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Spraying color

What is color?

What is color? Of course, examples of colorful objects are not hard to come by (Fig. 1 provides numerous examples), so the question itself is slightly puzzling, suggesting that some confusion needs to be cleared up or ignorance enlightened. But how could anyone (who isn't blind or

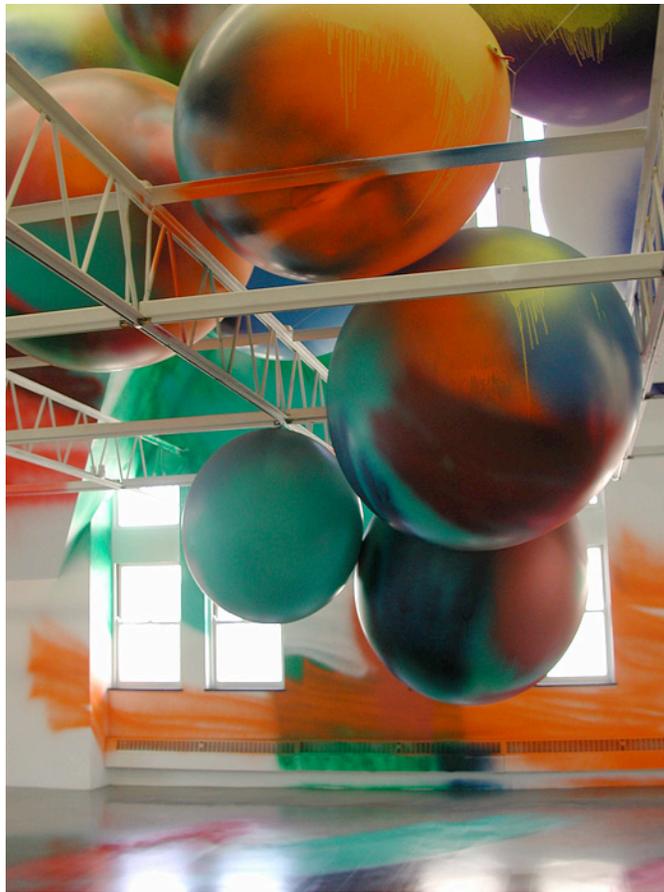


Fig. 1 Atoms Inside Balloons

totally lacking in color vision) possibly be confused about what color is? After all, if we learn anything about the world merely by looking at it, it's the colors of the things we see. How could we do this if we were confused about or ignorant of the nature of color? We might be confused

about the meaning of the word “color” or we could be ignorant of the color of some object, such as that of a car seen in a parking lot at night. Neither of these possible interpretations of the question, however, is the one of interest here. Our question is not about language, it’s about a feature of the things we see, and it is also a question about color in general rather than the color of any specific thing.

Narrowing our focus from color in general to a specific color (e.g., yellow) makes the puzzle slightly clearer. When I look at a lemon and see that it is yellow, what have I learned about the lemon? The glaringly obvious answer is that I have learned the lemon is yellow. Once that has been said, it’s hard to see how any further explanation is available — or even called for. If we ask a similar question about shape, the triviality of the question becomes even more apparent. If I look at a lemon and see that it is roughly oval, then clearly I have learned the lemon is oval.¹ All kinds of interesting questions might arise as to how I can learn things like this on the basis of light reflected from the scene before my eyes, but no expert knowledge is required to say what my visual system has told me about the lemon.

But despite its apparent triviality, this question about the nature of color has been the central focus of philosophical discussions of color. The answers philosophers propose to the question have been, for the most part, highly non-trivial, and certainly non-obvious. Some philosophers argue that colors are physical properties described in the technical language of physics (physicalism) (Byrne and Hilbert 2003). Others argue that the color of a thing is a relation between the properties of the thing and the way we react to it (dispositionalism) (Johnston 1992). Some argue that color is to be understood in terms of the relation between an animal and its environment (the ecological theory) (Thompson et al. 1992); and yet others argue that nothing, including lemons, has any color at all (eliminativism) (Hardin 1993). None of these theoretical views takes seriously the possibility that color just is the property we see things to have with no further explanation or analysis possible (primitivism). Very recently some philosophers have endorsed this view but even these philosophers see it as requiring explanation and defense (Campbell 1993).

¹ As will emerge, I don’t think the color question is trivial. Although I won’t discuss it here, the shape question also is not trivial.

The reason for all this earnest labor is not far to seek. No philosopher wants to get on the wrong side of the physical sciences. Since the early modern revolution in philosophy and science, color (along with sound, odor, and taste) has appeared to have no place in the physical sciences. The world, as the physical sciences describe it, contains nothing but colorless particles and fields. In light of this, the only options are: 1) to explain that the appearance that color has no place in the physical world is misleading (physicalism); 2) locate color somewhere outside the immediate grasp of the physical sciences (dispositionalism and the ecological theory), or: 3) deny that anything has color (eliminativism). Eliminativism is the answer overwhelmingly favored by scientists themselves. The trivial answer, primitivism, requires extended defense and explanation to justify appealing to extra properties not found in the sciences.

It's the insistence of philosophers on having a comprehensive metaphysics — one with every feature of the world in its place and a place for every feature — that results in an apparently trivial question receiving lengthy and learned answers. Those without this systematizing bent can be content with saying merely that when one sees that a lemon is yellow, one has learned that it is yellow, and leave it at that. The difference between the lemon's color and its shape, in terms of philosophical urgency, is now apparent. Unlike color, shape and other spatial properties have a firm home in the physical sciences. Thus, the issue of relating what we see to what scientists say can seem much less pressing.²

None of this, however, has anything to do with art in general, or Katharina Grosse's work in particular. Perhaps surprisingly, philosophical discussions of color rarely mention the role of color in the arts. Examples focus on fruits and vegetables, with occasional consideration of painted walls and sheets of white paper. Although much philosophical work on color is genuinely interdisciplinary, the focus is on connections with the sciences, particularly vision science. Given the rich source of examples that painting, in particular, supplies, the focus on tomatoes and lemons may be a mistake. I want to pursue this thought, but without making the stronger claim that examples drawn from the discussion of painting can logically refute or confirm philosophical theories of color.

² There is a more complicated story about the philosophical imperative to investigate the metaphysics of color that makes it depend less specifically on science. That such a more complicated story is necessary can be inferred from the fact that some of these debates long predate modern science. Eliminativism, in particular, dates to antiquity.

Color is meaningless

The first thing that struck me on entering *Atoms Inside Balloons* was the way in which the painting on the walls and floor failed to follow the architectural elements in the room. The arch above the window is painted but the paint spills over onto the adjacent wall. The paint on the floor extends into the hallway on one side, but not the other, and runs up onto the wall in places. Rather than functioning in harmony with the spatial layout of the room, the color is applied in a way that emphasizes its independence of the space in which it's found. The effect is notable because it violates the usual use of color as decoration designed to highlight and emphasize (or sometimes hide and obscure). Grosse's use of color in *Atoms Inside Balloons* neither emphasizes nor obscures the architecture, but instead, ignores it. This vividly illustrates an important fact about color. Although many useful correlations exist between the colors of things and their other properties, these correlations are, for the most part, local and arbitrary. This is obvious when we consider how the color green correlates with having permission to go through an intersection. Nothing in the nature of green (as opposed to turquoise or blue) makes it uniquely suited to indicate that we should proceed rather than stop.



Fig. 2 Paint spilling over lines

Less obvious is that even in the natural world, the connections between color and other properties are temporary and, in some sense, arbitrary. For example, there is no physical or chemical connection between a lemon's taste and its color. Although the correlation is biological

rather than conventional, it is, in a sense, arbitrary. This point can be seen more clearly by considering the well-known claim that ripe tomatoes are red. A trip to the farmer's market will reveal that ripe tomatoes come in a wide variety of colors, and there is no intrinsic connection between a tomato's color and its sweetness (see Fig. 3). Color is an important signal of many important features of the environment, but it signals by virtue of local correlations and conventions, rather than universal necessities.



Fig. 3 Ripe tomatoes

An object's size and shape, on the other hand, are not so easily separable from the significance of that object for us. It's not an accident or convention that wheels are round and hammers have handles for grasping and flattened heads for pounding. Material composition also determines functionally important properties of things. It's not a result of convention, or merely local correlation, that water is a better solvent than wool, or that wool serves better for clothing. Even taste has a better claim to intrinsic significance than does color, though the difference is one of degree and not of kind. Sweet things are generally sugars, and sour things are generally acids and salty things are generally salt. That some substance is a sugar, an acid, or salt is an important fact for creatures with nutritional needs like ours. Thus, a nearly universal correlation exists in the natural world between taste and important nutritional characteristics.³ It is much more difficult to find plausible examples of such correlations in the case of color. The most

³ It's relevant here that cats, who are obligate carnivores and thus don't eat sugars, have lost the common mammalian receptor for sweet tastes (Li et al. 2005).

readily offered examples, such as the connection between color and ripeness, don't bear up under close scrutiny — as is illustrated by the variability in tomato coloration mentioned above.

Strictly speaking, the claim isn't that color is meaningless, but merely that an object's color is not an intrinsically meaningful aspect of that object. Unlike an object's shape, which has direct consequences concerning the uses to which it can be put, an object's color has no such direct and stable consequences. While hues can acquire meaning by virtue of their correlation with other properties, these correlations are not universal. One consequence of this fact is that the meaning of an object's color typically has to be learned, and that any such association can — at least potentially — be broken. Even invertebrates possess both innate color preferences and the ability to modify them via learning (Menzel and Muller 1996; Weiss 1997). The innate color preferences themselves are evolutionarily modifiable to conform to the local flower population (Raine and Chittka 2007).

Although we are taught to “color within the lines,” we don't have to observe this convention. Grosse's architectural painting derives some of its interest from her willingness to break the usual associations and thereby empty some of the usual meaning from the hues she employs. Here she is playing with a set of correlations different from the ones just discussed. Artists like Van Gogh and Gauguin often depicted objects having colors different from their usual ones. But because Grosse's work does not, for the most part, involve the depiction of recognizable objects, it can't violate those kinds of correlations. Instead, Grosse is manipulating color in a way that (partially) defeats the role of color in making visible the shapes of objects and their division into parts. In the natural world, color changes often mark material boundaries and object edges. In the human world, color changes also are used to signal significant boundaries. In violating the expectations these correlations raise, Grosse demonstrates an important fact about color, while at the same time creating the possibility of using color to communicate in a way specific to the artwork. Because *Atoms inside Balloons*, like Grosse's other spray-painted spaces, doesn't follow the conventions that give decorative color its significance, the viewer is freed to discover new correlations and patterns that may exist within the artwork itself.

Color is superficial

An object's color lies on its surface. Although there are exceptions to this claim — rubies, beer, and stained glass come to mind — it is true of all opaque objects, and opaque objects dominate our visual world. The superficiality of color is not a consequence of any particular theory of color, but rather a fact that any theory must somehow accommodate. Here, for example, is Aristotle's acknowledgment of this fact:

But it is manifest that, when the translucent is in determinate bodies, its bounding extreme must be something real; and that colour is just this something we are plainly taught by facts – colour being actually either at the external limit, or being itself that limit, in bodies. (Hence it was that the Pythagoreans named the superficies of a body its hue.) (1984, 697 [439a1])

Aristotle's concept of the translucent (or transparent) and its relation to color is difficult; nevertheless, clearly, for him, an object's color is a feature of its surface. Not only does Aristotle believe this, he also believes it is something “plainly taught by the facts.” Although Aristotle entertains the possibility that color is actually the limit of the body, we don't need to follow him that far. What is clear is that an object's color is determined by its surface properties and this fact underlies the ease with which color can be manipulated. To change an object's color, one has only to alter its surface. Consequently, we have well-developed and relatively simple technologies for altering objects' colors by resurfacing them — for example, with house paint. If one wishes to change a room's size or shape, one needs to engage in carpentry, a demanding activity that requires specialized knowledge and skills. To change a room's color, however, one needs only a brush and a bucket of paint. Wall painting, in this sense, requires time and attention but relatively little skill. Because color is superficial, one need not know or understand anything about the internal structure of an object to change its color.

The superficiality of color also underlies the technology that Grosse uses to create her installations. Her art consists, in large part, of applying a thin layer of pigment, suspended in solvent, to the surfaces of the room. If modifying the color involved interacting with walls, balloons, and other structural elements in a substantive way, it would not be possible for her to

work on the scale that she does. With her industrial sprayer, she can coat surfaces with her chosen colors quickly and efficiently, without concern for the variability in shape and composition of the surfaces she is modifying. Modern paint systems are quite complicated — partly because paint plays a variety of roles beyond that of altering color — but the function of changing the color is accomplished as soon as the pigments adhere to the surface. By limiting herself to these superficial changes, Grosse acquires the ability to modify a space as large as the Renaissance Society gallery within a time frame of days to weeks.

Philosophy and art

The combination of superficiality and lack of intrinsic meaning is an important part of what makes painting possible and the philosophy of color difficult. It's also what underlies the possibility of the bravado acts of color application that characterize Katharina Grosse's installations. To begin with the philosophical issues, though philosophers have long debated the nature of space and time, it's difficult to comprehend a thorough eliminativism with respect to spatial and temporal properties because we have no idea what a world without space and time would be like. As we have seen, an object's shape plays a large role in determining the kinds of actions that can be performed with that object. Its position and state of motion are among the most fundamental physical facts. If an object's shape changes or it is moved to a different location, this will allow different kinds of actions. Color, on the other hand, has no necessary connection to an object's functionally significant characteristics. Whether my hammer is blue or red makes no difference as long as the shape and distribution of mass is appropriate. Although color contrasts usually provide evidence of edges, there are many circumstances in which this correlation doesn't hold. In addition, because color is superficial, it can be altered without altering an object's other qualities. Consequently, one can conceive of the world as being colorless and still behaving much as it does.

In essence, color eliminativists move the colors of things within us. According to this view, we live in a colorless world in which things merely appear to have color. Because color is superficial and meaningless, whether the world has color or merely appears to have color doesn't

affect our ability to do what we want to do. In addition, its lack of connection with objects' other properties makes it harder to pin down the nature of color, independently of how it appears to us. Even if we couldn't visually distinguish circles from triangles, we could still distinguish between circular and triangular objects. Among other things, circular objects will roll on a flat surface and triangular objects won't. No such obvious and important functional differences exist between red things and green things; consequently, characterizing them in non-visual terms can seem problematic. The challenge for those who defend the view that colors are physical properties of external objects is to show how to make such an identification in a principled and non-arbitrary way. This is a harder job than defending the objectivity of shape, but I think it can be done.⁴

Color's superficiality and practical insignificance also play an important role in Katharina Grosse's art. While some elements of her installations are clearly designed to have significance outside the artwork (e.g., the balloons in *Atoms Inside Balloons*), the painting itself defies easy interpretation. Balloons are familiar objects, and no matter how painted, they are recognizably balloons. The limitations their shape imposes on their possible arrangements means they inevitably suggest other collections of similarly shaped objects, despite the difference in context and coloration. (See Fig. 4) Bunches of grapes, atoms in a lattice, and balloons hanging from the rafters all share a resemblance by virtue of their roundness, which partially determines their possible arrangements and potential uses. The laws of geometry and physics supply part of the significance of these objects.

No similar laws govern color arrangement and distribution, however, and Grosse applies color in a way that is contrary to conventional regularities. The coloring neither reflects nor respects the room's geometric and material structure; nor is it responsive to the very visible patterns of light in the room. Grosse can make the painting purely abstract precisely because the colors and their arrangements have no meaning, in the sense described above. Because all orange objects have nothing in common but their orangeness, the colors in the installation can refer to nothing beyond themselves in a way that's not possible with respect to geometric shapes. The one exception to this lack of meaning is one to which she herself has drawn attention. The

⁴ In fact, I have, with Alex Byrne, outlined such a defense (Byrne and Hilbert 2003).

patterns distributed around the room are a record of her activity. As she says: “Within my compositions, the colors have the function of distinguishing between different movements.” (Obrist 2005, 134-5) We can interpret the color patterns in terms of how the artist was moving and how she moves her sprayer.



Fig. 4 Balloons and floor

Beyond this, however, Grosse’s art is an exercise in pure color. A pure spatial art is more difficult to conceive of, because divorcing spatial qualities from their practical significance is impossible. In the end, Grosse’s use of color and the imperative that has led some philosophers to remove color from the world arise from the same features of color. Although Grosse is not making an argument, her work illustrates a fundamental, and philosophically significant, feature of the quality that dominates our visual world.

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