

**Article**

## **The Emergent Structure of Consciousness (Part I)**

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### **Abstract**

Current day Physics and Science in general are based on a computational quantitative-reductionist approach that even though highly successful, they not only still leave consciousness out, but they don't appear to offer any key of how consciousness is even supposed to be integrated into the current scientific establishment. This delay of integrating consciousness into Science starts to suggest that the current approaches might not be the most suitable tools of tackling consciousness. Therefore, in this paper, an approach that would be in contrast to current Science, but ending by subsuming it, would be employed in analyzing consciousness. Consciousness would be shown to be an emergent phenomenon that would show a consistent structure throughout, and in this structure, suggestions for integrating current Physics would be made.

Part I of this two-part article includes: Introduction; Visual Structure; Other Qualia Domains; Top-down influence in levels; Multiple realizability; Does it really emerge?; The retentional passage of time; Memory; Diversity; Vividness; The Self; and Demergence.

**Keywords:** Consciousness, emergent structure, physics, science, computational, integration.

### **Introduction**

We would start by an in-depth analysis of consciousness, in which we would highlight its emergent structure. This structure being illuminated through many examples of different qualia levels, it would start to suggest general ways of looking at the entire existence, so it would open up doors for a reconciliation between present day Science and consciousness to be made. For this attempt, we need to clarify from the beginning the most prevailing 2 ontological concepts that we would be using.

The first one is the statement that consciousness is all there is. This is easily justifiable by the fact that everything that we have are qualia. We explore the so-called "surrounding world" entirely through our perceptions. We see our way into the world, we hear its noises, we touch its structures, but all these are perceptions in consciousness indistinguishable from a dream-state. No matter how tempted we are to make the logical leap from perception to the reality of the objects presented to us in perception, this cannot be done if the attempt of understanding existence is an honest one. So, we are stuck forever in our own consciousness. But should we really limit our analysis to solipsism or should we allow for at least other consciousnesses to be present in existence? Indeed, it is almost as big a leap of faith as the one of believing that the

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objects or our perceptions really exist out-there, to assume the existence of other consciousnesses. So, for the beginning we would limit ourselves to the study of only our own consciousness, making only in the end suggestions of how to approach the problem of other consciousnesses. One important characteristic on which the greatest emphasize will be put is the quality of each conscious state. The analysis that would be done in this paper would be one that would look at the qualities of qualia. The reason is that consciousness being all there is, existence is fundamental qualitative, as opposed to the quantitative way in which Science tackles the world today. This qualitative approach that would be employed in this paper will be shown to be the only way of pushing Physics forward. A proper understanding of what the true qualities involved in consciousness are will be the only way of understanding how Physics can be extended by integrating it into consciousness.

The second ontological concept is the concept of emergence. Emergence is in general an ambiguous term, being sometimes classified into weak emergence, such as the ripples on the water, and strong emergence such as the emergence of consciousness from the brain [1]. Therefore, we need to state clearly in what way this concept will be used. In this paper, emergence is taken to be that phenomenon characterized by the fact that existence is structured in a hierarchy of levels, levels that have two properties: from the current level the next level that emerges from it cannot be predicted, and given a current level it cannot be reduced to the level from which it emerged. We would see many examples of this definition of emergence in this paper, but I would give here an example directly from consciousness, which even though not necessarily clear at this moment, it will become clear later on. From the level of black-and-white qualia, the level of colors cannot be predicted; and the level of color qualia cannot be reduced to the level of black-and-white qualia. This example might seem at this moment quite ad-hoc, but when integrated into a much larger emergent structure of consciousness it would make perfect sense.

There are many other writings that treat emergence, but I find a fundamental flaw in all of them. The standard approach of emergence gives examples such as the emergence of the liquidity of water from the gaseous hydrogen and oxygen, or the emergence of the saltiness of NaCl from the metallic Na and non-metallic Cl. While all these analyses can have a useful practical advantage, they miss out on what exactly emergence actually is. Given the first ontological concept that we stated, emergence is only a phenomenon that takes place in consciousness, emergence is solely a property of consciousness. The only emergent phenomenon in the world is also the only phenomenon that exists: consciousness. So even though the above examples of water and NaCl are useful as simple-to-understand illustrations of emergence, they are in the end false. Understanding this fact, we can start the analysis of consciousness through the only type of emergence that exists: the emergence of qualia levels within consciousness.

Because we are so immersed in consciousness, much of its structure becomes invisible to us. We simply take for granted whatever consciousness is offering us. We take for granted the objects that we see, the music that we hear, the feelings that we have, the persons that we are, and we just live our lives. A closer look though starts to show that all these are constructions in consciousness. No matter how much we are used to them, they are nevertheless constructions that we ended up having because of a long chain of evolutionary contingency. So, the analysis that will follow might seem random and unjustified. But careful reflection on the emergent

structure that will be presented, will show it to be a very plausible way of looking at consciousness. Some levels of the hierarchy might seem easier to be accepted, while others might seem more obscure. I will try my best to assure that the reader can see why those are really levels of the hierarchy and why they respect the properties of emergence: unpredictability and irreducibility.

There is another property of emergence that hasn't yet been stated, because it doesn't appear in the standard NaCl-type look at emergence, but which is omnipresent in the true emergence of qualia levels in consciousness. That property is the fact that each level contains within itself identifiable traits of the levels that preceded it. We would not give an example now, because a much bigger hierarchy needs to be presented in order to show that a higher level of the hierarchy contains traits of levels multiple orders below it, going back to the base level of consciousness that will be shown to be the level of the Self. Also, this property will be of great help in integrating current Physics within the emergent structure of consciousness, what needing to be done for this being to carefully search within ourselves for clues that might relate to present-day Physics. Let's call this property: specification.

Also, to be noted is that the concept of emergence is tightly linked with the concept of the unity of consciousness, each emergent level being an irreducible unified whole, for example color red, or the taste of chocolate.

## Visual Structure

Having laid down our purposes for this paper, let's begin the search for the emergent structure of consciousness. Where should we start from? Let's start from the visual qualia domain, being the most important domain for our human consciousness. When we look outside we see people, buildings, trees, streets, cars, etc. So there clearly are some structures at work in consciousness. All these qualia that we have when we look around are not some kind of mish mash, but are well defined entities. So, something is going on in consciousness that is presenting us all these structures. In day-by-day life we don't call these things "structures". We just take them for what they appear to us and live our lives based on them. But when getting to analyze them, they are actually structures created by consciousness. So, we have a first vague meaning of what a structure of consciousness looks like: different entities with well-defined boundaries. A tree is a tree, it is certainly not a building. Let's now go into more details. If we take any one of these entities, we can say further things about them. A tree has a certain shape, it has a trunk like a cylinder and a crown like a sphere. Also, its trunk is brown and its crown is green. So, inside each entity we find a lot of other equally well defined sub-entities with their own qualities very different from the entity of which they are part. We have thus a first clue that there might be some kind of hierarchical dispositions of levels. One might say at this moment: "So what is the big deal of the fact that a tree has some shapes and some colors? It's perfectly natural to be like this.". And he is right. It is perfectly natural to be like this, because we got used to describe the various properties of things without getting to the realization that this can be done because there is a hierarchical structure to start with, that put at our disposition the ability to see things as having properties.

But is things having properties the same with consciousness having a hierarchy? A hierarchy presumes lots of levels. But what more can be said about a tree (as a quale in consciousness) more than what we already said? Can we come up with some sort of analysis that will not put all the properties of a tree, like shapes and colors, on the same level? Let's take for example shapes and colors themselves. Are they on an equal step when describing the tree? Or can we arrange them one on top of another? With little thinking we come up to the conclusion that shapes are made up of colors. You can have independent colors, like the whole visual field made up of green, but you cannot have an abstract shape without having some colors with which that shape can be drawn. So, there is indeed an inequality relation between shapes and colors, colors being indeed more fundamental than shapes, inequality which respects the properties of emergence. Shapes cannot be predicted from colors. If all that you were having were single-color full visual fields, you couldn't have imagined how a shape would have looked like. A shape is made up of at least 2 colors present at the same time in the visual field. Two colors present in succession in the visual field would not have created shapes. And regarding the level of the shapes, it cannot be reduced to the level of the colors. You can indeed name the colors that a shape is made up of, but the shape cannot be reduced to colors, because shape is always at least 2 colors. Reducing shapes to colors would mean to reduce a shape to a visual field that contains only 1 color. But such a visual field would not contain any shape at all. The naming of the colors of a shape is not reduction, but is the third property of emergence that we presented at the beginning: specification, namely that each emergent level allows to identify within itself the levels below it.

The importance of the distinction between reduction and specification is the fact that each new emergent level is something more than the sum of the component sub-levels. And that thing which is more than the sum of the component sub-levels is something with its own quality, that is totally distinct and cannot be predicted from the qualities of the levels from which it emerges. The quality of a shape is of a totally different kind than the quality of a color. There is no resemblance whatsoever between a shape and a color. A shape is a shape, and a color is a color. We will later talk also about the phenomenon of multiple realizability which will emphasize even more the drastic distinction between the quality of an emergent level and the quality of its sub-levels. The only relation between levels is the relation of specification in which from a superior level, the component sub-levels can be specified.

Are colors the most fundamental level of the visual domain? Not yet. We are still a long way to go. The next step comes from the observation that a color is never pure. The same color can be either darker or lighter. So, this suggests that there might be another level below colors. How can we identify that level? As we are getting used with the method of analysis, the way to identify that level is through specification. We can specify the fact that the same color can be either darker or lighter. So, there is another level below the level of colors that have the quality of dark-light. But we know what this is. This is the black-and-white spectrum. To make sure that the analysis that we are doing is a proper one, we should ignore the levels above the level of colors, because as far as we can tell at this moment, there is no top-down influence in emergence, but only bottom-up. So, we will ignore shapes and other higher levels. All that we have are single-color full visual fields. In this field, colors can succeed one another, such that for example, after dark red comes light red. Since we are still able to make the difference between the shades of a color, we are thus assured that indeed the dark-light level is a level which is below colors, and not some higher level that comes from shapes or from objects. At this point it might be observed

that I'm employing the succession of visual fields, not only visual fields as such. So, there might be something more there that we are dealing with. And indeed, there is, but we are not there yet. We are doing a step-by-step uncovering of the emergent structure of consciousness.

We thus got down to the black-and-white spectrum. Here, we notice that the level of black-and-white spectrum contains an infinite array of shades of gray. The difference between 2 shades of gray is that one is darker and one is lighter. By specification, we thus identify the next sub-level, that being the level of black-and-white, a level that only contains 2 qualia: black and white. To check that we are still on the right track and we are still analyzing emergence, and not drifted into some loose analysis, let's check again the properties of emergence for these last 2 levels that we got to: black-and-white and black-and-white spectrum which is made up of shades of gray. Given black-and-white, no gray can be predicted. We would just look all day long at black and white, with no chance whatsoever of imagining gray. And given gray, it clearly is something more than just black-and-white, so cannot be reduced to black-and-white. Notice that black-and-white form together a level, and not 2 independent levels. The reason is that each shade of gray can be said to be either darker than some shade and lighter than some other.

Having reached the level of black-and-white, is there something even deeper than this level that looks so primitive? Indeed, there is. We are still many levels to go, but we will make a halt here for the moment. This was only our first analysis, the easiest one. Deeper than black-and-white are more obscure levels that if we want to appreciate them at their fullest potential, is better to gain some more experience with other easier qualia domains first, especially since the levels below black-and-white are fundamental levels for many other qualia domains and not only for vision. Before going to other domains, we still have another point to emphasize about the level of black-and-white. Since what matters the most in our analysis is the quality of levels, and not just the name of levels, we have to pay a little more attention to black-and-white and understand what exactly is its quality. To say that its quality is that black looks dark and white looks bright, is not enough. They don't capture what is important for the higher levels that emerge from them. If we say that their main qualities are that one looks dark and one looks bright, then we would find ourselves in trouble when we go up to the level of the tree for example.

When we see a tree, we don't actually have direct specification of black-and-white as such. But this is not good. If we are to truly understand the emergent structure of consciousness, we need to identify exactly what the quality of a level is, such that we can easily identify it from a higher level. If we limit ourselves to saying that the quality of the black-and-white is darkness and lightness, we would have a tough time going down from the level of tree to the level of black-and-white, having to reproduce all the steps that we did above. This might not seem that hard here, but it would be truly problematic if we would be dealing with hierarchies of hundreds of levels. So maybe there is some better quality that black-and-white can have, such that we can directly identify it from the level of the tree, not having to pass through so many intermediary levels.

So, let's try to find that better quality that can ease our work and our thinking in the future. If we look at a tree, what quality does it have such that might allow us to jump directly to the black-and-white level? If we think carefully, we arrive at the conclusion that a tree is a visual object. In other words, a tree is something that is seen. So, there is a quality in the tree that makes it to be a

visual quale in the first place. So, by specification, we identify in the tree the quality of being a visual quale. Where could this visual quality come from? It probably must come from the most basic level of vision itself. By the above analysis of step-by-step going down in levels, we reached the bottom of the visual domain when we reached the black-and-white level. An interesting proposal arises here: the true quality of the black-and-white level is the quality of being visual. To see is at least to see black-and-white.

Careful consideration of the analysis from the above paragraph teaches us an important lesson. It gives us an intuitive feeling for what qualities actually are and how they propagate higher in levels. When analyzing the emergent structure of consciousness, we should always try to be subtler in what we uncover. As for example in the analysis just done, we shouldn't have been confident when the black-and-white level was reached. A more careful reflection at the entire emergent structure of visual qualia showed us that more subtle identifications of the qualities involved can shed more light on how consciousness is actually structured and what is the real importance of the qualities involved. Black-and-white might seem simple, but when taken as being actually the quality of seeing itself, they become of tremendous importance, from them the entire visual domain being emerged, each complex quale that we see when we look around inheriting their very essence of being seen all the way from the level of black-and-white, which is the level of the seeing itself. The importance of such careful analysis will show itself very useful later on when integrating Physics within the emergent structure of consciousness, where we would have to pay very careful attention to the qualities that we are dealing with. Because otherwise, we will get stuck in mathematical equations and we will not be able to see any way of how such equations can be integrated into consciousness.

## Other Qualia Domains

Our human consciousness doesn't offer us that much structure and clarity as the visual domain. But we will nevertheless try some short analysis for other qualia domains in order to emphasize similarities in how consciousness emerges its complexities in various directions. In a previous paper [2], I discussed the similarities between temperature and colors. I would like to retake a little that analysis here, but enrich it a little in the light of the new arguments. In [2], I presented the reason for why very hot objects feel the same as the very cold objects. The reason was shown to be the fact that each temperature quale is a combination of an intensity component and a warm/cold component such that when intensity is increased, it becomes the dominant component, so in case of extreme temperatures very hot feels the same as very cold: they feel as pure intensity. Then the comparison was made for colors and was shown that the same structure is involved, each color being a combination of black-and-white spectrum and a certain hue, such that when the intensity of the black-and-white spectrum is extreme each color looks the same: white.

What I would add here, in the light of the new understanding of the actual quality of the black-and-white level is that the intensity component is actually the emergent level of the base of a certain domain. To see how this is so, let's reflect a little on how very hot and very cold feel like. They not only feel the same one with the other, but they also feel the same as the slap of ruler on the skin or a short pinch or a sting of a sharp object. So, what is this quality that is involved in all

these acts? What I would suggest is that it is pure touch, is the quality of touch itself, in exactly the same way that the black-and-white is the quality of sight itself. And in exactly the same way that from black-and-white other levels are being emerged, such as colors, also from touch itself (notice our lack of vocabulary for when talking about other qualia domains besides vision) other levels are emerged such as warm/cold and texture, from texture the level of the objects being emerged: it's one thing to feel something soft, it's a totally new level to know that that something soft is a blanket and is yet another totally new level to know that it is my blanket.

So, we see a first similarity arising: there is a base for each domain, which is quite simple: I see or I don't see (black-and-white), I touch or I don't touch (lack of vocabulary to name these qualia), and these base levels give first birth to intensity levels such as the black-and-white spectrum with its gray qualia or the increasing sharpness of a touch from a soft touch to an intense pinch.

Getting to grips with this way of analyzing emergence, we would now easily identify the emergent structure of sounds domain. The highest level of one of the emergent branches of sounds that we have is the understanding of a language. This level emerges from the level of the sounds. To quickly check once again the properties of emergence: just having sounds you cannot predict the Chinese language, and having Chinese language, it cannot be reduced to sounds. A reduction to sounds would be how a foreigner that doesn't understand Chinese hears this language. That person would only hear random sounds. The understanding of Chinese is something more than just the sum of the heard sounds. Another branch of the sounds domain is represented by the level of music that also emerges out of the sounds level, but it emerges in a different direction as compared to the level of a language. And here we also have the properties of emergence: it's a different experience to listen to your favorite music as compared to listening to a music that you don't get. Your favorite music is on a different qualitative level from just the level of the sounds, while a music that you don't get sounds just like random sounds. In that case, what happens is that your consciousness doesn't emerge the corresponding music level and it just remains on the level of the sounds. The analysis can be continued by digging deeper into sounds by specifying pitches, loudness, chroma, etc. But because I consider that the reader has started now to understand how consciousness is structured in a hierarchy of emergent levels, I would go to more interesting cases and see how levels can interact among each other, and in this way, we can further pursue our goals of finding a way for the integration of Physics into consciousness.

## **Top-down influence in levels**

So far, we presented the emergent hierarchy of consciousness in a "pictorial" form, creating the sensation that this hierarchy is something fixed that doesn't allow for any dynamics. Fortunately, there are more interesting features of the structure that allows us to be alive and actually live a life. For this, I will take a favorite hierarchy of mine that illustrates the best how levels don't just emerge one on top of another in a fixed manner, but that the lower levels are influenced by the higher levels. This hierarchy is the hierarchy of a written language. I like the written branch of a language because it is part of the visual domain, and as we saw, the visual domain is the richest

and clearest for our human consciousness and using it we can illustrate much easier the phenomena that we are interested in. With no further ado, let's have a look at this hierarchy. Analyzing written language, we are situating ourselves in the visual domain. As we saw, this domain has at its basis the black-and-white level. From this level, we saw how the black-and-white spectrum emerged, then colors, then shapes.

But because branches of the emergent structure can emerge in different directions, we can have written language without some of the levels that are usually involved in the visual structure. So, from black-and-white we can jump directly to shapes. Using black-and-white, we can scribble different shapes on a piece of paper. These shapes in and on themselves are nothing more than shapes. To get to language, a further level needs to be emerged, and that first level is the level of the letters. Suddenly, the strange shape "A" becomes letter **A**, the strange round shape "O" becomes letter **O**, and so on. But gathering letters around doesn't make anything more meaningful than their own sounds (yes, language is actually an emergent level out of visual and auditory qualia, but this can be neglected for the analysis that we are doing now). From this level, reading the group of letters "asdfadsfa" is not different from reading the group of letters "consciousness".

A totally new level is needed to be emerged in order for new meanings to be understood. Thus, from the level of letters the level of words is emerged. At this level, the word **consciousness** is a totally different experience that just the group of letters "consciousness". In the same manner, just gathering words together doesn't make for anything more than just words. In order to make something meaningful out of words, the level of sentences must be emerged. To make sure once again that indeed we are dealing with emergence climbing all these stairs, the reader can take once more any 2 levels that he likes and verify the properties of emergence. To easily test this once more, Chinese shapes can be employed by someone that doesn't understand Chinese, to see that indeed there is a stark difference between shapes and letters.

We have now described yet another emergent hierarchy. But this time we would see something more about it. The next phenomenon would be later on used to add up to the arguments for how and why Physics is itself one of the emergent levels of consciousness.

An interesting way of how the levels of the hierarchy interact is revealed by this written language branch that we selected. When we write something, all that we have is the idea about what we want to write. Then all of a sudden, sentences are being formed by themselves, sentences which contain words, words which contain letters, letters that are being drawn in specific forms, forms which are black on a white background. What is interesting here is that each level takes care of selecting its suitable sub-levels. My idea of what I want to write, automatically selects the proper sentence to express the idea. Then the sentence automatically selects the proper words to contribute in a holistic way to the entire sentence. Then each word automatically selects the proper letters to contribute in a holistic way to the entire word. Then each letter automatically selects the proper shape to represent it. And then each shape appears of a certain color such that it can be identified from the surroundings. Of course, what we ultimately have at any one moment is just the highest level of a hierarchy. But this highest level has built into it the proper hierarchy from which it emerged.



So, if we want to influence lower levels, we can do this by acting directly from the highest available level. If we want to put together the letters “d o g”, we don’t have to struggle putting them one by one. We just have to use the emergent level of words, think the word “dog”, and the level of the letters is automatically generated. This suggests a very interesting possibility: whatever the entire emergent hierarchy of consciousness that makes us who we are is, we can influence it directly from the highest level that we have available. Of course, in order to not make blind tries, a proper understanding of the hierarchy that is involved needs to be had. But once the hierarchy is known, we can play with it directly from the highest levels. This is also mentioned by Rabindranath Tagore in *Sadhana* when he talks about the Upanishads. He notices how even though literature conforms to the rules of grammar, it is nevertheless an act of freedom [3]. An even more interesting example will be given later on about pleasure and pain, but we are not yet in the possession of the entire needed hierarchy.

The real importance of this observation about how the higher levels influence the lower levels will show itself when integrating Physics into consciousness, where we would see how higher levels in consciousness can have effects on what we take to be the physical world.

## Multiple realizability

The next feature that emergence is presenting to us is the fact that the hierarchy is not linear, but that levels can emerge in various ways one from another, different levels emerging the same level, or one level emerging multiple levels, or levels meeting at one point (through the process of the unity of consciousness – not discussed in this paper) after having emerged from a common sub-level. We already encountered this manifestation of emergence when we skipped the levels of black-and-white spectrum and colors in the above section about written language. The level of the shapes doesn’t emerge only from the level of colors, but it can directly emerge from the level of black-and-white. We can even have another look at this branching. We can take 2 branches: black-and-white -> shapes and black-and-white -> black-and-white spectrum -> colors, and then unify the highest levels of the 2 branches into a single level of colored shapes.

A revealing example is the one in which the letters are messed up in the words of a sentence, yet the higher levels are still emerged, as for example: “In tihs setnence, the letrets are totaly mesesd up, yet you are stlil albe to udnertsand it.”. Another trivial example is each person’s handwriting. Each person has his own shapes for the letters, and if the shapes are not actually extremely bad, you can understand many handwritings, the level of letters being emerged from a high variability of shapes.

As an example for branching, the duck-rabbit image can illustrate this well. One of its base levels is the level of the black-and-white shape that is nothing more than a shape. But from this shape, various levels can be emerged, the shape being able to be seen as either a rabbit or a duck. And if we are talking about rabbits, the level of “rabbit” can itself be emerged from a variety of sub-levels: it can be emerged from this kind of black-and-white sketch, or it can be emerged from a colored cartoon, or it can be emerged from a real picture of a rabbit, or it can be emerged from a circle and 2 lines sticking out of the circle, or even from hearing the spoken word “rabbit”. So,

we are seeing a wealth of relations between the various levels of the hierarchy. This is a good thing for our future search for integrating Physics into consciousness, because it will offer us a great guesswork space, not having to find a unique place for Physics to come in.

## **Does it really emerge?**

Before going on with more difficult analyses, a natural question might arise at this moment: Does it really emerge? Or in other words: Do the emergent levels actually have an ontological status? Or are they merely convenient epistemic descriptions that we use to talk about a consciousness that only exists on one level and all its qualia are just entities that allow for descriptions, descriptions that although expressible in a hierarchical vocabulary, don't actually imply any ontological hierarchy? Having now so many examples that made us get a feeling for what emergence is, this question can be easily answered: the levels are really ontological. To strengthen even more our intuition that we are indeed dealing with ontological levels, let's take some more examples. One would be again the duck-rabbit image. Even though the shape is the same, the duck and the rabbit qualia are clearly distinct entities both between each other and as compared to the shape from which they emerge. If the duck-rabbit image is too popular and its popularity obscures its importance, we can take any inkblot shape.

If we are given an inkblot shape, we just look at it and see a shape. But if someone tells us: "Look, there is a butterfly there.", all of a sudden, we see a butterfly. Having now the experience of a butterfly, we can compare it with the previous experience of a shape that we had, and clearly understand that seeing a butterfly is a totally different experience than seeing just the mere shape. So, the levels clearly are ontological. Let's take some more examples. It can happen to us that when we hear a new song to not understand it. We just hear a series of random sounds but we simply don't feel anything listening to those sounds. But then, after we listen to the song a couple of times, the experience starts to change, we actually get to enjoy the song. So, we are clearly accessing a different ontological level that is more than just the sum of the sounds. What each emergent level has more than the previous levels doesn't necessarily have to be expressible in words. It is enough to analyze it in introspection and see for ourselves that indeed an emergent level is more than the sum of its sub-levels.

Another interesting example to be brought here is the functioning of the faculty of understanding. Each new understanding that we acquire in any given field is of a totally different quality than the elements from which it emerges. A notable mention here, as argued by Roger Penrose, is the mathematical understanding. Penrose argues [4][5], that Gödel's Theorem suggests that our mathematical understanding in consciousness functions in a non-computational way. What this means in the light of emergence presented in this paper, is that each mathematical understanding that we acquire is a discrete jump/an emergent level from the elements that give rise to that understanding. A simple example is Pythagoras's Theorem. The understanding of this theorem is a totally different level than understanding what triangles, angles and lengths are.

A subtle distinction must be carefully made here. In the spirit of current reductionist science, it might seem that Pythagoras's Theorem can be reduced to triangles, angles and lengths, this appearing to contradict emergence which doesn't allow a level to be reduced to its sub-levels.

The distinction that needs to be made here is that we are not talking about Pythagoras's Theorem as if it is an independent existing entity that, in the spirit of independent-of-consciousness-existing-entities of current science, can indeed seem to be reducible, but we are talking about the *understanding* of Pythagoras's Theorem, understanding which takes place in consciousness. When this distinction is being made, we can introspect and see that indeed the understanding of Pythagoras's Theorem cannot be reduced to the understandings of triangles, angles and lengths.

If Pythagoras's Theorem is too familiar to us and we cannot spot the fact that its understanding in consciousness cannot be reduced to the understanding of its elements, we can take a less familiar example, for example Fermat's Last Theorem. We can all understand what numbers, powers, addition and equality are. We can even understand the fact that the theorem is true. But to understand why the theorem is true, we need a totally different mathematical emergent level, which if we are not mathematicians, we are lacking it. So, there is indeed a jump from understanding certain mathematical elements present in a theorem, and understanding the theorem itself. Thus, we see that mathematical understanding functions exactly like the rest of the emergent structure of consciousness. And this is generally true for any kind of understanding. Based on its Gödel's Theorem arguments, Penrose then goes and argues for the existence of something beyond present-day Quantum Mechanics that takes place in our brains that should incorporate non-computational elements. In the light of emergence, we would present later on how such extension of Quantum Mechanics will be made, extension that will situate Quantum Mechanics on certain emergent levels parts of consciousness.

## **The retentional passage of time**

So far, we presented many features of emergence as they reveal themselves in the higher levels of the hierarchy. Doing so, the reader was able to familiarize himself to emergence through easy to grasp examples that are accessible to introspection with almost no effort at all. But the analysis that will follow will subdue the introspection to some greater efforts. Therefore, I will ask the reader to pay closer attention to his introspection when reading the descriptions that will follow. The descriptions might not seem that profound at a superficial look, but they will actually contain understandings without which the true emergent structure of consciousness will not be able to be grasped. In my opinion, this section and the last section when the integration of Physics will finally be done are the most difficult to understand because they challenge the most our intuitions. With this in mind, let's start to analyze time and see what it has to do with emergence.

If there is one point at which Physics can be reconciled with consciousness, this appears to be time. Everything else seems so utterly different that no chance of integration can be made, what possible relation being found between the quale of red and the electron or between the taste of chocolate and quasars? Time seems like a good starting point, time being something that takes along for the ride everything in this universe, both electrons and consciousnesses. We are all in time together. If I am in the same referential frame with an electron, a 1-to-1 relation can be established between my moment in time and electron's moment in time. But at a closer look, some strange things will be noticed. Before getting to properly analyze time, we should first make the remark that the only time that we have is the time of consciousness. Then from this

time, physicists extrapolated an external physical time that is like an arrow and where events succeed one after the other, such that when a consciousness is looking at the axis of time, it always finds a relation of 1-to-1 between what it experiences and what is happening in the so-called “physical world”. If I see an electron at 3 o’clock, my seeing the electron and the electron are both happening at the same time (adjusting for the speed of light).

This extrapolation of time from consciousness to the “physical world” proved unexpectedly successful, although as we will now see it doesn’t correspond to the actual structure of time in consciousness, being actually in quite big discrepancy. In what follows, by “time” I will only refer to the time of consciousness. For the case of its extrapolation to the “physical world” I will explicitly name it “physical time”.

This extrapolation starts from the intuition that events succeed one another in consciousness. If I watch a stone rolling down the hill, each lower position of the stone follows a higher position. If I see people walking on the street, each step follows a previous step. If I listen to a song, each sound follows a previous sound. At a first look, this is how time seems to be structured in consciousness: as a series of events that follow one after the other. But at a closer look, there are certain events in consciousness that seem to not be captured by this picture. One first step in beginning to see why the succession picture has something wrong about it is the concept of succession itself. Succession implies the existence of infinitesimal moments of time that follow one after the other. But the qualia of words don’t seem made up of an infinitesimal succession of letters or even of sounds. A word seems perceived as whole, even though in the succession view of time it should be made of many infinitesimal temporal parts.

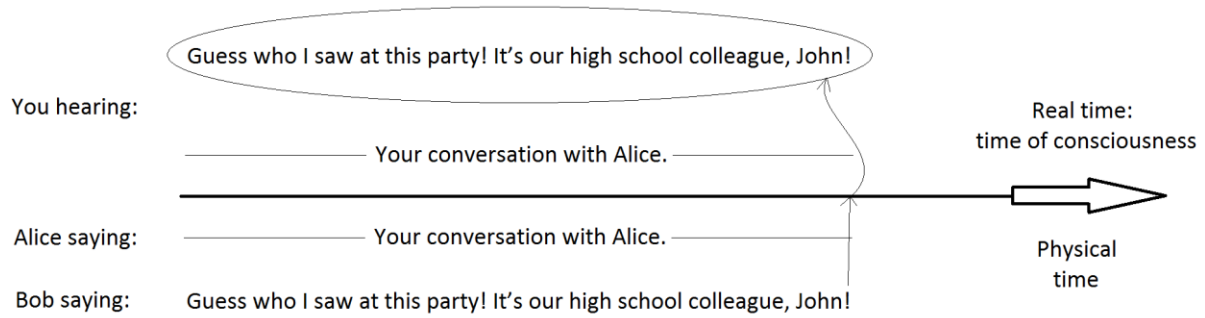
So somehow, time seems to be made of more extended temporal chunks, instead of infinitesimal ones. If this is the case, a discrepancy seems to appear between it and the physical time. If we are to put on the axis of the physical time an entire quale of a word, where will we put it? A word being perceived as a whole in consciousness, it cannot be split into letters or sounds and then make correspondence between each sound in consciousness and a certain moment of physical time. A physicalist might still insist at this moment that by paying careful attention to each sound of a word, this correspondence can actually be made. He might argue that brain scans can be made and identify each sound as it is being created in the brain and that would be the necessary and sufficient correspondence between the sounds of a word and specific moments of physical time. And indeed, I also consider that the case of words as samples of extended temporal chunks in consciousness is not a very illuminating case for the structure of time (even though they actually are holistic structures of time; just not that illuminating as an example).

Fortunately, there are certain cases where the structure of time surfaces in unequivocally manner, showing that indeed no correspondence can be made between it and the physical time. This is not something new, writings about time being made by Bergson which talked about duration as a continuous, immeasurable and unquantifiable flow and then Husserl identifying time as being made out of primal impressions, retentions and protentions [6]. More recently, Susan Blackmore [7] argues for the fact that there is no stream of consciousness, offering some revealing examples of how time should not be viewed in a linear manner. I will come up with similar examples and expose the structure of time. Even though the exact details of my analysis will differ from the above mentioned writings, they will be similar in spirit, what mattering at this moment not being

the exact details, but how time can be viewed as just another emergent level in consciousness and so, how it can be integrated into the bigger picture of the emergent structure of consciousness.

The most revealing example is as follow. Let's say that you are John and you are at a party with lots of people talking around you. Let's say that you are also caught in a conversation and your attention is directed to what your dialogue partner is saying. So, what you have in your consciousness are her words. But then, someone around you, talking with some other people, says something like: "Guess who I saw at this party! It's our high school colleague, John!". What is interesting and of most importance here, is that you somehow hear the entire sentences! And the way in which you hear the sentences is as if you were paying attention to them as they were being spoken, even though you were actually immersed in a totally different conversation and you were clearly hearing the words of your dialogue partner, and not at all hearing what other people around you were talking. So, what is going on? Now, because without the understanding of this example no further progress can be made in understanding the emergent structure of consciousness, I will insist on it as much as I can. Therefore, the reader having no other choice than to understand what is happening here, I will draw the first graph of this paper.

To make the graph easier to follow, let's name the characters. You are John and you are having a conversation with Alice. Your former high school colleague is Bob. In the lower part of the graph we will draw the events as they take place in the physical time. In the upper part of the graph we will draw the events that take place in the time of consciousness (see Figure 1). Let's now follow carefully what is happening. In the physical time, two events are happening at the same time. One is your conversation with Alice, the other is Bob's remark. In the time of consciousness, as long as you talk with Alice, only one thing happens: you hearing your conversation with Alice; Bob is talking, but you don't hear anything of what Bob is saying. Then, Bob reaches the moment when he utters your name. Then, something apparently magic happens: you not only hear your name, but you hear the entire Bob's remark! And it's more than this. The way in which you hear Bob's remark is not as if it has been recorded somewhere in your brain as it was being spoken without you being aware of it, and now it is being played back to you, having a physical time extension of the same extension that it had when it had been uttered. This doesn't happen because given the fact that to utter the remark takes few seconds, you would need for the next few seconds to be deaf to what Alice is still telling you. But you are not deaf to Alice; you continue to hear what she is telling you. So, there is no place in the physical time to squeeze those few seconds. Yet, you still hear Bob's remark! And the way you hear it is as if you were hearing it as it was being uttered.



*Figure 1. The retentional structure of time*

I want to insist even more on this example, because being used to regard time as something ordered linearly in a successive fashion, we might be faced at this moment with a difficulty of properly appreciating what is happening here. We need to understand that if the time of consciousness would be structured in a linear manner as its extrapolation to the physical world is taken to be, then what Alice and Bob were saying would be superimposed and you would only be able to hear only what one of them is saying. So, if you were paying attention to your conversation with Alice, you would at most hear only your name when Bob would finish his remark, because your name would draw your attention. And the interval in which you would hear your name would be taken from the time of hearing the conversation with Alice. But this is not what happens. What happens is that until your name is being uttered by Bob, you only hear the entire conversation with Alice. And then, after your name is being uttered, you don't hear only the name, but you hear the entire Bob's remark. Where can this be squeezed? The readers are asked at this moment to search in their memory for when this phenomenon also happened to them. Because without finding this phenomenon in reader's own introspection, this example would seem meaningless and absurd.

The only conclusion that I can draw from here is that the entire Bob's remark is being heard in our consciousness in an instant of physical time. Therefore, no word of the remark can be placed anywhere on the axis of the physical time. Reported to the physical time, the entire remark takes place all at once in consciousness. On the other hand, in consciousness it has an extended temporal duration, and one that feels as if we were hearing it as if we were paying attention to it as it was being uttered. In literature, this phenomenon is called "retention". This refers to the fact that time in consciousness is not being experienced moment by moment as it happens in the physical time, but that events from the physical time are first gathered somewhere (i.e. the brain, or somewhere else), and when meaningful information is detected, then a holistic temporal construct is created that contains the proper meaningful information, and this construct has the feel of a temporal passage. Thus, the title of this section: the retentional passage of time. Time in consciousness is a holistic retentional entity that has the feel of passing in a continuous manner. Notice here that if no meaningful information is detected, no time is constructed. If Bob would have finished his remark by a different name, you wouldn't have heard anything from what Bob said.

Going once again back to the above example, let's finally make proper sense of it. First, as we were having the conversation with Alice, smaller retentions were being constructed, for example words or small groups of words, and we were experiencing the passage of hearing the conversation with Alice. At the same time, somewhere the words of Bob and the words of other people in the room were being gathered for analysis. Then, when Bob uttered our name, an entire meaningful piece of information was detected: the fact that Bob was our high school colleague. Therefore, a bigger retention was created and was given to consciousness to experience it. One aspect of this retention is that it also has physical time references. Therefore, given the fact that Bob remark happened at the same time with Alice conversation, the construction of the retention took into account this fact and the final retention that was given to consciousness to experience also contained this temporal reference.

Therefore, the experience in consciousness is that we were being aware of Bob's remark as it was being spoken at the same time as the conversation with Alice. Notice that there is no moving back in physical time here. Is just the construction of a quale, that has as a content a past temporal reference. Because of this content, the quale acquires the quality of being heard as if we were paying attention to it as it happened in the past. And now let's make the most important remark of this section: time is just a quale, like any other quale, like for example color red. Yes, color red seems static and time seems dynamic. But this is not a difference in nature; it is just a difference in quality, quality that is generated by content. For example, hunger feels the way it feels because it has the content that we need to eat something, thirst feels the way it feels because it has the content that we need to drink something. In the same manner, the quale of time seems to pass, seems to be dynamic, because it has the content of temporality. It might seem circular: "time seems to pass because it is temporal", but it is not circular. There are 2 different meanings here. First, "time seems to pass", refers to the felt quality. Second, "because it is temporal" refers to its semantic content. The analogue for hunger is: First, "hunger feel the way it feels", refers to the felt quality. Second, "because it has the content that we need to eat something", refers to the semantic content.

The conclusion would be: there is nothing dynamic in the universe. As also noted by Zeno: there is no change. There are only qualia that inherit their qualities from the semantic content that they have.

As I noted from the beginning of this section, I realize that these might be difficult things to understand, but with proper reflection and especially with introspection from own experiences, I consider the conclusions to be solid. And even if the conclusions presented here might not be correct, the time of consciousness, the real time, is certainly not linear, and a link with the extrapolation of physical time is certainly not possible. A suspicion might arise from the reader now: "Ok, I can understand that if there is only 1 consciousness in existence, the entire dream of consciousness can be taken to be just a quality, with no actual change in a physical world. But our world seems to be populated by many consciousnesses, and these consciousnesses seem to interact among them. After all, if Bob weren't to say that remark in a real changing physical time, then John wouldn't hear anything in his consciousness." And this suspicion is well founded. We will take care to treat it later on when we will talk about the interactions of consciousnesses and how these interactions create what appears as the Theory of Relativity.

In the end of this section it's good to give more examples in order to show that this phenomenon happens more often than expected. For example, you are in a room in which a background noise is being heard, for example the noise from a refrigerator. At the beginning, you might notice the sound, but after a while you start doing other things and stop hearing the sound. But when the refrigerator stops, you notice its stopping. But the way in which you notice it is not just by hearing the moment of stopping. Instead, you hear as if you were being aware of the noise as it was being produced and only then you notice its stopping. Another example: you just used your phone and you let it turned on your desk and you start doing something else, like typing on the computer, and stop seeing the phone. Then, when the screen of the phone turns off, you don't notice only its turning off. But the experience that you have it that of seeing the phone screen still being on and only then you see its turning off. So, we see that this phenomenon happens all the time. It is not some exotic manifestation of the time of consciousness, but is the most mundane of its manifestations.

Returning to emergence, we can now easily make the integration: time is an emergent level that is below the levels that we presented in the first part of this paper. For example, when we got down in levels in the visual domain, we stopped at the level of black-and-white, not seeing anywhere where we could possible continue our descending. But now, reflecting again on vision, we notice that vision is dynamic: we look around and we see people walking down the street, birds flying in the sky, trees moving in the wind, etc. So, vision also has a temporal quality. After this section, we can now easily say where this quality comes from: from the emergent level of time, which is below black-and-white. Also sounds and music and poetry, they all inherit their temporality from the emergent level of time. To emphasize once more, what seeing a moving object or hearing a song have, is a quality of temporality. They are not dynamic in the sense of physical-world-objective-dynamics. They only have the quality of temporality. Nothing changes. Is just that these qualia have the quality of temporality, quality inherited from the emergent level of time.

## Memory

Slowing down the pace a little, we will now continue our descent in levels. Having revealed the emergent level of time, we can take the tool of specification and see what is hidden below time. Because of the analysis done, time can now expose the level from which it emerges with the most ease. Time having a retentional structure, it requires a built up from elements that can be retained throughout its structure. For example, when we read a sentence, the sentence only makes sense because we are able that at the end of the sentence to still have in mind the beginning of the sentence. This is intrinsic to the retentional structure of time. If the beginning of the sentence were to be lost by the time the end is reached, no meaning for the sentence could be constructed, so no time would even be perceived. For the very existence of the emergent level of time, its retentional structure needs to be of such a kind that it keeps throughout it the proper meanings to sustain its existence. We thus identify the level of memory. Memory contributes in at least two ways to how the higher levels feel like. One way is the flowing of time which is more than a succession. The second way is in the process of remembering. Remembering something is different than imagining something, even though both have the same quasi-perceptual feel to them. Even though the process of remembering acts in the same way as the



process of imagining, in that both bring fade qualia to consciousness, remembering feels different than imagining and by that difference in feeling we can tell memories apart from imaginations. Surely the remembering can be mistaken, but a certain veracity exists such that the process of remembering is indeed bringing to consciousness qualia that we experienced in the past.

One more thing that the level of memory is probably doing if the functioning of emergence presented in this paper is true is that when propagated higher in the hierarchy it makes each experience a memory. Every quale that we have should also be stored in memory, memory being an emergent level of consciousness, and not some structure in the brain. We would see more about this later on when talking about the powers of the agency.

One thing the reader might notice both for memory and for time is that in contrast to the higher levels discussed for example for visual domain, there appear to be no quality in itself that can be experienced for memory or time, i.e. there appear to be no pure time or pure memory that can be experienced as such. Surely time and memory are being found as part of the higher levels, but they don't appear to be possible to be experienced as pure qualia, this questioning their validity as ontological levels. We would talk about this later on, after we will present the entire emergent hierarchy, because also the next levels will appear to suffer from this shortcoming.

## **Diversity**

In order for memory to exist it must make a differentiation between it and other qualia. If no differentiation would be made, then no need for remembering would exist. There would be only 1 quale present in our consciousness for our entire existence. Then, if only 1 quale would have been present to consciousness, no time would have emerged either, and generally nothing would have happened, this not allowing for any thinking process either. So, we see that in order to have any meaningful consciousness at all, some diversity is needed. Because we are now in deep and obscure levels, it is hard to make the easier identifications that we did for the higher levels and just say: "look, this is the quale of diversity" in the same way that we could say: "look, this is black-and-white". But if we developed a sense for how the analysis in this paper was done, we figured out by now how the lower levels make themselves felt in the higher levels. And when we experience for example visual scenes, we can clearly identify that the scenes are not single-color full visual fields, but that they are full of details. And in the spirit of emergence, this diversity that we find in a visual scene can only be possible because somewhere deep-down in consciousness there exists an emergent level that has as a quality the quality of diversity. And then this quality is inherited in the higher levels allowing them to have any richness and meaning at all in the first place.

Visual scenes, music, food, touches, emotions, thoughts, they all contain diversity. So, diversity is a quality of these higher manifestations of consciousness. We raised a warning from the beginning of the paper, namely the fact that the analysis of consciousness would be made qualitatively. With each level that we analyze we understand better what this type of analysis involves. And this is seen even more here. We tend to take the diversity in our qualia for granted. But this is only possible because diversity itself is a quality. There might exist the temptation to

say that even though colors and objects and sounds and tastes are indeed qualities, a rich scene made up of these qualities is just a combination of them, without actually bringing anything extra to the final quale. But such a reasoning doesn't fully appreciate the qualitative analysis proposed in this paper. A full appreciation for what such a qualitative analysis presupposes, would make us identify the diversity that we find in a quale not just as a combination between sub-qualia, but as a quality itself. And because diversity is found everywhere in our qualia, including both static ones such as images and dynamic ones such as the passage of time, then diversity must be an emergent level situated deep-down in consciousness.

Because the levels that we are dealing with now are more obscure than the higher levels, the ordering of the levels in the hierarchy might be harder to be made. My intuition makes me situate the level of diversity below the level of memory and above the levels that will be presented next. But I will allow myself to be mistaken about this order and the reader might come up with a better ordering of the levels in these obscure depths.

## **Vividness**

Having now accounted for the diversity that we found in our qualia, are there still more qualities involved in a final experience? If we would have had only our waking state consciousness, it would have been harder for us to identify anything else in our final experiences. But, our human consciousness presents us with some alterations of the normal waking state, and from them we notice that a certain experience can be given to us in a variety of degrees of vividness. The same quale, as for example color red, can be seen either as a high vivid experience while in the waking state, but also as a fade experience when used in imagination. Also, there are certain dreams or drugs-induced states when it looks even more vivid than in the waking state. So, in order for a quale to exist at all, it needs to have a degree of vividness. We thus identify another quality that contributes to our consciousness, that being the quality of vividness. To fully appreciate both vividness and the above quality of diversity, it's interesting to have a look at how exactly does vividness acts on the above levels.

The most useful tool for this analysis are the images obtained on certain psychedelic drugs, as for example ayahuasca. What the images obtained on ayahuasca strike on the first sight is their beauty given by their tremendous diversity in details. These images are the most detailed experiences that we can have. So, what is creating this tremendous diversity? One answer would be that under the influence of such drugs, the activity of the brain increases many folds and such increased activity is working hard to create such scenes that in normal waking state we are not even near having them. Interesting enough, this appears to not be what happens. Recent experiments conducted by Robin Carhart-Harris in conjunction with David Nutt actually showed that the opposite happens [8][9]. When on psychedelic drugs, the activity of the brain decreases while the details of the experienced qualia increase enormously. How can this be explained? How can you get so many details when the activity of the brain decreases? Shouldn't such details be created by more intensive computations as it is currently assumed?

In the light of the emergent structure presented in this paper, the question can be easily answered. Since the level of vividness is a level found deep-down in the structure of consciousness, all you

need to do to obtain increased details in the higher levels of the hierarchy is not to undertake some complex computations, but only to increase the level of vividness and then you get for free all of the above effects. Also, the effects obtained on such drugs reassure us that we ordered correctly the levels in the hierarchy. The increased number of details that are found in such images shows us that indeed vividness is below diversity, otherwise vividness would not have been able to act on the diversity level leading to the creation of such detailed images. Even more so, this reassures us that diversity is indeed an emergent level of the hierarchy, and not just a pseudo-level formed from combining true levels. If diversity would have been just a pseudo-level, then vividness would have not acted on it and so the amount of details found in the ayahuasca and other drugs images would not have been obtained. In that case, vividness would only have affected the vividness of colors or of the final objects, but it would not have created that tremendous diversity.

We would just have seen images to be more real than in reality, as for example drawing a dinosaur and seeing it as getting out of the paper to eat us, but this would have been the only type of vividness increase obtained by taking such drugs. Instead, also the diversity blooms. This is most likely possible because diversity is an actual emergent level of the hierarchy. Also, the level of time is affected, reports of people on such drugs stating great increase in the experiences of passage of time, some even quoting of having spent centuries in those altered states of consciousness. This again, on the light of the hierarchy presented in this paper, happens because the level of vividness is below the level of time and this way, it influences the quality of time.

An objection can be raised at this moment. If vividness acts on all of the above levels, then why doesn't it also act on the thought process making us having clear thoughts that will enable us to easily find answers to all the problems of science? One explanation, looking at the empirical findings from brain scans, is that the observed decline of the activity of the brain while on such drugs might be responsible for the higher order thought processes. It is possible that consciousness in its "purest" form is a chaotic delirium. And evolution acted on this chaos and created filtering structures in the brain that helped the being to survive in its environment. Probably, the thought process is such a filter that helps construct higher order meanings in consciousness, filter which inhibit the free manifestation of vividness on the actual consciousnesses that we have. And what these drugs might be doing is to eliminate this filter, and so, the vividness level is free to act on the remaining levels.

This also correlates with my own experiences. I haven't found in literature reports of the experiences that I am about to report, so they might be new knowledge to be brought into literature. It sometimes happens to me that if I wake up from a dream during the night and I stay in bed with the eyes closed and I pay attention to what I am seeing, images start to appear into my consciousness. And those images are of the same kind as those reported by people taking ayahuasca. The images are incredible detailed and beautiful. They are the most beautiful images that I ever saw. They succeed one another at a rate of few a second. And they even follow a certain artistic style. Each night in which I have them, they are different, each night having a specific artistic style. They could be just geometrical, but most of the time they are not, they are complex images with complex objects. One of my favorite was seeing a visual field full of flowers that obviously don't exist on this planet, but which on that image were diverse in all of their characteristics: colors, shapes, species, sizes. It was as if seeing the paradise. The explanation for having these images at night after waking up from sleep is the same as above: the

thought process when just waking up is not running at its full potential, so the level of vividness is free to act on more primitive levels, such as visual qualia, and so create these fantastic images.

Having analyzed the level of vividness, we need now to clarify what exactly is its quality. What vividness appears to do is to increase the quality of other levels. Each level becomes more of itself: diversity becomes more diverse, colors becomes more intense, music becomes more beautiful (because to classify a series of sounds as music in the first place, a dimension of beauty is required: only a series of sounds that we like we consider them to be music; so, to increase the quality of music is to make music more beautiful), objects become more real (the dinosaur from the paper getting out to eat us), etc. So, the quality of vividness is the quality of making a quale more of itself. This identification of the quality of vividness is helpful to get us to the next and final level of the emergent hierarchy: the level of the Self.

## The Self

There are many ways to analyze the Self. One such way can be found in a previous paper of mine [10], where by analyzing the truth value of the proposition “I exist.” I showed that the Self always exists. Because of the extension of that analysis, I will not retake it here. Nevertheless, I will retake some clarifications about what is meant by the Self and then I will bring new ideas that will fit into the present presentation of the emergent hierarchy of consciousness.

For the beginning, I will mean the same thing by the terms “I” and “Self”. Second, the most important clarification for what the Self refers to is that it doesn’t refer to the personalities of each of us. The Self is not me that likes hiking in the mountains and dancing on the music. Those are just qualia that are added on a certain foundation. What the Self is, is that foundation on which different qualia are added creating different beings and personalities. From a phenomenological point of view, the Self is the observer, is the subject of experiences, is the first-person perspective, is what ultimately defines what the ontological subjectivity is. The Self is what defines the state of being alive. On this clarification, even though different persons can have different tastes and different ways of seeing the world, from a phenomenological point of view we all have the same Self. We will later on go and show that not only phenomenologically the Self is the same, but also ontologically. But since at this moment we are still working on a solipsistic framework, the Self will only be considered from a phenomenological point of view. Getting on with our current analysis, by specification we identify in vividness a quality of referring to itself.

We thus get to the next level below it, which is the level of “itself”, or on short, the level of the Self. This is the final ingredient on getting the consciousness that we are familiar with, because all of the above analysis still missed a final ingredient. Even though we talked about how vision is structured, how it takes place in a temporal framework, how it contains diversity, how it has a certain degree of vividness, it still lacked the fact that all qualia are experienced by someone. And the level that we now got to is that someone that experiences all the complex qualia that we talked about. That someone is, as mentioned above, not me John that likes hiking on the mountains, but is an emergent level of consciousness that has as a quality the quality of “itselfness”. This poses some interesting considerations. Such a quality of itselfness has a self-

referential nature, is a quality that refers to itself. And this self-reference on a closer look has a peculiar property of generating its own existence. Itselfness, by referring back to itself, creates a logical loop that self-generates its existence.

This existence is then propagated higher in levels and is responsible for the existence of all the possible qualia. This is actually the final quality that we needed in our view of consciousness: the fact that it exists at all. And this quality of existence comes from the level of the Self, which by its self-referential nature has as quality the quality of existence. Before red having the quality of redness, it first needs to have the quality of existence. Before chocolate having the quality of sweetness, it first needs to have the quality of existence. And so on. So, this quality of the Self is propagated higher in all the levels and makes them to exist. And there is another aspect of this existence, that steams also from its self-referential nature: it is ontologically subjective (see again my former paper [10]).

To get a better feeling for what the quality of the level of the Self is, it's helpful to reflect on some qualia in order to eliminate the cases of what this quality is not, and so make clear what it actually is. The most pervasive confusion is the one that the Self is the feeling of being oneself. But this is one of the things that it is not. Feeling oneself, even without putting a name to that oneself, is just a quale. A dog might have the feeling of being oneself, but that is not what the Self is, that is not what the ontological subjectivity is. This is best shown in cases of depersonalization where the patient loses the feeling of being oneself. The patient still experiences qualia, but he's lacking the feeling that those qualia belong to himself. So, the Self is not the quality of feeling oneself.

The next example is an example from my own experiences that helped me get to these ideas. We usually have a feeling of having an inner life, taking place at the interior, as for example having feelings that we feel inside us, or having thoughts that take place inside us; and we also have a feeling that there is a world outside us, at the exterior, as for example seeing objects around us. So, we have this interior/exterior division, where we identify consciousness as being that which is interior and the physical world as being that which is exterior. And we cannot seem to imagine life without these interior/exterior aspects. But I once at night had an interesting visual experience. I was seeing 3D objects with my eyes closed, but the way in which I was seeing them was not the usual way. Even though I was seeing them, they were not outside of me as we usually feel the objects that we see in everyday life to be, and they were neither inside of me. All I can say is that they simply were. So, this made me realize that it is wrong to think of consciousness as being something at the interior, that lives in some exterior physical world. Instead, the correct way of thinking is that all qualia are constructs of consciousness.

Having now eliminated the wrong intuitions that the Self is related to a sense of inner self and also that it is something that has an interior dimension, we can get to have a better feeling for what it is: it is just an ontologically subjective existential playground for qualia to happen, no other quality being allowed to be attributed to it.

One interesting implication of the self-referential nature of the Self can be best seen inherited in the level of the retentional passage of time. The way the retention is created is to keep in the present moment the former present moment that has just passed. This is realized through 2

qualities that time inherits from the lower levels. First, because of the level of memory, each moment is also a memory. Then, because of the self-reference inherited from the Self, each moment that becomes a memory is fed back into the present moment. This way, a sense of continuity, of passage is realized. Notice that all that exists is the eternal present moment. But the present moment, inheriting qualities from the levels of memory and of Self, acquires a quality of itself experienced as a memory fed back into itself as it is experienced directly as the present moment. This quality of former present moment fed back into itself is realized continuously (or better said: eternally). Because of this, a feeling of a continuous passage of time is realized, and a feeling of actually travelling through an external time is obtained.

To conclude this section, we should ask ourselves: Is the level of the Self the root of the emergent structure of consciousness? As far as I can see, it is: it offers the quality of existence, an existence that is logically self-generated, and here all the attempts of bringing an explanation for the world are finding their fulfillment. Still, if the reader can peer even deeper into the structure of consciousness, he is surely most welcomed to share with the rest of us his findings. But for me, this is as far as I can see. And we will see later on how this being the root of the structure of consciousness has an appealing aesthetics of deriving an ontology for the world, being a point from where all the consciousnesses in the world are emerged and offering a link through which interactions can take place, Physics being exposed as an appearance of the interactions that take place between all the consciousnesses in the world connected through the common level of the Self.

## Demergence

Before going to Physics, there is yet one more phenomenon that emergence presents to us. We postponed it until this moment because we needed to have as much of the hierarchy revealed as possible in order to highlight this phenomenon the best. Also, we still left unsolved the problem of the ontology of the last levels, because of their apparent impossibility to be directly experienced. The next phenomenon will propose a way to actually directly experience the deep levels of the hierarchy. Let's see what this phenomenon is about.

It is a common experience to all of us that if we repeat a word multiple times, its meaning starts to disappear and we are left with only hearing meaningless collection of letters. In literature, this is called semantic satiation and it is usually presented only in this context of losing the meaning of a word by repeating it multiple times. But it is a general phenomenon that takes place for many other qualia, probably for all of them. One other example is if you stare insistently at your face in the mirror. After a while you get a weird sensation that that is not you, so you lose the meaning that that face is your face.

In the context of emergence presented in this paper, what this phenomenon appears to do is to dissolve the current emergent level and go down one level: the level of the words disappears and we find ourselves on the level of the letters, the level of "my face" disappears and we find ourselves on the level of "a face". So, it appears to be the opposite of emergence. Therefore, I will generalize it from its particular application to linguistics, and rename it "demergence", to best emphasize its nature as a phenomenon that is doing the opposite of emergence. At a first

sight, it might appear as a fun game to make to repeat words until they lose their meanings, but when taken seriously we find ourselves in the possession of a valuable, probably the most valuable tool that we can have at our disposal to probe the emergent structure of consciousness and see exactly what its levels are and so, see if the obscure levels of consciousness are indeed ontological or merely epistemic. Of course, a proper usage of demergerence might require years of practice, so unfortunately, I cannot state here that I used demergerence and I indeed proved to myself that the deep levels of consciousness are indeed ontological. But I did tried demergerence on few simple cases and I got surprised by the results obtained, and I will encourage the readers to try it for themselves and even go more deeper than I did. I will present here 2 cases in which I applied it and emphasize the surprising results that I got.

For the first case, I pushed further the case of linguistics and I took letter “A” and repeated it multiple times. Letter “A” being a sound, I was curious to see what is below sounds. From a rational point of view, I was expecting to somehow experience directly the level of loudness or of pitches. But another interesting unexpected level revealed itself. It turns out that demergering the level of sounds, the level of inflections was revealed. Now reflecting back on the experience, I indeed can realize that a sound is not a steady quale, but that indeed it contains inflections. So, demergerence really worked.

For the second case, I took a more challenging quale. Since sounds have a temporal component, the way in which demergerence applies to them is to repeat them in a temporal way. But what if you take a static quale? Since you cannot actually repeat a static quale, how exactly do you apply demergerence to it? To test how this can be done, I took a visual field filled with white and I just stared at it. Since white is not something produced willingly by us, we cannot repeat it the way we repeat a sound. So, the only option that I had was to just stare at it. And once again, demergerence worked. The level on which I fell was the level of pure 2D space, which even though not stated explicitly when I presented at the beginning of the paper the structure of the visual domain, it is indeed a level below the level of black-and-white, black and white could not be perceived at all if they are not displayed on a 2D visual field.

These results from own experience, show something very promising. First, demergerence seems to be applicable everywhere. And second, there is indeed possible to experience qualia that seem impossible to experience. We indirectly have some intuitions for what 2D space feels like. But as we discussed along this paper, in order for a level to be shown to really be ontological and not epistemic, it needs to be experienced on its own. My experience of demergering the white visual field brought to my consciousness the experience of pure 2D space. It seems impossible to experience pure 2D space without some color qualia in it, but my demergerence offered me this experience. I cannot put in words how exactly it feels like, but there is indeed something-it-is-like to experience pure 2D space. Having now had this experience of something that seemed impossible to be experienced on its own, it suggests that also the deeper levels of consciousness: time, memory, diversity, vividness, Self, can be experienced on their own. Of course, such experiences probably require years of meditations, but there are indeed reports from people practicing meditation of their experiences of pure Self for example.

Another argument for the ontology of the deep levels of consciousness is as follow. Suppose that there might be beings that have the same visual experience as us, with a small difference: they don't see black and white. Nevertheless, their colors have shades, they can experience both dark

and light red. They might also come to the idea of emergence, but then they will also be confronted with the ontology of the black-and-white level. Based on the general phenomenology of emergence, they will suppose with great confidence that because of the fact that colors have shades, then there must be an emergent level below colors that should have as a quality something that resembles the darkness and lightness of their colors, but they will never be able to prove it. But if the general phenomenology of emergence presented in this paper is correct, and more exactly that each lower level makes itself known in the higher levels by its influence in the qualities of the higher levels, then those beings should be confident about the existence of the black-and-white level, even though they cannot experience it. In the same way, I think that we can also be confident that the deeper levels of consciousness are really ontological even though from our human consciousness we might not be able to experience them.

Having strengthen our analysis of the emergent structure of consciousness with this new phenomenon, that the reader is asked to test for himself, we are ready to bring Physics in.

*(Continued on Part II)*