The meaning of yellow and red

Abstract

By arguing that qualia IS meaning or understanding, a new framework for understanding consciousness is developed. This way, the meaning of yellow and red are uncovered. The suggested solutions are that yellow means "source of light" and red means "important". Also, in the process of arguing that qualia is meaning, remarkable similarities in the structure of qualia are uncovered. This way, a reason for why very hot and very cold water feel the same, is given. The same behaviour is also shown to take place for colours.

Introduction

When looking at the colours, we are faced immediately with a problem. Why do they look the way they look? Why is red red? Why is yellow yellow? When asked, a physicist will tell you a beautiful story about light and its frequencies and how each colour corresponds to a specific frequency. But all this picture is misleading. (see Appendix A) The main reason is that, for once, colours are qualia and they are created in the brain. There is no connection between the qualia of colours and whatever the light is doing outside of our brain. Unfortunately, the picture is very prevailing in society and in our educational systems, that the children grow up with this idea that colours are inextricably mingled with light, and so, the question "Why does red look red?" is very rarely raised. In this paper, the nature of qualia is analysed. It will be shown that qualia is meaning. One very simple reason for this is that each quale means something. The quale "1+1=2" has a very clear meaning to everyone. But there are other qualia, as for example colours, that at a first sight, it is very hard, if not impossible, to know what they mean. By presenting a broad analysis of qualia in general and then of particular cases, we would come up eventually with an explanation for the meanings behind yellow and red, and so, explain why they look the way they look.

The nature of qualia

How does one even begin to address this problem? The first thing that one encounters when first meeting with qualia, are their tremendous diversity. And the difficulty arises when someone tries to find the similarities between, for example, colours and sounds. How can such different manifestations of consciousness have anything in common with each other? At a closer look, though, few main common characteristics appear, as for example, ontological subjectivity, quality and unity. But even though both sounds and colours are subjective, each have a specific quality, and are each one well defined unity, the difference between them still begs the question: "In what respect does a sound differ from a colour?" "What makes a sound to be a sound and a colour to be a colour?" One answer to this is that each quale has its own content. But this is just a hand-waving answer, not really explaining the difference. In order to really explain the difference, the content must be specified. But what can the content of colour red be? Is it even possible to answer this question? In order to do so, we need to have a closer look at the structure of qualia.

Kant divided our consciousness into two parts, sensibility and understanding. Sensibility is comprised out of what we experience from our senses, like colours, sounds, smells, feelings, emotions. Understanding, on the other hand, is made up of concepts that lie under the control of reason. Apparently, the division is well justified. But is this division a fundamental one? Or is it merely an apparent one? Let's have a closer look at both parts, and see if we can find some elements that will allow us to consider both one and the same thing. Let's first start with understanding and take a case

where understanding occurs. Let's assume that we want to understand something, as for example Pythagoras Theorem. In order to do this, we take a Mathematics book. We read a while and try to figure it out the logical argument presented in its pages. After a little effort and concentration, something new happens. For a brief moment of time, so brief that it is only an instant, we understand. So what happened? What is that instant in which we understood Pythagoras Theorem? If we have a closer look at it, we discover few properties. First of all, its nature was ontological subjective. That moment was experienced by us, in a subjective manner. Secondly, it has a specific quality. There is one thing to understand Pythagoras Theorem, and there is another thing to understand Relativity Theory. They both have their own specific feeling to them. And thirdly, it is unified. It is one specific experience that occurs in only one instant. So, what we discover, are the very properties of qualia. The understanding of Pythagoras Theorem is a quale. We acquired the quale of Pythagoras Theorem, and by its very way in which it feels, we know that we understand the theorem.

Let's now have a look at sensibility. Let's say we want to see colour red. In order to do this, we take a book about paintings and open it to a page where an apple is drawn. What happens at that moment is that in an instant, we see colour red. But colour red is also a quale. It is subjective, being experienced by us. It has a specific quality of looking red. And it's unified: it is one entity, called red.

The conclusion that we reach is that there is no fundamental difference between understanding and sensibility. One might point out at this moment, that there is actually a difference. For the case of understanding, we take some time and efforts to reach that understanding. While for sensibility, it just happens to us. But is this a real difference? I will argue that is not. And here is why. When one acquired the understanding of Pythagoras Theorem, the next time it will encounter the theorem, it will simply understand it immediately, in exactly the same manner that one sees colour red. The difference is most likely not a fundamental difference, but rather a difference having to do with the brain. For the case of sensibility, there are already specialised regions in the brain that are responsible for the immediate experience of sensibility qualia. For the case of understanding, the physical structures in the brain are missing at the first encounter with the understanding. A learning process is needed by which the appropriate physical structures are created in the brain. But after they are created, understanding will come up with the same ease as sensibility comes.

So we draw the conclusion that, as far as the nature of consciousness is concerned, understanding and sensibility are the same phenomenon. In order to make things clearer for the rest of the paper, I will summarise this as follows:

Consciousness is Understanding.

Meaning

Is this a fare conclusion to draw? After all, understanding is a meaningful phenomenon. When we understand Pythagoras Theorem, we acquire a certain meaning. From now on, when we read in a book about this theorem, we know what it *means*. Every understanding that we acquire about the natural world, actually means something. Understanding is meaning. But are all qualia meaning? Does red mean anything? Haven't we just uncovered a difference between sensibility and understanding? Let's proceed and see why all qualia are meaning. For this, we need to have a look at the duck-rabbit image.

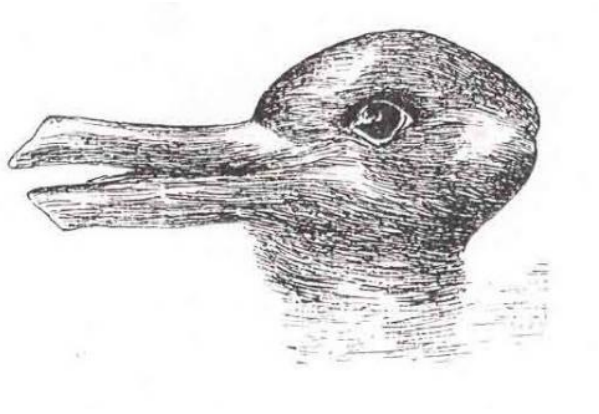


Figure 1. Duck-rabbit image. An example of how qualia and meaning are the same thing.

This image is actually showing the equivalence between meaning and qualia. Every time we gave the meaning of "rabbit", we also experience the quale of rabbit, namely the image of a rabbit. Every time we gave the meaning of "duck", we also experience the quale of duck, namely the image of a duck.

If a more technical treatment is desired, the task of proving that qualia is meaning, can be written as "qualia ⇔ meaning". The first implication "meaning => qualia" is trivial. Since meaning is a phenomenon in our consciousness, it has all the properties that a conscious experience has, so it is

automatically a quale. All meanings exist as qualia. But what about the "qualia => meaning" implication? This would imply that each quale means something. But is this really true? Let's take some examples. The "1+1=2" quale means a mathematical statement. The sentence "John went out for a walk." is again a quale that means something. The above example with the duck-rabbit image is another quale that means something. And it even illustrate that the quale changes as we change the meaning. And in this case, the meaning is not of a linguistic type, which is the most common place where the notion of meaning is used. But in this case, the quale is a visual one. So it seems that each quale that we can think about, actually means something. So the inverse implication is also true. In this way, we arrive at the conclusion that qualia ⇔ meaning. Of course, there still seems to be some qualia that have no meaning. Does red mean anything? In order to get there, we need to have a look at some similarities between language and colours.

Meaning in language and colours

The most common place where the notion of "meaning" is used, is in the field of linguistic. There, the words are said to have meaning. Of course, what we need to be careful here, is that it is not actually the word that has a meaning. The word in itself is just a group of meaningless symbols. What actually has meaning is the representation of that word in our mind. So the mode of existence of meaning is ontological subjective, meaning being part of consciousness. When we communicate with other people, even though it might appear that we communicate through words, we are actually communicating through meanings in our minds. Words are merely carriers of meaning, they are simple tools through which we transfer our meanings. Meanings are the semantic part of a sentence, while the written or spoken words are merely just the syntax of a sentence. What matters in a sentence is its semantic content, which exists in the mind of the people who communicate the sentence. Syntax is just a convenient way of transmitting the semantics. But syntax on its own carries no meaning. This can be easily shown when someone who doesn't understand Chinese wants to read a sentence in Chinese. The only entity that he perceives is just the syntax of that sentence. But since he has no access to the semantics that existed in the mind of the person who wrote the sentence in Chinese, the syntax simply doesn't mean anything to him.

What is the relevance of this? Let's see what happens when we have a single syntax, but two different meanings. The word "rock" by itself is ambiguous in what meaning it might convey in the mind of the reader. But if we write the sentence "The mountain is made up of rocks.", we know what meaning to attach to this word. If we take the sentence "I've been to a rock concert.", we again know what meaning the word "rock" takes in this case, so we have a different subjective experience when we read the word in this context. Let's put this example in the following way. We have a stimulus: "rock". And we have two different qualia that this stimulus creates in the mind of the reader, depending on context.

Now let's have a look at colours and be stricken by the fact that we will see exactly the same phenomenon taking place.

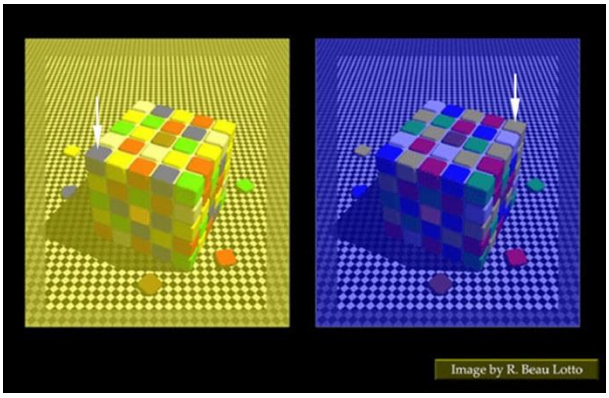


Figure 2. Colours are meaning.

In this image, the two arrows point to two different coloured squares. The square on the left is blue and the square on the right is yellow. The physicist's classical picture will tell you that in the first cube, the wavelength that hits your eyes is the 475nm one, and the wavelength on the right is the 570nm one. But as I warned at the beginning of the paper, this picture is misleading. In this example, if the two squares are brought together, they both look grey! So what is going on? How can the same grey square not only look different in the two different cases, but the way in which it looks different is that it also acquires colours! Out of nowhere! The explanation is exactly the same as for the case of linguistic. The same stimulus acquires different meanings depending on the context. The two phenomena are so strikingly similar, that the only conclusion that can be draw is that we are actually dealing with a single phenomenon, and that phenomenon is meaning, the differences arising from the contents of each meanings. In the first case, the form that meaning takes is as words in the mind of the reader. In the second case, the form that meaning takes

is the qualia of colours. This example I consider to prove in a conclusive way that colours are indeed meaning. And if even the colours are a form of meaning, it strongly suggests that the postulate that qualia and meaning are the same thing is true. Let's summaries this as follows:

Qualia is meaning.

Having established our bases, we can now safely move on and try to search the meanings of colours. In the linguistic example, it is straightforward to see the meanings that we are dealing with. But in the colours example, even though we established that we are dealing with the same phenomenon, namely the phenomenon of meaning, it is not at all clear what the meanings of colours are. We are still at the stage of "What does red mean ?".

At this moment we are still not going to try to answer this question. We need to see more examples of how meaning works. And only after we will uncover a certain pattern, we will be in the position of finally dealing with the colours.

Appendix A

Because the confusion is unfortunately persistent, I must stress out here, that by colours I'm referring strictly to the subjective experience of colours. For example, let's say that for the 700nm light I see red and another person sees what I would call green. In order to avoid ambiguity, by red I call what I see as red. By green I call what I see as green, etc. This should be clear to anyone from the start, but unfortunately people get confused about this aspect. Another way to avoid confusion is to postulate that everybody sees the same thing. And this is well justified for the colour yellow. If you ask someone what is the brightest colours that he/she sees, and the answer is yellow, then most likely it is the same colour for both persons.