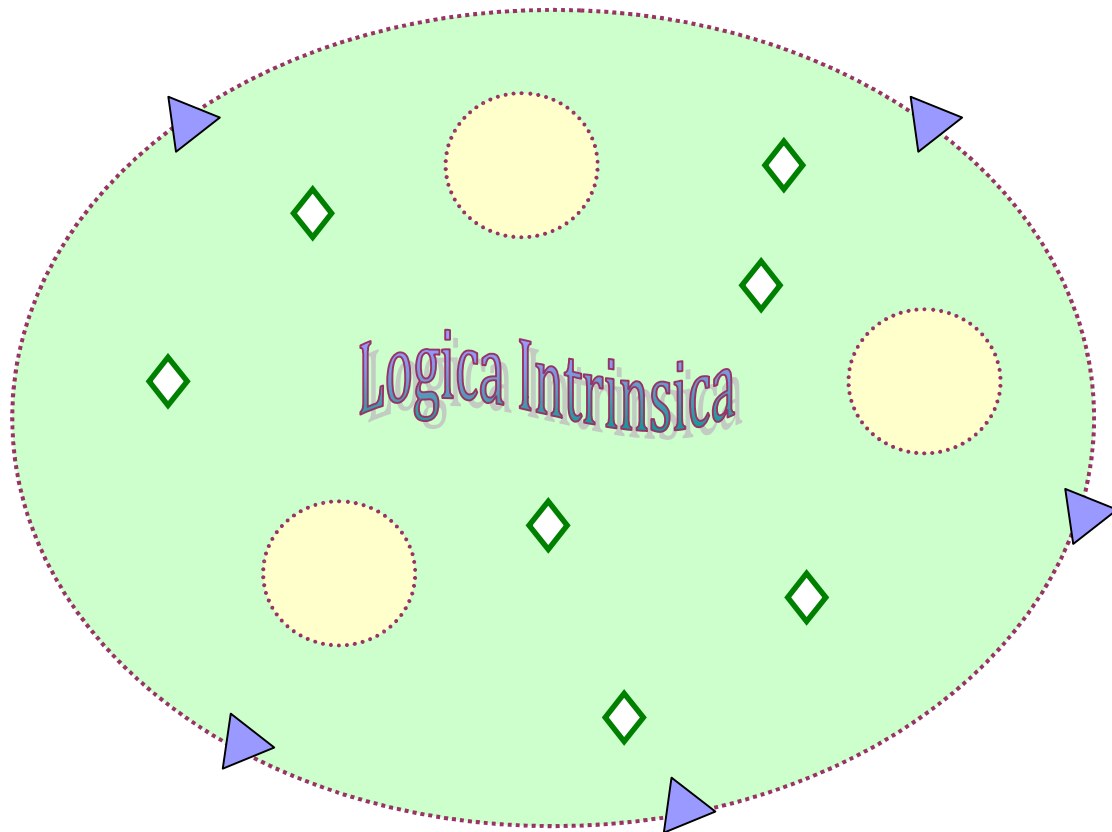


Philosophy
A Model of Conceptual and Applied Logic



Stuart Sherring

Ideas Café

June 2018

Logica Intrinsica – A model of conceptual and applied logic

Page Section

Background

- 01 Introduction
- 02 A sketch of Logica Intrinsica
- 03 The concept
- 04 Origins
- 05 Using the model

Making Sense of Logica Intrinsica

- 06 A world as we see it
- 06 Principia
- 07 Atoms
- 07 Dark energy
- 07 Dark matter
- 08 The world out there
- 09 Data points
- 10 The organic nature of life

Taking Stock of Philosophy

- 11 In contention
- 11 A race through philosophical history
- 12 Language, conceptual distinction and knowledge
- 13 The significance of foundational truths
- 15 The digital toolbox
- 16 Spatial associations

Logica Pragmata - Applying Theory to Practice

- 16 A philosophical project
- 17 Establishing principia
- 17 Peer review

Conclusions

- 19 Creating a framework
- 20 Living with paradox
- 21 Senses of reality
- 22 The unlikely and the impossible
- 22 Foundational truth significance
- 23 Dusting down the toolkit
- 23 The concept of good enough
- 24 Validating Logica Principia

Appendix

- 29 10 S words for assessing logic

Background

Introduction

In philosophy we talk about reason and examined logical argument or what the Greeks referred to as rhetoric including persuasion to convince listeners of the wisdom of a point of view or slant. In today's world we ask does 'it' all stack up? Do the bits fit together and make sense? Do the sums tally? Pressing a little more are the conclusions valid and reliable and supported by robust evidence?

The twin elements of language and logic sit within an explosion of emotional and supposedly rational responses to help us fathom our own version of truth, reality and sense of meaning. A dip into management provides a clue of the complexity. The McKinsey 7S Framework relates to organisations and how they function but well or badly or something in between is largely in the eye of the beholder. What fascinates is the interplay of physical and neural networks. The model has been adapted and extended to depict some important philosophy of logic components.

Ten S words are used in Logica Intrinsic and relate to an individual or group of people of any size. The model represents a neural network of logic shown as an intricate web (see Appendix). The epicentre is knowledge and understanding in the form of sapience and ranged around this are: sentience, symmetry, semiotics, semantics, salience, skepticism, solipsism, synthesis, and syllogism – in no special order. Why these and why ten are reasonable questions to which the answer is they are illustrative only. Others may opt for a different selection.

A framework of standards, protocols, systems, methodologies and scrutiny may provide a construct to help establish veracity but a note of caution is suggested. If too rigid these and other disciplines could underplay the importance of flair, creativity, imagination and what appears counter-intuitive that might be ignored or dismissed. In a team setting Meredith Belbin suggests having a 'plant' for this very reason to challenge, question orthodoxy and to generate fresh ideas.

We can apply the factors to groups of people in the pursuit of reasoned and valid argument. Though on one level philosophy is a solitary activity, the implications of our thoughts may make more sense when shared with others whilst mindful at the end of the day what we make of a debate is personal. We have our own take.

At the heart of Logica Intrinsic is the belief that if logic is to be demonstrated in an empirical sense the subject matter requires containment within a boundary or framework. This suggests imposing caveats too, a form of reductionism that is not about whittling away until the kernel of an argument eventually emerges but more about establishing constraints in an attempt to clarify what is included and excluded. Only then may we have a reasonably clear starting point.

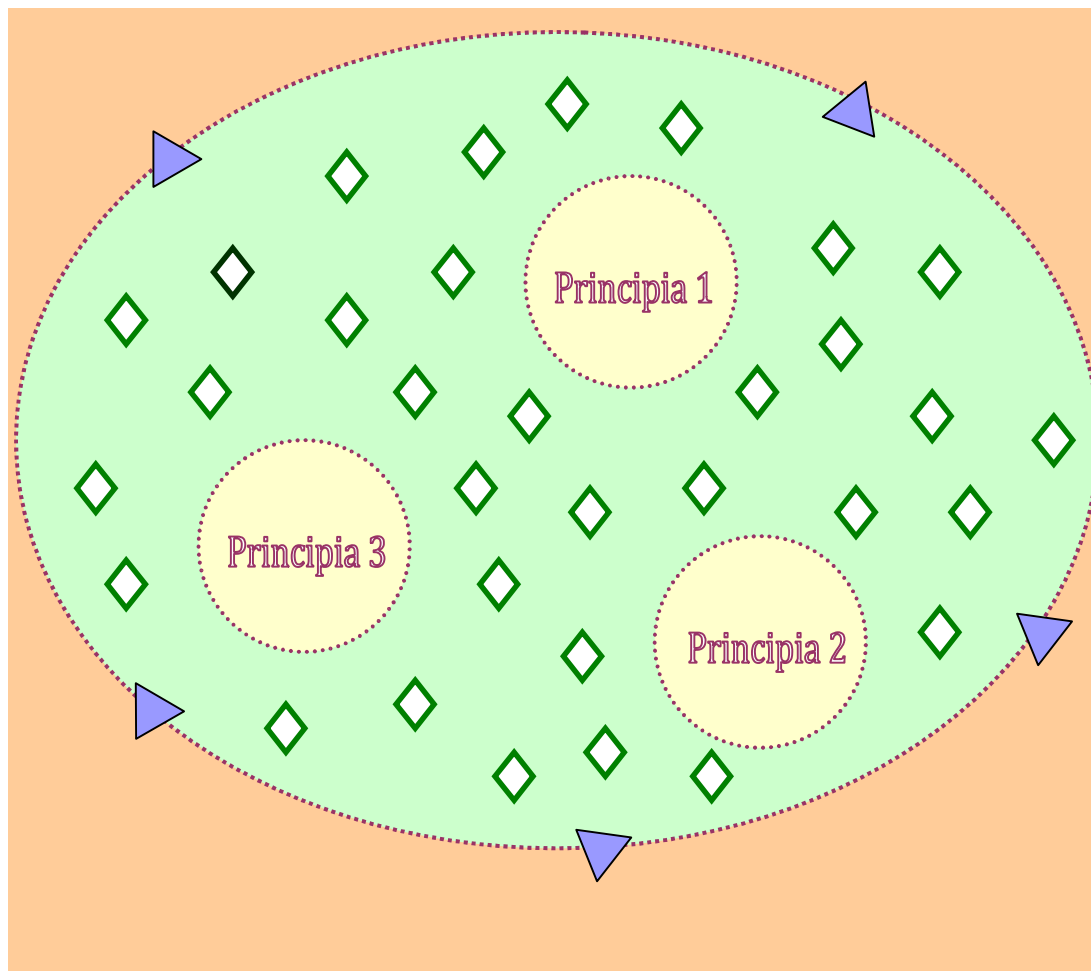
Even then it is problematic in our attempts to achieve a level of acceptable proof, acceptance or truth. Questions immediately arise such as what is acceptable, on what basis and who decides? A logical argument and supporting data might free-float if no framework exists with a danger the subject becomes woolly and more susceptible to bacteria and viruses.

In arriving at a destination as a group we can feel satisfied with our findings but may wish to leave the door ajar. Time will tell if our initial optimism is justified, whether new material or facts have emerged, if our evidence is somehow flawed or if unwittingly we have jettisoned a sound concept in favour of another hunch or attractive notion; a classic type 2 error. Even where a framework exists, much like a defence shield, the prospect may still exist of disease or 'illness' that erodes the significance of our findings. It is possible we may not even be aware.

The pictorial model is illustrative only as it appears far too simplistic. The aim is to help navigate this paper, for as with any different journey a map is helpful and may stay in our minds. We have the option also to switch on the Sat Nav to see where we are and check what is ahead. Are we heading in the right direction if we know what this? Do we see familiar landmarks as we travel along? Might we end up in a different place, or actually arrive anywhere that makes sense?

Central to Logica Intrinsica are bedrock principles formulated to help anchor and explore a chosen subject. They form foundations and provide a reference point. On our journey we want to ensure our chosen mode of transport is roadworthy, that the engine management system or similar is operating correctly and all the various gizmos we now take for granted and rely on. As we shall see it is brave to assume these mechanisms and tools are fully fit for purpose and ultra reliable.

A sketch of Logica Intrinsica



- The insulated figure shown here as a sphere or balloon could be any shape
- In theory what we are considering for any subject is contained within this
- Dotted lines show that the insulated limits (finis) may not be watertight
- Principia are various principles upon which the subject matter is based
- Green diamonds with white insets are represented by atoms (atomis)
- The light green background of the shape is dark matter and dark energy
- Dark energy of communication and our persona may not be seen or heard
- Dark matter depicted by situations or events is subtly experienced.
- Portas, shown as various triangles are entry and egress points for data flow
- The boundless and shapeless world out there is identified here as a square
- The marble colour surround represents a possibility of unknown worlds
- The number, size and shape of figures may change as might the content
- Colours are representations in our mind

The philosophical journey has been a long one, at least 2.5 millennia, and it helps to be mindful of that and the fusion of cultures and languages contributing along the way. In recognition of our own time capsule Latin and Greek words are used at times but that is not the only reason. Such languages are useful in expressing meaning, for example the Greek word psyche.

Our source is mainly Western Philosophy and history leaving largely unexplored the philosophy of other continents and cultures that may influence our thoughts and deliberations, if only we gained a greater insight. Arguably by so doing we can attempt to grasp a world view albeit limited to planet Earth and the galaxies surrounding us.

Illustration can be helpful in painting a picture, creating concepts and in building a model. Many examples are drawn from life but to link these together in the philosophical world the metaphor of science has been used. This describes our debating universe using scientific examples to depict how a model may work in practice. That is the key since the model is for practical application.

The concept

The notion of having a boundary or limit is that relevant logic to be applied is supposedly contained within it. This implies we have the necessary ingredients upon which to form judgements. The porous nature of the contained sphere, bubble or any irregular shape reflects life and the difficulty of avoiding other elements creeping in or seeping out. We may call these negative environmental influences that are similar to pollution and infection and atrophy too though some may be positive.

Data coming in or going out runs the risk not only of incompleteness but possible contamination as it may contain 'stuff' that is not germane but which might have a bearing on the findings. If the bubble is not an air-sealed vacuum it is possible that everything within it may be affected or tainted in some way, however minor.

Origins

The concept arose out discussions in several philosophy groups on the various themes of logic, truth and reality and the interplay of language in the attempt to establish any form of meaning. A constant puzzle was not the discrete analysis with its many questions but how to connect these themes to produce a model of practical logic that may sit alongside countless others out there somewhere.

There is reference to philosophical concepts but most of the background thinking for Logica Intrinsica comes from other disciplines that on deeper analysis appear to have a relationship with philosophy. Important in this study was free-thinking what such a model might look like and whether and how the elements might link but not necessarily neatly in a holistic sense. The mix is complex and muddy.

There is a more profound reason for a zero starting point. Would the journey of discovery and the ideas generated be constrained, channeled, conditioned and tainted by a constant reference to the great and the good down the centuries and in modern times? Would this lead to even greater confusion? What are the main considerations to be tackled, what questions do these ideas prompt and how may they be approached? The metaphorical lid on philosophy has been removed.

The inclination to read widely before embarking was almost irresistible but how to start and where and when I would I finish, if ever! Business guru Tom Peters used the maxim 'ready, fire, aim.' My hope was for rational and analytic thoughts to somehow coalesce with the creative and imaginative. This seems not to occur in neat incremental steps but in a chaotic, murky and confused way that appears to resemble how much of life operates.

There is another reason for this zero based approach which has much to do with fathoming it out for oneself. The example of Alan Turing springs to mind. Rarely did he check out a flash of inspiration to see if the hypothesis or theory had been published elsewhere. Instead he developed a model for testing. If he later found that like Captain Scott someone had beaten him to the South Pole then so what. The mental stimulus and adrenalin alone was worth the effort.

What a monumental waste of time some might say. Well yes maybe, especially if the road has been well trodden by countless others but hold on a moment. The cautious prediction is we will continue to tread that path blithely unaware other routes exist - and possibly even better ones.

Most of the ideas for formulating such a model stem from the various worlds of education, psychology, sociology, science, mathematics, linguistics, organisation theory & practice, art, culture, human development, learning, history, geography, teaching & coaching, accountancy, counselling, literature, assessment, the social sciences, research and business management & administration – and a few other subjects that appear tangential but important.

They are all relevant to my working life but the notable absentee is philosophy. Far from being divorced from philosophy the argument is advanced that these and a vast list of other subjects can enrich philosophical debate. The range of topics germane to philosophy appears limitless as different slants emerge.

Whilst a case exists for a theoretical study in its own right the aim is to provide a practical and illustrative framework, similar to Dewey's philosophy of teaching practice and how action research works today to test out theories and findings. It also quite unashamedly characterises a personal way of working as almost all of the topics mentioned, if not all, have involve the application of theory. A desire to test out almost anything to see how it might work is beyond temptation.

What the model doesn't show is how the process operates in a dynamic way over time and neither can it. Instead of arriving at conclusions in a linear form, data and evidence are constantly sifted and sorted, questioned and referred back and sometimes modified. We may then spiral and scaffold what we learn in a sort of iterative way, realising how far we have come but knowing we have more to do. The findings are incomplete and unfinished.

There is another component in the jigsaw and for this I defer to James Whistler the American artist. He sued John Ruskin in 1878 for saying "The Falling Rocket" was akin to "flinging a pot of paint in the public's face." Whistler was questioned on how long he took to 'knock it off'. He replied about two days, adding that his labour represented knowledge gained in the work of a lifetime. Herein rests the problem of my own baggage and what is known as our frame of reference!

Using the Model

A philosopher may retort in whatever way we want too. Fair enough. The model is designed as a tool as well as a framework for use in philosophical debate when exploring subjects. It may be especially helpful for complex and/or contentious topics where it is not easy to get a fix on the component parts, let alone how we can get started.

The model may assist where logic and language are important considerations in the context of our understanding, meaning, group and individual reality and our quest for substantiated evidence. How can we know if we have enough? Is the marginal gain of extra data worthwhile? As an example if we are 95% confident we have it 'about right' why spend time, effort and cost delving much deeper? A contention is that for certain subject areas 'good enough' may mean a range and the notion of approximate truth. Slide-rule precision may not be required.

Then there is the issue of time. Might new evidence surface? Whilst being alert to the possibility as new 'facts' emerge, need this worry us? If we settle for what we have now, and record what is known, this provides a basis for a fresh look at any point in the future. The critical word is basis. Alan Bennett's play and book *The History Boys* comes to mind. Their tutor Hector stressed the importance of pass the parcel so we understand what was said and done at the time and why. How this is recorded and substantiated is of immense importance so that years later others can follow the basis and logic, much like an audit trail or algorithm.

Making sense of Logica Intrinsicica

A world as we see it

Ask anyone to describe 'my world' and you may get a kaleidoscope of answers that at one end of the spectrum differ greatly and at the other end agree broadly. Even where there is agreement they may be talking about completely different things such as the universe, a physical world on earth, the world in which I live whether work or home, or states of being. There are plenty more examples.

The boundary of small dotted lines may be any of these. We see what we want to see, how we want to. Our universe comprises roughly 5% of observable matter, depicted as green diamonds with the light green surround depicting dark energy and dark matter that accounts for about 95%. We cannot see that but how are we to know that we don't experience it in some unwitting and subliminal form?

In philosophy we may view the world in many ways, one of which is to relate our perception to the subject under discussion. This is the aim of Logica Intrinsicica so we can adapt the model to whatever we wish. In this real or surreal world atoms are visible though we may not have witnessed them ourselves. Dark matter and dark energy surround us emitted by us as individuals, groups and communities.

Principia

In this model any topic under discussion has ground rules, standards or criteria which form the basis of study. These may include the purpose or objectives that are not as obvious as it may first appear. The model could include a hypothesis but, as Alan Turing and others felt, there are benefits in not having pre-conceived notions. Creative thoughts and energies can then free flow. Either way, or both, we may travel on our journey using guidelines rather than tramlines.

Principia may set out core questions to be asked, a methodology for evaluation and the means of measurement too. How will we know if we have got there and do our conclusions support the originating objectives? What assumptions, if any, are made and what is the rationale for excluding other aspects of the study?

If, for example, the subject is within the realm of social sciences or health there may be ethical considerations. Branches or sub-divisions of Principia may vary relative to each topic and complexity. Scooped together they offer a framework and bedrock foundations to at least make a start. No hierarchy may exist.

Hopefully our Principia includes a commonality of language through definitions and if necessary a taxonomy in an attempt to ensure a consistent treatment of terms. Even when formulated it may be prudent to allow for the contingency of change should any elements require altering or eliminating.

Our contingency may also allow for the inclusion of additional and unforeseen factors should a need arise. It is not just an issue of what we may not know, now or in the future, but the existence of unknown unknowns. The prospect is some or many may not be discovered in our lifetime, leaving us in a state of blissful ignorance, or with a feeling there may be more to it.

Atoms

These are represented by real things that we believe exist and which may be in the form of objects, events or states of affairs. That we may not have personally seen these may not be an issue if a general consensus, however arrived at, is we accept they are so, whether residing in the so-called present, the recent past or in the annals of historic reference. We might almost term these axioms that may leave some philosophers feeling distinctly uneasy in accepting 'givens.'

Dark Energy

Expressed as communication it is occasionally unseen and silent as with our own persona and workings of the mind. Dark energy envelops us within the sphere of our topic and pervades our living space. As with dark matter it is shown as a light green as we may put our own interpretation on what it means in a philosophical context. Showing dark energy as a light colour may imply we put a positive spin on this phenomenon although it could possess sinister characteristics

Communication in all its formats may have subtle influences on our actions and how we see things and feel about them. Forget Twitter and Facebook a moment. We read, watch TV, surf the World Wide Web, listen to a radio, chat to people or animals even, email, access news, go online or whatever. All have gravitational effects in a world of 24/7 energy, pulling us in various directions.

An associated force is our persona and what we are thinking and feeling. Today is an example, a jewel of a day with wall to wall sunshine. I put down my 'pen' mid-morning. The lure of a brisk walk along the beach proved too tempting on a pretext this was thinking time. Good morning said all, well nearly all and so did I.

Picture instead a dank, raw, dreary winter day with a leaden sky, raw biting wind and rain for good measure. Would we bother to exchange such pleasantries or might a grudging and gruff hello suffice? Our emotional energy, or lack of it, may affect not just how we feel but our thoughts and our perceptions.

Dark Matter

Dark matter is even more mysterious as not only do we not see it but neither do we necessarily feel or perceive it or realise it exists in our conscious and sub-conscious states. We may think of it as a herd of proverbial elephants in a room. It is represented by situations and interactions that impact on us and which can alter what we are doing or want to do, scarily sometimes without our realising.

Dark matter may derive internally, mentally and physically and from others such as that urgent telephone call interrupting this urgent action that now has to wait. But dark matter is not always dark as the lighter tones of green show. A friend of yours invites you out quite unexpectedly or you have the chance to see that new play or film on its opening night. A magical evening is treasured forever.

The world out there

The definite article is deliberate as this is our world, the one we know or rather think we know. This contains real things, expressed by Atoms but the majority comprises Dark Energy and Dark Matter. We may know chunks and no more and rely on others to tell us taking us into the arena of truth. How are we to know if what we hear is true; better still how do they know?

Bertrand Russell contended objects rest on empirical foundations. He illustrated by reference to natural science as in a form of audit trail we can trace back all the things we know by description to things we know by acquaintance. Even if we were there in the company of others the accounts may not tally. A senior police officer once told me you will be amazed how accounts of a road traffic incident vary. I was not just amazed but astounded.

It is not just a question of our differing recollections of the position and speed of vehicles, traffic, road conditions and weather etc but also what people failed to notice. Whose accounts do we take? Acceptance of knowledge by acquaintance is compelling in living the experience but fraught, whether a participant, witness or observer. Where is our evidence? Even contemporaneous accounts may be inaccurate. We see different things and our comprehension may vary.

The phenomenon of time and space impacts on the analysis of our chosen topic too. Is there a real distinction between time and space in the final analysis as the further we travel the longer this takes? There is a correlation and blurring that might suggest there is but one dimension. What does this tell us about our very existence?

If we revisit earlier debates our views may have changed over time. Why is this? We are older but are we wiser, more sanguine and understanding too? Do we develop an improved ability to see the broader picture and not just our narrow and deep mine shaft drilled years ago? In short do the complex workings of our brains change as we age and if so what triggers this, how and to what effect?

The concepts have much to do with perception and how we and others see the world and the social mores and values impacting on society at the time. But this may be only part of the equation as instanced by the accumulated knowledge of Whistler and chemical and other changes in the brain. Our reality may change slightly, subtly or profoundly and might not be fixed so our 'take' on something may alter a few decades later.

Beyond the world we think we know other worlds may or may not exist but we exclude these. They are not even on the horizon. We prescribe merely what we intend to explore, deliberately excluding the curious that seems unimportant or even irrelevant, at least for the moment. If we really understood dark energy, dark matter, black holes and the full impact of Higgs Boson, let alone a greater understanding of time and space and any interconnection, would these affect us and if so how? Do we care, especially if there appears no tangible effect on us?

Data points

Portals are the gateways for data, messages, research and keeping in touch with what is out there, current and historic. How many data points and gate-keepers we need depends on the size and complexity of the subject and how it is handled.

How information is collated, by whom and in what format may affect not only the extent of material but robustness of evidence. The examples illustrate an almost exponential increase in computing capacity and speed as well as sophistication.

In smart systems one piece of data serves multiple functions as in a supermarket where the till transaction provides a reconciliation, replenishes stock and keeps an account of your personal spend. It also records your buying habits too if you have a club card. I will not stray into the intrusive topic of psychographics!

Where a mass of data is collected, statistical tools may rapidly make sense of it all for decision-making. In clicking a button we do not know the methodology and algorithm for calculating the answer(s); merely that we have selected what we feel is best. Or have we? We may have been seduced into accepting the method is not only 'right' but logical, fair and ethical. After all it was easy to follow and rational whereas our thinking and assumptions may be anything but rational.

We may assume that findings are more reliable but not necessarily as the output may require interpretation and judgement, especially if data does not lend itself to empirical evidence. Take the case of healthcare. Imagine you are conducting a study into bereavement or some complex area of adult mental health to compare how people are feeling between two points in time. What barometer do you use to measure the findings? It is a tricky task to calibrate value judgments based on feelings, human emotions, personal experiences and impressions.

The examples show we are able to gather and analyse a large volume of complex data at lightening speed, compared to only a few decades ago. Not only that but the analysis may be more accurate (the proviso is correct input) and available in real time in multiple formats. Data analysis is a complex topic. Whilst this is now vastly more sophisticated, enabling us to hone in on the important aspects, there is a downside. Who is to know the underlying programmes are not manipulated to show what they, whoever they might be living in a shadowy world, wish us to see? Can we envisage the day when machines develop heuristic solving methods without human interference? The scary thing is this is probably happening now.

Data flow is similar to traffic travelling at varying speed, contending with several stops and starts, filter systems and traffic lights. Many of these navigation tools use colours and symbols instead of numbers but there are many other examples too such as music and bar codes with four lines of differing width, and processes relying on pictures or sound. Whatever the symbolic formats they all represent forms of language and communication, even blobs used by blind people that can depict numbers if located in precise positions that can be remembered.

The organic nature of life

We may think in terms of human, animal and vegetable life and natural resources with a definite life, in that once used that is it unless new discoveries are made. We can also look at the human factor in a slightly different way by exploring the life cycle that affects clusters of people brought together by a common purpose.

Take a group of any size, or an organisation, set up for a reason and intending to stay together. When created there may be a process of forming and storming as well as norming before any group settles down and, continuing the metaphor, is performing. As months and years roll on the group changes as some leave and others join. Several may take on different roles. How may this affect the group, its structure, how it operates and the outcomes, if any?

Groups and organisations are organic as they wither and die unless renewed and refreshed. They may also atrophy without realising until they discover they no longer have a purpose, if there is one. The group may find itself unfit to fulfil a role as time and society had moved on in the interim whilst they had not.

As the saying goes in a world of unrelenting and accelerating change all learners inherit the earth; meanwhile the learned are superbly equipped for a world that no longer exists. Agility and adaptability may be associated with aptitude and ability, or not depending on our receptiveness to new ideas and thoughts.

Philosophers and historians may say hold on, that's a bit unfair. Maybe but look at this from another angle. Take for example the backbone of the UK economy a century and more ago with our primary industries of coal, iron, steel, ceramics, ship-building and textiles. Only remnants remain.

Cast our minds back to the spectacular opening ceremony of the Olympic Games and the time of Dickens and fictional Coketown. Visualise a factory "where there was a rattling and trembling all day long, and where the piston of a steam-engine worked monotonously up and down, like the head of an elephant in melancholy madness." Imagine too the drudgery of daily life for workers and their families symbolised in *Hard Times* and the harrowing accounts of Lord Shafesbury citing examples of young children working long hours in dangerous conditions.

If we could travel through time how far would our views change say over the 150 years back to the world of Dickens, assuming we could remember that long ago! People and society seemed so different. Language was different too, not only the words and expressions but how we spoke, our tone and intonation, our manner, our bearing and our values. Culture and ethnic diversity are further examples as seismic changes have taken place. Our norms were vastly different in Victorian times, incomplete without its rituals and practices that may amuse us today.

Fast-forwarding we are conscious of the maelstrom of change, whirring away at an ever increasing speed, whether technology, education, politics, travel, politics, economics, law-making, communication, environment and so forth. Stop, please stop! We may wish for a calm oasis for our philosophical discussions, away from the frenzied 'noise' of society, the herd and hubbub interrupting our thoughts.

Taking stock of philosophy

In contention

In society and organisations, as in our own lives, it is difficult to think of almost anything that has not changed, other than certain aspects of the physical world. Some philosophers may take umbrage and say well conceptual thought has not changed since pre-Socratic Greece. The quest for certainty remains as the mind grapples with knowledge, understanding. Mixing metaphors yes we do need to pass this parcel from one generation to the next and not throw out the baby out into the bargain – but be mindful that what is around us continues to change.

Yet a nagging doubts remain there is much more to philosophical states of being and this notion of the real world. Take personal and group relations in society by way of example and the way we connect and communicate. The issue is similar to pure or theoretical research carried out in a laboratory, rather than applying theory to practice. The latter embraces our reality or perception of a world out there but requires us to separate this out in the desire to create or test theory and apply it within society. These are not dichotomies, distinctions or opposites. Instead mutuality and relationships may exist and possibly inter-dependence.

Whilst research in natural sciences requires intense theoretical study followed by application, research in the social sciences may be more dynamic and interactive. The application may form part of the study. Arguably in the real world of society the emphasis may well be on problem solving rather than gaining knowledge. We may not only look at what relationships, if any, exist between variables but seek to make use of these using flexible, adaptive and highly agile approaches.

What is different today in thinking about thinking? The argument is not so much that the conceptual framework is different in the 21st century in terms of what we need to explore but how we do this. In the past twenty years there has been an explosion of techniques, systems, recipes and methods that can be added to our toolkit, driven largely by mega leaps in technology and the digital age.

Our toolbox is getting extremely full, to the point of overflow. Could it not be that some newer tools might actually replace older ones and that some existing tools are a little rusty or almost obsolete unless renewed and refreshed. Dare one say the standard model of philosophy might need tweaking!

A race through philosophical history

This is best left to the likes of A. C. Grayling, Bertrand Russell and a host of others so instead we can take this journey metaphorically through the language of Latin and Greek, whilst not excluding the importance of other languages such as Arabic and Hebrew.

There are several reasons for the sparing use of Latin and Greek. It is important to recognise the influence of language in the development of philosophical logic and reason. They are intertwined and for the most part appear inseparable as for example in communication as are symbols, notation, marks and pictures.

History shows that language and therefore meaning may change over time and that direct translations may not always be possible to reflect the nuances. Why only Latin and Greek one may ask. It is a pertinent question as in the western hemisphere we have shaped our philosophical thinking without recourse, for the most part, to other cultures and ideologies. In striving for a world view our own may be partial only. We see what we want to and may ignore the rest.

An interesting example of the use of language is Alan Turing's explanation of his mathematical findings and formulas, such as at Bletchely Park breaking German codes and in devising computing models. Several analysts have praised the clear explanations of his conclusions and evidence, how he arrived at these and their significance. Attempting to make sense of logic appears impossible without a common form of language, accessible to interested people.

The contribution of individuals has been immense and the notion of standing on the shoulders of giants has validity as we are where we are because of where we have been. The quote was attributed to Isaac Newton when writing to Robert Hooke but the origins may go back to a picture in Greek mythology. There is also a Latin equivalent for this quote that may pre-date Newton.

In early sections of this paper there is reference to a goal or objective; otherwise known as telos in Greek. Linking theory to practice implies pragmata that seeks to apply thinking in a practical way. Then there is the Greek hyle, a concern with the prime matter and finally morphe, to form, that we tend to use as transform.

These words illustrate how advanced Greek society was in philosophical thought and how this has influenced philosophy over two millennia and more. Including Latin words recognises its importance in formal education where pupils used to converse in Latin and wrote extended pieces of work. Even in Dickens time Latin was used for grace at Oxford and Cambridge, both before and after a meal (ante and post prandium). English remains rich in Greek and Latin words.

Language, conceptual distinction and knowledge

Language appears inexorably linked to society and interwoven in its fabric. If so, logic suggests that language changes over time. Some word usage and meanings have changed such as gay whilst certain words are rarely used today. Spiffing may mean extravagantly stylish or splendid; a nincompoop possibly related to the Latin compos mentis, a mild or slightly humorous rebuke that in a serious vein might imply a blithering idiot, often said with an air of exasperation.

We may be flabbergasted, or astonished, still in a modern Collins dictionary as we may hear it on the odd occasion. We also tend to gawp less and then there is whippersnapper that might just apply to the author of this paper! Many words today are used out of context in haste or to convey feelings without wishing to offend or upset. Healthcare is an example. On arriving to visit a sick patient a nurse might say he is feeling a bit poorly today. On entering the ward you see the patient not exactly at death's door but looking pretty awful, another loose and contradictory expression.

There is also a school of thought on the spoken use of English today. With each generation the vocabulary may differ with far less emphasis on expressive and mellifluous English to convey precise feelings, actions or emotions. What is new we may ask? For starters there may be a less extensive repertoire of language but it is the delivery that appears most striking as if mannerisms, gestures and expressions are a language in themselves. Thinking about it they are as if we turn the sound off we may often detect what is said by body language alone.

Might not these elements bring into question the interpretation of meaning, such as real and anti-real and the composition of these terms? We may go further and question if some tools for conceptual distinction are not attuned enough for our immensely complex world with so many perspectives, gradations, tangents and new concepts too. The temptation is to accept new ideas and trends readily with perhaps insufficient thought given to what we have already. Perhaps all that is required is judicious fine tuning rather than chucking out the perceived obsolete.

The term distinction may imply extremes, opposites or contrasts such as on the one hand and on the other. Notions of dualism and pluralism are attractive but multi layers and nuances may complicate their respective features with a fuzzy blurring or even confusion. Use of language within a changing society (people and what is going on around us) suggests that whilst commonality exists it may not cover all aspects of communication. Text speak is just one example.

Life today is not neatly broken down into discrete chunks and binary or magnetic distinctions or yes and no of language but is more akin to a chameleon, mosaic or glass prism. Your view depends on which side you are looking at and what angle. Even the same side and angle may change with the light seconds later.

The significance of foundational truths

A truth, unless it is extremely simple, is probably underpinned by the existence of one or more supporting truths. For complex truth statements there may be many such foundational truths. This has huge ramifications for the robustness of any truth statement and its significance from the standpoints of importance and meaning and more especially in logic for its robustness and proof.

The concept may appear similar to Russell's theory of descriptions that can be traced back ultimately to things we know by acquaintance. We liken this to an audit trail and traceability but the idea can be taken much further in a broader context. What emerges is not dissimilar in some ways to Quine's notion of interdependence and holism but again goes further. For Quine if one domino fails or falls the rest fall but not necessarily.

Prime issues are the selection of our foundational truths and relative importance, inviting probing questions such as why these and not others, and are all mutually inclusive, exclusive or some fuzzy amalgam. Using reliability statistics, similar to component failure rates we may show that underpinning assertions or truths in a subject matter with linked underpinning truths require a statistical confidence test higher than the average or mean. This is the acid test.

The mean results in a lower overall reliability rate or conformance than each of the component truths, unless each truth is 100%, reliable thus giving an overall 100% average. Prudence would suggest each foundational truth is allocated a percentage truth value below which it is not acceptable.

Two determinants pertain to the selection of truths most germane to the area of study. The first underpins a hypothesis, assertion, assumption or conclusion that implies corraling foundational truths that lend greatest weight and veracity to the 'ultimate' truth. In selecting these foundational truths, value judgements are applied, perhaps involving peer agreement. Once in place a weighting value may be attributed to each to assess the level of mathematical significance required.

We may express this in philosophy as the stronger the evidence of a statement is felt to represent the truth, the greater it is predicated by more convincing truths. All necessary truths link similar to a chain reaction or algorithm but a cautionary caveat may need to be applied viz *ceteris paribus* - all other factors being equal, isolated or eliminated.

This observation has profound implications for Logica Intrinsic. If we compile evidence in multiple layers we need 'certainty' that all underpinning data is valid and reliable before moving to the next level. As with a house the foundations and supporting structures have to be secure and built to specification before we can make a home as otherwise the bricks may tumble down sooner or later.

Take the example of ten components each with a reliability rate of 99%. Pretty good one might think but it may surprise us to learn the reliability mean of all ten reduces to slightly over 90% when aggregated. This point has immense significance in more senses than one as when we hear someone of eminence in their field say this is true then all relevant sub-properties not only have to be true but even more convincingly. They are even more logically significant.

In applying a weighting value to each foundational truth it is tempting to say the result of combining these into a mean average is self evident. Our starting point is not the individual weighting values but the overall significance level required. Working backwards we assign a reliability percentage at least equal to and most probably (almost certainly!) higher than the mean of all foundational truths.

Based on truth value criteria each may have a different weighting but with this minimum caveat. It follows that compensation adjustment is required. With ten underpinning truths even if only one is the same as the overall mean the chain reaction requires at least one other foundational truth, and most likely several or even more, to require a higher level of mathematical significance.

We can state foundational truths in Principia as axioms or 'givens' if agreed to an acceptable level of proof or truth. They save time and ensure the investigation is carried out using the same methodology eg if multi-site research and projects carried out in different countries. We then all work from the same initial script and criteria even though investigations may lead to different conclusions.

The digital toolbox

Future learning is about offering education in various formats, enabling students to learn in different modes. Examples include in-line Open University courses and accessible on-line teaching and learning including E-books, remote teaching, tutorials, personal portals and own data. We can upload and download material, access curriculum resources and virtual learning in ways hitherto unimaginable using digital systems instead or as well as almost obsolete analogue methods.

These are small examples of not just what is possible but what is happening now. The World Wide Web, exponential computing power and technology advance has revolutionized education. In theory we can now undertake courses anywhere in the world online with remote learning and video conferencing the norm. Blogs and other portals allow us to communicate with other students and tutorial staff.

Digital technology is extensively used in manufacturing whether computer aided design (CAD), robotics, tailored products in short run batches and lean processes affecting back office functions too. You increase efficiency (speed, output, quality and variety etc) and reduce total cost. This inverse relationship sounds counter-intuitive but examples abound including my own studies and their application. A cautionary message is not to ignore the illogical and unpredictable as being of no assistance or consequence without examination. We may even find a random or supposedly chaotic pattern has an ordered structure that we overlooked.

So, is it not prudent to carry out an audit of what we have in the toolbox relative to our world today and more especially tomorrow? What do we need to retain and in what form? What else might we have to augment our existing tools? Do we need training in the use of these to sharpen our minds too with refreshers as otherwise there is a danger some tools may gather dust?

There is another issue. How receptive are we to change, not to keep up with any trend or fashion but to keep abreast of what is whirring all around us in our daily lives? Whether at work or enjoying leisure or pleasure, outdoors or indoors here in the UK or elsewhere there is an external world that we choose to connect with fully, selectively or hardly at all. The plea is for an adaptive toolbox efficient and effective for the purpose intended and the era in which these tools are used.

Quite apart from the sophistication of available tools such as statistical methods they allow us to exploit the opportunity value of time in doing one thing rather than another. It is an immensely time-consuming exercise to calculate, calibrate and refine the significance level of all foundational truths relative to weighting to satisfy the required mean of all, especially as this may be an iterative process.

Our having a digital toolbox with digital tools to augment existing ones frees up time for use elsewhere. Of all commodities, time is arguably the most perishable as once used it is gone, or so we think depending on our construct of time. Not only do we keep the particular tools sharp but up to date too as otherwise some may become obsolete and unfit for purpose in the modern world.

Spatial associations

The picture painted suggests that in a world of accelerating change the future has arrived. Increases in computing potential, power and speed appear exponential due to advances in technology and innovative design. We can use the internet to access vast quantities of data in nano-seconds in real time, make connections and associations between various sets of information and use data mining techniques to extract what we wish and how in our desired formats.

This means manipulating software, search engines, algorithms and much more to explore minute details in various texts, analyse books in seconds and interrogate numeric information also as well as incorporate visual images and sound.

The combination of this data allows us to visualise it in new ways through a web of associations. The data mining tool help us to redefine the way we see the past. One example is the OU Pelagios project linking us to the ancient world to develop a more rounded picture of how people lived and interacted several millennia ago.

Our view of the world is not only more holistic through these spatial associations but we can travel back in time. The depth and spread of data is far greater than we could have experienced in a lifetime until fairly recently, yet we can now do this in seconds.

The question is can we rely on Pelagios and other data mining tools such as those used by commercial companies whose motives may be other than altruistic? Is it possible we are being subtly navigated towards highly selective information that presents data in a certain light? And what about those organisations who snoop on not just our buying habits but lifestyle and governments who have our safety and security at heart, or do they? In short are we being manipulated?

Part of the solution lies in using Principia to establish standards, ethical codes, protocols, controlled input, access to IT sites and data monitoring audits. The list is formidable and daunting but this filtering process seems necessary if we are to make use of the exciting opportunities information technology can bring. Those still jaundiced may say this stifles free debate and besides what if some of these mechanisms are corrupted too.

Logica Pragmata - Applying Theory to Practice

A philosophical project

Let us assume we have been invited to sit in on a project entailing use of Logica Intrinsic. We are observers only. Those directly involved in the project include technical specialists, a data support team and research analysts. A standards and ethics division has to agree the project proposal and provide audit oversight as the project progresses to ensure it conforms to standards and protocols. A peer review panel is to assess the report and findings. In the interests of impartiality this panel excludes everyone from the institution concerned with the study.

The project team has been selected carefully by an academic board. We have not been told whether this is a natural science study or whether it involves one or more of the social sciences. These people have been chosen for their specialist skills, relevant experience and reputation. The chair of the team has ensured a balance not only of skills but learning styles and approaches to problem solving. These include reflection, analysis, creativity, pragmatism, experimentation and what we may describe as off the wall thinking. Inevitably the selection process involves human judgement and may use a methodology eg the simplified Honey & Mumford learning styles questionnaire though that relies on value judgements.

Establishing principia

Principles vary, relative to the project. Four distinct elements appear essential viz specification, standards, systems and scrutiny but this does not rule out the possibility of others too.

The specification spells out the scope of what is to be covered and in that context is not meant to be limiting. Within the remit agreed the team may explore any avenue. An analogy is geometry where 'the activity' takes place within a circle, triangle, cube, sphere or rectangle etc. The perimeter defines the boundary but what goes on inside is up for grabs though we may need to construct a scaffold around it which means going beyond to prove or demonstrate a certain theory.

Standards embrace the approach and methodology, comprising et al terminology and meaning, analytical tools, statistical sampling methods and the presentation of findings. Systems including procedures, IT and processes are likely to accord with accredited project methodologies. This then leaves scrutiny for which there is a defined and nationally accepted template that encompasses ethics, security, peer review and moderation. Thus the framework is in place, albeit with 'givens.' That alone may send shudders down the spine of some philosophers.

The project construct will have been agreed by the project team or more likely by an independent group. This will cover terms of reference, purpose, scope, the objectives, data collection, analysis, conclusions, any recommendations and the report format. Also included are ethical guidelines, compliances, audit trails and statistical measurement techniques.

The aim is not to compress, confine and suffocate the project; quite the reverse. There is freedom to roam but within a specific context that is clear to all parties. As far as possible obfuscation, vagueness and a lack of clarity and meaning are removed though we still have to contend with human nature and perhaps our natural inclination to gravitate towards certain standpoints.

Peer review

Given the importance of establishing a protocol, with clearly set out standards in a scientific field especially, Principia Peer Review has been created as a firewall in place between the research and analysis and the review process. Our philosophy review panel may not be scientific peers necessarily but we do have experts in the field on whom we can draw. We have had an opportunity to see how peer

review panels work in practice with an almost forensic attention to detail and a disciplined approach to testing the robustness of findings.

Scientific peer review is about the evaluation of research findings or proposals to make judgements about competence, significance and originality. We may think of the process as independent quality control. As with all systems, at the end of the day peer review likewise relies on human judgement.

In a scientific context peer review examines the process of critical engagement in conducting a study to determine the plausibility of any new knowledge. Caution is required as presumed results may be premature if insufficient or inadequate testing has been carried out. Conclusions might be couched in dense language or qualifying language or caveats not explained properly.

Has the work been evaluated by experts in the field, is a report based on opinion, have findings been replicated, extrapolated, or worse still plagiarised? Does the audit trail support the conclusions, are findings exaggerated and crucially how is it intended to use the results; by whom and for whom?

We need to get moving on our peer review of this project. The structural outline whizzes back to the template of the research study to ensure the following eight areas are covered, if not a few more too:

Significance - in terms of originality, importance and statistical significance

Presentation – in a clear, logical and understandable format

Scholarship – that takes into account relevant current and past research

Evidence - of sound methodology, data and analyses including statistical design

Reasoning – using logic to test arguments, interpretations and contrary evidence

Theory – evidence and the soundness of this relative to other theories too

Length – of the paper commensurate with the topic and complexity

Ethics – policy and guidelines that have been followed including those licensed

In responding, the peer review panel will generally give one of five responses. A paper may be accepted outright but more likely is acceptance with amendments. Major revisions may be required with acceptance depending on whether these provisos can be dealt with. Even if they are it is usual to request that the paper is resubmitted. A paper may be rejected with advice to publish it within specified sources as being of possible interest to others, or it may be rejected outright as being seriously flawed.

It is helpful to eavesdrop on another peer review panel to see why certain papers were not approved. Common errors are not repeating statistical experiments, flawed statistical analysis and a failure to build in the possibility of false positives being detected. A major concern is any vested interest if say research has been funded by a commercial company as the temptation exists for conclusions to be self-fulfilling. Scientific inquiry and rigour is designed to pick up errors too as this is an everyday occurrence when dealing with observation and reasoning.

Current thinking on peer review is to think of this as a teaching process too. For example knowing why the wrong idea is wrong may be as important to learning as knowing why an idea is correct. A suggestion is for teachers to lead students through historic evidence so they may understand how each idea was rigorously tested. This makes sense as students need to know the process and use it in their studies so possible pitfalls are removed prior to submission of a research paper.

The structure is mapped out with clarity so that the team and Panel know what is expected. Data analysis format and statistical methods come as no surprise, nor do report constructs, presentation and language. Peer Review whilst rigorously testing findings and conclusions encourages the team (and therefore individuals) to improve, irrespective of project findings being accepted.

So, no woolly language, unsubstantiated evidence or faulty stats please! In the past few decades some evaluation methods have been tightened, given technical advances and the sheer volume of data and evidence available but all this 'stuff' involves audit trails too. With the expansion of data the problem may appear overwhelming, relying on the sophistication of data tools to check the veracity. We have arrived back at our starting point of concerns!

The plaintive cry may be this is not philosophy. The whole experience should be liberating with complete freedom to wander and question at will but this comes at a price of meandering down alleys, cart tracks and dead ends and not reading the maps and signs properly. It may be a journey to nowhere.

Conclusions

► Creating a framework

A prime tenet of the model is a boundary or limit. Logic is contained within this and untainted by what is going on externally as otherwise variables, constraints and dependencies may negate or skew our logic. Geometry helps to depict this, implying conformity and correspondence based on the Latin word *congruō*.

This notion of congruence is implicit within Logic Intrinsic as the construction of boundaries would be the same in any replicated study. Phew, that's OK. Well, not quite unfortunately!

We often look at shapes in one dimension only. Would the properties be exactly the same if viewed in two dimensions or even three? Then there is the question of what these shapes contain. Although data may vary we expect the framework (approach, objectives, criteria, methodology and so on) to be the same but is it? Might it be infected in some way? Has new 'stuff' penetrated the shield?

The axioms of Euclid irritated Russell in his youth as they were accepted without proof. Such 'givens' offer a helpful start point eg, enabling us to perform complex mathematical calculations. Principia in Logica Intrinsic contain axioms. Each defines a set of parameters for use as enablers in the 'calculation' process. They take many forms such as standards, ethical protocols, procedures, mathematical models, analytical methods and data recording.

We select how many we require and agree the construct. Each is autonomous but inter-connected though no hierarchy exists unless stipulated. The greater the number the more caveats we may need to impose to clarify what we aim to explore, whilst mindful of the chain reaction of mutual dependency. The stack of bricks may fall if a rogue element exists but not necessarily.

The engine boosters of axioms or givens are helpful when applying philosophical thinking as they save time, allow us to focus on the thrust of the study, help avoid straying off the path and provide clarity. Mixing metaphors, we may instead get bogged down in a quagmire or quicksand and fail to see the wood for the trees.

The assumptions of axioms may be hard to accept for some. Providing we know what these Principia are, represent and contain this might be good enough for many if not most. We may have to place our trust in others who have done their homework that has been marked and accepted as sound – at least for now.

Another big ask is for language use and meaning to have common understanding, but even with an agreed taxonomy can we be sure as our take or interpretation may differ from peers? Also usage subtly changes. New Principia may replace old or be added but are we still tuned into the world out there or locked in a sealed bubble, beavering away and constrained by our baggage in life?

A further benefit of Principia is we can apply our own audit trail to check, and if possible verify, what we have before us and unpick and unravel where we have travelled from. This becomes ever more important with the passage of time as it is all too easy to cast aside, ignore or misunderstand what went on previously. If we return to the data later we have a baseline to work from.

The door is ajar as new evidence may emerge and also our own thinking and that of others may alter, adapt or falsify the findings that remain incomplete. Organic ingredients might change too. How can we be sure we have all we need to draw a conclusion or that everything we have is germane? Is enough really enough?

► **Living with paradox**

Our receptiveness to ideas, concepts or findings that appear illogical or counter-intuitive may vary. Arguably a logician may well be skeptical as that initial nano-second reaction suggests this is all poppycock. Might that phenomenon be the result of our conditioned thought processes or are we hard-wired to be creative and conceptual rather than reflective and analytical or vice-versa?

Might these assumptions be a myth and that the assertive and authentic self can respond and adapt to a fusion of both, dependent on the situation and context? We might also find a seeming paradox is an illusion. That random element in an otherwise coherent pattern appears a blip, until perhaps we discover we missed an irregular but not random combination, sequence, pattern or association.

In the Pythagoras theorem the equation concerns the perimeter of three sides of a right angled triangle. Yet to prove the theorem we need to go outside a triangle to create three boxes that on closer examination are squares. At first sight such a solution appears paradoxical and counter-intuitive. In trying to contain logic we may have to go beyond this self imposed shell and literally think outside the box.

A further paradox appears to be the more we convince ourselves of sound and watertight logic possibly the more fragile this might become in time and space. Human traits of optimism and certainty may not help. Rather than our getting closer to the idea of absolute truth we may uncover and reveal 'factors' blurring supposedly strong evidence. We may think the only certainty is uncertainty.

Whilst axioms can be useful a part of us may urge caution. This parallel thinking may accept certain givens but ought we to reserve judgement about these being absolute truths? Part of our thinking may be reserved to question and keep an open mind as more 'evidence' may yet come to light. Truth may be transient.

All this is not cynicism or dualism but merely a form of complementary thinking, tinged with curiosity and pragmatism and maybe skepticism too. Fundamentally it is about how we apply theory to practice and return to theory in what appears a never ending spiral.

The further we advance the more we discover and uncover, but the greater our knowledge the more we realise how little we know. How boring life would be if it were otherwise. What if we knew we had reached the end of the line having demonstrated certainty; *quad erat demonstrandum*, QED in abbreviated form.

How can we ever be certain? There is a strong case to say the jury is always out and that a final verdict may never be given, only a cautious judgement at a point in time. Few 'things' exist in complete isolation, and if one facet alters there may be implied consequences.

► **Senses of reality**

This web depicts 'our world' that is real to individuals and communities, whether social groups, organisations, towns and cities, countries or continents. States of reality may have perceived common features and distinguishing elements in an assortment that characterise our personal view of life. It is not a case of this or that, both or all but a fuzzy blurring, similar to myopia. We are all short-sighted as our vision allows us only to see so far and wide – and we all see differently.

The question emerges might we rethink the terms real and anti-real? Imagine a G force centrifuge on a central pivot circulating at increasing speed but instead of one mechanical capsule containing a human we have two capsules, entitled real and anti-real one hundred and eighty degrees apart. The greater the speed and complexity the more confused and hazy life appears.

One seems to replace the other at a moment in time. Real and anti-real may not be polar opposites but an amalgam, blurred and ever changing. To others we are 'the they' as they are to us. Our world may be real or anti-real even possibly

at the same time; yet another paradox! Our being with others anywhere in the world is arguably both a real and anti-real experience.

The world of astrophysics and atoms (atomis), dark energy and dark matter are reconfigured as objects, events and situations that may influence how our minds work and our responses. They may be unseen and often silent, yet they exert a gravitational influence. As with the mind we believe we may know much about what they do and how they operate but there still seems a long way to go before we understand fully, if ever we do. The sands of time may yet run out and beat us all to it.

This presupposes the concept of our complete existence and that we, the world and the cosmos are real! I will leave aside the reality of time and whether it has always existed, the phenomenon of multiple universes, quantum entanglement and other fascinating science topics such as why the laws of nature are the way they are!

Data points enable information to be accessed, released and exchanged. We may liken these entry and egress points to the London M25 or Paris Périphérique. As with a sealed bubble or vacuum chamber this is not entirely contamination-free as viruses and infections may occur as a result of the physical construct, human activity or both. Neither is the free flow of all data entirely logical as it may not be capable of precise measurement if value judgements are necessary, or maybe it is and that at issue is the limitation of the human mind at this point in time.

A further problem is consistency and listening to the 'noise' of society out there and following the herd. Our lone voice may be perceived as wrong and we may not wish to raise our head above the parapet or may possibly harbour self doubt. Might we replicate the same error eg due to faulty methodology, or consistently omit other data unknown to the group at the time or later discovered?

► **The unlikely and the impossible**

Do we allow for this? Back in my mis-spent youth playing snooker I managed to pot the black in two pockets in the same shot. What! Impossible surely! The pot was relatively straight and with customary exuberance I bashed the white ball to hit the black. It smacked into the pocket against the stanchion, jumped out and then rolled along the lip of the top cushion and nestled into the opposite pocket.

A philosopher may question if this could really have happened and a pragmatic optimist whether I should have claimed fourteen points, not seven! A logician may simply say it matters not whether the event happened or not as the rules state that potting the black scores seven, and only seven. Incidentally my only witness to this momentous feat fifty years ago cannot now recall it!

► **Foundational truth significance**

The mathematical argument, based on probability theory, is that the robustness of a truth depends on a higher mathematical significance of foundational truths. A correlation exists between the aggregate of these and need for a higher level of significance for each. The greater the number the larger the difference between

the significance level and the multiplied mean. The gap increases and arguably the risks become greater when we scoop these foundational truths together.

This assertion goes much further than entailment and illustrates the difficulty of determining validity and verification where a substantial number of foundational truths or claims need to be tested to arrive at an overall conclusion. As applied to technology the mathematical model is reasonably clear but is fraught if human factors are involved, such as in a court of law when forming a judgement. It may become even more problematic in the arena of science where both are involved with the added complication of postulating what is out there and what has gone on well before our time as a human race here on planet Earth.

Philosophers may say hang on a minute, what if a supposed truth factor does not have a bearing on the others with the implication it can have a lower significance value. The counter argument can be made. How can we be sure it does not taint other foundation truths in some overt or subtle way? Does it carry a risk? Can we be certain it carries no risk at all? Put another way, are you prepared to take that flight if there is a history of mechanical issues, human failure or both.

This is why Principia require to be tested vigorously before so-called givens are accepted prior to commencing a study. At issue too is the algorithm or audit trail that analyses and tests foundational truths before arriving at overall conclusions based on them. Do we necessarily trust the so-called experts assuring us?

► **Dusting down the toolkit**

This paper has hinted a few tools in the philosopher's toolbox may be rusty, if not obsolete and possibly unfit for purpose in the modern age. Whilst the issues confronting pre-Socratic Greece remain, arguably there are now many more and different issues to grapple with. We may require digital tools, not only analogue, for this digital age whilst realising we need to be capable of using them.

No, the Greek baby is not chucked out with the bathwater. As with the model of Foundational Truth Determination the basic anchor points to do with logic and human psyche are in theory in place. All we have done in two and half millennia is to add to this core of thinking and the level of sophistication both in analytical content and the means of presentation. That alone comes with a health warning.

An illustration of the problem is how we may measure not just quantitative data but qualitative, whether text or verbal statements, visual images, number, signs or symbols, colours and various other formats. Problems arise in social sciences where value judgements are often made using criteria and a referencing system similar to number logic.

Imagine a Likert rating scale with five categories ranging from totally agreed to totally disagree. The criteria for statements or questions is logic based but also subjective as are the supposed objective responses that have much to do with feelings, emotions and our take at that moment in time.

Then there is the blurring of gradations and incremental differences that muddy the waters when applied to tools for conceptual distinction as we may learn they are not mutually separate, other than at the extremities. The possibility cannot be ruled out that in certain situations they may exist at the same time in our own imagination.

► **The concept of good enough**

For highly complex and variable logic problems we may have to draw a line and settle for what is good enough, at least for now. We have our boundary or limit, our principia and foundational truths or axioms, access and egress points and data flows and analysis. How do we know if we have enough supposed evidence to call a halt? Can we know this in advance?

Arguably the decision is based on logic, although the exercise of judgement may suggest other factors too eg experience, bias, hunch, intuition and our emotional responses. If we extend the sample size will this make any difference? How can we know unless we do it? The paradoxical and counter-intuitive may possess some logic after all.

It is hard to believe, or accept, the existence of any form of grand narrative, an all encompassing model for grappling with logic let alone any attempt to establish irrefutable truth or meaning. Whilst a sense of order may exist in the construct of our world and how we live and interact, our human and physical world is ever changing and involves uncertainty. There seems little prospect of that abating.

We may have to settle for a toned down framework rather than narrative and put our trust in others also to play their part. At best we can leave our mark or audit trail for others to follow. The gate is left open for the future in the knowledge we have passed the parcel to the next generation, to unravel and explore further.

► **Flaws in Applying Logic**

The exploration of inanimate objects and associated experimentation, trials and testing are one thing and social sciences quite another, relative to application in the real world. With the latter it is often not just about repeating the same test under lab conditions but applying this logic in the field. Whilst human nature is present when dealing with objects, it is fundamentally all pervasive in the social sciences. A few examples illustrate the potential dilemmas and flaws of both.

Medical science is littered with studies of well reasoned logic attributing a cause of a specific medical condition with guidance for prevention and treatment. A cause whilst contributory in some way, such as insanitary conditions or living in a tropical region close to river systems prone to annual flooding, may not be the root cause. We are impressed by the initial logic and convince ourselves it is so.

The forerunner to the quality standard ISO 9001 was BS 5750. An organisation would produce a quality manual setting out the processes to be applied for that particular product or service. The format, layout and presentation might appear entirely logical but for one major blip. It was based on procedures in place and

not necessarily the best or optimum methods. There is now the imperative for continuous improvement but quality depends on how robust the baseline is.

Many organisations have a vision or mission statement, sometimes both. They are often well articulated and honed to present an idealised image of how the enterprise, public or voluntary organisation may see itself. In many, a mismatch exists between what occurs in practice and these fine words based on my studies in several hundred organisations. Put bluntly, they did not walk the talk.

The issue becomes hugely important if the expectation is to live up to these each day for the whole twenty four hours. Hospitals, nursing homes and care homes are a case in point. When a serious incident arises a predictable response is we have high standards. Yes they might have. The philosophy of practice, protocols and procedures may have been cribbed, copied or written by a quality guru, rather than those charged with ensuring the consistent application of standards and effectiveness of inspection or assessment. They are often not 'owned.'

The premise of standards does not entail the conclusion of actual practice. Getting in the way is human nature and associated issues of attitude, training and enforcement amongst a host of factors way beyond the scope of this paper.

George Burns is attributed with the quote 'if you can fake sincerity you have got it made.' This may make uncomfortable reading but listen to marketing hype, advertisements and mantras with their seductive messages and platitudes. Be honest and think of an occasion when you were taken in by a slick presentation, those empathic tones and that display of reassuring confidence. The rhetoric did not live up to actions such as poor service, inordinate delay or a cost overrun.

► **Validating Logica Principia**

Not a chance, or at least very little! It appears incapable of empirical assessment and accepted validity for as with sophisticated models of how an economy works this does not mean it works in that specific way. One problem is predictions are often based on where we have been, and our own thoughts and points of view are often related to our living experience, upbringing and genetic components.

Two problems amongst many are assuming a continuation of trend patterns and omitting phenomena that may be new, barely understood and highly variable in nature. Probability and forecasting may use various mathematical techniques that are not exact sciences, often require extrapolation and are based on human judgement. A further difficulty is presentation such as saying the average family has 2.2 children. Most people know what we mean but no such family exists.

OK, hands up! This paper is riddled with assumptions and contradictions and is quite possibly logically flawed in places but the stimulus and journey alone made it worthwhile. It is now time to explore Grayling and others in more depth to check out the fault lines, pitfalls and omissions and to view this epistle and its conclusions in a different light. At stake is not just philosophy but the process of how we learn. That alone justifies the journey.

Logica Intrinsic is not watertight. Neither can it be in this format but maybe the model just squeezes through Grayling's test of plausibility but with reservations. Whether it does or not is not the issue or objective. The hope is that this model will generate and inspire interest and help nudge philosophical debate forward, even if only by a small increment.

A paper of this nature is inevitably work in progress with no absolute or ultimate and is designed to be adaptive. Paradoxically, for ideas based on the existence of a boundary or limit there are no clear edges, suggesting uncertainty and a rather hazy and impressionist view of logic and its analysis.

Every time a single paragraph let alone page is re-read there is the temptation to make an alteration or two, tinker or add several brush strokes. The pause button has been pressed. It is time for others to peruse and maybe comment whilst I dip further into academia. This iterative process of feedback, reflection and yet more research will hopefully enhance our understanding of logic and its application.

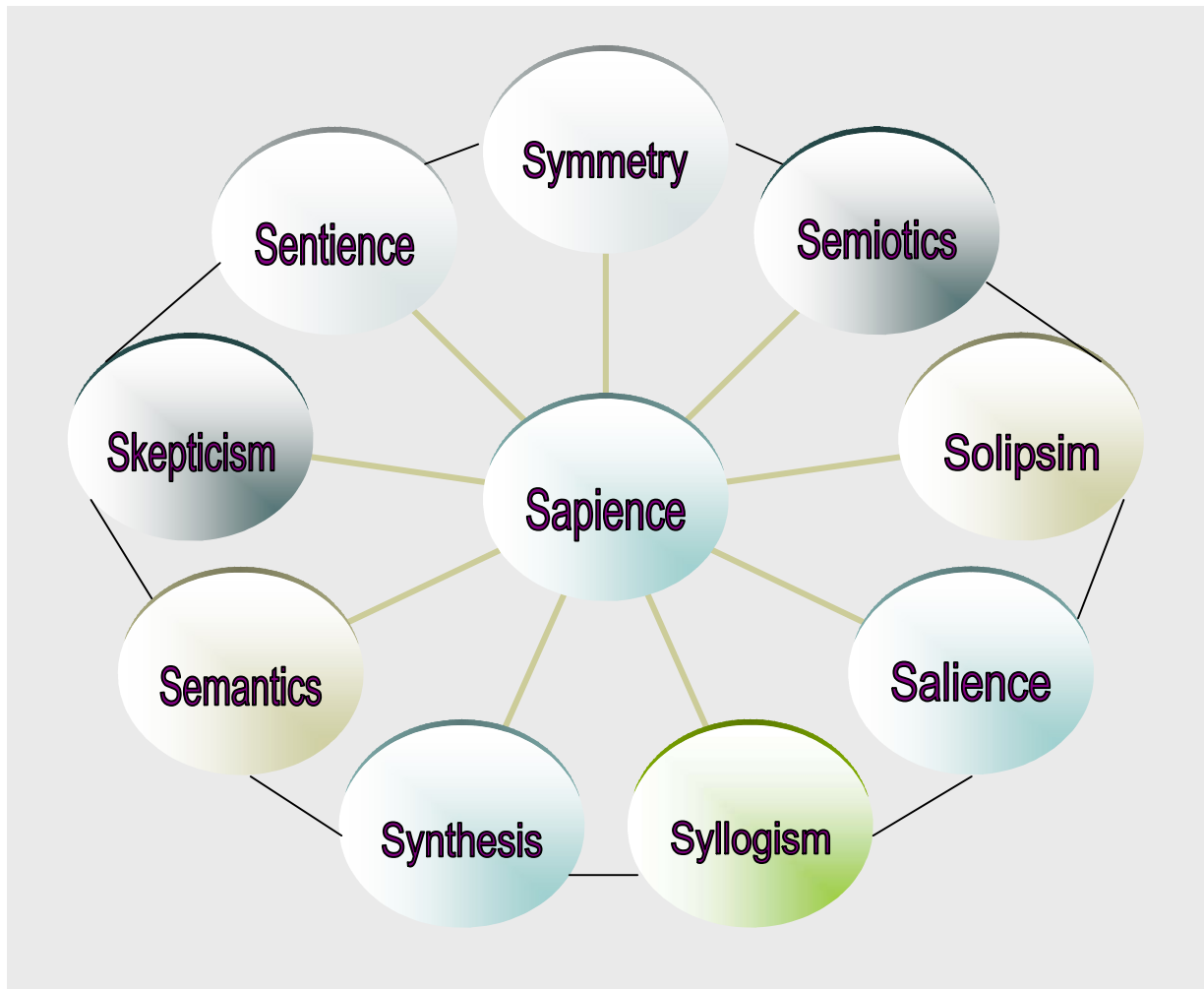
How we choose to use Logica Intrinsic or not at all matters little. The intention is that a few of these ideas and the fusion of them spark other thoughts, including rejection and falsification of what is presented here. Others may wish to take up the baton of contemporary philosophy knowing the journey will continue and, if brave enough, may even carry out an audit and review of the toolbox contents. As ever in philosophy there is no finish line or any prescribed route to take.

Almost all the ideas presented flow from free thought that in itself derives from academic texts over decades, many taught courses, class interaction, subliminal stimuli, creation of 'models' and own experiences in applying theory to practice and so forth. Yet the paper appears to be shallow given a paucity of philosophy references. Three excuses are offered.

Quite apart from not wishing to constrain my own thinking with the freedom to explore, my aim is to make philosophy accessible to anyone by using real world examples. Hopefully, some will resonate. The third reason is more contentious. Instead of philosophy reaching out to other subjects the converse approach has been adopted, not out of arrogance or ignorance but in attempt to use applied philosophy to make more sense of logic.



Appendix - Ten S words for assessing logic



Symmetry
Semiotics
Solipsism
Saliency
Syllogism
Synthesis
Semantics
Skepticism
Sentience
Sapience

Correspondence in size, form and arrangement
Signs and symbols and their interpretation or use
Existence of one's own world and reality
Conspicuousness, prominence and significance
Forms of deductive reasoning from the general to specific
Combination of constituent parts into a coherent whole
Meaning and relation of signifiers and their denotation
Existence of doubt about knowledge claims
Subjective personal experiences through self-awareness
Able to apply knowledge, experience and understanding