

# The Seven Habits of Highly Effective Thinkers<sup>1</sup>

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Anyone who has spent much time in airport bookstores lately (I assume that's most of us) can hardly have missed the "Seven Habits" series, including such titles as "The Seven Habits of Highly Effective People," "...Managers," "...Rodeo Riders," etc.

Our topic today is the seven habits of highly effective thinkers. But a couple of caveats. By effective thinkers I'll be meaning, not people who think effectively, but people who understand "how it's done," i.e., people not paralyzed by the philosophical problem of epiphenomenalism.

Second, I can't pretend that the habits I'll be describing are very widespread; as far as I know I am their main practitioner. So please take me to be talking less about habits I've encountered than ones I'm urging. If you want to be unburdened of the problem of epiphenomenalism, I'm saying, then the following has worked for me and (who knows?) it may work for you as well.

If anyone needs to be reminded of why epiphenomenalism is indeed a problem, let me explain with an analogy, taken from a (deservedly forgotten) Ray Bradbury novel called Dandelion Wine. Early one morning, Bradbury writes, twelve year old Douglas Spaulding climbed

the dark spiral stairs to his grandparents' cupola [to] perform his ritual magic...He pointed a finger...A sprinkle of windows came

suddenly alight miles off in dawn country...  
"Grandma and Greatgrandma, fry hot cakes!" The warm scent of fried batter rose in the drafty halls..."Mom, Dad, Tom, wake up." Clock alarms tinkled faintly. The courthouse clock boomed. Birds leaped from trees like a net thrown by his hand, singing. Douglas, conducting an orchestra, pointed to the eastern sky. The sun began to rise...Yes sir, he thought, everyone jumps, everyone runs when I yell...

A lot of things take place when Douglas yells, but do they happen because he yells? Not likely. If the clock's booming, for example, is already causally guaranteed, quite apart from Douglas's activities, by the cogwheel's turning, the clapper's swinging, then what Douglas does appears as an irrelevant add-on making no contribution whatever to the effect.

Notice the principle we are relying on here, sometimes called the exclusion principle: if an outcome is causally guaranteed by factors distinct from X, then X is causally irrelevant to that outcome.

The question for us is: what does this principle say about outcomes that Douglas intuitively does have some control over, like his finger's turning toward the eastern sky? This outcome occurs when Douglas decides to point east, but does it occur because of his decision?

Surprisingly the answer seems to be no. Like any physical event, the motion of Douglas's finger is causally determined by its physical antecedents. By the exclusion principle, then, nothing distinct from those antecedents -- such as Douglas's decision -- can be relevant to the finger motion. Douglas's decision to move his finger plays

no causal role in his finger's subsequently moving!

That is one threat to mental causation: I call it THE THREAT FROM BELOW because it has beliefs and desires pushed aside by neural states at a "lower level of description," and, many would say, a lower and prior and level of being.

**First Habit: Effective thinkers are careful to distinguish the THREAT FROM BELOW, from another threat to be explained in a minute, the THREAT FROM WITHIN.**

So, how is the would-be effective thinker supposed to defend herself against the threat from below? I am going to suggest an answer that may seem laughably simple-minded. The answer is that this talk of neural states as occupying a "lower and prior level of being," is not to be taken literally; it's only a metaphor.

To put it a little more dramatically, your typical epiphenomenalist is right: if the neural states really were prior, that could not help but make the psychological states posterior and dependent. And if the psychological depends on the neural then there is only one possible conclusion -- drawn already by Thomas Huxley over a century ago. Here is what Huxley said:

[assuming that] all states of consciousness ... are immediately caused by molecular changes of the brain-substance ... our mental conditions are simply the symbols in consciousness of the changes which take place automatically in the organism...the feeling we call volition is not the cause of a voluntary act, but the symbol of that state of the brain which is the immediate cause of that act.<sup>2</sup>

This looks bad but it also shows us the way forward. If mental states depending on their physical concomitants leaves them out of the causal loop, then don't let them depend. Which brings us to the

**Second Habit: Effective thinkers don't let mental states *depend* on their physical concomitants.**

But what is the alternative? Evidently we've got to let mental states stand in some other and more intimate relation to their physical so-called underpinnings.

The most intimate relation of all is of course identity. But to call mental states identical to their physical bases essentially just runs away from the traditional problem, namely, how to arrange for mental states conceived as different from physical states manage nevertheless to exercise causal influence over physical states?

Humor me for a minute while I ask: what is the next most intimate relation after identity? Last time I looked, it was the relation between a thing and its parts. But which relation do I mean, for there seem to be at least two relations (or types of relation) with some claim to be considered relations between part and whole.

On the one hand we've got extensive part/whole, the relation in which, say, the Battle of the Bulge stands to WW II, or my hand stands to my body. Very very roughly, A is an extensive part of B iff it is what

you get when B is confined to just certain spatiotemporal positions.

Secondly though there's intensive part/whole. This is the relation in which Socrates' drinking the hemlock, say, stands to his guzzling the hemlock; or someone's driving home on a certain occasion stands to her speeding home. A is an intensive part of B iff B is what you get when A is confined to just certain possible worlds.

(Alternative way of putting it: extensive wholes exceed their parts in size, intensive wholes exceed their parts in strength.<sup>3</sup>)

The proposal as you have probably guessed is that mental states are in the intensive sense parts of their physical concomitants, and that this very much blunts the force of the threat from BELOW. You can see this by looking at the principal examples we have of intensive part/whole relations: the relation that individual conjuncts bear to their conjunction, and the relation that determinables bear to their determinates.

So -- suppose a pigeon is trained to peck at red, round patches. No one is going to say that since the patch's being red and round was sufficient for her pecking, its redness was irrelevant! Or, second example, let the pigeon be trained to peck at crimson patches of any shape. Assuming that the patch's crimsonness was sufficient for her pecking, does anyone seriously want to conclude from this that its redness made no causal difference?! So, we have a

**Third Habit: They treat mental states as (intensive) parts of their physical counterparts.**

After all this, is anything still left of the threat from BELOW?

Maybe there is. One could argue that as between, say, my pain, and the underlying brain state, the "real" cause of my wincing is the brain state -- not because the pain is preempted by the brain state (wholes don't preempt their parts) but just because, well, we don't want to have two causes, and the pain offers no advantages to compensate us for the sheer kookiness of nominating a non-physical event as the cause of a physical one.

The answer to this is, who says the mental states offers no advantages! It's a general principle of causation that we want causes to be as far as possible proportional to their effects: that is, to be required by them -- nothing less would have done -- and enough for them -- nothing more was needed. To put it precisely, say that

one would-be cause x screens off another y from effect e iff, had x occurred without y, e would still have occurred.

Then the proportionality principle is this:

c causes e only if  
(i) c is not screened off by any of its parts, and  
(ii) whatever has c as a part is screened off by it

To the extent that the pain screens my brain state off from my wincing -- to the extent that my wincing would still have occurred

had the pain been differently implemented at the neural level -- my headache is more proportional to the wincing and hence a better candidate for the role of cause. Hence the

**Fourth Habit: They defend mental causes as better placed to cause (certain) physical effects due to their greater proportionality with those effects.**

It is here that things begin to get really tricky. Because the proportionality principle, having just turned back the threat from BELOW, appears to propel us straight into the arms of another and equally serious threat: the threat from WITHIN.

The target this time is intentional mental states: states like belief and desire individuated in terms of truth or satisfaction conditions. According to Hilary Putnam, and who am I to argue, truth conditions can vary between internally indiscernible agents (e.g., me and my doppelganger on Twin Earth). It follows that intentional states are extrinsic, or not wholly a matter of what goes on within the thinker's skin.<sup>4</sup> Add to this that it is intrinsic states that determine causal powers -- as Fred Dretske puts it,

you can change [extrinsic states], remove them, or imagine them to be different in various respects, without ever changing the causal powers of the object or person that is in this extrinsic condition --

and you see the problem (quoting now Jaegwon Kim):

how can extrinsic facts about A, depending as they do on factors that are spatially and temporally remote from A, help explain A's current behavior? Surely what explains, causally explains, A's raising her arm or pushing a button are intrinsic facts about A.<sup>5</sup>

Example: I desire water and extend my hand. But of course Twin Me, who desires not water but twater, would have done the same in my circumstances<sup>6</sup> -- as indeed would anyone intrinsically just like me. So intentional states, like brain states, are overloaded with unneeded detail. The only difference is that this time the unneeded detail is "without" rather than "below."

If beliefs and desires don't cause behavior, what does? Any behavior that beliefs and desires might seem to generate must really be due to some intrinsic surrogate: syntactic states, perhaps, or narrow-content quasi-beliefs, or even brain states.<sup>7</sup> Intentional causes are displaced by factors -- intrinsic surrogate states -- internal to the agent, which gives the threat from WITHIN its name.

I said that WITHIN presents such a threat because it appears to use the very same proportionality principle that we relied on in our response to the threat from BELOW. You can see what I meant by that if you put the objection like this: would-be intentional causes are screened off by internal surrogate states -- I would still have reached out my hand even without desiring water so long as my narrow content state had been just the same -- and this



puts intentional causes out of proportion with their seeming effects.

But now wait a minute. The proportionality condition doesn't say that causes can't be screened off at all; it says that causes can't be screened off by proper parts of themselves. Suppose then that we distinguish two sorts of intentional state.

Thick intentional states are rich in internal detail, so much so that you can strip their extrinsic aspects away and still have enough left to constitute what we've called a surrogate state, e.g., a narrow content state. Thick intentional states include surrogate states as (intensive) parts. Thin intentional states by contrast are subjectively impoverished, so that when you strip their extrinsic aspects away there is not enough left to make up a surrogate state. Thin intentional states do not include surrogate states as parts.

Now, about "thick" beliefs and desires the objector may well be right; to the extent that they have intrinsic surrogate states as parts -- surrogate states that screen them off from the effect -- they're in violation of proportionality. But "thin" attitudes, remember, have no intrinsic parts to speak of, hence none to screen them off. The moral is that while proportionality may indeed make trouble for thick beliefs and desires, thin ones it leaves entirely untouched.

**Fifth Habit: They remember that an intentional state can be *screened off* by an intrinsic surrogate without thereby being knocked out of proportion with the effect –**

**provided the intentional state is "thin" and not "thick."**

Suppose we focus our attention on "thin" beliefs and desires, that is, ones that don't include the intrinsic surrogates as parts, that is, ones that are relatively impoverished on the subjective side.

Then what you would need to make the objection from WITHIN work is not proportionality -- that doesn't apply for reasons just explained -- but the enormously stronger condition of SUPERproportionality:

c causes e only if (i) c is not screened off by any other candidate cause, and (ii) c screens off every other candidate cause.

**Sixth Habit: They remember that the principle it takes to embarrass "thin" intentional causes is SUPERproportionality.**

Bertrand Russell seems to have been in the grip of some principle in his paper "On the Notion of Cause." Because here is what he argued, or provided the materials for arguing:

c cannot cause a strictly later event e except via some causal intermediary d. But then c is not really enough for e, since it would not have been followed by e but for d's assistance.<sup>8</sup> Nor is it really required, since given d it makes no difference to e whether c occurs or not. So there can be no temporal gap between cause and effect.<sup>9</sup> The only true causation is simultaneous causation.

Russell intended his argument as a reductio of the whole notion of cause. But it works

better as a reductio of the superproportionality principle. The real lesson of Russell's argument is that to insist that causes screen off subsequent events, while not being screened off by them in return, imposes an absurd degree of intimacy on causal relations.

No one imagines it makes beliefs and desires epiphenomenal to be screened off by events subsequent to themselves. But many do seem to think it makes them epiphenomenal that they are screened off by intrinsic states. This is interesting because it seems to me that to count this sort of screening off disqualifying also imposes a disastrous degree of intimacy on causal relations. The only difference is that now the intimacy is of a modal nature rather than a temporal one. Instead of being forced to exist at the same times, c and e are forced to occur at the same or similar worlds. (I hope this seems plausible; details given elsewhere.<sup>10</sup>) I conclude that the threat from WITHIN, to the extent that it has any force at all, depends on an absurdly overheated conception of proportionality.

**Seventh Habit: Effective thinkers reject superproportionality as overdemanding.**

Another way to put it is that thin intentional states are safe not just from the letter but also the spirit of WITHIN.

Almost all of the above has been in a negative vein; the claim has been that WITHIN does not show that extrinsically individuated mental states are out of proportion with their putative effects. Can anything be said to clarify how they might actually be proportional with them? Details will have to wait for another occasion, but

let me give three examples/models of how an extrinsic cause might be more proportional to an effect than the competition.

### **Unity Model**

An extrinsic cause might be needed because it takes something physically outside of c to "unify" the various ways in which c might have taken place. Quine gives a relevant example in "Propositional Objects." Why did the cat jump onto the roof? Presumably because it wanted to get onto the roof, an extrinsic desire if there ever was one. One could try to nominate the corresponding brain state as cause, but the effect would still have occurred even if the desire had occurred by way of a different brain state. As Quine puts it,

the particular range of possible physiological states, each of which would count as a case of [the cat] wanting to get on that particular roof, is a gerrymandered range of states that could surely not be encapsulated in any manageable anatomical description even if we knew all about cats...Relations to states of affairs,...such as wanting and fearing, afford some very special and seemingly indispensable ways of grouping events in the natural world<sup>11</sup>

An example from my own experience: I get anxious whenever I believe myself to be in Paris. Why attribute my anxiety to the extrinsic belief that I'm in Paris, as opposed to an intrinsic attitude with the content that I'm in a place of wine, baguettes, unfiltered cigarettes, etc. Because, to paraphrase Quine, the particular range of narrow states, each of which would count as a case of my believing I'm in Paris, and hence of my becoming anxious, is a gerrymandered range that could not be

encapsulated in any natural narrow specification even if we knew all about my psychology. The ways I might think of myself as being in Paris are just too many, and from an internal point of view too open-ended, to permit an internal rendering of the robust counterfactual relation that obtains between my Paris-beliefs and my getting anxious.

### **Matching Model**

An extrinsic cause might be wanted because the effect depends on my internal state "matching" the environment along a certain dimension, relatively independently of the precise values either of the matching items assume. If I win the prize on a game show, this might be because my beliefs about snack food are by and large correct. Why not say that I won because I believe that salty snacks make you thirsty, and they do make you thirsty; I believe that most people prefer regular pop to diet pop, and they do prefer regular pop to diet pop; and so on? Such an answer is out of proportion with the effect. For if they had asked different questions about snack foods, or if they had asked the same questions but the truth about salty foods had been different and my beliefs different as well, I would still have won the prize.

### **Tracking Model**

An extrinsic cause might be wanted because the effect depends on my internal state "tracking" the environment in a certain way, so that the matching will persist even when the environment changes, and/or my evidential situation changes.

An example of Tim Williamson's<sup>12</sup>: I keep on digging because I know this mine contains gold. Believing, even truly believing, that it contained gold would not have been enough; such a belief might have been inferred from the misinformation that it contained gold precisely here, when in fact the gold was in a completely different place. It seems more than a coincidence that the belief's being inferred from a false lemma both prevents it from constituting knowledge, and gives it less control over my behavior than the corresponding knowledge would have. That my belief is based on a false lemma is the kind of thing I am liable to discover, in which case I am likely to drop the belief and give up the behavior it rationalizes.

Another example, where it is not the stability of my representations that is enhanced by an extrinsic factor but the stability of their truth. Of the various causes that might be mentioned of my catching a certain ball at time T+1, one is my seeing the ball at time T. Seeing the ball seems a better candidate for the role of cause than something intrinsic, e.g., my having an intrinsic experience as though of a ball at place P, even if we add the fact that P is where the ball really was. Why? One reason has already been mentioned; that the ball was at place P as opposed to P' is less important than my having an accurate representation of its whereabouts whatever they may be. Just as important, though, to see the ball is in part to be well placed to continue to have accurate experiences of its position as it continues to move. This can

hardly fail to help with the project of catching it.

**EXTRA HABIT: Effective thinkers do their best to develop *positive* models of how extrinsic factors might be able to earn their keep in an intuitive causal story.**

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<sup>1</sup> Parts of this paper are taken from Yablo 1992a,b and Yablo 1997. Thanks to Tim Williamson for his 199? and for helpful discussion.

<sup>2</sup> "Animal Automatism" in Huxley 1911, 244; the essay dates from 1874.

<sup>3</sup> Yablo 1992b.

<sup>4</sup> Putnam 1975. Despite our perfect intrinsic similarity, my doppelganger on Twin Earth wants



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twater, the colorless drinkable stuff in his environs, while it is water that I desire.

<sup>5</sup> Dretske 1993, 187, with inessential deletions.

<sup>6</sup> There is a considerable tradition of attempting to answer WITHIN by denying this sameness; my Twin, unlike me, would have been reaching for twater. (See the first few papers in Pettit & McDowell 1986, and for criticism Fodor 1991.) I agree that there is something my Twin does that is different from what I do, and vice versa. But I would hate to pin the case against WITHIN on this, for there is something else we do, viz. simply reaching out, that is the same in both cases. I want to argue that WITHIN is wrong even about the behaviors that my Twin and I have in common.

<sup>7</sup> See various papers in Woodfield 1982, especially McGinn's; Loar 1985; Stich 1978, 1980, 1983; Fodor 1991; Dretske 1988 and 1993; and various papers in McLaughlin 1991. Here is Kim's version of the argument: "semantical properties [are] relational, or extrinsic, whereas we expect causative properties involved in behavior production to be nonrelational, intrinsic properties of the organism. If inner states are implicated in behavior causation, it seems that all the causal work is done by their "syntactic" properties, leaving their semantic properties causally idle....How can extrinsic, relational properties be causally efficacious in behavior production?" (1991, 55).

<sup>8</sup> "[T]here must be some finite lapse of time...between cause and effect. This, however, at once raises insuperable difficulties. However short we make the interval ... something may happen during this interval which prevents the expected result. In order to be sure of the expected result, we must know that there is nothing in the environment to interfere with it. But this means that the supposed cause is not, by itself, adequate to insure the effect" (Russell 1917, 136-7).

<sup>99</sup> "[I]f the cause is a process involving change within itself, we shall require...causal relations between its earlier and later parts; moreover it would seem that only the later parts can be relevant to the effect...Thus we shall be led to diminish the duration of the cause without limit, and however much we may diminish it, there will

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still remain an earlier part, which might be altered without altering the effect, so that the true cause...will not have been reached" (Russell 1917, 135).

<sup>10</sup> Yablo 1997.

<sup>11</sup> Quine 1966.

<sup>12</sup> Williamson 199?.