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Roland S. Persson

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Résumé de l'article

The significance of illusion as a positive force in everyday life has been underestimated in both societal discourse and in empirical science. The objective of this study is to provide a synthesis of many academic disciplines' understanding of illusion and reality by proposing a taxonomy of functional and dysfunctional subjective realities as based on the assumption that the human mind is adaptive in an evolutionary sense and likely to be a quantum entanglement system. Assumptions and discussions needed to construct the taxonomy are generally based on empirical research drawing from evolutionary theory, neurology, biology, anthropology, psychology, psychiatry, physics and other disciplines. The purpose of the proposed taxonomy is heuristic, serving as a base for further studies drawing particular attention to the fact that, by evolutionary processes, Homo sapiens have been made dependent on multiple subjective realities where illusion and reality are not necessarily opposites. The article is concluded by discussing possible reasons for why illusions as a positive force in human behaviour has been neglected in comparison to the dysfunctions of the human mind of which research abound.

On Psychoses, Conspiracies, Creative Flow and the Absent-Mindedness of Genius: An Evolutionary Function-Dysfunction Taxonomy of the Multiple Subjective Realities of the Human Mind

Roland S Persson

Jönköping University, School of Education & Communication, Jönköping, Sweden

Abstract

The significance of illusion as a positive force in everyday life has been underestimated in both societal discourse and in empirical science. The objective of this study is to provide a synthesis of many academic disciplines' understanding of illusion and reality by proposing a taxonomy of functional and dysfunctional subjective realities as based on the assumption that the human mind is adaptive in an evolutionary sense and likely to be a quantum entanglement system. Assumptions and discussions needed to construct the taxonomy are generally based on empirical research drawing from evolutionary theory, neurology, biology, anthropology, psychology, psychiatry, physics and other disciplines. The purpose of the proposed taxonomy is heuristic, serving as a base for further studies drawing particular attention to the fact that, by evolutionary processes, Homo sapiens have been made dependent on multiple subjective realities where illusion and reality are not necessarily opposites. The article is concluded by discussing possible reasons for why illusions as a positive force in human behaviour has been neglected in comparison to the dysfunctions of the human mind of which research abound.

Keywords: Reality; illusion; delusion; hallucination; cognitive bias; evolutionary function; dysfunction; taxonomy; adaptation; psychological well-being; psychosis; diagnosis; DSM-5; quantum entanglement

Introduction and research objective

This study is an exploration into the structure and understanding of human illusion. It is easy to dismiss the subject as too philosophical, elusive and of little consequence for research and everyday life. But as I will demonstrate in the following nothing could be further from the truth. Illusions saturate everyday life in a positive way. In fact, they are so important to us that no-one is likely to have survived had they not lived by illusions. The importance of this is well established in biology. In psychiatry and cognitive psychology illusion is known by several labels, but they all have one thing in common. They represent dysfunction or error. Social psychologists, on the other hand, are well aware of the tricks that the mind can play, but such phenomena are usually referred to as cognitive bias. Importantly, their research does recognise the positive, even necessary, aspects of such bias. The same is often true of different schools of psychotherapy, although to them we interpret the world around us so as to defend the stability of our identity when needed.

There is, to my knowledge, no framework currently available that synthesises what different academic disciplines know of illusion and no attempt to date has been made to bring function and dysfunction together as related aspects of the human consciousness. The objective of this study,

therefore, is to provide such a synthesised framework to guide further studies into the field by drawing particular attention to the fact that illusion needs to be construed as reality, and that we are heavily dependent on multiple subjective realities in our daily lives, not only in the short-term to uphold psychological well-being but also over a longer period of time allowing the human species to survive.

This study is best understood as a theoretical essay. While not directly empirical, and not a systematic literature review, the synthesis as such, and all assumptions made in the following, are based on published empirical research from many different disciplines. While the subject of reality versus illusion traditionally is an ontological issue, I will demonstrate in the following that, because of pioneering research in physics and mathematics, it is no longer meaningful to always distinguish between the empirical and the philosophical as separate domains of scholarship, at least not when exploring the workings of the mind. On this basis I aim to present a taxonomy of the multiple subjective realities of the human mind, and in so doing, also explain, for example, why an intellectual genius often seems to be so absent-minded to many, and always seems to have his or her head in ‘the clouds.’

The elusive nature of reality

What is real and what is not? This question is simple enough a question. Most would perhaps reason that the answer is obvious, namely that what we observe and can touch is real and that which we cannot see and cannot touch is not. But there is no simple answer to the question. Philosophers have pondered over the problem for millenia without being able to agree what the answer might be. Most famous of them all was Greek philosopher Plato. He argued that what we perceive with our senses is not real. It is only a shadow of a universal true reality, one which cannot be perceived directly (cf. Holt, 2012). Hence, we exist in an unreal world being a mere reflection of a real world beyond our direct perception. A modern interpretation of this is the assumption that while the world around us cannot be real in any sense of the word the mathematics, underlying the existence of everything, is real (e.g., Balaguer, 2008). Another possible application of the same line of thought is to view our brain, as neurologist Michael Graziano (2019) puts it, ‘as a machine that claims to be conscious’. In other words, the external world around us does not actually exist inside our heads. We experience inner subjective representations of an objective external world which the brain then interprets in a way that makes sense to us. The world around us would be real but, in a Platonic sense, our experience of it is indirect and only reflects the external world by an interpretation of it.

The notion of reality becomes trickier if, in a context which most would regard as real, some would dare to claim that they can see, hear or understand things that others cannot. Whose reality is true and whose is an illusion? We even fabricate alternative realities on purpose when we want others to believe what we say, although we know that what we convey is untrue. We aim to deceive someone, be it either for altruistic reasons such as when sparing someone unnecessary hurt, for self-preservation or being entirely selfish at someone else’s expense (Everett, Walters, Stottlemeyer *et al.*, 2011; Mokkonen & Lindstedt, 2016). We regularly deceive ourselves as well to preserve our sense of self-worth (Burton, 2020; Chance & Norton, 2015). To complicate matters even more, whichever reality we experience and hold as true, it can be changed. Someone who has had a religious experience or any other type of profoundly emotional experience, tends to transform their entire outlook on life and view it differently (Gutierrez, Hale & Park, 2017). One could argue that they go from one reality and to another; or alter their reality in significant ways. In addition, when someone is hallucinating for physiological, psychological or neurological reasons inner realities could potentially be created, which detach an individual so much from their external reality that they pose a danger to themselves and to others (Waters & Fernyhough, 2017). They might, for example, develop a sense of being persecuted, become convinced that they are chosen by god or that they have even become gods themselves. Some become convinced they are able to control the minds of others or that they are deeply in love with another, although the subject of their desire is not and may not even be acquainted with the delusional individual at all (e.g., Franey & Espiridon, 2018; Garety & Freeman, 1999; Rosch-Eifert, undated). Add to the complexity of understanding reality the fact that brain lesions might completely change our own understanding of who we are and how we perceive the world around us (Feinberg, 2001).

Furthermore, we cannot even trust our senses to always present us with objectively true information. In an effort to make sense of the world our brain may infer something that is not always objectively there. Optical illusions, for example, that yield visual ambiguities, distortions, paradoxes or fictions (Gregory, 1997; 2004), provide information which may not actually exist at all. Among these the Ponzo Illusion (Figure 1) is one of the most commonly cited. It demonstrates that, given certain visual cues, we tend to *wrongly* infer distance and size (Prinzmetal, Shimamura & Mikolinski, 2001).

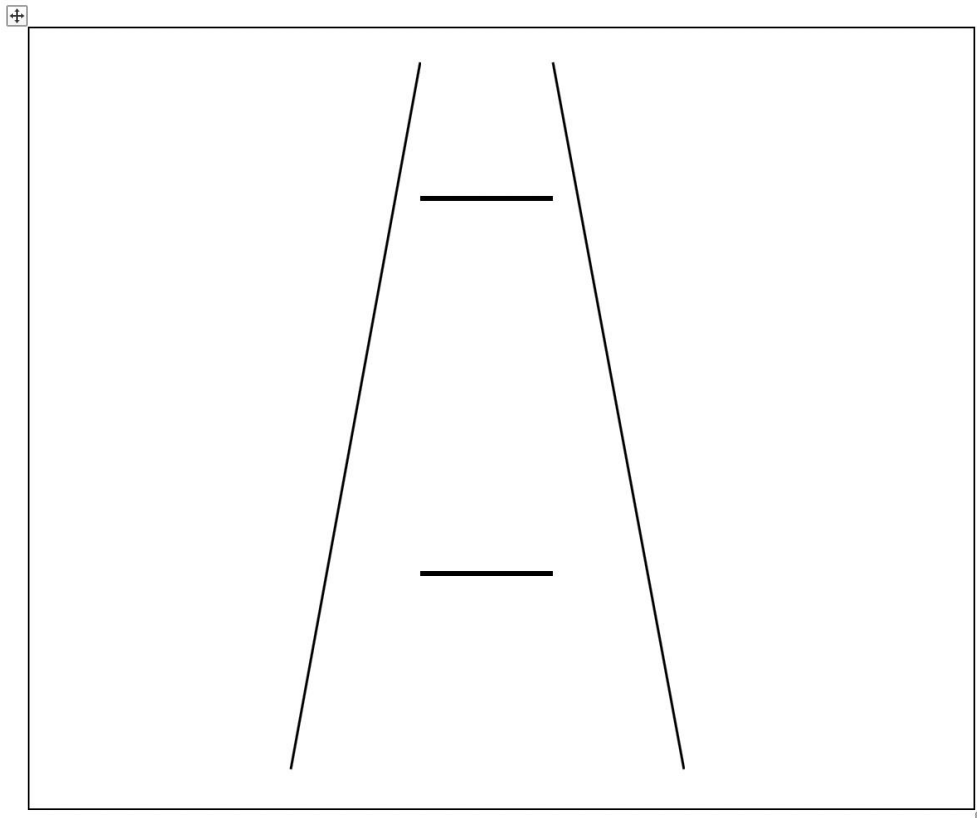


Figure 1: The Ponzo Illusion. Both horizontal lines between the leaning vertical lines are of equal length but are usually perceived as of different length in Western cultures.

Cognitive illusions are not perceived in the same way in every culture and are therefore likely to be the result of evolutionary adaptation over very long periods of time. The way we perceive our surroundings in the Western World may not be how individuals inhabiting the dense forests of Brazil perceive their surroundings. Interpretation of visual input, therefore, has survival value for a given population in a certain biotope and different biotopes offer varying conditions for survival (Deregowski, 1989).

Optical illusions can also be triggered by neurological damage or by psychoactive drugs (Gersztenkorn & Lee, 2015). Such have been used in the Western World for almost 200 years to ‘expand reality’ and thereby impact creative output favourably (Harman, McKim, Mogar, Fadman et al., 1990; Krippner, 1985; Schäfer, 2007), but often at a cost to the user (Baylen & Rosenberg, 2006; Bouso, Palhano-Fontes, Rodriguez-Fornells, Ribeiro *et al.*, 2015; Gallimore, 2015; Millman & Bordwine Beeder, 1994). A case in point is famed Dutch painter Vincent van Gogh—a known epileptic—who was prescribed digitalis by his doctor for this condition. The drug, however, if overdosed, may affect perception by prompting a colour vision deficiency causing a predominance of yellow, as well as causing the patient to perceive haloes around light objects. It is undeniable that van Gogh had a particular preference for using yellow and his painting ‘Starry Night’ is famously characterised by haloes surrounding every light in the nightly sky. The reason for his peculiar style, it has been suggested, was perhaps a perceptual disturbance caused by digitalis poisoning (Arnold & Loftus, 1991; Aronson, 1990). Other examples of artists who created masterpieces of art, music or literature, under the influence of mind-altering drugs include composer Hector Berlioz and poets

Samuel Taylor Coleridge, John Keats and Jean Cocteau (Wolf, 2005; 2010). Needless to say, psychoactive drugs are addictive and may cause considerable harm when overdosed and used repeatedly for long periods of time. But considering their potential advantage, it is currently a matter of debate whether they can be used for therapeutic benefit but in a controlled manner thereby avoiding their undesired and addictive effects (Sessa, 2012; Tupper, Wood, Yensen & Johnson, 2015).

Your reality and my illusion, or your illusion and my reality?

Many throughout history, from ancient philosophers to modern scholars and playwrights, have been fascinated by human perception and how we handle or use the notion of reality and illusion in daily life. French enlightenment playwright Voltaire, for example, believed that having illusions is the first of all pleasures, while Romanian philosopher Emil Cioran more pragmatically suggested that illusion begets and sustains the entire world. A more utilitarian understanding is that of famed tennis player Rafael Nadal: ‘... I have to believe I can improve. I wake up every morning, and go to practice, with the illusion that I am going to get better that day.’ A pleasant illusion, suggested American author Christian Nestell Bovee, is much better than a harsh reality, echoing a similar reflection by Hollywood actress Judy Garland. To her the loss of an illusion was almost like losing a child. ‘Life has no meaning the moment you lose the illusion of being eternal’, mused French existentialist Jean-Paul Sartre, whereas South African thinker Mokokoma Mokohonoana prefers to tie illusions in the 21st Century to the current Internet phenomenon Facebook and its 1.7 billion users (in 2020). He has suggested that being on Facebook gives people an illusory sense of being liked. In Facebook World they may have a vast social network of what they consider to be friends and acquaintances, but in everyday life their circle of real-world social contacts is much more limited, perhaps even non-existent. People exist in one social reality on-line and quite another when off-line (cf. Mokohonoana, 2019). Sigmund Freud has also given the notion of reality and illusion some thought. Illusions, he observed, commend themselves to us, save us pain and allow us to enjoy pleasure instead. Finally, American author Herman Wouk, ventures to define illusion as something that is bred by the gap between wishful thinking and reality and that cannot possibly cause offence or disagreement.¹

Clearly, not only philosophers and scholars have pondered over the nature of reality and illusion. Existential musings, in one form or another, are of interest to most of us. This inclination is often regarded as a human universal; that is, that people in all cultures throughout recorded history have always, albeit in different fashions, pondered over existence and have nurtured ideas and beliefs about the unseen and the non-tangible (Brown, 1991). A few scholars have gone so far as to suggest that this human proclivity should perhaps be construed as a separate human intelligence (Gardner, 1999; Tupper, 2002). This assumption, however, is most likely incorrect, and whether our interest in existential musing constitutes a basic need for religious beliefs or not remains an ardently debated issue (Norenzayan, 2010). Regardless of religious constructs, however, it would seem that we are all, more or less, interested in trying to understand our own existence-- an inherent desire which, at least in the more secularised parts of the world, has evolved from professing formalised religious creeds to arguing that we are ‘spiritual’ but without any kind of religious affiliation (Ammerman, 2013). This transformation of how and what we choose to believe in suggests that existential thinking is indeed universal and cannot be confined to creeds or formal rules only. Even if abolished or forbidden, as in the former Soviet Union (cf., Anderson, 1994), spirituality will only take on other forms. Even the most ardent atheist is a believer in something although he or she is not likely to accept something supernatural or divine.

One phenomenon and its numerous labels

The large number of words and expressions we use when referring to our existence and what is real or imagined is confusing to scholar and layperson alike. Existing definitions tend to be vague or

¹ These quotes on illusion are all unreferenced since they are part of already existing compilations on the following URLs: www.wiseoldsayings.com, www.goodreads.com and www.brainyquote.com. Each of them can be found using the available search engines.

confined to certain contexts with no meaning or application in other contexts (e.g., Gregory, 1997; 2004). There is no consensus on how to render exact definitions of any of the most commonly used terms (see Table 1). Proposed standard definitions as appearing in well-regarded dictionaries and encyclopedias of the English language have a tendency to opt for circular logic. For example, if illusion is defined as an idea or a belief that is ‘not true’, we first need to know what is actually ‘true’ in order to be able to comprehend the concept which it intends to explain. Also, truth is possibly the trickiest ontological notion of them all to define and explain with any kind of accuracy.

The same problem is haunting the definition of hallucination. How do we decide if something exists or not? To understand the term, we must first know something about the enduring nature of reality in comparison to that which is hallucinated and represents non-reality. This is, of course, exactly the same dilemma that Plato and many of his followers have grappled with for centuries.

Table 1: Examples of different terms or expressions relating to reality in one way or another. Explanations are taken from the *Cambridge Dictionary* (Cambridge University Press, 2020) and *APA Dictionary of Psychology* (American Psychological Association, 2020) where available and also *Wikipedia* where neither of the other two dictionaries provided an explanation.

Terms or expressions	Suggested explanations or definitions
Altered states of consciousness (Flow/Peak experiences/Being cognition)	A different state of mind in comparison to a normal state of mind and therefore a differently experienced subjective reality.
Belief (or Faith)	Great trust or confidence in something or someone, seen or unseen.
Cognitive bias	Systematic patterns of deviation from norm or reality in assessment.
Consciousness	The state of understanding and realising something; of being aware of something either internal or external to itself.
Culture	The distinctive customs, values, beliefs, knowledge, art, and language of a society or a community. These values and concepts are passed on from generation to generation, and they are the basis for everyday behaviors and practices.
Deception	The act of hiding the truth.
Defence mechanisms	Unaware, psychological, mechanisms aimed at protecting one’s identity as threatened by anxiety arising from psychic conflict.
Delusion	Belief in something that is not true.
Dogmatism	The tendency to act in a blindly certain, assertive, and authoritative manner in accordance with a strongly held set of beliefs.
Dreaming	A series of events or images that happen in your mind usually when asleep.
Daydreaming	Thinking about pleasant things that you would like to do or have happen to you, instead of thinking about what is happening now.
Eccentricity	Being strange or unusual, sometimes in a humorous way (as perceived by others).
Fantasy	A pleasant situation that you enjoy thinking about but is unlikely to happen.
Imagination	The ability to form pictures in the mind; something that you think exists or is true, although in fact it is not real or true; the ability to think of new ideas.

Table 1 continued

Illusion	An idea or belief that is not true or the result of a perceptual error.
Hallucination	To seem to see, hear, feel or smell something that does not exist.
Hope	To want something to happen or be true.
Hypnosis	A mental state like sleep in which a person's thoughts can be easily influenced by someone else.
Magical thinking	The belief that unrelated events are causally connected despite the absence of any plausible causal link between them often, but not necessarily, as a result of supernatural effects.
Mindset	A set of assumptions, methods, or notations held by one or more people or groups of people. It can also be seen as arising out of a person's world view or philosophy of life.
Pretence	A way of behaving intended to deceive for gain or entertainment.
Theory of mind	The ability to attribute mental states to oneself and others.
Unreality	Believing you are dead when still alive (The Cotard Delusion).
Visualisation	The process of creating a visual image in one's mind or mentally rehearsing a planned movement in order to learn skills or enhance performance.
Wishful thinking	The imagining or discussion of a very unlikely future event or situation as if it were possible and might one day happen .

As demonstrated, the notion of reality is complex and difficult to define. All definitions to date defy universal validity. The terms or expressions listed in Table 1 all have their own application and use in science, philosophy or in our everyday discourse. In one way or another they all allude to something that exists beyond; something not here or visible and not manifested in objective physical existence, at least not yet. But they all, for various reasons, demonstrate how common it is for us to make use of different realities, which may or may not eventually become more tangibly manifest.

Carol Dweck's (2006) idea of fixed and growth mindsets is one example of how one reality can be made into becoming another. In her view, having a fixed mindset means that you have an urgency to prove yourself because you are convinced that your qualities as an individual are unchangeable. This needs to be changed into a growth mindset, she suggests, in which you rather become convinced that your 'qualities' can be changed for the better through your own effort (see also Chen, Powers, Katragadda, Cohen *et al.*, 2020). This is a very American point of view, but it shows the possible application of different realities. In this case, one undesirable reality inappropriate in American culture should ideally be changed into a reality that is deemed more desirable (Duina, 2011; Stewart & Bennet, 1991). Other examples concern our intentional use of music, literature and drama. They offer an escape from a harsher reality, and at times also a way to cope with traumatic experience. They allow us to temporarily leave one reality for another, and in so doing we gain distance from the trauma and often find ourselves in a better position to be able to come to terms with, and process, what happened to us (Arthur 2007; Bunt, 1994; Mathies, 2020; Tan, 2008; Unkefer, 1990). Music, in particular, has a very long genetically inherited tradition in human history to mediate everyday life functionally with alternative realities for a variety of purposes (Gabrielsson, 2011; Merriam, 1964; Peretz & Zatorre, 2009; Rouget, 1985). Visualisation as practiced in sport psychology to improve an athlete's performance is another example of making use of an alternative reality, but its purpose to reinforce motor learning rather than necessarily reprogramme thought patterns (cf., Huang, 2014; Moreno & Mayer, 2007; Simon, 2007).

When there is no neurological or physiological dysfunction involved in forcing alternative realities upon us and confining us to them with no possibility of willfully affecting them, it is

undisputable that our relationship to a variety of illusions — or more suitably termed: our relationship to numerous subjective realities — is very central to how the human mind works. We all have hopes, dreams, beliefs, and we may move between different cultures and contexts, all of which may embrace realities alternative to our own everyday existence. Clearly, illusions are often not dysfunctional at all, nor are they necessarily imaginary in the sense that they do not exist.

Proposing a functional understanding of reality

We often say that beauty is in the eye of the beholder when discussing differences in taste and preference, but we rarely give much thought to the fact that the saying originated in Ancient Greece reflecting much the same struggle to understand the nature of existence as we have. With modern science we are able to test whether beauty is indeed in the eye of the individual beholder. Experiments designed to analyse how we perceive beauty in each other's faces, indicate that *most* aspects of how aesthetically appealing we are judged to be by others is, in fact, largely determined by our *individual* preferences drawn from our own social context (Germine, Russell, Bronstad, Blokland *et al.*, 2015). It needs to be noted, however, that being aesthetically appealing is not necessarily the same as perceiving someone as a suitable partner. We also know that such universal aspects of appeal such as facial symmetry, women's use of the colour red and men's status and popularity, to mention only a few are known universals tied to human courtship and sexual attraction (Dunn & Searle, 2010; Elliot, Tracy, Pazda & Beall, 2013; Shaw Taylor, Fiore, Mendelsohn & Chesire, 2011; Perrett, Burt, Penton-Voak, Lee *et al.*, 1999). The same is true of musical preferences. Music as human behaviour has evolutionary origins (Wallin, Merker & Brown, 2000), but our taste in it is largely decided by cultural and social factors (Lonsdale, 2020; Hird & North, 2020).

Arguably our perception of beauty and taste is impacted by the world around us generating different preferences in addition to the more basic and genetically inherited ones typical of our species. But the experience of beauty and preference for music are not the only aspects of life and existence that we perceive individually. Reality, it has been proposed, is the sum of all that exists *within a system*, as opposed to that which is imaginary (Wikipedia, undated). That which is subjectively imaginary, however, can sometimes become objectively real. This is, in fact, the nature and target of any creative process (see e.g., Morgenstern, 1956; Wallace & Gruber, 1989). The nature of the imaginary, in turn, is inevitably tied to known frames of reference. A clue to defining reality and making it less elusive, therefore, is to not pit the notion of reality against the imaginary as an opposite, but to rather view reality as something that is *confined* to a certain system serving as a frame of reference, consisting of one, several or all of the following: knowledge, perceptions, feelings, experiences and values which, when all taken together, constitute what we generally mean by culture (e.g., Kroeber & Kluckhohn, 1952). When encountering a different such system it is experienced as foreign and, in a sense, imaginary because we cannot immediately identify with it. It makes little sense. It is only when we acquaint ourselves with another such system that it becomes real, given that we have also possess the basic ability to understand it. This is not always the case.

The contemporary study of the nature of reality and its perception is skewed toward examining error and abnormality. It tends to position generally shared reality against individual reality, where individual reality is thought of as illusion and is construed as dysfunctional. It is understood as the result of physiological or neurological error or damage (e.g., Corlett, Krystal, Taylor & Fletcher, 2009; Currie, 2000; Leeser & O'Donohue, 1999; McKay & Kinsbourne, 2009; Ardhana Ardhana Sahoo & Josephs, 2018; Spitzer, 1990; Young, Robertson, Hellowell, de Pauw & Pentland, 1992). While this focus is by no means in dispute it nevertheless overshadows the fact that individual reality is not always dysfunctional. In fact, the opposite appears true. We rely to a considerable extent on the intentional and unintentional *functional* use of different subjective realities as we go about our daily lives. This use is no doubt *adaptive* in an evolutionary sense and necessary for our well-being and survival.

How to make sense of the age-old conundrum of the nature of reality has become even more pressing in recent times. The human species is increasingly existing in Cyberspace. This complicates

human ontology even more. Is a cyber-existence real, is it imaginary or is it something else altogether? Most of us are not bothered with the question because the Internet and what it has to offer fulfils an increasingly important, albeit technology-mediated, alternative reality previously unknown to Homo sapiens. This novel combination of subjective existence and technological objective reality, and the renewed interest in the nature of existence which it has brought with it, has not gone unnoticed by scholars (e.g., Riva, Baños, Botella, Mantovani *et al.*, 2016). Swiss physicist James B. Glattfelder (2019), for example, has observed (p. 515):

In attempts to bridge the chasm between the objective and subjective, scientists and philosophers have opened up to the unspeakable ... The human mind is witnessing the most radical paradigm shift in its own history. The well-served and previously glorious materialistic and reductionistic scientific worldview is yielding to a novel scientific conception of subjective consciousness and objective reality—and their unexpected intimate kinship.

One reality or many?

There must reasonably exist any number of subjective systems of reality, both individual and collective, to most normally functioning individuals. It matters not whether they are technology-mediated or psychologically generated. While we all differ to some degree in how we perceive and construe every aspect of the physical and social environment, there are by necessity aspects of subjective realities that we must also share. If not, upholding the social cohesion of groups and societies would be impossible. But rather than pitting a shared reality categorically against imaginary illusion, it seems more feasible to argue that we all exist in *multiple systems of subjective realities* simultaneously, and that these change, or are replaced, in relation to time, place, cause and, no less important, the fact that we are able to employ such alternative realities intentionally *without* relinquishing shared reality. Subjective realities are normally dynamic.

While it might seem farfetched in the current context, it is not without interest to note, as a comparison, that it has also been suggested by some cosmologists that we are positioned in a physical Multiverse. The observable Universe which we inhabit might not be the only universe simultaneously in existence (Linde, 2017; Tegmark, 2003; Vilenkin, 2006). This line of thinking is also relevant to the search for a Theory of Everything, in which scholars, in quite a Neo-Platonic way, are seeking to understand how everything in our physical universe is interconnected on some level as based on mathematical principles. The subjective human mind is indeed a part of this theorising (cf. Barrow, 1992; Bohm & Hiley, 1995; Capra, 1996). As computer power has increased in recent decades, physicists make discoveries into quantum reality and mathematicians follow suit to formally explain that which philosophers through the ages have only been able to speculate on. This progress has increasingly blurred boundaries between academic disciplines. It is no longer obvious to clearly distinguish between philosophy, mathematics, physics and an increasing number of other research fields and academic disciplines aimed at studying human behaviour and existence (e.g., Sheldrake, McKenna & Houston, 2001; Rosenblum & Kuttner, 2006). Maybe we will eventually reach a point in time when a theory of everything has become the obvious foundation for all study. Beyond any doubt it will include the workings of the human mind and be essential to the social sciences in general (cf. Haven & Khrennikov, 2013; Wendt, 2015).

To assume that the human mind exists in multiple subjective realities simultaneously, therefore, is not farfetched at all given the extensive research and experience that has already accumulated in psychiatry, psychology, anthropology, physics, mathematics, neurology and ideas relating to quantum reality and a theory of everything.

Illusion then, rather than exclusively being something dysfunctional and destructive as previously assumed, becomes a means to an end often willfully used to have a positive impact on human everyday life (cf., Kasten, 2008). Problems may certainly arise when we deviate from a collective subjective reality and are unable to, or at least find it very difficult, to relate to the shared reality of our social context. A few cases in point are the delusional schizophrenic, the mental

phenomena often following epileptic seizures (Elliot, Joyce & Shorvon, 2009; Mortimer, McKay, Quemada, Clare *et al.*, 1996), individuals suffering from delirium (Cunningham & MacLulich, 2013) or becoming addicted to Cyberspace and online gaming (e.g., Müller, Janikian, Dreier, Wölfling *et al.*, 2015; Shapira, Goldsmith, Keck, Khosla *et al.*, 2000). Perhaps the most extreme manifestation of being entirely detached from the surrounding world psychologically is the Disassociative Identity Disorder (previously known as multiple personality disorder), which afflicts about 1.5% of the population (American Psychiatric Association, 2013). One criterion to determine the diagnosis is the following (p. 292):

... a disruption of identity characterized by two or more distinctive personality states, which may be described in some cultures as an experience of possession. The disruption in identity involves marked discontinuity in sense of self and sense of agency, accompanied by related alterations in affect, behaviour, consciousness, memory, perception, cognition, and/or sensory-motor functioning.

While this is a somewhat controversial diagnosis, and there are different schools of thought on what causes it—no definitive biological bases have been found to date to explain why it occurs (Reinders, 2008). Yet, it is a problem that a certain percentage of any population struggles with (e.g., Walker, 2009; West, 1999).

Exceedingly creative individuals also appear to exist in what could perhaps be best described as a subjective reality between the everyday existence of normal functioning and a reality partly shared with phenomena typical of several psychiatric disorders (Mula, Herman & Trimble, 2016; MacCabe, Sariaslan, Almqvist, Lichtenstein, Larsson *et al.*, 2018; Redfield Jamison, 1993; Vellante, Sarchione, Ebisch, Salone *et al.*, 2018).

A much less obvious example, but a telling one, is the extremely intellectual individual whose mind exists in an abstract world that few others can even begin to comprehend since they lack the cognitive means to do so (Falck, 2019; Persson, 2007; Simonton, 1994). Such individuals process cognitive information with astounding speed and need an environment providing sufficient stimulation to keep their cognitive system alert and functioning optimally (cf. Geake, 2009; Geake & Dodson, 2005; Gross, 2000; Jung & Haier, 2007; Neubauer & Fink, 2009). If enough information is not available, which is frequently the case for intellectually extreme children in a normal classroom, or for intellectually gifted employees in an organisation void of proper talent management, they tend to become unfocussed, restless and exceedingly bored. This unenviable state is sometimes wrongly interpreted as Attention Deficit Disorder (Beljan, Webb, Amend, Web *et al.*, 2006; Mullet & Rinn, 2015; Stapf, 2010). Having the ability to extreme abstract thinking is never a question of dysfunction and is not subject to any standard pathological diagnosis but, in line with the reasoning of this article, it is rather a question of such an individual existing in a different subjective reality, albeit a very abstract and fast-processing one inaccessible to most others thereby being perceived as strange or aloof. It is not likely that the absent-minded genius with his or her or head 'in the clouds' is somehow impaired, socially or cognitively. He or she tends to exist in an abstract subjective reality much different from that of most others, which in itself might occasionally be a problem (cf. Persson, 2007). Abstractions are not easily communicated to others unable to understand them.

Another issue of relevance in relation to shared reality is dogmatism which, drawing from several schools of thought, Furnham (2015) has defined as a strong desire to reject all ideas opposed to one's own; a low degree of connectedness among various beliefs, and many complex and positive ideas about things/issues believed in as opposed to those that are not believed in. Being dogmatic is being inflexible in one's thinking and unwillingness to change it in anyway (Arutunyan, 2018; Martin, Staggers & Anderson, 2011). Dogmatism could be understood as voluntarily holding on to one subjective reality being entirely insensitive to how it relates to a surrounding shared reality. While originally construed as a type of personality (cf. Rokeach, 1954), it is more appropriate to consider it as adaptive behaviour that is important either to the social cohesion of a group or when assuming a dominant position in a group. It has long been established that groups under pressure in relative

isolation from other groups, willingly or unwillingly tend to develop a delusional perception of shared reality by means of groupthink (Janis, 1982). A similar perceptual distortion occurs among upwardly mobile individuals ardently seeking increased social status by leadership, fame, wealth or all of these (Owen & Davidson, 2009; Prinstein, 2018; Robertson, 2013; Van Vugt & Tybur, 2016; Zitelmann, 2017).

Reality and illusion as evolutionary function

'Illusions are generally useful', Austrian neurologist Franz M. Wuketits (2008) suggested, 'they may as a result of evolution, through natural selection, actually be instrumental in serving our survival' (p. 6, author's translation). Importantly, they do not only pertain to states of the human mind. They are part of a multifaceted dynamic that is the result of evolution for a number of organisms. Many species make good use of mimicry. They possess the capacity to appear as if they belong to a species other than their own to gain an advantage by deception (Stevens, 2016). The perhaps most well-known example is the European common cuckoo. It is able to mimic the eggs of another bird and lay them in its nest effectively acting as a parasite. All eggs hatch, but the original brood of the host parents is ejected by the chick and the single cuckoo then becomes their only concern (cf. Caswell Stoddard & Stevens, 2010). Another example is the common octopus able to feign illusion in a different manner. It can swiftly change its appearance and completely melt into the background to hide in plain sight to either avoid danger or to trick a potential prey (e.g., Hanlon, Chiao, Mathger, Buresch Barbosa *et al.*, 2011).

Illusions expressed in a variety of ways among living organisms are tied to species survival in whatever species it occurs. While humans are able to deceive for gain or self-preservation as well, the human employment of illusion—or subjective alternative realities—would seem to mainly be one of protecting and maintaining psychological well-being. Cognitive biases, for example, are a ruse for our benefit. They are 'functional features designed by the wisdom of natural selection' (Haselton, Nettle & Murray, 2016; p. 982). We tend to opt for positive outcomes no matter what (Cummins & Nistico, 2002; Humphrey, 2011; Menne-Lothmann, Viechtbauer, Höhn, Kasanova *et al.*, 2014), and we believe that we are more superior or excellent than we actually are (Johnson & Fowler, 2011; Yamada, Uddin, Takahashi, Kimura *et al.*, 2013). We also tend to be convinced, to quote a common expression, that what goes around comes around. In other words, we are usually convinced that just behaviour will always be rewarded, whereas foul play will always be punished, somehow, in due course. This is the Belief in a Just World Theory (Lerner, 1980). Needless to say, believing in a just world is a fallacy. History is replete with individuals who were morally corrupt but who most certainly were successful by their own standards and those of many others around them. A timely example, and by no means unique, is current U. S. president Donald Trump (Lee, 2017; Trump, 2020), other U.S. presidents and British Prime Ministers (Owen & Davidson, 2009), some banking executives (Conroy, 2013) and no doubt many other leaders throughout history in different contexts (Hughes, 2018; Macqueen, 2018; Mezrich, 2016). Importantly, this attribution error is associated with psychological well-being. It has benefits to envision a moral balance in the world. Our assumption of such a balance is *not* based on objective facts (Sutton, Stoeber & Kamble, 2017; Wenzel, Schindler & Reinhard, 2017).

Occasionally also negative illusions, or misbeliefs, might be beneficial to us. A misbelief, Ryan McKay and Daniel Dennet (2009) suggest, is a belief that to some degree departs from our own subjective reality, but its function is to endorse something that is objectively untrue, such as a person telling something untrue because the objective truth is too hurtful. We tend to keep hopes up and stay positive, even if confronted with bad news or catastrophic facts that are undeniably true. This insistence on hope, even with little or no prospect of a positive outcome, is anything but trivial. Like our belief in a just world, it constitutes an evolutionary function increasing our chances for survival as a species. We refuse to give up, thus becoming quite resourceful in trying to find solutions to a threatening problem. By holding on to a positive frame of mind we keep active and alert to possible solutions even if there are none to be found. Following the same line of reasoning, a clinical depression could be thought of as an adaptive response to a threatening situation. The experience of depression could prompt us more urgently to resolve complex problems just to be able to restore the all-important psychological equilibrium (Andrews & Thomson, 2009; Nettle, 2004).

Illusion as reality

All human behaviour, especially when we are unaware of what we do has a function designed by evolutionary algorithms to further our species in relation to our social and physical environment (Ackermann Shapiro & Maner, 2009; Bertamini & Casati, 2009). It is therefore essential that we understand the *systems* in which we exist, large or small, be they either biological, physiological, ecological, psychological, social or all of them together, rather than remain on a level where we only study single aspects of such systems. Had we known years ago what researchers of ecology and environment know of natural systems now, and how easily such systems can be thrown out of balance, we would probably not have embraced and used plastics, antibiotics and fossil fuels as indiscriminately as we have to date (cf. Wallace-Wells, 2019).

This scholarly myopia has also been an obstacle when different scientific disciplines have tried to make sense of how humans perceive and understand existence as well. David Sumpter (2010), a mathematician devoted to the study of biological systems, has pointed out that ‘even researchers studying the most intricate details of the components of a particular system ... [must also be] acutely aware of the need to understand how these components fit together to create whole systems’ (p. 1).

I therefore propose that the most reasonable way of understanding reality, and by extension also illusion—or alternative subjective realities, which is the preferred term in this article—is to view the human mind and its consciousness as consistently *adaptive* in an evolutionary sense (Cloninger, 2009; Donald, 1995; Humphrey, 2011). As a result of this, the human mind exists in multiple subjective realities simultaneously, each with a different evolutionary function (cf. Haselton, Nettle & Murray, 2016). These realities, individually construed, are systems unto themselves and will appear ‘imaginary’ to others not sharing or being familiar with them. For this reason, illusion is a system also, but it is one constituted by a different subjective reality. Illusion should not be construed as an opposite to reality. They are two different sides of the same coin. Every individual moves between different subjective realities constantly and intentionally, but perhaps more often unintentionally, due to the adaptive nature of the human mind (Persson, 2016). Subjective realities also change for better fit depending on what it takes to uphold and strengthen the psychological equilibrium. They are at times also used strategically. Cognitive Behavioural Therapy (CBT) could be viewed as such a strategy customised to help a patient in the best possible way. CBT aims under the guidance of an experienced therapist at creating a new mindset by changing one subjective reality, troublesome for the patient, into another through well-considered learning of new thought patterns likely to be more beneficial for the patient, under the guidance of an experienced therapist (Beck, 2011; Field, Beeson & Jones, 2015).

Under normal circumstances individuals are able to move between different realities prompted by a need to uphold their psychological equilibrium, and they do so while remaining anchored in a communally shared subjective reality that always constituting the basis for group cohesion. This understanding of the human mind and its multiple reality-based consciousness is valid only if subjective realities are the result of normal functionality. A subjective reality may become dysfunctional if the ability to remain anchored in the communally shared reality is suspended. This may be the result of many psychotic episodes, brain lesions, poisonings and so on, whereby the ability to separate between different realities are clearly hampered or suspended. Given that this understanding of the human mind has validity, and much research into how the brain functions under different conditions would suggest that the notion of existing in multiple subjective realities simultaneously is not unreasonable, it is possible, perhaps even necessary, to propose a taxonomy based on the assumption of multiple subjective realities serving as framework for a better understanding of the significance of illusion as a positive force in the human species.

A function-dysfunction taxonomy of subjective realities

To map multiple subjective realities in kind rather than in numbers, it is first necessary to separate between that which is likely to be functional in an evolutionary sense and that which is demonstratively dysfunctional (see Figure 2). Functional in this context suggests behaviour always conducive to species fitness and survival, whereas dysfunctional is the opposite. However, the

proposed taxonomy needs to be thought of not as categorical, but as dimensional emphasising that realities under normal circumstances are dynamic, and that function and dysfunction are sometimes interchangeable. One can under certain circumstances become the other. Under normal conditions subjective realities can, depending on situation and context, to some extent also be exchanged at will. For example, anyone can expose themselves to a different reality by seeking refuge from everyday life in music, art, literature or being creative. Some with more desperate needs, to phrase it like American social psychologist Roy F. Baumeister (1991) does, escape the burden of selfhood with the help of alcohol, spirituality, masochism and other means. Some choose psychoactive drugs which, when overdosed or used too long, affect the ability to choose and move between realities. Normal function is then hampered and at times even entirely suspended. When artificially affecting the physiology of the brain functional reality may become dysfunctional. Clinical depression and other mood disorders are ambiguous in this sense. While suffering from them is highly disruptive for the individual, who most likely will need professional assistance to cope but, as suggested by an increasing number of researchers (e.g., Andrews & Thomson, 2009; Badcock, Davey, Whittle, Allen *et al.*, 2017; Nettle, 2004; Nettle & Bateson, 2012), such a severe disruption to everyday life may have an evolutionary purpose. It could be that it prompts the individual to resolve complex problems just to be able to restore the all-important psychological equilibrium. If so, a dysfunctional reality actually becomes a functional one even though to suffer a mood disorder is a considerable ordeal.

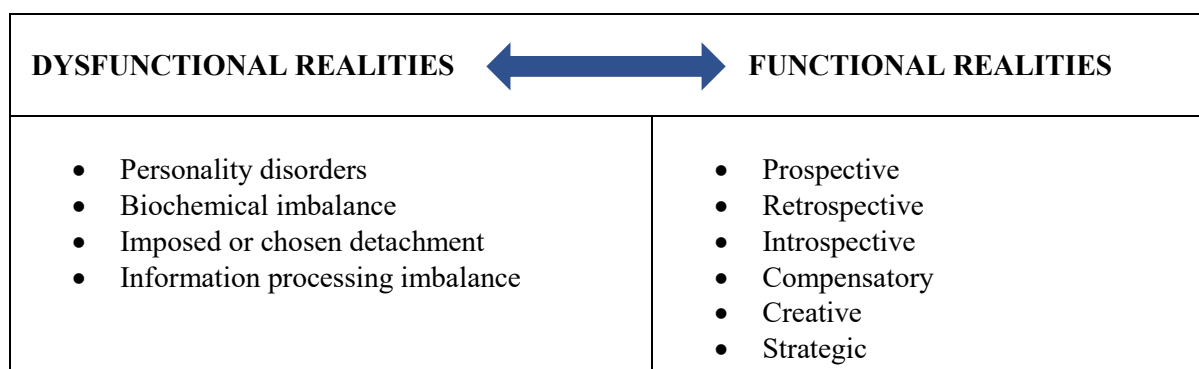


Figure 2: A function-dysfunction taxonomy of subjective realities.

In addition, our normal handling of subjective realities may suddenly come to a halt, not because of psychoses or mind-altering drugs but, for example, because we find ourselves in a situation where status is required and we may decide, perhaps unaware of doing so, that we should seek dominance by leadership. This decision affects our physiology, more for some than others, but it tends to confine us largely to one subjective reality with a narrow focus on achieving that objective. We progressively develop an increasingly self-centered attitude at the expense of others. We become more competitive, shed empathy for the sake of ‘the greater good’ and reconstrue others around us as instruments for the sole purpose of reaching our own objectives (e.g., Owen & Davidson, 2009; Prinstein, 2018; Robertson, 2013; Van Vugt & Tybur, 2016). In the process, we are likely to develop a more dogmatic mindset inaccessible to good advice and suggestions from others. Over time this continued process renders the normal functioning of subjective realities moot. Instead we end up in one which is entirely detached from the surrounding social world and its shared reality. It is known, for example, that seeking wealth and fortune successfully often has this effect. The exceedingly wealthy and famous tend to have little or no understanding for anyone else not sharing their exclusive existence (Zitelmann, 2017). This dogmatic mindset is dysfunctional for group cohesion but, in a sense, it is also functional. The ultimate purpose of seeking status and leadership is often to create another group with another shared reality but with the new leader in charge (cf., van Vugt, 2006).

Hence, subjective realities, their causes and uses as they relate to human behaviour cannot categorically be defined as either functional or dysfunctional. Our perception of existence and its multiple realities are best thought of as dimensional, dynamic and their function or dysfunction is determined by a number of different factors. In outlining the proposed taxonomy, it is prudent to first deal with an already well-charted terrain and focus on dysfunction and its four aspects, namely as the

result of personality disorders, biochemical imbalance, imposed or chosen detachment and information processing imbalance.

Dysfunctional realities

Hallucinations are phenomena tied to several psychiatric illnesses such as affective and personality disorders but also to post-traumatic stress (see Delespaul, de Vries & van Os, 2002; Healthline, 2018). A hallucination is a sensory perception in the absence of external stimuli and may involve olfactory, tactile, visual or auditory sensations (DSM-5). The occurrence of ‘hearing voices’, contrary to belief, is fairly common and not necessarily tied to a psychosis; that is, being unable to, as phrased following the logic of this paper, differentiate between different realities. About 15% of the general population have experienced it at one time or another. Among psychotic patients, incidence rises sharply to 70% or higher (Toh, Thomas & Rossell, 2015). For these patients to experience visual hallucinations is less common. It varies between 25% to 50%, with an over-representation among individuals diagnosed with schizophrenia (Delespaul, de Vries & van Os, 2002; Oorschot, Lataster, Thewissen, Bentall *et al.*, 2012). Note also that also meditation may sometimes be conducive to developing a psychosis with ensuing hallucinations, although this is less serious and does not necessarily constitute a need for professional help (Kuijpers, van der Heijden, Tuiner & Verhoeven, 2007).

Delusions, on the other hand, are defined as a rigid sense of remaining certain of something despite contradictory evidence. About 0.2% of the population suffers a delusional disorder at some point in their life. The most common delusion is to believe that you are being followed by someone, but there are also delusions of grandeur, jealousy or somatic symptom disorder, perhaps better known as hypochondria (DSM-5).

A biochemical imbalance may trigger both hallucinations and delusions too but without an underlying psychiatric diagnosis. Any disturbance to our physiological equilibrium, when severe enough and/or prolonged, may interfere with the normal functioning of the brain. The result is distorted perceptions, irrational and sometimes frightening and stressful experiences entirely unrepresentative of anything existing objectively outside of the mind. Alcohol, cannabis and methamphetamine are well-known recreational and psychoactive drugs in modern society which may trigger such delusions. According to research 26% to 46% of ‘Meth-users’ develop a psychosis with ensuing hallucinations, some of which may last for months or even longer (Greening, Notaras, Chen, Xu *et al.*, 2019). There are also other medical conditions affecting physiological homeostasis by upsetting our biochemistry thereby also impacting our sense of realities. A few of these conditions are hormonal disorders, degenerative disorders, metabolic dysfunctions, nutritional deficiencies, sleep deprivation, poisoning, certain types of infection and so on (cf. Oyebode, 2018).

I have chosen to include detached realities here as well, although detachment in this context may at times be both functional and dysfunctional depending on context and vantage point. When detached and therefore no longer dynamic, but without an underlying pathological cause, an individual’s detached subjective reality is likely to be perceived as dysfunctional by a number of people in the same social context as the individual so detached, at least to begin with. Someone disturbing a social order, for example, in both small and large contexts, is generally met by suspicion and seen not only as a troublemaker but in extreme cases also as somewhat delusional. Depending on what they represent, given enough time, they may gain increasing numbers of followers. Eventually the perceived dysfunction might develop into an evolutionary function. It does take a certain rigid mindset, personality and social position to start a rebellion and gain a social momentum toward acceptance and recognition (Sulloway, 1996; Tudoroiu, 2019). In so doing, the individual’s detachment breaks one social context but only to create another.

While detachment is often the result of a psychotic state, this is obviously not always the case. Dogmatism, as discussed previously, is one example of this. It can be both functional and dysfunctional. Conspiracy theories are another timely example. In a time of pandemic and the ravages of Covid-19, the search for a vaccine to cure the disease is on-going with an intensity never

before seen in medical history. But at the same time the so-called ‘Anti-vaxxers’-- groups in society who, for one reason or another, are suspicious of any vaccine and consistently refuse vaccination -- are gaining momentum. Conspiracies surrounding a future vaccine for the virus are increasing in numbers (Attwell, Wiley, Waddington, Leask *et al.*, 2018; Megget, 2020; Sahsavari, Holur, Tangherlini & Roychowdhury, 2020; Wolfe & Sharp, 2002). Conspiracy theories are, as Brotherton (2017) suggests, always based on an unanswered question; they portray conspirators as uniquely competent but they are also consistently understood as malevolent. A conspiracy theory is always hunting things that do not make sense and, importantly, they are *always* beyond refutation, which is the ultimate criterion for making them delusional. Answering the question why conspiracy theories exist in the first place, no matter how far removed from everyday reality and a vast amount of solid evidence, Brotherton proposes it is simply ‘because we are human’ (p. 241). He is suggesting that such machinations provide an explanation for something we do not currently understand, but we have an urgent need to make sense of the world around us and we therefore accept the explanation that satisfies us the best. A conspiracy theory is delusional in one sense. The rigid beliefs that conspirators profess invariably constitute a dysfunctional subjective reality. There is no relationship between the conspiracy theory and well-proven readily available objective facts. But the conspiracy theory is also functional in a positive way as well. It provides a sense of understanding that is acceptable and yields comfort. We all have a fundamental need to understand our circumstances—almost by whatever means—and it matters little whether such an understanding is based on fact or fiction. Understanding, and being convinced that we do, is what counts (see also deHaven-Smith, 2013). If so, this also suggests that we are *all*, at one time or another, prone to flirt with conspiracy theories as the need arises. Some support for this assumption can be found in studies of cults. It has for long been assumed that there is a particular pattern characteristic of individuals who seek out such contexts and uncritically accept whatever cult leaders say and demand of them. After a lifetime of studying such behaviour, University of California psychologist Margaret Thaler-Singer (1995) felt a need to conclude that there is no particular pattern to be found. Anyone, irrespective of personality or walk of life, is equally likely to become a cult member. In other words, whatever subjective reality appeals to us, for whatever reason, we may embrace it even if it represents delusion. Cult or conspiracy appears to make little difference as long as it is experienced as meaningful.

The final aspects of dysfunctional realities in this taxonomy are the ones caused by sensory overload or sensory deprivation. The brain craves information and needs a constant flow to ‘make sense’ and function normally. If no or limited information is provided, after a period of time, perceptual distortions begin to appear and a sensory deprived or sensory overloaded individual may start hallucinating (Zubeck, 1964; Zuckerman & Cohen, 1964). This is a stressful experience if allowed to continue, which has raised considerable ethical concerns not only regarding its scientific study but also its alleged military use (American Psychological Association, 2005; McCoy, 2006). The same perceptual distortions occur when we are fed too much information as well. This phenomenon has attracted much less interest by the general scientific community (Ludwig, 2006), with one notable exception: the military and secret services appear to have a particular interest in sensory overload (cf. Ojeda, 2008).

Clearly, our perceived existence through multiple subjective realities craves a certain balance of physiological and psychological factors if we are to function normally. When equilibrium is disturbed our world falls apart and we may become trapped in one rigid reality separated from the shared reality of our social context. This is destructive. Equilibrium needs to be restored so that we can again exist in several dynamic subjective realities. Needless to say, this is the objective of psychiatrists, clinical psychologists and psychotherapists of various schools of thought.

Subjective realities of a more positive kind and function, however, have been neglected in research and, to my knowledge, there exists no attempt to bring the research efforts of several academic disciplines together into one framework. Yet, functional realities are probably the more important to understand since they are always conducive to psychological well-being and species survival. I suggest that subjective realities have six different functions of such subjective realities. They can be *prospective, retrospective, introspective, strategic, compensatory* and/or *creative*. These

functions are not necessarily mutually exclusive. There must reasonably exist an overlap between them because of the dynamic and adaptive nature of most subjective realities.

Functional realities

We all have dreams, hopes and plans for a future that does not yet exist. We develop an inner reality and envision what such a future could look like. We then work toward trying to manifest it externally. This is a *prospective* function. It looks to the future. It also includes wishful thinking as well as the placebo effect. In both cases we hope that something will happen that is not necessarily possible. Being convinced of something has an impact on how we behave, without our being aware of how we act, which can be both positive or negative to ourselves and/or our social context. How great an impact hopes and beliefs have, however, is disputed (e.g., Benedetti, 2014; Jussim & Harber, 2005; Kienle & Kiene, 1997).

We are also able to do the opposite. The function of subjective reality can be retrospective. We reconstrue our memories of past experiences as being more positive than they actually are. Recollection might not be accurate, but the positive bias we apply, without being aware of it is likely to make us feel better and possibly help us to negotiate our way more effectively in a social landscape (Mather & Carstensen, 2005; Newman & Lindsay, 2009; Todd, Cunningham, Anderson & Thompson, 2012). People generally prefer to hear about our victories and successes rather than our failures and problems.

The function of some subjective realities is also *introspective*. They never manifest themselves externally but remain an inner reality to which we relate for a number of reasons. These are religious, spiritual or philosophical realities that do not need objective physical evidence to persist, most likely because we are hardwired to ponder over existence beyond that which we can perceive with our senses (cf., Ammerman, 2013; Norenzayan, 2010). Being religious or somehow spiritual in a more contemporary nomenclature is positively correlated with psychological well-being (e.g., Ivtzan, Chan, Gardner & Prashar, 2013; Krok, 2015).

Most thoroughly researched among functional realities are the *compensatory* ones, which are comprised of some of the defence mechanisms; that is, unaware, psychological, mechanisms aimed at protecting our identity when we perceive a threat to it and become anxious that our self-understanding is in jeopardy. A few of these are denial, fantasy, rationalisation, regression, isolation, projection and displacement. Here, too, there is a function/dysfunction ambiguity. Some defence mechanisms are generally seen as the result of normal — or mature — functioning, but others, to varying degrees, are seen as more dysfunctional; that is, they are the result of psychotic, immature or neurotic behaviour (cf., Cramer, 1998; MacAdams, 1998; Vaillant, 1994).

I also argue that also *creativity* is a type of subjective reality in its own right. Creativity has attracted a vast number of researchers over the years and an almost endless number of studies have been published. Yet, we seem not much closer to understanding what creativity actually is. At least there is no consensus among scholars on how to explain creativity either as a general human behaviour or a specific talented behaviour (Glavenau, 2014; Tardiff & Sternberg, 1988). Irrespective of how we explain why and how humans are creative, and to what degree, it has been established that creative processes tend to engage an individual in a ‘different frame of mind’. This state of mind has been labelled in several ways depending on research tradition, but the most well-known of these is likely to be *flow*; a state of mind characterised by intensity, concentration, a merging of action and awareness, a loss of reflective self-consciousness, a sense of control and losing track of time, all of which are experienced by the individual as intrinsically rewarding (Nakamura & Csikszentmihalyi, 2005). It is not difficult to relate to flow. Anyone engaged in something they love doing tends to forget everything else around them; in addition, their perception of time begins to change. They are entirely immersed in pursuing that interest. Considering the fact that it is such a rewarding experience, it is hardly surprising that we also use it as an escape when everyday life becomes too harsh or stressful which, in a way, is how Sigmund Freud in his time understood creativity as well. He viewed creative efforts as ‘... a sublimatory process in which repressed affect associated with intrapsychic conflict could be

discharged' (in Suler, 1980; p. 146). Being creative to Freud was not an independent behaviour. It was a substitution for another behaviour, which could not as easily be pursued even if preferred. The more important aspect of the creative process in this context, however, is that all self-reported accounts of what it is like to be deeply engaged in a creative process, as far as I know, outlines the process as a different state of mind, or in line with the reasoning of this article, as existing in an alternative subjective reality (e.g., Doyle, 1998; Holmboe, 1991; Morgenstern, 1956; Sadler-Smith, 2015; Wallace & Gruber, 1989). There is some reluctance in cognitive psychology to view creativity—or problem solving, which is the preferred term—as 'different thinking'. It is rather viewed as a series of cognitive processes originating in everyday thought patterns which, when identified, could potentially be applied in practice to improve creativity in people in general (e.g., Finke, Ward & Smith, 1992; Weisberg, 1993). While often valuable research it is largely pursued without considering the significance of emotions in creativity. The intense experience of emotion is highly likely to be the basis of any creative state of mind and invariably constitutes the basis of the flow experience (cf., Russ, 1993); one which, historically, some artists have sought ardently by artificial means through psychoactive drugs (e.g., Wolf, 2005; 2010).

The last type of function in this taxonomy is a *strategic* function. We instinctively apply alternative realities in order to cope with a stressful situation. But there is also a strategic use of alternative realities as employed by others to make some individuals change their ways of thinking. For patients helped by CBT, this is a voluntary process guided by a licensed therapist or psychologist under strict ethical consideration. Ethics become more difficult to consider, however, when implementing, for example, Carol Dweck's (2004) model of changing someone from a fixed mindset to a growth mindset, which is tempting in any an educational setting (e.g., Seaton, 2017; Zhao, Niu, Hou, Zeng *et al.*, 2018). How far is it ethical to change someone's thinking for a specific purpose even if, as in this case, it is to convince pupils that they can and must feel 'empowered' for best achievement in school? This may seem benign and even commendable at first glance, but how does a teacher square implementing a growth mindset in a classroom with the normal distribution of abilities, especially if a minimum level of achievement is stipulated by the education system? Not everyone can achieve everything that a curriculum stipulates, no matter how knowledgeable and well-meaning the teacher (cf. Persson, 2018). Normal distribution effectively curtails any hopes for schools to teach all pupils everything and to the same level. Empowerment by a growth mindset in this case would mean to convey false hopes to low-achieving pupils with learning difficulties rather than accepting them and communicate their intrinsic value irrespective of level of achievement.

The strategic use of alternative subjective realities becomes entirely unacceptable from an ethical perspective, when an individual is forced to accept a certain reality which they cannot or will not relate to. While 'brainwashing' is the popular term for this, it is perhaps better to understand it broadly as the intention to strategically limit or eliminate someone's self-determination which is a criminal offence in Italy (cf. Introvigne, 2016). Social psychologist Philip Zimbardo (2002), then President of the American Psychological Association, described the strategy of mind control, as '... the process by which individual or collective freedom of choice and action is compromised by agents or agencies that modify or distort perception, motivation, affect, cognition, and/or behavioral outcomes' (no page number). This is generally considered a controversial issue in psychology and there is little agreement on whether it exists or not. But the practical effort of trying to change people's minds against their will, forcefully or deceptively, is by no means new (see Merloo, 1956). Mind control is in essence the nature of marketing when at its worse (e.g., Srivastava & Nandan, 2010). In recent times the issue of explicit mind control has surfaced again, at least in the media, now championed by China as a means to bring all its citizens, irrespective of faith and ethnic culture, into one politically condoned mindset with ensuing approved-of behaviour. For some minority groups this means a forced change of subjective reality by means of 're-education camps' (e.g., Dirks & Leibold, 2020; Ramadan, 2017; Raza, 2019).

Perhaps there is a case to be made for limiting any strategic use of retraining thought patterns to responsible therapy under strict ethical guidelines *only*. The purpose of bringing this to attention in the current context, however, is to demonstrate that there is indeed strategy involved too when

considering the potential function—and sometimes dysfunction—when making intentional use of the human proclivity to exist in a world of many possible subjective realities. Control is the tempting instrument of anyone seeking power and status, be they either individuals, cults or entire states. Consider rewording:

Strategy is indeed also involved if we consider the potential function and sometimes dysfunction—that results when we take deliberate advantage of the human tendency to favour life in a world of many possible subjective realities.

General discussion

The significance of illusion as a positive force in everyday life has been grossly underestimated in both societal discourse and in empirical science. There could be several reasons for this, one being that it might be considered ‘too philosophical’ by empirical scholars. Any exploration of reality, non-reality and its perception involves approaching famously elusive concepts such as consciousness, existence and truth, all three difficult to define and operationalise in any standardised way. Philosophers through the ages, on the other hand, have taken on this challenge. Assumptions on the nature of all three abound. In recent decades a need for understanding consciousness, existence and truth is becoming increasingly difficult to avoid. Mankind is now moving in and out of the artificial world of Cyberspace. Some individuals are so taken by existing elsewhere by technological proxy that they become addicted to it and need help to ‘find their way back’ (e.g., Müller, Janikian, Dreier, Wölfling et al., 2015; Spitzer, 2017). The traditional demarcation between real and non-real, existence and non-existence, conscious or non-conscious has become much more difficult to defend. No less important is the fact that the empirical sciences, too, are finding it increasingly difficult to keep different realities and traditional academic domains apart when seeking an understanding of human existence. This is a direct result of beginning to understand the Universe, its physics and underlying mathematics in addition to, or beyond, Newtonian physics. Quantum phenomena have opened an entirely new world of insight into the human mind as a quantum phenomenon, which means that, like subatomic particles, it is likely to be an entangled system. That is, one state or action cannot be understood or exist without another (Wendt, 2015; Zohar & Marshall, 1994). There is complete dependency between all aspects of the mind, its functions and its nature. In other words, understanding the nature of realities and the systems constituting them has become much more urgent. As proposed in this article, we need to construe the more traditional notion of reality versus illusion as multiple subjective realities in which we all exist and, under normal circumstances, seamlessly and unaware—or intentionally or strategically—move freely depending on need. We cannot categorically construe reality and illusion as opposites. They are separate *systems* of realities in their own right. We need these different systems to uphold psychological well-being in the short-term and for the survival of Homo sapiens in the long-term.

Another explanation for ignoring this field of study, I suspect, is that pursuing it in earnest would no doubt emphasise to what extent bias actually governs thinking and action; which would probably also reveal the extent to which scholars are dependent on illusions in research. We are as a species not entirely comfortable with knowledge that can potentially deprive us of a positive self-image, and perhaps even more so, deprive us of a good reputation and an influential social standing in the community (Baumeister, Vohs, DeWall & Zhang, 2007; Fong, Warner, Williams, Schallert *et al.*, 2016; Gneezy, Gravert, Saccardo & Tausch, 2017), no-one more so than the pathological narcissist, who has an endless need for excessive admiration to nurture his or her grandiose sense of self (DSM-5; Malkin, 2017).

We are not as free to choose and think as we often believe we are. This is not to say that everything we do is always determined by physiological processes and inherited genetics---a hotly debated topic in recent years in the wake of trying to interpret unexpected findings of neurological research in recent years (see Heissenberg, 2009; Roskies, 2006; Smith 2011). There can be no doubt, however, that there are limits to how ‘free’ our will actually is. It must *by necessity* operate within the parameters provided by evolution and serve its purpose (cf. Persson, 2016). Interestingly though, the

illusion of having a completely free will has a positive effect on us. We achieve better in an academic setting if we are convinced that we are entirely free to think and act as we wish (Feldman, Prasad-Chandrashekar & Ellick-Wong, 2016). This only demonstrates yet another evolution-designed illusion—or subjective reality—aimed at sustaining our psychological well-being. But such a positive effect does *not* make the notion of an unfettered human free will true!

Conclusion

While understanding dysfunction is important, it can probably not be correctly understood until we also have a reasonable grasp of how illusions create our daily life in a positive fashion and make us cope with it. I offer the function-dysfunction taxonomy of subjective realities as a starting point. I cannot claim to have understood all the possible aspects of function and dysfunction. My objective with this study has not been to be exhaustive. Considering where we are in societal, technological and scientific development, however, it is essential to provide a first framework which includes *both* function and dysfunction, to create a heuristic platform for our quest to grasp existence in the Cyber Era where new aspects of reality have indeed been made available by increasing knowledge of quantum phenomena. Understanding the significance of illusion as an evolutionary tool for psychological well-being and human survival invariably has implications for all social science scholarship and potentially also for psychiatry and clinical psychology. In order to treat a dysfunction, we also need to understand normal function. It seems to me that this has been gravely underplayed. This was also the basis for initiating positive psychology as a new direction in understanding human behaviour. The aim of positive psychology American psychologist Martin Seligman proclaims (2005; p. 3),

is to catalyse a change in psychology from a preoccupation only with repairing the worst things in life to also building the best qualities in life. To redress the previous imbalance, we must bring the building of strength to the forefront in the treatment and prevention of mental illness

As commendable as this intention is positive psychology as a phenomenon is also problematic. The monumental handbook of positive psychology (Snyder & Lopez, 2005), published to launch this new field, features 108 authors of whom 102 are American. A mere five represent other countries (i.e., two Canadians and three Germans). This is a problem of which all the involved authors appear unaware. Staying positive, is not only a cognitive bias intrinsic to the human species, it is also a peculiar trait of American culture. More specifically, it is part of the American Dream into which most Americans are inducted as children (cf. Duina, 2011; Dweck, 2006; Stewart, & Bennet, 1991). For this reason, I suggest that Positive Psychology is a largely American phenomenon promoting cultural values rather than more objectively based scholarship valid elsewhere in the world. It is not a coincidence that one of the most celebrated and bestsellers ever in the United States is theologian Norman Vincent Peale's (1952) influential book *The power of positive thinking: a guide to confident living*, predating the handbook of positive psychology by five decades. To be fair, Peale's ideas were partly criticised by Seligman (2002) in his own book—*Authentic happiness; using the new positive psychology to realize your potential for lasting fulfilment*—the content of which proves my point. It makes little difference that Peale's arguments are philosophic and Seligman's are empirical. Both authors are likely to be motivated by cultural bias. The observation that psychology is skewed toward disorders and dysfunctions, however, is undoubtedly correct, but to do something constructive to redress the balance sought by Seligman and other positive psychologists, we need understand *both* function and dysfunction as a result of human evolutionary adaptation, and how the human mind moves between subjective realities to uphold well-being. This also means knowing and accepting our biases and understanding the subjective realities that these generate.

It is perhaps not entirely unreasonable to conclude by also suggesting that Plato, surprisingly, was probably correct well over two millennia ago, without access to computers or even a calculator. As far as the human mind is concerned nothing, apparently, is quite what it seems as we move around in a social world of multiple subjective realities adapting to social environments; all interpreted by our not always precise cognitive system as we try to figure out not only our own existence but also to make sense of the existence of others (cf., Hoffman, 2019).

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About the Author

Roland S. Persson, *Ph.D.*, is professor of educational psychology at Jönköping University, Sweden, trained at Karlstad (SE), McGill (CA) and Huddersfield (UK) universities, and is currently assigned to the Jönköping University Human Resources Programme. Once a Western classical piano performer interests developed into music behaviour, talent and giftedness, as well as universal and cross-cultural behaviour. Formerly consultant to Swedish and Hungarian governments on issues of talent and giftedness in education; current member of the International Centre for Innovation in Education (ICIE) as well as an active member of several scholarly journal boards The International Journal for Talent Development and Creativity (IJTDC), for example, and one of few scholars devoted to giftedness, rather than talent, as a constituent of talent management.

Address

Prof. Dr. Roland S. Persson;

Jönköping University, School of Education & Communication, Box 1026, SE-55111;
Jönköping, Sweden.

e-Mail: roland.persson@ju.se