

# The *a priori* nature of Fredrickson's theory of emotions

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The broaden-and-build theory of emotions, formulated by Barbara Fredrickson, aims to provide a better understanding of the value of positive emotions. Fredrickson claims positive emotions fuel personal well-being and human flourishing by broadening thought-action repertoires, thereby undoing the effects of negative emotions and increasing psychological resilience and personal resources. To provide support for the theory has Fredrickson gathered a vast amount of experimental data (see e.g. Fredrickson, 1998; 2001; 2004). I shall argue that the broaden-and-build theory is essentially pseudo-empirical and that the experimental data amassed by Fredrickson carries no bearing on the truth value of the theory. In the beginning of this thesis, a theoretical account of the properties of propositions is given, after which there is a discussion on the fundamental presupposition of the theory, that emotions can be categorized as negative and positive. The lion's share of the thesis is, however, dedicated to a discussion of the five statements Fredrickson (2004) has identified as the core of the broaden-and-build theory. In my account of each statement shall I try to show, through conceptual analyzing and reasoning, that they are logically necessary, due to the embedded meaning and relationship between the concepts in question. It is my conclusion that the broaden-and-build theory is a set of commonsense theorems (Smedslund, 1978) and therefore not empirical but *a priori*.

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## Introduction

Emotions have become a trend in the Western part of the world. Nowadays, it seems impossible to walk into a bookstore without getting lost in the jungle of self-help books, where one smiling guru after another promises to guide you the way to the promised land of eternal happiness. Add a few academic buzzwords such as “emotional intelligence” and “emotional health”, and you have a best-seller. If it sounds intelligent, it must be intelligent. And the brilliance of it all is that it works! Last Christmas, the book that landed on most bedside tables in Iceland, was the epic self-help book: “*Happier: Learn the secrets to daily joy and lasting fulfillments*”, by the positive psychologist Tal Ben-Shahar. Positive psychology is in the forefront of the marketization of emotions and has become immensely popular in the last decade or so. Positive psychology or “the new science of happiness” (Miller, 2008), is an allegedly new branch of psychology which claims to explore human strengths and virtues and what it is that makes people *flourish* (Seligman and Csikszentmihalyi, 2000). According to its instigators it has emerged due to overemphasis on the pathological within psychology (Seligman and Pawelski, 2003).

One of the leading figures in positive psychology is Barbara Fredrickson. She has put forward a theory called “the broaden-and-build theory of positive emotions” (see e.g. Fredrickson, 1998; 2001; 2004). The theory posits that “experiences of positive emotions broaden people’s momentary thought-action repertoires, which in turn serves to build their enduring personal resources, ranging from physical and intellectual resources to social and psychological resources” (Fredrickson, 2001, p. 218). In other words, it focuses on the so called positive emotions, their form and function. To support the broaden-and-build theory Fredrickson has gathered a vast amount of empirical evidence, both indirect from various sub-disciplines within psychology, and direct

support from her own tests of hypotheses drawn from the theory (Fredrickson, 2004). At the time of completing this thesis, Fredrickson's first comprehensive paper on the theory (Fredrickson, 2001) had amounted to 568 citations in Web of Science, and counting. Within the psychological discourse, such an amount of citations is enormous. Her other publications are also cited in large numbers. It seems Fredrickson has become somewhat of a celebrity within the research community of psychology.

I shall argue Fredrickson has committed the same error as many psychologists before her, by failing to analyze the conceptual relations between the variables in question and consequently mistaken *a priori* propositions for empirical. The aim of this thesis is to demonstrate that the theory consists of propositions that are necessary truths or based on presuppositions that can be proven erroneous through logical reasoning and, hence, that the empirical evidence that has been amassed in support of the theory is pseudo-empirical and has no bearing on its truth value.

### **The properties of propositions**

Propositions vary in epistemological and modal status. The properties of a proposition are usually divided into three modal categories with regard to their truth-values; contingent, necessarily true and necessarily false. A proposition has either the property of truth or falsity in any given possible world. Contingent propositions are contingent on the circumstances and could therefore be true in one possible world but false in another possible world, where the circumstances are different. An example of a contingent and possibly true proposition is the proposition that "Vigdís Finnbogadóttir was the first female president of Iceland". This proposition is true in the actual world and false in some possible worlds (Bradley and Swartz, 1979).

Epistemological status of properties has to do with how their truth value can be known. Bradley and Swartz (1979) defined “truth” and “falsity” as following:

“It is *true* that *a* has **F** if, and only if, *a* has **F**;

and

it is *false* that *a* has **F** if, and only if, it is not the case that *a* has **F**.”(p.9).

Propositions are considered by many philosophers to be the primary bearers of truth value and have either the property of truth or falsity in any given possible world. Propositions that are necessarily true are true in all possible worlds whereas contingently true propositions are true in some possible worlds and false in others. “A possible world” refers to the logically possible actual world and the non-actual. It’s important to note that the non-actual possible worlds are not restricted to the physically possible. The non-actual worlds can differ from the actual world in three basic ways; contain same items as the actual world but with different attributes, contain items that do not exist in the actual world or lack items that exist in the actual world (Bradley and Swartz, 1979).

How can we attain knowledge of the truth-values of propositions? Most philosophers agree that there are two ways in which it is possible for humans to acquire knowledge, through experience and through reason. Because this distinction is not mutually exclusive, further distinction must be made between empirical knowledge and *a priori* knowledge. Empirical knowledge is knowledge that is *only* possible to attain through experience that is experientially, whereas *a priori* knowledge *is* possible without appeal to experience. In other words:

“[The proposition] *P* is knowable *empirically*” = df [is by definition equal to] “It is humanly possible to know *P* only experientially”

and

“*P* is knowable *a priori* = df “It is humanly possible to know *P* other than experientially.”(Bradley and Swartz, 1979, p.150).

There are some propositions that are not knowable. If a proposition, however, is knowable, the distinction between *a priori* and empirical is exhaustive. That is to say, they can only be known either empirically or *a priori*. The distinction, between *a priori* and empirical propositions, is also mutually exclusive. The proposition that a given proposition *P* is empirical is contradictory to the proposition that *P* is *a priori*. As a consequence, one or the other must be true and they cannot both be true in the same possible worlds at the same time (Bradley and Swartz, 1979). In the remainder of this thesis shall I refer to empirical and contingent propositions as “empirical” and to *a priori* and non-contingent propositions as simply “*a priori*”.

If a proposition is necessarily true or false because of the meaning of the concepts involved, it is analytical or in other words, analytical propositions are propositions whose truth value can be known by the virtue of the meaning of the concepts involved and are thus *a priori* and not empirical. An example of an analytical proposition is “all bachelors are unmarried men”. The subject concepts (unmarried men) necessarily follow from the predicate concept (bachelors). A synthetic proposition, on the other hand, is a proposition whose truth value can not be known through the concepts involved but through experience and is thus empirical and not *a priori* (Jónsson, 1997).

There seems to be a general agreement among psychologists, that if experiential data is collected and this data appears reliable, it must be of scientific value (Smedslund, 1991). Psychologists do not pay sufficient attention to conceptual analysis and automatically assume that all psychological propositions must be empirical. Those researcher who fail to analyze the concepts of the propositions they are dealing with, might believe their propositions are empirical when they actually are knowable *a priori*.



Smedslund (1991) labeled propositions that are *a priori* but treated as empirical, pseudo-empirical. A proposition is either *a priori* or empirical; testing a proposition that is *a priori* with experiential methods has therefore no bearing on its truth value.

### **The broaden-and-build theory**

Formulated by Barbara Fredrickson (1998), the broaden-and-build theory is supposed to provide a better understanding the value of “positive” emotions. It stems from the theoretical approach of positive psychology. Positive psychology, as previously mentioned, claims to study what is good and virtuous in human nature. It focuses on what makes human beings “flourish”, positive characteristics and last but not least – *positive emotions*. Positive psychologists believe positive emotions have received too little empirical attention within applied psychology, relative to negative emotions (Seligman and Csikszentmihalyi, 2000).

The theory states that certain emotions that are recognized as positive, for example joy, love and pride, trigger “an upward spiral towards emotional well-being” (Fredrickson, 2004, p. 1373) by “broadening” the scope of cognition and actions. Fredrickson claims positive emotions carry enduring adaptive benefits by building personal resources, which outlast the transient emotional states. By personal resources is meant resilience, or coping with adversities (Fredrickson, 2004).

I argue that the broaden-and-build theory is ridden with commonsense propositions that are logically necessary, due to the embedded meaning and relationship between the concepts in question. In other words, the broaden-and-build theory is a set of commonsense theorems and therefore not empirical but *a priori* (see e.g. Smedslund, 1979; 1991; Kristjánsson, 1993; Árnadóttir, 2002). Commonsense theorems are defined as: “...proposition expressed in terms of ordinary language concepts and being logically

necessary in the sense of being derivable from *(a)* the meaning of the terms involved, as defined by a dictionary and by the context in which they occur, *(b)* from other propositions already proved, or *(c)* from propositions regarded as basic or self-evident” (Smedslund, 1978, p. 3).

Commonsense psychology is usually defined as the use of intentional concepts or propositional attitudes to explain people’s actions. Propositional attitudes are concepts such as desires, beliefs, anger, love etc. Intentionality means that a proposition or concept is “about” something, it refers to something outside of itself. Students of commonsense psychology use propositional attitudes to explain people’s behavior. For an example, Jane is not simply “angry”, she is angry *at* someone for a reason and in a given context most people would not have any difficulties explaining *why* Jane is angry: “Jane is angry *at* her boyfriend because he was rude to her mother (for an exhaustive discussion see, e.g. Smedslund 1991; 1997; Kristjánsson, 2003; Solomon and Stone; 2002).

I shall argue that the empirical data that the author has gathered (see etc. Fredrickson, 1998; 2001; Fredrickson, Tugade, Waugh and Larkin, 2003; Fredrickson and Branigan, 2005; Fredrickson and Losada, 2005) is essentially pseudo-empirical and descriptive at best. I will do this by showing that the truth value of the statements can be known *a priori* through reasoning and that the statements are thus, not empirical.

Before I begin my logical analysis of the statements Fredrickson (2004) has identified as the core of the broaden-and-build theory, I shall start by analyzing the most important statement of the theory. The overarching presupposition, that emotions can be categorized as positive or negative. This statement is not treated as a specific proposition in the theory, probably as it is so implicit in positive psychology, that it is treated as unwavering truth.

## **"Positive"and "negative" emotions**

The fundamental presupposition of the broaden-and-build theory, that emotions can be labeled as “positive” or “negative” is futile, as I shall try to demonstrate in what follows. Fredrickson’s theory of emotions is called the “broaden-and-build theory of *positive emotions*, thereby stating the belief that there is a certain group of emotions that can be classified as “positive” (counter to “negative”). This presupposition is one of the main premises of the broaden-and-build theory, and positive psychology in general.

The distinction between positive and negative emotions is not based on science but ethics and it became the trademark the medieval church, under the precept of virtue and vice. The influence of Christian ethics still exists in theories of emotions but disguised as science, using the valence model of chemistry (Solomon and Stone, 2002). But can emotions be lined up on a valence scale from positive to negative, as assumed in the doctrines of positive psychology?

Solomon and Stone (2002) and Kristján Kristjánsson (2003), have all thoroughly criticized the categorization of emotions as either positive or negative, and pointed out a number of contradictions and conceptual problems that come with it.

In Fredrickson’s much cited paper from 2001, she states “...certain discrete positive emotions – including joy, interest, contentment, pride and love – although phenomenologically distinct, all share the ability to broaden people’s momentary thought-action repertoires....” (Fredrickson, 2001, p. 219). Clearly, Fredrickson considers “positive” and “negative” emotions to be mutually exclusive. A positive emotion cannot be negative at the same time. If this was not the case there wouldn’t be a broaden-and-build theory at all, at least not one that made any sense. Now, if we look into the so called positive emotions Fredrickson (2001) specifies, it is highly disputable

to call them “distinct” emotions. Does it make sense to say that a person is joyous but not content? If a person is joyous, it follows necessarily that she is content because one cannot be joyous without being at all content with the fact that one is joyous. Similarly, can one be proud without being somewhat content? Or in love without being content, interested, joyous? (For further discussion, see Smedslund, 1997)

The categorization of emotions as positive or negative, is solely from the personal point of view, what makes one *feel* good or bad without regard to the society or morals. If I am interested in cutting up the people I love with a chainsaw, and doing so makes me extremely joyous, content and proud – are these positive emotions? (for exhaustive discussion, see Kristjánsson, 1994; 2003; Solomon and Stone, 2002). Will experiencing these emotions as often as possible (to make myself feel good), increase my resilience and help me “flourish”, as Fredrickson’s theory states? I beg to differ. Lining emotions up as opposites on a valence scale from the perspective of what makes a person “happy”, is simplistic at best but also blatantly hedonistic.

In the same key article, Fredrickson (2001) names anxiety, sadness, anger and despair as examples of negative emotions. It is easier to discern among concepts for negative emotions yet Fredrickson has chosen to use as examples some emotions that are in fact conceptually dependant. Can one be in despair without being somewhat anxious or sad? It follows necessarily that when one is desperate, some feelings of anxiety must be involved.

Now, ignoring the poor examples Fredrickson has chosen, it remains that emotions that Fredrickson would categorize as negative, can be positively evaluated by the subject. Anger can bring pleasure to a person, especially if it is righteous. And everybody knows someone who enjoys wallowing in sadness or despair. The opposite can apply to emotions that Fredrickson categorizes as positive, such as love, which can

be negatively evaluated by the subject. I guess the message is, at the risk of sounding cynical, that love can be painful. A person in love can experience anguish and jealousy at the mere sight of their significant other speaking to someone else. Another example is a person who is in love with someone who doesn't love her back. We would certainly not expect a person in that situation to evaluate it as positive, or wanting to maintain it. So is love a positive emotion? Or is it a negative emotion? Some might argue that it is not "love" itself that is painful but rather the emotional "baggage" that comes with love. But if love incorporates a number of emotions, how is it an independent emotion? (See e.g., Kristjánsson, 2003; Solomon and Stone, 2002).

What exactly are emotions? An essential component of emotions is appraisal. Every emotion involves multidimensional appraisal processes which are affected by vast numbers of factors, such as other emotions, moods, characteristics, environmental circumstances, experience, physical factors etc (Solomon and Stone, 2002). Emotions are intentional; they have objects, and are logically related to *wants* and *beliefs*: "You *believe* there are burglars in the house and that they will harm you. You *want* not to be harmed. Hence, you *feel* afraid. Your heart rate, perspiration, way of acting and so on, are *symptoms* of your fear" (Smedslund, 1997, p. 45). The necessary criteria for whether an emotion is present or not, is thus not a set of somatic changes and emotions are not localized in the body, one does not "have a feeling of pride in one's stomach or in one's chest" (Hacker, 2004, p. 201). Fredrickson repeatedly mistakes empirical symptoms, such as responses to questionnaires and cardiovascular changes, for the emotions themselves, rendering the experimental data she has gathered in essence meaningless (see, e.g. Fredrickson, 2001; Fredrickson and Branigan, 2005; Fredrickson and Losada; 2005). It is also important to distinguish between emotions, moods and character traits as emotions are usually brief in time and they have specific objects. For example, Jane

is not angry at every boyfriend in the world, she is angry at *her* boyfriend, who is a specific person. Emotions are often said to be closely knitted with specific reactions or expressive behavior, which can be voluntary or involuntary. If we take anger as an example, Jane might express her anger by raising her voice but she might also choose *not* to express her anger at all. She might, however, accidentally show her anger by the tone of her voice or by involuntary facial expressions. Anger is an emotion that is usually considered to be closely linked with certain expressive behavior, compared to e.g. jealousy, and yet it is clear that range of possible expressive responses to anger is too wide to serve as useful criteria (see, e.g., Hacker, 2004; Solomon, 2002; Solomon and Stone, 2002; Kristjánsson, 2003; 2005).

In short, emotions are a complex and multidimensional phenomena. They can therefore not be divided on a simple polar scale. Ignoring the multidimensional nature of emotions in a theory of emotions is, to put it bluntly, lazy and oversimplified, there is no such thing as a “positive” or “negative” emotion. The fundamental component of the broaden-and-build theory, that emotions are either positive or negative, is futile and basically false (for an exhaustive debate on positive and negative emotions, see e.g. Kristjánsson 2003; Solomon and Stone, 2002).

### **The statements of the broaden-and-build theory**

Fredrickson (2004) identified the following five core propositions which form her “broaden- and -build” theory. The propositions are expressed in the following sentences:

- (i) Positive emotions broaden thought-action repertoires
- (ii) Positive emotions undo lingering negative emotions
- (iii) Positive emotions fuel psychological resiliency

- (iv) Positive emotions build personal resources
- (v) Positive emotions fuel psychological and physical well-being (Fredrickson, 2004).

In the remainder of this thesis, I shall argue that these statements are knowable *a priori* and are, thus, not empirical. Hence, the vast experimental literature that has been amassed in support of the broaden-and-build theory serves, at most, as demonstrations rather than empirical tests of the theory. This is clearly at variance with the mainstream understanding of the broaden-and-build theory by the research community.

As previously discussed, labeling specific emotions as “positive” or “negative” gives rise to vast conceptual confusion (see Kristjánsson, 2003; Solomon and Stone, 2002). Now, Fredrickson’s use of the terms “positive” and “negative” emotions shows that she seems to believe them to be mutually exclusive. In other words, that one cannot have a positive emotion and a negative emotion at the same time and an emotion cannot be positive and negative at the same time. Fredrickson herself states that: “Certainly, moments in people’s lives characterized by experiences of positive emotions – such as joy, interest, contentment, love, etc. – are moments in which they are not plagued by negative emotions, such as anxiety, sadness, anger and the like.” (Fredrickson, 2004, p.1367). I assume what Fredrickson means by positive emotion is basically “feeling good” and by negative emotion “feeling bad” and that one cannot feel good and bad at the same time. This is the loose definition of positive and negative emotions I shall use below.

Smedslund (1991; 1997) has been working on a system to explicate the implicit concepts of commonsense psychology. It is not a matter of debate in this paper whether it is possible or not to construct such a system. However, I shall make considerable use

of Smedslund's (1997) framework in my analysis of the broaden-and-build theory (for more details of the theory see e.g. Fredrickson, 1998; 2001; 2004)

I find the statements Frederickson identifies as explaining the core of her theory to be basically slight alterations or rephrasing of one another. In my account, each statement shall be translated into non-technical English in order to clarify the original statements. These attempts to translate the statements to ordinary English are not intended as detailed accounts. Some nuances may therefore be lost in the process but the essential meaning will maintain the same. I will also discuss some of the experimental data Fredrickson and her associates (e.g., 1998; 2000; 2004; 2005) have collected as evidence for the truth of the theory. I will argue that most of the data have similar methodological and conceptual problems. In my discussion of each statement shall I try to show, through conceptual analyzing and reasoning, the *a priori* nature of each statement.

### **I: Positive emotions broaden thought – action repertoires**

A key proposition of Fredrickson's broaden-and-build theory is that positive emotions carry an adaptive value as they encourage "changes in typical thought and behavior patterns" (Fredrickson, 1998, p. 304) by "broadening habitual modes of thinking or acting" (Fredrickson, 2001, p. 220). Fredrickson claims that; whereas negative emotions narrow the thought-action repertoire, positive emotions broaden it (see e.g. Fredrickson 1998; 2001; Fredrickson and Branigan 2005).

*Translation of statement I:* When a person feels good, she behaves differently than she normally would or when feeling bad. When a person feels good she thinks differently than she normally would or when feeling bad.



The contradiction of the translation of statement (i) would be that when a person feels good she behaves and thinks in the same manner as she would normally or when she feels bad. In this case, the contradiction is not plausible. A person does not think and behave in the same way when she feels good as when she feels bad. First of all, an emotion is intentional, it has an object. The bee is not simply angry, it is angry *at* someone. Intentionality implies appraisals or judgments which are cognitive, they do not have to be conscious but some cognitive factor is necessarily involved in emotions (see e.g. de Sousa, 2009; Kristjánsson, 1994; 2003; Solomon and Stone; 2002). The person feels different because of different appraisal processes. Second, a person who feels good does not, all things equal; during that time that she feels good think in the same manner as when she feels bad. One would not expect an individual who is feeling depressed to be able to see as many solutions to their problems as a person who feels happy and good. It is implicit in the concept “depressed” that a depressed person is not optimistic and does not see many solutions to their problems. A person who sees many solutions to their problems is not, by definition, depressed.

It can also be shown analytically that a person who feels good may be more likely to seek new ways of evoking good feelings. The participants who felt good could think of more things they felt like doing at that very moment than other participants who did not feel good. One would expect a person who feels good to want to participate in more activities that make her feel good at that moment, than a person who feels bad and does not think she will feel better. It is given that every person wants to feel good (see e.g. Smedslund, 1997). If a person feels bad and does not believe an activity will make her feel better, she will not want to participate in it. If a person believes she will not be able to handle an activity and will fail, she will also not want to participate in it as failing would imply feeling bad or worse and every person wants to feel good. This is

basically what the self-efficiency “theory” of Bandura states, which Smedslund (1978) has shown to be made up of truths that are knowable *a priori* and not empirically. Also, the moods or character traits of a person influence her emotional life and the emotion a person feels must be in some accordance with the mood and character traits.

A person who feels good is a person who believes that some of their wants are, or will be, satisfied. How good the person feels “reaches a maximum at the onset of a believed certainty of fulfillment of want, and then diminishes towards zero” (Smedslund, 1997, p. 52). This means that after the person is certain it will get what it wants, the want decreases and hence the strength of the emotion. The more often the same want is fulfilled under the same circumstances, the weaker the want becomes. For an example, if you feel very good and happy while eating out at a nice restaurant with your best friend, and then go there each week with the same person for a month after that – you will probably not feel *as* good and happy at the end of the month as you did the first time. This might explain why a person who feels good is more likely to be active and search for new ways to feel good or “happy” (Smedslund, 1991; 1997).

Now, it has been established that a person who feels good thinks and behaves differently than when she feels bad. But does that mean that she thinks “more broadly”? Does a person experiencing an emotion that Fredrickson (e.g. 1998; 2004) labels “negative” never think more broadly and vice versa? For an example, Fredrickson frequently speaks of e.g. love as a positive emotion (Fredrickson, 1998; 2000; 2004; 2005). Would a person who is experiencing a strong feeling of love think more “broadly” and pay more attention to the “big picture” in their life? The mindsets of people in love are often extremely narrow where the object of affection becomes the centre of their life and people often make choices because of love that are not sensible for the “rest of the picture” like giving up a chance to go abroad or leaving a good job.

An emotion like jealousy, which Fredrickson would categorize as negative, may incline a person to think of creative and innovative ways (hence think broadly) to become at least as good as the person one is jealous of. More examples can be made where emotions Fredrickson labels as negative, have the same effect as positive emotions. For an example a person who is under extreme pressure because she has mere 24 hours to finish a thesis. If the person fears she will not be able to finish on time and becomes anxious when considering the consequences of not finishing the thesis and hence not graduating, this may pressure her into thinking of new and creative ideas to be able to finish the task on time. It follows that although people may behave and think *differently* when they feel good than when they feel bad, the statement that positive emotions make a person behave and think more *broadly* than negative emotions is incoherent.

Fredrickson and Branigan (2005) conducted tests on a group of students where the participants were shown film clips, four of which were supposed to evoke different emotions (amusement, content and serenity, anger and disgust, anxiety and fear) and the fifth was meant to be emotionally neutral. Subsequently, the participants were asked to write as many as twenty things they would like to do at that very moment (Fredrickson and Branigan, 2005). The research is based on unanalysed concepts and so it is not known what is being measured and hence what follows from what (Smedslund, 1991; 1997). They found that “broadening effects emerge for two distinct types of positive emotions, namely amusement and contentment” (Fredrickson and Branigan, 2005, p. 326). Participants who had reported “positive” emotions could enumerate more activities than other participants and this was considered to be evidence for “broadened thinking” Participants who reported “negative” emotions were found to focus more on smaller details in the visual processing task and participants who reported “positive” emotions were found to focus more on global configurations (Fredrickson and

Branigan, 2005). The researchers clearly assumed that amusement and content are two distinct types of positive emotions but I argue they are conceptually dependent; being amused must involve some contentment (Smedslund, 1997). A person who feels amused must feel content with that, she is surely not discontent with feeling amused!

The film-clips used by Fredrickson and Branigan (2005) were considered to evoke the appropriate emotion if the students' self-reports of their emotions were (mostly) in accordance with the expectations of the researchers. In other words, the meaning of the concepts was considered synonymous with what was measured, e.g. anger was considered to be what was evoked by the film clip intended to evoke anger and amusement was considered to be what the film clip intended to evoke amusement evoked. Using self-reports like Fredrickson and Branigan (2005) do in this research, is problematic because it is assumed that people are truthful and that they have the self-knowledge necessary to be truthful. The theory is based on the subjective evaluations of the participants and it is assumed that they are experts in identifying emotions and labeling them. The operational definition of emotions, used by the researchers, ignores the intentional factor of emotions and separates emotions from their objects. The researchers confuse symptoms with criteria; empirical symptoms such as mental indicators are not the criteria for whether an emotion is present because emotions are intentional (Smedslund, 1991; 1997). Fredrickson seems to acknowledge that "emotions are typically about some personally meaningful circumstance (i.e. they have an object)" (Fredrickson, 2001, p. 218). Yet, this factor is consistently overlooked in her experimental tests (see e.g. Fredrickson, 1998; 2001; 2005) where she deals with empirical symptoms as emotions. However, this is not of particular interest here. What is important is that Fredrickson and Branigan (2005) do not realize that they are dealing with conceptual issues whose truth value is knowable *a priori* and not empirical. This

has been established in the above discussion and the experiment conducted to provide empirical support have therefore no bearing on the truth value of statement (i).

## **II: Positive emotions undo lingering negative emotions**

The second key statement of the broaden-and-build theory stems from proposition (i) that positive emotions broaden the thought-action repertoire and can therefore be “efficient antidotes for the lingering effects of negative emotions” (Fredrickson, Mancuso, Branigan, Tugade, 2000, p.239) and that “...positive emotions may loosen the hold that a negative emotion has gained on that person’s mind or body by dismantling or undoing the preparation for a specific action” (Fredrickson, 2004, p. 1371).

*Translation of statement II:* When you feel bad and then feel good – you feel better. You recover quicker from feeling bad if you feel good soon after feeling bad.

Fredrickson clearly wants to continue the primitive categorization of emotions as positive and negative contradictions. In other words, maintaining that an emotion cannot be positive and negative. A feels bad and A feels not bad is a contradiction. If these statements are contradictory and mutually exclusive there must be, at any given moment, worlds where it is the case that one is true and the other is false (for further discussion see e.g. Bradley and Swartz, 1979). Since you cannot feel good and feel bad at the same time it must follow that when you feel bad and then feel good – you feel better than before you felt good. If we apply the principle of contradiction to this statement and say; when you feel bad and then feel good – you feel worse, that statement is obviously not plausible (assuming one cannot feel good and bad at the same time, as Fredrickson does) and hence the opposite is necessarily true. That one cannot feel good and bad at the same time does not mean, as Fredrickson implies, that it

is possible to erase the experience of negative emotions by engulfing people with positive emotions. If one feels bad, one feels bad and not good.

Fredrickson clearly thinks that this is an empirical proposition; hence she and her collaborators (Fredrickson and Levenson, 1998; Fredrickson *et al*, 2000) conducted experiments to provide empirical support. In the study from 2000, the hypothesis, that positive emotions speed cardiovascular recovery from negative emotions, was tested by first giving participants a task of preparing a speech in one minute that was meant to induce anxiety. The speech task was considered to have successfully induced anxiety because of self-reports of the participants and increased cardiovascular activity. After the speech task, participants watched a randomly assigned film clip. Two films were supposed to evoke distinct positive emotions (joy and contentment), one film was considered emotionally neutral and the fourth film was intended to evoke sadness. The result showed that the participants who watched the positive films did indeed recover faster than the participants that saw the neutral film and the participants who viewed the sad film took the longest time to recover (for a more detailed account, see Fredrickson *et al*, 2000). The hypothesis was therefore seen as confirmed although Fredrickson notes that they could not explain the physiological mechanisms responsible for this effect and this needs further empirical investigation.

The problems with this specific study are the same as in the previous study conducted by Fredrickson and Branigan (2005): It is dealing with *a priori* truths experimentally and not logically. The experiment is therefore, at most, illustrative.

The two “positive” emotions that Fredrickson examines as conceptually independent are again dependant. If one is content one must feel some joy and if one is joyous one must be somewhat content with that (Smedslund, 1997). The film clip that was meant to evoke sadness might evoke sadness, but it could possibly have evoked

sympathy with the little boy in the film who was crying as he watched his father die. If this is the case, that the participants were experiencing sympathy – is that not an emotion which would be categorized as positive rather than negative, according to Fredrickson? We learn how to label emotions through learning the appropriate contexts and objects. It is appropriate to be sad or at least sympathetic when seeing a young boy crying because his father is dying (Hacker, 2004).

Emotions are not a set of somatic changes. Increased cardiovascular activity *is* not a “negative emotion” and studying increases or decreases of cardiovascular activity in one context, is not studying the actual emotions in question. We may expect that preparing a speech for peers in a limited amount of time ought to make a person anxious or nervous, but it is not possible to say that person ought to undergo increased cardiovascular activity. The emotions Fredrickson considers “positive” in this research could also result in the same increase in cardiovascular activity – you might feel your heart racing if you suddenly feel very joyous about something, like learning you got the dream job or meeting an old flame. Getting the dream job and feeling joyous does, however, not necessarily involve any somatic changes. Specific emotions do not necessarily evoke specific somatic changes (for an exhaustive discussion see Hacker, 2004). It is therefore not possible to generalize that (only) “positive emotions” undo the cardiovascular effect of “negative emotions”.

Fredrickson (2000) wonders if positive emotions can also undo the cognitive effects of negative emotions and believes this question needs to be examined directly through empirical research. She is, however, mistaken. “Positive” emotions can undo the effects of “negative” emotions and this can be shown through logical reasoning. I prefer “recover” rather than “undo” as undo might imply erasing. Fredrickson (2000) used the emotions “joy, content and sadness” as examples. I will use sadness as an

example of a negative emotion in this context, but refrain from using the concepts “joy” and “content”, as they are not two distinct emotions but conceptually dependant, and simply speak of “feeling good” as a “positive” emotion.

How a person feels depends on the relationship between the person’s wants and beliefs. A person is sad when she believes that she will never or never again have something they want. A person feels good when she believes she will be able to achieve something she wants. One cannot believe that one has lost something they want forever and that they will be able to satisfy the same want at the same time (Smedslund, 1997). If Jane breaks up with her boyfriend she might be sad because she believes she will never find love. She might still feel good at the same time because she believes she will now have more time for herself. In other words, she might have mixed feelings about the break-up. She might also have mixed feelings because two distinct events, she might feel sad because of the break-up but good because of some independent event, like getting her dream job. How good or sad a person feels depends on the strength of the specific want and the belief that it will or will not be fulfilled. Now, a glass cannot be empty and full at the same time and similarly, it is a clearly contradictory that a person cannot feel maximally good and maximally bad at the same time. Rather, it seems that if an emotion is as strong as an emotion can be at that moment, you can only have that emotion at that time: If Jane is told that her mother whom she was close with had died suddenly, it seems likely that Jane will feel as sad as she can feel at that moment and getting the dream job will not decrease that emotion at that moment (Smedslund, 1997). However, if the strength is not maximal “...increasing one emotion might be a way of decreasing another” (Smedslund, 1997, p. 51). If Jane is sad because she broke up with her boyfriend, getting the dream job might help her feel less sad



about the break-up. Similarly, if Jane gets the dream job and her boyfriend then breaks up with her she will probably won't feel as good about getting the job.

This is no new science to most people. When somebody we care for feels bad we would usually try to make them feel better. If Jane feels very sad because she lost her mother or broke up with her boyfriend, it is highly unlikely that Jane's friends would show up at her house with a film about a little boy who is crying and watching his father die. Her friends would most likely try to distract her and make her feel better by making jokes or bringing an amusing film. Clearly, when you feel bad and then feel good, you feel better. Proposition II is logically true and *a priori* and not empirical. Likewise, it is also self-evident that when you feel good and then feel bad, you feel worse. Therefore, in Frederickson's terms, it is also true that "negative emotions" undo the lingering effects of "positive emotions".

### **III: Positive emotions fuel psychological resiliency**

The third core proposition of the broaden-and-build theory overlaps with propositions (i) and (ii) and is logically related with the supposed "undoing" effect of positive emotions. The broaden-and-build theory states that resilient people are able to use "positive" emotions to recover or: (a) "...positive emotions help resilient individuals achieve beneficial consequences in emotion regulation" (Tugade and Fredrickson, 2004, p. 321) and (b) resilient individuals do not only use positive emotions for coping but experiencing positive emotions might actually build psychological resiliency in individuals (Fredrickson, Branigan, Manusco and Tugade 2000; Fredrickson, Tugade, Waugh and Larkin, 2003; Tugade and Fredrickson, 2004). Psychological resilience has been defined, if somewhat vaguely, as an enduring personal resource that "...has been characterized by the ability to bounce back from negative emotional experiences and by

flexible adaptation to the changing demands of stressful experiences” (Tugade and Fredrickson 2004, p. 320). Resilient people are people who have “optimistic, zestful and energetic approaches to life, are curious and open to new experiences, and are characterized by high positive emotionality” (Fredrickson, 2004, p. 1372).

*Translation of statement III:* Feeling good can help people get through difficult situations. Some people recover easier from difficult situations than others. If you succeed at something you will feel good (be happy, joyous, content etc.) and the better you feel you are at reaching these and similar goals the more likely it is that you will think you will succeed in achieving your goals in the future.

This must be the case as the best evidence for having reached a goal is actually having done so. Again, this is basically rephrasing of the self-efficacy theory of Bandura, which has been shown to be *a priori* and not empirical (Smedslund, 1978).

This was seen as an empirical proposition by the Fredrickson (Fredrickson *et al.*, 2003; Tugade and Fredrickson, 2004). Experiential support was gathered with two studies; first a field study of students before and after the terrorist attacks on September 11<sup>th</sup> in 2001 and then an experiment measuring the effects of positive emotions and resilience on cardiovascular activity. In the field study the students had participated in a study on emotions at the beginning of the year and were then re-contacted and asked to participate in a follow-up study where their resilience was supposedly evaluated and their reactions to the terrorist attacks (for a detailed account see Fredrickson *et al.*, 2003). The observation of the effects of “positive emotions” before and after September 11<sup>th</sup> showed that “...positive emotions experienced in the wake of the attacks — gratitude, interest, love, and so forth—fully accounted for the relations between (a) precrisis resilience and later development of depressive symptoms and (b) precrisis resilience and postcrisis growth in psychological resources” (Fredrickson *et al.*, 2003, p.

365). In other words: Those who reported more positive emotions before the attacks were more likely to report more frequent positive emotions after the crisis and they were less likely to become depressed.

The negation of this statement would roughly be; those who were more “optimistic before the attacks had become more pessimistic than those who had been more pessimistic. Those who had been more pessimistic before the attacks had become more optimistic than those who had been more optimistic before the attacks. This would be an incredibly odd finding; experience is the best evidence we have to predict a person’s behavior and so most users of commonsense psychology would expect Jane, who has always been extremely optimistic, to continue to be more optimistic than Ben, who has always been extremely pessimistic.

In the experiment from 2004, Fredrickson and Tugade tested the hypotheses that (a) resilient individuals would return faster to baseline of cardiovascular activity and (b) that this ability to recover could be accounted for by positive emotions. Once again, the speech task was used to evoke what was considered to be anxiety. Before the speech tasks the participant’s resilience was (supposedly) evaluated with Block and Kremen’s (1996) resilience scale. The results were that people who scored high on the resilience scale returned faster to cardiovascular baseline and they also reported more positive emotions (Tugade and Fredrickson, 2004).

Both of these studies face the same problems as those conducted to support propositions (i) and (ii): Unanalyzed concepts, empirical symptoms confused with criteria and in the end conceptually true propositions being dealt as if they were empirical and not *a priori*. Since proposition (iii) is implied by propositions (i) and (ii), the same arguments I have made regarding the so-called broadening and undoing effects, apply as well and I do not find it necessary to repeat them here.

Resilience is measured on a self-report scale that has 14 items, each on a 4 point scale. Basically, it is assumed that resilience is what the resilience scale measures. The scale is mere 14 items. The items are directed at measuring attitudes, such as “12. My daily life is full of things that keep me interested” and “3. I enjoy dealing with new and unusual situations” (For the full scale see Block and Kremen, 1996, p. 352).

Those who score high on the items and are hence labeled “resilient” are in essence those who claim to have a generally “positive” attitude towards life. They believe that the people they meet are likable, they get over their anger quickly, are curious, enjoy dealing with unusual situations, and find their lives interesting (Block and Kremen, 1996). Now, emotions are appraisals which can be expressed in a variety of ways (see e.g. Kristjánsson, 1994; 2003; de Sousa, 2009; Solomon and Stone; 2002). You would therefore not expect a person who scores high on the resilience scale to report that they frequently feel bad, because it is implicit in the scale that those who score high as “resilient” have more positive attitudes or characteristics than those who have lower scores. In other words, there is a logical relationship between the content of the resilience scale and what Fredrickson considers to be positive and negative emotions. The way the concept “resilience” is used implies that the resilient individual is an individual who get through difficulties by being able to “look on the bright side” and find positive meaning, or to put it differently, believe that at least some of their wants will eventually be fulfilled (Smedslund, 1991; 1997). Whether “resilient” individuals are less prone to depression and more likely to thrive when faced with adversity is therefore not an empirical question but a conceptual question. Being depressed is conceptualized as a sad emotional state where a person believes that she is stuck in a condition she cannot change: “*P is depressed, if, and only if, P believes that P’s lot can never be improved in the way P wants it to be, and/or P can never become the sort of*

*person P wants to be*” (Smedslund, 1997, p. 57). A resilient person is a person with the enduring character that she believes her wants or at least some of her wants will be satisfied. A person cannot at the same time believe that what she wants will be fulfilled and that it will not be fulfilled. A depressed person cannot, therefore, at the same time be considered to be resilient. The more depressed a person is, the less resilient it is. A person cannot, therefore, be highly depressed and highly resilient at the same time.

A “resilient” person, then, is a person who is more likely to have “positive” emotions when facing adversity. In the discussion of proposition (ii) about the undoing effect of “positive emotions” it was shown logically that increasing of one emotion can decrease another emotion (Smedslund, 1997). Since emotions are intentional, it is natural to feel bad when experiencing situations that are seen as difficult and negative. Feeling good momentarily will make a person feel less bad and so it is an analytically and *a priori* true, that “positive emotions” help people when facing adversity. Persons learn from experience. That is not to say that they will not repeat the same mistakes because what a person learns is based on what it is aware of, or in other words: “P’s awareness of the future consists of extrapolations from P’s awareness of trends in the past” (Smedslund, 1997, p. 16). Therefore, if a person who is facing difficulties has frequently felt good in the past and is aware of this trend, that person is more likely to believe that it will also feel good in the future and hence, is more “resilient” and less likely to become depressed in so far as depression is affected by psychological factors. The more frequently a person has felt good in the past, the stronger the belief that it will feel good again in the future. This relationship is not empirical and contingent but analytical and *a priori*.

#### **IV: Positive emotions build personal resources**

This proposition is basically a rephrasing of proposition (iii). Fredrickson has amassed experimental evidence in support of this proposition which, according to her, suggests “that positive emotions may fuel individual differences in resilience” (Fredrickson, 2004, p. 1372) and that “noting that psychological resilience is an enduring personal resource...experiences of positive emotions might also, over time; build psychological resilience, not just reflect it” (Fredrickson, 2004, p. 1372). It seems clear that by personal resources, Fredrickson (2004) means resilience.

Now, what exactly is the difference between “fueling” individual differences in resilience and “building” individual differences in resilience? Here, these verbs are used as metaphors which both stand for increasing the amount of something. The meaning of statement (iii) and (iv) is the same; positive emotions increase resilience. The translation of statement (iii) to colloquial English, therefore applies to statement (iv) as well. In short, proposition (iv) is poorly disguised rephrasing of proposition (iii).

Stating that “positive” emotions can be harvested to increase resilience ignores the intentional aspect of emotions. Fredrickson seems to be somewhat confused when it comes to the definition and categorization of emotions. For an example, in a paper from 2001, Fredrickson begins by defining emotions as “a subset of the broader class of the affective phenomena” (Fredrickson, 2001, p.218) and that “affect refers to consciously available feelings” (Fredrickson, 2001, p. 218) which means that all emotions are affections, they are felt. However, in the very same page Fredrickson says that: “emotions are distinct from affects in multiple ways” (Fredrickson, 2001, p. 218) in other words that the sub-category is distinct from the overarching category. This is like saying that humans are distinct from mammals in multiple ways, and serves as an example of the general conceptual haze in Fredrickson’s broaden-and-build theory. To

gather proof for statement (iv) Fredrickson conducted a study where college students were asked to report the emotions they had experienced in the past 24 hours. Then they were randomly assigned to report which had been worst, best or most normal events of their day. Some members of the students group were then asked to do this every day and try to see the positive meaning and benefits of their different experiences each day. This went on for one month at the end of which, the students who had made the effort to find the positive meaning and long-term benefits of their experiences scored higher on Block and Kremen's (1996) resilience scale (for a detailed account see Fredrickson, 2004).

In other words, people who had made the effort to find positive meaning in their lives measured higher on a scale that essentially evaluates positive outlook. Resilience is conceptualized by the researchers as being what the 14 item scale of Block and Kremen measures or in other words, operationally defined (Fredrickson, 2004).

Now, it should be evident to the participants who were asked to find positive meaning in their experiences for a month and then answer a resilience questionnaire, what the researchers wanted to hear. Their responses may therefore have been affected by demand effect, which the researchers overlooked. However, in this case it doesn't matter much if demand effects were present in the study. The truth value of statement (iv), just like previous statements, is knowable analytically and *a priori*.

Since people learn from experiences, a person who frequently tries to find positive meaning and finds that it makes them feel good, should under normal circumstances do the same to feel better while facing adversity since feeling good can decrease feeling bad (Smedslund, 1997).

Generally, the same reasoning as discussed in proposition (iii) applies to proposition (iv): Feeling good helps people get through adversity; being able to recover faster from difficulties by finding positive meaning or "looking on the bright side"

implies feeling good. People who frequently feel good are more likely to find positive meaning and feel better during difficulties as they are more likely to believe they will feel good again in the future.

### **V: Positive emotions fuel psychological and physical well-being**

The final key proposition of the broaden-and-build theory states that positive emotions enhance physical and psychological well-being in the long run (Fredrickson *et al.*, 2000). Fredrickson claims that “by broadening people’s mindsets and building their psychological resources, over time positive emotions should also enhance peoples’ emotional and physical well-being” (Fredrickson, 2004, p. 1373) and hence “positive emotions initiate upward spirals toward enhanced emotional well-being” (Fredrickson and Joiner, 2002, p. 173).

*Translation of statement V:* Feeling good increases your physical and psychological well-being. This is because feeling good momentarily increases the likelihood you will feel good again and the more often you feel good, the better you feel both physically and psychologically.

Now, emotions evoke other emotions and moods evoke characteristic emotions. This is logically true, a person who is e.g. in a bad mood might become angry over something that she would consider trivial were she in a good and happy mood (Hacker, 2004). So being in a good mood makes you more prone to feeling good. But is it necessarily good to feel good all the time? Is it possible to feel good all the time? The world is not always altruistic and so a person cannot feel good all of the time. Also, most people have responsibilities, towards themselves and others. A person who feels good all of the time might be careless and fail to acknowledge that she needs to deal with her responsibilities until it is almost too late. For an example, a student who feels



carefree for a whole semester and believes that everything will work out and so does not feel the urge to study. Emotions that Fredrickson categorizes as negative, such as anxiety and fear, would be necessary to get that student to roll up his sleeves and start working, is that not essentially positive? Statement (v) can therefore be shown to be incoherent, logically.

Fredrickson and Joiner (2002) assessed the “positive” and “negative” affect and “broad-minded coping” of college students. Emotions were, once again, assessed with a questionnaire. To evaluate positive and negative affect, students were asked to indicate to what extent they had experienced ten “positive” emotions and ten “negative” emotions in the previous two days. To evaluate coping responses, students were asked to indicate how they had dealt with problems in the past year. The researchers focused on cognitive responses such as “think of different ways to deal with the problems” because the cognitive analysis of a problem was seen as a symbol of “broadened thinking.” The results Fredrickson and Joiner found by the use of elaborate statistical analyses were that the more positive emotions a person experienced, the better they could cope with difficulties. The better a person could deal with difficulties predicted increases in positive emotions (for a detailed account of measurements and results see Fredrickson and Joiner, 2002).

Proposition (v) is yet another rephrased repeat of the basic message of the broaden-and-build theory that feeling good makes you feel better. Yet again, the same problems arise as in previously discussed empirical research (e.g. Fredrickson *et al.*, 2000; Fredrickson and Branigan, 2005; Fredrickson and Levinson, 1998; Tugade and Fredrickson, 2004). The research is based on concepts that are not analyzed further than what the students respond, in other words, emotions are considered to be what the

students claim to feel. Statement (v), like other key propositions of the broaden-and-build theory, consists of tautologies of commonsense.

First of all, why would a person who frequently feels good be able to cope better? A person who frequently experiences “positive emotions” is in all likelihood someone who has the personal characteristic of being able to see the positive side of things; an extreme example would be the fictional Pollyanna. One would not expect someone who frequently feels good to say that they see no positive meaning in their lives. Finding positive meaning implies that the person believes at least some of their wants will be satisfied. “I may have been fired but at least now I can spend some time with my children while I look for a new job”. Feeling good (experiencing positive emotions) is conceptualized as believing at least some wants will be fulfilled. It is therefore necessary by definition that finding positive meaning involves feeling good. Thus, if a person frequently feels good and is aware of this trend, she should find more positive meaning than others, even when faced with difficulties “I felt good in the past and so I will probably feel good again in the future”. This is what being resilient implies – being able to find positive meaning and believing that the situation will get better, that is, being optimistic. Therefore, frequently feeling good may reflect a “resilient” character trait but in essence, what ever the reason, if a person is aware that she frequently felt good in the past she is more likely to recover from difficulties because she is more likely to believe they will feel good again and being able to find positive meaning. Since increasing one emotion decreases another emotion (Smedslund, 1997) finding positive meaning means feeling good which in return means feeling less bad (For more detailed analysis of commonsense concepts, see Smedslund, 1997). This can be shown logically and the statement is therefore knowable *a priori*.

The statement that emotional well-being and physical well-being are somehow related is not new. “A healthy mind in a healthy body”, is a dualistic expression most people are familiar with. However, claiming that “positive” emotions cause physical health seems overly simplified. Emotions are directed at something (see, e.g., Kristjánsson, K., 1994; 2003, Kristjánsson, M., 1993; Solomon and Stone, 2002), you might feel good during or after physical exercise because you want to be slim and you believe physical exercise makes you slimmer. Why you want to be slimmer in the first place could then again be due to shame, that you feel ashamed of your appearance or a “negative” emotion. Fredrickson speculates that people who feel good emotionally live longer. This doesn’t seem unlikely seeing as people who feel good are more likely to want to live longer and hence take better care of themselves. There is most likely a reciprocal relationship between physical and emotional health. Analyzing this relationship further is though, not a part of this thesis. I shall, however, argue that it is incoherent to state that “positive” emotions can cause people to live longer because Fredrickson’s categorization of emotions as positive or negative is arbitrary at best. It is not even clear that some of the emotions, Fredrickson takes as examples, are emotions. She categorizes love, for an example, as a positive emotion (see e.g. Fredrickson, 1998) but is love an emotion or a state of mind? Also, the alleged anxiety which was thought to be evoked with the speech task, fits the profile of agitations rather than emotions (for a more detailed account, see e.g., Hacker, 2004). The statement that positive emotions enhance physical well-being can be shown to be fallacious through logical reasoning and is therefore not knowable empirically but *a priori*, much like the statement that positive emotions enhance positive-well being.

It is my conclusion that the propositions or statements of the broaden-and-build theory are, in so far as they are logically testable, *a priori* tautologies of commonsense

psychology. The vast experiential evidence, Fredrickson has amassed in support of these statements carries therefore no bearing on the truth value of the theory.

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