

THE CHRONOMETRY OF THOUGHT: WITTGENSTEIN AND CRITICAL THINKING

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Speaking thoughtlessly and speaking not thoughtlessly are to be compared to playing a piece of music thoughtlessly and, again, not thoughtlessly.¹

Here are four points I wish to impress upon you. First, in philosophical treatments of critical thinking, it is widely assumed that critical thinking is a *kind* of thinking and, in such treatments, this assumption has a major role to play. Second, persuasive arguments exist leading to the conclusion that the presumption that critical thinking is a kind of thinking is false. The arguments I offer are reflections on three examples: “the logic overachiever,” “the critical libertarian” and “the critical prodigy,” all suggested by Wittgenstein’s remarks. Third, alternative models of the relation between critical thinking and thinking are found in two directions, one looking toward musical theme and variations and the other toward chronometry. Lastly, the new models afford fair measure of the extents to which major participants in the debates over critical thinking err and to which they concur.

THAT CRITICAL THINKING IS NOT THINKING AND WHY IT MATTERS

Critical thinking is not plausibly a type of thinking. It is better viewed as a variant or a variation on themes of thinking. In other words, I say that “critical thinking” does not name a subcategory of the category of things or quasi-things that we now normally call “thinking”; the relation between critical thinkings and thinkings is not one of inclusion. I am aware that, in advancing this proposal, I swim against a strong tide in the philosophy of critical thinking. The preponderance of works on the subject either set off from or move very quickly to the claim that critical thinking is a distinctive manner or type of thinking. John McPeck, in his oft-cited *Critical Thinking and Education* (1981), declaims this unequivocally. He has written: “Whatever critical thinking may be precisely, it is quite clear that it is *thinking* of some sort,” and “The concept of critical thinking denotes a particular type of thinking.”²

Worth noting *en passant* is that McPeck’s analysis of critical thinking — as on pages 8 through 14 of his book — presents real difficulties. For one, the analysis is phrased in terms of propensities and skills for engaging in reflective skepticism rather than in terms of thinking simpliciter. A possession of propensities and skills is perfectly consistent with the prospect that they never be engaged or exercised. Hence, one could be a full-fledged critical thinker *à la* McPeck and never do any real thinking at all — in any situation. Moreover, McPeck prefers to dissect the title “critical thinker” rather than the descriptive “critical thinking.” And this opens the real prospect that, even after all is said, “critical thinking” remains itself unanalyzed. Surely, one could do a good deal of critical thinking (say, in one area of expertise) and yet fail to count as a true critical thinker. For one thing, the term “critical thinker” — like “creative thinker” — is an honorific; it does not mean someone who occasionally engages in critical thinking.

McPeck is hardly alone in maintaining that critical thinking is a sort of thinking. Norris and Ennis, in their *Evaluating Critical Thinking* (1989), have written that critical thinking is “reasonable and reflective thinking that is focused upon deciding what to believe or do.”³ I confess uncertainty over the phrase “reasonable thinking,” but reflective thinking is surely meant to be a brand of thinking,

perhaps one incorporating thinkings that count equally as reflections. When Ennis, in his “The Degree to Which Critical Thinking is Subject Specific” (1992), offers much the same account of critical thinking, he again avers that critical thinking is included within thinking by writing of critical thinking as among “other concepts of thinking.”⁴ If we assume that anything which is disciplined and self-directed thinking and which exemplifies the perfection of thinking is likely to be some sort of thinking, then Richard Paul lives in the same camp. To quote him, “critical thinking is disciplined, self-directed thinking which exemplifies the perfection of thinking appropriate to a particular domain or mode of thinking.”⁵

At first blush, the claim that critical thinking is a kind of thinking may seem too minor an assumption to justify this much fuss. I, however, think it neither minor nor incidental but confirmatory of Wittgenstein’s admonitions: “the first step is the one that altogether escapes notice” and “the decisive movement of the conjuring trick has been made, and it was the very one we thought quite innocent.”⁶ Two pernicious consequences of the assumption are plain. First, to include critical thinking within thinking is to open a broad, level road by which traditional philosophy and cognitive psychology can march into educational philosophy. Second, it creates for critical thinking a fictitious philosophical history, one obscuring a crucial discontinuity. Cognitive psychology disports itself as general empirical study of all cognition. If critical thinking is thinking, then it is cognition. Hence, without further ado, a way is open by which cognitive psychology comes to seem a proper general study of critical thinking. The import of this overhasty conclusion for pedagogy will be obvious. It may be presumed that psychological experiments on the “generalizability of problem solving techniques” — operationally construed — reveal notable facts about the generalizability of critical thinking, as in Lockhart (1992).⁷ I do not deny outright that experiments may be instructive on matters of critical thinking and pedagogy. I only assert that, if critical thinking is different from the processes psychologists denominate as thinking, direct applicability to it of a psychology for thinking does not go without saying. One must provide arguments for the relevance of cognitive science and psychology to critical thinking.

Further, the assumption that critical thinking is thinking forges for critical thinking a phony intellectual pedigree. Given the assumption, a proper study of critical thinking might seem a mere application of something we have been doing all along. For centuries, it is believed, philosophers have been studying thinking in general under the rubrics of logic and epistemology. If critical thinking is included in thinking, then these important truths govern critical thinking. Yet, if critical thinking be recognized for what it is — not true heir to the family of cognition but one of its parvenu relatives — we cannot allow to critical thinking the inheritance of the tradition of thinking in philosophy.

To convince you that critical thinking is not a kind of thinking, a first order of business is to loose the hold of superficial grammar. It is perfectly possible — and often essential — for something to count as a real XY and yet not count as either an X or a Y. In order to be a German shepherd, it is necessary to be neither a German nor a shepherd. To be real fool’s gold, it is essential not to be real gold at all. More to the point, the subject of natural history — as it is practiced nowadays — is certainly not history or even a sort of history. Much of what comes under the heading “critical reading” is neither reading nor a kind of reading. My point is this: we labor under no logical or lexical obligation to analyze every double predication XY, such as “critical thinking,” so that every XY turns out to be a Y. Hence, we stand uncompelled by grammar to insist that every instance of critical thinking is an instance of thinking.

Second, to see that critical thinking is not always thinking, we need to avoid common and philosophical usage. If we do not, “all critical thinking is thinking” becomes true on the cheap. The usage I have in mind is exemplified in Descartes’s *Meditations* — or in English translations of them. Here, Descartes’ word “*cogitare*” and our “thinking” are used as if equivalent to “cogitating in any way.” Descartes writes, “But what then am I? A thing that thinks. What is that? A thing that doubts, understands, affirms, denies, wills, refuses, and which also imagines and senses.”⁸

Descartes invokes a concept of thinking on which the category of thinking comprehends mentation of many sorts including, as you well know, dreaming. Hence, unless you are out cold or very deeply asleep or temporarily devoid of brain function, then you are, in this sense, thinking. You are considered to be thinking in the Cartesian way even were you to be fully caught up in the excitement of a football game, the home team three points down with forty seconds left to play. You are then in a state of Cartesian thought, despite the fact that you jump mindlessly up and down, shout, scream and pour drink *thoughtlessly* down the back of the man in front. Indeed, what you are doing — at that moment — is nothing of the sort that we would commonly associate with thinking. I do not believe Descartes's to be an obviously mistaken use of "thinking." Even so, to be told that critical thinking is a species of thinking in this sense is to be told very little: that thinking critically requires that one be conscious — if only slightly.

Those most keen to study critical thinking — whatever the words "critical thinking" could mean — seem to hanker after thought which is relevantly preparatory and articulate. (I refer you to the above citation from Ennis and Norris.) Scholars of critical thinking comb through a vast array of occurrences which seem explicit assessments of act or judgment prior to their commission. They look to such mental undertakings as contemplation, episodic ratiocination, adjudication, prior reflection, pondering, weighing, planning, discursive consideration and inner dialectic. All of these are viewed with an eye to their potential for preparing us to perform an act in the right way. That "right away" is then displayed in an articulation of the preparation. Moreover, critical thinking, whatever it is, cannot be imponderable. In teaching critical thinking, we train students to articulate the thinking processes that prepare for judgment or decision-making and then to submit them to one or another standard — before they commit to judgment or decision.

But these ratiocinative, articulate, preparatory processes cannot be all there is to critical thinking, if they are relevant at all. It is my view that critical thinking need not include such processes — or may only do so incidentally. Instead, critical thinking is characterized by such phenomena as bare judgment, external authority and global standardization. To support these conclusions — and to explicate these terms — I offer three thought experiments: the logical overachiever, the critical libertarian and the critical prodigy. I hope all three are recognizable as graphic renditions of lines of thought marked out in paragraphs 143 through 201 of *Philosophical Investigations*. I describe the three thought experiments and then draw conclusions.

[1] Those undergoing a solid course in critical thinking are trained in a variety of logical techniques, including truth tables, Venn diagrams, simple formal derivations and others. These articulate those processes of thought preparatory to action or decision. In another aspect of the course, students are also taught to pick out sample passages as instances of logical forms. They are, for example, asked to recognize that "If Mary has a little lamb, she has an animal. She has a little lamb. So, she has an animal" as of the form *modus ponens*. All goes well until one student — the logic overachiever — realizes that, since form recognition is part of critical thinking and critical thinking is a species of preparatory and articulate thinking, then — by logical reasoning — the techniques of the first part of the course must apply to the second part — to the form recognitions. The overachiever leaps upon this with relish: every time he attempts a form recognition, he maps out his preparatory thought process in detail and submits it to analysis by truth table, Venn diagram *and* formal proof, even when the instance is as elementary as that just mentioned.

[2] The critical libertarian is an imaginary individual who refuses to accept the fact that, in order to think critically, one must admit that others can exert *prima facie* critical authority over the quality of one's thought. The critical libertarian is — in Siegel's multiply ambiguous phrase — "appropriately moved by reasons," yet she rejects the prospect that anyone but the thinker herself is final arbiter over her thought. Just as Hume once averred of aesthetic thought,⁹ the libertarian insists of all thought that correctness is a matter of personal taste. That taste may be more or less refined and more or less educated, but it cannot be ruled from without. The libertarian not only denies that there are extrapersonal standards to which proper thinking must conform, but reasons brilliantly and

innovatively to that denial. So much so that, in defense of the claim that there are no external principles of thinking to which we must conform, the imagined critical libertarian does all the thinking and pondering and reasoning in the world. Like Hume, she is a master dialectician.

[3] Just as von Neumann was a calculating prodigy, the critical prodigy is a genius when it comes to critical thinking. Present him with a description of *any* situation, even the most complex, for which preparatory critical thinking is required, and — in the wink of an eye — the appropriate course of action is on his lips. He can produce, at the drop of a hat, thoroughly traditional justifications for his proposals but without being able to say how he came by them. Yet, as autism is allied with both arithmetic genius and cognitive deficit, the critical prodigy bears a strange psychological profile. He is otherwise normal in all everyday respects except that he *never* pauses, ponders, worries over or reverses a decision. In a word, he never thinks — at least in that preparatory and articulate fashion. Nor does he ever make reports characteristic of cognition. He will not admit to exerting mental effort. All decisions — all perfectly correct — are come to instantaneously. Brain scans of the prodigy later reveal the brain wave patterns indicative of cogitation among humans to be wholly absent. His eyes are also expressionless, blank.

One's strong temptation is to say that, as far as preparatory, articulate thinking goes, the logical overachiever and — especially — the critical libertarian are without flaw. Yet both are marked failures at the task of critical thinking. You see, critical thinking is not just a description of processes, as "thinking" *might* be. In this, I accord with Siegel's verdict that "critical judgment... presupposes the recognition of the binding force of standards, taken to be universal and objective."¹⁰ With the critical prodigy, one is tempted to the opposite view: the prodigy is at critical thinking a wizard — in just the way that an autistic child can be a marvel at calculation — but no thinker, no cogitator, at all. Hence, the three cases, taken together, present a real disconnect between thinking and critical thinking.

Perhaps some may object to this conclusion by asking, "How can you claim to know that recognitions of forms and of external authorities are definite characteristics of critical thinking while postponing the issue of the nature of critical thinking?" I reply that philosophers and others have for centuries given detailed descriptions and dissections of all manner of phenomena which are definitely phenomena of color, yet they did not always know or even possess much sensible idea of the nature of color itself. For myself, I find the three examples to prompt six further conclusions. The first four pertain to the intellectuality of critical thinking and reveal the extent to which it is not itself intellection. The fifth shows that proper analyses of critical thinking will include certain features while excluding certain deeds. The sixth concerns the nature of the critical thinker as individual. Sadly, I can do little more here than list the conclusions.

First, as Robert Ennis once emphasized, there are particular judgments — that is, singular situated and embodied deeds of judging — with which one must concur, if one is to count as a critical thinker. One has not mastered the content of *modus ponens* unless one agrees with others in judging its immediate applications. As cases [1] and [2] suggest, such judgments are not purely intellectual accomplishments. They get embodied in deeds — in recognition or in agreement. Second, as the example of the logic overachiever shows, those judgments must also be "bare" in the sense that they are not the upshot of articulate, preparatory thought. Be aware that there are any number of acts with which discursive, prospective thought "gets in the way." A child who has to ponder and talk over whether she ought to call the fire engine "red" or "green" hasn't yet really "got it." Note also that many of the intellectual skills which critical thinking advocates recognize as instances of critical thinking are manifested in acts or procedures which can be carried out — with perfect propriety — thoughtlessly or mechanically. Indeed, any obvious thought preparatory to recognizing clear instances of *modus ponens* is too much thought. Third, critical thinking, like elementary and unlike higher mathematics, is intended to be self-consuming. The better we get at it, the less we are supposed to need it. Many of the techniques taught in critical thinking courses are ladders we throw away once we climb up. Hence, there is a respect in which the accomplished critical thinker needs to

think a lot less than the novice. Fourth, cases [1] and [2] also show that a critical thinker is required to acquiesce in certain historical standards. This acquiescence involves much more than entertaining or hypothesizing a principle. The libertarian is willing to entertain any such principle. The critical thinker must conform to principle in judgment. Hence, a grasp of principle cannot explain our judgments; judgments, instead, show what it means to grasp a principle.

Fifth, if we think critically but do not overachieve, we must refuse certain possibilities which are *a priori* logical. An *a priori* possibility which the cabinet ministers who advised Kennedy during the Cuban missile crisis did not entertain is that the island of Cuba had always been, throughout history, an optical illusion. In thinking critically, it is not further thought that leads us away from these nonsensical possibilities. Nothing leads us; we *ignore* such prospects. The fact of ignoring puts the lie to construals of reason and reasoning which tie both too tightly to the entertaining of propositions and principles: we do not avoid *recherché* possibilities by, first, considering them. Here is my final conclusion; I draw it from example [2]. No adequate analysis of critical thinking can be wholly individualistic. Just as there is error in the notion of private language, so also there is error in setting up private standards or norms. As Wittgenstein insisted, it makes no sense to agree, but only inwardly, to external authority. Judging barely and properly requires concurrence with others.

If, from all this, there comes a summary conclusion, it is that judgment bare of prior pondering, some acquiescence to external authority and the dismissal of extraneous possibilities are all instances of what Wittgenstein took to be limits of thinking. These limits lie within the rightful province of critical thinking but are themselves neither thought processes nor their results.

One may object that further senses of the word “thinking” exist on which critical thinking may be a kind of thinking. This objector may have in mind uses of the word “thinking” on which we say, of the members of a committee, “they have been thinking about our new policy for some time” or “there has been a process of thinking in the committee.” When one says this, the committee has been engaged in far more than pondering and puzzling. Members also judge, compare, argue and accept authorities. I reply by pointing out similar uses of the word “walking.” On such uses — called “interruptive” — we say that Bill is walking home if Bill is truly on his way home but often stops to chat with people or dives into a shop for a candybar. I note that it does not follow from this interruptive use of “walking” that stopping, chatting and buying candy are forms or kinds of walking. Hence, one may refuse to take the existence of “interruptive” thinking to mean that judging and acquiescing are instances of thinking.

Nor should it be thought that I here repeat a point already lodged by Siegel who wrote, “On the reasons conception, critical thinking involves actions which are not just acts of thinking. For the critical thinker is appropriately *moved* by reasons; she acts in accordance with the force of relevant reasons.”¹¹ Siegel would have it that “critical thinking” covers more than mere thinking since it covers actions. He allows it to cover all actions driven by reasoned motive. It is not my contention that “critical thinking” applies to all manner of reasonable actions or even to isolated actions at all. Idle scratching and noseblowing can derive from reasoned motive, be perfectly rational, and yet fail to qualify as critical thinkings.

VARIATIONS ON A THEME

If critical thinking is not, properly, a kind of thinking, then what is it? And how is it related to thinking? One short answer is that critical thinking represents an effort, occasionally concerted, at a recrafting of thinking. By the word “crafting,” I intend you to recall accomplishments such as handcrafting and woodcrafting. I emphasize the fact that critical thinking is a real accomplishment while thinking, for most of us, is not. I offer two examples of recraftings: theme-and-variation and popular chronometry.

As the opening quotation from Wittgenstein recommends, we ought to compare thinking with music. As the notes struck on the piano carry individual expressions, so the deeds of our days are notes that

carry thought as one of their expressions. The forms of preparatory thinking — pondering, puzzling, planning and the like — establish regular themes in our lives. But, if critical thinking is not thinking, it is not itself this music. Rather, it is a variation, and we must be cognizant of this fact. The project of teaching critical thinking looks to make use of naturally-occurring themes and, in so doing, recraft them and create variations on those themes. It recrafts by interposing new authorities, new forms, new techniques into the streams of deeds already expressive of thinking. If nothing else, the variations encrafted by critical thinking give to the theme of thinking a new rhythm. Even though the variations are recognizably different from the themes, we can pick out, within the variations, the old themes — or their fragments and traces.

This image of critical thinking — as the recrafting of theme into variation — has a signal philosophical advantage: it gauges the extents of truth and of falsity in recent debates over critical thinking. On one side are those, like McPeck, who believe “critical thinking” to be a term of thoroughly divided reference, so much so that little or nothing of substance is common to all the varied forms which critical thinking can take on. Those on this side would have it that nothing is critical thinking either in essence or in general. For, without attaining a firm grasp of a special subject area such as geodesy, one cannot even comprehend what the statements of that subject mean, let alone reason geodetically with them. What seems a diametrically opposing picture is discernible in the writings of Sheffler, Siegel, Bailin *et al.* There, the referent of the term “critical thinking” is not viewed as divided but as univalent — or largely so. When in proper use, the expression picks out matters or processes of reasoning which make up common features in all subjects of ratiocination. Special subject knowledge is important — in its own way — but not crucial to critical thought.

This opposition seems natural and complementary, rather than bitter, once we look on critical thinking as sets of variations. Variations on a theme — think here of Brahms’s famous variations on a theme of Haydn — do constitute a kind of unity. They are, often but not always, immediately recognizable as variations, especially when presented in close adjacency. In cases of variation which come first to mind, the original theme is often plainly audible *in* each variation. Besides, to describe bars of music as constituting “a variation” is already to advert to an abstract relation obtaining between those bars and a unifying theme. On the other hand, a wider look over the vast field of musical diversity suggests that pockets of uniformity exist but are localized. Remember that uniformities which link a putative variation to its putative theme can be extremely tenuous; they can require years of detailed musicological research to uncover. Some, certainly, are never discerned. Think here of variations on themes which are “buried” in the works of composers such as Bach. There are some rules for generating variations, even though variations can be random. If there are absolutely general rules or regularities, they are not always useful in specific cases. (What general rule would tell me whether the relation between real birdsong and its representation within Beethoven’s *Pastoral Symphony* is one of theme-and-variation?) Please note that it will not follow from the fact of vast diversity in variations that it is impossible to teach music students to compose them. Yet, such teaching takes one only so far: learning to generate variations in the style of John Cage may not yield an understanding of the abstract structure manifested in the *Goldberg Variations*.

THE CHRONOMETRY OF THOUGHT

When I speak of “chronometry” here, I do not mean the origins of the art — which are ancient — but its later popularization. This took place during the 17th and 18th Centuries with the manufacture and sale of portable timepieces. The introduction of such devices into everyday life marked a recrafting of its temporality. Each deed of each individual now acquired a precise length of time. Personal chronometry created for those deeds a new articulation: one arrived not just “in the new day” but “at 9:35.” There arose new authorities: watchmakers and those who set standards for timekeeping, new authorities over everyone with a watch. Of course, timekeeping and chronology in general had existed before — but it was the exclusive province of monarchs and their savants. Once it was a theme, later a variation.

The analogy with critical thinking is plain. Elements of informal logic and critical thinking are as ancient as chronometry. Yet, even in medieval times, they were limited in application: to the *disputationes* of scholars and *domini*. But now we endorse and enforce — outside philosophical circles — the idea that all acts of everyday life be individuated by reason. And we look to teach this, as truth, to a mass audience. Were critical thinking to be widely and successfully taught, individual deeds of everyday life would come under the province of nonindividual reason and get, for the first time, a logical articulation. For this is a new and revolutionary idea: that *every ordinary* action is best done under the aegis of a guiding reason. (Recall how Aristotle criticized Plato for maintaining that filth has a form.) Savants may have entertained such fantasies in time past, but rarely the commoner. And here, too, new authorities rise up: logicians or decision theorists. Hence is critical thinking a chronometry of thought.

¹ Ludwig Wittgenstein, *Philosophical Investigations*, trans. G. Anscombe (New York: Macmillan, 1958), para. 341. Subsequent references are to *PI* followed by paragraph number.

² John McPeck, *Critical Thinking and Education* (Oxford: Martin Robertson, 1981), 3, 12.

³ Stephen Norris and Robert Ennis, *Evaluating Critical Thinking* (Pacific Grove, California: Midwest Publications, 1989), 1.

⁴ Robert Ennis, "The Degree to which Critical Thinking is Subject Specific: Clarification and Needed Research," in *The Generalizability of Critical Thinking*, ed. Stephen P. Norris (New York: Teachers College Press, 1992), 22.

⁵ R.W. Paul, "Critical Thinking in North America: A New Theory of Knowledge, Learning and Literacy," *Argumentation* 3 (1989): 214.

⁶ *PI*, 308.

⁷ Robert S. Lockhart, "The Role of Conceptual Access in the Transfer of Thinking Skills," in *The Generalizability of Critical Thinking*, ed. Stephen P. Norris (New York: Teachers College Press, 1992), 54-65.

⁸ Rene Descartes, *Meditations on First Philosophy* (Indianapolis: Hackett, 1979), 19.

⁹ David Hume, "On the Standard of Taste," in *Aesthetics — A Critical Anthology*, ed. G. Dickie and R. Sclafani (New York: St. Martin's Press, 1977), 289-301.

¹⁰ Harvey Siegel, *Educating Reason* (New York: Routledge, 1988), 34.

¹¹ Siegel, 41.