What is knowledge?
The quest for knowledge

How did I come to know what I know about the world and myself? What ought I to know? What would I like to know that I don’t know? If I want to know about this or that, where can I get the clearest, best and latest information? And where did these other people about me get their ideas about things, which are sometimes so different from mine?

H.G. Wells

It is said from time to time that ignorance is bliss, but this is not so. The pattern of our lives as students and teachers involves us in years of schooling and sometimes years of continued struggle to master a discipline and gain a reputation in the public realm. Or, at the personal level, to find out what is worth knowing and what is worth forgetting. Francis Bacon, an Elizabethan philosopher, believed that knowledge is power and, whether you believe that or not, the quest for knowledge is endless and daily. One could almost say that it is part of the human condition.

All men by nature desire to know.

Aristotle

What is knowledge? sounds simple enough. We all know roughly what it is to know and to be correct; to be wrong, to doubt and to be only partially right. If you’ve thought about knowledge at all, you may hold some view close to what can be called the ‘Trivial Pursuit’ model. That is, knowledge is seen as facts which are more or less simple, discrete, non-controversial and displayed through recall. This model is generated and confirmed by much of your school experience and, certainly, exploited by television game shows. People with a lot of this kind of knowledge are often called clever and those with less of it are often called something not so complimentary.

In the world outside the classroom, knowledge-seeking never stops. Governments appoint commissions, armies rely on intelligence, scientists conduct research, doctors constantly retrain, teachers carry on with professional development, wrestlers study their opponents, journalists check their sources, musicians look for better ways to compose and capture an audience, philosophers clarify concepts, gamblers study the odds and so on. We speak about life-long learning or learning how to learn as qualities more valuable than acquiring a mountain of facts that may not be relevant when the time comes to use them.

A young woman’s vision of her autonomy

I remember the day I went away to university. My uncle told me that because of the luck of the draw, I had very little of the structures of my life under my control. Not my place of birth, my gender, my height, my looks, my genes and so forth, and that everyone in the world wanted my mind and my money. Keep them both, he said. I didn’t accept his cynicism but on the first day of class when the professor quoted Einstein to me, my uncle seemed just a little bit wiser:
If most of us are ashamed of shabby clothes and shoddy furniture, let us be more ashamed of shabby ideas and shoddy beliefs.

Albe Einstein

And I knew then that the ideas and beliefs that would become the furnishings of my mind were in my control, just the way I was furnishing my new apartment. I decided to go for quality and get rid of the clutter. I would believe what is worth believing and no more.

In one sense there is an implicit command in TOK to find out things for yourself. After all, the knower is at the centre of the diagram (see page 3). In addition, people are increasingly inclined to find out what they need to know from all kinds of places, often online, and not necessarily with deference to experts who pronounce from on high. The near universal student use of the Wikipedia open source encyclopedia on the Internet is one of the most obvious examples, especially when compared to that of the leather bound Encyclopedia Britannica, once the pride of every middle class home in the English speaking world. And the long hours spent in libraries consulting stacks of books, the standard practice of earlier generations, is now almost as quaint as carbon paper. While expert opinions are still sought today, especially with the aid of the Google search engine, increasingly it is the individuals themselves who weigh the various authorities and come to their own conclusions. Just ask doctors about their Web-savvy patients who come into their offices with handfuls of printouts from the Internet.

In the Middle Ages, we were told what we knew by the Church; after the printing press and the Reformation, by state censors and the licensers of publishers; with the rise of liberalism in the 19th and 20th centuries, by publishers themselves, and later by broadcast media—in any case, by a small, elite group of professionals.

But we are now confronting a new politics of knowledge, with the rise of the Internet and particularly of the collaborative Web—the Blogosphere, Wikipedia, Digg, YouTube, and in short every website and type of aggregation that invites all comers to offer their knowledge and their opinions, and to rate content, products, places, and people. It is particularly the aggregation of public opinion that instituted this new politics of knowledge.


So here is the challenge for the TOK student: in this new world, the skill of speed of access is not what is needed as much as the skills of discernment and discrimination. What best supports an argument or helps solve a problem? How can I ask the right question? Where do I go for the answer? How can I tell the difference between the reliable and the slipshod? The subjective and the objective? The biased and the fair? Those skills must be valued and practised; they are not inborn. So at the very least we should ask, What are the sources and dependability of our knowledge?

The world of Wikipedia: can it make the grade?

There are some things that seemingly everybody knows: that the earth goes around the sun, that humans have two eyes, that aeroplanes can fly and a lot of other facts too tedious to mention since, after all, everybody knows these things. Then there is
background or common knowledge which seemingly a majority of people accept, yet a significant number of people do not: statements about global warming, evolution, who destroyed the World Trade Center, the Holocaust and so forth. To be able to establish society’s common knowledge and to establish what is true and false for the majority is an awesome power when you realize that this kind of knowledge shapes whole generations of people in their education, influences research and legislation and brands some people and groups as mad if they don’t believe as the majority does. To give an example, Linus Pauling was a two-time Nobel Prize winner but his fame could not protect him from public ridicule when he began to make extravagant claims about the power of vitamin C as a near cure-all.

How this common knowledge is mastered and shaped into disciplines is one thing but more importantly, how it can be posted onto the Web by nearly anyone, and then spread throughout the entire world, is the real technological and knowledge revolution of our time.

Exercise

Take a moment to think about how technology affects the construction and spread of knowledge. Probably some of your teachers began their careers with manual typewriters and used their own book collections or the public library as their major sources of knowledge. They probably also hand-cranked purple ink mimeograph handouts for their students that smelled slightly of dizzy-making fumes. The move to electric typewriters and the photocopying machine prior to the computers and the Internet today surely has had an impact on what and how much we can know in ways still to be understood. Perhaps a teacher would like to speak about this change or you might want to explore it for your TOK presentation.

Wikipedia is a challenge to traditional teaching and learning, to the authority of the professor, the textbook, the library, the publishing house, the documentary video, indeed, every form of mediated knowledge vetted by some expert, real or imagined. Until recently, these were the voices who said, This is good to read. This is knowledge. This you should consult. This you may footnote. Just imagine the difference between the textbook you are reading now and its very same contents posted on a wiki site. In five or ten years, the paper version will be much as it is now in contrast to the online document which will have been either improved or tampered with depending on your point of view. Both have value.

As Larry Sanger says: ‘A giant, open global conversation has just begun, one that will live on for the rest of human history; its potential for good is tremendous’. Add to this, one of the champions of the free and open exchange of ideas, John Stuart Mill, who argued in On Liberty, that an unfettered vigorous exchange of opinion is the very best means known to man as a way to improve our grasp of truth. Where better to find the vigour of argument than in the infosphere of the Internet?

Yet, in opposition, voices of concern say that there is too much back and forth, too much noise and dissent about everything on the Web. With Wikipedia and the proliferation of the blog culture, there is a lot less of what ‘we all know’ as time goes on. And in so far as a common culture of ideas depends on a large body of common knowledge, giving a voice to everyone, fair and equal as that may be, presents a threat to the unity and coherence of that common knowledge along with any standards of reliability.
What is knowledge?

Of course, we want our encyclopedias, and all our sources of knowledge, to be as reliable as possible. Ideally we would like to read an encyclopedia, believe what it says and arrive at knowledge, not error. According to one leading account of knowledge called ‘reliabilism’, knowledge is true belief that has been arrived at by a ‘reliable process’ (for example, getting a good look at something in good light) or through a reliable indicator of truth (for example, the proper use of a calculator) but not necessarily a reliable person. Note the contemporary similarity here to Plato’s classical definition where Knowledge = Justified True Belief.

But reliability is a comparative quality. Does something have to be perfectly reliable in order to be reliable? To say that an encyclopedia is reliable is to say that it contains an unusually high proportion of truth versus error, compared to other publications. But it can still contain some error and perhaps a high enough proportion of error such that you should never use just one reference work if you want to be sure and safe about your information. Are second opinions always to be sought if there is no perfect encyclopedia?

Exercise

- A question to think about in terms of perfect reliability is one from science (see page xxx). It is concerned with the use of Newtonian mechanics in engineering, which rests on a mathematical description of reality (Newton's Laws) that does not perfectly describe gravitation. Yet, in almost all cases it is reliable enough. How do scientists determine that it is reliable enough?
- Do you think it is possible that there will be a perfect encyclopedia some day? Would you know it if you saw it?
- If there were a perfect encyclopedia, could you get knowledge just by reading, understanding and believing it?
- If you think that encyclopedias should state the truth, do you mean the truth itself, or what the best informed people, or experts, take to be the truth? Or even what the general public takes to be the truth?
- Do you ever consider getting a second opinion on your second-hand knowledge in the way people sometimes do with medical care?
- Do you think encyclopedias should be free (like some on the Internet) or should there be a subscription or purchase fee?

By the time this book is published Wikipedia, one of the most frequently visited websites at the time of writing, may have changed drastically or even no longer exist. In fact, one of the founders has left to start another online source of information. However, the birth of such a rapidly successful phenomenon in your time is a valuable example of how knowledge comes to be organized and presented to a mass audience. But for now, most of the debate swirling around the growth and use of Wikipedia is not its reliability, which according to several studies in recent years shows its error ratio to be just a hair below that of the Encyclopedia Britannica, but that it initially had no special role for experts in its content production system. In fact, Wikipedia’s defenders go so far as to say that expertise is not necessary, a commitment to a position that some call ‘dabblerism’. This goes against the view that special knowledge or credentials should give experts special authority in contrast to the wisdom of the masses. The professors in academia have been furious.

Of course questions arise. If Wikipedia ignores the need for expert guidance, how then does it propose to establish its own reliability? Either it does so from external reports (in which case it chooses authorities to establish its credentials) or its reliability may
come from Wikipedia’s internal contributors who form the benchmark for truth. But then, is this too self-serving, perhaps even a form of relativism, which means that truth and its reliability are ‘socially constructed’ by crowds, anonymous or not, whose credentials are irrelevant to their entries? As we shall see in the following pages, there are difficulties whenever truth is relative, namely, true for you but not for me. Moreover, one has to ask, if the writer of any piece has no degree or credential, does the supposed truth have credibility just because the writer is sure of it?

In summary, Wikipedia, in its infancy, is deeply egalitarian and is proud of its creed of epistemic egalitarianism which states that we are all fundamentally equal in our authority or right to articulate what should pass for knowledge. The only grounds on which a claim can compete against other claims are to be found in the content of the claim itself, never in who makes it. In fact, Wikipedia gives quite clear instructions for anyone who wishes to post original entries or to edit those of others.

Since nearly 85 per cent of students cited Wikipedia in their footnotes in recent TOK essays, it is important, if not imperative, that those involved in the assessment process have an intelligent and defensible position about Wikipedia sources and statements.

Although only anecdotal, the following type of experiment has been carried out any number of times by those wishing to test the accuracy of Wikipedia. Someone places a number of false entries on the website hoping to slip them in unnoticed, either for the sheer challenge of fooling the editorial team or possibly to undermine the site’s reputation. Yet the ‘troll’ (Internet slang) is often surprised to find that the Wikipedia editors have not only found the offending entry within hours, but have deleted it and sent a message back requesting an end to the posting of inaccurate material.

**Exercise**

- Compare the Wikipedia encyclopedia movement of today with that of the philosophes of the Enlightenment in France in terms of their motives and successes in collecting all that mankind should know.
- Discuss the issue that Wikipedia is not egalitarian in any admirable way if the equality of its sources results in a sloppy information architecture that gives everyone equal access to creating and receiving mediocre information.
- Compare the egalitarianism philosophy of the Wikipedia policy and practices with that of the Reformation’s devastating criticism of the exclusive right of the Catholic Church to deliver the meaning of scripture and to mediate God’s word to the masses.

**The origins and nature of knowledge**

Knowledge does not exist in a social vacuum. In every discipline or Area of Knowledge there are scholars who have more authority than others. And certainly those outside the discipline have even less expertise or fewer credentials. The previous pages brought to your attention the schism between the more traditional reliance on knowledge by authority and the freedom provided by Wikipedia for anyone to contribute to what is known about the world. Indeed, there is a movement coming out of Germany and France that studies how socio-cultural factors influence the development of beliefs and opinions. This movement is called ‘the sociology of knowledge’ and is concerned with the dependence of knowledge upon social position. That is, who gets to say what is
knowledge is a function of your standing in society. As a knower yourself, you should be thinking about whether who proposes an idea has any bearing on whether it is true or false. (See the appeal to authority fallacy in Chapter 7: Reason, page 106, and the Semmelweis case study in Chapter 10: Natural science, page xxx.)

*The origins of knowledge are many, but the proofs of knowledge are few, and maybe only two.*

Sue Bastian

On the left of the diagram, you can see many different Origins of Knowledge with the possibilities far more numerous than the diagram shows. Who could even count the ways? Although it is a good exercise to consider where your own ideas come from, at least those that you need to prove to yourself or to others. Now look on the right at the Areas of Knowledge. Here you can see there is that last entry, an empty box: this can stand for knowledge that perhaps falls outside the standard forms or is a combination of disciplines. While looking at this diagram, think about the reality that all knowledge is the answer to a question someone once asked. Knowledge begins in doubt and wonder and is a triumph of passing hurdles known as truth tests or achieving proofs of various kinds.

That is to say, someone once asked a question, had a doubt, a belief, a hunch, an intuition or a hypothesis (on the left) and if it was eventually accepted as knowledge (on the right) by you or others, it had to have had some justification (the centre piece). The demand of others, *How do you know?* and your own demands for proof, justification, compelling evidence or similar notions is an understandable one. That is how things go. After all, why should anyone believe what I say just because I said it? Who am I? Perhaps if I am a prince in a world of paupers, no one will argue with me, but that does not make me right and it does not make my subjects believe me. So we must turn to that narrow middle section, the proofs and the truth tests. These are the hurdles that I, and others, must overcome in order to convert, say; a doctoral dissertation thesis, or my personal conviction, into something deemed knowledge. I have to meet standards outside myself. Your certainty may drive you to find the answer and establish your knowledge claim, but your feeling of certainty in itself cannot make it true for others.
Knowledge by acquaintance and knowledge by description

The example of Galileo above talks about acquaintance and description, an idea that is often linked to the British philosopher, Bertrand Russell. At a basic level, it looks like this:

1. Knowledge by Description    similar to    Knowing That > Public
2. Knowledge by Acquaintance   similar to    Knowing How > Private

Let’s look at each of these in more detail below.

Knowledge by description

The first, knowledge by description, is public knowledge, knowledge of facts, including the knowledge of the disciplines, since it describes the world using statements or, as philosophers say, propositions. If you cannot describe or say anything about a state of affairs that can be understood, then that state of affairs cannot be known to anyone else, unless we begin to inhabit a new kind of world of mind-reading. (Whether mind-reading is possible is an interesting notion for a TOK presentation.) Thus, language or some form of public expression is crucial to getting your idea into the public realm.

As an example, think of a mining accident where a single observer (you) experiences the reality of the situation and then communicates the findings to those waiting above ground. ‘There are 12 men located at level B.’ Whether I believe you (or not) has several assumptions built in: that you can see things for what they are, that the conditions of seeing are adequate, that you can describe them accurately, that you are a truth-teller and that I can understand you.

Overall, the statement (or proposition) ‘there are 12 men located at level B’ is thought to be objective, meaning that another person equally endowed with vision and understanding of the language, etc. would report the same or a closely similar version of reality. However, the details about the miners’ well-being might be more problematic; that is, are they dead or alive; what are their immediate needs; what should be done next? These judgements go far beyond the initial report of finding the trapped workers. Where things begin to become subjective is where your opinion, feelings or point of view might colour the report. For instance: ‘The miners have been located at level B’ is a different kind of factual statement to ‘The miners are suffering horribly’ which is more interpretive. Knowledge by description takes as its goal the more objective propositions, but most of us realize that our statements about reality are usually a combination of fact and interpretation.
Knowledge by acquaintance

On the other hand, knowledge by acquaintance is a kind of felt knowledge, a knowing how to do something, that may not easily be expressed, although the certainty of the knower could be just as strong. For instance, you may have a powerful sense that you cannot explain that the miners are still alive even without objective criteria for your belief. Perhaps you may have worked in health care or in the mining industry and are familiar enough to pick up on subtle cues. Yet, if you can’t say how you know, then how can someone else be convinced? The responsibility falls to you to convert your tacit knowledge by acquaintance to descriptive knowledge in order to get it into the public realm where it can be proved. As one old sage put it, ‘You have a right to say whatever you want but you do not have a right to be understood. And there is no right to be right.’

Knowledge by acquaintance, or know-how, is best shown, not explained. Just watch a master gardener pottering around his plants or consider a bicycle racer taking a curve, a painter mixing tones and hues to get just the right shade of blue, or a footballer placing a kick or a person understanding his pet. They know just what they are doing but may not be able to explain it. Also, think how this distinction between acquaintance and description, the knowing how versus the knowing that, works itself out in your daily life. You won’t get any prizes in school if you can’t answer the questions in class or on the test. Your silence may be taken for ignorance or fear or shyness but not knowledge. Yet knowing how to do something, for example, getting along with your teacher or your classmates, may be just as valuable in overall terms of success in school.

It is not surprising that knowledge by description is more often taken for real knowledge and given pride of place in the academic world. If knowledge by acquaintance, important as it may be at the ‘life as lived’ level, cannot be described, proven and codified into book learning, it is sometimes seen as a poor relation by comparison,

Knowing how versus knowing that

The two statements below typify the debate about what constitutes knowledge. The first excludes anything that might be considered private knowledge (similar to knowledge by description), while the second (similar to knowledge by acquaintance) takes the intuitive into consideration.

If you can’t say it, you don’t know it.
Hans Reichenbach (German philospher of science, 1891–1953)

I know more than I can say.
Michael Polanyi (Hungarian philospher of science, 1891–1976)
Exercise

Look at the two columns set out below. The terms in each column have been grouped together because they seem to have a resemblance. Do you agree with the grouping? You may be able to address this question more clearly as you answer each of the true or false questions that follow.

<table>
<thead>
<tr>
<th>Knowledge by acquaintance</th>
<th>Knowledge by description</th>
</tr>
</thead>
<tbody>
<tr>
<td>knowing how</td>
<td>knowing that</td>
</tr>
<tr>
<td>tacit</td>
<td>articulated</td>
</tr>
<tr>
<td>subjective</td>
<td>objective</td>
</tr>
<tr>
<td>private</td>
<td>public</td>
</tr>
<tr>
<td>can be shown</td>
<td>must have reasons/evidence/proofs</td>
</tr>
<tr>
<td>can originate in experience</td>
<td>can originate in experience</td>
</tr>
<tr>
<td>may give certainty</td>
<td>may give certainty</td>
</tr>
<tr>
<td>baking bread</td>
<td>recipe for baking bread</td>
</tr>
<tr>
<td>savoir</td>
<td>connaitre</td>
</tr>
<tr>
<td>wissen</td>
<td>kennen</td>
</tr>
<tr>
<td>saber</td>
<td>conocer</td>
</tr>
</tbody>
</table>

Place T (true) or F (false) or D (debatable) in the space next to the question.

_______ 1 Knowledge by description is more than a mental state.
_______ 2 Language is the usual medium of expression in knowledge by description.
_______ 3 Experience can be a source for knowledge in either knowledge by acquaintance or knowledge by description.
_______ 4 Not all experience can be put into words.
_______ 5 There can be no knowledge by description without evidence.
_______ 6 Evidence is a sufficient condition for knowledge by description.
_______ 7 Evidence is a necessary condition for knowledge by description.
_______ 8 Knowing how to do something is always capable of being said.
_______ 9 Language is a sufficient condition for knowledge by description.
_______ 10 Language is a necessary condition for knowledge by description.
_______ 11 Knowledge by acquaintance may be inarticulate.
_______ 12 If something is true, then this means that you know it.
_______ 13 The certainty reached in descriptive knowledge is greater than that reached in any other way.
_______ 14 You can know something but not believe it.
_______ 15 You can believe something without knowing it.
_______ 16 Experience is not identical to knowing.
_______ 17 A man who guesses the horses right for every race, but cannot say how he does it, has no real knowledge by description.
_______ 18 Every experience in life results in knowledge.
_______ 19 A therapist can know more about your behaviour than you do.
_______ 20 A male doctor can know more about giving birth to children than a woman who has ten children.
_______ 21 The doctor who has suffered a ruptured appendix knows more about the condition than a doctor who has not suffered the pain.
_______ 22 ‘More people can get into this bus’ is a statement of knowledge by description.
_______ 23 Experience is a sufficient condition for knowledge.
_______ 24 Feelings are a sufficient condition for knowledge.
_______ 25 It is possible to know something that isn’t true.
Think about the following question where both kinds of knowledge, acquaintance and description, are at play: ‘Can a male obstetrician know more about childbirth than a woman who has had eight children?’ Now imagine this scenario. The woman is in labour. The doctor says that it will be several hours yet until the birth. The woman shouts that the baby is coming now. The doctor says that it is impossible, sufficient dilation has not occurred.

Of course, it all depends on what you mean by ‘knowledge’, and that is just the point. These kinds of situations happen frequently in life where knowledge by acquaintance (having had eight children) gives a kind of knowing how from the woman’s point of view versus the doctor’s knowing that with the scientific reliability of his or her knowledge. Who gets to say? Would it make a difference if the doctor were female, with or without children? How can the two perspectives combine for the best possible outcome? What do you make of the phrase, ‘the art and science of medicine’?

The basis of knowledge – rationalism and empiricism

Some people have a disposition towards logic while others lean towards sense experience in finding out what they want to know. Think back to the story on page 7 about the husband who reluctantly goes downstairs in the middle of the night to search the house in response to his wife’s pleading. Rational Husband thought he could figure out things in his head to reach a conclusion, while Empirical Wife wanted to see for herself, or at least have her husband go and look for her. In this example, we were talking about psychological tendencies to confirm our beliefs and answer the questions we ask ourselves about reality. Is there a stranger in the house or not? We can extend this notion from the psychological to the philosophical and introduce the rational and the empirical as the basis for, or proofs of, knowledge.
In this section we will confine ourselves to the first two paradigms: the rational (the power of reason) and the empirical (the power of perception). These two contrasting views were explored in the Indian Vedas, dating back to 1500 BC, the earliest philosophical texts in existence. When you consider that there is still discussion and debate today (see the section on The Baby Lab on page 28) it is not surprising that we will not settle this difference for ourselves in several short paragraphs. However, throughout this book the concepts will be deepened and clarified as we examine the nature of evidence in each of the Areas of Knowledge.

Rationalism

One of the figures in the history of thought closely associated with the rationalist school of philosophy is Rene Descartes. Imagine the year 1741 and a young French soldier huddled around a wood burning stove at his post in the Netherlands. Before his military duty was over, he would give the world one of the most famous (if not always well understood) phrases in philosophy, *cogito ergo sum*, I think therefore I am, and he did it through the power of reason right there in that little room. What was the point? Well, he wanted to see if anything he had been taught could survive the challenge of doubt. Before long, the casualties were his teachers, his books, the deception of his senses, the possibility of dreaming and even an evil genie fooling him. In short, almost everything. Then with utter clarity, he realized that no matter what else he had consigned to the knowledge rubbish bin, he was a person doubting. That he could not deny; *I doubt, therefore I am*. Because his reason told him that he existed with such clearness, Descartes began to rely on reason, and reason only, as a method to establish anything that could be known with certainty. In a way, as in mathematics, the *cogito* was his axiom, his starting point and his principle of verification. This epiphany (or was it a logical intuition?) gave him the confidence to build a system of knowledge using reasoning as its primary source and its form of validation.

Only reason can give the certainty that Descartes sought. Much of the strength of the rational position will be seen in further chapters, especially Chapter 7: Reason and Chapter 9: Mathematical knowledge.

Empiricism

Although the line between the two schools of thought can be vague, and the terms can be used in either looser or stricter ways, the following story might make the point that the empirical way to prove knowledge seems much closer to common sense. Long ago, a young monk was listening to older senior monks who were discussing how many teeth were in a horse's mouth. Because this was the Middle Ages when 'logic-chopping' was the way to reach conclusions (in other words, arguing over seemingly minor points) the older monks began to reason about the nature and essence of a horse, spinning out complicated deductions to reach their conclusion. Just then the young monk said: 'I have an idea, let's get a horse and look.' The elders were not pleased that their methods were called into question by the so-called new boy on the block.

But more than proving knowledge claims, a full-blown empirical position states, in brief, that all of our knowledge is built up on sense impressions as if a person were a blank slate to be written upon by experience. This concept of *tabula rasa* was given to us by the Englishman, John Locke, (1632–1704) and is a powerful notion about how we know
What is knowledge?

what we know and how we prove what we want to establish. By extension, this position
says that the empirical process begins right from birth and that all that we know up
until today is taken in by our senses as raw material to be worked up into ideas by the
mind (see Chapter 4: Sense perception). In contrast, the theory of rationalism is closely
connected with innate ideas meaning that we are born with some kind of ‘implicit
knowledge’ that allows us to know the world independent of our sense experience.

The difference between these two positions, the rational and the empirical, is one of
the most fundamental in any theory of knowledge. It will be interesting to see how they
both work themselves into knowledge claims from the various Areas of Knowledge.

Knowledge claims

By now, after several years of full-time education, you know many things. And if the
previous pages have been of help, you should be able to see immediately what kinds of
good reasons you might have for what you say that you claim to know and choose to
believe. These may be:

• logic
• perception
• intuition
• self-awareness
• memory
• authority
• consensus
• revelation and faith.

Whatever the justification, it is important to be able to see the similarities and the
differences between the knowledge claims that you and others profess.

In the following exercise, try to see if the propositions can be proven true or false or
both or neither. While the statements are simple ones, they stand as representatives
of their kind. You might also want to make your own list of ‘I know’ statements and
test your understanding of empirical and rational propositions and the concepts of
knowledge by acquaintance and knowledge by description.

Exercise

Look at each of the propositions below and decide whether it can be proven true or false or both or
neither. Imagine that someone is asserting each one as knowledge, not merely believed or held as
an opinion.

1. I know it is raining.
2. I know it is raining or it isn't raining.
3. I know $2 + 2 = 4$.
4. I know two apples and two apples make four apples.
5. I know my brother is my sibling.
6. I know how to speak French.
7. I know I will pass the test.
8. I know girls are better at TOK than boys.
9. I know murder is wrong.
10. I know my tooth hurts.
11. I know she doesn’t like me.
12. I know God exists.
Now that you’ve tried the exercise, let’s look at each of the propositions in turn.

1. Despite the similarity in subject matter between 1 and 2, 1 is empirical and needs sense experience to prove it true or false. While contentious people might get into the semantics about drizzling or pouring or sprinkling or other forms of precipitation, either it is or it is not raining once the linguistic difficulties have been ironed out.

2. Unlike 1 which required going and looking to prove it one way or the other, this proposition is true under all conditions. Thus, it is called a rational or a logical truth. There is no need to do anything more to prove it, once you have understood the language, since your mind tells you that it has to be true. As a double check to clarify its status, try thinking of what could prove it false.

3. Similar to 2, this is a rational proposition true at all times within the mathematical framework of base 10. It is coherent with all other statements of its kind, \((7 - 4 = 3, 248 \times 5 = 1240\) etc.) all of whose truths depend on one another. Pen and paper or the mathematical mind is all that is needed to establish its truth. What possible thought or observation could show it to be false?

4. There may be a surface similarity between 3 and 4 but a moment’s thought should persuade you that this is an empirical statement about the physical world, not a rational statement about mathematics. The frequent use of this statement in student essays as a mathematical truth does not make it so; the subject here is about apples, not numbers (the numerals are adjectives). While the statement may be an illustration or a demonstration beloved of junior school teachers and TOK students, it is not a proof. Just consider: d. two drops of water plus two drops of water make four drops of water?

5. Again, this is a rational proposition true by definition. You may try to avoid the clarity of its truth by talking about relatives living or dead, or adopted brothers or in-laws through marriage, but either someone is your brother or not, and if not, the sibling predicate is irrelevant. But if he is your brother, then he is your sibling. Again, try to think of a counter-instance that would invalidate the statement.

6. It should be obvious that this is a ‘knowing how’ statement, not ‘knowing that’, and as such belongs to knowledge by acquaintance. Just like baking bread or dowsing for water, either you can do it or you cannot, and the proof is in the performance. Thus, it is a variant on the empirical statements of proving to someone else (or yourself) that observation will carry the day, not reasoning.

7. This statement is either true or false but, as such, it is not verifiable. Its value to this exercise is to promote discussion about whether any statement about the future can be claimed to be true or false in advance of its occurrence (not at all a trivial matter). Consider ‘I know they will win the World Cup’, ‘I know they will never catch me’ or ‘It will not rain on my wedding day’.

8. This proposition could be classified as empirical since, in principle, it could be established as true or false by looking at all the evidence. You may not agree with others about what ‘better’ means or what would count as evidence, or even if all the evidence is available. But there is a strand of the human sciences that makes this
kind of comparative statement with great frequency so it seems to belong to the class of what can be known by sense experience.

9 Here it is understandable that some will think, ‘Aha! This is an opinion, not a proposition that can be labelled true or false by empirical means.’ If this judgement is so, which seems likely, then ask yourself, could you reason your way to an understanding of knowledge about any wrongdoing? Or would you classify this statement as a belief rather than, as the speaker did, assert it as knowledge?

10 The interesting point about this statement is that it may be one of those truths that is only true for you and nobody else. How can you prove it? Why would you have to prove it? This assertion is one of the most interesting on the list. What if your dentist said that your tooth could not hurt, that he had given you lots and lots of painkiller? Is there privileged knowledge we have about our own bodies? Think once again about the woman giving birth on page 20. Could you imagine pain that wasn’t there? What would be the difference between imagined pain and real pain? Or phantom pain? Some hospitals now use charts of smiley and frowning faces to help patients indicate their degree of pain on a scale of 1 to 10. How could these charts help, if at all?

11 Anyone stating this proposition as knowledge, not opinion or belief, is likely to be countered with, How do you know? And indeed, that is the question, how would you know? Would this be an instance of knowledge by acquaintance or perhaps you have only met the person and are not acquainted at all. Social scientists study liking and non-liking behaviour and we know from our own experience what both look like, so we are not totally in the dark here. Yet, how would you prove this to someone who did not believe you, who thought you could be mistaken?

12 It is no surprise that any statement about the existence of non-physical entities can cause consternation when stated as knowledge rather than opinion or belief. What is the justification if the object said to be known cannot be seen or is not of this world? This concern is relevant not only to many statements central to religious creeds, but to the entire spiritual realm. We must tread carefully here and recognize that what we wish to assert is of the utmost importance, but possibly of great debate. Whether propositions about religious beliefs can be justified true beliefs is at the heart of the matter. First, we must consider the possibility of an innate idea about spiritual matters as a source, if not a proof, since the idea cannot be proven empirically. For those interested to know more about this fascinating area of knowledge claims and beliefs, you might research the various proofs for the existence of God.

**Exercise**

What do you make of these propositions? Are they more rational or empirical?

- Every event has a cause.
- All people are created equal.
- Whatever has shape has size.
- Every cube has twelve edges.
- I see with my eyes.
- There is life on Mars.
Truth

Truth is a tricky word. What is truth? On the everyday level we seem to have no problem dealing with the concept. (It is ten o’clock. No, that’s not true. Yes, it is.) However, some confusion may lie in the overuse of the word as an intensive, so consider the following:

- A true friend
- True to his wife
- A true likeness
- The true meaning of democracy
- The door hangs true
- True to life
- True diamonds
- The whole truth
- Nothing but the truth
- Truth tables in maths
- I love you truly
- The truth hurts

Try to translate the ‘truth’ terms above into something synonymous with loyal, straight, accurate, real and so on. Yet no matter how the word ‘truth’ is used in daily conversation, when we come to apply it to knowledge claims there are some definite parameters. One thing we can say right away is that truth is a judgement we make about a proposition. The cat is on the mat. It is raining. Every event has a cause. Someone says P is true, someone else says that it is not. That’s not all there is to it but it’s a good beginning.

As a minimum, you should be able to bring an understanding of three basic truth tests to the treatment of an essay topic such as: Discuss the characteristics and the merits of the three different truth tests: the correspondence, coherence and the pragmatic and how they might intertwine in some way.

Each truth test with its elaborate theories deserves pages and pages that we cannot go into here but for our purposes you need to have some introductory understanding. So as you read these preliminary explanations, you should see where each connects with the rational and the empirical basis of knowledge. The coherence truth test links to rationalism, while the correspondence truth test links to empiricism. You can decide for yourself about the pragmatic truth test.

The correspondence truth test

The theory behind this truth test is similar to the empirical basis of knowledge and, indeed, they are connected in many ways other than capturing our commonsense idea of the truth. Here we have something like a matching game. A statement is uttered about a state of affairs (a fact) and the words either match or fit or agree with or correspond to the facts (the state of affairs). You can probably think of many more examples than the one shown in the drawing on the next page, ‘The cat is on the mat.’
Either the cat is or is not on the mat and the words either match that state of affairs or they do not. If you wanted to argue this point you might look at the problems associated with the definition of facts and the definition of matching but for our purposes the basic idea is laid down.

The cat is on the mat.
I can’t doubt that.

State of affairs:
cat on mat

The coherence truth test

The power of this truth test is not as easily seen as the previous one but if you think for one minute how any single statement or proposition fits in with other statements you take as true, then you can see the power of this theory of truth. In the drawing below, it is obvious that any mathematical operation fits within a system but just as well, the seemingly simple truths about a shark found in Lake Windermere can be rejected because of the previously held knowledge that sharks are found only in salt water. So the listener is entitled to discount the statement, or at least question its truth, based on the logic of the situation. As we shall see in Chapter 10: Science, the great theories, the paradigms of science, hang together through their coherence. In short, statements under the coherence test pass muster by their rational agreement with one another, even though each individual proposition or law within the system is tested by how it relates to the state of affairs of the real world. So we can see that the correspondence and the coherence truth tests work together in giving us knowledge of the world that we can count on and find useful.
If you wanted to argue against the coherence truth test, you might say that all the statements taken together within a coherent system could hang together but still be wrong fact by fact. One example is that of the classical world view that the earth was the centre of everything as opposed to the current view, the helio-centric paradigm, that the sun is at the centre of what is now rightly called the solar system.

**The pragmatic truth test**

This truth test offers up some complexity since its primary value is what happens as a result of believing something to be true, not its actual truth as per the previous two theories. Thus the question is: does the idea work for you? For example, take the statement that the car will not start because the computer switch is not engaging. This is condition A. After some work on the transmission, the car starts. Does the success of this repair guarantee the truth of A, the diagnostic statement, or did the mechanic coincidentally alter something else (condition B) unknowingly? In any case, the car started, so A is considered true.

The supporters of this view claim that usefulness is the primary truth value, while critics say that if you do not really know what actually caused the car to start, how does pragmatic truth of A help you the next time? Where this theory becomes quite interesting is with beliefs that are held to be true because they are useful when we can never know the final truth. One example is believing that God exists or any number of other profoundly important issues where the actual truth may never be known in the strong sense of ‘knowing’.

A brief story from the life of William James, one of the founders of the pragmatic theory of truth, taken from his book *The Will To Believe*, might clarify the above explanation. James was reared in a family plagued with emotional instability and developed painful symptoms himself which led him to thoughts of suicide as a release from his suffering. Yet during his crisis of 1869–70, the idea of personal freedom took hold of him and he avowed that his first act of free will would be to believe in free will, to believe that he could change his life. This idea would work for him thus proving, for him, its truth. Critics attack this view of the pragmatic truth test by saying that too much subjectivity or wishful thinking works itself into this theory.

Perhaps the two quotations below might clarify the pragmatic theory of truth that the idea that works is the true one.

*Grant an idea to be true, what concrete difference will its being true make in anyone’s actual life? How will the truth be realized? What experiences will be different from those which would be the case if the belief were false? What, in short, is the truth’s cash value in experiential terms?*

*William James*

*Begin by believing with all your heart that your belief is true, so that it will work for you; but then accept the possibility that it is really false, so that you can accept the consequences of the belief.*

*John Reseck*
Exercise

Which truth tests would you apply to test the truth of the following:
1 = coherence (logical truths)
2 = correspondence (observational truths)

_____ a Metals expand when heated.
_____ b It is raining.
_____ c It is raining or it is not raining.
_____ d A triangle has three sides. (The sum of the interior angles of a triangle = 180 degrees.)
_____ e All white cats are white.
_____ f All white cats are deaf.
_____ g The population of Tokyo is larger than that of Hong Kong.
_____ h All wives have husbands.
_____ i Mars has no moons.
_____ j Mars is a planet.
_____ k The best team will win the World Series.
_____ l If Bert is a younger son, then he is a brother.
_____ m If Bert is a younger son, then he is a sibling.
_____ n It is now raining in Rio.
_____ o The hydrogen atom has one electron.
_____ p You are either here or somewhere else.
_____ q There is an invisible elephant in this room.

Today’s world: the Baby Lab

At the world’s leading baby brain research lab at Harvard University, Elizabeth Spelke’s team is conducting experiments that reveal not only that humans are born with a range of innate skills, but that our prejudices are formed within the first few months of life. The lift doors open and Belinda Burnett carries her baby, Freya, into a bright and welcoming lobby, carpeted in maroon with walls of custard yellow and midnight blue. Playthings are scattered about – a magnet board, basketball hoop and bins of toys. Behind the glass wall of an office stuffed animals gaze out, prizes for taking part in what are euphemistically called ‘games’…

Welcome to Spelkeland, or, to give it its proper name, the Laboratory for Developmental Studies at Harvard University’s Department of Psychology, run by the cognitive psychologist Prof Elizabeth Spelke, which is dedicated to understanding what shapes the most powerful known learning machine – the infant mind. Great philosophers have mused for millennia about human consciousness and how it makes sense of its surroundings. Like any good scientist, Spelke has turned philosophical hot air into firm experimental data that suggests that we are born with a significant amount of ‘core knowledge’ hardwired into our brains. Spelke is arguably the most influential figure in the relatively new field of baby brain research, and has been named by Time magazine as one of America’s best in a list of ‘brilliant researchers who are the envy of the world’. One prominent British experimental psychologist, Prof Bruce Hood of the University of Bristol, says she has ‘revolutionised infancy mind research’. The psychologist and writer Steven Pinker, Spelke’s colleague at Harvard, is another who acknowledges her profound impact, and says her ingenuity has shown that ‘babies are smarter than we thought’…

We are natural-born mathematicians – for example, six-month-olds can distinguish the quantities eight from 16, and 16 from 32. Babies will infer that a rolling ball will keep moving. They also know that when that ball rolls behind a screen it should pop out the other side. And although they can only babble, babies tell us that the germ of our instincts about age, gender and race are laid down in the cradle…

When Spelke’s research began, the dominant thinking was that of the influential Swiss developmental psychologist Jean Piaget who, after keeping meticulous diaries of the behaviour of his own three children in the 1930s, believed that babies were not empty vessels to be filled but little boffins primed to devour and exploit any and every experience. Even so, doctors of that time thought that babies had such a diminished consciousness they had no sense of pain, so did not need anaesthetic if undergoing surgery…

…an intellectual war that still rages over whether we emerge from the womb as general-purpose learning machines that soak up details of our environments, or, as Spelke believes, born ‘precocious’; so we can immediately do things that are key to survival (just as newly-hatched chicks and fish can immediately do things such as navigate, or find and recognise food).
What is knowledge?

Student presentation

1. The work of Dr Spelke at Harvard’s Baby Lab addresses long-standing philosophical questions about the origins of human knowledge regarding space, objects, motion, unity, persistence, identity and number. How does Dr Spelke prove her theories about innate ideas through empirical scientific methods?

2. Compile a list of a dozen songs from the last 50 years and play the CD in class. Engage everyone in identifying the knowledge issues in each song. Songs you might use are:
   - Bob Dylan’s ‘Blowing in the wind’
   - ‘How Can I Sing Like A Girl’, ‘Which Describes How You’re Feeling’ and ‘Narrow Your Eyes’ by They Might be Giants
   - ‘No One’ by Alicia Keys.

Essay questions

1. The test of truth is whether or not reality confirms what one thinks. Do you agree? Justify your response and show what someone who disagrees with you might say.

2. Compare and contrast knowing a friend to knowing how to swim, knowing a scientific theory and knowing a historical period. What conclusions about the nature of knowledge can you reach?

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Ideal knower

John G. Kemeny, a US citizen from Hungary (1926–92)

Just before his retirement from the Presidency of Dartmouth College in Hanover, New Hampshire, John G. Kemeny, an emigrant to the US from Hungary, was appointed by then President Carter to lead the investigation into the circumstances surrounding the Three Mile Island nuclear disaster. This was an event whose sobering reality had given pause and alarm to thinkers from many fields. Although Kemeny’s curriculum vitae gave evidence of sound credentials in philosophy, science, mathematics (he was Einstein’s young assistant), teaching and administration, he himself was surprised by the assignment since he hadn’t practised science in 20 years and had no speciality in nuclear engineering. And yet it appears that Kemeny was the right man for the job, not because of his expertise in a given field of knowledge, but because he possessed the qualities of Aristotle’s wise man – one who knows how to ask the right question and what counts as the beginning of the right answer. That is, Kemeny brought to the task an intellectual perspective which was comfortable and competent with the ideas and models from a broad range of disciplines including logic, mathematics, history, psychology, science and the ethical and practical values involved in searching for a solution. In short, Kemeny, by training and temperament, was a life long learner.