Levels of Action

by **alyssavance** 9 min read 14th Apr 2011 47 comments

164

Scholarship & Learning | Economics | Distinctions | World Optimization | Frontpage

One of the most useful concepts I have learned recently is the distinction between actions which *directly* improve the world, and actions which *indirectly* improve the world.

Suppose that you go onto Mechanical Turk, open an account, and spend a hundred hours transcribing audio. At current market rates, you'd get paid around $100 for your labor. By taking this action, you have made yourself $100 wealthier. This is an example of what I'd call a Level 1 or object-level action: something that directly moves the world from a less desirable state into a more desirable state.

On the other hand, suppose you take a typing class, which teaches you to type twice as fast. On the object level, this doesn't move the world into a better state- nothing about the world has changed, other than you. However, the typing class can still be very useful, because *every* Level 1 project you tackle later which involves typing will go better- you'll be able to do it more efficiently, and you'll get a higher return on your time. This is what I'd call a Level 2 or meta-level action, because it doesn't make the world better directly - it makes the world better indirectly, by improving the effectiveness of Level 1 actions. There are also Level 3 (meta-meta-level) actions, Level 4 (meta-meta-meta-level actions), and so on.

The most important difference between Level 1 and Level 2 actions is that Level 1 actions tend to be *additive*, while Level 2 actions tend to be *multiplicative*. If you do ten hours of work at McDonald's, you'll get paid ten times as much as if you did one hour; the benefits of the hours add together. However, if you take ten typing classes, each one of which improves your ability by 20%, you'll be 1.2^10 = 6.2 times better at the end than at the beginning: the benefits of the classes multiply (assuming independence).

One result is that spending time on Level 2 actions can have a much greater return than spending time on Level 1 actions. If your labor is worth $20 an hour, and you can't change that, then the amount of money you can earn in a year has a fairly hard upper bound- no matter how you slice it, there are only 168 hours in a week. If you spend that year trying to increase the value of your labor, on the other hand, the upper bound on your performance

is both a lot higher (because you can then make more money every year for the next three decades), and a lot more fuzzy. It's a lot more fuzzy because, while everyone has the same number of hours in a week, how effective Level 2 actions are depends a lot on your intelligence, what methods you use, and lots of other stuff. Most Americans spend too little time on higher-level actions, like being strategic - doing a quick analysis of what your goals are, and which Level 1 or Level 2 actions would best accomplish those goals. Witness the hordes of lawyers who spend thirty years on the Level 1 action of working at a law firm, three years on the Level 2 action of getting a law degree, and three minutes on the Level 3 action of deciding what to do after college. (Being strategic is one level up from whichever actions you're being strategic about.)

It is also possible to have the opposite problem, of under-valuing Level 1, and I suspect that quite a few people in the nerdier communities do. People sometimes fall into the trap of noticing that the higher levels are (when applied properly) far more useful on the margin than Level 1, and then reacting by giving blind praise to the meta level at the expense of the object level. One cultural example is the ancient Greeks- who, though they were good thinkers for their day, didn't invent science. Science involved actually going out and looking at the world, and that was manual labor and manual labor was for slaves. The ultimate extreme of this is Aristotle, who got philosophy off to an unfortunate beginning by starting his Metaphysics with the assumption that the most noble knowledge would be the most useless.

The problem there is that, because Level 2 actions are multiplicative and not additive, you still need at least some Level 1 actions to multiply by. It doesn't matter how high the value of one's labor is, if one never actually goes out and does labor. A very large number, multiplied by zero, is still zero. If one *just* does Level 2 actions, without any Level 1 actions, it is a failure to do something instead of nothing. Taking only meta-level actions accomplishes less, in the end, than the ten-year-old who just mowed the neighbor's lawn for a dollar.

On a societal level, one can run into this problem even more easily, because having a large society allows one to build up more meta-levels. For the most part, people's day-to-day labor is made up of Level 1 actions- the stuff that directly improves the world. Engineering technology that helps improve people's productivity is then a Level 2 action. Doing science that helps with engineering is then a Level 3 action (meta-meta), and doing math that helps with science is a Level 4 action (meta-meta-meta). In order for working on Level 4 to be effective, there have to be three steps chaining back to Level 1: in this example, from math to science, from science to engineering, and from engineering to

productivity. If any one of these steps fails - if the math isn't useful for science, if the science is in a different field than the engineering, or if the engineered devices aren't used effectively - then working on Level 4 won't accomplish anything.

Going meta can be very powerful, for the reasons outlined above- *each* action taken on Level N + 1 makes it easier to do *lots* of things on Level N. The invention of science, which is almost always Level 2 or higher, changed the world and created modern civilization, and science can still radically improve your life today. However, in order for the higher levels to be useful *within a specific project*, that project has to incorporate all the steps from the meta level back down to the object level, and this becomes much more difficult with each meta level added. The Manhattan Project managed to pull it off with two meta-levels- science to engineering and engineering to real-world effects- but the Manhattan Project had dozens of world-class scientists and hundreds of top-notch engineers working on it. Attempting too many meta levels without having the infrastructure to support the attempt will wind up like filing an IPO for a one-man beer pong business.

How should we counter this, while still getting the benefits of the higher levels? One suggestion that gets talked about a lot is simply to always do something directly useful - *do something instead of nothing*, which is the first step towards accomplishing any goal. On the small scale, we are all familiar with this. If you take the garbage out, the garbage can becomes empty; if you don't, the room starts to stink. If you do the dishes, you have clean dishes to eat off of; if not, you wind up eating off of dirty dishes or a table. If you go and buy food, you have lots of food to eat; if not, you go hungry, or pay a lot for food at a restaurant.

I think that, collectively, we are all living in a world that's isomorphic to a pigsty house, where no one ever does the dishes and no one ever takes out the trash. We're doing better now than we have in the past. But the world of today is nothing, compared to the shining, sparkling utopia that *could* exist if people simply did more things, using the decision algorithms that they already know how to execute. So many things ; to name one particular field, there are many examples of science which is obviously ridiculously underfunded. Yet, in all these cases, with the exception of a tiny handful of part-time volunteers, nothing ever gets done.

It is, of course, also important to choose effective actions, in addition to simply choosing to act. Preventing existential risk is a more important goal by far than coming up with a more effective way to do biotech research. However, the first and most important step is to just do *something instead of nothing*. If, at the end of the day, what you *actually wind up*

doing is nothing instead of X, it doesn't *matter* that there are ten other things you could do which would be a hundred times more effective than X. Those don't show up on the bottom line. Your final score is still zero, instead of at least being positive.

Even if we consciously agree that doing X could be useful and is unlikely to result in serious harm, I strongly suspect that there are *still* barriers to acting: unconscious ones. Most of the machinery of our brain operates below the level of deliberate reasoning. While typing this sentence, I remembered to breathe oxygen, match the words I was thinking to the motions of my hands (so as to make them appear on the screen), remain sitting upright, blink every so often, look around to make sure my stuff hadn't gotten lost, and move around a bit so my legs don't go numb, all without paying any deliberate attention at all. Yet, each of these things are quite difficult to do, in the sense that it would be a lot of work to build a robot that can do them. Just as we frequently breathe without noticing, I think we all refrain from doing useful things, out of unjustified fear, without noticing. Why is that?

My current guess is that it's because of the increasing institutionalization of society, which is caused by economic growth. When your tribe is made up of a hundred people, you can model each person in high detail when you interact with them - taking into account their personality, their strengths and weaknesses, their past interactions with you, and so on. However, in a corporation with a hundred thousand people, the CEO doesn't have time to construct complex models of each worker, and yet he must ensure that all the workers cooperate effectively. How does he do that? By making each worker simple to model - by constructing a set of rules which governs each worker's behavior, and constrains them to behave in simple, easily understandable ways. The net effect of this is that large institutions train people to be afraid of taking actions they aren't explicitly told to take, because that would make life more complicated for the managers.

One possible solution to this is to lower your *general level of inhibition*, by practicing doing things that you feel inhibited about. Studies have shown that there is a significant positive correlation between alcohol use, and income in life. Why would that be? Drinking alcohol doesn't make you smarter. Nor does it make you work harder, or become more skilled, or gain additional knowledge. I think the reason is that alcohol is *disinhibitory*. People do things while drunk that they wouldn't do otherwise, and even though a lot of them are stupid and destructive, some of them are useful (like meeting new people). And the world counts the good things and forgets about the bad things, like how everyone forgot about George W. Bush being branded with a coat hanger by his fraternity.

There is also a very interesting way, which I highly recommend, of getting both the benefits of Level 1 and Level 2 actions. One does this by going out and doing Level 1 things that one *hasn't done before* - for, to paraphrase Eliezer, if you want to find a *better* route to work, you must necessarily explore a *different* route to work.

Ordinarily, going to the grocery store is a Level 1 action. But what if you've never been to a grocery store? Then, going to the store is actually both a Level 1 and a Level 2 action. By going to the grocery store, you acquire food. And you also learn lots of useful things about how grocery stores work, which will help you on all of your subsequent trips.

The downside of this is that, when you consider things purely as Level 1 actions, it might be less worthwhile to do something new than something you're already familiar with. If you've never ridden a bus before, it might be faster to walk than to take the risk of getting lost. But, in most cases, this tends not to be a very big deal. If you do it badly, it's no biggie, you can just try again later when you're more skilled.

In the ancestral environment, the range of skills one could acquire was fairly limited. Hence, we humans evolved to employ a two-part strategy: try new things during your childhood, and then when you mature (at age 14 or so), forget about trying new things, and concentrate only on Level 1 actions. Now that the range of possible skills is so much larger, this is terribly suboptimal- but humans have this thing about continuing to do stuff, like eating chocolate, that has long since lost its utility.

The key benefit of doing lots of new, unfamiliar Level 1 actions is that world is an extremely complicated place, and as a general rule, no matter how much you read and learn about something (Level 2 actions), there's *always* some sort of surprise when you actually go and do it; something that the authors of the stuff you read didn't notice, or forgot to write down. In computer programming, we have the general principle of humility regarding bugs: even if you can't think of anything you did wrong when writing software, you had better go and test it before releasing it, because the odds are pretty darn good that you made a mistake *somewhere*. The analogous principle is, never assume that you can do something (even if it seems simple) unless you've actually done it before, because there will probably be some sort of hidden surprise.

And the more things you've done before, the fewer hidden surprises there will be. The counterpart point is that if you *do* go out and do things that you haven't done before, you'll be able to pass over mostly-invisible barriers that other people will mysteriously smack into. Suppose you try to construct a ten-step plan, where each of the ten steps is something seemingly simple, but is still something that you haven't done before. Will it

work? Probably not. Even if the probability of success on each step is 90%, the probability of the whole plan working is only 0.9^10 = 0.35. You can go over each and every one of the steps, analyze them, figure out that they're very likely to succeed individually- and still fail, because without a *strong* assurance of success on each step, executing *all* of them in the proper sequence becomes very unlikely.

On the other hand, if you have lots of experience doing something Level 1, you can understand it well enough to actually make the probability of failure arbitrarily small, not just smallish-seeming. How narrow or wide your probability distribution is for X is a function of how much information you have about X. And doing X offers the possibility of gaining *arbitrarily complete* information about X, not just the sort of information that one can communicate effectively in words. I think the evidence is fairly conclusive that someone who hasn't experienced, for example, love, war, or torture can't really have complete information about it, because there are parts of the brain which are only wired to receive information directly from the external environment. (Of course, the reverse is also true, which is why people who don't read a lot can be very capable in their domains of expertise, but still terrible at abstract thought.)

Making the probability of failure arbitrarily small, then, allows you to construct long chains of sequential events which will work reliably. An average human can take a step forward ten thousand times in a row without falling down once, because they (the mostly subconscious systems in their brain that handle movement) understand it so well. And, once a particular chain of Level 1 events has become reliable enough, you can then use it as a building block to construct new, higher-level chains of Level 1 events, which is itself a Level 2 action. This is how society can accomplish extremely complicated things, like taking a company public, with any reliability at all- by having people build larger chains out of smaller building blocks that they already understand, and can execute many times without slipping up.

Scholarship & Learning 1 | Economics 1 | Distinctions 1 | World Optimization 1 | Frontpage

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[-] **GilPanama** 10y 58

Level 1: Trying to deal with problems that cause human suffering.

Level 2: Using programs to help deal with those problems more effectively.

Level 3: Optimizing the way that those programs think and solve problems in general.

Level 4: Figure out better ways to think about programs that think, so that they are not only optimal at problem-solving, but also optimal at not killing us.

Level 5: Sharing essays on how we can be more rational about the level 4 problem without succumbing to bias.

Level 6: Commenting on those essays to support strong conclusions, question weak ones, and make them more memorable and effective by contributing to a community ethos.

Level 7: Upvoting my comment.

[-] **Arkanj3l** 9y 1

Gold.

[-] **handoflixue** 10y 31

I love this post, because it helps cement a general idea floating around in my head: I've noticed most people spend an inordinate amount of time doing Level 2 optimizations of what to order at restaurants, rather than going to Level 1 and just ordering something tasty, or going to Level 3 and working out a good decision system for future orders.

Oddly specific, I suppose, but I've found it generalizes out well - smart people tend to get stuck doing Level 2 optimizations for minimal gains, and tend not to realize they'd be better off stepping up to a Level 3 optimization if they're truly concerned about the gains.

[-] **handoflixue** 10y 5

Follow-up thought after reading the comments: I think a basic summary of the Level 1/2 concept is useful, as well as illustrating the failure modes, but you spent enough time on it that I'd assumed that was the main point.

Perhaps summarizing that a bit, and adding clear section headers to indicate a change in topic?

I almost missed the last four paragraphs because I was going "oooh, no, I totally already get this, because it's similar to something I was thinking about." Fortunately I'm compulsive about finishing articles, so I got the nice benefit of that last section as well :)

[-] **dfranke** 10y 21

> The most important difference between Level 1 and Level 2 actions is that Level 1 actions tend to be additive, while Level 2 actions tend to be multiplicative. If you do ten hours of work at McDonald's, you'll get paid ten times as much as if you did one hour; the benefits of the hours add together. However, if you take ten typing classes, each one of which improves your ability by 20%, you'll be 1.2^10 = 6.2 times better at the end than at the beginning: the benefits of the classes multiply (assuming independence).

I'm trying to think of anything in life that actually works this way and I can't. If I start out being able to type at 20 WPM, taking 100 typing classes is not going to improve that to 1.6 billion WPM; neither is taking 1000 classes or 10000. These sorts of payoffs tend to be roughly logarithmic, not exponential.

[-] [anonymous] 10y 8

I think that training in orthogonal but complementary skills more closely matches the point being made. For example, training in typing is orthogonal to, well, pretty much anything, and complementary to many things, such as programming or novel writing.

[-] **Technoguyrob** 10y -1

~~Which would make it a waste if you never did much programming or novel writing!~~

[This comment is no longer endorsed by its author]

[-] **thomblake** 10y 12

> The ultimate extreme of this is Aristotle, who got philosophy off to an unfortunate beginning by starting his Metaphysics with the assumption that the most noble knowledge would be the most useless.

You really are not giving Aristotle enough credit here. While he followed Plato in regarding the most abstract knowledge as the most noble, he was deliberately bringing in the notion that it was also useless.

Notably, he wrote Metaphysics *after* Physics (thus the name), and most of his time was spent on his more empirical works.

ETA: To be a little more informative, here's a quick gloss of the relevant distinction at the time:

Plato thought that 'forms' (abstract ideas, akin to an OOP 'class') were the 'most real' (unpack that at your peril) and specific objects were merely imperfect, largely irrelevant copies of those. Aristotle thought that no, physical things are the most real, and 'forms' only exist if they are instantiated in an object.

Thus, Plato did a lot of speculation about metaphysics, while Aristotle spent most of his time counting the number of doodads on various plants and animals and figuring out how things work.

[-] **Will_Newsome** 10y 8

Hm, you'd think Plato would leave the contemplation of forms to Plato's form. 'Cuz of metaphysical comparative advantage and what not.

[-] **MichaelVassar** 10y 10

Great post. Actually, great last 4 paragraphs. I thought that the earlier parts were pretty trivial, and not necessarily worth saying, but the post was upvoted for just the last 4 paragraphs, which I think are EXTREMELY valuable and maybe deserve much more attention than this.

[-] **pjeby** 10y 10

> I thought that the earlier parts were pretty trivial, and not necessarily worth saying, but the post was upvoted for just the last 4 paragraphs

Funny, I was the other way around: I thought the first part was magnificent, and tweeted it before I even *read* the last 4 paragraphs (which seemed trivial and obvious once I did read them).

The two parts I thought most important/useful and novel were:

1. the idea that for any level greater than 1, there must be upward and downward chains to level 1, and
2. the bit about us being evolutionarily primed to explore up to a certain point, then exploit

[-] **rhollerith_dot_com** 10y 11

> us being evolutionarily primed to explore up to a certain point, then exploit

Well, primed to explore until drives more powerful than curiosity 'get traction' (which might have amounted to the same thing in 99% of individuals in the EEA). The difference (which is relevant now that we are no longer in the EEA and have the option of living lives that would have been completely impossible in the EEA) is that in my model, when the more powerful drives (sex, status, sometimes love of one's children) are frustrated, the individual is capable of staying motivated by curiosity many hours a day even in late adulthood.

Evidence for my model of curiosity is the observation that those adults whose curiosity is strong enough to motivate them to make significant scientific discoveries tend to have been adolescents whose drives for sex, popularity, friendships and athletic accomplishments were frustrated more and longer than those who did not go on to become successful scientists. This is evidence when you add to the model the hypothesis, which I assign high probability, that spending an unusually large amount of one's time and energy satisfying one's curiosity during adolescence increases one's ability to stay motivated by curiosity as adult. (The other human drives probably work the same way.)

I once read a book by an academic which I cannot find again about the personal histories of successful scientists that reported that an unusually high fraction of them suffered some illness or injury during childhood that kept them housebound or took them out of social circulation for at least a year. The same book reported that almost all of the successful scientists studied spent time during childhood or young adulthood in an urban environment, which tend to support the model I am advancing here since living in the big city helps one to realize that it is possible to live without strong personal friendships and without membership in informal or formal status-improvement or status-preservation coalitions, which would tend to give one the

courage to ignore the usually very strong human drives for friendship membership in formal and informal coalitions (clubs, associations, organizations, communities, subcultures, etc).

[-] **Jonathan_Graehl** 10y 3

Interesting speculation. That describes my childhood/adolescence, and I'm a scientist.

> it is possible to live without strong personal friendships and without membership in informal or formal status-improvement or status-preservation coalitions, which would tend to give one the courage to ignore the usually very strong human drives for friendship membership in formal and informal coalitions (clubs, associations, organizations, communities, subcultures, etc).

And yet, here we are. Most clever, focused people eventually start to think about their own experience - what types of satisfaction they're built to need or at least appreciate, and how to rationally allocate effort toward securing competence in pursuit of each type of satisfaction a person can feel.

[-] **spatiality** 7y 0

You could describe my childhood the same way as well, though the distance to others did not come from forced separation but rather through an increasing bewilderment with group decision processes. Oh, and from being myself, which is incredibly irritating to just about everyone on this planet :)

Edit: I became an architect. I was very interested in the sciences but apalled by the artlessness of many of the members of this community. Then I discovered that the state of the architect community was not much better, it only seemed so through the virtue of emulation..

[-] **curiousepic** 10y 7

FWIW, because of the accessibility of the first half, I felt very comfortable sharing this link with a couple of non-LWers.

[-] **bentarm** 10y 2

I'm quite glad you made this comment, as the post was so long and seemingly trivial, that I'd pretty much entirely skipped over the last four paragraphs on first reading...

[-] **ksolez** 10y -2

Great post indeed! With increased longevity and the need to reinvent ourselves and take unfamiliar jobs more and more of the things we do will lack precedent and that increases the potential for surprises. In a post-scarcity future human motivation will be less about surviving and more about improving the world. Most people today are motivated by comfort and security. Few are even motivated by success, and fewer still by humanitarian ideals. No matter how much concerns about comfort and security are reduced many would have no interest in improving the world. In lower level discourse you might simply call them lazy, but it is more complicated than that and an important problem for the future!

[-] **PhilGoetz** 10y 8

> The most important difference between Level 1 and Level 2 actions is that Level 1 actions tend to be additive, while Level 2 actions tend to be multiplicative. If you do ten hours of work at McDonald's, you'll get paid ten times as much as if you did one hour; the benefits of the hours add together. However, if you take ten typing classes, each one of which improves your ability by 20%, you'll be 1.2^10 = 6.2 times better at the end than at the beginning: the benefits of the classes multiply (assuming independence).

Nitpick: You cheated by stipulating that each typing class has a multiplicative effect. This is just saying that additive things tend to be additive, while multiplicative things tend to be multiplicative.

I agree with your larger point... but the multiplicative effect comes in because the typing gains apply to every typing task you perform over the rest of your life.

[-] **skepsci** 8y 0

I was going to make this same objection. Your assertion that level 2 tasks are multiplicative with each other is not very plausible. It's obviously false that each typing class improves the typer's ability by 20%, since I can't take 10 typing classes and start typing at 400 words per minute. More likely the gains with multiple typing classes are linear for the first few, and sublinear in the long run.

It is more plausible that level 2 tasks are multiplicative *with level 1 tasks*. If you get 20% faster at typing, you can transcribe audio 20% faster, and every level 1 transcription task you undertake now pays 20% better.

[-] **NancyLebovitz** 10y 7

In regards to the Graham essay: *Seeing Like a State* by Scott promotes the idea that some fraction of tyranny is efforts to simplify people's behavior because the people in charge don't have the information processing capacity to deal with the natural range of behavior. He's talking about governments rather than businesses.

I wonder there should be a separate hierarchy for efforts to improve the conveyor belt which moves ideas from abstraction to implementation.

[-] **Johnicholas** 10y 7

First, thanks for the post, I liked it a lot.

Second, your "alcohol is disinhibitory" paragraph doesn't address the (to me, obvious) question: What if success causes alcohol consumption? Your arguments toward drinking alcohol assume the correlation is from alcohol consumption causing success, rather than the other way around or some third factor causing both.

Third, you say that economic growth and cooperating in large organizations depends on being able to model people, and then go on to say (in the "alcohol is disinhibitory" paragraph, actually): "One possible solution to this is" - Are you trying to "solve" cooperating in large organizations? Cooperating in organizations is crucial to most of our past and future successes, and as far as I can tell, rampant individualism is the problem, not cooperation.

[-] **grouchymusicologist** 10y 7

Interesting post, and a useful distinction.

Here is a suggestion for how this essay could be slightly clarified. For me, one way in which the concept was not immediately intuitive was the notion that a Level 1 action "directly moves the world from a less desirable state into a more desirable state." Given how pervasive discussions of morality have been on Less Wrong lately, I found myself wondering, "Why is it intrinsically more desirable that you have $100 than that some employer offering a task via Mechanical Turk has the $100?" The idea of world-state-desirability immediately called to mind matters of ethics (in the guise of a claim that some world-states are intrinsically more desirable than others).

But really, you are just making a distinction between object-level *changes* and meta-level *changes* regardless of desirability-sign. The distinction would be equally valid if I were an Evil Typist, who could either commit evil through typing (Level 1: additive) or take typing classes in order to multiply the evil I were able to commit through typing (Level 2: multiplicative).

This isn't in any way to denigrate the basic claim of the post, which I think is a helpful one. Desirability, in the sense you're using it, is subjective and not in any sense moral. Insofar as it caused me some confusion with other (i.e., ethical) notions of desirability, a bit of rephrasing might clarify the argument.

[-] **Johnicholas** 10y 9

If two people conduct a mutually-agreeable exchange, then both of them think the world has improved according to their own preferences. The employee has more money, and the employer has less money, but the work they wanted done is done. Often enough, everyone else in the world is fairly indifferent, and so pairwise mutually-agreeable exchanges often improve the world for everyone.

This is one of the ways that microeconomics is awesome. Pareto-optimality isn't everything; we do have preferences regarding things like fairness, and there are positional goods and externalities, but fairly often, working toward the Pareto frontier is a good thing to do.

[-] **thomblake** 10y 1

> Desirability, in the sense you're using it, is subjective and not in any sense moral.

Being subjective is not a disqualifier for being moral.

In the common sense of 'moral' ("What one has most reason to do or to want"), desirability is inextricably linked with morality, in its relationship with both 'reason' and 'want'.

[-] **grouchymusicologist** 10y 1

> Being subjective is not a disqualifier for being moral.

Indeed not, but my point was that the main distinction the post makes is just as valid when applied to ways to bring about changes that are immoral or morally neutral.

[-] **Zetetic** 10y 5

Great post! This has held me to clarify where I have tended to go astray in my studies. Around the age of 17 I made a conscious decision stay up at level 4, assuming that it was automatically more useful to do so. This led directly to math and philosophy, the more esoteric the better and damn practical skill building. In this regard, I can very much identify with the Paul Graham essay you cited.

I've only recently (as of, say, age 20) been able to come full circle and see the necessity of having some chains down to level 1 set in place to ground you and keep you from floating around aimlessly in Level 4-space. I think a key part of my revelation was in going through enough mathematical logic (model theory, alternative set theories etc.) that I found myself studying the theory of computation and finally I was comfortable engaging in skill-building by actively practicing programming having learned most of the relevant (along with plenty of irrelevant) theory behind it.

In retrospect, this approach was terribly backwards. I skipped over many level 1 and level 2 opportunities while I was lusting for higher and higher levels of abstraction, and in turn ended up with a much weaker foundation than I otherwise would have had.

[-] **Swimmer963** 10y 5

This is a really interesting post! I've been thinking about exactly this issue lately, mainly in the context of trying to figure out what I'm doing *right*. A lot of people my age live either in a state of perpetual Level 1 (working as a lifeguard and swim instructor at the same pool for 4 years and earning $11.00 an hour) or Level 2 (constantly embarking on and then abandoning projects because "it's not really what they want to do"). For whatever reason, I don't have this problem.

My hypothesis is that Level 2 comes naturally to me, something to do with the fact that my internal monologue never turns off and I *like* to think about stuff...but at the same time, probably thanks to 5 solid years of competitive swimming with up to 7 practices a week, I *know* that doing something once isn't enough to improve at it, or even maintain a constant performance...you have to do it *indefinitely*. So I put some thought into big life decisions, but I still get up the next morning and go to class/work/gym, because that's just maintenance, the things I need to do to stay at the level I'm at now (financially, in terms of grades, in terms of fitness, etc).

To me this is really obvious. I maybe lean a *little* far towards focusing on Level 1 at the expense of Level 2, but this is partly strategic as well...I like being perceived as a borderline workaholic who can handle stress and get stuff done, because that comes with its own perks.

[-] **GilPanama** 10y 1

Thinking of Level 1 actions as *maintenance* is an excellent analogy.

This talk of swimming suggests another analogy for spending too much time on high level actions:

Overoptimizing is like trying to infer the properties of an optimal raft while you are drowning.

[-] **Strange7** 10y 4

http://robotandghost.com/wp-content/gallery/scp-2010/mindmapping.jpg

Like many good ideas, somebody had it before and it was taken as a joke.

[-] **wedrifid** 10y 4

I liked the post. At least I liked all the parts except the whole "Level 1", "Level 2" thing. That distracted from the real insights that came across incidentally.

[-] **atucker** 10y 4

Interesting post, I liked it a lot.

I think one thing to note though is that Level 2 improvements are accomplished by a bunch of Level 1 actions -- there are a bunch of specific step-by-step things that you have to do to get better at reading.

> However, in order for the higher levels to be useful within a specific project, that project has to incorporate all the steps from the meta level back down to the object level, and this becomes much more difficult with each meta level added.

This helped crystallize an idea that I was dimly aware of -- the fact that any improvement to your ability to do something works as a conjunction. In order for a Level 3 action to pay off in a particular area, it needs to pay off on Level 2, which also needs to pay off on Level 1. The more levels removed, the more tenuous its ability to foster improvement in a particular area.

Hopefully, your higher level actions will be applicable enough that you get to try them *in so many areas* that it pays off in a few of them.

But naysayers will probably be able to find a specific area and say that your Level N stuff doesn't help you there. Which is true, but not a sufficient demonstration of the uselessness of your Level N improvement.

[-] **Jonathan_Graehl** 10y 3

I've developed an aversion to newly-minted "level 1" "level 2" ... ontologies, but this was worth reading once I got over that.

[-] **MichaelVassar** 10y 3

The characterization of Aristotle's assumption is a straw-man. Think 'abstract' not 'useless'.

[-] **Benquo** 10y 2

Isn't the problem that he conflated the two? At the very least, it looks to me like he nad no expectation that the ability to use or test a proposition had much bearing on its truth.

On the other hand, it does seem that he had no objection to "going out and looking".

Aristotle's physics reflects his desire to describe what he actually saw in the world, and his reluctance to either reduce physical phenomena to mathematical abstractions, or to report on what nature does when *forced* by experiments.

[-] **gwern** 10y 1

If you think that's a straw-man, you would have hated the original draft on the OB NYC ML even more.

[-] **a363** 10y 2

> My current guess is that it's because of the increasing institutionalization of society, >which is caused by economic growth. When your tribe is made up of a hundred >people, you can model each person in high detail when you interact with them - >taking into account their personality, their strengths and weaknesses, their past >interactions with you, and so on. However, in a corporation with a hundred thousand >people, the CEO doesn't have time to construct complex models of each worker, >and yet he must ensure that all the workers cooperate effectively. How does he do >that? By making each worker simple to model - by constructing a set of rules which >governs each worker's behavior, and constrains them to behave in simple, easily >understandable ways.

That also sounds a lot like what a nation-state has to do. And that's been going on for thousands of years... What's democracy but basically taking a bunch of tribes, having them select their representatives, who then become a supertribe who also elect new representatives until you have a small enough bunch of people so they can work together?

[-] [anonymous] 10y 1

trying something that I feel inhibited about, specifically posting my opinion, like some of the comments I've read some of the math is a bit blurred but the general point is quite valuable. I knew that I tested my boundaries with inhibitions but I've really been looking for the why. it's like the jurassic park raptors they checked the fences on the off chance they could get out and they eventually did.

[-] **Douglas_Knight** 10y 1

To add to the Aristotelian chorus, he wrote a book on *fish*.

[-] **Baruta07** 8y 2

And now I'm hearing the modern major general's song in my head... "I know the croaking chorus from The Frogs of Aristophanes!"

[-] **Douglas_Knight** 8y 0

I am surprised to note that I have never before heard anyone confuse Aristotle and Aristophanes, even in jest. (cf the tailor: "You rip a dese?" "You mend a dese.")

[-] **Baruta07** 8y 0

Wow was that stupid. I'm not even gonna attempt to defend that statement. *Facepalm*

[-] **Douglas_Knight** 8y 0

FWIW, I thought you were making a joke.

[-] **Mass_Driver** 10y 1

Encore!

[-] **silver** 5y 0

As is, every level is only useful insofar as it helps with lower levels. But Level 1 still isn't the ultimate goal. You don't live to do the dishes, and not – at least not necessarily – to work. I think this model should be extended by Level 0 actions, which are things that directly cause happiness (or, alternatively, whatever else your ultimate goal is in life). Level 1 is, I think solely, useful to provide you (or others) with more opportunities to do Level 0. Level 2 then is useful to help you with Level 1, etc, so everything stays the same. Your thoughts about how people do too few / too many actions on a certain level is also directly applicable to Level 0.

What is different is that all Level n actions now also have a Level 0 component, but I think that's useful to have since it corresponds to a real thing in the world that has previously not been covered. As an example, if you can do a Level 2 & 0 action (such as reading up on computer science which you enjoy doing) instead of a pure Level 0 action, then that should always be a good idea, even if there is a risk of low connectivity back to Levels 1 and 0.

[-] **adamzerner** 6y 0

The wrongness displayed in this video may help you internalize may help you internalize the concept of levels of action.

[-] **adamzerner** 6y 0

> Most Americans spend too little time on higher-level actions, like being strategic - doing a quick analysis of what your goals are, and which Level 1 or Level 2 actions would best accomplish those goals. Witness the hordes of lawyers who spend thirty years on the Level 1 action of working at a law firm, three years on the Level 2 action of getting a law degree, and three minutes on the Level 3 action of deciding what to do after college.

That's brilliant.

[-] **adamzerner** 7y 0

I just watched an upworthy video, and it gave me an idea about how to explain levels of action:

Say you need signatures to support a certain cause.

- Level 1: Providing your signature.
- Level 2: Recruiting other people to provide their signatures.
- Level 3: Recruiting recruiters.
- Level 4: Recruiting recruiters of recruiters.

etc.