

Feeling the force of Argument

Higher education requires students to make judgments about the evidence and arguments placed before them, and all judgment has an aesthetic aspect. A mathematics student must be *struck* by the validity and elegance of a proof; a science student must *feel* the weight of evidence (or the lack of it). In the humanities, a lot of bad writing is the result of students trying to articulate and defend judgments that they have copied from secondary sources but have not felt in their viscera. This is not to say that judgment is all unreasoned, inarticulate conviction. Nor is it to suggest that logical relations between premises and conclusions are somehow subjective. On the contrary, the point is that students should perceive logical relations as objective realities. A student who knows that the argument on page 84 is a good one simply because it satisfies the rules set out on pages 64-73, but who does not *feel* the force of its logic, will lack all motivation to internalise the rules or use them on other occasions. The difference that validity makes to an argument must be vividly real to a student if that student is to see why it matters. Nor is this merely a matter of motivation. A student with no feeling for the logical structure of the subject-matter will struggle to apply techniques in new contexts. One of the proper goals of higher education is to equip students to do their own research. A student who does not feel the badness of a bad argument is unlikely to produce many good ones. After all, good arguments usually start out as not-so-good arguments that don't *feel* quite right.

In this paper, I will contrast the case of philosophy with that of mathematics, using the work of George Polya. I will then claim that mainstream English-speaking philosophy is

ill-equipped to think about the aesthetic and emotive aspects of the experience of doing and learning philosophy. I shall blame the Enlightenment for this state of affairs. More specifically, I shall find fault with the view that humans are naturally rational, where we understand 'rational' to mean something like the dispassionate, formal rationality on display in the end-products of the mathematical sciences. I shall then offer the work of R.G. Collingwood as a route out of this bind, and conclude with some practical consequences for teaching.

Mathematics

In mathematics, there is a standard distinction between seeing the validity of the individual steps in a proof, and understanding the proof as a whole. For example, here is George Polya, 'The intelligent reader of a mathematical book desires two things: First, to see that the present step of the argument is correct. Second, to see the purpose of the present step.'¹ Since the purpose of the present step is to advance the overall proof-strategy, the intelligent reader needs a sense of that strategic overview. Without it, even the most intelligent reader becomes 'dismayed and bored, and loses the thread of the argument.'² Elsewhere², Polya explains that in a formal derivation of a mathematical theorem, the purpose of a step may not become clear until later in the proof, and even then, it may remain mysterious how the theorem and proof came to be. A proof that pulls just the right rabbit out of just the right hat at just the right moment may compel assent, but (at least on first reading) it does not supply the intelligent reader's second requirement. Moreover, it offers no heuristic lessons to students. For this reason, Polya recommends telling the story of how the theorem and proof emerged (or rather, a

streamlined version thereof). If students see how theorems are arrived at and proofs discovered, they may become intelligent readers of mathematical books. They may even eventually become intelligent writers of mathematical books.

Notice that Polya runs together boredom, dismay and losing the thread of the argument. This attention to the motivational and affective state of the student is a regular motif in Polya's work on mathematical pedagogy. The first move in solving a problem, he says, is to adopt it as one's own:

You need not tell me that you have set that problem to yourself, you need not tell it to yourself; your whole behavior will show that you did. Your mind becomes selective; it becomes more accessible to anything that appears to be connected with the problem, and less accessible to anything that seems unconnected... You keenly feel the pace of your progress; you are elated when it is rapid, you are depressed when it is slow.³

Here, in the mind of the mathematician or mathematics student committed to a problem and striving to solve it, we find an intense form of intellectual sensibility. The objective structure of the subject-matter and the logical relations constituting arguments about it are not merely vivid; they are salient to the exclusion of all else. For Polya, mathematical problem-solving requires an appropriate motivational and affective condition. You cannot practice the discipline without a feel for the subject-matter, where 'feel' has two senses: an intuitive grasp and a caring concern.

Like mathematics, philosophy demands commitment, a ready familiarity with the subject-matter and a vivid sense of the logical relations among its elements. One of philosophy's differences with mathematics is the role of intuition. In mathematics, intuition is unwelcome in final, published proofs, despite the heuristic importance of mathematical sensibility. Appeals to intuition are more difficult to avoid in philosophical argument than in mathematical proof. Even the final, ready-for-publication version of a philosophical argument may appeal to intuitions of one sort or another. For example, 'ordinary language' philosophy took the intuitions of sophisticated native speakers as its data. Arguments in ethics have to reckon with moral intuitions, even if these are not part of the theory at hand (utilitarianism, for example, must respond to the complaint that it gives counter-intuitive results). In many philosophical enquiries, pre-theoretic intuition serves as a test-bed or evidential field.

The role of intuitions in philosophical argument requires a difference in practice from mathematics: in addition to *using* their intuitions heuristically, philosophy students must also *examine* their more spontaneous judgments about philosophical questions. To do this, they must first *have* spontaneous reactions to philosophical questions. Philosophy seminars often fail simply because students do not have spontaneous responses to the more technical philosophical questions. For example, what are the 'truth-makers' for statements about the past? It is possible, and I believe common, for students to understand a question like this, understand why it matters, and yet have no intuitions tugging them towards one solution or away from another. Tutors are sometimes baffled when seminars fail for this reason. The question is not complicated (past events are, by definition, non-existent, so how can terms refer to them?) and was explained slowly and

carefully. The students understood the motivating examples (the truth about war-crimes and genocides matters, so there had better be true statements about the past). So what is the problem? Most likely, it is that the students, while they have feelings about genocides, do not have intuitions about metaphysics or semantics to guide their next moves. Lacking a sense of direction on the technical question, they sit still and wait for guidance. To the frustrated tutor, this inertia can look like laziness or indifference. The students look as if they are waiting to be spoon-fed. In fact, the students are often simply waiting for an instruction that they can follow. Many of them cannot express their intuitions about the metaphysics of time for the same reason that they cannot follow an instruction to ‘Open the lid of your harpsichord’ . ‘Sorry, Sir, I don’t have one of those.’ When students do have spontaneous intuitions about technical philosophical questions, they may not recognise them as such, but rather as unhappy confusion. Philosophy gets going when we have conflicting intuitions, but students may feel those conflicts as personal inadequacy.

Of course, students in any discipline may lack feeling for their subject, but in many disciplines, they can press on with some practical activity and hope that light will dawn. You can follow the recipe for an experiment even if you have little sense of what it is about. Most disciplines have motions that students can go through with or without understanding—students who lack understanding come unstuck later, when they have to cope with new cases or unfamiliar material. In philosophy, the articulation and examination of one’s spontaneous intuitive responses is a central activity and occupies much classroom time. Philosophy students who lack spontaneous responses to the matter

in hand cannot participate. It is as if healthy medical students had to learn about diseases by examining their own bodies.

This point applies with special force to logical relations. As I said at the outset, students of any subject must develop a sense for the characteristic arguments of their discipline. They should feel the ‘hardness of the logical *must*’ (or the statistical or evidential *must* as the case may be). This is doubly true in philosophy because logic is part of our subject-matter. To engage with the philosophy of logic, a student must have an intuitive grasp of logical structure that is sufficiently robust for the student to test logical theory against it. For example, a logic student should feel *both* the oddness of material implication considered on its own *and* the neatness of the system(s) of which it is a part.

The practical problem for teachers, then, is how to cultivate this sensibility in students. What exercises can we devise to make philosophical concepts and logical relations vivid to them? Polya has something to say about the corresponding question in mathematics. Teachers should offer students problems at the correct level of difficulty that arise naturally (as an example, Polya suggests finding the diagonal of a rectangular parallelepiped, using the classroom as a model⁴). The teacher should check that the student understands the problem by asking: *What is the unknown? What are the data? What are the conditions?* Further support should take the form of general heuristic questions, such as ‘do you know a related problem?’ (not ‘can you apply the theorem of Pythagoras?’).⁵ With enough practice of this sort, the student may internalise the heuristic questions and develop the confidence, commitment and intellectual stamina to

tackle more demanding problems. Ultimately, says Polya, ‘Teaching to solve problems is education of the will’ .⁶

Polya could say all this and meet no opposition because he did not threaten anything in the self-description of mathematics and mathematicians. On the contrary, he articulated something of the experience of mathematical problem-solving and teaching in a way that resonated with mathematicians and mathematics teachers. His path was clear because in mathematics, feelings and intuitions play little or no part in the end-products (the proofs, theorems, structures and calculations). Polya was free to explore the subjective experience of mathematics researchers, teachers and students precisely because the objectivity of mathematics is not in doubt. This is not the case in philosophy. The apparently ineradicable presence of intuitions in philosophical argument and the lack of an agreed technique for resolving philosophical questions make it difficult for philosophers to claim objectivity for their arguments. This may explain why some philosophers insist on the rigour of philosophy, at the risk of protesting too much.

The Knight of Reason

Western philosophy traditionally sees itself opposed to mystery-mongering and intellectual chicanery. Its principal weapon against these two foes is clarity in thought and speech. This self-image is especially prevalent among English-speaking heirs to the analytic tradition, who sometimes signal this self-understanding by practicing a wilful pedantry. (‘You don’t really mean that you’re *in two minds*. It doesn’t even make sense to say that you’re *in one mind*. Minds are just not the sort of things one can be *in*.’ *Etc.*) In some versions of this tradition, philosophy is nothing but the activity of

clarification; where other disciplines have a definitive subject-matter, philosophy has a mission. The picture of the philosopher as a knight-errant of clarity and rigour turns up in accounts of the value of academic philosophy to the taxpaying public. These accounts typically depict a world plagued with mystifying hocus-pocus and sophistical spin, in desperate need of disambiguation.

Challenges to this self-image sometimes elicit a comically shrill response. For example, the most zealous clarifiers regard Jacques Derrida as a mystery-monger of the worst sort, who peddled precisely the kind of mumbo-jumbo that philosophy is supposed to expose and eradicate. That the public should associate such a person with philosophy is intolerable. From this point of view, for Cambridge University to award Derrida an honorary degree was like appointing Mystic Meg⁷ to the post of Astronomer Royal. ‘Continental’⁸ philosophers such as Derrida do not merely fail to write in the constipated, legalistic prose favoured by the analytic school.⁹ They seem to suggest that clear speech is impossible, or at the very least, indicative of shallowness. Derrida did not merely fall short of the prevailing standards of clarity and rigour; he insinuated that the knights-errant of clarity and rigour are in fact so many Quixotes. Whether Derrida deserved either the honorary degree or the opprobrium is a question for another day. The episode is instructive for the touchiness that it exposed in his detractors. A more confident response would have been to observe with a shrug that universities often award honorary degrees to persons of uncertain academic merit.¹⁰

We owe the image of the scientific philosopher ministering clarity and rigour to an intellectually fallen world to the Enlightenment.¹¹ The lingering influence of the Enlightenment manifested in the treatment of those writers, such as Feyerabend, Duhem

and Polanyi, who insist on the importance of feeling and passion in science. Feyerabend claimed that scientific progress sometimes depends on a scientist's willingness to stick with an idea in the face of all the available evidence. A new idea needs time to develop a theoretical framework that can articulate its own evidential base and respond to counter-arguments without falling into *ad hoc* defensive moves. For that, a new idea needs obdurate partisans who are willing to use propaganda as well as logic.¹² In other words, science will not progress if scientists always approach their hypotheses with perfectly disinterested rationality. The truth or falsehood of Feyerabend's claim is a subtle question for specialists. For our purpose, what matters is the scandalous reputation that Feyerabend enjoyed among philosophers (and he did enjoy it). Philosophers routinely disagree with each other, so the fact that they all disagreed with Feyerabend is not remarkable. The point is that they did not merely reject his view—they despised it. In the consensus of philosophers of science, Feyerabend was not merely mistaken, but dangerously and scandalously so.

Long before Feyerabend¹³, Pierre Duhem introduced feeling into the very logic of science. Rather than focussing on the scientist's passionate commitment to an idea, Duhem emphasised the scientist's feeling for the phenomena, which he called 'good sense'. Experiments often give unexpected results. In most cases, this is due to a failure in the execution or the equipment. There is fog on the lens; the chemicals are not pure; the computer software has a bug; the shielding-devices allowed some extraneous influence; *etc.*. Sometimes, very occasionally, an unexpected result heralds the discovery of a new phenomenon. But, argues Duhem, logic alone will not identify these special cases.¹⁴ Therefore, a scientist must use 'good sense' to direct the search for an explanation of the

anomaly. 'Good sense' is not common sense. It is the scientist's acquired knack of judgement, like a mechanic's ear for changes in the tone of an engine or a doctor's ability to diagnose a chest complaint from the pattern of wheezes and rasps. In other words, an expert requires trained eyes and ears as well as a disciplined brain. Thomas Kuhn argued that the prevailing scientific theories of the time influence the training of the scientist's senses and intellect.¹⁵ The scientist's convictions affect the way he or she perceives the evidence. Consequently (argued Kuhn), the defeat of one scientific theory by another is not entirely a logical process; it requires a kind of conversion experience in the scientific community.

These philosophers all gained outlaw status, except for Duhem, who was pardoned on account of his association with Quine. Philosophers of science regarded them as purveyors of dangerous doctrines, which responsible philosophers should take care to refute. Philosophers rejected as heresy the suggestion that feeling plays an essential role in scientific practice because it seemed to undermine the rationality of science. This conviction gained intensity during the 'science wars' of the 1990s. On one side were various sociologists, anthropologists and literary intellectuals who seemed to want to deny that natural science gives us a uniquely reliable kind of knowledge. A resentment of science seemed to animate them. They presented natural science as a hegemonic discourse that left no room for non-western medicine, traditional agriculture, any kind of religion or anything else that looked strange or silly from the western scientific point of view (such as art, love, altruism, consciousness and narrative explanations).¹⁶ Ranged against these critics of science were philosophers (and some scientists) who insisted that natural science is our best source of knowledge, including medical and nutritional

knowledge, and that to suggest otherwise is dangerously irresponsible. Moreover, the defenders of science argued, this is not an accident; natural science is a reliable source of knowledge on account of its rational method. Thus, the rationality of scientific method became politically important. Both sides of the ‘science wars’ thought that if feeling plays an important role in scientific practice then science is not wholly rational. For one side, the suggestion that science is not altogether rational gives undeserved comfort to opponents of progress.¹⁷ The other side found the same suggestion liberating. Notice the shared assumption that rationality and feeling are mutually exclusive.

We do not have to make our minds up about philosophy of science now. The point is that this was not a debate within philosophy. It was a debate in which philosophy (or at least, English-speaking philosophy) took one side against the other, and this reveals something about that philosophy. As one unusually candid insider put it, ‘To be a card-carrying philosopher of science it is almost obligatory to reject Kuhn’s point of view’.¹⁸

Specifically, one had to reject those views (attributed to Kuhn, Feyerabend and others) that seemed to contradict the conviction that science is essentially *dispassionate*. This *a priori* separation of passion from logic runs beyond the philosophy of science and back to the Enlightenment. For example, the standard starting-point¹⁹ in philosophical psychology is the ‘Humean’²⁰ model of the mind consisting of a ‘belief box’, a ‘desire box’ and a formal system that works out how best to satisfy the contents of the desire box given the contents of the belief box. The beliefs and desires have an experiential, aesthetic aspect—the agent feels them. But most versions of this model present the operation of the formal system (in other words, thinking) as imperceptible to the agent. Whatever its merits for the specific aims of cognitive science, this model offers little

insight into the felt experience of thinking, and still less into the experience of learning to think. Polya's elation at rapid progress and depression when stymied are not present in this model (though one might tack them on as epiphenomena). Duhem's good sense and Feyerabend's scientific passion can appear in the belief and desire boxes respectively. However, the separation of felt beliefs and desires from dispassionate formal reasoning fails to do justice to the intimacy of thought and feeling that we found in Polya, Feyerabend and Duhem, and which is part of the common experience of teachers and students of philosophy.

Similarly, almost all systematic philosophy of language (written in English) sets aside the emotive or expressive aspect of language in order to explore semantics and syntax. The standard topics in philosophy of language are reference, truth-conditions, analyticity, rule-following and the like. The principal problem is (still) to explain how speakers can assert propositions, and the starting-point is still formal logic. Of course, many philosophers of language move beyond the dream of a logically perfect language. In his *Tractatus*, Wittgenstein gave an exquisite version of the view that language is a logical system, and then in later works devoted himself to explaining why it is untenable.

Wittgenstein pointed out that we use language to *express* emotion and sensation as well as to make statements. Indeed, he suggested that our ability to talk about our feelings originates in our natural expression of them.²¹ In spite of Wittgenstein's efforts, however, the picture of human language as a system that might run just as well in a robot that did not share our feelings (if it had any feelings at all) is alive and well. It is still, in many contexts, the default position, against which dissenters must endlessly protest. We can easily locate the perennial rhetorical advantage belonging to the picture of language as a

logical system to which feeling is inessential. The enduring appeal of this picture in English-speaking philosophy (and cognate disciplines) is part of our inheritance from the Enlightenment.²² It is the philosophy-of-language correlate of the ‘Humean’ model in philosophical psychology. It is of a piece with the responsibility (felt by philosophers of science) to insist that science is essentially dispassionate. It is part of the theology of the Knight of Reason.

What is wrong with the Enlightenment?

Our enquiry is about teaching, and one might ask how the Enlightenment could pose a problem for teachers of philosophy. Surely, the Enlightenment ideals of dispassionate enquiry sustained by clear thought and language are precisely what philosophy should teach. Well, yes, so long as we remember that these qualities are ideals, that is, distant beacons that we should not expect to reach. An ideal is like the Pole Star. It is always available as a navigational aid precisely because we never arrive at it. The trouble with the Enlightenment is that it makes formal rationality seem like something we already have, which we only need use more carefully. On the ‘Humean’ model of mind, formal rationality is at work within each of us, quietly examining our beliefs in order to devise actions that will lead to the satisfaction of our desires. If we are not always rational, it is because something has distorted or hampered our natural reason. Similarly, according to ‘tractarian’ models of language, we have logic already built in to our grammar. If we sometimes speak illogically, it is only because we allow ourselves to be muddled. For the ‘card-carrying’ philosopher of science, natural science is rational (not ‘tries to be’ but ‘is’). According to the nineteen philosophers who protested against Derrida’s honorary

degree, clarity and rigour are not distant ideals; they are the minimal requirement for professional philosophical status.

This idea, that humans are essentially rational, did not originate in the eighteenth century. However, it is the central thought of the movement we now recall as ‘the Enlightenment’. It is the motif of Kant’s major works, and finds political expression in his essay *What is Enlightenment?* The first paragraph reads:

Enlightenment is man’s release from his self-incurred tutelage. Tutelage is man’s inability to make use of his understanding without direction from another.

Self-incurred is this tutelage when its cause lies not in lack of reason but in lack of resolution and courage to use it without direction from another. *Sapere aude!* ‘Have courage to use your own reason!’—that is the motto of enlightenment.²³

This idea is attractive because it is egalitarian—all humans are rational, not merely a lucky few. All that enlightenment in Kant’s sense requires is ‘resolution and courage’. In other words, becoming rational largely consists in removing self-imposed impediments to the use of one’s reason.²⁴ This, though, is a poor model for thinking about teaching philosophy, because it assumes that formal rationality is already present in students and lecturers alike, and needs only to be drawn out and exercised. Experimental psychology has shown this to be false.²⁵

We humans (including students) live first in a world of connotations and associations, which are only later resolved into thoughts, facts, hypotheses and suchlike.²⁶ What is more, our world of images, feelings and meanings comes painted in ethical colours.

Words and deeds, people and things strike us as admirable, mean, unfair, compassionate, and so on. Dispassionate formal rationality is not natural to us, even when we are engaged in rational activities (recall Duhem's scientific 'good sense', the passionate propaganda of Feyerabend's Galileo and the intense emotional commitment of Polya's mathematician). Scientists and mathematicians write up their theories and explanations, their theorems and proofs in dispassionate language, but the scientists and mathematicians must be passionate, or they would not subject themselves to the hard rigour of scientific rationality.

Collingwood to the rescue

So far, I have argued that English-speaking philosophy (particularly philosophy of science, logic, mind and language) struggles to recognise the emotive aspect of intellectual life, and the expressive character of language, because Enlightenment conceptions of human nature still shape it and direct it.²⁷ As philosophers, we would like to think about the business of teaching philosophy in philosophical terms. That is, we would like to think about teaching philosophy using resources drawn from philosophy itself, rather than having to borrow from psychology or educational theory. At the same time, we would like our philosophical pedagogy to avoid the shortcomings we found in mainstream English-speaking philosophy, hampered as it is with its Enlightenment residue. Happily, such resources do exist. As we saw already, Wittgenstein emphasised the expressive origins and function of sentences that look like reports of inner states (e.g. 'I have toothache'). However, Wittgenstein's discussion did not extend far beyond raw sensations such as pain and grief. We need a discussion of the *intellectual* passions (ironically, it is clear from his writing that Wittgenstein felt the intellectual passions

unusually strongly). Also, Wittgenstein's conception of philosophical puzzlement as a kind of bewitchment that requires therapy is not the obvious basis for a philosophical pedagogy.²⁸ A better source for our purpose is the view of language that R.G. Collingwood set out in his *Principles of Art*.

Collingwood's chapter on language is the hinge between his philosophical psychology and his account of the nature of art. From the beginning of his discussion of philosophical psychology onwards, he sustains an electrostatic metaphor: experiences and activities (including intellectual experiences and linguistic activities) have an 'emotive charge'. Sensations typically come with an inseparable emotional aspect ('When an infant is terrified at the sight of a scarlet curtain blazing in the sunlight, there are not two distinct experiences in its mind, one a sensation of red and the other an emotion of fear: there is only one experience, a terrifying red.' ²⁹). He goes on to claim that modern education encourages us to attend to the sensation at the expense of the emotion, so that highly educated adults hardly notice the emotional charge of most of their sensory experience. In contrast (says Collingwood), artists and children tend to feel the emotional charge of their experiences keenly.³⁰ Unfortunately for our pedagogical interest, Collingwood does not identify what it is about 'modern education' that suppresses this sensitivity. His chief aim in his philosophical psychology is to develop a theory of imagination, because for Collingwood, imagination is the capacity that allows creatures who feel to become creatures who think, write books and create art.

With his philosophical psychology in place, Collingwood proceeds to elaborate his account of language. Like Wittgenstein, he claims that language begins as emotional

expression, and only later becomes a vehicle for the articulation of thoughts.³¹ It is a great mistake, he argues, to suppose that ‘intellectualised’ language or ‘symbolism’ (that is, language used to articulate thoughts) makes sense in isolation from its expressive function. The temptation to make this mistake arises from writing, because bad writing, and especially bad technical writing, often lacks tone.³² Lying on the page, the formula ‘H₂O’ has no obvious emotive charge. When spoken by a teacher, it will express an emotion—perhaps boredom or excitement—and the pupils will respond accordingly. As soon as we take up ‘symbolism’ for some purpose, we give it an emotional charge. Collingwood makes the point by mocking one Dr. Richards, who earned his disdain by treating language as an object (rather than an activity) and then separating the scientific and emotive uses thereof. I quote at length, as the scene has a bearing on our topic:

When Dr. Richards wants to say that a certain view of Tolstoy’s about art is mistaken, he says ‘This is plainly untrue.’ Scientific use of language, certainly. But how delicately emotive! One hears the lecturing voice, and sees the shape of the lecturer’s fastidious Cambridge mouth as he speaks the words. One is reminded of a cat, shaking from its paw a drop of water into which it has been unfortunately obliged to step. Tolstoy’s theory does not smell quite nice. A person of refinement will not remain in its company longer than he can help. Hence the abruptness: those four brief words say to the audience: ‘Do not think I am going to disgust you by dragging to light all the follies into which unreflective haste led this great man. Take courage; I dislike this chapter as much as you do; but it is going to be very short.’³³

We lecturers naturally worry about the content of our lectures rather than the emotions we express in giving them. As human beings, students respond immediately to the emotive charge, even if they do not understand the content. The lecturer may have tried to give a balanced account of the debate between X and Y, but his preference for Y shines through. When the students come to write the essay on the relative merits of X and Y, they know where to put their money. The lecturer might try to balance the lecture by suppressing his enthusiasm for Y, but this ‘objective’ presentation will make a mystery of the whole exercise. The students will wonder why they have to sit through all this stuff about X and Y when even the lecturer does not seem to care much for either of them. The better strategy is for the lecturer to plunge into the works of X, reconstruct X’s mental world and re-enact X’s thoughts until he shares some of X’s intellectual passions. We can be sure that X had intellectual passions, else we would not now have the works of X.

Collingwood’s emphasis on the expressive character of even the most technical speech has a bearing on e-learning. At present, most electronic communication is in writing. In order to express the emotive charge on one’s words (without which they will not speak to the students), one has to write well. One has to write so that the student-reader ‘cannot make nonsense of [the lecturer’s words] by reading them, aloud or to himself, with the wrong intonation or tempo’.³⁴ This strenuous literary requirement has not received much attention in discussions of e-learning. Audio recordings of lectures preserve the lecturer’s tone of voice, and video captures more of the expressive performance (on the other hand, repetition can work strange transformations on these recorded performances, and in any case, well-written text has the advantage that both writer and reader go slowly).

Collingwood's chapter on language ends as this paper begins, with the emotional aspect of mathematical work. Here, he insists that 'the emotions which mathematicians find expressed in their symbols are not emotions in general, they are the peculiar emotions belonging to mathematical thinking'.³⁵ Earlier in the chapter, and in other works, Collingwood is rather hostile to formal grammar and logic.³⁶ Here, he makes peace with them (on his own terms, of course):

The progressive intellectualisation of language, its progressive conversion by the work of grammar and logic into a scientific symbolism, thus represents not a progressive drying-up of emotion, but its progressive specialisation. We are not getting away from an emotional atmosphere into a dry, rational atmosphere; we are acquiring new emotions and new means of expressing them.³⁷

Collingwood is not the whole story, of course. He does not pretend to offer a comprehensive philosophy of language (he leaves the questions about reference and assertion unanswered) and the details of his philosophical psychology may not convince. His hostility to experimental psychology deprived his view of empirical nourishment. Nevertheless, he offers a way for philosophers to think about the human process of learning and teaching from within our discipline. He suggests approaches to problems that more mainstream philosophies of mind and language struggle even to articulate.

Classroom Tips

What practical consequences, if any, follow from all this? I count five:

1. Take time to respect and develop the intuitions that students already have

When learning formal logic, for example, students have to master conventions that do not always sit well with their understanding of natural speech. It is unnatural to read ‘Some S are P’ as ‘Some, possibly all, S are P’ . For obvious Gricean reasons, we read ‘Some S are P’ as ‘Some S are P and some are not’ . If the lecturer brushes this intuition aside (perhaps for lack of time), the students will learn that logic is weird, that their intuitions are irrelevant and that questions are not welcome. Better to tell the students that at least one serious logician agrees with them,³⁸ and to explore the consequences of working this intuition into the formal system. If you have to reduce the content of the course to make time for these excursions, do it. If you turn the students on to logic, they can read about ω -completeness and paraconsistency for themselves.

2. Tell the students what is going on

Explain that examining naïve intuitions is a standard part of what philosophers do. Explain that, when asked for their intuitions about this or that question, they are not being fobbed off with trendy teaching that promotes self-expression ahead of ‘proper’ learning. They are in fact doing philosophy. Explain also that philosophy gets going when our intuitions conflict. Students who feel confused because they sense the force of both ends of the conflict are actually doing well, and someone should congratulate them. (Of course, confusion is not always a sign of philosophical sensitivity.)

3. Design exercises to induce suitable intellectual experiences

I like to teach philosophy of science using historical scientific examples. But the history of science detail often obscures the philosophy. So I introduced parlour games to allow students to get a feel for the underlying logical point. For example, I set small teams the task of defending rich-but-dubious theses of their own choice before a hostile press (played by the rest of the class). This exercise gives them a feeling for the logical complexity of refutation. Thus, they have relevant experiences and logical intuitions of their own to bring to a discussion of the Duhem-Quine hypothesis.

4. Ensure that all your material is alive

Remember Dr. Richards on Tolstoy? If Tolstoy's view really is 'plainly untrue' then there is no point mentioning it. If Tolstoy's view is worth mentioning, then it is worth inhabiting Tolstoy's position, reconstructing his thought and thus feeling the force of his motives. Nothing less will bring Tolstoy's thought to life, which you have to do if the students are to see any point in learning about it. Victory over a corpse is no less pyrrhic than victory over a straw man.

5. Retrace the route to here

Polya pointed out that advanced mathematical concepts can seem either arbitrary or magical until one learns how they emerged through trial and error. There is little educational value in proofs that merely compel assent. Similarly, the philosophy curriculum will seem arbitrary without some effort to contextualise its content.

Philosophical questions do not spring from nowhere and philosophical texts do not make sense in isolation. Moreover, the students' reflections on their intuitions will be

rudderless unless the students appreciate enough of the history of the problem in hand to see why some putative solutions are regarded as serious while others have been discarded.

These few tips do not amount to a pedagogy. But they may indicate the typical consequences of including ‘acquiring new emotions and new means of expressing them’ among our educational aims.

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¹ Polya 2004 p. 207.

² Polya 1954 volume II (*Patterns of Plausible Inference*) p. 147.

³ Polya 1954 volume II (*Patterns of Plausible Inference*) pp. 144-145.

⁴ Polya 2004 p. 7.

⁵ Polya 2004 p. 22.

⁶ Polya 2004 p. 94.

⁷ The in-house astrologer at *The Sun*, a British daily newspaper. In 1992, the University of Cambridge awarded Derrida an honorary DLitt. Nineteen philosophers signed a letter of protest, citing Derrida's failure to meet accepted standards of clarity and rigour.

⁸ The analytic/continental distinction makes little sense as it contrasts a methodological bent with a geographical area. It is, as Bernard Williams put it, "like classifying cars as Japanese and front-wheel drive" (Williams 2006 p. 201). As he points out, the geography is misleading, since some of the principal sources of analytic philosophy arose in the German-speaking world.

⁹ To take an arbitrary example of the style: "For the only objection brought above against this account was that it failed to establish that Wittgenstein was committed to denying that it is possible for the majority of speakers of a given language to go wrong because it seems to them that they mean something quite definite by their words though in fact they do not" (Holzman & Leich pp. 9-10). Someone careful with language wrote this sentence. No-one who cares for language could have.

¹⁰ For a list of honorary doctorates awarded by the University of Cambridge, see

<http://www.admin.cam.ac.uk/univ/degrees/honorary/>

¹¹ "Other men are carried away by their passions; their actions are not preceded by reflection: they are men who walk in darkness. A philosopher, on the other hand, even in moments of passion, acts only after reflection; he walks through the night, but is preceded by a torch." Diderot, D'Alembert *et al.* (1965) pp. 284-285. The metaphor of the light of (scientific) reason as an all-too-easily-extinguished candle recurs frequently. See for example Carl Sagan (1995). In the eighteenth century, natural science was still called 'natural philosophy'.

¹² See *Against Method* (1975), in which Feyerabend considers Galileo's defence of Copernican astronomy against the tower argument (if the Earth is moving, why does a stone dropped from a tower fall in a straight vertical line?). The observational evidence was all against him until he could persuade people to look at matters his way. That is to say, Galileo needed propaganda to introduce a novel observational framework. Even then, Copernicans had to explain why no-one observed stellar parallax until Bessel in 1838.

¹³ See Oberheim for Feyerabend's debt to Duhem.

¹⁴ Duhem (1954) pp. 216-218. Duhem carefully restricted his discussion to those disciplines whose experimental instruments embody theories drawn from physics (pp. 182-183), but when he wrote this book (1905) there were few exceptions to this criterion and there are fewer still now.

¹⁵ Kuhn (1970). Kuhn seems to have acquired this view from the French historian of science Alexander Koyré, who in turn got it from Husserl. See Larvor 2003.

¹⁶ Feyerabend makes a version of this argument, but he makes it clear that he is not against science or reason; rather he is against people bullying other people and using words like 'science' and 'reason' to do it. Crucially, *scientists* are sometimes bullied in this way, to the detriment of science and humanity.

¹⁷ See, for example, Bricmont & Sokal, Gross & Levitt, Stove.

¹⁸ Forster 2000 p. 231

¹⁹ Of course, many philosophers and psychologists have moved beyond this starting-point—this is not the place to do justice to individuals. *The discipline as a whole* shows its prejudices in choosing the 'Humean' position as the point of departure.

²⁰ Inverted commas represent doubts about the extent to which Hume was committed to the 'Humean' model of mind.

²¹ "Here is one possibility: words are connected with the primitive, the natural expressions of the sensation and used in their place. A child has hurt himself and he cries; and then adults talk to him and teach him exclamations and, later, sentences. They teach the child pain-behaviour.

"So you are saying that the word 'pain' really means crying?" —On the contrary: the verbal expression of pain replaces the crying and does not describe it." Wittgenstein 1953 §244.

²² Of course, 'the Enlightenment' is the name of a historical complex; the Scottish Enlightenment was different in temper from the French Enlightenment, and both from the German Enlightenment. Moreover,

the major philosophers of the period were much more subtle than broad-brush treatments of ‘the Enlightenment’ suggest (see footnotes 20 and 24). However, we are here concerned with the discipline of philosophy as a whole. At this level of magnification, broad-brush treatment is appropriate.

²³ Kant 1963 p. 3 (first published in 1784).

²⁴ In fairness, 1784 also saw the publication of Kant’s *Idea for a Universal History*. Here, Kant argued that “those natural capacities which are directed to the use of [man’s] reason are to be fully developed only in the race, not in the individual” (1963 p. 13).

²⁵ See Plous 1993 for a summary of the research.

²⁶ The Capgras delusion (believing that your family have been replaced by replicas) and Cotard delusion (believing that you are dead) arise when subjects experience empirical sensations without feeling the corresponding emotions. For example, a subject might see his or her spouse without feeling anything beyond what one would feel in the presence of a stranger. See Capgras, J. & Reboul-Lachaux, J. 1923; Cotard, J. 1882.

²⁷ Of course, the Enlightenment left traces in other philosophical cultures too. The discussion here is restricted to English-speaking philosophy in order to limit the (already generous) scope of its generalisations.

²⁸ See Wittgenstein 1953 §121ff, §309. One might argue on Wittgenstein’s behalf that the fly who has escaped from the fly-bottle is richer in wisdom than the fly who never went in, but there is little in Wittgenstein to licence this extension of his view and some reason to doubt that he would approve of it.

²⁹ Collingwood 1938 p. 161.

³⁰ *Op. cit.* pp. 162-163.

³¹ “In its original or native state, language is... an imaginative activity whose function is to express emotion.” *Op. cit.* p. 225.

³² *Op. cit.* pp. 264-265.

³³ *Op. cit.* p. 264.

³⁴ *Op. cit.* p. 265.

³⁵ *Op. cit.* p. 268.

³⁶ In a footnote to his *Autobiography*, he mentions that “frightful offspring of propositional logic out of illiteracy, the various attempts at a ‘logical language’, beginning with the pedantry of the text-books about reducing a proposition to logical form’, and ending, for the present, in the typographical jargon of *Principia Mathematica*.’ 1978 pp. 35-36.

³⁷ Collingwood 1938 p. 269.

³⁸ Blanché 1953. See Larvor 2004. In a similar spirit, Luciano Floridi thinks that students who fail simple tests on material implication are in fact competent Bayesians. [\[Ref\]](#)