consider a negatively charged electron that has a charge trope as a part. This charge trope, as Lewis says, ‘occupies the whole of the spatiotemporal region, point-sized or larger, that the particle itself occupies’ (Lewis 1986b, 64). This charge trope does not occupy a sub-region of the region that the particle occupies.

In far-fetched cases it is more accurate to speak of an entity occupying the region directly. To illustrate, certain trope theorists, especially those with Humean inclinations such as Williams, believe that some (presumably basic) tropes can exist on their own. These tropes are ‘free-floating’ (Campbell 1990, 55). Suppose  $t$  is a free-floating trope in world  $w$  and that  $t$  occupies region  $R$  in  $w$ . Since  $t$  is free-floating, no other entity occupies  $R$ . However, it does not follow that  $t$  is concrete. Even though  $t$  is the only entity that occupies  $R$  in  $w$  it lacks the ability to exhaust  $R$ . In  $w$ ,  $t$  is the sole occupant of  $R$  but it is not the exclusive occupant of  $R$  in the sense that were region  $R$  to be occupied by some other entity,  $t$  would be exactly co-located with that entity at  $R$ . Thus (A) and (C) do not preclude free-floating tropes. These far-fetched cases show us that (A) and (C) involve a modal notion. I will not consider whether this is a drawback, although it will need to be addressed in debates about the metaphysics of modality. (A) and (C) also imply that abstractness and concreteness are in some sense extrinsic, although in another sense it is in the intrinsic nature of the trope that it fails to exhaust its region. Likewise, I leave exploration of this implication for another occasion. There is no principled reason why abstractness must be intrinsic (in every sense of that word).

(A) and (C) have other consequences. One consequence has to do with necessary connections and their lack thereof among certain relations. Katherine Hawley (2010, 119) has claimed that there is a necessary connection between the *being part of* relation (hereafter the parthood relation) and the *occupying a sub-region of the region occupied by* relation (hereafter the sub-region relation). Thus:

(NC) Necessarily, for any particulars  $x$  and  $y$ , if  $x$  is a (proper) part of  $y$ ,  $x$  occupies a (proper) sub-region of the region that  $y$  occupies.

However, if abstract particulars exist, (NC) is false. If this charge trope is part of this electron, the charge trope does not occupy a sub-region of the region that the electron occupies. For classical trope theorists, there is no necessary connection between the parthood relation and the sub-region relation.

Another consequence is that abstracta and concreta differ in that abstracta can be co-located with other entities (both abstracta and concreta), whereas concreta cannot

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virtue of the abstract parts of their concrete parts. This added complexity is not unwelcome. It arises because of the complex nature of things. We can simplify matters by not mixing the two kinds of parts in such a way that when we deal with a concrete whole we consider just its concrete parts *or* just its abstract parts. If we *must* suppose the redness of the football is composed of the redness of its top half and bottom half, take some smallest concrete part of the football such that its redness is not composed of any redness had by its concrete parts. The redness of this concrete part, then, is an extended simple.

be co-located with other concreta.<sup>10</sup> The intuition is that ‘concretion’ results in a unique object in accordance with a mereological principle of uniqueness of composition. The concurrent tropes uniquely compose one concrete object and that concrete object is identical with the content of the region that it occupies. (A) and (C), therefore, capture what is ordinarily meant by ‘concrete’. As Campbell puts it, a concrete entity monopolises its place such that no other entity like it can occupy that place (Campbell 1990, 3). It is an exclusive occupant. An abstract entity fails to monopolise its place; it can be exactly co-located with other entities and with other entities of the whole of that region and not of any (proper) sub-region of that region. It is not an exclusive occupant.<sup>11</sup>

(Objection: consider the shape trope of the left half and the shape trope of the right half of the football. Now take the plurality of the shape tropes. Call it ‘P’. P is collectively exactly located at the same region as the football. P is distinct from the football, although the ‘members’ of P are not. If P is collectively exactly located at the same region as the football, the football cannot be concrete. The football does not exhaust the region it occupies.<sup>12</sup> Reply: classical trope theorists should say pluralities are nothing over and above their ‘members’. What you have are just *those* things (these shape tropes). This is suggested by the doctrine that plural quantification is ontologically innocent. If that is right, the notion of collective exact location can be reduced to individual exact location of the ‘members’ of the plurality. If this doctrine about pluralities is contentious, it is another cost incurred for classical trope theory. At the same time proponents of this objection must motivate and expound their ontology of pluralities for the objection to be compelling. If the point of the objection is that a concrete whole ends up competing spatiotemporally with its parts collectively (as some kind of collective plurality), classical trope theorists should insist that at some point the concrete whole just is its parts.)

Some trope theorists take tropes to be ‘thin’ natures (Hakkarainen & Keinänen 2017, 648; Simons 2000, 147). These trope theorists do not give an explicit definition of thinness. Also, they employ the concept of thinness in a bid to junk the notion of abstractness. But when Williams states that tropes are ‘thin’ he refers to abstractness:

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<sup>10</sup> Classical trope theorists must deny the existence of coincident *concrete* particulars. The statue and lump are typically regarded as coincident concrete particulars (assuming constitution is not identity). The statue as one concrete object coincides with lump (a lump of clay) – another concrete object. Classical trope theorists must say the statue and lump are not coincident concrete particulars. How they motivate this is a different story – perhaps they could invoke temporal parts or say constitution is identity or something else. I leave this problem for another occasion. There are cases, mostly from physics, that would need to be discussed as well. A portion of the Earth’s magnetic field is co-located with the football (cf. Campbell 1990, 175, n. 5). This portion is not a concrete particular, but the football is thereby not fully concrete because a portion of the Earth’s magnetic field is co-located with the football. Perhaps our common sense notion of the football as a concrete entity is still captured by it being *almost* fully concrete. This issue, however, will not be addressed any further.

<sup>11</sup> Montse Bordes (1998, 3, n. 1) and Andre Fuhrmann (1991, 57) endorse the same sort of account of abstracta. However, their treatment of it is brief.

<sup>12</sup> I thank a referee for raising this worry.

‘thin’ is a familiar connotation of ‘abstract’ (cf. Williams 1931, 586-87).<sup>13</sup> This is not to say that abstractness explains thinness, nor does this mean that thinness explains abstractness.<sup>14</sup> Rather, the two concepts provide a mutual characterisation of one aspect of the trope in order to improve our understanding of the trope: that it is an entity with a ‘special sort of incompleteness’ (Williams 1953a, 15; 1966, 86). All the while abstractness is understood as a certain kind of part of a whole, as per (A). If trope theorists do not appeal to abstractness when talking of tropes as thin, the latter characterisation is not illuminating. Also, thinness does not afford any explanatory gains, whereas abstractness does because it fills many theoretical roles in our theory. So abstractness is the more fruitful characterisation. If we admit talk of thinness, it should be employed with reference to abstractness.<sup>15</sup>

The fact that abstractness comes in degrees is part and parcel of the thesis that the distinction between abstracta and concreta does not represent an ontological divide between two basic kinds of entity. After all, an abstract entity is a special sort of part of a whole.<sup>16</sup> When we consider a concrete whole and its abstract parts the abstractness of each abstract part is not abstract simpliciter but abstract to a degree. To illustrate, the football is a concurrent sum of tropes. Call it ‘S’. Suppose that S is composed of the following abstract parts: *a*, *b*, *c*, and *d*. S is maximally concrete relative to its abstract parts. The sum *a+b+c* is less concrete and more abstract than *a+b+c+d*. The sum *a+b* is less concrete and more abstract than *a+b+c*. If *a*, *b*, *c*, and *d* are simples (i.e., they lack proper abstract parts), they are perfectly abstract.<sup>17</sup>

Daly has objected that ‘it is not clear which parts of a given object are tropes and which are not’ (1997, 142). Presumably, the top half of the football is concrete. So the top half is not a trope. This redness is abstract and given that it is particular, it is a trope. But, he says, ‘Williams apparently takes the distinction between the abstract and the concrete (in his sense of those terms) to form a continuum’ (1997, 142). So, the top half of the football is less concrete than the top-half-plus-bottom-half and this redness

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<sup>13</sup> Williams also refers to tropes as ‘fine’ and concreta as ‘gross’; this redness is a fine part of the football, whereas its bladder is a gross part. The following criticism of thinness equally applies to fineness.

<sup>14</sup> Certain philosophers have misunderstood Williams here. He is *not* inferring abstractness from thinness, as Armstrong and Maurin claim (Armstrong 1978, 78; Maurin 2002, 22). His characterisation of tropes as abstract is not thereby empty or uninformative.

<sup>15</sup> This mutual characterisation is of a nature being thin or abstract simpliciter and *not* of a nature being thin or abstract to some degree. In that sense, then, the explanatory gains are limited to facts about abstractness simpliciter. Nonetheless these explanatory gains are gains over and above what thinness provides on its own. As one referee has pointed out to me, thinness might be suited to certain kinds of entities that are not abstract in the sense specified herein. But if so, friends of this use of ‘thin’ must specify its meaning for it to be illuminating. What work ‘thinness’ does in the theory must be spelled out too. Perhaps there is work for it to do, but it is on trope theorists who employ talk of thinness in place of abstractness to tell us.

<sup>16</sup> L.A. Paul’s (2002) logical parts somewhat resemble Williams’s abstract parts. A crucial difference turns on the connection that binds abstract/logical parts together to compose objects. Paul posits a co-instantiation relation, whereas Williams appeals to concurrence. My formulation of classical trope theory derives solely from my exposition of Williams’s work.

<sup>17</sup> Williams admits there might not be perfectly abstract particulars or, as he puts it, ‘simple natures’ (1953b, 180, n. 31). Anna Marmodoro calls this ‘qualitative gunk’ (Marmodoro 2015). If there is no fundamental level of perfect abstracta, the dyadic predicate ‘... is more abstract than ...’ can be taken as primitive and from this primitive we can define up ‘... is perfectly abstract’ if required.

is less abstract ‘than the part which consists solely in its left-hand side’ (Daly 1997, 142). Daly concludes: ‘it is unclear what the rationale is for saying that certain parts are tropes, and that certain other parts are not. It is unclear how “fine” or “abstract” a part must be for it to qualify as a trope’ (1997, 142).

Daly’s objection rests on a misunderstanding concerning the role that degrees of abstractness and concreteness play in Williams’s account of abstracta. Degrees of abstractness and concreteness do not play the role of determining when some entity is a trope or not. (A) and (C) do that. Degrees of abstractness and concreteness are explained in terms of mereological complexity among concurrent sums. The fact that abstractness and concreteness admit of degree does not entail that for any  $x$  if  $x$  is a sum,  $x$  is less abstract or more concrete than its parts. The football is also a sum of concrete parts. But it does not follow that its concrete parts are more abstract or less concrete than the football. Its concrete parts are maximally concrete. The top half of the football exhausts the content of its region and so it is just as concrete as top-half-plus-bottom-half; the top half is not merely part of the content of its region, although the region it occupies is a sub-region of the region that the football occupies.<sup>18</sup> In addition, it does not follow that for any abstract sum of abstract parts the sum is less abstract than its parts; the relevant sums are *concurrent* sums, i.e., sums whose parts concur with it and are of the same content.<sup>19</sup> Contra Daly, it is clear what the rationale is for saying that certain parts are tropes.

## 2. Abstraction

The broad definition of ‘abstract’ paves the way for us to construct an account of abstraction. According to Williams, the broad meaning is ‘more literally in accord with the word’s Latin construction’ than the Platonic understanding of the word (1953a, 15; 1966, 85). The word’s Latin construction is the conjunction of *ab* (away) and *trahere* (to draw). Thus C.S. Peirce in the *Century Dictionary* says that ‘abstract’ as a transitive verb with respect to its Latin root means: ‘To draw away; take away; withdraw or remove, whether to hold or to get rid of the object withdrawn: as, to *abstract* one’s attention; to *abstract* a watch from a person’s pocket, or money from a bank’ (1895, 24). Peirce further says ‘abstraction’ as a noun means: ‘The act of taking away or separating; the act of withdrawing, or the state of being withdrawn; withdrawal, as of a part from a whole, or of one thing from another’ (1895, 24).

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<sup>18</sup> Daly’s claim that this redness is less abstract than its left-hand side can easily be denied (hence my response is merely footnote-worthy). This redness, assuming colours are not complex in the appropriate sense, is an extended simple. It does not have a left-hand side, although were the content in which this redness resides to be of a smaller volume this redness would occupy a smaller volume. It follows that we cannot paint the left-hand side of this redness, nor is the left-hand side a trope. Further discussion of this issue requires a theory of the boundaries of tropes. Campbell discusses choice points that we need not canvass here (Campbell 1990, ch. 6).

<sup>19</sup> The locative nature of tropes calls for clarification about how tropes characterise the concrete wholes they are parts of. There are further questions about whether certain tropes of a concrete whole characterise the concrete parts of that concrete whole. A full treatment of this topic is left for another occasion. For a recent attempt to articulate classical trope theory’s account of predication, see (Fisher 2018).

Peirce's examples suggest that 'to abstract from' and 'abstraction' both involve singling out something *particular* from some complex. The watch (particular) is abstracted from a person's pocket (particular).<sup>20</sup> However, we have not said anything yet about what kinds of particulars we are abstracting. So far it is possible for us to single out *both* abstract and concrete particulars using abstraction. I can attend to this redness while ignoring the rest of my football, but I can equally abstract the football's bladder from the football. Now, Williams goes on to reserve the word 'abstraction' for the process that deals with abstracta in the same way he refines the meaning of 'abstract' (noun). He is entitled to do this because he has an account of what it is for an entity to be abstract, which involves a likewise refinement of the broad meaning of 'abstract' as part. He writes:

Among the many processes called "abstraction" only the most primitive quite deserves the name: the distinct awareness of the abstractum itself which occurs at the sensory and even the animal level (1953b, 176; 1966, 94).

To abstract this redness means to single it out by ignoring the rest of the football. The entity we single out is not abstract because it is abstracted. It is abstract because it fails to exhaust the content of the region that it occupies or is merely part of the content of that region. But because this redness is abstract we need the act of abstraction to single it out. Fuhrmann similarly says of tropes that 'they are also abstract because, like universals, they come in clusters, *thus* requiring abstraction to single them out' (Fuhrmann 1991, 57, my italics). Campbell, in correcting his (1981, 477-78) mistake of labelling an entity abstract because it is abstracted, writes that:

The colour of this pea, the temperature of that wire, the solidity of this bell, are *abstract* in this sense only: that they (ordinarily) occur in conjunction with many other instances of qualities (all the other features of the pea, the piece of wire or the bell), and that, therefore, they can be *brought before the mind* only by a process of selection, of systematic setting aside, of these other qualities of which we are aware. Such an act of selective ignoring is an act of abstraction. Its result is that we have before the mind an item which (as a matter of fact, in general) occurs in company with others (Campbell 1990, 2-3, his italics).<sup>21</sup>

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<sup>20</sup> Classical trope theorists reject the idea that abstraction is the process of singling out universals. They do not conflate abstract entities with universals. They call the process of attending to universals 'generalisation' (i.e., the process of treating perfectly similar entities as one repeatable) and distinguish it from abstraction (Williams 1953b, 176; 1966, 94). In some places Williams uses the word 'generalization' instead of 'generalisation' so as to distinguish between what he calls abstractive generalisation and inductive generalisation. Generalization is abstractive generalisation. More on this in Section 3.

<sup>21</sup> Daly (1997, 144), Cynthia Macdonald (1998, 333), Maurin (2002, 23), and Trettin (2000, 284, n. 7) all fail to realise that Campbell corrected his 1981 mistake in 1990. Sophie R. Allen only cites Campbell's 1981 article in her presentation of his theory of tropes (Allen 2016, 40). J.P. Moreland says that Campbell's trope theory 'has evolved over the years and it is possible to distinguish an early and late version of his thought' (Moreland 2001, 53). But even Moreland fails to notice the change from the pre-1990 to the post-1990 account of abstracta, attributing to the later Campbell the earlier view that 'abstract' has an epistemic or psychologicistic meaning.

Williams develops this theory of abstraction by connecting abstraction with a notion of analysis. He says:

The processes by which we notice the constituents of things, whether just to distinguish men, the moon, and trees from one another in the universe at large, or to distinguish the smaller constituents, abstract or concrete, within such standard “things”, is variously called “analysis”, “division”, “discrimination”, and so forth (1953b, 180; 1966, 98).

To attend to the set of abstract parts of a complex is called ‘abstractive analysis’. It is the (decompositional) kind of analysis that focuses on abstracta, and specifically on all the abstract parts of some complex. Supposing  $S$  is composed of abstract parts  $a$ ,  $b$ ,  $c$ , and  $d$ , an abstractive analysis of  $S$  focuses on  $a$ ,  $b$ ,  $c$ , and  $d$  taken together. This process is to be distinguished from abstraction, which is the act of attending to a *single* abstract part (say,  $a$  in the example above). Williams contrasts abstractive analysis with, what he calls, ‘partitive analysis’. Partitive analysis is the (decompositional) analysis of concrete parts. In ‘Universal Concepts and Particular Processes’ (written in 1962, but only published in 2018), he elaborates,

I ... proposed an ontological analysis in which the properties or characters of a table, for example – its color, its size, its solidity, and so forth – are parts of it, differing from such parts as its legs, its top, its several boards, and the like, in two respects – in the ‘direction’, so to speak, in which the cut is taken, somewhat as the horizontal halves of a thing differ from its vertical halves, but also in the fineness of the cut, somewhat as a division into molecules differs from a division into boards (Williams 2018, 69).

The two cuts correspond to our two modes of analysis. The direction of abstractive analysis is that of analysing abstracta. Partitive analysis is directed at concreta. Williams adds (elsewhere) that the ‘finer the ingredients with which it ends, the “deeper” the level’.<sup>22</sup>

How are we to understand this aspect of his view? According to classical trope theory, abstracta are members of the fundamental category of being; concreta are members of a derivative category. Tropes are more fundamental than concreta (because the former belong to the fundamental category and the latter belong to a category that is derived from the fundamental category). Abstractive analysis is the ‘finer cut’ because the parts it deals with are members of a more fundamental category than the parts that partitive analysis deals with. Since the analysans of abstractive analysis are more fundamental than the analysans of partitive analysis, abstractive analysis analyses things at a deeper, more fundamental level than partitive analysis. Compare: an analysis of an object in terms of its chemical properties deals with entities less funda-

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<sup>22</sup> *Outline of Logic: An Introduction to the Principles of Reasonable Belief* (unpublished, 1946), ch. 7, p. 241. Donald Cary Williams Papers, HUG(FP) 53.45, box 1, folder: ‘Outline of Logic’, Harvard University Archives. I thank David C. Williams and Harvard University Archives for permission to quote material from the Donald Cary Williams Papers.

mental than a micro-physical analysis of that same object in terms of its micro-physical (quantum) properties. It is in this sense that tropes are the elements of being. As Williams remarks:

These abstract particulars, or ‘tropes’ as I dubbed them, are the very ‘elements of being’ in the sense that no matter to what level we analyze a thing into concrete parts, the abstract components of these provide a finer analysis (Williams 2018, 69).

This argument assumes that a whole is less fundamental than its parts (in some sense). The idea that a whole depends on or reduces to its parts can plausibly explain this assumption. Williams adds: ‘Part does not depend on part, nor whole on whole, nor part on whole. That whole does depend on part is so for the trivial reason that the whole is at least the sum of its parts’ (1953b, 189; 1966, 106). This mereological reductionism in Williams’s day was a realist reaction to the idealist conception that wholes are ontically prior to their parts (cf. Perry 1918, 374). This assumption cannot be taken for granted nowadays because metaphysicians have shown that this idealist doctrine is a live option (see e.g., Schaffer 2010). Nonetheless, the former is the more commonly held doctrine of the two and theoretical conservatism speaks in favour of us accepting it over the latter.

Williams also argues that: ‘Partitive analysis of a concrete thing, since it distinguishes the relations of the parts as well as the parts, always involves some abstractive analysis’.<sup>23</sup> In order for a car to be composed of its tyres, its engine, etc, its tyres, its engine, etc need to stand in the parthood *relation* to each other plus the car and these parts need to stand in spatiotemporal *relations* to each other. If partitive analysis always involves some abstractive analysis, its analysans must include some abstracta. So, not only is abstractive analysis more fundamental than partitive analysis, but partitive analysis depends on abstractive analysis. Of course, none of this implies that classical trope theorists reject partitive analysis. They admit that a concrete object can be analysed into its concrete parts. It is just that there exists another kind of analysis of that same object in terms of its abstract parts and this latter kind is a more fundamental analysis.

Daly raises another objection that is instructive to discuss at this point. He writes:

Williams takes the parts of a lollipop to include its colour-cum-shape and its colour. But, at least on the face of it, the parts of a lollipop are not these, but physical pieces each of which has a colour, shape, taste, and so on. And if there are parts of the lollipop which themselves lack parts, then these are also physical parts of the lollipop, with whatever physical properties belong to the smallest parts of matter. But again these parts are not the colour of the lollipop nor its shape (1997, 142-43).

If we examine the parts of the football, we will not find tropes among its parts; we will find only concrete parts. Hence, any analysis of an object’s parts is not abstractive

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<sup>23</sup> *Outline of Logic*, ch. 7, p. 240.

analysis. It seems that abstractive analysis is not really analysing parts, it is analysing something else. To paraphrase Simons: parts is one thing, tropes another (Simons 1994, 563). A subsidiary point is that if abstractive analysis is a mysterious notion, there is no clear sense in which it is more fundamental than partitive analysis or that partitive analysis depends on abstractive analysis.

Williams anticipates this kind of objection. He draws a distinction between constituents and ingredients. Constituents are the parts (abstract *or* concrete) ‘as they exist within a complex object as we describe it’; ingredients are entities ‘with which we operate when we start generating it or when we are through disintegrating it’ (Williams 1953b, 178; 1966, 96). The constituents are not the ingredients that go into making an object, nor are the constituents the bits we can break off concrete objects. The ingredients of a cake (milk, sugar, eggs, flour) are not its constituents; and the severed organ of a cane toad is not appropriately described as the same thing (constituent) before dissection. Williams continues:

the constituents of a lollipop, for example, are not the stuffs which went into the kettle, nor the shards which would result from running it through a grinder, but the sectors, the facets, the atoms, the structures, and the qualities which are its current parts and components *in situ* (1953b, 180; 1966, 98).

The goal of both abstractive and partitive analysis is to discover the *constituents* of the analysed entity. Even in cases of partitive analysis, such as dissecting the cane toad, we might have before us its severed organs qua ingredients, but: ‘The goal, however, is not a description of the debris but an inference from it concerning the original constitution of the thing and of other things like it’ (Williams 1953b, 181; 1966, 99). That is, we are after a statement of its concrete parts as it existed (qua constituents). Similarly, the goal of analysing the lollipop in terms of its tropes is not to say ‘here are its real ingredients’ as if we could put a lollipop together by assembling its tropes but rather to infer that its (ultimate) constituents as it exists are tropes. In both cases the same sort of operation is at work. The only thing that differs is the kind of entity involved in the respective analysis. As such, abstractive and partitive analysis stand or fall together. If partitive analysis is a clear notion, so is abstractive analysis.

Daly’s objection relies on such cases as the lollipop-stick or an aeroplane wing or a wristwatch dial. In these sorts of cases the ingredients and constituents are ‘conspicuously affiliated’ with each other (Williams 1953b, 178; 1966, 96). The aeroplane wing looks to be an ingredient of the plane as well as a constituent of it, i.e., the very same thing (the wing) goes into the making of the plane and is a constituent of the plane as the plane exists. But this is not a necessary connection. The cake example suggests that it is not the case that necessarily the ingredients of something are its constituents. As regards these cases specifically, they are artefacts and they behave the way they do in ordinary experience because of the contingent nomic structure of our world. In worlds where the laws are very different lollipop-sticks may well dissipate like chlorine gas of our world when released from a beaker. In these worlds our experience of lollipop-

sticks would lead us to say that we cannot put a lollipop back together by removing and reinserting the lollipop-stick.

There is a general point here in reply to Daly's objection. The contingent examination of a lollipop by us does not show that the only parts it has are concrete. We cannot rest this metaphysical conclusion on our actual examination of ordinary objects (specifically, of artefacts). The fact that a concrete particular can be analysed into its concrete parts does not imply that a concrete particular can *only* be analysed in terms of its concrete parts. Ordinary experience and our everyday interactions with concreta might lead us to judge that concrete objects have only concrete parts, but it is an open question whether concrete objects can only be analysed in terms of concrete parts. Classical trope theory might be true. If so, the real nature of a concrete particular is that of a concurrent sum of tropes rather than a sum of concrete parts. This does not imply that a concrete object cannot be analysed in terms of its concrete parts. It is just that in addition to an analysis of it in terms of its concrete parts there is a further, more fundamental analysis in terms of its abstract parts (which reveals its real nature). Therefore, it is not the case that concrete objects can only be analysed in terms of concrete parts. For all we know, there might be a more fundamental analysis, depending on the correct metaphysics; looking at contingent cases of artefacts will not decide the issue.

### 3. Indispensability of Abstractness

In this section I respond to an objection by Maurin that aims to dispense with the abstractness of tropes. She writes: 'the important trait here is what I would like to call the inherent "qualitativeness" of the trope. The trope is quite, simply, a "quality particularised"' (2002, 23). The fact that a trope is a quality particularised is sufficient 'to distinguish it both from the realist's universal and the ordinary concrete particulars of everyday life' (Maurin 2002, 24). So abstractness is an unnecessary feature. Unnecessary features should not be posited. Hence tropes should not be considered as abstract.<sup>24</sup>

This objection falsely presupposes that if a concept within the conceptual system of our theory does not play a role in distinguishing entities of our ontology, it is unnecessary and whatever it applies to should not be posited. A concept might play some other role indispensable to the conceptual system of our theory and so for this reason it is necessary and whatever it applies to should be posited. To illustrate, consider the category of universals. Tropes and (almost all) universals are abstract.<sup>25</sup> They share this feature. Maurin points out that abstractness will not distinguish them. But just because abstractness fails to distinguish tropes from universals it does not follow that abstractness is useless. Abstractness plays an important role in reducing universals to tropes.

<sup>24</sup> Sometimes Maurin speaks of tropes as if they were abstract particulars. But for her 'abstract' means (oddly) 'qualitative', which is a distinct use from Williams's.

<sup>25</sup> Not all universals are abstract because some universals are concrete, according to the classical trope theorists' schema. The total nature or essence of a concrete object is a concrete universal because the manifestation of the total nature or essence exhausts the content of the region it occupies. That some universals are concrete in this sense is irrelevant here.

Classical trope theory is, as I have argued elsewhere (Fisher 2017, 343-46), a novel form of immanent realism about universals. The view, in brief, is as follows.

The distinctive behaviour of universals is such that universals are (or might be) wholly present repeatedly.<sup>26</sup> In contrast, particulars are not (and cannot be) wholly present repeatedly (at a single time) (cf. Lewis 1986a, 44).<sup>27</sup> This behavioural difference is between universals qua wholly present repeatables and particulars (both abstract and concrete). Williams (1963, 615; 1986[1960], 9) and Ehring (2011, ch. 1) propose that we functionally characterise this difference in terms of the identity of indiscernibles. Given that classical trope theory takes the notion of a nature as a central primitive, the identity of indiscernibles receives a specific formulation in terms of it. As stated in the Introduction, tropes do not have natures. They are natures. When it comes to the concept of a universal, classical trope theorists similarly regard universals as natures. Universals do not have natures. They are natures (universal natures). The nature of a universal is nothing over and above the universal.

The identity of indiscernibles thus reads: necessarily, for any natures  $x$  and  $y$ , if  $x$  and  $y$  exactly resemble each other,  $x = y$ . We can now provide the following functional characterisation of the difference between universals and particulars (henceforth called Williams's account of the universal/particular distinction). For any nature  $x$ ,  $x$  is particular iff possibly there exists some nature  $y$  such that  $x$  and  $y$  exactly resemble each other and are distinct. For any nature  $x$ ,  $x$  is universal iff it is not the case that possibly there exists some nature  $y$  such that  $x$  and  $y$  exactly resemble each other and are distinct. Exact resemblance has to do with natures independent of their context.  $x$  and  $y$  exactly resemble each other just because  $x$  is what it is and  $y$  is what it is. Resemblance is not grounded in  $x$  and  $y$  having intrinsic qualitative properties. To say that  $x$  and  $y$  are qualitative duplicates is not to say that  $x$  and  $y$  share the same intrinsic qualitative properties.<sup>28</sup>

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<sup>26</sup> If there are uninstantiated universals, we are committed to the modal specification, as Lewis notes in his criticism of Peter Forrest's ontology of uninstantiated structural universals (see Lewis 1986a, 42-46).

<sup>27</sup> Tropes may recur across time. This sort of temporal recurrence needs to be posited, if we accept endurantism. For simplicity, I bracket the topic of persistence and ignore reference to times.

<sup>28</sup> Daniel Giberman (2016) and Gonzalo Rodriguez-Pereyra (2017) argue that Williams's account of the universal/particular distinction fails. I reply that Williams's account is not essential to the theory of universals that follows. If some other account is superior, it can be used instead. However, there are at least two avenues that can be explored in direct response to Giberman and Rodriguez-Pereyra. First, since classical trope theorists intend to functionally characterise the difference between universals qua wholly present repeatables and particulars, Williams's account is not intended to encompass or take into account entities of every possible ontic category. It is free to ignore such cases as numbers and concepts qua spatiotemporal individuals, which, Rodriguez-Pereyra (2017, 621-22) argues, satisfy the identity of indiscernibles. This might sound like a dodge but it is independently motivated by the observation that what needs explaining is the behaviour of universals qua wholly present repeatables. Incidentally, these counterexamples rely on the existence of numbers and Platonic concepts, as Giberman points out (2016, 254-55). Classical trope theorists can reject these counterexamples by denying the existence of these entities. Rodriguez-Pereyra might reply that the whole point of the universal/particular distinction is to achieve full generality and so should be topic-neutral. But I am doubtful that such an aim is achievable in metaphysics. Second, for classical trope theorists, universals are identical with their natures. So, contra Giberman (2016, 250-51), it is impossible for a universal to have no nature. Using Giberman's terminology, it is impossible for a universal to lack 'intrinsic qualitative character'. A conception of universals according to which universals lack intrinsic qualitative character would require a different account

For Williams, universals *are* tropes counted according to the identity of indiscernibles. The identity of indiscernibles is a ‘weaker’ identity condition. He continues:

That universals are determined by a ‘weaker’ identity condition than particulars does not even mean that they have an inferior or diluted reality. A tabulation of universals is just one way of counting, as it were, the same world which is counted, in a legitimately different and more discriminating way, in a tabulation of particulars (1986[1960], 9).

As Campbell notes, the difference between the universal *Redness* and a red trope is ‘not a difference of *category* but a difference in *rule for counting*’ (Campbell 1990, 44, his italics).<sup>29</sup> Put differently, whatever fills the role of being a universal is a universal; since tropes fill this role, they *are* universals. As such, we have reductively identified universals with tropes.<sup>30</sup>

This reductive identification is premised on the assumption that both universals and tropes are abstract. It is part of the explanandum that universals are not only entities that are wholly present at multiple places but that they are able to exist at the same place and time as other entities, which is explained in terms of (A). Once the abstractness of universals and tropes is fixed, we can switch back and forth, so to speak, between the opposing sides of the universal/particular distinction such that tropes fill the role of satisfying the identity of indiscernibles. Abstractness is presupposed in the characterisation of the kind of entity we hope to reduce to tropes. Hence it plays a role in our reductive identification.

This point can be put in terms of how we perceive and conceive abstract universals in concrete particulars. Recall that abstraction is the act of focusing on an abstract part to the exclusion of the complex from which it is abstracted. Abstraction is not the act of singling out universals. The process of attending to universals is generalisation, which is the act of treating perfectly similar entities as one repeatable. Sometimes Williams uses the word ‘generization’ for this process because ‘generalisation’ often refers to inductive generalisation. Sometimes he calls generization ‘abstractive generalisation’ because generization is superimposed on abstraction. To illustrate, abstract this redness from the football. We have before us this redness qua abstract particular. Now apply the process of generalisation to the abstracted entity using the identity of indiscernibles, i.e., the process of generization. We have arrived at the abstract universal *Redness*. This is how we conceive and perceive abstract universals in concrete particulars. Abstract universals just *are* abstract particulars considered in a generalized fashion.

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of the universal/particular distinction. Thus I admit that Williams’s account fails to satisfy some criterion of metaphysical neutrality. However, I am doubtful that such a criterion can be met by any account of the universal/particular distinction. Moreover, I find the conception of universals as entities that might lack intrinsic qualitative character implausible and Gibberman does nothing more than assert that this conception of universals is plausible.

<sup>29</sup> Donald L.M. Baxter endorses a similar theory of universals (Baxter 2001).

<sup>30</sup> This is not to say that tropes, when they function as particulars, are multiply-located entities. The thesis is to be understood as analogous to Lewis’s (1972) formulation of the identity theory of mind. Universal-entity  $U$  = occupant of R-role. Trope-entity  $T$  = occupant of R-role. Thus  $U = T$ . Similarly, mental state  $M$  = occupant of M-role. Physical state  $P$  = occupant of M-role. So  $M = P$ . See (Fisher 2018, 161).

But it is only because tropes and universals are both abstract that tropes and universals are singled out through interrelated processes. Thus abstractness is not unnecessary.

Let us move on to Maurin's objection as applied to tropes and concrete objects. Tropes and concrete objects are particulars. As Maurin notes, their particularity will not distinguish them. She infers that the trope's qualitiveness is what distinguishes it from the concrete particular. So abstractness is unnecessary. However, this is not accurate. If trope theorists are right, concrete particulars are bundles of tropes. For classical trope theorists, this means that concrete particulars *are* qualitative complexes composed of simpler qualitative elements. Qualitiveness will not distinguish concrete particulars from tropes because qualitiveness is true of tropes and concrete particulars. We should look to abstractness to distinguish tropes from concrete particulars. (The real diagnosis of this dispute is that Maurin starts with different basic concepts to classical trope theorists and in effect has a distinct kind of trope theory. Nonetheless, *she* mounted an objection against *Williams*. Classical trope theorists are entitled to use pieces of their metaphysic to defend themselves.)

Furthermore, abstractness plays a vital role in identifying concrete particulars with sums of concurring tropes and in answering a recent challenge posed by Robert K. Garcia (2014). To see this consider a bundle theory according to which objects are bundles of particularised properties. On this theory the concept of a trope is not that of an abstract particular but rather that of a particularised property. For the object/property distinction is taken as basic and conjoined with the universal/particular distinction to pick out entities that are both properties and particulars. If objects are bundles of particularised properties, we are presented with the challenge of explaining how properties 'generate' an entity (i.e., an object) of a distinct ontological category that is 'charactered in each of the ways specified by those properties' (Garcia 2014, 117). Garcia argues that this challenge creates an explanatory gap for every trope-theoretic version of the bundle theory, which cannot be analysed away. The only option is to take the generation of non-properties from properties as brute – an undesirable result (Garcia 2014, 125).

According to classical trope theory, there is no categorial gap between abstracta and concreta. Concrete particulars are qualitative complexes composed of abstract particulars, entities that are less qualitatively complex than concreta. A concurrent sum of tropes that exhausts or is identical with the content of the region it occupies is a concrete particular. It is wrong to suggest that abstract particulars 'generate' concrete particulars. Strictly speaking, a concrete object just *is* a certain sort of trope. As Lewis remarks in a letter to Baxter, '[Williams] could have said that the [concrete] particular just *is* the trope, but counted by concurrence'.<sup>31</sup> There is no categorial gap between abstracta and concreta because concreta are one kind of abstracta. If God were writing the book of the world, God would only need to describe how tropes are located and

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<sup>31</sup> Letter from David Lewis to Donald L.M. Baxter, 21 June 1999, p. 1, his italics (David Lewis Papers, C1520, 'Baxter, Don', Box B-000660 Folder 16, Princeton University Library). I thank Steffi Lewis for permission to publish this excerpt from this letter by David Lewis, courtesy of Princeton University Library.

summed together to provide a complete and non-redundant description of reality. God would not have to use the term ‘concrete object’.

Garcia would object by saying that the notion of ‘concurrence’ will not do because it brings in specific theories of space and time that presuppose the notion of an object (Garcia 2014, 124). I have two replies. First, ‘concurrence’ does not bring in specific theories of space and time. We need only a topic-neutral manifold derived from basic abstract particulars that obey laws of identity and distinctness, which are spelled out in terms of parthood (Campbell 1990, 54-56). Whether the world is a spatiotemporal manifold or an analogous mode of extent or an immaterial manifold or some compound of these is a subsidiary, a posteriori matter. Even the idea of an entity occupying a region is a categorial matter and not a relation within the purview of speculative cosmology. Of course, more will need to be said about the extensions of ‘abstract’ and ‘concrete’ when investigating specific kinds of manifolds. Second, if we are forced to introduce a theory of space and time, we could opt for the relational theory. But that view when coupled with classical trope theory does not presuppose the notion of an object. It presupposes abstract particulars of a monadic variety, which serve as the relata of spatiotemporal relation-tropes. So Garcia’s counter-objection fails. In sum, we have answered Garcia’s challenge and demonstrated that abstractness is not unnecessary.

#### 4. Conclusion

In this paper I clarified and defended the classic notion of a trope. This notion is of a qualitative nature that is both particular and abstract. Classical trope theorists defend a distinctive account of abstracta, abstraction, the abstract/concrete distinction, and the meaning of ‘abstract’, all centred in specific ways on the intuitive and unproblematic concept of parthood. This theoretical unity is a benefit to the view. Through a detailed treatment of Williams’s work, which involved uncovering new material and incorporating it into a systematic analysis of his corpus, I argued that the standard objections against classical trope theory do not stand up to scrutiny. Since the standard objections are considered by many to be decisive, a significant dialectical result has been achieved, a result that will carry debate about a core issue in the metaphysics of tropes forward. The classical concept of a trope is coherent and the abstractness of tropes plays an indispensable role in one of our more promising trope-theoretic analyses of universals and of concrete objects. Hence classical trope theory is defensible and remains an attractive metaphysic.<sup>32</sup>

#### References

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