Introduction

Might it be possible to move discussion of the nature of happiness back into the center of ethics, a position it enjoyed for many centuries but which it lost over the last century or so? There are brightening signs already, coming both from within philosophy and without, as happiness is winning its way back into prominence in survey, research, and clinical psychology, and more substantive notions of “utility” are beginning to figure in empirical economics, including “neuro-economics”.

Definitional issues beset the field of inquiry into the nature of happiness, in part for excellent reasons—we have learned to make a great variety of important distinctions, and no one can at present claim that any particular formulation of the notion of happiness constitutes the best way of accommodating the different dimensions at stake. Partly the problem is the absence of suitable constraints—What is a theory of happiness needed for? Is it meant to be descriptive or normative? If descriptive, what, if anything, should it explain? If normative, what, if anything, should be its role in valuation or the guidance of action?
Fortunately, there has been a growing trend to recognize the multiple dimensions of happiness, and to present the results of empirical or philosophical inquiry in suitably limited and qualified ways. I’m going to take advantage of a distinction that has been central to survey research on happiness to give myself a target for explanation—the two most common dimensions of “subjective well-being” as measured by survey instruments, affective (or hedonic) experience and overall life satisfaction. And I’m going to try giving myself a constraint that might help in the development of explanation: a satisfactory empirical account of happiness should help us understand what happiness might be for, that is, why beings such as humans might be capable of experiencing these two components of subjective well-being.

Of course, speculative functional analysis isn’t much of a constraint—people seem able to convince themselves of all manner of evolutionary stories. But it is a constraint nonetheless, since a good deal is known about the mechanisms of selection and what kinds of results or patterns of explanation one might expect from them. For example, mental activity is known to impose a metabolic burden of no small size—the human brain in its resting or “default” state consumes some 11% of all blood flow and 20% of all the energy we use up in a day. Interestingly, the change in energy demand for specific, active mental tasks is often less than 5% of this (Clark & Sokoloff, 1999; Raichle, 2010). This suggests that maintenance of continuing brain functions, of which maintaining continuous conscious experience is one example, is a very significant metabolic cost. What advantage might the organism or its kith or kin get in return? Moreover, we know something about the kinds of problems humans must solve in order to thrive, and about the abilities they display in problem-solving in comparison
with other primates who were eliminated, or who now stand on the threshold of elimination, as *Homo sapiens* overrun the planet. Finally, we understand how selection can occur for *proximate, path-dependent* mechanisms that promote the realization of *distal, generalizable* goals—there are many ways to achieve certain outcomes, and selection works from what already exists, and behaviors need not *aim at* reproductive advantage in order to contribute to it. Subjective well-being as we know it probably results in large measure from *redployment* in a mind capable of consciousness of aspects of the animal psyche selected for purposes other than making life happy.

**Some evidence**

Subjective well-being is usually assessed by posing to individuals two questions, e.g.:

1. Taking all things together, how would you say things are for you these days—would you say that you are very happy, pretty happy, somewhat happy, slightly happy, or not at all happy?
2. How satisfied are you with your life as a whole these days—are you very satisfied, pretty satisfied, somewhat satisfied, slightly satisfied, or not at all satisfied?

Questions like (1) are questions of *current, perceived, reported, overall affective tone*, and questions like (2) are questions of *current, perceived, reported, global life satisfaction*. And while we'll usually abbreviate them to *affective tone* and *life satisfaction*, it's important to keep the modifiers in mind, as we'll see. Let's follow the usual practice of calling *current subjective well-being* the result of averaging the answers to questions like (1) and (2).
There is, as you can imagine, a very large literature on appropriate ways to frame such questions, to solicit answers, to translate them into other languages, to compare answers across time and cultures, and so on. There is also a very large literature on what other features of individuals and societies correlate with the answers given to these questions, and on how, within an individual life, they vary over time or in conjunction with life events or living conditions. To avoid controversy at this point as much as possible, I will not be working on the fringe of this research, but considering some of its best-studied, most-replicated results. Even so, caution is needed whenever one is tempted to elide the results of such survey research into claims about subjective well-being or happiness as we intuitively understand these notions.¹

Indeed, the results of this survey research are often described as counter-intuitive, and perhaps everyone has been exposed to some of the most surprising findings. Let me, however, rehearse some of the main results most relevant to our present concerns, as well as some of their seemingly puzzling features.

*Levels of subjective well-being.* Here is a fairly typical random sample of reported subjective well-being in the US on a seven-point scale:

(Fig. 1) Distribution of responses, typical sample: US

(Fig. 1) suggests that average individual subjective well-being in a relatively prosperous country like the US is rather high, and not because there is an exceptionally high level of happiness for those at the top counterbalancing a rather low level for the many. The great bulk of the population is situated in the top three categories, fairly symmetrically distributed around a modal value situated at about the 70th percentile—a markedly different profile from the distribution of household income, below:

(Fig. 2) US Income Hierarchy: 2009

(copyright (c) 2009 World News, Inc.)
Looking at (Fig. 1) one might think that the utilitarian goal of “greatest happiness for the greatest number” is reasonably well-achieved in a relatively prosperous society like the contemporary US—a grade of B+, so to speak. Looking at relative population sizes of the income divisions in (Fig. 2), it is clear that, even if everyone in a household with an income over $180,000 were at the top of the scale in (Fig. 1), the great majority of that top category would still be composed of those with from households with incomes below $180,000. The question naturally arises whether moving more of the population to an absolute level of income akin to the top 5%, say, would yield a dramatic improvement in subjective well-being—a dramatic shift to the left in (Fig. 1).

*Changes in national material standard of living vs. subjective well-being*. To answer that question, we need to look at historic shifts in absolute income. The average individual believes that he or she would be significantly happier if he or she had an income 15% higher in absolute terms. However, between 1946 and 1991, the material standard of living in the US (as measured by average GDP per capita) increased by well over 200% in real terms, more than doubling since World War II. Yet average subjective well-being, measured in various different ways, did not increase. If anything, it fell slightly:
(Fig. 3) Real GDP per capita vs. subjective well-being: US, 1946-1991

This trend—rising average absolute income and stable average subjective well-being—has held at least up until 2008. One might be tempted to put this down to the peculiar political and cultural trajectory of the US, except that the same phenomenon has occurred in Western Europe, where the real material standard of living has more than tripled since 1970, and Japan, where it has increased yet more steeply. Here is one European survey’s results:

Figure 4.1. Happiness and income per capita in the United States, 1946-91. Data from World Database of Happiness, Bureau of Economic Analysis of the U.S. Department of Commerce and U.S. Bureau of the Census.
(Fig. 4a) Percent “Very Satisfied” with life as a whole: Europe, 1973-1998

Figure 7.1

If we confine our attention to the UK, Germany, France, and Italy, and look at average levels of satisfaction, the lack of change despite very significant rises in real GDP per capita is yet more obvious:
It would appear that the creation of a staggering amount of material wealth within the relatively developed countries has not had the effect of substantially changing subjective well-being even on a year-by-year basis. (Throughout, I will follow the standard usage in the social science literature of speaking of “statistical effects”, such as regression coefficients, as “effects” tout court. This is potentially misleading, since “effect” is also a causal term, and it is often very difficult to establish causal effects.)

*Figures in national income vs. subjective well-being.* Another way to ask the question how increasing absolute income levels affect subjective well-being is to look comparative, across nations. Looking at a wide swath of nations for the period 1980-
1995, one sees an overall upward trend in average subjective well-being with rising “estimated purchasing power”:

(Fig. 5) Subjective well-being across countries: 1981-1995

Yet many countries with half or even one third the average per capita purchasing power of the richest countries nonetheless enjoy equal or higher average subjective well-being. Moreover, in the top third of income, there is no interesting upward trend with increasing income. It appears that, after a level of reasonable sufficiency of average income is reached, other factors make a larger difference in average subjective well-being.
Levels of income vs. subjective well-being within a country. We have been looking at national average figures for the most part—would things be different if we looked at subjective well-being in relation to income distribution within a country? Here are two curves for the US:

(Fig. 6) Subjective well-being vs. income: US 1971-75 (Diener et al., 1993)
Both (Fig. 6) and (Fig. 7) show curves consistent with the hypothesis of a diminishing marginal utility of income, at least insofar as subjective well-being is a reasonable proxy for utility. The curves for more egalitarian countries are yet flatter:

(Fig. 8) Subjective well-being vs. income: Switzerland (ten-point scale) (Leu, Burri, and Priester, 1997)

- Highest income 1/5th 8.45
- Next highest 8.49
- Middle 8.24
- Next lowest 8.17
- Lowest 7.98
In such countries, the contribution of increased income to subjective well-being shows little gain once one is comfortably above average.

Recently this picture, which had achieved fairly wide acceptance, has been challenged by economists, who point out that decreasing marginal utility as a function of raw absolute income is compatible with increasing total utility as a function of \( \log(\text{absolute income}) \), and argue that a recent global Gallup poll bears this relationship out. However, the Gallup poll is a “ladder” poll, in which individuals place themselves on a ladder, and answers on such polls tend to be more closely bound to measures of a person’s social standing (such as income). Consistent with this, further analysis of the Gallup data suggests that it is the overall life satisfaction component of subjective well-being, not the affective component, that accounts for net increases in the upper end of the income distribution (Kahneman and Deaton, 2010; Diener, et al. 2010).

Related evidence comes from another route, looking at a dimension of self-assessment yet more closely connected with social standing than “life satisfaction”, “financial satisfaction”: 

(Fig. 9) Expressed happiness and life satisfaction vs. income: Australia 2006
Unsurprisingly, the more heavily the measured proxy for subjective well-being draws attention to relative financial standing, the more robust the relationship with income.

Affect is another matter:
Increased average income or purchasing power can very significantly reduce average negative affect and increase average positive affect as income rises from a very low level, but once a level of reasonable sufficiency is attained, the power of income to reduce the sources of negative affect in life, or provide a source of positive affect, is much attenuated. If one reflects on the actual sources of positive and negative affect over the course of a day or a week, it is not hard to believe that those with higher incomes simply experience higher-income versions of essentially the same sources of pleasure and annoyance as those with sufficient income. Norbert Schwartz has suggested that high income often comes with very high time commitments to work-related activities, and this tends to offset any gains in reducing other kinds of stress through greater financial resources (Schwartz, personal communication; see also Quoidbach, et al. 2010).
Similar evidence can be found by separating out affective vs. life satisfaction dimensions in the Gallup data:

(Fig. 12) Positive affect, negative affect, stress, and life evaluation vs. log(income): US 2008-2009 (Kahneman & Deaton, 2010)

(Fig. 12) indicates that log(income) does indeed yield continuing increases in overall life satisfaction (though it is worth noting that the scale extends only as far as $160,000 in annual earnings, and that this curve, too, is becomes convex as income increases, suggesting that life satisfaction, too, shows diminishing marginal returns both to income and to log(income)). Positive and negative affect, however, and freedom from stress, both show clearly diminishing returns even to log(income), weakening markedly above
$40,000, and essentially flattening above approximately $75,000. Thus, while it is true that the Gallup ladder poll supports the idea that at least one component of subjective well-being, overall life satisfaction, may continue to rise as real income rises, the effect is logarithmic, so that an exponential increase in income is needed to sustain the effect—very high incomes must be doubled to achieve a noticeable effect. Unless other factors made no contribution to subjective well-being, this would be an incredibly expensive and resource-intensive way to raise the average level of subjective well-being in a prosperous country. What might such other factors be?

Demographics and subjective well-being. Everyone complains about the weather, Twain quipped, but no one does anything about it. Many, however, take do take weather matters into their own hands and do something about it—they move. However, there appears to be no overall correlation between what is typically called “good” weather and the average subjective well-being of the population. As (fig. 5) shows, Iceland and Finland have higher average levels than equally, or more, prosperous countries with better climes, such as France or Germany. Within the US, Californians have essentially the same level of average subjective well-being as those in the upper Mid-West, even though each group agrees that California has superior weather, and each group believes that, thanks to this, Californians are happier (Schkade & Kahneman, 1998).

A similar illusion seems to affect a large number of demographic variables. Although youth is believed to be the bloom of life, and although middle-age is indeed stressful, those of advanced age, e.g., 65 years old and above, have average levels of subjective well-being comparable to teens and 20-somethings.
(Fig. 13) Age and subjective well-being: sixteen nations, 1990.

This does not mean that those over 65 are satisfied with their health—satisfaction with health declines steadily over a lifetime. But it does mean that health is not as powerful a determinant of subjective well-being as we are inclined to believe. This, however, may depend heavily upon the existence of suitable healthcare and housing for older individuals—a feature typical of the “advanced industrial societies” in (fig. 13), but not present in Eastern Europe and Russia after the collapse of the social support systems of former Soviet Bloc governments. In these countries, life satisfaction declines as rapidly and directly as satisfaction with health.
Indeed, the most dramatic shift ever observed in average subjective well-being took place in Russia in the immediate aftermath of the fall of the Soviet Union:
(Fig. 15) Change in average subjective well-being: Russia, 1981-1995

So we know that average subjective well-being is not simply an insensitive indicator: it can shift dramatically, as, for example, when a country at the bottom of the income curve moves upward in real GDP per capita, or when a country with considerable social support suddenly loses it.

Individuals can suffer comparably significant declines in subjective well-being if they experience certain kinds of loss. Here is a comparison of the effect of unemployment, death of spouse, divorce, or separation with other demographic variables:
Demography and subjective well-being: Switzerland
(Leu, Burri, and Priester, 1997)

- Higher education 8.41
- Married 8.36
- Widowed 8.35 (with partner)
- Self-employed 8.31
- Swiss 8.30
- Retired 8.23
- Employed 8.21
- Male 8.22
- Female 8.22
- Single 8.17 (with partner)
- Widowed 8.16 (without partner)
- Student 8.16
- Single 8.01 (without partner)
- Low education 7.97
- Divorced 7.90 (with partner)
- Foreigner 7.62
- Active bad health 7.48
- Divorced 7.43 (without partner)
- Separated 6.62 (without partner)
- Unemployed 6.56
- Separated 6.33 (with partner)

(Fig. 16) makes it clear that certain states of loss have much more serious effects on subjective well-being than others. To be widowed or divorced with a partner, for example, has significantly less negative effect than being widowed or divorced without a partner. Separation has a considerably graver effect, and the presence of a partner does not improve things. Unemployment also has a very grave effect, one that, apparently, continues to be felt after one has found a new position (Layard, 2005). In various studies, it is not the “discouraged” unemployed, those not actively seeking work, but rather those who are seeking work that manifest the lowest average subjective well-being (Elliott & Dockery, n.d.).
One pattern that emerges from (fig. 16) is that being in a marginal situation relative to social norms is costly in terms of subjective well-being. Thus, being a foreigner, or with low education, or unemployed, in a society like contemporary Switzerland takes a continuing toll. (Frey & Stutzer, 2002, consider data from a number of highly developed countries and find that the low subjective well-being of unemployed workers is generally characterized by exclusion, depression, anxiety and social stigma.) Loss of a spouse contrasts with this. Recent death of a spouse can extract a heavy cost to subjective well-being, but being widowed, whether with or without a new partner, appears to be a condition to which one adjusts and that only slightly affects subjective well-being. One might hypothesize that being a widow or widower does not violate a normative social expectation—this is just how life moves on. Being a foreigner, or low education, or unemployed, however, is an “unresolved” condition that affects one’s daily experience. Separation and active bad health (as opposed to an “age appropriate” level of health) are likewise unresolved states affecting daily life. Interestingly, being a parent and being a care-giver for someone experiencing active bad health or serious infirmity are experienced as nearly equally stressful, yet being a care-giver has a continuing negative effect on subjective well-being, while parenting does not. One might speculate that this, too, tells us something about how different roles are valorized in normative social understanding.
(Fig. 17) Life evaluation, positive and negative affect, and stress: ratio of regression coefficient to $\log$ (income) regression coefficient, US 2008-2009
(Kahneman & Deaton, 2010)

<table>
<thead>
<tr>
<th></th>
<th>Positive affect</th>
<th>Blue affect</th>
<th>Stress</th>
<th>Ladder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children</td>
<td>0.08</td>
<td>-0.37</td>
<td>-2.47</td>
<td>-0.11</td>
</tr>
<tr>
<td>Care-giver</td>
<td>-0.49</td>
<td>-1.02</td>
<td>-2.99</td>
<td>-0.25</td>
</tr>
<tr>
<td>Health cond.</td>
<td>-1.36</td>
<td>-1.22</td>
<td>-3.15</td>
<td>-0.48</td>
</tr>
<tr>
<td>Headache</td>
<td>-4.45</td>
<td>-3.41</td>
<td>-9.82</td>
<td>-0.78</td>
</tr>
<tr>
<td>Alone</td>
<td>-7.13</td>
<td>-2.10</td>
<td>-3.73</td>
<td>-0.75</td>
</tr>
</tbody>
</table>

‘Care giver’ = daily care for elderly or disabled family member; ‘Health condition’ = chronic condition such as heart or circulatory disease, asthma, or cancer; ‘Headache’ = currently suffering headache; ‘Alone’ = no social contact of any kind, including telephone or e-mail, during last 24 hours. A value greater than positive or negative one means this factor has a greater effect on the relevant category (positive or negative affect, stress, life satisfaction) than being in the portion of the population earning more than $48,000 annually.

The ratios in (Fig. 17) also make it clear how much recent experience influences the affective dimension of subjective well-being, in contrast to a more moderate effect on the life satisfaction (“ladder”) dimension. Having a headache, or being isolated over a recent period, have much stronger negative effects than having a chronic health problem or being a care-giver. Indeed, even though certain factors of temperament, such as extraversion vs. introversion, notably influence overall subjective well-being, local effects such as day of week can alter the affective dimension at least as much:
(Fig. 18) Extraversion, introversion, and mood vs. days of the week: US college students, 1990

Extraversion and well-being. When Purdue University students completed daily mood ratings for Randy Larsen and Margaret Kasimatis, moods brightened with the coming of a weekend. But no matter what the day, extraverted students rated their day’s experience as happier and more pleasant and joy-filled.


(Fig. 18) suggests not only that day of the week matters to mood, but that anticipation of the day to come may have an effect on mood. As everyone ever associated with formal schooling knows, Sunday, while it is a week-end day, lies always in the shadow of Monday.

Relative income and subjective well-being. The seeming importance of relational factors in subjective well-being suggests that perhaps looking at absolute levels of income is too narrow a focus. (Fig. 10) suggests that young adults in the top income tenth in a relatively poor country experience a level of life satisfaction comparable to those in the top tenth in top tenth in more prosperous countries, even though the absolute income level required to be in the top tenth in a poor country is much lower. Interestingly, those in the top income groups in poorer countries, despite lower absolute income,
express notably *higher* satisfaction with their financial condition than those in comparable groups in relatively wealthy countries, perhaps because widespread poverty of the great bulk of the populace makes their greater income more salient in daily life than high income in a country where the bulk of the populace has a reasonably sufficient income. This might suggest that subjective well-being has a strong “positional” component—one’s standing relative to others, or to some salient social reference group, makes a more potent contribution to subjective well-being than the absolute level of material wealth itself. Perhaps what matters to most people, especially once they have achieved a level of reasonable sufficiency, is their comparative standing?

This would help explain why national average subjective well-being does not appear to change over time in relatively prosperous countries: positional goods are zero-sum—for one person to be moved ahead of others, those others must be moved behind, even if everyone’s real income is increasing. Thus, once a reasonable level of sufficiency is attained by the bulk of the population, an overall upward drift in real income would not in itself result in more net subjective well-being.

There is lots of evidence from the social comparison literature that people are powerfully oriented toward evaluating themselves in comparison with others—within the family, neighborhood, workplace, or society as a whole. Most of us apparently carry around in our heads numerous implicit reference classes of individuals or groups to whom we compare ourselves regularly but mostly tacitly. Although classic social-comparison literature (Festinger, 1954) suggested that individuals would seek to preserve self-esteem by choosing a comparison class that favored them, more recent work suggests that individuals often identify as “peers” those somewhat above them in
socio-economic or professional status, ability, or accomplishment, indirectly “inheriting” this higher status (Collins, 1996) while at the same time creating an incentive to make gains in the direction of one’s “peers”.

This means that, even within an individual life, gains in relative well-being will tend to have transient rather than lasting effects on subjective well-being—moving into a higher income level at first moves one ahead relative to one’s peers, but over time one will tend to readjust one’s notion of “peers” upwards as well. I might be thrilled to be recruited to a top department with a large raise, but within a year or so my comparison will no longer be my former position or salary, but the position and salary of those I see at work every day—indeed, according to the literature, I will tend to so see as my “peers” those among this group who are somewhat ahead of me in status or salary. So, relatively, I once again feel a need for advancement. The saying is “Keep up with the Jones”, where the “Jones” are your neighbors in the new, more prosperous neighborhood to which your promotion has enabled you to move, not “Keep ahead of the Smiths”, where the Smiths are those one is leaving behind. Thus, after a fairly short period of readjustment to one’s new status, another gain in position or salary will be required to achieve the subjective benefit of perceived “successfulness”—greater happiness will seem always to lie in a life just ahead of where one now is.

Hence a persistent illusion that earning 15% more would make me happier—an answer people often give when asked what would make them happier—even though, should I attain that level of income, this increase in subjective well-being will be transient. This effect is sometimes dubbed the “hedonic treadmill”, though we will have cause to raise some questions about this notion below. One might expect that
individuals who have reached a point where income is hyper-abundant would experience some release from this effect. Those entering the top .01 % of income earners, say, CEOs at Fortune 500 companies, would earn enough to escape this logic, but apparently one of the notable outcomes of the Sarbanes-Oxley Act—the Public Company Accounting Reform and Investor Protection Act of 2002, which was intended in part to permit greater control over CEO income by making total CEO compensation known to stock-holders—was to cause an “arm’s race” among CEOs once they could learn each other’s total compensation. Like the rest of us, successful CEOs presumably saw that those they deemed their peers were receiving (what else?) a somewhat higher compensation and so demanded like treatment from their Board of Directors on threat taking their success elsewhere. This “relative deprivation” would be an example of “high-income negative affect” that is not affected by absolute level of income. As a result, CEO compensation has gone from roughly 20 times entry-level salaries to over 200 times entry-level. If $\log(\text{absolute income})$ really could buy happiness indefinitely, we would expect these individuals to be very much happier than their predecessors a decade or two ago—not anxiously concerned not to fall behind in the compensation arm’s race.

At both the individual and aggregate level, then, changes in the relative income seem unlikely to result in enduring gains in subjective well-being, at least for individuals above a level of sufficiency or ample sufficiency in income. “Winners” mean there are also “losers”, and even “winners” tend to move the goal posts once they reach them.
Dramatic life events and subjective well-being. It is one thing to think that the effects on subjective well-being of 15% changes in one’s income or standing is transient, but what of very dramatic life events—winning a lottery or suffering permanent disability in an accident?

One of the earliest empirical studies of subjective well-being addressed just this question. The late Philip Brickman and colleagues looked at a group of 22 major lottery winners and 29 paraplegic and quadriplegic accident victims, comparing them with a group of controls. Here is how the groups compared when interviewed at some point during the period 1-18 months after the dramatic event:

(Fig. 19) Dramatic life events, general happiness, and mundane pleasures, US (five-point scale) (Brickman et al., 1978)

- **General happiness**
  - Control group: 3.82
  - Lottery winners: 4.00
  - Accident victims: 2.96

- **Mundane pleasures**
  - Control group: 3.82
  - Lottery winners: 3.33
  - Accident victims: 3.48

Brickman, et al. concluded that two main effects were at work. Even as soon as a year after so dramatic a life event, individuals had habituated to their new condition to a considerable extent. Extreme elation or dejection had passed, and so that there was a regression toward the mean (as evidenced by the control group). Not all effect on level of subjective well-being was gone, or all effect on the perception of contrast—so that, for both lottery winners and accident victims, everyday pleasures seemed smaller in magnitude.
Habituation and contrast can be thought of as basic processes of recalibration, in contrast to a more developed process like social comparison. They are, for example, key features of our perceptual system. One can habituate to the ticking of a clock, so that one ceases to hear it, without need to make any comparison to other auditory environments. This makes sense, since otherwise recurring stimuli that carry no new information would remain salient, placing continuing demands upon attention and cognition at the expense of competing perceptual stimuli that might be more informative. And when a very loud background noise is encountered, as when one enters a generating plant or rock bar, one may at first barely be able to discern even shouted words—the contrast between ‘time’ and ‘dine’ might be lost, for example. This makes sense since the brain must reduce auditory responsiveness to keep the background noise from being entirely overwhelming. At the same time, the habituation process will begin to gradually screen off more of the background noise, so that more subtle aural contrasts will reappear.

Affect or emotion seems to work in similar ways. A portion of the “limbic system”, the nucleus accumbens, helps “retune” affective responses to the environment, as a larger vs. smaller portion of it is devoted to aversive vs. appetitive responses depending upon the relative levels of risk or reward in the environment (Reynolds & Berridge, 2008). Dopamine neurons in the midbrain fire in a distinctive burst when an unexpected reward arrives, the size of the burst reflecting the magnitude of the reward. But if this reward becomes predictable on the basis of some cue, then the neuron firing “shifts” from the arrival of the reward to the occurrence of the cue. Does this mean that the animal has become “indifferent” to the arrival of the reward? No. Should the
predicted reward fail to arrive, the dopamine neurons abruptly cease even “baseline”
triging, sending an “error signal” to connected areas of the brain. And should the
predicted reward arrive and be larger than expected, the dopamine neurons will fire a
new burst to record this fact. At least, until the larger reward becomes itself
predictable (Schultz, et al., 1997).

Features such as habituation and contrast effects are characteristic of the
perceptual system since that system is “designed” to convey information about the
environment efficiently. The same holds true for habituation and contrast effects in the
affective system. This system appears to be “designed” to receive perceptual
information and produce a coordinated organismic response—for example, approach or
avoidance, say, or fear or assurance, or surprise or “business as usual”. The affective
system is uniquely placed, early in the perceptual stream and massively connected with
other regions of the brain, to effect rapidly and in an orchestrated way a suite of
responses relevant to the incoming information. Fear, for example, responds quickly to
perceptual cues of risk or threat by heightening alertness, focusing attention, and
stimulating risk-relevant cognition, physiological arousal, memory, motivation, and
action-readiness. The evolutionary psychologist Randolph Nesse and emotions theorist
Phoebe Ellsworth write:

Emotions are modes of functioning, shaped by natural selection, that coordinate
physiological, cognitive, motivational, behavioral, and subjective responses in
patterns that increase the ability to meet the adaptive challenges of situations that
have recurred over evolutionary time. [Nesse & Ellsworth, 2009]
Moreover, increasingly, it has become clear that affect is *continuously* operative, not just in arousal states such as fear or surprise (Izard, 2007). For example, a default level of trust and interest function to sustain an individual’s active engagement with the world and other people, and the effortless formation of new beliefs based upon the content of experience. The insula appears to carry out a continual, real-time synthesis of information from primary interoceptive and homeostatic body systems, environmental conditions, and social, goal-seeking, normative, and affective systems, which functions as a sensitive indicator how well or ill the individual is doing overall (Craig, 2009). This evaluative information is in turn used to guide aspects of cognition, motivation, and action.

Affect, then, should be seen as a continuous process that effects systemic adjustments in individual attention, thought, feeling, motivation, and behavior in light of information about the state of the environment, the organism, its social situation, and its prospects. Affect continuously uses information to attune and re-attune our responses to the world.

Happiness is a form of affect.

**Subjective well-being as information and guidance**

One conclusion that has widely been drawn from data like those discussed above is that individuals appear to have characteristic “set points” for subjective well-being—a “default”, “ground state”, or “psychic equilibrium” to which they tend to return if perturbed upward or downward, at least under normal conditions. These set points
differ from individual to individual, but typically are relatively stable over a lifetime.

There appears to be a considerable genetic contribution, at least in the normal range of conditions. Monozygotic twins reared apart, for example, show a substantially higher correlation in their average reported subjective well-being than do fraternal twins reared together or same-sex siblings (Tellegen, et al., 1988).

We now can see a reason why subjective well-being would have this dynamic. If one thinks of affect in terms of information and regulation, then individuals must recalibrate to relatively stable changes in order to be responsive to new changes. Hearing, as we saw, habituates to a level of unvarying background noise, filtering its effect out insofar as possible in order to retain sensitivity to possible changes in sound that might carry new information relevant to how to think and act—like the rapid modulation of a friend’s voice as she explains to you what is happening in her life at a noisy bar, or of chief petty officer’s voice as you toil in the engine room of a ship. The nucleus accumbens recalibrates to a level of environmental risk, in order to retain sensitivity the changes in risk or relative degrees of risk so important if the individual is to effect what changes it can to avoid harm—a colleague much of whose childhood was spent in a war zone explained to me that she still had to get to school, run errands, and play with friends, so knowing from the sound of the firing or the movement of other pedestrians which streets were most dangerous was an essential tool for daily life. Breaking up with a best friend or making a new friend still had to matter, even though she might learn the same day that an uncle had been killed in the cross-fire.

So if subjective well-being is to be suitably responsive to new and potentially relevant information, it, too, must tend to recalibrate to the individual’s current
situation and range of possible actions and outcomes. But what sort of information might this be? Fear informs about risk, anger about social harm, surprise about unexpectedness. Subjective well-being, I speculate, tells one about how well one’s life is going, where this is centered upon the individual herself, but incorporates as well those goals, relationships, individuals, or ideals that matter to her, implicitly or explicitly.

There are many dimensions to how well our lives are going, but two are especially salient. (1) How well, from moment to moment, we are doing in meeting our current needs, achieving our near-term ends, connecting with those around us, solving a pressing problem, or getting ahead in an on-going competition—to this corresponds, predominantly, the affective dimension of subjective well-being. (2) How well, from a more global perspective, we are doing in achieving such life goals as material security, creating and providing for a family, achieving the respect or love or companionship of others, making meaningful contributions or accomplishments, realizing long-term ambitions such as the acquisition of wealth, power, or renown, and so on—to this corresponds, predominantly, the overall life satisfaction dimension of subjective well-being. The first has to be a fast-responding, sensitive indicator that helps us steer our efforts toward success and away from failure or frustration; the second has to be a running idea of how well we are succeeding in a more global sense, regardless of local variations.

Both are needed for effective responsiveness to the world and regulation of my response. If I reflect constantly upon the global, I will be complacent about the local—having made it to a comfortable material level, I will fail to attend to the day-to-day matters I must continue to try to get right if I am to retain my job, my friends, my
marriage, my physical and mental health, my children’s well-being or chance of success, my reputation, and so on. If I become totally absorbed in the local, I will see each disappointment as a disaster, each gain as a victory, lose touch with the bigger picture and become penny wise and pound foolish, and lose perspective on the magnitude of my gains and losses in relation to others’, or to those I have undergone in the past.

Affective well-being

We discussed briefly above some of the neural mechanisms involved in reinforcement learning (Schultz, et al., 1997). New information about a reward is registered positively in the firing of dopamine neurons, and this “signal” evolves over time to track the “best predictor” of this reward (which, in the absence of cues, will be the arrival of the reward itself). The animal then is willing to work to produce this best predictor, and experiences a disruptive, unwelcome “error signal” if the reward fails to arrive as predicted. Further withdrawal of the reward will “extinguish” the reward-predicting response and render the animal indifferent to the cue. This is learning and unlearning, mediated by the affective system. Aristotle wrote at the opening of the *Nichomachean Ethics*:

> Pleasure and pain are … the standards by which—to a greater or lesser extent—we regulate our actions. Since to feel pleasure or pain rightly or wrongly has no little effect upon conduct, it follows that our whole inquiry must be concerned with these sensations. [NE 1105a3-5]
Generalizing a bit, positive affect is known to induce an “approach” and “acceptance” response—liking a certain person, food, or idea tends to motivate us to approach or pursue it, and sets us up for some measure of pleasure if we seem to be making progress toward this end, or frustration if we do not. If in the end we do succeed, liking also sets us up for disappointment if we find that the person, food, or idea prospectively liked fails to live up to expectations, or pleasant surprise if things turn out better than hoped for. And disappointment or pleasant surprise in turn tend to alter how well-liked the person, food, or idea now is.

This is a learning system with a form familiar to philosophers, since it is roughly Bayesian in its operation. A “prior” shapes forward expectation, new experience then either fits or violates this prior, and the size and direction of this discrepancy then shapes the new “prior” with which we move on to subsequent thought and action. Such learning systems have a number of advantages, chief among them: (1) over time, with greater and wider experience, the initial priors—and thus biases or limitations inherent in them—exert less and less influence on forward expectation subsequent learning from experience; (2) over time, with greater and wider experience, the forward expectations will come to approximate more closely the actual values found in the world around—the frequencies of outcomes, the linkages between acts and outcomes, and the degree of reward or punishment of the actual outcomes.

Our moment-to-moment positive or negative affect is, on this picture, a sensitive learning system that helps the individual to adapt his expectations and behaviors to the risks and rewards of the world him—physical and social. Intriguingly, the recent decade has seen an impressive growth of evidence that, at the neurological level, our perceptual
and affective systems function in this approximately Bayesian way, generating evaluative representations or “forward models” of possible acts and outcomes, coded for risk and reward, that function centrally in the guidance of behavior (Quartz, 2009, Tobler, et al., 2006, Grabenhorst & Rolls, 2011). Moreover, the core neurological substrates for this affective responsiveness and regulation lie in regions of the brain heavily conserved from our mammalian ancestors. Millions of generations of foraging for food, safety, and social ties in an uncertain world has created an impressive capacity for “attunement” to the environment and its prospects and perils through affect. Where humans and perhaps other primates are distinctive is in the development of a capacity for conscious experience of the positive and negative states of the affective system (Craig, 2009), and for the elaborateness and scope of the social, physical, and temporal evaluative “maps” our highly developed representational capacity makes possible (Quartz, 2009).

An analogy might help make this conception of the affective component of well being more vivid. On a racing sailboat there are many meters—for course sailed, apparent wind angle, wind velocity, speed through the water, etc. But one meter is of special interest to the person at the helm or those crewmembers who are trimming the sails. Not the speedometer, as one might expect, but the “delta meter”. When the boat is traveling at a constant speed, fast or slow, the meter reads zero. A sensitive meter, its needle will swing from zero into the positive zone if the boat picks up even a small amount of speed, and the greater the increase, the more positive the reading. If, on the other hand, the boat slows down to a large or small degree, the needle swings correspondingly far into the negative zone.
The helmsman and sail trimmers can constantly monitor this meter, experimenting with minor adjustments to the helm or the sails. A sail trimmer, say, eases the jib-sheet very slightly. If the delta meter swings negative, she'll haul it back in. But if it swings positive, she'll keep this sheet eased, watching the meter to see if it settles back to zero or stays positive. If it settles back, she might try easing a bit more and watching the effect. If it swings negative, she'll haul back the amount eased. If it swings positive, she keeps the sheet right where it is until the needle starts to settle back. Then she might try easing it a bit more. And so on. Or, noticing a shift in the wind, she'll need to retrim and start over. Or she might stop moving the sheet and let the helmsman experiment with slight alterations in course. Or she might notice the needle swinging negative, but then look up and see that wind-speed has dropped. Rather than attribute the decline to sail-trim and quickly haul or ease, she'll make any adjustments carefully, noticing whether they deflect the needle a bit more in a negative or positive direction. Or she might notice competitors catching up, study their sail trim, and trim accordingly. But not without checking the meter. It's no good adjusting one's sails to look like the other boats if that in fact slows your boat down. Each boat is different, each sails in slightly different air. And races aren't usually won by imitating the competitors, but by getting the drop on them.

Note that this regulatory system is “local” in the sense that it is not wed to any particular overall speed or course-made-good. The zero point of the delta meter does not correspond to a certain velocity, and its movement corresponds to the change in speed, the first derivative of velocity. From the standpoint of the sail trimmer, working on the margin, absolute speed loses significance, so long as she is doing what secures
every possible gain in speed at that moment, and what avoids every possible way of
slowing the boat down. She will do her job perfectly if she does that. In effect, we can
see her as learning at each moment what speed to seek, adjusting this to constantly-
changing circumstances. She is rewarded by a positive reading when she makes a good
move, punished by a negative reading when she makes a bad move.

The affective component of subjective well-being behaves like a delta meter,
guiding the agent accordingly. You’ve just gotten off the phone with your sister, who
told you that, when the visiting nurse dropped in on your aging parent, he realized that
the oven had been left on for many hours, carbonizing the food within, which had
evidently been completely forgotten. The smell of burnt food filled the house, yet your
mother was completely unaware. “We need to do something—we can’t just leave her
alone at home anymore,” your sister says, “How soon can you get up there to start
working something out?” You feel stricken, your sister has borne the brunt of looking
after your mother for the last few years, and it is clearly your turn to pitch in in earnest.
You’re stricken, unable for a moment to figure out what to do next. But then you
realize you’ve finished your teaching for the week and can fly up to visit her. Now you
feel a boost of positive energy and rush to call the airline. But they put you on what
feels like perpetual hold. Your frustration growing, you cast around for an alternative.
“Ah, I can call my travel agent!” Another burst of positive energy. But you realize you
don’t have his number at the office. You think hard. Maybe you can remember it. Is it
734-677-0900? You brighten. Or maybe it’s 734-677-0090? You’re impatient—you
have to try something. So you try the first, and you get the travel agency’s familiar
phone tree. Great! You relax your tension just a bit. But when you ask for your agent,
she’s at lunch. “Damn! Can’t waste time while the last seats might be sold. Now
what?” You remember your new phone lets you go on the web, though you hate
figuring this sort of thing out and never had the time or, in truth, the desire to learn
how. Now you are rushed and anxious, but highly motivated, and you make yourself
work methodically at it, working your way through the screens, concentrating intensely,
trying to figure out what would make sense. You’re greatly relieved and a bit proud
that you manage to make it all the way onto the web, and start booking a seat.

Note that in such a vignette you have learned a major bit of unfortunate news
about important life goals, being good to your parent, helping her in old age, and being
fair to your siblings. This is a set-back that could simply knock the wind out of your
sails—your life is suddenly going to change in a way and to a degree unknown, and in a
direction fraught with concern and conflict. But this doesn’t prevent your local,
moment-to-moment affective system from working successfully to help get you through
to the next step you needed to take—supplying positive energy for the next step,
frustration when you can’t move forward and associated motivation to look hard for
alternatives, as well as some gratification and pride at making headway and taking
matters in hand. This despite the blow, and despite the vast difference in magnitude
between the likely change in your life it portends and the success of getting your cell
phone to work.

It is clear why we need to have such a local, moment-to-moment system to help
alert, guide, motivate, and reward us along the way if we are to take the thousands of
steps needed in the course of a day to keep meeting our needs, fulfilling our
responsibilities, advancing our goals, attending to our concerns, or simply managing not
to lose ground or be indifferent to success or failure. How damaging it can be not to have this system in normal working order can be seen in certain disorders of the affective system, such as major depression, which has the effect of draining positive affect and dramatically enfeebling this moment-to-moment encouragement and guidance, leaving individuals indecisive, discouraged, ruminative, preoccupied, withdrawn—incapable of taking appropriate actions, even to take care of themselves. A disorder resulting in a flood of positive affect, such as mania, also seriously disrupts normal regulation of action. Ideas that simply occur to the individual seem wonderful and feasible, making action impulsive and erratic, warning signs are missed and “error signals” or failures ignored, as the individual recklessly engages in ill-thought-out, exaggerated acts. A properly functioning moment-to-moment affective system is thus an indispensable part of reasonable and productive agency. Somewhat fancifully, one might think of depression and mania as complementary ways in which the affective system could fail to return to a normal level, and thus lose its sensitivity to important variations in circumstance, ability, or opportunity. Instead, it continuously signals “you’re doing the wrong thing, give this up” to the depressive, or “you’re doing the right thing, keep at it” to the manic.

**Some predictions regarding affect**

We should, then, think that it follows from the *function* of the affective system that it return to a “set point” after a positive or negative fluctuation in response to a local change. A population sampled over time would be expected largely to be at or near the
“set point”, or symmetrically distributed around it (fig. 1), even if, over time, the population’s level of material wealth were increasing. Increments of income would be greeted with a positive reading, as evidence of successful movement toward the long-term goals of financial security, comfort, recognition, accomplishment, provision for oneself and one’s family, and so on. But as the news of this success grows old, it is necessary to notice again whether one is making progress on the next step, and the next, and to allocate attention and energy accordingly. Moreover, income is not the only area of life that matters. I might have received a raise, but just had a manuscript rejected or a fight with my child. If the affective system could not register these ways of failing to achieve important goals, and a search for alternatives or changes, my raise would make me insensitive to all the many small and large challenges I face in daily life.

Thus far, however, we have spoken mostly about receipt of goods or outcomes—income, age, health, employment, separation, loss. The “delta meter” picture would predict something else: it should be possible to gain in positive affect by acting successfully. Indeed, the most intensely positive experiences should be those in which one does not simply receive some benefit, but sees the benefit as arising from the effective exercise of one’s agency. There is an Aristotelian flavor to this prediction: our greatest momentary happiness should be found in the masterful, effective exercise of what is distinctively human—a capacity for telic agency, agency in the pursuit of valued ends.

Interestingly, the research on “optimal experience” bears this prediction out. Mihalyi Csikszentmihalyi and colleagues have carried out “momentary ecological sampling”, in which individuals are equipped with pagers and receive a call at random intervals over
the course of some period of time. When paged, the individual describes his or her activity and reports a level of experienced well-being. Surprisingly, perhaps, people did not report the highest levels while engaged in passive consumption, leisure, watching TV, etc. Instead, they reported highest levels when actively engaged in pursuits with the following four features:

(Fig. 20) Features of moments of “optimal experience”

1. Nature of activity: Neither too easy nor too hard; has goals; is congruent with individual’s goals; gives feedback
2. Effect of activity: Individual feels in control; sees progress
4. Experience of involvement: Individual tends to “forget himself”; time slows down. [Csikzentmihalyi 1990, 48-67]

Examples are skiing, dancing, playing music for fun, having a conversation in a foreign language, spending an evening with friends, repairing one’s motorcycle, productive research, cooking a favorite meal for the family, or doing someone an unexpected good turn. Such activities are both congruent with larger goals and locally rich in the sorts of affective interest and positive energy, cognitive engagement, motivation, and reward the affective system is “designed” to supply to someone who is masterfully exercising his distinctively human capacities. These activities would be expected to supply higher delta-meter readings than passive activities of similar kinds: consuming a fancy meal, purchasing a new dress, having a good deal done for one, listening to a good performance or watching an athletic event. And indeed this seems to be the case. Just
as the reward system of dogs appears to be “designed” so that they experience their greatest intrinsic enjoyment when able to freely and effectively exercise and develop their many skills, so with humans.

At the same time, it is also true that many “optimal experiences” are effortful and require significant preparatory activity. The exertion of effort and taking time for preparation are not in themselves positively experienced, dissuading individuals from pursuing such “optimal experiences” as often as they might. Going out to dance, preparing a complex meal, or laying out one’s tools and obtaining needed parts for a repair project requires a good deal of time, effort, and deliberation and decision that is seldom in itself rewarding, and exposes one to various risks of failure, in comparison to simply turning on the television at the end of the day. So even though momentary sampling discovers that watching television or consuming fast food is not experienced, typically, as hedonically highly positive, this is the path more traveled by in leisure time. The negative “front end” of more rewarding activities dissuades us from attempting as regularly as we would were we trying to maximize the amount of affective well-being in our lives.

Another prediction of the “moment-to-moment guidance” model of the positive affect that is a component of subjective well-being is that the set point should be positive rather than neutral. Affective indifference does not lead to successful, motivated activity, or even to “business as usual”. To get up and doing, and carry ourselves through the challenges of the day, we need a constant supply of positive interest, energy, and motivation. The “zero point” of the delta meter should therefore be sufficiently positive to underwrite a healthy level of activity, curiosity, social engagement, and thinking about
the future. Here is a continuing metabolic demand, then, centered on the brain. Should the “set point” be neutral or negative, as we find in depression, agency becomes stalled, disengaged, defeated. At the same time, the “set point” should be below the top end of the range, for there must be room for movement upwards to signal new gains or motivate the pursuit of new opportunities. The notion of a life of “eternal bliss” could only make sense for agents with no need to allocate scarce energy selectively or learn from failed expectations. A distribution something like (fig. 1) thus should be expected in a reasonably healthy, prosperous, functional society. The original study by Brickman, et al. came up with the following interesting result for forward expectations:

(Fig. 21) Past, present, and future estimates of subjective well-being: lottery winners, accident victims, and controls (Brickman, et al., 1978)

- **Lottery winners**
  - Past: 3.77  Present: 4.00  Future: 4.20

- **Controls**
  - Past: 3.32  Present: 3.82  Future: 4.14

- **Accident victims**
  - Past: 4.41  Present: 2.96  Future: 4.32²

Lottery winners and disabled accident victims alike tend to expect better things from the future, which may be something like a sign of normal psychic health. Depressives do not follow this pattern.

The “moment-to-moment information-based guidance” model of the “feeling” component of subjective well-being fits with a number of other patterns in the empirical data, providing a unified explanation of otherwise disparate results. It suggests why

---

² Brickman, et al. report that the experienced a lower response rate from accident victims on the question of future well-being, so this number should be taken as less well-attested.
recent events have such a dramatic effect on subjective well-being, and also why recent framing matters considerably. Schwartz and Clore report that if you ask undergraduates to express their subjective well-being before asking them how many dates they received in the last month, their answers are more than a full point higher than if you take the sample question after asking about dates (Schwartz & Clore, 1996). To be reminded of what seems like a failure naturally sharply influences moment-to-moment guidance, even though the actual level of dating has little to do with affective experience throughout most of the month. Similarly it suggests why the curve of mood across the week appears to be anticipatory rather than merely passively reflective, or why the news of a raise has a positive effect on subjective well-being even before more income is realized.

Another somewhat puzzling feature of affective experience seems explicable on the “delta meter” model. Physicians and psychologists have found that individuals undergoing a painful procedure tend to report a lower level of painfulness for the procedure overall if the painful experience is ended by a gradual rather than abrupt improvement to normalcy (the so-called “Peak-End Rule”; Redelmeier & Kahneman, 1996; Katz, et al., 1996). Why would the experience be less painful if it actually contained more moments of discomfort and more total discomfort? If we experience improvement as positive affectively (positive delta meter readings), then the prolongation actually means that the total experience of the procedure spent this additional time in the positive rather than negative affective range, thus mitigating overall discomfort.

If affect is about information and action guidance, it must function in real time as a sensitive indicator of how well or ill things are going, regulating in turn the allocation
of interest, attention, thought, energy, and activity. Moreover, it must reward the individual along the way for doing what it shows signs of progress or of opening up some future opportunity or securing some future good. Similarly, it must frustrate the individual for failing in these respects, thereby creating a motive to change. Rather than seeing it as a puzzling incongruity in our experience of subjective well-being that it tends to return to a “set point”, or is highly responsive to recentness, context, or framing, or is “optimistic” and anticipatory rather than faithfully registering current condition, one should see these features as part of the effective design of a system of information-based thought and action guidance.3

Consider for example the situation of an elderly individual recovering from an operation. She is no longer able to manage brisk walks, and indeed never again will be able to stride rapidly along, but she is still capable of walking gradually with a cane. Were she constantly to compare this more limited state to her past self, she would feel nothing but discouragement. Small improvements how far or well she walks, or an ability to keep to a daily routine of walking, would be provide nothing like evidence of a return to her former state, and instead serve only as a fresh reminder of failure and loss, not encouraging her to notice progress or feel reward and incentive. And a failure to keep up the routine or to make any small gains would tell her nothing about how well she is doing, in comparison to her previous excellent mobility, so add no new frustration or spur to action. If instead she comparing her walking “locally”—to herself recently or to others her age—she will be sensitive to the small gains and

3 See the addendum for a fuller listing of features the “delta meter” conception of affective well-being could help explain.
accomplishments that are within her reach (“walked every day last week!”), or to the losses she is still in a position to avoid or forestall.

This is sound design if affect is at heart about informing and guiding within the range of the possible, rather than handing out prizes for absolute accomplishment or penalties for absolute loss. The delta-meter conception of momentary affect places it in the large category of psychological, biological, and physical processes that operate on the basis of change (or difference) in value, gradient, or acceleration rather than absolute value. This is a pervasive feature of natural systems, in part for the obvious reason that there are few absolute reference schemes in nature, and in part guidance is largely about where one goes from here, given the potentials and possibilities one has.

Life satisfaction

But humans are also an unusual system in nature or the biological world, because it is possible for us to represent quite distant and general goals, and to reflect upon how well or ill we are doing at meeting them. We share moment-to-moment affective guidance with our mammalian brethren. It is a beautifully-developed system that is the product of the most thorough-going selection and capable of yielding nearly optimal foraging behavior (Dugatkin, 2004).

But humans owe much of their distinctive success and ways of life to a capacity to deliberate about, discuss, form, reflection upon, and monitor abstractly represented long-term goals. The other main component of subjective well-being, I contend, is related to this capacity.
A different nautical analogy—also concerned with effective guidance—might help us see the functional role of perceived life satisfaction. Suppose that you are captain of a sailing ship attempting to cross the ocean from Europe to the Americas in the early days of exploration. You plot what promises to be the shortest course, and set sail. Unfortunately, you are encountering continuing headwind and adverse currents. Aware that these conditions make it necessary to eke out every bit of performance you can from your vessel, you work hard with the crew to improve the speed with which you tack, the trim of your sails, taking advantage of windshifts, and so on. Each day you make progress in these areas, and you return to your bunk at night satisfied that you are doing all you can.

But your navigator is shooting the stars each night, and the next morning comes to you and points out that, due to the currents, you are no longer making any headway—you are actually beginning to lose ground. What can you do? Try to sweat just a bit more speed and efficiency of maneuver out of your crew and craft? But the gains to be made now are less than what you’d need to offset the current. If you weren’t out in deep water, you’d do better anchoring, and waiting for better conditions. But perhaps conditions won’t change—these might be quite stable patterns of wind and sea—and you only have so much water and food aboard. At a certain point, you won’t have enough to make the rest of the voyage and you’ll need to return to port, a failed expedition.

You need to rethink things more deeply. You know that ships have succeeded in crossing the sea East to West. But how? Perhaps you should sail North or South until you find more favorable winds or currents. But which? This would add hundreds of
miles to your journey, and simply set you further back as you cease trying to buck the current. You might be trapped against a lee shore with no good port in sight. Yet several more days without headway convince you to try. And you opt for South—there are more miles of sea to the South, and perhaps a better chance.

This process requires a different kind of intelligent action guidance than a delta meter normally affords—local gains or losses in progress cannot tell you whether you are making global progress, since the ground (or sea) can be shifting underneath you, or you might simply be on the wrong course. A philosopher I know had worked for a decade on an encyclopedic manuscript dealing with a certain school of philosophy. As he grew in erudition, footnotes became appendices, long chapters fissioned and became two longer chapters. Each day was filled with activity, each day led to new thoughts and new words and new pages. Yet at some point it became clear that he would never finish, and that his work would be lost to obscurity.

Those were the days of single manuscript copies, and one day he heaved the entire work into the fireplace. He watched it burn, then sat down and wrote an excellent short book within the span of six months, a book that quickly became one of the standards in the field. His was a prompt and successful response to his predicament, once he noticed it. But most of us aren’t so lucky, and we may struggle with something for months or years, becoming more and more discouraged, yet unable to extract ourselves. Often the process of reorientation is painful and slow. Evolutionary psychologists have even hypothesized that a function of depression in humans is to “build down” the great force of commitment, motivation, and self-regard that keeps us at these fruitless projects or in these hopeless relationships (Nesse, 2000).
We can think of the life-satisfaction component of subjective well-being as concerned with these longer-term goals, plans, and commitments. Naturally, then, it more closely tracks such “external” factors as income, occupation, education, or social status, since, in societies such as ours, these aims tend to be important— instrumentally or intrinsically—in virtually everyone’s life.

*(Fig. 22)* Life evaluation, emotional well-being, and the income-normalized effects of other correlates: US, 2008-2009 (Kahneman & Deaton, 2010)

<table>
<thead>
<tr>
<th></th>
<th>Positive affect</th>
<th>Blue affect</th>
<th>Stress</th>
<th>Ladder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate</td>
<td>0.03</td>
<td>0.01</td>
<td>-1.93</td>
<td>0.48</td>
</tr>
<tr>
<td>Weekend</td>
<td>1.13</td>
<td>0.72</td>
<td>4.83</td>
<td>0.01</td>
</tr>
<tr>
<td>Married</td>
<td>0.66</td>
<td>0.45</td>
<td>0.66</td>
<td>0.32</td>
</tr>
<tr>
<td>Headache</td>
<td>-4.45</td>
<td>-3.41</td>
<td>-9.82</td>
<td>-0.78</td>
</tr>
<tr>
<td>Alone</td>
<td>-7.13</td>
<td>-2.10</td>
<td>-3.73</td>
<td>-0.75</td>
</tr>
</tbody>
</table>

In (Fig. 12) we saw that affects of log(income) on positive affect, blue affect, and stress all fell off above $40,000, and virtually disappeared above $75,000. Effects on overall life satisfaction, however continued to climb with log(income) at least up until $200,000. This suggests that individuals are able to see their level of long-term success other than through the lens of local affect—objective indicators matter. In (Fig. 22), a numerical value greater than one (in either a positive or a negative direction) indicates that the factor makes a stronger contribution than belonging to the portion of the population having an income above $48,000. We see that being a graduate has a significant effect on ladder ranking (life satisfaction) that cannot be attributed to an equally significant effect on current affect or stress. Being a graduate amounts to accomplishing an important life goal for most people, and moving them decisively upward on the social
ladder, even though it does not affect one’s day-to-day affect and is associated with higher stress, perhaps because of greater job demands. In contrast, being sampled on a weekend has the opposite profile—very significantly affecting positive and negative affect and stress, while having no noticeable affect on life satisfaction. Having a headache or being alone do have a negative affect across the board, but the magnitude of the effect is much greater for affect and stress than ladder ranking. Being married, too, is seen by most as a major life goal, and so it has a noticeable effect on ladder ranking (life satisfaction), but it is a less rank-inflected category than college education, and thus has a weaker effect than a college education on ladder ranking. Moreover, being married appears to make a significant positive contribution to day-in-day-out affect and stress—even though this does not translate into a comparably high effect on ladder ranking.

In these ways, then, we see that affective and life satisfaction components of subjective well-being appear to be tracking different aspects of success or flourishing in life, allied with the distinction we have made between “local” and “global” progress and action-guidance.

**Putting the components together**

One interesting result of thinking of subjective well-being in terms of these two dimensions of information and action-guidance is that we might be able to give a better explanation of the striking behavior of average levels of subjective well-being in various countries over the last decades.
For example, what might be the role of “positional” considerations, matters of relative standing? We earlier saw that, if positional considerations were the totality of subjective well-being, then national averages could not go up with time—for every person who moves ahead, others must be moved behind. But this is not what we see. There is a clear gain in average subjective well-being as countries move from very low real GDP per capita to higher levels (see figs. 5, 10, 11). Moreover, there can be a very clear drop in average subjective well-being when underlying social support systems crumble (see fig. 15), even though positionally there will still be those on top and those below. Does this mean that positional matters make no difference to subjective well-being after all? Consider again (fig. 12), reproduced here:

(Fig. 12) Positive affect, negative affect, stress, and life evaluation vs. log(income): US 2009-2009 (Kahneman & Deaton, 2010)

Fig. 1. Positive affect, blue affect, stress, and life evaluation in relation to household income. Positive affect is the average of the fractions of the population reporting happiness, smiling, and enjoyment. “Not blue” is 1 minus the average of the fractions of the population reporting worry and sadness. “Stress free” is the fraction of the population who did not report stress for the previous day. These three hedonic measures are marked on the left-hand scale. The ladder is the average reported number on a scale of 0–10, marked on the right-hand scale.
On a purely positional view, one is happy based upon how many one can see as being below oneself, and unhappy based upon how many one can see as above. Positionality clearly could not explain the behavior of the affect and stress curves, which flatten noticeably well before the upper reaches of the income hierarchy are attained. Could positionality explain the ladder rankings (life satisfaction)? At first, it might seem so, since ladder rank goes up with log(income). Yet notice the range of the ladder scale in (fig. 12). The scale presented to subjects ranges from zero to 10 scale, but the values recorded range only from approximately 5.0 to 7.5, even though income has gone from $10,000 to over $160,000. This is hardly what we would expect if positionality were the predominant effect of income on subjective well-being—incomes over $160,000 represent only about 6-7% of the population, hardly the top 25% of the income hierarchy, and incomes below $20,000 represent the lowest 20%, hardly the bottom 50%.

If instead we think of subjective well-being in terms of action-guiding information, then this range makes more sense. Consider life satisfaction, the portion of subjective well-being most responsive to income. On the informational view, a sense of life satisfaction provides information about how well one is meeting long-term needs, goals, and ideals. Those with incomes below $20,000 might nonetheless be married, a parent or grandparent, employed or retired after a life of work, have close friendships, remain within a community or church congregation where they are known and respected, or be a successful player in the local softball league or a key member of the church auxiliary. Income level is only one portion of what people see as important to have in a life, and it can only buy so much of the other components of what is important in a life. A higher
income enables me to hire an expert mechanic to repair my car, but a lower income might place me in a community where people learn growing up how to repair their own cars, and thus mean that I can experience the mastery, satisfaction, usefulness to others, and respect this affords, and which a more prosperous person will miss. A lower income is characteristic of the early stages of adult life, where one can see oneself as working toward life goals the degree of achievement of which remains more or less open. A felt life satisfaction of 5.0 might be a reasonable indicator for such a person, despite an income in the lowest tenth of the population. Lower incomes are also common in the elderly, living on fixed incomes such as Social Security. Such individuals can have the satisfactions of looking back on what one has accomplished, and the lowered stress of not having to meet all the conflicting demands of a young working parent or middle-aged individual in the middle of a divorce or period of unemployment or underemployment. An older person can have, even with a low, fixed income, a relatively secure sense of having accomplished a number of life’s goals, and the perspective to appreciation this. At the same time, a number of life goals could be seen never to have been met, and no longer to have the prospect of being met. A felt life satisfaction of 5.0 on a ten-point scale might thus embody relatively accurate information about long-term meeting of needs, responsibilities, goals, and ideals, despite an income in the bottom one-tenth. Consider the following comparisons:
Recall that, in Kahneman and Deaton’s calculations of relative effect, the standard of comparison is that having an income greater than $48,000, which has the value plus one. Having religion be an important part of one’s daily life thus has a greater positive effect (1.21), and being over 60 years old a much greater positive effect (6.28), on one’s stress level than being in the portion of the population above $48,000 in income. Being married has a positive effect two-thirds (0.66) as much. Being actively religious or being married also has an effect on one’s ladder rank (life satisfaction) about one-third as much as being in the upper income portion, while being over 60 has a yet larger effect, one-half (0.50) as much. These are significant positive contributions to quality of life that can be present even in lives with incomes at the bottom of the social range. Being divorced (and not remarried) has a negative effect on stress (-0.88) and life satisfaction (-0.32) comparable to marriage or greater in the negative direction, while being alone has yet stronger negative effects (-3.73 and -0.75). These are also large numbers, and having high income is no protection against them. We see, then, that there are a number of factors that could add substantially to life satisfaction, even for those with
very low income, and a number of factors that can substantially reduce life satisfaction, even for those with higher income.

Thinking cross nationally, similar considerations might help explain why the range of the average of “percent happy and percent satisfied with life as a whole” (fig. 5) is surprisingly narrow—from .70 to .95, with the exception of a few outliers. If the informational account is correct, then this reflects the fact that most people in most societies manage to meet a reasonable range of important life goals, such as meeting their needs and responsibilities, having meaningful social relations, having some standing in a community, achieving various goals or ideals. Above a level of basic sufficiency, which surely matters greatly, raising per capita GDP can raise the level of success in these life goals only so much, or alter the day-to-day sources of positive and negative affect or stress. And social changes that throw such questions into doubt, pervasively affecting individual’s abilities to foresee or assure such management of long-term and short-term life, can have disastrous effects upon subjective well-being, as we saw in the case of Russia in (fig. 15). Here, for example, is a cross-national snapshot as of 1997, including Eastern Europe:
Income effects are dramatically smaller than such undermining of people’s sense that they are able to predict or assure vital aims of long- and short-term life. Notice, for comparison, East Germany, which was integrated into a country that afforded such possibilities in life, and showed by 1997 no such precipitous drop in subjective well-being. If the two components of subjective well-being, in the psychologist’s sense, affective experience and life satisfaction, are fundamentally about informing effective action-guidance, then removing a framework of expectations and institutions and patterns of adaptation that makes it possible to acquire and rely upon such information.
to act with reasonable efficacy should deeply disequilibrate individuals and families, regardless of their level of income.

“Habituation”, “contrast”, and the “hedonic treadmill” revisited

I have been urging that we should see such features of subjective well-being as a tendency to “habituate” to one’s new material circumstances and therefore shift points of reference or “contrast” are a core part of its nature as a form of adaptive, affect-mediated, information-sensitive action-guidance. They are features, not bugs.

This places the “hedonic treadmill” in a new light, and has interesting implications for moral theories that assign an important role to “well-being” in some form in determining what we should do or what social practices or personal dispositions we should seek to develop.

Consider one last nautical analogy. You find yourself, not with a fixed aim or destination, but in a somewhat Neurathian situation. You are in a ship that must continue to provision itself and to sail on until it is able to find some reasonably safe harbor, which might suffice to provision it for some period of time, more or less long. The sea is dotted with scattered islands, most of which have limited resources. The sea is also dotted with other ships, in roughly the same situation as yourself. How are you to proceed? Let us suppose that there are no fixed reference points by which to navigate—no buoys, GPS, or celestial navigation. You have a compass, and a speedometer and delta meter to assess your progress through the water.
You could try to set a fixed course and hold to it, but, as we saw, the wind and the tide might work against you, so that you make no headway despite eking as much as you can from your ship. So you must be open to changes, and on the look-out for evidence of how to make headway. You will consult, then, occasionally visible islands and normally visible other ships, using this information as best you can. If the ships within sight seem to be making more headway than you, you will try to sail in their direction and try trimming to their course. If you are making more headway, you lose these ships as referents and need to consult new ones. Similarly, you will notice whether ships within sight seem to be catching fish. If an island hoves into view, you will look to see if other ships are visiting it, and where they are anchored. Some islands will be deserted, and so you will have to explore them on your own, searching for food and fresh water. All this time, you need to be watching your provisions in the hold, trying to estimate whether you have enough for yourself and the crew for the days to come. After a while, you get a sense of how likely it is to find fish, food, or fresh water in the area, and you can try to keep a comfortable margin of provisions on board. Perhaps you are fortunate, find resource rich islands, and can stay shore for prolonged periods. But others will find these islands, too, and you will need to divide your time between taking advantage of what you find and exploring for new sources. Perhaps you are not so fortunate and you are in constant struggle just to get back, sailing for days on end with short rations.

You will need to keep track, then, of how well you are doing. On short-term goals, such as making moment-to-moment headway or exploring or exploiting a resource, or long-term goals such as providing for yourself and your crew in the days to
come. Perhaps you should have clipboards to make notes on such matters, or perhaps you could have subjective states that do this job—making you feel better or worse as you succeed in the day-to-day adjustment of course and trim and fishing vs. sailing or exploring vs. exploiting, but also making you attentive to what you might have by way of a margin for the future, and more or less satisfied with your state depending upon how well assured that longer-term future might be. You might learn about migrating patterns of fish, for example, and so learn to follow them while filling your hold. But you'll need to keep an eye on your supply of fresh water, and the relative scarcity of islands as you follow the fish. You can ask your crew to work hard, but only so hard, and you need to maintain their confidence in your ability to provide for them as best you can, and notice whether it is slipping.

What are you to do but to consult how well you are doing—locally, by such means as your delta meter or observing the progress of other boats or the attitudes of your crew, or globally, by trying to manage long-term supply and balance the needs for exploration vs. exploitation, looking again to other boats to see where there might be islands rich in resources or barren or trying to determine how one stands in the eyes of your shipmates? You use what information you have, and you need to be mindful of how you are doing and motivated to act accordingly.

This is essentially the plight of any foraging group, such as humans were during the bulk of their evolution. But it is not much different, at base, from the plight of most individuals and families in the modern world. Adaptation to changing circumstances and shifting references as one's opportunities and options shift are all part of this process. Mindful motivated pursuit is essential, and although we possess many more “objective”
indicators now, and much better maps, these do not resolve most of the questions we face about how to live well as individuals or together. We must learn from others, and must not become complacent in thinking that past accomplishment spares us the need for continuing problem-solving. Happily, we are built to be motivated in this way, and to find most satisfying the kinds of lives in which we do well in these ways, moment-to-moment or in the longer run. As a result, a great majority of people do reasonably well at it, yielding relatively high and stable subjective well-being across a very wide variety of contexts and range of resources. And yet some of life’s circumstances tell us that we are failing, even failing badly, in these ways, and we will feel this—but also feel motivation to change it.

This will translate into a “hedonic treadmill” in the pursuit of wealth only insofar as wealth becomes a proxy for so many other things in life. The cheering message for utilitarians and others who care about overall human welfare—as well as for those who fear that uncontrolled growth will destroy the planet—is that great wealth is not needed for it. Great wealth is not a prerequisite to attaining many of the key components of positive affective experience, nor can it substitute for these. An active, effective, socially-connected, skillful, and respected existence need not be an expensive one, and cannot be bought. Passive, expensive simulacra will not do. At the same time, we can also see that most societies have less excuse for failing to provide conditions for the fuller exercise of human capacities and assurance of human needs and social connectedness. One intriguing example concerns civil liberties and democratic political rights—these are not especially expensive or resource-intensive to provide, and do not
generate much air or water pollution, and they appear to have a rather linear relation to average subjective well-being:

(Fig. 25) Subjective well-being vs. human rights and political freedoms: across countries, 1990-1995.

Figure 7.5
Subjective well-being and democratic institutions ($r = 0.78$, $N = 62$, $p = 0.0000$). The vertical axis shows the sum of the Freedom House ratings for civil liberties and political rights. Since these ratings give high scores for low levels of democracy, we reversed polarity by subtracting these sums from 236 (China, which had the maximum score of 235, has a score of 1 after this transformation). The horizontal axis reflects each public’s mean factor score on happiness and overall life satisfaction and subjective well-being. Source: Freedom House surveys reported in successive editions of Freedom in the World; survey data from the 1990 and 1995 World Values Surveys.

Any such ranking of freedoms and rights must be taken with a grain of salt. Still, it furnishes some evidence that societies whose political and economic institutions, laws,
and social practices give individuals a sense of freedom, choice, and efficacy in pursuing individual and collective goals experience a greater average subjective well-being than those lacking features, even when material level of existence is comparable.

The conquest of happiness is about resources, some of which are material, but most of which are human and social. Reaching a level of material sufficiency is vital, but beyond this subjective well-being seems to be largely about being more, or living more, or sharing more, not simply having more. As a result, we can hope that more will be able to have it.