

Clarify the confusion around “emotions” and “feelings”

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Abstract

Darwin was one of the first major scientific work on human emotions. He only listed few of emotions and Ekman who was recognized as the world leading expert on emotions also listed few emotions one century later. But recently we have seen a shift of this paradigm towards a huge list of emotions which reach many thousands for some scientists. A correction of the whole scientific paradigm around emotions is clearly needed as it is going into the wrong direction because of a confusion between feelings and emotions. This article should be complementary to another article called “The Fundamental Principles of Happiness and Emotions” (Barnat, 2019a) which is the key to understand the specificity of emotions: a cognitive comparison between perceived reality and desire.

Keywords: emotions, feelings, sensations, FPDE, desire.

Clarify the confusion around “emotions” and “feelings”

First it is important to be aware of the current status of the scientific literature about emotion, to do this the article from Ekman “What Scientists Who Study Emotion Agree About, 2016” was used here as he was a leader in the field so this article represent a solid legitimacy. Ekman noticed that scientists are on a trend to call too many phenomenon emotions when they are not and is trying to clarify what phenomenon are really emotions or not.

Let’s start with emotions showed in this article with a high level of agreement between the emotions experts consulted and the Fundamental Principles of the Dynamics of Emotions (FPDE see Barnat, 2019a) theory do not dispute those either: anger (91%), sadness (80%), and happiness (76%).

Now disgust. In Ekman article’s disgust presents a high level of agreement (86%) but it hides a problem since it has been made famous by Darwin who made it one of his six basics emotions. Darwin wrote that Disgust “In its simplest sense, means something offensive to the taste” (Darwin, 1872, p. 256). I arrive to the same conclusion as Darwin disgust can be nothing else than this but nethertheless people use disgust to describe much more for example a smell offensive to their sense of smell (for example of excrement) might be described as disgusting... This is because even if people could do a proper usage of the specific word (disgust for taste, stink for smell...) people don’t always have this rigour and also use metaphors all the time. I have seen people saying they are “disgusted because they failed an exam” what they really meant is “angry” or “sad” or both in the same time (which could cause a facial expression similar to taste disgust) we as Scientifics need to be really careful about these popular erroneous usages of words. Darwin when he created an emotion of disgust added to the confusion indeed why did he not create another emotion for all the other offensive perceptions: an offensive smell, an offensive noise...? It seems that Ekman tried to correct this lack by defining disgust as “offended by a taste, sound or smell.” But this is still not enough because if you want to put sensations into emotions why not also put an offensive state of the somatosensory sensation? If someone touch something really hot he will definitively feel an offensive sensation of “touch” and that might be accompanied by a facial expression. And what about other sensations like a pain in our intestine that could lead to a facial expression as well... The conclusion is that to be coherent we must admit that none of these are emotions they are all sensations. The particularity of emotions becomes clear only with the FPDE: the emotions do not have the same cause as other sensations like to taste, to smell... Emotions are a result of a particular cognitive process: a comparison between desire and perceived reality. We can clearly see the comparison below:

Perceived Reality \geq Desire \rightarrow Healthy Emotion (Happiness, Serenity)

Acceptation (Perceived Reality $<$ Desire) \rightarrow Healthy Emotion (Laugh)

Non Acceptation (Perceived Reality $<$ Desire) \rightarrow Unhealthy Emotion (Sadness, Anger...?)

This was the FPDE for emotions. But if we now look at other sensations we can see below that the causal structure is different there is no cognitive comparison reality/desire:

Eat spoilt or toxic food \rightarrow Sensation of unpleasant taste = Disgust

Smell toxic smell \rightarrow Sensation of unpleasant smell = Stink

My organism need food \rightarrow Sensation of hunger

...

We start to see with this analysis what makes the particularity of a group of homogenous phenomenon that we can call “emotions” without incoherence between those phenomena. An emotion could be described as a sensation resulting from a cognitive process opposed to other sensations which would be only cognitive inputs resulting from either external senses (sight, hearing, smell...) or internal senses (interoception including hunger...). This theory starts to solve the incoherence currently surrounding the notion of emotion. This theory accounts for what is the main characteristic that cannot be removed when speaking about emotions a “distinctive subjective sensation physically experienced” following Ekman’s criteria. Joy, laugh, anger and sadness are all different because like Ekman said there is for each a unique physical sensation attached to the emotion. But where Ekman (probably inspired by Darwin) was wrong is when he wrote that the emotion must also be an “Automatic appraisal mechanism” meaning that an external or internal stimuli can trigger an almost immediate emotional response without conscious awareness, e.g. reacting fearful when threatened. Like explained by the FPDE emotions can be an immediate emotional response with or without conscious awareness, they can also be the result of a complex cognitive process involving conscious awareness. And the whole point of this article and the coming book is to learn how to maximize healthy (positive) emotions and minimize unhealthy (negative) emotions. Another mistake made by Ekman is to relate too strongly emotion and facial expression as explained in the next paragraphs. Also “the same visceral responses such as increased heart rate, sweating, widening of the pupils, and the discharge of adrenaline can be associated with the experience of fear or anger. However, they are also connected to conditions such as fever, feeling cold, and having difficulty breathing. Therefore, those physical responses are too general to be linked to a specific emotion.” (Cannon, 1927). Actually in all the conditions that Ekman and all the psychologists have so far listed to classify a phenomenon as an emotion “unique physical sensation” is the only one necessary. But it is not enough, I realized that Lisa Feldman Barrett (in TED) arrived to the same conclusion as I did, she concluded that there is more going on when a person feels an emotion than just a physiological response: some kind of processing must happen between the physiological response and the perception of the emotion. The FPDE gives the final missing explanation to understand how emotions are different from other sensations.

What about laugh? Is the sensation we feel when we laugh just happiness or is it a unique sensation different from other emotions? Because the body expression is clearly different from happiness and the cognitive process is different: Acceptation (Reality < Desire), it could make sense to consider it as a different emotion. But the contrary can be argued rightly as well because it seems that the physical sensation is the same as happiness. It is just a choice to make as a scientific community.

Now Surprise. In Ekman’s article “surprise” was only endorsed by 40%–50% of experts showing that there is already some doubt on surprise recognized as an emotion. It is confusing because Surprise is indeed related to a facial expression, to be convinced simply watch videos of surprised babies on internet. But where we know that surprise is not an emotion is when we investigate if surprise comes up with a particular physical sensation as per the criteria from Ekman himself. And the answer is no. This same videos with dozens of babies show that after being surprise some babies accept the surprise (offset: reality = surprised < desire = not be surprised, be calm and peaceful or master my environment) and laugh while other babies don’t accept it and cry. Why would surprise lead to different basic emotions? Because surprise is not an emotion it is a reflex that happen when an unexpected

stimuli is perceived. It seems to be well described by the scientific use of arousal. Which makes sense from a survival perspective indeed a high stimuli perceived (sudden move close to you, high noise...) could be a threat so should trigger alertness: become more perceptively aware: open the eyes, listen carefully... The conclusion that can be made from surprise not being an emotion is that not all facial expressions are a sign of an emotion. Lisa Feldman Barrett said in her TED talk come to the same conclusion and add that we use cognitive evaluations to know what other feels not only facial expressions indeed like she says “People smile when they’re sad”. Those are not perfectly reliable ways of judging someone’s emotions like Ekman thought, a neutral face might not mean that a criminal does not feel sad because of remorse. She highlight how important it is to be aware of this for judges who think they can use micro emotions to decide if someone is guilty or not.

Now Fear. It is easy to understand how Fear came with such a high agreement (90%) in Ekman’s 2016 article as it really seem like an emotion. Again the use of the word fear in popular language and by Scientifics covers two really different phenomena which created confusion:

1. “Fear” was used to refer to an instinctive reaction in face of a non-learned danger. For example if an animal (bird, antelope, dog...) hear a noise and see something approaching he/she can run away or attack. This is has been traditionally called the fight or flight. This type of non-learned fear could be associated with an emotion or not.
2. “Fear” was also used to refer to the reaction to a stimuli reminding the organism of a past experience of pain. Here the fear is learned. The organism will feel fear when exposed to this same stimuli simply because it reminds the organism of the past pain that the organism does not want to feel again. This is the part which has been creating confusion and misled Ekman and maybe Darwin to classify fear as an emotion. This pain is the physical sensation behind fear so there is no other unique distinctive subjective experience as per Ekman’s own criteria. And this is why fear can have causes as different as emotional pain or *somatosensory pain*. For humans for example learned fear can be the result of many different pains:

I touch something hot and burn myself (somatosensory pain) → I fear to touch the hot object again

I fail my exam and feel a negative emotion (sadness, anger) → I fear to pass another exam as I could fail it as reminds me the exam I failed

...

Do all these instances of “fear” mean a unique emotional sensation different from all others emotional sensations physically experienced? This article does not aim to conclude on the validity of “fear” as an emotion this can be further studied. For the purpose of this article what matters is the strategies to reduce and with practise eliminate negative emotions. Those strategies will start to be developed in Part 5. And like explained knowing how avoid unhealthy emotions does not require to be able to differentiate all of them because they all follow the same mechanism: Non Acceptation (Reality < Desire) → Unhealthy Emotion (Sadness, Anger...?). Reason why the strategies to avoid them are the same. Anyway the FPDE is still valid as “Fear” is interpretable according to FPDE or can be excluded of it depending on the conclusion we reach on fear. *For example: Non Acceptation (Reality = An aggressive dog is trying to attack me < Desire = I don’t want to be attacked) → Unhealthy Emotion (Fear).*

Same for shame and embarrassment which were as well only endorsed by 40%–50% in Ekman’s article showing lack of agreement. This article does not aim to conclude on the validity of “shame” as an emotion this can be further studied. Shame/embarrassment can lead to be angry or to cry or even to laugh, some people rarely feel shame, some never, or it could be simply a feeling or a sequence of different emotions... It is not clear if “Shame” is or isn’t a unique emotion but either way neither of these options contradict the FPDE. If “Shame” is recognized by the scientific community to be associated with a unique physical sensation it can be interpreted with the FPDE, *for example: Non Acceptation (Reality = I do a big mistake during a conference where I am the speaker < Desire = I am the type of person who try to hide my mistakes from others and look perfect) → Unhealthy Emotion (Shame)*. Or if “Shame” is not recognized to be associated with a unique physical sensation it can be just left outside of category of unhealthy emotions but the FPDE is still valid.

It is now clear why the unhealthy emotions in the formulation of the FPDE are written “Unhealthy Emotion (Sadness, Anger...?)”. The three dots “...” and the interrogation point “?” mean that it is not the objective of this article to give a complete list of all the emotions.

There are two reasons why I didn’t try to get to the bottom of the list of emotions:

1. To be honest I almost didn’t personally experience unhealthy emotions of any sort since years ago when I discovered the principles exposed in this article to become fully happy. As a result it is not easy for me to have certainty on whether those sensations are different without experiencing them just by looking at other people.
2. Of course I am not the kind to give up so I could have found ways of sorting out this list anyway but then I realised that it does not actually matter for the only true objective of this article: maximize happiness for everyone. And like already explained knowing how to avoid unhealthy emotions does not require to be able to differentiate all of them because they all follow the same mechanisms exposed in FPDE.

An important clarification is still needed to understand the FPDE and help the scientists who work on a complete list of emotions. It is related to what has been called “feelings”. For Antonio D’Amasio “Feelings are mental experiences of body states, which arise as the brain interprets emotions, themselves physical states arising from the body’s responses to external stimuli.” (D’Amasio, 1994, 1999, 2003). D’Amasio is on the right way by introducing the word mental but his definition still poses many problems. The problem comes like often from the origin of the word “feeling” from popular language as opposed to scientific terminology. People use the word feeling to describe really different group of phenomenon:

- As D’Amasio said they use the word “feeling” to describe body states like in “I feel hot”, “I feel cold”...
- People also use the word feeling to describe emotions in the new sense brought by this article as a result of a cognitive process: joy, laugh, anger and sadness... This could also be described as a body state but like explained it is a particular type of body state as it results from a cognitive comparison between reality and desire.
- But and this is the main problem people also use the word “feeling” in a totally different way like in the proposition “I feel lost”, “I feel unpopular”, “I feel stupid”... In all these instances the feeling can result in an emotion or not.

For example “I feel unpopular”, can lead to different emotional outcomes depending on the cognitive processes of the person experiencing this unpopularity:

- a. The person can process it like this: *Reality “I see people rejecting me” < desire “I would like to be loved by everyone” → Unhealthy Emotions (Anger, Sadness...)*

- b. The person can process it like this: *Reality* “I see people rejecting me” \geq *desire* “I don’t care I don’t like these people anyway” (which could be true or a lie to himself to avoid to suffer) \rightarrow No emotion (equivalent in FPDE to Healthy Emotion Serenity).
- c. If the person process it like this: *Acceptance* (*Reality* “I see people rejecting me” $<$ *desire* “Ideally it would be good to be loved by everyone”) \rightarrow Healthy Emotion (*Laugh*). In this instance the person has learned that she needs to complexify her cognition and desires to be adapted to the complexity of the world “yes it would be good to be loved by everyone if possible and I try to but sometimes I just can’t as the people are not perfect and can sometimes be angry at me and I have to accept it so I don’t suffer from it.

What we see is that “feeling unpopular” does not match with a distinctive emotion it can lead to sadness, laugh or no emotion at all. And it is exactly the same with all the so called feelings “I feel stupid”, “I feel lost”...

The problem is that whoever started to use the word “feeling” to lead to its popular meaning did not care to maintain a complete coherence of the concepts sensations, emotions... Creators of the term “Feeling” did not care about any scientific value for this concept indeed there is a clear misuse of the word “Feeling” or inaccuracy of popular language. This happens a lot when science is faced with popular language. Sometimes a new concept created in popular language can lead to a need for scientific explanations as well if it refers to a group of phenomenon coherent enough. But sometimes it is simply not the case, people use metaphors all the time to play with words for fun or simply because of an inaccurate similarity like when “someone broke their heart”, a negative emotion is obviously not the same scientifically as someone physically breaking your heart but in popular language the objective is not always to be scientific but to be poetic... If I have to explain the popular use of the word “feeling” I would say that people found in feeling a convenient way to “qualify their subjective experience of different situations without the need to be drastically accurate/objective”. For example when someone says “I feel stupid” they do not want to do a scientific study to be able to compare their intelligence in a way as objective as possible with the rest of the world population no they just want to mean that for example at a diner everyone was saying a lot of clever things about politics, economics and they found nothing to say so “they felt stupid”. They sometimes know that it does not mean that they are definitively for all their life less clever they can study, learn... But at this moment of time meaning the diner “they felt stupid”. Same for “feel gratitude” for many people like wrote Barbara L. Fredrickson apparently quoting another study “when awareness of one’s own good fortune is combined with admiration for another person for thoughtfully going out of their way to create that good fortune (Algoe, 2012)”. What is very clear is that “I feel grateful” can be replaced at no conceptual cost by “I am grateful”. People just add the adjective “feel” because they know that this does not concern the scientific objective truth. Rather the conclusion is that “feelings” is how humans mentally qualify how they are affected by their subjective experiences of different situations. But as showed on Figure 2 and Table 2 there is not scientific unity behind this concept it covers things as different as emotions (happiness, anger...) and subjective perceptions of self (stupid, popular...).

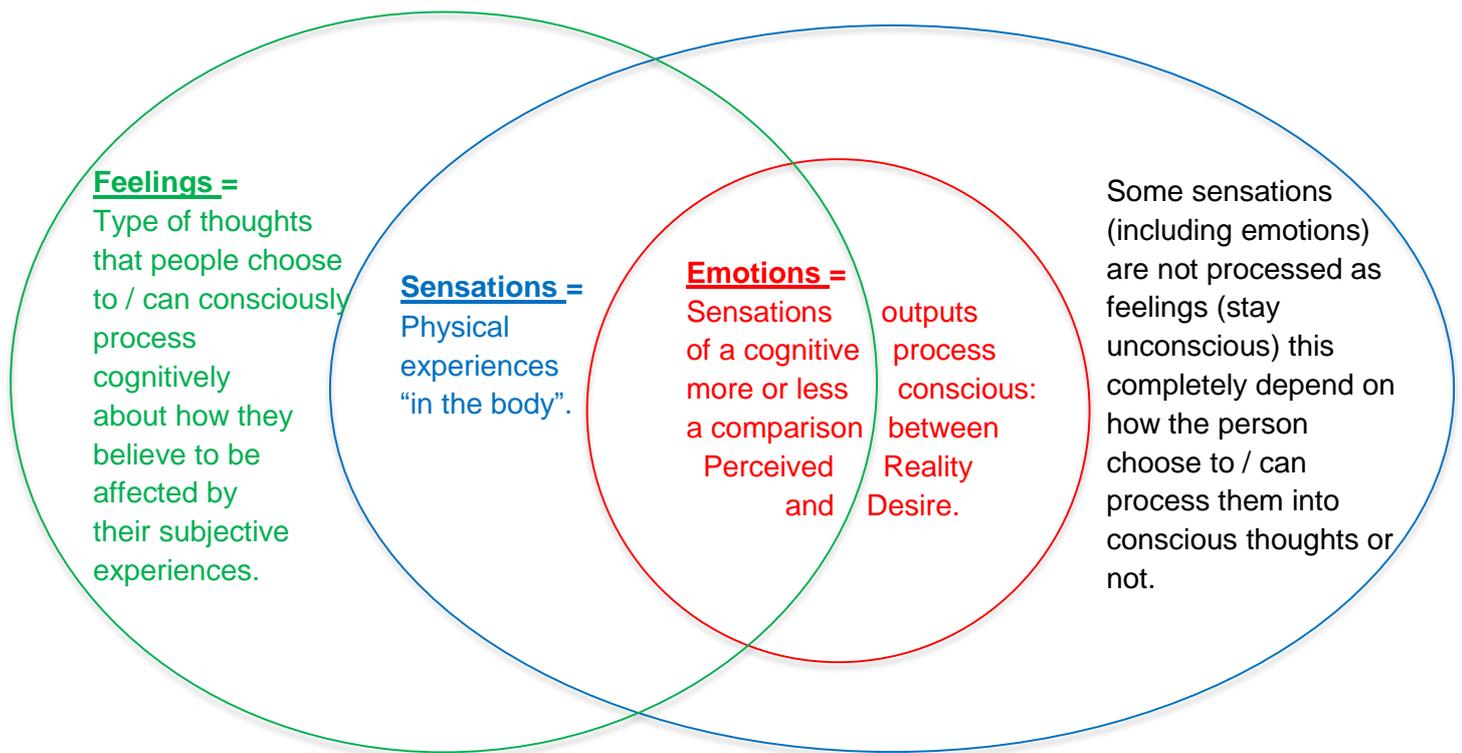


Figure 1: The difference between Feelings, Sensations and Emotions

<p>Feelings = Type of beliefs (mental) that people have about how they believe to be affected by their subjective experiences.</p>		
<p>Sensations = Physical experiences “in the body”</p>		<p>This may not be a scientifically homogenous category it really depends how people use the term feeling. It can be used to refer to :</p> <ul style="list-style-type: none"> * Classical Sensations for ex: <ul style="list-style-type: none"> - I felt disgusted after eating this meal. - ... * Emotions for examples: <ul style="list-style-type: none"> - I feel very angry/sad. - ... * Other “feelings” that are not physical but just cognitive: <ul style="list-style-type: none"> - I feel popular. - I feel stupid. - I feel powerful. - ...
<p>Classical Sensations = Sensations which do not result of a cognitive process but are rather purely a cognitive input:</p> <ul style="list-style-type: none"> - Sight - Hearing - Taste - Smell - Touch - Proprioception - Temperature - Sexual sensation - Interoception - ... 	<p>Emotions = Internal Sensations resulting from a cognitive process which is the comparison between Perceived Reality and Desire(s):</p> <ul style="list-style-type: none"> - Happiness - Serenity - Laugh - Anger - Sadness - Fear? - Shame? - Jealousy? - ...? 	

Table 1: The difference between Feelings, Sensations and Emotions

An evidence of this is that if you do the contrary and you start like many psychologists to consider what people call “feelings” as emotions then the list is never ending. Barbara L. Fredrickson for example has 10 ten representative positive “emotions” but like she said herself it is not exhaustive (Fredrickson, 2013). Indeed if you start to say that hope or altruism (which are really attitudes) are emotions then why not popular, clever, stupid, competent, nice... And you arrive at the result of the Dr Alan Watkins who identified 34 000 emotions (Watkins, 2014). And it is not over it will never be as ways of qualifying their subjective experience are and will constantly be invented by people like the word “geek” to qualify someone who play a lot video games... The popular use of the term “feeling” must not mislead our scientific point of view, all these feelings can be replaced by “I think I am popular”, “I think I am clever”... Most of these so called “feelings” are not associated with a unique physical sensation and as a result cannot be qualified as emotions or the concept of emotion lose its signification. The real list of emotions still need to be determined and it will be much shorter (like Ekman said) not far from the lists of Darwin (1872) and Ekman (2016).

The clarifications of this article also gives an end to the debate to know if emotions are universal or cultural. The answer is both. Indeed emotions are physical sensations resulting of the structure of the human body so universal, as the culture does not change the neurological system of people only their cognitive system. But emotions are also the result of a comparison between the perception of reality of a person and his/her desires which are both influenced by culture. This is why babies have emotions (anger, sadness) in the same circumstances (hungry, cold...) but this changes as they grow up and form a cognitive system influenced by their cultures.

To conclude this part on emotions love and hate are an important topic. Again it is important to be aware that people use these concepts not always in a rigorous scientific way. Scientifically love and hate can be defined as:

- “Love” is a sensation of an organism able to sense “a pleasant sensation” towards the cause of this sensation. For examples dogs love us when we feed them, humans love pleasant sensations including pleasant taste (food...), pleasant smell (perfume...), pleasant touch (caress, sex...), pleasant emotions of joy and laugh... Relatively to the FPDE and emotions, we love people who give us pleasant emotions because they treat us the way we desire to be treated meaning with respect, empathy... (*Perceived Reality of the relationship \geq Desire of the relationship \rightarrow Healthy Emotions*). Or because they make us laugh... In the same way we love objects that give us pleasant emotions because they function well (*Perceived Reality = my computer functions \geq Desire = I want it to function properly \rightarrow Healthy Emotions*) or give us pleasant sensations (pleasant food is loved because it gives a pleasant taste, same for pleasant smell...).

- “Hate” is a sensation of an organism able to sense “an unpleasant sensation” towards the cause of this unpleasant sensation. For examples animals hate whoever harm them, humans hate any unpleasant sensations including an unpleasant taste (disgust for food...), unpleasant emotions (sadness, anger...). Relatively to the FPDE and emotions, we hate people who give us unpleasant sensations because they treat us without respect so not the way we desire to be treated, with superiority... (*Perceived Reality of the relationship $<$ Desire of the relationship \rightarrow Unhealthy Emotions*). In the same way we hate objects that give us unpleasant sensations because they do not function well (*Perceived Reality = the computer does not function properly $<$ Desire = I want the computer to function properly \rightarrow*

Unhealthy Emotions) or give us unpleasant sensations (unpleasant food is hated because it gives an unpleasant taste, same for unpleasant smell...).

This theory of love and hate join the approaches of Wundt (1896), Plutchik (1962), Russell and Fernandez-Dols (1997), and Schlosberg (1954). They proposed that sensations (including emotions which as explained in this article are a particular type of sensation resulting from a cognitive comparison between reality and desire) can be attributed with a dimension pleasant–unpleasant. Organism love pleasant sensations and hate unpleasant sensations it is as simple as that.

Conclusion

Darwin and Ekman were right to list only few emotions. There was recently a clear confusion between feelings and emotions in the scientific literature which has to end with this article’s clarifications. It is outside of the scope of this article to establish a complete list of emotions but the FPDE brought a huge progress to this discussion we now know what is the dynamic of an emotion: a cognitive process to be accurate a comparison between perceived reality and desires. This is what makes an emotion different from other sensations. And this is why emotions can be divided in healthy (meaning exactly positive but another article will explain why positive is a preferred term) and unhealthy (negative) simply because our desires are either satisfied or not. But to get the full picture it is important to know that this article is a deeply interconnected part of four articles forming four ground-breaking theories:

1. “The Fundamental Principles of Happiness and Emotions” (Barnat, 2019a). Exposing the discovery of the FPDE explaining the dynamics of emotions. One of the most powerful theory psychology has to offer to explain clearly, coherently and completely some of the most important motivations of humans: happiness, laugh, anger, sadness...
2. This article “Clarify the confusion around emotions and feelings”. A correction of the whole scientific paradigm around emotions which went into the wrong direction with some scientists confused between feelings and emotions now listing tens of thousands of emotions.
3. “A happy personality depends mostly on your thoughts, not your genetics.” (Barnat, 2019c). Aiming to use the FPDE to put a definitive end to the dangerous paradigm attributing happiness to genetics based on extrapolation of data by scientists over enthusiastic about genetics and thinking it can explain everything. It does not and it is a dangerous message misleading people to have self-limiting beliefs about their capacities to be happy and risk a self-realizing prophecy. Meaning that the scientists made people unhappy by convincing them they can’t be otherwise which is deeply unacceptable.
4. “Personalities Unconsciously Improvised Resulting in Emotional Pain” (Barnat, 2019d). A new paradigm to explain with the FPDE how humans construct unconsciously unhealthy personalities resulting in emotional suffering. The missing link between psychoanalysis and the rest of cognitive and behavioural psychology, as psychoanalysis had some powerful insights but did not until now explained completely and clearly the mechanisms of the unconscious, of neurosis and other mental illnesses. And a new type of psychotherapy based on the understanding the dynamics of our emotions with the FPDE concludes that happiness result from Ensuring Healthy Perception and Desires (EHPD).

Those four theories lay down the foundations for the science of happiness giving its basic principles but for which complete detailed explanations will be done in a book as it involves society and is too long to be exposed in an article.

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