teorema
Vol. XXXVIII/2, 2019, pp. 51-72
ISSN: 0210-1602
[BIBLID 0210-1602 (2019) 38:2; pp. 51-72]

Are Tropes Simple?

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RESUMEN

Las ontologías tradicionales de tropos han propuesto que los tropos deben entenderse como 'entidades simples' que poseen, al mismo tiempo, un carácter cualitativo y un carácter particular. Estos tropos forman clases de semejanza que pueden cumplir las funciones de los universales. La relación de semejanza es una relación interna fundada en el carácter intrínseco de los tropos. Douglas Ehring ha argumentado que los tropos no pueden ser simples. Si lo fuesen, habría diferentes relaciones internas entre los mismos tropos, lo que está en conflicto con su simplicidad. Varias objeciones se han presentado contra el argumento de Ehring. Se va a mostrar en este trabajo que tales objeciones pueden ser contestadas. El argumento de Ehring es fortalecido con una formulación en términos de teoría de la fundación, lo que clarifica que los tropos no son simples.

PALABRAS CLAVE: *propiedades, tropos, semejanza, simplicidad ontológica, relaciones internas*.

ABSTRACT

Traditional ontologies of tropes have proposed that tropes should be construed as 'simple entities' that have at once a qualitative and a particular character. These tropes form resemblance classes that can fulfill the functions of universals. The resemblance relation is an internal relation grounded on the intrinsic character of tropes. Douglas Ehring has argued that tropes cannot be simple. If they were, there could be different internal relations between the same tropes, which is at odds with their simplicity. Several objections have been presented against Ehring's argument. It will be shown in this work that those objections can be answered. Ehring's argument is strengthened with a ground-theoretic formulation which clarifies that tropes are not simple.

KEYWORDS: *Properties, Tropes, Resemblance, Ontological Simplicity, Internal Relations*.

Defenders of trope ontologies offer a unique category as the 'alphabet of being'. Tropes, *i.e.* 'particular properties', have been presented as the fundamental constituents of particular objects, and the fundamental constituents of universal properties — or something that can fulfill the functions usually attributed to particular objects and universal properties. The classical theories of tropes [cf. Williams (1953a), (1953b); Campbell, (1981), (1990); Maurin, (2002), pp. 8-15] have contended that

tropes are 'simple' entities that are at once particular and have an intrinsic, qualitative nature. The alleged simplicity of tropes contrasts, for example, with the structure of a state of affairs, at least under the way in which David Armstrong has understood them [cf. Armstrong (1997), pp. 95-147]. A state of affairs is a non-mereological complex structured by an *n*-adic property and *n* objects. States of affairs should work as truth-makers for true propositions and as causal *relata* –besides other theoretical functions. Any state of affairs has a particular nature and a qualitative nature, but these are 'aspects' of the state of affairs that come from numerically different components. The object or objects contribute to the individual character of the state of affairs. The universal contributes to the qualitative character of the state of affairs. When it is contended that tropes are 'simple' it is implied that tropes are not composed by an 'element' of individuality and another numerically different 'element' of qualitative nature. Consider, for example, the following statements:

(1) Cubeness exists

(2) A particular exists

Suppose now that there is only a particular object, *b*, that happens to be a cube. For the defender of states of affairs, then, there is the state of affairs of *b being a cube*. For the friend of tropes, there is a trope, *that* particular cubeness. What are the truth-makers for (1) and (2)? For the defender of states of affairs, the truth-maker of (1) is a universal property, the universal of *cubeness*. But the truth-maker of (2) is a numerically different entity, the object *b*. For the friend of tropes, on the other hand, only one entity is sufficient as truth-maker for both (1) and (2): *that* particular trope of cubeness.

In what follows I will consider the notions of 'grounding' and 'dependence' as primitive. Both obtain between entities of any ontological category.[1] Both are strict orders, irreflexive, asymmetric and transitive. If x_1, x_2, …, x_n ground y it follows that it is necessary that, if x_1 exists, x_2 exists, … and x_n exists, then y exists. But the converse does not. If y depends on x_1, x_2, …, x_n, it follows that it is necessary that, if y exists, then x_1 exists, x_2 exists, … and x_n exists. The converse does not (cf. Fine, 1995). Modal covariations are sufficient neither for grounding nor for dependence. Weaker notions of grounding and dependence can be defined: x *weakly grounds* $y =_{df} x$ grounds y or $x = y$; y *weakly depends* on $x =_{df}$ y depends on x or $y = x$. Weak grounding and weak dependence, then, are reflexive, antisymmetric and transitive.

I. What are Simple Tropes?

A traditional stance of defenders of trope ontologies has been that the intrinsic nature of a trope is not grounded on resemblance relations of this trope with other tropes –as it is the usual contention in the different forms of resemblance nominalism– but in the primitive intrinsic nature of the trope by which it grounds a certain character. This conception of 'internal' resemblances is coherent with how 'resemblance' is usually conceived. Our common conception of the relation of resemblance is that it is reflexive, symmetric, intransitive and *internal*. That is, it is part of our common conception of resemblance that objects resemble each other – or don't – *because* they have the intrinsic properties they have. Intrinsic natures of objects seem to ground resemblance relations and not the other way around.

In general, an 'internal relation' is a relationship grounded on the intrinsic nature of its *relata*. The 'intrinsic nature' of an entity is the collection of its intrinsic properties. An 'internal relation', then, is grounded on the intrinsic properties of their *relata*. A relation that is not internal is 'external'. This conception of an 'internal relation' is, then, dependent on the concept of 'intrinsic property' that has been notoriously difficult to analyze. There probably is no unique concept of 'intrinsic property', but several different ones. It is not necessary here to adopt a stance on all the delicate issues connected to the notion, but it will be prudent to consider two alternative ways to analyze an 'intrinsic property' for any claim concerning the 'intrinsic' character of something. One of these ways of analyzing the concept is due to David Lewis and Rae Langton (1998) and relies on facts about the combinatorial independence between different objects and facts. The other relies on facts about the grounding of the instantiation of a property and it is due to Gideon Rosen (2010), p. 112).[2] I have my sympathies with the second conception, but it will be useful to consider what follows under both:

Combinatorial intrinsic: a property P is *combinatorially intrinsic* if and only if the instantiation of P by an object x is indifferent to the fact that x is alone or accompanied in a possible world [cf. Lewis & Langton (1998)]. An object x is alone in a possible world w if and only if there is no other object besides x in w. An object that is not alone is accompanied.[3]

Grounding intrinsic: a property P is *grounding intrinsic* if and only if, (i) if the instantiation of P in an object x is grounded on y, then y is an improper part of x, and (ii) if the non-instantiation of P in an object x is grounded on y, then y is an improper part of x [cf. Rosen (2010), p. 112].

These notions of intrinsicality are not equivalent. In general, the notion of combinatorial intrinsicality is less demanding that grounding intrinsicality. Any feature of an item that is modally invariant will also be combinatorially intrinsic, but not all those features are grounded on the item or its parts.

In the usual formulations, an internal relation is grounded on the 'intrinsic properties' of the *relata*, and the *relata* are supposed to be objects, not tropes. In the case of tropes, nevertheless, it makes no sense to attribute 'intrinsic properties' to them, because tropes *are* properties. But when internal relations like resemblance are attributed to tropes, it is supposed that the ground of those relations is the 'intrinsic nature' in a wide sense, that is, what those tropes are 'in themselves', however one construes that idea. Let's say that a certain 'character' of a trope is combinatorially intrinsic if and only if this character of the trope is invariant under scenarios in which the trope in question is alone or accompanied. And a certain 'character' is grounding intrinsic if and only if the fact that the trope in question has or hasn't that character is grounded on an improper part of it. A relation is, then, 'internal' to the related tropes if and only if it is grounded on the intrinsic character of those related tropes.

II. Ehring's Argument

Douglas Ehring has proposed an argument against the coherence of simple tropes [cf. Ehring (2011), pp. 175-187].[4] The difficulty comes from cases in which two tropes have different internal relations between them. It is convenient to consider in more detail why this kind of situation is incompatible with the simplicity of the *relata*. Suppose there is an object a_1 that has a perfect cubical shape and has a mass of 100 grams. Suppose also that there is an object a_2 that has a perfect cubical shape and a mass of 101 grams. It happens, then, that there are *two* different internal relations between a_1 and a_2. First, a_1 and a_2 have the same shape. Second, a_2 is heavier than a_1. One can conclude that this situation happens because both a_1 and a_2 have non-simple intrinsic natures. A shape and a mass compose their respective natures, at least. If one endorses an

ontology with particular objects and universals, the difference in nature of the shape and the mass in each object comes from the instantiation of two different universals: a universal of cubical shape and a universal of mass. If one endorses a form of resemblance nominalism, the difference in nature comes from the fact that the object belongs to two different resemblance classes: the resemblance class of all and only the cubical objects, and the resemblance class of all and only the objects with a certain mass. As internal relations are grounded on intrinsic natures, the complex nature of a_1 and a_2 explains why they have two different internal relations. It seems, then, that any items should obey this principle:

Non-Simplicity: if x and y stand in two distinct internal relations then at least one of x and y has a non-simple nature.

It is convenient, though, to point out that there are scenarios in which two items have two or more internal relations between them, but it is not obvious that those items are not simple. Suppose two objects with exactly 10 gr of mass. They fall under the relation of 'having the same mass of 10 gr', but also under the relation of 'both having mass'. Both are internal relations, but it does not seem that there is a case of a non-simple intrinsic nature.[5] Those relations obtain in virtue of the same intrinsic feature in the objects: their respective masses. So, some qualification is necessary for the principle of *Non-Simplicity* to exclude cases in which the obtaining of one internal relation necessitates the obtaining of the other because one intrinsic character of the related objects necessitates another intrinsic character in them. This is what happens when two objects have a determinate property and also a correlative determinable property –like having exactly 10 gr of mass and having some mass. Ehring characterizes 'arbitrarily different internal relations' in this way:

> Arbitrarily different relations are such that realization of one does not necessitate the realization of the other, nor does every variation with respect to one of the relations necessitate a variation with respect to the other. [Ehring (2011), pp. 177-178].

Below this characterization will be discussed in detail. It will prove to be crucial for the assessment of the argument. In what follows it will be assumed that the internal relations to whom the principle of *Non-Simplicity* applies are arbitrarily different in accordance with:

*Non-Simplicity**: if *x* and *y* stand in two arbitrarily different internal relations then at least one of *x* and *y* has a non-simple nature.

Douglas Ehring presented two scenarios in which tropes have different internal relations between them [cf. Ehring (2011), pp. 177-184]. By the principle of *Non-Simplicity*, this entails that tropes are non-simple, against what has been supposed by most friends of tropes:

Scenario 1: Let there be two different tropes m_1 and m_2. They resemble exactly. As they are numerically different, though, they are not identical. But resemblance and difference are internal relations.

Scenario 2: Again, let there be two different tropes m_1 and m_2. They don't resemble exactly –for example, let's suppose that they are tropes of different colors not completely unlike, as red and orange. As they are both particulars, though, they resemble exactly in being particulars. But exact resemblance and inexact resemblance are internal relations.

Both scenarios are exploiting the distinction between the qualitative character of tropes and their particularity. Tropes seem to be capable of having internal relations due to the first, but independently also seem capable of having internal relations due to the second. If a trope is really a simple entity, it could not enter into different internal relations with another trope.

There is another, somewhat similar argument against the simplicity of tropes that has been proposed by Herbert Hochberg [cf. Hochberg (2004), pp. 23-25, 39-40] and others [cf. Brownstein (1973), p. 47; Armstrong (2004), pp. 43-44; (2005), p. 310] that should be carefully distinguished from the foregoing one. Hochberg's argument depends on the premise that different true basic *propositions* that are logically independent require different *truthmakers*. Let there be two tropes m_1 and m_2, and two basic propositions m_1 *is different from* m_2, and m_1 *is exactly similar to* m_2. These propositions are, by hypothesis, basic and logically independent. If they are true, they require truthmakers. Then these different truths require different truthmakers, which seems to be at odds with the simplicity of tropes. This argument should not be confused with the one presented above. The main difference between them is that Ehring's argument deals with different *internal relations* grounded on pairs of tropes, while Hochberg's deals with different *true propositions* connected by the 'truthmaker' relation with pairs of tropes. Internal relations are not

propositions. Although the fact that a pair of tropes stand in an internal relation grounds the truth of a proposition stating the obtaining of that relation, the truth of a proposition about several tropes does not entail the existence of relations –internal or not– between those tropes. It has been rightly pointed out that the same truthmaker can ground different truths [cf. Maurin (2005), pp. 138-139; MacBride (2004)]. For example, supposing a relation *R* and its converse *R**, then the same relational fact involving *a* and *b* grounds the truths *Rab* and *R*ba*[6] The existence of propositions correctly describing facts depends on expressive resources, not only on the facts described. It is to be expected, then, that different truths –differing from each other in virtue of the expressive apparatus involved– can have the same truthmaker. The existence of internal relations, by contrast, are only grounded on what intrinsic nature entities have. Ehring's argument, then, has a force that the truthmaker argument does not have.

III. An Intrinsic Character of 'Particularity'?

Scenarios 1 and 2 presented above seem suspect to many –at least, that has been my experience with different philosophical audiences. The usual conception of internal relations as relations grounded on the intrinsic nature of the *relata* considers that nature as 'property' of the *relata*. But it seems extremely dubious that there is a property like 'particularity'. Hence, internal relations like 'difference' or 'being alike in being particulars' are dubious also. It has been pointed out above that it makes no sense to think of internal relations between tropes as grounded on intrinsic 'properties' of those tropes because tropes are properties. Internal relations between tropes should be grounded then on their 'intrinsic character' and not in 'intrinsic properties' of tropes. But even granting that the 'intrinsic character' of a trope is not a property of the trope or a collection of properties of the trope, there is a reluctance to accept as an intrinsic character of a trope something different from its qualitative character. Not everything that can be attributed to an item is correlated with an authentic – sparse – property. And only authentic intrinsic properties or intrinsic characters ground internal relations. A quark is not a cat. A dog is not a cat. But nobody is tempted to maintain that quarks and dogs resemble because both are 'non-cats'. Neither is anyone tempted to maintain that quarks and dogs are internally related because they

are 'both non-cats'. Internal relations are grounded on intrinsic properties or characters. If there are no such intrinsic properties or characters, there are no correlative internal relations.

Consequently, it is crucial for the assessment of these scenarios how the 'particularity' of tropes should be treated. It is especially important here to consider with more detail if 'particularity' might count as combinatorially intrinsic or grounding intrinsic or both. A character or feature F is combinatorially intrinsic if and only if, for any item x, the fact that x is F is independent of being x alone or accompanied. It results here that the character by which a trope m is a particular shows no variation whatsoever in worlds in which there are other entities different from m and in worlds in which there are no other entities. The fact that m is particular is essential to m and – hence – additions or contractions of entities in different possible worlds have no effect in the obtaining of that fact. One can safely say that the particularity of a trope is a combinatorially intrinsic character of it. As it has been explained above, a character or feature F is grounding intrinsic if and only if, (i) if the fact that x is F is grounded on y, then y is an improper part of x, and (ii) if the fact that x is not F is grounded on y, then y is an improper part of x. If there is a ground for the particularity of a trope it is the trope itself and nothing else. If there is something that is not particular – if something is universal, for example – this fact should be grounded on that item and nothing else. So, again, it is safe to say that the particularity of a trope is a grounding intrinsic character of it. So, under both alternatives, particularity turns out to be intrinsic. Thus, there are no reasons to exclude 'particularity' as an intrinsic character of tropes. Hence, if two tropes m_1 and m_2 are both particulars, their particularity being an intrinsic character of them, m_1 and m_2 resemble in the respect of both being particular entities. The argument against simple tropes that comes from scenario 2 is, therefore, cogent.

In the case of scenario 1, the situation requires more care. Particularity as an intrinsic character presents some specific peculiarities. In the case of a qualitative character, the fact that two items have the same type of character grounds the fact that those items resemble each other. The fact that two items have different types of character grounds the fact that those items don't resemble each other. Qualitative characters either ground resemblance or ground non-resemblance, but not both. In the case of particularity, on the contrary, it happens that two particular items, in virtue of being particulars, (i) resemble each other, but also (ii) are numerically different. The resulting resemblance indicated in (i) is the

same kind of internal relation that is grounded on any qualitative character. But, particularity also grounds (ii) numerical difference –or so it seems. This is something peculiar about the particular character of a particular. It is the character in virtue of which a particular entity is a particular entity. The particular character of something is connected to what has been called *haecceitas* or 'thisness' [cf. Adams (1979)].[7] It should not be surprising, then, that it is simply unlike any other qualitative character. This distinction is reflected in the fact that particularity grounds resemblance and difference. If difference is, then, a legitimate internal relation – as it seems to be – then scenario 1 is vindicated.

IV. Ontological Form and Content

Another source of resistance against an intrinsic character of 'particularity' has been recently presented by Hakkarainen & Keinänen (2017). Their contention is that the principle of *Non-Simplicity** can only be applied to the *ontological content* of tropes and not to their *ontological form*. In effect, the qualitative character of a trope is a matter of the trope's ontological content, but the particular character of a trope is a matter of ontological form. If Hakkarainen and Keinänen are right, there is a principled distinction in virtue of which the particular character of a trope –and consequently, the difference between tropes– should be excluded as legitimate intrinsic aspects for the application of the principle of *Non-Simplicity**.

The problem with the restriction suggested by Hakkarainen & Keinänen, however, is that it relies on the general distinction between 'content' and 'form', but that distinction is far from clear.[8] Hakkarainen & Keinänen propose that the contrast between content and form is the contrast between the *existence* of an entity and its *nature*, on one hand, and the *manner of existence* of that entity, on the other [cf. Hakkarainen & Keinänen (2017), p. 652]. This is their statement:

> One may consider anything one believes to *exist*, a human body for instance. In one's view, every such entity adds to the ontological *content* of the world –what beings there are. This is "ontology" in Quinean terms; one makes an "ontological commitment". Most likely, the belief in this entity also involves a belief about its *nature*: a belief whose content is a description of the *entity* (e. g. the body weighs 100 kg) [Hakkarainen & Keinänen (2017), p. 652].

> By contrast, if one also believes that an entity (e. g. the human body) *exists as* being numerically identical (it is the same with itself), one holds a belief about the *manner of the existence* of the entity, a belief whose content is a description of *its existence*. [Hakkarainen & Keinänen (2017), p. 652].

Yet the meaning of this distinction, as formulated by Hakkarainen & Keinänen, escapes me. What is the difference between *what is described* of an entity –being its 'nature', part of its content– and *what is described* about that same entity –being its 'form'? Somehow, just part of what one can describe correctly about an entity counts as 'content', while the rest is 'form'. But any distinction here seems arbitrary. For example, if one postulates the existence of a trope with a determined intrinsic nature, it seems part of that nature whatever qualitative character the trope has as well as the mere fact that the trope in question is an entity of such and such an ontological nature, *i. e.*, a trope and not a universal or a substratum.[9]

It follows, then, that lacking further clarifications, the distinction between 'ontological form' and 'ontological content' seems a distinction without a difference. This distinction, then, cannot be used to disqualify Ehring's problem.

V. A Generalized Version of the Argument

But the idea of an intrinsic character of 'particularity' is not the only motive to be reluctant to accept the argument against the simplicity of tropes. There is another source for the worry that comes from the suspicion that the argument is overreaching. Why not apply the same reasoning to reject the simplicity of *substrata* or the simplicity of universals, for example? Surely most of the critics of the simplicity of tropes admit some simple entities.[10] If one is not inclined to accept tropes with a simple nature, it is because one is inclined to endorse universals, or particular objects, or *substrata*. And all those entities should be 'simple'. An entity is 'simple' in the sense that is being considered here if and only if it is not structured from other entities having between them certain relations. The problem here seems to be that the line of argument displayed against the simplicity of tropes can be generalized as an argument against the alleged simplicity of any category of entity. This generalized argument deserves close examination.

Suppose that in one's favorite ontology there is a category of entities *C*. Entities of category *C* are simple, by hypothesis. Whatever the

function attributed to entities of category *C,* there should be *some* kind of difference between numerically different instances of a *C* — for example, different universals ground different qualitative characters and different *substrata* ground numerical differences. But any instance of category *C* is an instance of category *C*. Then, any entity that is a *C* should have an intrinsic character of being a *C*. An intrinsic character for a *C* of 'being a *C*' does not require a separate 'intrinsic property' of being a *C* for the same reasons that no trope requires 'intrinsic properties' to have a certain intrinsic character. Any *substratum*, for example, should have the intrinsic character of being particular. The fact that a *substratum* is a particular does not entail that *substrata* have, after all, certain intrinsic properties. A *substratum* is a determinate entity that fulfills specific theoretical functions for the unification of particular objects and for the instantiation of properties. So, they should have the intrinsic character of being such an entity and not, for example, a universal. Any universal, on the other hand, should have the intrinsic character by which it grounds a qualitative character in possibly many exemplifications. Universals don't require an intrinsic property of 'being a universal' to have this intrinsic character. It is just a matter of what they are by themselves. Now here is the argument:

The generalized argument against simplicity: suppose there are two numerically different items of category *C,* say, c_1 and c_2. They are simple by hypothesis, so –by the contrapositive of the principle of *Non-Simplicity**– they should be related between them just by one internal relation. But it happens that c_1 and c_2 should resemble each other because both are *C*. And it also happens that c_1 and c_2 should be different because they are –in effect– numerically different. But difference and resemblance are internal relations. Then, entities of category *C* are not simple.

So, it seems that the reasons presented by Ehring against the simplicity of tropes are reasons to reject simplicity *per se*. The result of the argument seems to be, then, that there are no simple entities, period. The generalization of the argument is already evident from the formulation given to it by Ehring. In his scenarios, tropes have between themselves internal relations of resemblance in virtue of being particulars, but also in virtue of being numerically different. It is clear that *any* pair of entities of any category will satisfy these internal relations just in virtue of the fact that those entities are numerically different and belong to a certain cate-

gory. This result is disastrous. Even admitting the conclusion that philosophers like Ehring want to draw from his scenarios, the postulation of tropes, conceived as he does, could be also incoherent. In effect, although Ehring does not admit that tropes are at once particulars with an intrinsic qualitative character, he proposes that tropes are *simple particulars* — the difference from the traditional conceptions is due to the fact that their qualitative character is grounded on external resemblances or on the primitive natural character of the class to which they belong. But, for the same reasons indicated above, there cannot be any simple particular trope.

J. P. Moreland considers a problem along these lines against universals [cf. Moreland (2001), pp. 64-65], but the solution he offers does not give much comfort. Two different universals are indeed different, but at the same time, they resemble each other because they are universals. The answer from Moreland is that universals – in contrast to tropes – are universals because they instantiate the universal of 'being a universal'. The resemblance between universals in virtue of being universals is not an internal relation, because it is not grounded on the intrinsic character of those universals. There are several problems with this strategy of response. The introduction of a second-level universal of 'being a universal' risks starting an infinite regress. In effect, the universal of 'being a universal' surely is a universal because it instantiates a universal of 'being a universal' again. If the universal of 'being of universal' instantiates in itself, on the other hand –that could be a way to block the regress– other problems appear because it implies circles of ontological dependence, or eventually, circles of grounding. In any case, even if this strategy successfully evaded the problem for universals, it cannot be applied to other categories of entities like *substrata*.

The solution to the generalization of the argument against simplicity seems to run in another direction. As it has been pointed out above, the principle of *Non-Simplicity* should be understood as restricted to *arbitrarily different* internal relations. Otherwise, determinate properties and their corresponding determinable properties could raise different internal relations. Two relations are arbitrarily different if they are mutually independent, *i. e.*, if none of them is *necessitated* by the other. The systematic problem that has appeared here against the simplicity of any entity whatsoever is generated because any pair of different entities of a category are different between them and each fall under such category. A pair of particulars, for example, are each of them a particular and also different between themselves. The point is that the intrinsic character in virtue of

which two particulars are particulars is what grounds the fact that those particulars are different. Difference and particularity, then, are not *arbitrarily* different internal relations. In general, the fact that a pair of entities are each one a *C* – for any category *C* – is what grounds the fact that those entities are different between them. The fact that two *substrata* are *substrata* grounds the fact that there are *two* different *substrata*. The fact that two universals are universals grounds the fact that there are *two* different universals. In conclusion, then, acceptance of the argument against the simplicity of tropes does not commit us to reject ontological simplicity *per se*.

VI. 'Arbitrary Difference' Examined More Closely

It will be evident at this point that the success of the argument against the simplicity of tropes relies on the fact that the internal relations to which reference has been made in scenarios 1 and 2 should be *arbitrarily different* between them. On the other hand, the generalized version of the argument that risks becoming an argument against ontological simplicity *per se* can be blocked if the internal relations of difference and resemblance grounded on the intrinsic character of 'being a *C*' – for any category *C* – are not arbitrarily different. So, it is convenient to consider the concept of 'arbitrarily different' relations more closely. In fact, another line of resistance for the friends of simple tropes could be to question the 'arbitrary difference' between the internal relations appearing in scenarios 1 and 2. Those scenarios seem so damaging for the conception of simple tropes because the qualitative resemblance between tropes seems not to necessitate the numerical difference or the resemblance in particularity between those same tropes. Neither does it seem that the particularity of those tropes necessitates their qualitative resemblance.

A defender of simple tropes at this point could say that the particularity of a trope is the same intrinsic character in virtue of which the trope in question has a certain qualitative character. They are not different intrinsic characters. So, the internal relations grounded on qualitative resemblance and on particularity have in fact the same grounding. Those relations necessitate each other, because no pair of tropes can resemble qualitatively without being numerically different, nor can a pair of tropes resemble inexactly without resembling exactly in virtue of being both

particulars. At the same time, for a particular trope, its qualitative character is essential. Any pair of tropes should resemble or not, according to their respective qualitative characters. Being the particulars they are, it is not accidental for them to resemble or not to resemble. It seems to result, then, that the internal relations indicated in scenarios 1 and 2 are not arbitrarily different. So, there is no danger for simple tropes. It can be seen that this maneuver is analogous to the one that has been used to block the generalized argument. If it can be used to protect the simplicity of *substrata* or universals, why not use it in favor of tropes?

It is convenient, then, to look at the 'arbitrary difference' between internal relations more closely. As they have been characterized, two relations R_1 and R_2 are 'arbitrarily different' if and only if neither R_1 necessitates R_2, nor R_2 necessitates R_1. But what does it exactly mean to 'necessitate' here? There are several alternative analyses. One obvious first option is to think of 'necessitation' in terms of strict conditionals. That is:

Arbitrary difference I: internal relations R_1 and R_2 between tropes x_1, x_2, …, x_n are *arbitrarily different* $=_{df}$ $(\neg\Box(R_1x_1x_2 \ldots x_n \rightarrow R_2x_1x_2\ldots x_n) \wedge \neg\Box(R_2x_1x_2 \ldots x_n \rightarrow R_1x_1x_2\ldots x_n))$

'R_1' and 'R_2' are expressions that designate particular internal relations that are as particular as the tropes they connect. This first formulation has as a consequence that there must be modal differences in the obtaining of the relations in question. Suppose two tropes m_1 and m_2 that happen to stand in two internal relations: m_1 resembles m_2 and m_1 is numerically different from m_2. In accordance with this formulation of *Arbitrary difference* those two relations are arbitrarily different if and only if: (i) it is possible that m_1 resembles m_2 and that m_1 is not numerically different from m_2 (*i. e.*, $m_1 = m_2$); and (ii) it is possible that m_1 is numerically different from m_2 but that m_1 and m_2 do not resemble. But it is obvious that none of these scenarios (i) and (ii) is metaphysically possible. If one considers a specific trope, its qualitative character is something essential for it. The same happens if one considers a specific pair of tropes. Their respective qualitative characters are not contingent for those tropes. It results, then, that if they resemble, it is necessary for them to resemble. If they don't, it is necessary for them not to resemble. So, there are no possible worlds in which tropes that happen to resemble actually don't resemble. When considering a specific pair of tropes, their numerical difference, and their resemblance –if there is one– are modally invariant.

The same happens if one considers two tropes m_1 and m_2 such that m_1 exactly resembles m_2 insofar as both are particulars but m_1 inexactly resembles m_2 in qualitative character. If those internal relations of inexact (qualitative) resemblance and exact resemblance (in virtue of particularity) are 'arbitrarily different', then it must be metaphysically possible for the pair of tropes that happen to be inexactly similar in quality and exactly similar in virtue of particularity to be inexactly similar in quality but not exactly similar in virtue of particularity, and to be exactly similar in virtue of particularity but not inexactly similar in virtue of their qualitative nature. It is obvious that the particular character of a trope cannot be a contingent feature of it. A pair of tropes that happen to resemble in virtue of their particularity could possibly not resemble only if it were possible for one of them –or for both– to be a non-particular in a possible world. Although in contemporary metaphysics there are plenty of counter-intuitive proposals, the idea of an entity that is particular in some possible worlds and universal in others seems too extravagant. On the other hand, as it has been pointed out already, it is not possible for a pair of tropes that happen to be inexactly similar in quality not to be so. Their respective qualitative characters are essential for those tropes.

The problem here is that using this modal construction of *Arbitrary difference* between internal relations could grant an all-too-easy victory for the defender of simple tropes. Resemblance and numerical difference come to be non-arbitrarily different internal relations just because tropes have their qualitative natures and their particularity essentially. But what is at stake here seems to be much more than modal covariations. The fact that two relations exist at exactly the same possible worlds is not enough to justify that they are not arbitrarily different. Of course, if there are possible worlds in which one of them exists but not the other, then clearly, they are arbitrarily different. Nonetheless, what is intended when it is required that relations do not *necessitate* each other is something stronger than modal covariance. As it has happened in other areas, what is required here is a robust ontological connection. If necessary, it should be introduced as a primitive. This is what is done in grounding-theoretic frameworks where a primitive of 'grounding' is accepted, as it has been accepted in this work. It is advisable, then, to consider what happens with 'arbitrarily different' internal relations but now under another construction of the concept in terms of 'grounding':

Arbitrary difference II: internal relations R_1 and R_2 between tropes x_1, x_2, …, x_n are *arbitrarily different* $=_{df}$ ($\neg(R_1x_1x_2\ldots x_n$ weakly grounds $R_2x_1x_2\ldots x_n) \wedge \neg(R_2x_1x_2\ldots x_n$ weakly grounds $R_1x_1x_2\ldots x_n)$)

As has been indicated above, in the literature 'strict grounding' is distinguished from 'weak grounding'. Strict grounding is of strict order, irreflexive, asymmetric and transitive. Weak grounding is non-reflexive, anti-symmetric and transitive. It is convenient to take in *Arbitrary difference* grounding as 'weak grounding' because a case in which relations $R_1 = R_2$ should obviously be a case in which they are not arbitrarily different.[11] If the facts of p and q are identical, then it trivially follows that p weakly grounds q and that q weakly grounds p. If the fact that p weakly grounds the fact that q, and the fact that q weakly grounds the fact that p, then – by anti-symmetry – the fact that p = the fact that q. Grounding is more demanding than modal covariance. For example, in all and only the possible worlds in which Socrates exists, also the singleton set {Socrates} exists. The strict conditional [$\Box$(({Socrates} exists) $\rightarrow$ (Socrates exists))] is true, but certainly, it is not the case that Socrates is grounded on his singleton set. So, it can happen that two entities are modally covariant, but neither of them grounds the other – nor is one of them dependent on the other. It is much better to construe the 'arbitrary difference' between relations in this way. And, understood 'arbitrary difference' in these terms, two relations are arbitrarily different when none of them is weakly grounded on the other.

The idea of the defender of simple tropes is to think of the particularity of the trope and of its qualitative character as the same thing. One can conceive one of those 'aspects' of a trope in abstraction from the other, but this is simply a fact about our capabilities to pay attention to some traits of reality rather than others. *If* the intrinsic particular character of a trope and its intrinsic qualitative character are just numerically the same, then clearly the internal relations of difference and the internal relation of qualitative resemblance should be not arbitrarily different. In fact, they should be numerically the same internal relation. Their ground is constituted by the same intrinsic characters of tropes that, at once, make them have the quality they have and make them different. Note, nevertheless, that here we have the typical situation in which a conditional can be read as a reason to support a *modus ponens* if one thinks that the antecedent has more theoretical weight, or to support a *modus tollens* if one thinks that the negation of the consequent has more theoretical weight. And here it seems that we should opt for the *modus tollens*. It is

obvious that resemblance and numerical difference are not the same internal relation. It is obvious that the exact resemblance grounded on particularity is not the same internal relation as qualitative inexact resemblance.

Consider again scenario 1. If the relations of qualitative resemblance and numerical difference are not arbitrarily different, then one of them should be strictly grounded on the other, or they should be the same relation –weak grounding, in effect, is strict grounding or identity. And what is the situation with qualitative resemblance and numerical difference? Which one of them is ontologically *prior* to the other? It does not seem likely to suppose that resemblance is grounded on the numerical difference. It is not *because* two tropes are different that they resemble each other. But neither it is likely to suppose that numerical difference is grounded on qualitative resemblance. It is not because two tropes resemble qualitatively that they are different tropes — resemblance is reflexive.[12] So, the only way in which the contention that those relations are not arbitrarily different can be sustained should be stating that qualitative resemblance and numerical difference are the same internal relation. But this is preposterous. They are *not* the same relation.

The same can be said with respect to scenario 2. If the internal relations of inexact qualitative resemblance and exact resemblance in virtue of particularity are not arbitrarily different, then either one of them is strictly grounded on the other, or they are the same relation. But it is not likely to suppose that inexact qualitative resemblance is strictly grounded on exact resemblance in virtue of particularity. Nor it is likely to suppose that exact resemblance in virtue of particularity is strictly grounded on inexact qualitative resemblance. Neither is the case that tropes resemble inexactly between them because both are particulars, nor it is the case that tropes are particulars because they resemble inexactly between them. So, what is likely is to suppose that inexact qualitative resemblance is the same relation as exact resemblance in virtue of particularity. But, again, this is preposterous. How can it be the same to be inexactly alike in color and to be exactly alike in being a particular? On the face of it, those are different relations.

So, it results that the supposition that the intrinsic particular character and the intrinsic qualitative character are one and the same intrinsic character – that is, the idea of a simple trope – has as a consequence that internal relations like resemblance and numerical difference should be the same relation. Yet it is clear – at least, to my lights – that they are not. And this is a further reason to think that tropes are not simple. Can

we not say the same with respect to the generalized argument against simplicity? If the numerical difference between *C*s and resemblance in being a *C* is not arbitrarily different, then one of those internal relations should strictly ground the other, or those relations should be the same. But in this case, there is a clear asymmetry of grounding. The fact that a pair of *C*s are different is strictly grounded on the fact that those *C*s are *C*s. There is a problem for the alleged simplicity of tropes, then, that does not appear for the simplicity of other categories.

VII. CONCLUSIONS

The ground-theoretic formulation of the concept of 'arbitrarily difference' between internal relations allows us to clarify how it is that different tropes stand in arbitrarily different internal relations between them, what is at odds with their alleged simplicity. Consequently, the argument of Ehring is vindicated.

The rejection of the simplicity of tropes excludes the idea that those tropes can be collected in resemblance classes where 'resemblance' is an internal relation, grounded on the primitive simple intrinsic character of those tropes, at once qualitative and particular. If friends of tropes want to stay faithful to one of the motivations for trope metaphysics, *i. e.* the rejection of universals, they can use the same resources that have been used by nominalists. This is what has been proposed by Douglas Ehring [cf. (2011), pp. 175-202]. One alternative is to propose resemblance classes of tropes to fulfill the functions of universals, but with a primitive external relation of resemblance, not grounded on previous intrinsic natures. The other alternative is to propose natural classes of tropes for the same functions — the option preferred by Douglas Ehring. But a friend of tropes can also solve this conundrum by leaving behind his old distaste for universals. Tropes that are essentially dependent on the universals of which they are the instantiation can still have important advantages in ontological economy for a more parsimonious understanding of particular objects without the costs that have been discussed here.

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ACKNOWLEGMENTS

This work has been written in the execution of Research Project Fondecyt Nº 1160001 (Conicyt, Chile). A previous version of this paper was presented at the Fifth Colloquium of Analytic Metaphysics held at Rio de Janeiro (September, 28th to 30th 2016). I thank especially Robert Garcia, Markku Keinänen, Jani Hakkarainen, Gonzalo Rodriguez-Pereyra, and John Brungardt for useful discussion and comments.

NOTES

[1] It has been usual to suppose that the *relata* of grounding are 'facts'. One reason for this is that statements of grounding are typically expressions of the form "___ because ____" where the connective "because" should be flanked by complete sentences. Cf. for example, Rosen (2010); Fine (2012). Grounding is taken here more liberally as a relation between entities of any category, but any statement of grounding between, for example, *x* and *y* can be paraphrased as "the fact that *x* exists is grounded on the fact that *y* exists".

[2] For other attempts to analyze the concept of 'intrinsic property', cf. Weatherson & Marshall (2012).

[3] Lewis & Langton (1998) introduced several other qualifications to this analysis to exclude some cases of disjunctive properties that, although they formally seem to satisfy the analysis, don't seem to be intrinsic. These qualifications that complicate considerably the notion need not be considered here, because they depend on the acceptance of disjunctive properties. But properties are here supposed to be 'sparse', and there is no disjunctive 'sparse' property.

[4] J. P. Moreland has before proposed an argument against Campbell's theory of tropes that is the main antecedent for Ehring's [cf. Moreland (2001), pp. 50-73]. According to Moreland, it is a problem for trope ontologies that two tropes can stand in different internal and external relations. But there is no difficulty in having internal and external relations between the same simple items. Two *substrata*, for example, can clearly be at the same time at a certain distance and resemble between them.

[5] Some will be inclined to object to this example if they are inclined to think that determinable properties are really different from the determinate properties that fall under them and that an object that has a determinate property should also have another determinable property. Defenders of universals might be inclined to this kind of position on determinates/determinables [cf. Bigelow & Pargetter (1990), pp. 51-54; but, Armstrong (1978b), pp. 101-131], and also defenders of modifier trope ontologies [cf. Garcia (2015), p. 151]. It is normally supposed, on the other hand, that modular tropes should be perfectly determinate. These variations will not be relevant in what follows.

[6] Those propositions are logically independent because *Rba* is entailed by *R*ab* only introducing the premise [$\forall x \forall y\ (R^*xy \rightarrow Ryx)$], that is not a logical truth.

[7] Robert Adams defined a *haecceitas* or thisness of x as the property of being identical to x [cf. Adams (1979), p. 6]. Understood in these terms, the *haecceitas* of x is grounded on the particular intrinsic character of x. Other philosophers, nevertheless, use the term *haecceitas* as the primitive particular character of a particular x by which x is itself and different from any other particular that grounds facts of trans-world identity or difference [cf. Lewis (1986), pp. 220-227]. Understood in these more general terms, a *haecceitas* is simply the same as what has been presented here as a particular intrinsic character.

[8] The idea that one can distinguish an area of formal ontology in any 'ontological region' has been put forward by Barry Smith and Kevin Mulligan, although the core idea comes from Edmund Husserl [cf. for example, Smith (1981); Smith & Mulligan (1983)]. "We can distinguish, in relation to every object or region of objects, both formal and material truths. Material truths are, for example, the truths of the natural sciences. (…) Formal truths (…) correspond, we shall argue, to formal structures or relations in the underlying region of objects, material truths to underlying material structures or relations" [Smith & Mulligan (1983), p. 73].

[9] Hakkarainen & Keinänen say also that: "Formal features are not entities, for instance, additional tropes" [(2017), p. 652]. But certainly, the fact that what is being described is not a different entity cannot be the *criterion* for making the distinction between 'form' and 'content'. Consider the dialectical situation that could arise. Ehring contends that two tropes are not simple because they stand between them under two arbitrarily different internal relations: they both resemble and they are numerically different. Hakkarainen & Keinänen answer that the character by which tropes are numerically different does not lead to non-simplicity because the particular character of a trope is just a 'formal character' of a trope. And why is it a 'formal character'? Because it is not numerically different from the quality of the trope. But this is precisely what is in question. *Petitio principii.*

[10] Any ontology must propose some or other basic categories of entities in terms of which others are reduced or grounded. Typically, a philosopher not congenial to tropes will say that the functions usually attributed to tropes can be fulfilled by states of affairs composed of universals and thin particulars. But then, that philosopher should admit that universals and thin particulars are 'simple' entities, not composed by other entities of different categories related between them in a certain way. The same considerations apply to different forms of nominalism.

[11] Gideon Rosen (2010) has introduced a notation for grounding statements in which '$\Leftarrow$' stands for 'strict grounding' and '$\leftarrow$' stands for 'weak grounding'. The expression '[Fx]' should be read as 'the fact that x is F'. The expression '[p] $\leftarrow$ [q]' should be read as 'the fact that q weakly grounds the fact

that *p*'. Using this notation, the *definiens* of *Arbitrary difference* II can be formulated thus: $(\neg([R_2x_1x_2\ldots x_n] \leftarrow [R_1x_1x_2\ldots x_n]) \wedge \neg([R_1x_1x_2\ldots x_n] \leftarrow [R_2x_1x_2\ldots x_n])$.

[12] A defense of the reflexivity of resemblance in Rodriguez-Pereyra (2002), pp. 70-71.

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