

Determinables and Brute Similarities

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Ingvar Johansson has argued that there are not only determinate universals, but also determinable ones. I here argue that this view is misguided by reviving a line of argument to the following effect: what makes determinates falling under a same determinable *similar* cannot be distinct from what makes them *different*. If true, then some similarities — imperfect similarities between simple determinate properties — are not grounded in any kind of property-sharing.

Section 1 introduces some of the main points of Johansson's realism about determinables.

Section 2 argues that realism about determinables entails that the difference-makers and the similarity-makers of determinate properties are distinct.

Section 3 argues that the difference- and similarity-makers, if they are distinct from each other, also have to be distinct from the determinate properties themselves.

Section 4 argues that both the similarity-makers and the difference-makers of determinates are epistemologically inaccessible.

Section 5 puts forward two other problematic implications of the distinction between the similarity-makers and the difference-makers of determinates.

Section 6 introduces the view that the similarity-makers and the difference-makers of determinate properties are one and the same.

Section 7 argues that no contradiction is involved in such an identity claim, for imperfect similarity and imperfect dissimilarity between properties are two faces of the same relation.

Section 8 suggests that determinables are maximal disjunctions of brutally and imperfectly similar determinates, and argues that the realist about universals can rest content with this suggestion.

Section 9 rebuts an objection to the effect that determinables are more fundamental than determinates.

1. Johansson on Determinables

What do all the determinate colours have in common, in virtue of which they are all colours? Johansson (2000) puts forward a straightforward answer:

all color-determinates have something in common, namely the ontological determinable of color. All the shape-determinates have something else in common, namely the ontological determinable of shape. (Johansson 2000: §3)

One potential worry might be dispelled readily. Johansson may here be understood as saying that determinables are properties of determinates. But redness is not coloured, it is *a* colour (Armstrong 1978: vol. II, 106). Indeed, Johansson agrees. His view is that determinables and determinates are all properties of substances (Johansson 2004: 17). Determinables are not properties of determinates, but properties of the substances that also have the determinate properties. Strictly speaking, what all determinate colours have in common in Johansson's view is not their exemplifying the colour-determinable, but their being exemplified by substances which also exemplify the colour-determinable. For the sake of simplicity, I shall, however, follow Johansson's occasional use and speak of "determinates *sharing* or *having* a common determinable". It should be kept in mind that this is a loose way of speaking, abbreviating "determinates having bearers which also have/exemplify a common determinable property".

When Johansson says that differently coloured substances share the *same* single determinable colour-property, he means it literally: he thinks that determinables are universals (and so are determinates), they are not tropes. Besides, Johansson favours immanent realism: all universals, determinables and determinates, exist *in re*, no universal exists without being exemplified. Finally, Johansson thinks that determinables are sparse properties: it is not the case that an ontological determinable corresponds to each determinable concept (Johansson 2000: §3; Johansson 2004: 17 sqq.).

How does Johansson's approach relate to the standard way of contrasting the determinable/determinate relation with the genus/species relation (Prior 1949; Searle 1959, 1967)? Two main differences between

these two subsumptive relations¹ are standardly put forward. First, the determinable/determinate relation concerns properties, while the genus-species relation concerns substances. Second, while one passes from genus (say, *animal*) to species (say, *man*) by adding some *differentia specifica* (say, *rational*) to the genus, one does not need to appeal to any external *differentia* to pass from the determinable to the determinate. Determinates need no “outside help” (an expression taken up from Cook Wilson 1926: §158 and Searle 1959: 1967), to be reached from determinables. There is nothing to be added to the determinable *colour* in order to reach the determinate property of *carmine*.

Johansson (2000: §8) weakens both ways of drawing the distinction between these two subsumptive relations. First, he suggests that the genus/species relation could well be subsumed under a generic determinable/determinate relation that encompasses both the standard determinable/determinate relation between properties, the genus/species relation between substances, and a third kind of determinable/determinate relation between actions or episodes (Mulligan (1992),² Cruse (1995: chap. 6) — see also Fine (2011) for an application of the determinable/determinate relation to the category of states).³

Second, Johansson stresses that as far as ontology (in contrast to concepts) is concerned, one does not pass from genus to species by merely *adding* a *differentia*. The *differentia* is not merely *conjoined* with the genus, but *united* with it in the substance. This is what explains the similarity between ontological species and ontological determinates. Both are “complex unities” or *Gestalten* in which the most general property is linked with the differentiating one by some relation more intimate than

¹ Following Johansson (2005: 2006) I shall use “subsumptive relation” to encompass the determinable/determinate relation, the genus/species relation and any other kind of relation in virtue of which some entities can be properly said to “fall under” some others, to be “subsumed” under them. Despite its unfortunate conceptual connotation, the term “subsumption” is clearly more encompassing and topic-neutral than “specifier relation” or “determination relation”, which are sometimes used for that purpose.

²Mulligan (2005: 43), however, denies that the determinable/determinate relation applies to episodes.

³Johansson (2006), however, appears less optimistic in relation to the project of subsuming all subsumptive relations under the determinable/determinate heading —see section 9 below.

mere conjunction (Johansson 2004: 142) tries to specify this relation more precisely in terms of reciprocal relations of dependence: in the substance which exemplifies them, the determinate existentially depends on the determinable, and the determinable *concretely* depends on the determinate). There is therefore no essential difference between the determinable/determinate properties trees and the genus/species trees. Roughly, one goes from the top to the bottom of these subsumptive trees by appealing to specific *differentiae*, which are not only added but properly fused with the subsuming properties.

This is only a very partial presentation of Johansson's view of determinables but it should suffice for my purpose. In particular, I have not presented the most interesting part of his account, the four arguments he puts forward in favour of the existence of determinables. The worry I am going to raise against his account, however, is somehow independent from such arguments: it pertains to the nature of the determinables rather than to their existence.

Though I am going to reject a fundamental tenet of Johansson's account of determinables, I want to stress that I sympathise with many of the other views and arguments he introduces in the course of his defence of determinable universals. In particular I agree with him that trope-less nominalism faces crucial difficulties when faced with perceptual experiences of colours and shapes and that realism about determinate universals is to be preferred to trope-nominalism. More to the subject, I agree with him, *contra* Johnson, that the principle according to which determinates falling under the same determinable are incompatible is not true of all determinables (see also Armstrong 1978: vol. II, 113; Sanford 2006); I also agree that *dimensions* are determinables;¹ and finally, I think that Johansson is right to separate the question of the kind of entity that is in the nodes of determinable/determinate trees (properties, substances, actions) from the question of the very nature of this branching or subsumptive relation (one should here avoid speaking of a determination or specifier relation). If the determinable/determinate relation is essentially distinct from the genus/species relation (which Johansson

¹ Incidentally, this last point raises a difficulty for attempts to analyse determinables in terms of dimensions (see in particular Funkhouser (2006)'s "2-features analysis" of the determination relation). If dimensions are themselves determinables, not all determinables can be analysed this way.

(2000) denies), it has to be so in virtue of something else than the mere fact the first relation bears on properties and the second on substances. In principle, the determinable/determinate relation can be extended to substances, and the genus/species relation to properties (see Tappolet (2004) for a similar assumption). In other words, we should not conflate the distinction between trees *of different categories of nodes* (there are trees for names/substances, adjectives/properties, and also trees for verbs/episodes) and the (orthogonal) distinction between trees *of different subsumptive relations between nodes*.

So much for the agreements.

2. DISTINCTNESS

Despite the fact that determinables and determinates, in Johansson's picture, are intimately linked together in substances, they remain distinct. Johansson's account of determinables is committed to a claim that I shall call "DISTINCTNESS":

DISTINCTNESS: That in virtue of which determinates falling under the same determinable differ from each other is distinct from that in virtue of which determinates falling under the same determinable resemble each other.

By "resemblance" I include at this stage both exact and inexact resemblance, which I shall also call "perfect" and "imperfect similarity". By "difference" I mean here qualitative difference, which I take to be equivalent to dissimilarity. Applied to colours, DISTINCTNESS is the view that that in virtue of which green, yellow, brown, violet... differ from each other is distinct from that in virtue of which green, yellow, brown, violet... resemble each other.

Let me introduce a related piece of terminology:

similarity-maker: that in virtue of which different entities resemble each other.

difference-maker: that in virtue of which different entities differ qualitatively from each other.

These definitions are intended to be neutral with respect to the issue of whether or not the similarity-makers (and difference-makers) are distinct from or identical with the entities that they make similar (or identical). That in virtue of which two entities resemble or differ from each other might just be those entities themselves, that is, each of those entities as a

whole. I shall assume that this is what brute similarity (and brute difference) amounts to:

brute similarity: two entities are brutally similar if and only if they, *in their entirety*, are their own similarity-maker (their similarity-makers consist in no other entities than themselves, be they some proper parts or constituents of each of them).

brute difference: two entities are brutally different if and only if they, *in their entirety*, are their own difference-maker (their difference-makers consists in no other entities than themselves, be they some proper parts or constituents of each of them).

These definitions entail that *brute* similarity (or brute difference) does not amount to *ungrounded* similarity (or ungrounded difference). This seems to be quite a common assumption, thought often implicit. The above notion of brute similarity is the one that trope theorists or resemblance nominalists appeal to when they insist that resemblance it is an internal relation holding (in some cases at least) between *simple* entities (tropes or particular substances). One possible way to argue that similarity would be genuinely ungrounded is to adopt a kind of structuralism: similarity would be an internal relation not in the sense of supervening on its *relata*, but in the Hegelian sense of individuating its *relata*. The *relata* would then be grounded on their relation: determinate colours, for instance, would be nodes in a similarity graph (Dipert 1997). Such kinds of structuralist view about determinables will not be assessed here. I am here only interested in the debate between those who think that the similarity between determinates is grounded in these determinates, as wholes, and those who think that the similarity between determinates is grounded in some *sui generis* entity, possibly some proper part or constituent of determinates.

Finally, I shall call the “problem of determinables” the following question: why do all determinates falling under the same determinable have some kind of affinity with each other, in contrast to determinates falling under distinct determinables? The problem of determinables is a kind of “one over the many” problem, and DISTINCTNESS is a kind of answer to it. DISTINCTNESS displays a close analogy with some universalist answers to the problem of universals. Suppose we want to explain why two exactly similar things are exactly similar, without giving up their being two. One way to do this is to explain their numerical dif-

ference by introducing thin or bare particulars, and to explain their exact similarity by introducing universals. Each category of entities plays a distinct explanatory role. DISTINCTNESS can be understood as transposing this way of dealing with the problem of universals to the problem of determinables.

Johansson is clearly committed to DISTINCTNESS: according to him, all determinate colours are colours in virtue of sharing a single universal property. That determinable being a universal, it is numerically the same in each of its instances or exemplifications (“An ontological determinable is strictly the same in all its determinates” (Johansson 2000: §7)). Therefore something else than the determinable has to account for the qualitative differences between determinate colours. That in virtue of which red and blue are colours — their being related in a specific way to the determinable universal *colour* — cannot be that in virtue of which red and blue are *distinct* colours. Consider all the determinates falling under a same determinable. According to Johansson’s ontological theory, their similarity-maker and their difference-maker are distinct. Their similarity-maker is their being related in a certain way to a universal determinable property. Their difference-maker has to be something else.

Johansson is not alone in thinking that some determinables are universals: so do Fales (1990:chap. 9), Armstrong (1997:247) — for determinables figuring in functional laws¹ — and Elder (1996) — for determinables which have polar opposites). Although the view that determinables are universals entails DISTINCTNESS, the reverse does not hold. There are at least two ways of adopting DISTINCTNESS without embracing determinable universals.

One might first equate determinables with tropes.² The claim is then that the determinates falling under a same determinable inexactly resemble each other in virtue of being related to determinable tropes that exactly resemble each other. Thus green, yellow, brown, violet... are all

¹ A view that Armstrong (2010:42–3) gives up, going back to his former view of 1978.

² A view possibly endorsed by Brentano (1995:17–20) — see Mulligan and Smith (1985:§3.4), envisaged by Bacon (1995:17), suggested by Mulligan (1992), and endorsed by Segelberg (1999), and Wilson (2009; 2010). (Campbell (1990) and Ehring (1996), on the opposite, are trope theorists who reject determinable tropes.)

colours because each of them is related to a colour-determinable trope which exactly resembles the colour-determinable trope of each other. This view is an instance of DISTINCTNESS: that in virtue of which determinate colours resemble each other –their being related to colour-determinable tropes which exactly resemble each other– is distinct from that in virtue of which colours differ from each other. Given that the colour-determinable tropes related to each determinate colour are exactly resemblant, they cannot account for the qualitative difference between colours.

Second one might equate determinables with fields, as proposed by von Wachter (2000). In such a case, determinables are still non-repeatable, as tropes are, but they are more complete for they are not properties or dependent episodes, in contrast to tropes. The determinates of a field-determinables are, according to von Wachter, the field strengths. This approach is again an instance of DISTINCTNESS.

On the whole, whoever reifies determinables in order to account for the similarity between determinates, by making them *sui generis* entities, qualitatively identical throughout the determinates, is committed to DISTINCTNESS. By “*realism about determinables*” I shall mean this very view:

realism about determinables: determinables (be they universals, tropes, fields or whatever) *irreducibly exist* and ground the similarity of determinates that fall under them.

Realism about determinables entails DISTINCTNESS. Once what unites determinate properties has been reified, one needs to look for what qualitatively distinguishes them. What is at stake when assessing DISTINCTNESS, consequently, is not whether determinables are universal-, trope-properties, fields, or something else, but whether the affinity between the determinates falling under the same determinable is to be explained by appeal to the qualitative identity of some similarity-maker(s).

DISTINCTNESS, however, does not entail realism about determinables. Armstrong’s approach to determinables for instance (to all of them in 1978, to only some of them in 1997, and to all of them again in 2010) is a sophisticated version of DISTINCTNESS according to which determinates falling under the same determinable are united thanks to pairwise relations of partial identity (which entails that at least one of the

partially identical universals is a complex universal). The property of having a 3kg mass and the property of having a 2kg mass resemble each other in virtue of their sharing at least one compound-universal; and they differ from each other in virtue of at least one other compound-universal that they do *not* share. According to Armstrong's version of DISTINCTNESS therefore, it is not the case that there is a qualitatively identical determinable common to all determinates.

Of the four worries I am going to raise against realism about determinables, the first three concern DISTINCTNESS *per se*, and affect Armstrong's theory as well. The fourth worry affects only realism about determinables, and Armstrong's theory is immune to it.

3. Two New Kinds of Entities

Realism about determinables is often presented as if it was introducing only one potentially weird kind of entity, the determinables. But since it entails DISTINCTNESS, it in fact introduces *two* potentially puzzling kinds of entities: the similarity-makers *and* the difference-makers. Importantly, *the difference-makers are not the determinate properties*. Realism about determinables does not merely add determinables on top of determinates. Rather, it splits determinate properties into two: their similarity-maker on the one hand and their difference-maker on the other. It is a mistake to think that since the determinable is the similarity-maker, the determinate has to be the difference-maker. Here is why.

There is already enough in a given shade of red, and in a given shade of yellow, to ground the resemblance they bear to each other. Two determinate colours must resemble each other. When we think about determinate colours, we already think about their similarity-maker. Determinates are, so to speak, already loaded within the determinables. Suppose they were not — that is, suppose that the determinates do not include the determinables in any sense. Then, since determinables are, according to DISTINCTNESS, the similarity-makers of determinates, nothing about the determinates themselves would necessitate their being similar. The similarity between determinates falling under a same determinable would cease to be an internal relation, necessitated by its *relata* (a view going back to Hobbes (1839: chap XI, 6) at least). One could, and even should, conceive of determinate colours *per se* as *not* resembling each other as colours. But this is clearly wrong.

Henceforth, determinates cannot be the difference-makers only: they have to be the difference-makers *together* with the similarity-makers. If determinates are equated with mere difference-makers, there is no more guarantee that they will resemble each other in any way. The resemblance of determinates is, however, the very phenomenon that the realist about determinables intends to elucidate. Equating determinates with difference-makers therefore undermines his very *explanandum*. Wilson (2010:1.5) considers favorably the view that determinables are logical parts of determinates. Though I shall reject this view, I agree that this is what the realist about determinables has to say.

Of course, it is always possible to decide to call the difference-makers “determinates” and to refer to the complexes involving the difference-makers and the similarity-makers (i.e. our mundane determinates) in another way. One would then say, for instance, that determinates make this shade of red and this shade of yellow different. But such a terminological revision is entirely pointless: the determinates, in standard use, are the shades of green, not their difference-makers.

Realism about determinables, therefore, introduces not one, but two sort of entities beyond our initial mundane determinates: determinables (the similarity-makers of determinates); and the difference-makers of determinates. These two kinds of entities, I shall now argue, stand beyond our perceptual and intellectual reach.

4. Two Weird Kinds of Entities

Let us start with the similarity-makers, the determinables. One recurring objection against such properties is that they cannot be perceived. Johansson (2000: §6) addresses this objection by claiming that determinables are indirectly perceived on the basis of our direct perception of determinates. In the case in which we perceive a colour pattern, “There is, as a kind of background, a strictly identical something throughout the whole pattern: the color *determinable*.” I disagree with this claim of descriptive psychology. It seems to me, on the contrary, that we fail to experience any strictly identical features when we perceive a pattern of colours. According to Johansson, the determinables are located at the very same place as the determinates. This means that looking at a colour pattern, we should see not only the determinate colours, but a kind of second layer made of a uniform and extended determinable property, not varying at all with the underlying determinate colours. The closest ex-

perience of this type I can imagine is the one corresponding to seeing a colour pattern under a transparent coloured film.¹ But clearly this experience is of the wrong kind, the transparent colour of the film being determinate.

In order to avoid raw phenomenological disagreement, let me hint at an alternative description of what is here at stake. Perceiving a pattern of colours, we do perceive some affinity between them: but this affinity is nothing but the brute resemblance of this difference shades. We see *that the determinate colours resemble each other*, we see them *as resembling each other*, we see *their resembling each other* or we see *their resemblance*. The phenomenology of resemblance, whatever the right way of spelling it out, is all there is about the seen unity of the determinate colours. What Johansson fails to deliver is a reason to go beyond this naive description in terms of resemblance, by adding some “strictly identical something” shared by each seen colour of the pattern.

If determinables cannot be perceived, can they at least be grasped in abstract thought? The realist about determinables might try to say that in order to get a grip on determinable properties, one should think about changes in determinates while the determinable remain constant (Stumpf’s method of independent variations called “eidetic variation” by Husserl). Though the visual shape depends on the colours that fill it, we can think of it independently from the filling colour by imagining the colour varying while the shape remains constant. In the same way, we might try to think independently about the determinable, by making the determinate colours vary in thought. What does not change would be the determinable. But here, as in perception, it is controversial that when thinking about an area changing its colour constantly, we have any idea of some strictly identical features in those changes. Resemblance is all we need: the unity of such conceived changes is that there is no resemblance gap. This is not to say that the only way to travel in the colour space in thought is to pass from one colour to some contiguous colour in the colour space. We might well jump directly from yellow to red. But yellow and red are still presented as resembling each other, contrary to yellow and round.

¹ A phenomenon initially studied Katz (1935). Casati (2000) claims that the perception of media is always indirect, which would fit with Johansson’s proposal.

Here is a possible rejoinder. We can think and see that different colours have the same hue (or the same brightness, or the same saturation). Such a hue (brightness or saturation) is seen as being exactly the same in all these determinate colours. Henceforth we do see *some* determinables.

It might be granted in some cases of colour variations, in contrast to some others, the determinate colours we consider or see keep a common, unchanging property, a given hue for example. The first thing to be noted, however, is that this hue which remains strictly identical throughout the change is *not* the colour determinable (some colours does not have this hue). Second, this strictly identical hue is not even a determinable: it is a determinate value of one dimension of variation of colours, namely *hue*.¹ On the whole, the distinction that is being thought of in this case is not the distinction between changing determinate colours and the unchanging colour determinable; it is the distinction between some changing determinate colours and their unchanging *determinate* hue. Colours, arguably, are complex determinates which have three dimensions of variation: their hue, their brightness and their saturation. No determinate colour is a determinate hue, but each determinate colour has a determinate hue. One might agree that colours are not simple determinate properties, that there is a distinction between their hue and brightness. Two determinate colours might have the same hue and different brightnesses. This arguably entails that hue and brightness are distinct components of each of them.² But this distinction is of no help if one is to grasp the strictly identical determinable in all determinate colours (neither does it help us to grasp the strictly identical determinable allegedly common to all determinate hues).

Let us now turn to the other kind of entity introduced (more or less explicitly) by the realist about determinables: the difference-makers of determinates. In order to get a grip on it, we should be able to abstract the determinable from the determinate colours, and to contemplate what

¹Johansson (2004: 142) considers that the relation between a determinate yellow and the determinable *hue* is a determinate-determinable relation. But clearly yellow is no more a determinate hue than it is a determinate brightness. I suspect that Johansson is in this passage using “hue” in the generic sense of “colour” rather than in the more specific sense of a dimension of variation of colours.

²As recalled by Mulligan (1991: §4) this is the central claim of Meinong’s approach to colour space (see esp. Meinong: 1900 and 1903).

is left. That remainder would distinguish redness from yellowness. This hardly make sense: we cannot remove, be it in highly sophisticated abstract thought, the aspect in which coloured things resemble each other, leaving intact the aspect in which they differ from each other. We cannot think about what distinguishes yellowness from blueness without thinking at all about them being of the same kind: it is precisely because they are both colours that we can contrast them.

These difference-makers of determinate colours are even harder conceived of in view of the following consideration. The way the difference-makers differ from each other has to be utterly radical: they have to lack any similarity — or at least any similarity relevant to the determinable under focus. For suppose the difference-makers of two determinate colours were still even slightly similar; the upholder of DISTINCTNESS would then have to say the difference-makers themselves have a similarity-maker and some distinct difference-makers. If the regression is to stop, some difference-makers at least have to be utterly different from each other: some difference-makers have to be radically different, without being similar in any respect. Back to our unintelligibility worry: considering different determinates falling under the same determinable, we should be able to think of their respective difference-makers *qua* radically distinct, that is incomparable to each other, lacking any kind of similarity. Can we really do that? Can we really think of the two no-at-all-resembling ingredients that make redness distinct from blueness? And can we really think of each of the infinitely many not-at-all-resembling ingredients that make each maximally determinate colour distinct from each other? No, we cannot.

As a result, neither the similarity-makers nor the difference-makers introduced by the realist about determinables can be perceived or clearly conceived. Are such epistemological worries of any metaphysical consequence? There is indeed no straightforward entailment from unobservability or unthinkability to unreality. *Sui generis* determinables could be real but unobservable. Here are three answers, however. First, such epistemological worries are shared by defenders of determinables themselves (and rightly so). Second, *ceteris paribus*, solutions to the problem of determinables which avoid epistemologically odd entities should be preferred (I will sketch such a solution in the last sections). Third, recall that the view defended here is not so much a point about the

existence of determinables as one about their nature. If the view that the similarity- and difference-makers of determinate properties are distinct turns out to be *unintelligible*, this suggests that the nature of determinables has not yet been properly grasped.

5. Two Problematic Implications

DISTINCTNESS not only entails the introduction of very weird kinds of entities, it also leads to dubious consequences.

First, DISTINCTNESS entails that determinates falling under the same determinable cannot be simple, which is wrong in at least some possible cases (see also Hume 2000: Bk I, Part 1, Sec. 7; Stumpf 1883: vol. 1, 115–7; James 1950: I, 532; Denkel 1989; Heil 2005: 155–9). Given that determinates resemble each other in virtue of sharing some similarity-maker, and differ from each in virtue of having distinct difference-makers, determinates have at least two constituents according to the realist about determinables: their similarity-maker, and their difference-maker. Note that this does not infringe on our initial claim that strictly speaking determinates do not *have* determinable properties, but have bearers which by necessity have such determinable properties. Given that there are similarity relations between determinates, there has to be something about them that grounds these resemblances. Granted, this is not their *having* or *exemplifying* a determinable property. But this still has to be their *containing*, or *having as a constituent* a determinable property. Otherwise one would be left with brute resemblance between determinates, which again is what the realist about determinables purports to explain away. And if determinate properties falling under the same determinable do have such a determinable as a common constituent, they also need to have at least one other constituent, which qualitatively distinguishes them from each other. So realism about determinables entails that determinates falling under the same determinable cannot be simple. How bad is this? We have seen that colours might not be simple determinates, but complexes of determinate hues, saturation and brightness. But what about those determinate hues, saturations and brightnesses, then? If the regress is to be avoided at least some determinate properties should resemble each other without thereby involving any complexity.

Second DISTINCTNESS, conjoined with realism about determinables (Armstrong's theory determinable is therefore immune to this second

objection), entails that there can be no order of resemblance among determinates falling under one determinable only (Stumpf 1883:vol. 1, 115–7; Myers 1962; Armstrong 1978:vol. II, 107; Elder 1996). Suppose that between the fully determinate colours and the determinable *being coloured* there is no intermediary ontological determinable such as *being blue* (as convincingly argued by Johansson 2000:§3; 2004:17 sqq.), on the grounds that not every conventional or linguistic carving of the colour space should correspond to a joint of nature). Consider now a claim such as “green is more similar to yellow than to red”. Can the realist about determinables account for such differences of similarity between determinate colours? Arguably not. According to the picture described above, all colours have in common one similarity-maker, namely the colour determinable (be it, to insist, a universal of a set or sum of *exactly* resembling tropes). And they are different in virtue of a multitude of difference-makers, which do not resemble each other at all in respect of their colour. So green and yellow have one and only property in common, namely the colour determinable. So do green and blue. Nothing in such a picture can ground differences in degrees of resemblance. The only way out would be to introduce subdeterminables, *ad infinitum*.

6. IDENTITY

In front of these difficulties, let us drop DISTINCTNESS, and consider its negation, IDENTITY:

IDENTITY: That in virtue of which determinates falling under the same determinable differ from each other is identical with that in virtue of which determinates falling under the same determinable resemble each other.

If the similarity- and difference-makers of the determinates falling under the same determinable are one and the same, what is their relation to the determinates that they make similar and different? Identity appears to be the best answer (if not the only possible one): the determinates are their own similarity-makers and difference-makers. The similarity of the determinates is grounded on these determinates alone, and on the whole of each of them. The similarities of the determinates are therefore *brute* in the sense defined above in section 2. So are the differences between determinates properties. While DISTINCTNESS entails that the similarity-makers, the difference-makers and the determinates are three distinct kinds of entities, IDENTITY is compatible with (and possibly

entails) the view that the similarity-makers, the difference-makers and the determinates themselves are one and the same.

One of the clearest statement of IDENTITY is given by Stout:

the point is that red and yellow do not resemble each other in one character and differ in another. The respect in which they are alike, i.e. colour, is also the respect in which they are dissimilar. (Stout 1930: 398)

IDENTITY is indeed quite an old view. Hume endorsed it:

'Tis evident, that even different simple Ideas may have a similarity or resemblance to each other; nor is it necessary, that the point or circumstance of resemblance shou'd be distinct or separable from that in which they differ. (Hume 2000: Bk I, Part 1, Sec. 7, n 5, my italics)

IDENTITY is also endorsed, I submit, by Johnson from the very start of his studies of the determinable/determinate relation:

If it is asked why a number of different individuals are said to belong to the same class, the answer is that all these different individuals are characterised by some the same adjective or combination of adjectives. But can the same reason be given for grouping red, yellow and green (say) in one class under the name colour? [...] is there any (secondary) adjective which analysis would reveal as characterising all these different (primary) adjectives? In my view there is no such (secondary) adjective. (Johnson 1964: 175–6)¹

Johansson, however, following Armstrong, raises two main worries against IDENTITY. First, IDENTITY would be contradictory. Second, IDENTITY would be in tension with realism about universals. Let us address these two worries in turn.

7. Imperfect Similarity *Is* Imperfect Dissimilarity

Armstrong (1978: vol. 2, 106n) and Johansson (2004: 16–17) agree that Stout's quote above, expressing IDENTITY, is "self-contradictory". Armstrong and Johansson however disagree on whether the view that determinables are universals — the view endorsed by Johansson —

¹ Other likely upholders of IDENTITY include Stumpf (1883: vol. 1, 111–21), James (1950: 492–4, 532 sqq.), Cook Wilson (1926: §155–160), O'Connor (1945: 67), and Myers (1962).

entails IDENTITY. Armstrong (1978:vol. II, chap. 22) thinks it does, and consequently moves to a view about determinables that avoids identifying them with universals while still trying to explain away the resemblance between determinates.

Johansson, however, thinks that realism about determinables does not entail IDENTITY, quite the contrary:

if the determinates are not identical, then the things differ with respect to determinates. And this in no way is in conflict with or contradicts the fact that the things simultaneously instantiate the same determinable universal. “Identity-in-difference”, if understood correctly, just means identity of determinable and difference of determinate, and no contradiction is involved. (Johansson 2004: 17)

I side with Johansson. Realism about determinable properties, far from entailing IDENTITY, indeed entails DISTINCTNESS, as I have argued above. This is all the point of the view: things of varying colour-shades differ in virtue of their difference-maker and resemble each other in virtue of some *other* property, their determinable colour. Armstrong assumes that the realist about determinables is committed to the claim that determinables are at once the similarity-makers *and* the difference-makers of determinates. This indeed would be an untenable position, for as long as the determinable remains qualitatively identical in all determinates, it cannot ground any qualitative difference between them. But this is not Johansson’s position, nor the position of other realists about determinables (be they equated to universals, tropes, fields...). Properly construed, realism about determinables entails DISTINCTNESS rather than IDENTITY. However, parting ways with Johansson, this is precisely what is problematic about it.

Back to our main point: why do Armstrong and Johansson think that IDENTITY is contradictory? Armstrong does not say how a contradiction can be derived from Stout’s quote above. He however takes it that Stout is asserting that determinate colours are both different and identical in the same respect. That no two entities can be both identical and different in the same respect has to be granted. “Identity-in-difference”, so construed, is indeed contradictory. But neither Stout nor IDENTITY say that determinate colours are both *identical* and different in the very same respect. The claim is instead that determinates colours

are both *similar* and different in the same respect. This similarity can be perfect or imperfect similarity.

Is it then contradictory to claim that two entities are *similar to* and dissimilar from each other in exactly the same respect?

– *Yes*, if “similarity” is understood as “perfect similarity” or “qualitative identity”.¹ If two things are perfectly similar in their colour, they cannot be dissimilar in their colour. Qualitative identity and qualitative difference in the same respect are of course incompatible, so that there is no “Qualitative identity in dissimilarity”.

– *No*, if “similarity” is understood as “imperfect similarity”. Two things that are imperfectly similar in their colour can be imperfectly dissimilar in their colour (as we will see, they even have to be so). If Paul and Mary inexactly resemble each other in respect of their mischievous character, they also differ from each other in respect of their mischievous character (otherwise they would just exactly resemble each other in respect of their mischievous character). “Imperfect similarity in imperfect dissimilarity” yields no contradiction.

I suspect that Armstrong and Johansson have been led to diagnose a contradiction in IDENTITY because they read it the first way, as claiming that two things which are qualitatively identical in one respect are qualitatively different in that same respect. This is indeed contradictory, but what is at stake in the case of determinables is clearly the second reading: determinates falling under the same determinable are qualitatively different, they are imperfectly similar. Stout and the upholders of IDENTITY, therefore, are not stating a contradiction. As we shall now see, they are even stating a proposition which if true, is necessarily so.

Imperfect similarity and imperfect dissimilarity are two faces of the same coin. Consider an analogy: the closer two things are, the less far they are. “Being far” and “being close”, bracketing any extrinsic context or concern, are two possible ways of describing the very same spatial difference. The questions “How far apart are these two things?” and “How close are they to each other?” give rise to the same answer. In the very same way, imperfect similarity and imperfect dissimilarity are two

¹Johansson (2000: §2) introduces a distinction between exact similarity and qualitative identity. I am here, following the more standard use, equating the two. As far as I can see, nothing relies on this here.

possible ways of describing the same qualitative difference. Each relation entails the other.

Consider two properties that are imperfectly similar, such as red and orange. Then they are imperfectly dissimilar. Suppose they were not, suppose, that is, that they were *perfectly dissimilar, utterly different*: this would entail that no comparison between them would be possible, and consequently that they could not be similar in any sense.

Consider now two properties that are imperfectly dissimilar, such as, again, red and orange. Then they are imperfectly similar. Suppose they were not — suppose that is, that they were perfectly similar, exactly resemblant, qualitatively identical. Wouldn't that entail that they are not dissimilar in any sense?

While perfect similarity and perfect dissimilarity are contraries, and even polar opposites, imperfect similarity and dissimilarity go hand in hand: they rise, live, and die together.

I have here appealed to the concept of perfect dissimilarities, which might raise some worries. Aren't all entities — not only substances but also properties — comparable to some extent? Can two properties really be utterly distinct, not similar *at all*? I think they can. The way in which red differs from yellow differs from the way in which red differs from sweet. The first kind of difference is an imperfect dissimilarity. The second kind is a perfect dissimilarity. While determinates falling under a same determinate are linked by relations of imperfect dissimilarity, determinates falling under different determinables are linked by relations of perfect dissimilarity. This distinction was noticed by Johnson under different terminology.¹ Johnson calls “difference” what I here call “imperfect dissimilarity”; and he calls “otherness” what I here call “perfect dissimilarity”. After the passage quoted above, Johnson pursues:

in fact, the several colours are put into the same group and given the same name colour, not on the ground of any partial agreement, but on the ground of the special kind of difference which distinguishes one colour from another; whereas no such difference exists between a colour and a shape. Thus red and circular are adjectives between which there is no relation except that of non-identity of otherness; whereas red and blue, besides being related as non-identical, have a relation

¹ Meinong also considered it, see Guigon (2005: 1.3.3.).

which can be properly called a relation of difference, where difference means more than mere otherness. (Johnson 1964: 176)¹

The worry about perfect dissimilarity remains, however: aren't red, circular and sweet comparable in the sense of being sensory qualities? In the sense of having some spatial location, and possibly also, spatial extension? In the sense of being objects of thought? In the sense of being dependent, inseparable parts? It has to be granted that they are. But in the same way that two determinate colours are imperfectly similar in virtue of their own constitutive nature, a determinate colour and a determinate shape (assuming, controversially, that shapes are determinates of the shape-determinable rather than species of the shape-genus) are perfectly dissimilar in virtue of their own constitutive natures. They might well be similar in virtue of some accidental features, of some necessary but not essential ones, of some essential but consequential, non-constitutive ones (Fine 1995). But focusing on what they essentially and constitutively are, they are truly not similar in any sense. Relatedly, comparative dissimilarity judgements such as "Red is more like circular than like sweet" are clearly false, when read as claims about the constitutive nature of the qualities in question. The constitutive nature of such qualities are not mysterious: they what we are interested in when we construe quality spaces. Constructing some colour solid, we are not

¹ That Johnson's "difference" boils down to imperfect dissimilarity is, however, controversial. Prior (1949: 11) and Sanford (2006) think on the contrary that Johnson's difference should rather be understood as an incompatibility relation. However, though Johnson says later that determinates falling under the same determinable are incompatible, he never says explicitly that difference between determinables amount to incompatibility. The closest he comes to this is on p. 175, where he writes that "we may say" that red, yellow and green are "opponent" to each other. But not all opposition boils down to incompatibility (quite the contrary, one might think: for two entities to oppose to each other, they have to be present together). "Dissimilarity" might as well be understood as a kind of opposition. Discussions about the right way of construing the colour solid (see Mulligan 1991) often mention the relation of opposition in such a sense: when primary colours, for instance, are said to oppose to each other in a way that non-primary colours do not, this does not mean that only primary colours are incompatible. On the proposed interpretation, Johnson's view that determinates of a same determinable are incompatible is purely incidental to his characterisation of the essential features of the determinable-determinate relation.

interested in the dependency of colours on extension, or in the fact that colours can be seen. It is the constitutive nature of determinate properties that grounds their similarity and dissimilarity to each other.

To the objection that it is contradictory to claim that the similarity- and difference-makers of determinates falling under a same determinable are identical, it should then be answered that similarity and dissimilarity between such determinates are indeed one and the same difference relation looked at from two different points of view. If true, this not only answers Armstrong's and Johansson's first objection to IDENTITY, but also constitutes another potential objection to DISTINCTNESS: DISTINCTNESS misdescribes the *explanandum* of the problem of determinables by assuming that we have to explain on the one hand the resemblance of determinates falling under a same determinable, and on the other hand, their difference. But the *explanandum* is far more simple than this: the qualitative difference between determinates falling under a determinable is not distinct from their inexact resemblance.

8. Brute Imperfect Similarities

The second reason why Johansson and Armstrong reject IDENTITY is that it contradicts the following *desideratum* of the theory of universals: all resemblance should be grounded in numerical identity. IDENTITY forces us to abandon this project. In order to explain the similarity of the determinates falling under a determinable by appeal to numerical identity one has to distinguish their similarity-maker from their difference-maker, which amounts to rejecting IDENTITY in favour of DISTINCTNESS. Henceforth, if we stick with IDENTITY, we have to accept that some similarities are not grounded in numerical (nor even merely qualitative) identities: there are some brute imperfect similarities.

Why exactly the realist about determinate universals should be reluctant to welcome such brute similarities is, however, unclear. Armstrong writes:

Such unanalyzable, primitive, resemblance of universals I regard as a fall-back position for the Realist about universals. It may in the end have to be accepted, at least for some cases. But it is an uncomfortable compromise, true to the superficial appearances, but lacking the deep attractiveness of a theory that always takes resemblance to involve some degree of identity. (Armstrong 1989: 105)

Two worries might here be at play:

1. The theory of universals would explain less if brute similarities were granted.

2. Brute similarities lead to an *ad hoc* treatment of resemblance: some similarities are explained by numerical identity; some others are brute. Given that similarity is one and the same relation, it should not receive different explanations.

As for the first worry, brute similarities might indeed discomfit the universalist, but this cannot count as a reason against them. Why not rest content with an explanation of only *some* similarities? The second worry is more serious. If resemblance truly constitutes one and the same *explanandum*, why should it receive different explanations in different circumstances? *Why not treat in the same way perfect and imperfect similarities between properties?*

Note first that Johansson's theory itself does not treat them in the same way: while perfect similarity between properties amounts to identity between them, imperfect similarity between properties is accounted for in terms of these properties being related to another, determinable, property. The realist about trope-determinables fares no better, for according to him, perfect similarities between tropes is brute, while imperfect similarities between tropes-determinates is grounded in some relation between each of these imperfectly similar tropes and some exactly resembling determinable-tropes. All realism about determinables — universals or tropes — is an attempt to ground imperfect similarities on perfect ones (which are in turn, for universalists, grounded on property-identity), so that the two kinds of similarity are clearly not treated on a par.

Two anti-realist theories about determinables which, by contrast, treat these two kinds of similarities on a par are first Armstrong's former view of determinables, and second trope theories which do not accept determinable tropes. On Armstrong's view, exact similarities between properties amount to *identity* between them, while inexact similarities between property amount to partial *identity* between them. And trope theorists who reject determinables take both perfect and imperfect similarities between tropes to be brute, and standardly conceive of these two sorts of resemblance as different degrees of the same relation.

So should we really look for a single common explanation to perfect and imperfect similarities? Not necessarily: it might indeed be mistaken to think of resemblance, or similarity, as constituting one and the same *explanandum*. Possibly, imperfect similarity between properties is radically distinct from perfect similarity between properties, and calls for a different treatment. This was argued in detail by Church (1952:chap. 9). Church's main argument is that while exact resemblance allow for dyadic comparisons between individuals, inexact resemblance between properties (not to be confused with inexact resemblance between individuals, which in some cases boils down to sharing a certain number of exactly resemblant or identical properties) calls for triadic comparisons such as "Purple is more like green than red". While fully agreeing with his conclusions, I shall provide a slightly different argument to the effect that we face here two utterly distinct kinds of resemblance.¹

Let us assume, for the sake of the argument, that similarity is itself a determinable property whose determinates are degrees of similarity. The maximal degree of resemblance amount to perfect similarity, other degrees amount to imperfect similarities. Here are some considerations suggesting that the maximal degree of similarity is strongly heterogeneous from the others:

1. Similarity of the highest degree, perfect similarity, is a transitive relation, contrary to all the other degrees of similarity, which are non-transitive.

2. While imperfect similarity and imperfect dissimilarity always come hand in hand and entail each other, perfect similarity and perfect dissimilarity are contraries (see preceding section). Perfect similarity, contrary to imperfect similarity, has no dissimilarity partner.

3. If similarity of the highest degree is perfect similarity, then similarity of the lowest degree has to be perfect dissimilarity, that is, incomparability or *otherness* in Johnson's sense. But such a perfect dissimilarity appears to be a lack of similarity rather than a genuine degree 0 of similarity. While having a temperature of 0°C is still having a temperature (see Balashov 1999 for other examples), it is dubious that being similar to the degree 0 is still being similar in any sense. If true,

¹ It is not entirely clear to me how Church deals with cases such as "Orange resembles yellow". Probably, he wants to say such statements do not express genuine comparisons — see Church (1952:95) — but I do not see why.

why include the maximal degree of similarity in generic similarity, but exclude the minimal degree of similarity from it?

4. Similarity between property is standardly construed as a kind of distance relation. In case of exact similarity the distance is null. Is a null distance still a distance, or a lack of distance (as argued by Russell 1903: §177)? Consider again the relation of closeness between spatial things. Contact is often characterised as the limit of closeness between things (see Zimmerman 1996a). But that doesn't entail that contact is a degree of closeness, nor that one and the same explanation should be given for contact and closeness. By parity of reasoning, if perfect similarity is the upper limit of resemblance between properties, why should it be explained in the same way as imperfect similarity? Notice that the analogy with contact goes even further: some theories about contact explain it in terms of *sharing a boundary* (Suarez's theory, presented in Zimmerman 1996b), and explain closeness in some other way. Likewise, realists about universals explain perfect resemblance between particulars in terms of *sharing a property*. It should then be open to them to explain imperfect resemblance in some other way.

This all suggests that perfect similarity is a very special bounding value of the similarity continuum. Perfect similarity and perfect dissimilarity are the limits of the similarity continuum. But precisely because they are limits they are in some sense not parts of that continuum. Perfect similarity and perfect dissimilarity might be conceived as the asymptotes of imperfect similarity. A curve and its asymptote(s) are distinct, and there is no reason why they should both be given the same explanation (if they are to be explained).

Note finally that a large part of the temptation to treat perfect and imperfect similarity on a par vanishes as soon as one speaks of "qualitative identity" instead of "perfect similarity". It is far less plausible to claim "qualitative identity" and "qualitative difference" are different degrees of the same relation.

It is therefore not necessarily *ad hoc* for the realist about universals to explain the exact resemblance between properties in terms of identity, and to happily leave imperfect similarities between properties unexplained. The problem of universals and the problem of determinables are distinct problems, and a distinct kind of solution might be given to each.

The realist about universals, however, might find yet another reason to worry about the brute imperfect similarities that IDENTITY entails. Both Armstrong and Johansson (2004: 143) are willing to avoid disjunctive properties. IDENTITY entails not only brute similarities, but also, arguably, disjunctive properties. The reason why IDENTITY leads us to endorse disjunctive properties pertains to the reciprocal dependence between determinables and determinates with regard to their exemplifications. On the one hand, determinables depend *generically* on determinates for their exemplification: if a substance is coloured, then it has to exemplify at least one determinate colour shade, whatever it is. It has to be either blue, or red or..., (the disjunction containing all the determinate colours). The best explanation of this, and perhaps the only one left once DISTINCTNESS is abandoned, is that determinables *are* disjunctions of determinate properties (Rodriguez-Pereyra 2002: 49): the exemplification of a disjunctive property entails the exemplification of at least one of its disjuncts, whatever it is. On the other hand, determinates depend *individually* on determinables for their exemplification: if a substance is carmine, it has to be coloured, i.e., to have that precise determinable property. The view that determinates are disjunctions of determinables also explains this individual dependency: the exemplification of any disjunct of a disjunctive property entails the exemplification of *that* determinable property.

On the whole, IDENTITY, together with the reciprocal dependency between determinables and determinates, leads to the view that determinables are *maximal disjunctions of brutally and imperfectly similar determinates*. (How exactly such disjunctions of resemblant determinates form a resemblance order and exactly which kind of resemblance relation is here at play — dyadic, comparative... —, are issues to be left open here — useful proposals are to be found in Bigelow and Pargetter (1990: 51–62). The point is only that IDENTITY infringes therefore on a second *desideratum* of immanent realism about universals: the ban on disjunctive properties.

On the present proposal, however, both the view that all resemblances are grounded in identity and the view that no disjunctive properties exist are over-generalisations. One main argument against disjunctive universals advanced by Armstrong (1978: vol. II, 20; 1989: 82) is that sharing a disjunctive property does not necessarily yield having anything

in common (see also Wilson 2010 and 2012). Once brute similarities between determinates are accepted, however, it is possible to introduce disjunctive properties whose disjuncts brutally resemble each other. Such disjunctive properties do not look gerrymandered anymore, and they do make their bearers similar. Thanks to brute imperfect similarities between properties, one can argue that there are *sparse disjunctive properties*. These sparse disjunctive properties, whose disjuncts inexactly resemble other, are crucially distinct from the disjunctive properties and abundant properties whose disjuncts do not resemble each other. Sharing a sparse disjunctive property whose disjuncts resemble each other, though it does not ground any qualitative identity among the property bearers, still grounds some imperfect similarities between these bearers.¹

Whether other worries about disjunctive properties can be met and how is an issue to be left open here. The point here is not to develop a full-fledged theory of the determinables as disjunctions of brutally similar determinates. It is only to suggest that in view of the many and important difficulties raised by DISTINCTNESS, the view that determinables are maximal disjunction of brutally and imperfectly similar determinates might well be the most promising for the realist about universals. More generally, this view deserves to be considered by the trope realist and the resemblance nominalist, DISTINCTNESS being no less damaging for them.²

¹ Wilson (2012) advances several arguments in favour of fundamental determinables. She argues that the causal and modal behaviour of determinables cannot be reduced to the causal and modal behaviour of disjunctions of determinates. Though I am here unable to do proper justice to her arguments, my hopes rely on the fact that they do not directly target the view that I have been defending here, namely that determinables are not only disjunctions of determinates, but disjunctions of *similar* determinates.

² Rodriguez-Pereyra (2002: 66)'s resemblance nominalism, as an answer to the problem of universals, does not address the problem of determinables. It consequently excludes any consideration pertaining to the similarity between carmine and vermilion particulars from his account. But once determinate properties have been given a nominalist reduction in terms of resemblance classes of particulars, determinables could be analysed in turn in terms of imperfect similarities between resemblance classes. This would entail, among other things, that classes should be allowed to enter into resemblance relations.

9. The Priority of Determinates

On the proposed account of determinables, determinates are more fundamental than determinables, since determinables boil down to disjunctions of resembling determinates. Upholders of DISTINCTNESS, by contrast, are led to consider determinables as more fundamental than determinates: determinates, as we have seen, have to include determinables as their similarity-makers. In a nutshell, while IDENTITY leads to the view that determinates are constituents of determinables, DISTINCTNESS leads to the view that determinables are constituents of determinates.

Prior (1949) raises a worry against the view that determinates are more fundamental than determinables. He points out that determinates always characterise their objects *in a certain respect*, that respect being the determinable:

Redness, blueness, etc., all characterise objects, as we say, “in respect of their colour”. [...] And this is surely quite fundamental to the notion of being a determinate under a determinable. [...]

What this suggests is that the “respects in which objects are to be characterised”, to which determinable adjectives refer, are related to the objects not less but more intimately than the determinate qualities which “characterise” them in the strict and proper sense of the term. (Prior 1949: 13)

Determinables, under this approach, are more fundamental than determinates, for determinates characterise their bearers in respect of some determinable. In order to understand the characterisation of substances by determinates, one first needs to mention the determinable relative to which this characterisation holds. Is then IDENTITY putting the cart before the horse? Can we grant Prior’s point, by still maintaining that the exemplification of determinate properties is prior to the exemplification of determinable ones, i.e. that determinables are exemplified in virtue of determinates?

It seems to me that we can, provided that we distinguish exemplification from characterisation. Prior’s remarks cannot be translated in terms of *exemplification* or *having* of a property: it is not the case that a substance is blue “in respect of its colour”, that a substance exemplifies redness “in respect of its colour”. “Characterisation”, I submit, does not

stand here for the relation of exemplification between substances and properties, but precisely for the determinable/determinate relation between a substance's determinates and its related determinables. “*Redness* characterises the object in respect of its colour” is equivalent to “*Redness* determines the colour of the object”. If this is right, the “characterisation” talk is only a restatement of our *explanandum*. There is no contradiction involved in claiming that the reason why redness characterises an object in virtue of its colour is that the colour of the object consists in a disjunction including redness. If redness characterises substances in respect of their colour, that is, if redness determines the colour of the object, this is because *being red* is one of the disjuncts of the disjunctive property of *being coloured*. That we naturally say that determinates characterise their substances in respect of their determinable is therefore no objection to the claim that the exemplification of determinates is more fundamental than the exemplification of determinables.

IDENTITY, on the whole, avoids the pitfalls of DISTINCTNESS without being committed to the wrong order of explanation between determinates and determinables. Let me finally mention a last advantage of the view. IDENTITY vindicates the distinction between the genus/species relation and the determinable/determinate relation, which DISTINCTNESS tends to blur. If determinables are disjunctions of determinates, one cannot start with the determinables and add some *differentia specifica* to reach determinates. One has to proceed bottom-up: one has to start with the determinate leaves of the determinable/determinate trees — all trees here are upside-down —, which one has to bind together in resemblance orders, so as to climb on the more subsumptive branches. If, on the other hand, determinates are complexes, however intimately united, of determinables and difference-makers, as entailed by DISTINCTNESS, one has to start with the top determinable, which one has to combine with some difference-maker so as to climb down to the determinates. According to DISTINCTNESS, determinable/determinate trees, and genus/species trees are not essentially different: both require a top-down approach.

In his more recent 2006 paper, alluded to in the first section, Johansson appears to move away from DISTINCTNESS, by accepting that the determinable/determinate trees should be travelled bottom-up,

thus restoring in its own right the difference between determinable-subsumption and genus-subsumption that his 2000's paper was attenuating:

One difference between genus-subsumption and determinable-subsumption can now be summarized as follows: definitions based on determinable-subsumptions have to move bottom up with the help of the operation of class union, whereas definitions based on genus-subsumptions can also move top down with the help of the operation of class intersection. (Johansson 2006:56)

Whether and how Johansson intends to reconcile this approach with his former realism about determinables remains unclear. What seems clear, however, is that Johansson's last view on determinables is on the right ascending track.¹

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¹ I am grateful to Alex Bown, Stéphane Dunand, Ghislain Guigon, Kevin Mulligan, Alex Skiles and to the all the member of *Eidos* in Geneva for their crucial help.

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