

# KQs from the 2022 TOK Guide

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# Core: Knowledge & The Knower

## Scope

- What criteria can we use to distinguish between knowledge, belief and opinion?
- How do we distinguish claims that are contestable from claims that are not?
- Are there situations where “knowing how” is more important than “knowing that”?
- Why should we care about acquiring knowledge?
- Why are the criteria for what counts as knowledge not obvious?
- Can other people know us better than we know ourselves?
- How do our interactions with the material world shape our knowledge?

## Perspectives

- What shapes my perspective as a knower?
- How much of our knowledge depends on our interactions with other knowers?
- Is the truth what the majority of people accept?
- How do empathy and imagination help us to understand other perspectives?
- Presented with the belief system of a community of knowers, how can we decide what we personally believe?
- Are there types of knowledge that are specifically linked to particular communities of knowers?
- How can we know that current knowledge is an improvement on past knowledge?

## Methods & Tools

- How do we acquire knowledge?
- What constitutes a “good reason” for us to accept a claim?
- Are intuition, evidence, reasoning, consensus and authority all equally convincing methods of justification?
- Does knowledge always require some kind of rational basis?
- How do our expectations and assumptions have an impact on how we perceive things?
- What are the advantages and disadvantages of requiring that all knowledge is verified by a group?

## Ethics

- Are there responsibilities that necessarily come with knowing something or knowing how to do something?
- As knowers, do we have a moral duty to examine our own assumptions and biases?
- Under what circumstances, if any, do we have a moral duty to share what we know?
- In what ways do ethical judgments differ from other kinds of judgments?
- Is there knowledge that a person or society has a responsibility to acquire or not to acquire?
- If moral claims conflict, does it follow that all views are equally acceptable?
- What personal traits (such as taking seriously the knowledge of others) do we need in order to be ethical knowers?

# Knowledge & Technology

## Scope

- How has technology had an impact on collective memory and how knowledge is preserved?
- What is the difference between “data”, “information” and “knowledge”?
- To what extent is the internet changing what it means to know something?
- In what sense, if any, can a machine be said to know something?
- Does technology allow knowledge to reside outside of human knowers?
- Does technology just allow us to arrange existing knowledge in different ways, or is this arrangement itself knowledge in some sense?
- Have technological developments had the greatest impact on what we know, how we know, or how we store knowledge?

## Perspectives

- How are online or virtual communities similar to/different from “traditional” communities of knowers?
- Do social networks reinforce our existing perspective rather than boosting our engagement with diverse perspectives?
- What impact has the fact that English is the primary language of the internet had on knowledge sharing?
- How has technology had an impact on how we browse, search and filter data and information? Can algorithms be biased?
- Is big data creating a new cognitive paradigm?

## Methods & Tools

- How does technology extend or transform different modes of human cognition and communication?
- To what extent are technologies, such as the microscope and telescope, merely extensions to the human senses, or do they introduce radically new ways of seeing the world?
- Is artificial intelligence restricted to processing information or can it also allow machines to acquire knowledge?
- How does computation help people to process data and information to gain knowledge?
- What is the difference between computational thinking, algorithmic thinking and critical thinking?
- How do the tools that we use shape the knowledge that we produce?

## Ethics

- How might technology exacerbate or mitigate unequal access, and divides in our access, to knowledge?
- Does the existence of the deep web influence our view on whether some knowledge should remain secret or largely inaccessible?
- Should we hold people responsible for the applications of technologies they develop/create?
- Are there situations where ignorance/lack of knowledge is an excuse for unethical behaviour?
- On what criteria could we decide whether activities such as “hacktivism” are morally justifiable? To what extent have technological developments led to an increase in data being collected without people’s consent or when they are unaware that it is being collected?

## Link to Core

- How has increased access to images and other multimedia sources had an impact on what we know and how we know? (scope)
- How might personal prejudices, biases and inequality become “coded into” software systems? (perspectives)
- How does technology extend and modify the capabilities of our senses? (methods and tools)
- Do you use different criteria to make ethical decisions in online environments compared to in the physical world? (ethics)

# Knowledge & Language

## Scope

Can all knowledge be expressed in words or symbols?

Is it possible to think or know without language?

Is being able to speak a language an example of “knowing how” to do something?

What role does language play in allowing knowledge to be shared with future generations?

Are there differences in how knowledge itself is conceived of, or presented, in different languages?

Is it the case that if we cannot express something, we don't know it?

To what extent does language allow us to make our private experiences public?

How does language allow humans to pool resources and share knowledge?

## Perspectives

Does the transmission of knowledge from one person or generation to another depend on language?

What knowledge might be lost if the whole world shared one common language?

If a language dies, does knowledge die with it?

How do our values and assumptions influence the language in which we express our ideas?

Is ambiguity a shortcoming of language that must be eliminated, or can it also be seen as making a positive contribution to knowledge and knowing?

Do all people share some innate linguistic knowledge? If the categories that we use necessarily empower or marginalise, is it ever possible to produce knowledge that does not either reflect or challenge existing power structures?

## Methods & Tools

How are metaphors used in the construction of knowledge?

If language works according to sets of rules and conventions, how much scope do we have as individuals to break the rules or challenge these conventions?

In what ways do values affect our representations of the world, for example, in language, maps or visual images?

To what extent do the classification systems we use in the pursuit of knowledge affect the conclusions that we reach?

In what ways can language be used to influence, persuade or manipulate people's emotions?

To what extent do the names and labels that we use help or hinder the acquisition of knowledge?

## Ethics

Does ethical language differ in any significant way from other types of language?

How can we know if language is intended to deceive or manipulate us?

Do ethical statements simply convey our feelings/emotions rather than making claims?

If ethical terms and concepts cannot be easily defined, does this mean that they are meaningless?

Can we define words such as good and bad in terms of objective features of the world?

Do professional interpreters and translators have any special ethical obligations?

## Link to Core

If you speak more than one language, is what you know different in each language? (scope)

Do people from different linguistic or cultural backgrounds live, in some sense, in different worlds? (perspectives)

What are the implications if we do not produce knowledge in language that respects people's preferred modes of self-identification? (methods and tools)

Who decides whether language should be censored in films and TV shows, and using what criteria? (ethics)

# Knowledge and Politics

## Scope

- In what ways is factual evidence sometimes used, abused, dismissed and ignored in politics?
- Is being knowledgeable an important quality in a political leader?
- How is the practice of politics distinct from the discipline of political science?
- What issues does politics raise about the difference between knowledge and opinion? How might political controversies be triggered by developments in scientific knowledge?
- Why have political leaders sometimes tried to control or eradicate specific bodies of knowledge?
- With regards to politics, do we know as much as we think we know?

## Perspectives

- What kinds of knowledge inform our political opinions?
- To what extent are our political views shaped by society, family backgrounds, education or social class?
- Why do facts sometimes not change our minds?
- To what extent do museums package past knowledge to serve the needs of contemporary political systems and authorities?
- Given access to the same facts, how is it possible that there can be disagreement between experts on a political issue?
- When exposed to numerous competing ideologies and explanations, what makes an individual settle on a particular framework? Is there ever a neutral position from which to write about politics or from which to judge political opinions?
- How might knowledge reflect or perpetuate existing power structures?

## Methods & Tools

- What impact has social media had on how we acquire and share political knowledge?
- What role do reason and emotion play in the formation of our political affinities or in our voting decisions?
- How might emotive language and faulty reasoning be used in politics to try to persuade and manipulate?
- To what extent can polls provide reliable knowledge and accurate predictions?
- What role do political authorities and institutions play in knowledge-creation and distribution?
- Why are referendums sometimes regarded as a contentious decision-making tool?
- In what ways may statistical evidence be used and misused to justify political actions?

## Ethics

- Are political judgments a type of moral judgment?
- Can knowledge be divorced from the values embedded in the process of creating it?
- Do political leaders and officials have different ethical obligations and responsibilities compared to members of the general public?
- When the moral codes of individual nations conflict, can political organizations, such as the United Nations (UN), provide universal criteria that transcend them?
- On what criteria could we judge whether an action should be regarded as justifiable civil disobedience?
- On what grounds might an individual believe that they know what is right for others?
- Are new ethical challenges emerging from the increased use of data analytics in political activity and decision-making?

## Link to Core

- How can we know whether we have sufficient knowledge before voting in an election? (scope)
- Has technology changed how and where our political views are shaped? (perspectives)
- Are objective facts or appeals to emotion more effective in shaping public opinion? (methods and tools)
- In a democratic system, do we have an ethical obligation to be knowledgeable about political issues and events? (ethics)

# Knowledge and Religion

## Scope

- If knowledge is a map, what is the territory that religion represents?
- What is the value of thinking about questions to which there are no definite answers?
- Does religion try to resolve problems that other areas can't resolve?
- Is the point of knowledge to produce meaning and purpose in our lives?
- Is certainty any more or less attainable in religion than it is in the arts or human sciences?
- To what extent do scientific developments have the power to influence thinking about religion? Is faith a prerequisite for religious knowledge?

## Perspectives

- Can there be religious knowledge that is independent of the culture that produces it?
- How has our understanding and perception of religious knowledge changed over time?
- Are those outside a specific religious tradition really able to understand its key ideas?
- What impact has forced religious conversion had on traditional knowledge and cultural diversity? To what extent is it legitimate for a non-believer to criticise the content of a religious belief?
- To what extent do you agree that there is just as much diversity of perspectives within individual religions than there is across different religions?

## Methods & Tools

- Are religious beliefs rational?
- Can theistic beliefs be considered knowledge because they are produced by a special cognitive faculty or "divine sense"?
- What is the role of analogy and metaphor in the acquisition of religious knowledge?
- Do ritual and habit play a special role in the formation of religious knowledge?
- What difficulties are presented by using human language to discuss religious claims?
- What role do authority and testimony play in the pursuit of knowledge?
- How have language developments (such as the shift from Latin to the vernacular) had an impact on access to religious knowledge?
- Are faith and reason interdependent?

## Ethics

- Do we have an ethical responsibility to gain knowledge of different religions to help us better understand the world and those around us?
- Does religion provide a way to systematize concepts of right and wrong?
- Do religious knowledge claims carry any particular obligation or responsibility for the knower?
- What role do religious leaders and authority figures play in influencing ethical debates?
- If religion is intimately connected with ethics, should we expect those with religious knowledge to act more ethically than those without it?

## Link to Core

- What kinds of knowledge can be gained through introspection? (scope)
- How does our own theism, atheism or agnosticism have an impact on our perspective? (perspectives)
- Do you agree with Carl Sagan's claim that "extraordinary claims require extraordinary evidence"? (methods and tools)
- To what extent does religion influence social norms and values? (ethics)

# Knowledge and Indigenous Societies

## Scope

- Does our culture determine what we know?
- In what ways does the loss of indigenous languages signify a loss of knowledge and cultural diversity?
- Does the emphasis on holistic knowledge found in some indigenous societies avoid a limited understanding of reality resulting from the compartmentalization of knowledge?
- Who owns knowledge?
- How have government education policies and systems compromised the transmission of indigenous knowledge?
- Why is there sometimes a strong connection between indigenous knowledge and cosmology?

## Perspectives

- To what extent is our perspective determined by our membership of a particular culture?
- To what extent does the fact that most early literature on indigenous societies was written from a non-indigenous perspective affect its credibility?
- What values and assumptions underpin the use of the term “indigenous” knowledge?
- Does a neutral position exist from which to make judgments about competing claims from different groups with different traditions?
- As an “outsider”, can we know and speak about the knowledge held by a different cultural group?
- How might differences in their worldviews create challenges for collaboration between environmental scientists and holders of traditional environmental knowledge?
- Does the term “indigenous” knowledge” necessarily suggest power divisions between a dominant and non-dominant group?

## Methods & Tools

- How reliable are oral traditions in preserving knowledge in indigenous societies?
- What is the role of oral tradition in enabling knowledge to be handed down through generations?
- What role do objects and artifacts play in the construction and sharing of knowledge?
- Does what is seen to constitute “good evidence” vary from culture to culture?
- What is the role of folklore, rituals and songs in acquiring and sharing knowledge?
- What methods have indigenous peoples developed to support the recording, preservation and protection of their traditional knowledge?

## Ethics

- Does the diversity of moral practices that we see in indigenous societies around the world support the case for moral relativism?
- To what extent does deliberate disinformation by educational institutions and governments threaten indigenous knowledge?
- Is cultural appropriation an example of a violation of collective intellectual property rights?
- Is there a difference between moral values and cultural customs?
- Is there any knowledge that a person or a society has a responsibility to acquire, or not to acquire?
- Can the practices of one individual or culture be judged with any validity by applying the moral values of another generation or another culture?

## Link to Core

- Is it possible to have knowledge of a culture in which we have not been raised? (scope)
- To what extent are we aware of the impact of our culture(s) on what we believe or know? (perspectives)
- How can we know when we should trust and defer to the authority of experts? (methods and tools)
- What ethical concerns are raised by the commercialisation of indigenous knowledge and cultures? (ethics)

# History

## Scope

- Is it possible to have knowledge of the past?
- Is knowledge about the past different from other kinds of knowledge?
- Are all areas of knowledge concerned with knowledge of the past to some extent?
- Why does history enjoy a privileged position as its own dedicated area of knowledge in the TOK curriculum?
- Is all knowledge in some sense historical knowledge?
- Is truth the goal of all historical inquiry?
- Is certainty about the past more difficult to attain than certainty about the present or the future?
- What counts as a fact in history?

## Perspectives

- If it is difficult to establish proof in history, does that mean that all versions are equally acceptable?
- Are historians' accounts necessarily subjective?
- Is empathy more important in history than in other areas of knowledge?
- How might the existence of different historical perspectives be beneficial to historical knowledge?
- Can the historian be free of bias in the selection and interpretation of material?
- Is it inevitable that historians will be affected by their own cultural context?
- How can we gauge the extent to which history is being told from a cultural or national perspective?
- Are we more prone to particular cognitive biases (such as hindsight bias) in some disciplines and areas of knowledge rather than others?

## Methods & Tools

- What methods do historians use to gain knowledge?
- What is unique about the methodology of history compared to other areas of knowledge?
- On what criteria can a historian evaluate the reliability of their sources?
- If our senses are sometimes unreliable, does this mean that eyewitness testimony is an unreliable source of evidence?
- Have technological developments enabled us to observe the past more directly?
- What challenges does archive-based history emphasize about how knowledge is shared and preserved?
- Is there less emphasis on collaborative research in history than there is between researchers in other areas of knowledge?
- How do the methods and conventions of historians themselves change over time?

## Ethics

- Is it unfair to judge people and actions in the past by the standards of today?
- Should terms such as "atrocious" or "heroic" be used when writing about history, or should value judgments be avoided?
- Do historians have a moral responsibility to try to ensure that history is not misused and distorted by people for their own ends?
- On what criteria could we decide whether people in the past have a right to privacy in the present?
- Do historians have an ethical obligation not to ignore contradictory evidence?

## Link to Core

- Is it possible to know who we are without knowledge of the past? (scope)
- How does the way that we identify with past events, such as military victories or defeats, shape our perspective? (perspectives)
- How might the methods of the historian help us to evaluate claims we are exposed to in the media today? (methods and tools)



What ethical concerns are raised by the digitization and online publication of archive material containing people's personal images and documents? (ethics)

# The Human Sciences

## Scope

How do we decide whether a particular discipline should be regarded as a human science?

Do the human sciences and literature provide different types of knowledge about human existence and behaviour?

Are predictions in the human sciences inevitably unreliable?

What are the main difficulties that human scientists encounter when trying to provide explanations of human behaviour?

Is human behaviour too unpredictable to study scientifically?

Do the boundaries between different disciplines and different areas of knowledge help or hinder understanding?

Is it possible to discover laws of human behaviour in the same way that the natural sciences discover laws of nature?

## Perspectives

To what extent is it legitimate for a researcher to draw on their own experiences as evidence in their investigations in the human sciences?

Is it possible to eliminate the effect of the observer in the pursuit of knowledge in the human sciences?

How might the beliefs and interests of human scientists influence their conclusions? How can we know when we have made progress in the search for knowledge in the human sciences?

If two competing paradigms give different explanations of a phenomenon, how can we decide which explanation to accept?

What forms of protection against research error and bias are available to human scientists?

## Methods & Tools

What role do models play in the acquisition of knowledge in the human sciences?

Are observation and experimentation the only two ways in which human scientists produce knowledge?

What assumptions underlie the methods used in the human sciences?

To what extent are the methods used to gain knowledge in the human sciences “scientific”?

How does the use of numbers, statistics, graphs and other quantitative instruments affect the way knowledge in the human sciences is valued?

To what extent can the human sciences use mathematical techniques to make accurate predictions?

## Ethics

To what extent are the methods used in the human sciences limited by the ethical considerations involved in studying human beings?

Do researchers have different ethical responsibilities when they are working with human subjects compared to when they are working with animals?

What are the moral implications of possessing knowledge about human behaviour?

Should key events in the historical development of the human sciences always be judged by the standards of their time?

What values determine what counts as legitimate inquiry in the human sciences? Can knowledge be divorced from the values embedded in the process of creating it?

Is the role of the human scientist only to describe what the case is or also to make judgements about what should be the case?

## Link to Core

How does advertising utilize knowledge of human psychology to influence and persuade us? (scope)

What is it about a theory that gives it the power to destabilize our view of ourselves and of the world? (perspectives)

How might the language used in polls and questionnaires influence the conclusions that are reached? (methods and tools)

What moral obligations to act or not act do we have if our knowledge is tentative, incomplete or uncertain (ethics)

# The Natural Sciences

## Scope

Why might some people regard science as the supreme form of all knowledge?

Should the natural sciences be regarded as a body of knowledge, a system of knowledge or a method?

Could there be scientific problems that are currently unknown because the technology needed to reveal them doesn't exist yet?

Is human knowledge confined to what the natural sciences discover, or are there other important inquiries that are not covered by the natural sciences?

What knowledge, if any, is likely to always remain beyond the capabilities of science to investigate or verify?

Do the natural sciences rely on any assumptions that are themselves unprovable by science?

Is prediction the primary purpose of scientific knowledge?

How might developments in scientific knowledge trigger political controversies or controversies in other areas of knowledge?

## Perspectives

How can it be that scientific knowledge changes over time?

What role do paradigm shifts play in the progression of scientific knowledge?

How does the social context of scientific work affect the methods and findings of science?

In what ways have influential individuals contributed to the development of the natural sciences as an area of knowledge?

Does the precision of the language used in the natural sciences successfully eliminate all ambiguity?

Does the list of disciplines included in, or excluded from, the natural sciences change from one era to another, or from one culture or tradition to another?

Does competition between scientists help or hinder the production of knowledge?

## Methods & Tools

Is there a single "scientific method"?

What is the role of imagination and intuition in the creation of hypotheses in the natural sciences?

What kinds of explanations do natural scientists offer?

Why are many of the laws in the natural sciences stated using the language of mathematics?

What is the role of inductive and deductive reasoning in scientific inquiry, prediction and explanation?

Does scientific language have a primarily descriptive, explanatory or interpretative function?

## Ethics

Is science, or should it be, value-free?

Should scientific research be subject to ethical constraints or is the pursuit of all scientific knowledge intrinsically worthwhile?

Do we tend to exaggerate the objectivity of scientific facts and the subjectivity of moral values?

In what ways have developments in science challenged long-held ethical values? Can moral disagreements be resolved with reference to empirical evidence?

Do human rights exist in the same way that the laws of gravity exist?

Do scientists or the societies in which scientists operate exert a greater influence on what is ethically acceptable in this area of knowledge?

## Link to Core

How might we, as members of the public, judge whether to accept scientific findings if we do not have detailed scientific knowledge? (scope)

How is it that scientific knowledge is often shared by large, geographically spread and culturally diverse groups? (perspectives)

Is the depiction of the “scientific method” traditionally found in many school science textbooks an accurate model of scientific activity? (methods and tools)

Do the natural sciences provide us with good examples of people who approach knowledge in a rigorous and responsible way? (ethics)

# The Arts

## Scope

Do the disciplines in the arts diverge from one another more fundamentally than disciplines within other areas of knowledge?

Does new knowledge in the arts always build on what is already known?

How have new technologies changed the nature and scope of the arts as an area of knowledge?

Are the arts best seen as a system of knowledge, a type of knowledge or a means of expressing knowledge?

Is artistic knowledge something that cannot be expressed in any other way?

Is the relationship between “knowing how” and “knowing that” different in the arts compared to other areas of knowledge? Does art enlarge what it is possible for us to think and know?

## Perspectives

Is there such a thing as “obsolete” knowledge in the arts?

Can a work of art have meaning of which the artist themselves is unaware?

How does knowing more about the social, cultural or historical context of a work of art have an impact on our knowledge of the work itself?

Can art change the way we interpret the world?

What are the justifications for, and implications of, claiming that there are absolute standards for “good art”?

Who determines what art is valued, and on what criteria?

Should your judgments about art be given the same weight as those of an expert?

What role does the history of an artform play in evaluating present work?

## Methods & Tools

Does convention play a different role in the arts compared to other areas of knowledge?

Does sense perception perform a radically different role in the arts compared to other areas of knowledge?

If the language of an art form is non-verbal, does this free it from being limited to propositional knowledge?

Can some knowledge in the arts only be gained through experience? How does the medium used change the way that knowledge is produced, shared or understood?

To what extent are the methods of justification different in the arts compared to other areas of knowledge?

## Ethics

In what ways are moral judgments similar to, or different from, aesthetic judgments?

Do the arts play a role in the development of our personal value systems?

How important is the study of literature in our individual ethical development?

Is the production and enjoyment of art subject to ethical constraints?

On what criteria could it be decided if the state has the right to censor art that is deemed immoral or blasphemous?

Do the arts have the power to challenge established moral values?

Are moral and aesthetic judgments more a matter of taste than a matter of truth?

Can we separate the moral character of the artist from the value of the artwork?

## Link to Core

Does art provide knowledge of the artist or of ourselves? (scope)

How is art used in advertising to affect the beliefs of individuals and groups? (perspectives)

Does artistic creation rely more heavily on imagination than on other cognitive tools? (methods and tools)

What moral responsibilities do we have regarding art that has been created or published by other people? (ethics)

# Mathematics

## Scope

- Why is mathematics so important in other areas of knowledge, particularly the natural sciences?
- How have technological innovations, such as developments in computing, affected the scope and nature of mathematics as an area of knowledge?
- Is absolute certainty attainable in mathematics?
- Is there a distinction between truth and certainty in mathematics?
- Should mathematics be defined as a language?
- Is mathematics better defined by its subject matter or its method?
- Does mathematics only yield knowledge about the real world when it is combined with other areas of knowledge?
- Is there a hierarchy of areas of knowledge in terms of their usefulness in solving problems?

## Perspectives

- What is it about mathematics that enables mathematical results to remain unchanged over time?
- How significant have notable individuals been in shaping the nature and development of mathematics as an area of knowledge?
- What is the role of the mathematical community in determining the validity of a mathematical proof?
- Is mathematical knowledge embedded in particular cultures or traditions?
- Does personal experience play any role in the formation of claims in mathematics?
- Is progress harder to make in mathematics than in other areas of knowledge?
- If mathematics is created by humans, is it still possible to accept mathematical truths as objective facts about the world?
- Are all of the areas of knowledge in the TOK course themselves embedded in a particular tradition or bound to a particular culture?

## Methods & Tools

- Is mathematical reasoning different from scientific reasoning or reasoning in other areas of knowledge?
- What is meant by the term “proof” in mathematics, and how is this similar to, or different from what is meant by this term in other areas of knowledge?
- How do mathematicians reconcile the fact that some conclusions seem to conflict with our intuitions?
- What does it mean to say that mathematics is an axiomatic system?
- How is an axiomatic system of knowledge different from, or similar to, other systems of knowledge?
- Do mathematical symbols have meaning in the same way that words have meaning? Is personal experience more important or less important in mathematics compared to other areas of knowledge?

## Ethics

- If mathematical knowledge is highly valued, does this place special ethical responsibilities on mathematicians when they are making claims?
- On what criteria could we decide whether mathematicians should be held responsible for unethical applications of their work?
- How are unethical practices, such as “data dredging”, used by statisticians to deliberately manipulate and mislead people?
- Is it ethically justifiable for academic mathematicians to spend time doing research that does not have immediate useful applications?
- Do mathematical judgments and ethical judgments face similar challenges in terms of the evidence available to support them?
- Are mathematicians the people best placed to create codes of ethics for professional mathematicians?

## Link to Core

Why do you think mathematics enjoys a privileged status in many education systems? (scope)

Who judges the validity of a proof? (perspectives)

What steps can we take to help ourselves avoid being misled by statistics used in unclear or disingenuous ways in the media? (methods and tools)

To what extent do you agree with the claim that mathematics “serves as a training that shapes thinking in an ethics-free and amoral way” (Paul Ernest)? (ethics)