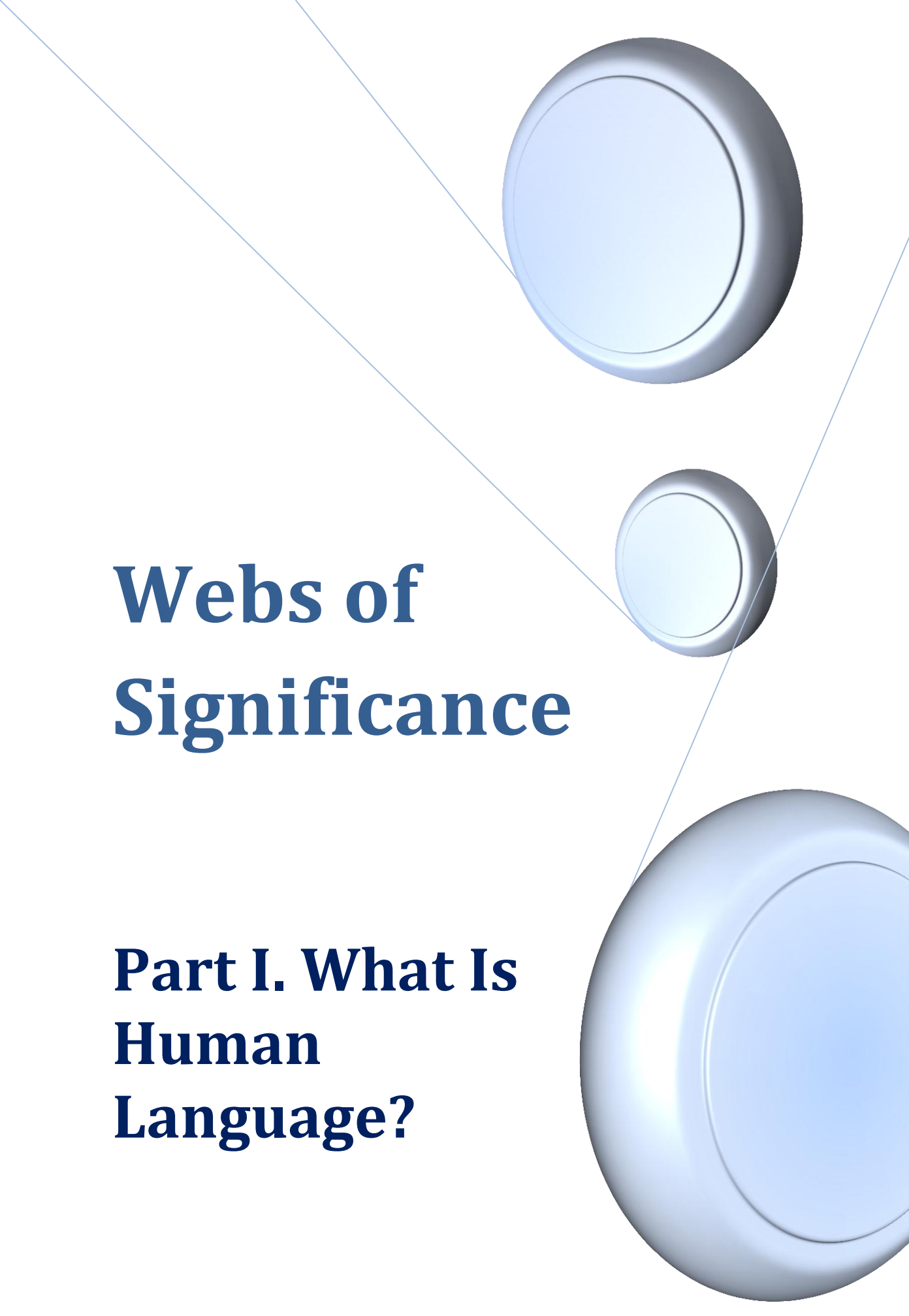


An abstract graphic on the right side of the slide. It features three blue, 3D-rendered spheres of different sizes. Two thin, light-blue lines intersect to form a triangular shape that frames the spheres. One line runs from the top-left towards the bottom-right, passing behind the top and middle spheres. The other line runs from the top-right towards the bottom-left, passing behind the middle and bottom spheres. The spheres are arranged vertically, with the largest at the top, a medium-sized one in the middle, and the largest at the bottom.

Webs of Significance

Part I. What Is Human Language?

Part I. What Is Human Language?

You may say it's the human way of communicating thoughts. But how exactly is it different from animal 'languages'?

I.1. Language, Thought & Cognition

Aristotle (384-322 BC), the famous philosopher of Ancient Greece, pointed out over 2300 years ago that all intelligent animals (including humans) have sensation.

Sensation, he claimed, **engenders memory**:

ALL men by nature desire to know. An indication of this is the delight we take in our senses... above all others, the sense of sight. For ...we prefer seeing ... to everything else. The reason is that this, most of all the senses, makes us know and brings to light many differences between things.

By nature animals are born with the faculty of sensation, and from sensation memory is produced in some of them, though not in others. And therefore the former are more intelligent and apt at learning than those which cannot remember; those which are incapable of hearing sounds are intelligent though they cannot be taught, e.g. the bee, and any other race of animals that may be like it; and those which besides memory have this sense of hearing can be taught (Aristotle: *Metaphysics*, Book I).

1.1 The 'Human Difference'

Aristotle then explained how humans differ from other intelligent animals:

The animals other than man live by appearances and memories, and have but little of connected experience; but the human race lives also by art and reasonings. Now from memory experience is produced in men; for the several memories of the same thing produce finally the capacity for a single experience. And experience seems pretty much like science and art, but really science and art come to men through experience; ... **Now art arises when from many notions gained by experience one universal judgment about a class of objects is produced.** ...

... Experience is knowledge of individuals; art – of universals ...

Knowledge and understanding belong to art rather than to experience, and we suppose artists to be wiser than men of experience ... because the former know the cause, but the latter do not. ... We do not regard any of the senses as Wisdom; yet surely these give the most authoritative knowledge of particulars. But they do not tell us the 'why' of anything-e.g. why fire is hot; they only say that it is hot. ...

Wisdom is knowledge about certain *principles* and *causes* (Ibid.).

Now, what did Aristotle mean by 'knowledge of universals'? Human thought – **generalization!**



Example: Each of your ‘experiences’ above is different from the two others; yet, all three ‘resemble’ each other. Out of the ‘**several memories of the same thing**’ we ‘**produce finally the capacity for a single experience**’; we have ‘**made sense**’ of them all – we have ‘abstracted’ their **meaning** – ‘APPLE.’ This is how people make sense of everything, creating *ideas* in their minds, abstracted from their vision/perception of the world. Our experiences connected in memory give rise to generalizations (the knowledge of the ‘causes’). Connecting ideas (i.e., *thinking*) produces understanding of the ‘**universals**’ (the principles and causes of connections /relations between things).

1.2 Physical Senses vs. Abstract Thought (Generalization)

We perceive the concrete physical world around us through our physical senses. In an ‘unfolding’ of awareness, we recognize what we see (like those dolphins swimming in the ocean, a canoe with men in it, etc.):



We see, hear, smell, touch, and taste things as a concrete ‘whole’ experience. This is how all our physical senses work – we taste and smell the *whole* of the stew, not its ingredients separately. We perceive only what is within the range of our senses – you cannot see, hear, smell, taste or touch something beyond a certain distance.

There is a dialectic leap, a qualitative difference, not only between total absence of consciousness (in inanimate matter) and sensation, but also between sensation and abstract thought. ‘The qualitative distinction between sensation and thought is the

presence in the latter of a **generalised** reflection of reality' (Vygotsky). The table below illustrates this qualitative divide, however fuzzy, between humans and other intelligent animals:

Evolution of Life on Earth		
Inanimate matter (non-living things)	Rocks, mountains, seas and rivers, the sun and the stars, metals and plastic, etc.	Complete absence of consciousness (no sensation, no intelligence)
Animate matter (all living things)	Micro-organisms, plants & insects, fish & reptiles, birds & rodents, mammals, etc.	Sensation and (in some animals) non-verbal intelligence
	Humans	sensation and abstract thought (verbal intelligence)

Abstract thought (or *verbal* intelligence) is the difference between humans and other intelligent animals. Biological 'languages' of animals are instinctive; they vocalize emotions (fear, anger, joy, etc.) and physical sensations (i.e., pain, pleasure, etc.). Both crying and laughter are this kind of instinctive *biological* human 'language' (we do not laugh or cry in Enga / English or Tok Pisin). This brings us to the crux of the matter: **a word without meaning is empty sound** – it is *meaning* that turns the sounds people make into the words of a language.

Ferdinand de Saussure, the 'Father of Modern Linguistics,' believed that "It is the **combination of the idea with a vocal sign which suffices to constitute the whole language**" (Saussure: 1986).

Lev Vygotsky (1896–1934), the Russian psychologist, who was particularly interested in Language and its vital role in shaping the human mind, put it even more clearly:



"Each word is ... already a generalisation. Generalisation is a verbal act of thought and reflects reality in quite another way than sensation and perception reflect it"
(Vygotsky: 1934).

Through our physical senses, we perceive only *concrete* reality within their range – that’s probably how the saying came about: ‘*out of sight, out of mind.*’

Language gives us the power to feel, see, hear, smell, and taste with our minds – to experience things in our imagination, through the legends and stories that reach us from different times and different places: we can read the thoughts of ancient writers, and see their world through their eyes. See, for example, if you understand what the ancient Greek philosopher Gorgias, who lived about 2 500 years ago, said about Language:

"The power of speech has the same relation to the order of the soul as drugs have to the nature of bodies. For as different drugs expel different humors from the body, and some put an end to sickness and others to life, so some words cause grief, others joy, some fear, others render their hearers bold, and still others drug and bewitch the soul through an evil persuasion . . ."
(Praise of Helen)

How does Language do it? Through shared meaning, generalization? Yes, of course – these are abstract ideas; yet, just as our minds cannot exist without our bodies, so **meaning cannot exist without its ‘flesh’ – the word:**

Word meaning is a phenomenon of thought only in so far as thought is embodied in speech, and of speech only in so far as speech is connected with thought ... It is a phenomenon of verbal thought, or meaningful speech – a union of word and thought (Vygotsky: 1934).

Human essence – human Language, Culture and History – are all about symbols, or ***meaningful forms.***

1.3 The Symbolic Species

Abstract thought is a uniquely human trait; Terrence W. Deacon described it beautifully in his remarkable book, ‘The Symbolic Species’:

Though we share the same earth with millions of kinds of living creatures, we also live in a world that no other species has access to. We inhabit a world full of abstractions, impossibilities, and paradoxes. We alone brood about what didn't happen, and spend a large part of each day musing about the way things could have been if events had transpired differently. And we alone ponder what it will be like not to be. In what other species could individuals ever be troubled by the fact that they do not recall the way things were before they were born and will not know what will occur after they die? We tell stories about our real experiences and invent stories about imagined ones, and we even make use of these stories to organize our lives. In a real sense, we live our lives in this shared virtual world. And

slowly, over the millennia, we have come to realize that no other species on earth seems able to follow us into this miraculous place. ...

The doorway into this virtual world was opened to us alone by the evolution of language, because Language is not merely a mode of communication – it is also the outward expression of an unusual mode of thought-symbolic representation. Without symbolization the entire virtual world that I have described is out of reach: inconceivable. My extravagant claim to know what other species cannot know rests on evidence that symbolic thought does not come innately built in, but develops by internalizing the symbolic process that underlies language. So species that have not acquired the ability to communicate symbolically cannot have acquired the ability to think this way either (Deacon: 1997).

1.4 Symbols

Since symbolic thought constitutes the ‘human difference,’ it’s good to revise the ‘basics’:

Symbol is a physical form that has a conventional meaning (is associated with a particular meaning in the minds of the speakers). A form is physical, if it can be detected by our physical senses (usually hearing or sight).

Iconic Symbols are physical forms that resemble their meaning, i.e.:



Arbitrary Symbols are physical forms with **no** obvious link to their meaning:



Visual symbols are meaningful forms that you can see (like the ones above).

Aural symbols are meaningful physical forms that you can hear (words, etc.).

Human Language is symbolic – every word is a **meaningful** physical sound form, a universal principle (‘single experience’) produced finally by our ancestors out of ‘several memories of the same thing’:

... The world of experience must be greatly simplified and generalised before it can be translated into symbols. Only in this way does communication become possible, for the individual’s experience resides only in his own consciousness and is, strictly speaking, not communicable. To become communicable, it must be included in a **certain category which, by tacit convention, human society regards as a unit** (Vygotsky: 1934).

Everything in the virtual human world is symbolic – stop lights on city streets, the money we use, the wedding vows and gifts we give to each other – in fact, all social exchanges, rituals and traditions, etc. And the ‘doorway into this virtual world was opened to us alone by the evolution of language’ (Deacon: 1997).

Language, rooted in the senses, is also *perceived* with our senses (of hearing & sight); therefore, we perceive spoken (and written!) language through the wide-angle lens of our physical senses, in *chunks* of meaning. This is why we often understand the sentence, before the speaker has finished saying it, and can even guess the words not yet spoken.

Use yuor physcial snese of sihgt! 😊

Cna yuo raed tihs? Olny 55 plepoe out of 100 can!

I cdnuolt blveiee taht I cluod aulacly uesdnatnrd waht I was rdanieg. The phaonmneal pweor of the hmuan mnid, aoccdrnig to a rscheearch at Cmabrigde Uinervtisy, it dseno't mtaetr in waht oerdr the ltteres in a wrod are, the olny iproamtnt tihng is taht the frsit and lsat ltteer be in the rghit pclae. The rset can be a taotl mses and you can sitll raed it whotuit a pboerlm. Tihs is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the wrod as a wlohe. Azanmig huh? yaeh and I awlyas tghuhot slpeling was ipmorantt! if you can raed tihs forwrad it!

These are not regular English words – how come you can make sense of them?

Tihs is bcuseae the uor mnid's eye deos not see ervey lteter by istlef, but the wrod as a wlohe – we perceive language with our physical senses!

*This example also shows how our minds generalize by **connecting** ideas – **because** of some **resemblance**, we ‘slot’ things into **categories** existing in our consciousness.

Understanding is possible only through generalization (‘putting 2 and 2 together’) which simplifies the concrete world of experience into abstract categories/ ideas, so that these concrete experiences can be translated into symbols: ‘To become communicable, [concrete experience] must be included in a certain category which, by tacit convention, human society regards as a unit’ (Vygotsky: 1934).

Our Mind's Eye sees what our eyes can't see – Ideas. Meanings do not exist in the physical world – they are the product of the human mind; from physical experiences of concrete things, connected in memory, human minds abstracted *ideas* of concrete things:

Generalization is the exclusion from visual (sense perception) structures and the inclusion in abstract thought structures, in *semantic* structures (Vygotsky: 1925).

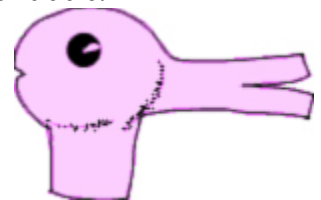
Societies create meaning (generalization) by abstracting a single experience out of 'several memories of the same thing' and communicating it through signs:

The animals other than man live by appearances and memories, and have but little of **connected experience**; ...from memory, experience is produced in men; for **several memories of the same thing produce finally the capacity for a *single* experience** (*Aristotle*: *Metaphysics*, Book I).

To know the meaning is to know the singular as the universal (Vygotsky: 1925)

We 'make sense' of things by 'connecting' our concrete experiences to the general concepts/ categories already 'installed' in our minds by society through language – we recognize 'the singular as the universal.'

We associate ideas by resemblance, contiguity in space and time, and cause / effect. Example: we come across new things every day. To understand what they are, we try to fit them into a general category we have in our minds, connecting them because they resemble it. In this drawing, what do you see – a duck or a rabbit?



Source: http://en.wikipedia.org/wiki/Philosophical_Investigations

In fact, it's a duck-rabbit¹, and what you will actually see depends on what you think it looks like. If you don't know what a rabbit looks like, you'll think this is a duck, and the other way around. Why? Because we *recognize* the similarities with what we *know*! In other words, *because* something looks like something that we already know,² we put it in that general category³:

What looks like a duck, walks like a duck, and quacks like a duck, must be a duck!

¹ This duckrabbit was made famous by Wittgenstein (1898-1951), the Austrian-British philosopher. Source: http://en.wikipedia.org/wiki/Ludwig_Wittgenstein (22/06/2010)

² association by **cause/effect**

³ association by **contiguity**

Verbal Thought is intertwined with emotion; in fact, thought processes cannot be separated from consciousness – they cannot be separated from the ‘fullness of life, from the personal needs and interests, the inclinations and impulses of the thinker’:

... Every idea contains a transmuted affective attitude toward the bit of reality to which it refers. It further permits us to trace the path from a person’s needs and impulses to the specific direction taken by his thoughts, and the reverse path from his thoughts to his behaviour and activity (Vygotsky: 1934).

Making sense of the world – abstract thought – is the essence of human nature. Amongst themselves, groups of our ancestors got into the habit of using particular sound ‘codes’ to refer to particular things around them – those were the roots of human Language and Thought.

1.5 Webs of Significance

Max Weber (1864-1920), a German sociologist, said man is an ‘**animal suspended in the webs of significance he himself has spun.**’ These social webs of meaning support and shape us, until we mature and become adult ‘spinners’ in our own right. These shared social systems of meaning /values (in all their shapes and forms) are the focus of this course – they are the webs of culture.



Language reflects our *ideas* about the physical world.

Ideas are the ***abstractions*** we have ‘squeezed’ out of many concrete experiences, connected in our memory. Ideas have no physical substance – they exist only in our minds. All human perception acquires meaning; we perceive all meaning~~less~~ things as meaningful, attaching meaning to them:

‘There is nothing either good or bad, but *thinking* makes it so’ (Shakespeare).

So, how do we spin those ‘webs of significance’? What do we do when we generalize?
What exactly do we do when we *think*?

Further Reading (See Appendix I):

1. Terence W. Deacon: ‘The Human Paradox’
2. Aristotle: Metaphysics, Book I

I.2. What is thinking? An Enquiry Concerning Human Understanding

David Hume (1711–1776), the Scottish philosopher, also wondered about what it means to ‘understand’ something. He came to the conclusion that humans, in all times and places, make sense of things by making connections between ideas that let us see how things relate to each other. In his *Enquiry Concerning Human Understanding*, Hume wrote over 250 years ago:

“IT IS evident that there is a principle of connexion between the different thoughts or ideas of the mind, and that in their appearance to the memory or imagination, they introduce each other with a certain degree of method and regularity. In our more serious thinking or discourse, this is so observable that any particular thought, which breaks in upon the regular tract or chain of ideas, is immediately remarked and rejected. And even in our ...dreams, we shall find ... that ...there was still a connexion upheld among the different ideas, which succeeded each other. Were the loosest and freest conversation to be transcribed, there would immediately be observed something which connected it in all its transitions. ... Among different languages, even where we cannot suspect the least connexion or communication, it is found, that the words, expressive of ideas, the most compounded, do yet nearly correspond to each other: a certain proof that the simple ideas, comprehended in the compound ones, were bound together by some universal principle, which had an equal influence on all mankind.

Though it be too obvious to escape observation, that different ideas are connected together; I do not find that any philosopher has attempted to enumerate or class all the principles of association; a subject, however, that seems worthy of curiosity. To me, there appear to be only three principles of connexion among ideas, namely, Resemblance, Contiguity in time or place, and Cause or Effect.

That these principles serve to connect ideas will not, I believe, be much doubted. A picture naturally leads our thoughts to the original:[1] the mention of one apartment in a building naturally introduces an enquiry or discourse concerning the others:[2] and if we think of a wound, we can scarcely forbear reflecting on the pain which follows it.[3] ... The more instances we examine, and the more care we employ, the more assurance shall we acquire, that the enumeration, which we form from the whole, is complete and entire:

[1] Resemblance.

[2] Contiguity.

[3] Cause and effect”

(David Hume: *An Enquiry Concerning Human Understanding*, Section III – Of the Association of Ideas. Retrieved on February 24, 2008 from <http://18th.eserver.org/hume-enquiry.html>)

When *learning*, or trying to understand something, our minds first ‘perceive’ things as a whole, and then, wanting to learn more, they focus on *parts* of the ‘whole’:

In order to form a concept, we must be able not only to *connect*, but also to *abstract*, to *single out* characteristic elements, and to view them separately from the ‘totality of the concrete experience in which they are embedded’ (Vygotsky: 1934).

In other words, “making sense” of something is a complex process of both connecting and contrasting ideas, of ***synthesis*** and ***analysis***. Synthesis and Analysis form the backbone of all human understanding. Example:



The Earth seen from Apollo 17
<http://en.wikipedia.org/wiki/Holism>



Parched earth resulting from a drought
<http://dampwater.tripod.com/id4.html>

Both images above are of the same planet Earth; the wide-angle, holistic view of it is different from the close-up image of a tiny part of it on the right.

When learning, the lens of our ‘mind’s eye’ shifts from wide-angle to close-up /zoom; what we see will depend on the kind of lens (perspective/ view /mode of reasoning) that we use.

Understanding something implies seeing how things relate to each other in terms of resemblance, contiguity in space and time, and cause/ effect. The **idea** of how things relate to each other constitutes understanding which Aristotle called ‘wisdom,’ the ‘knowledge about certain principles and causes.’

Example: Most of us can break a computer apart (whether with a screwdriver or a hammer), but only few can put it together again (that requires knowledge of the parts and of how they *relate* to each other).

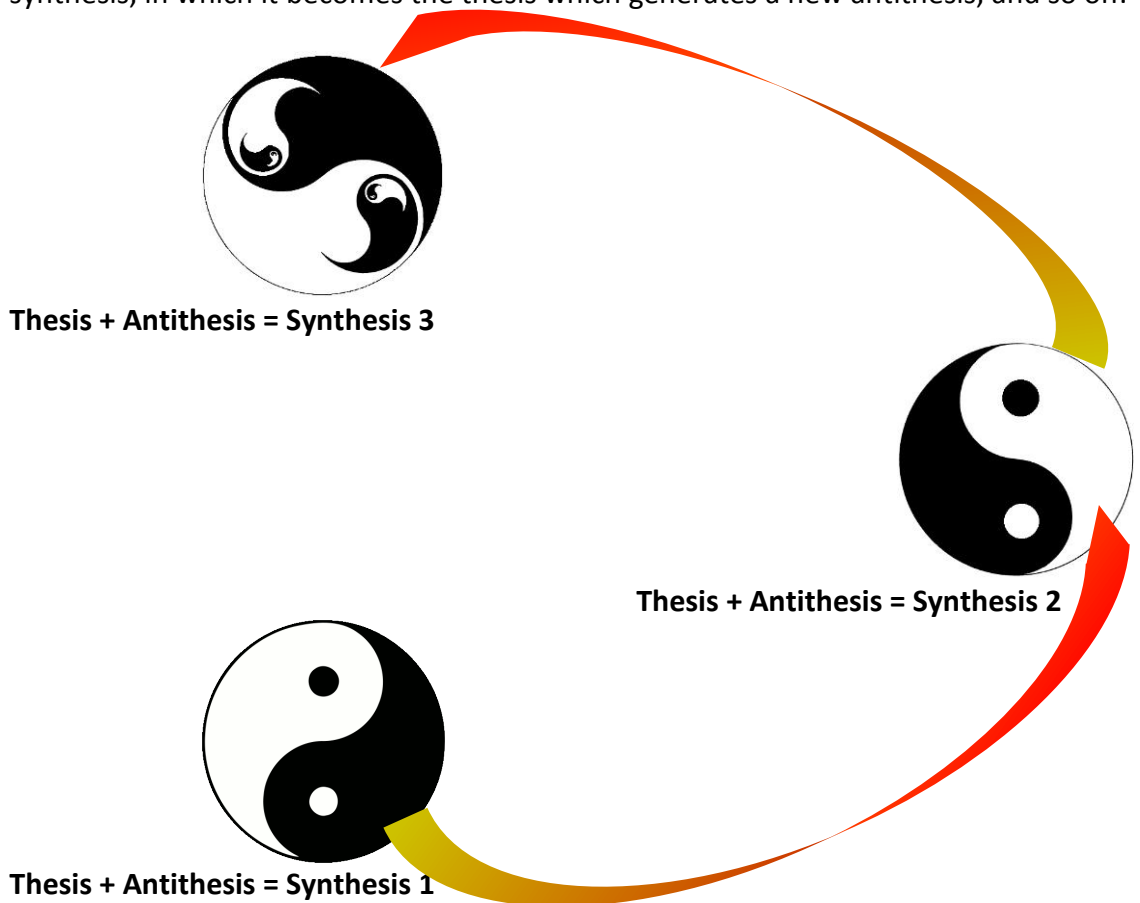
Thinking is the process of ‘abstracting’ *meaning* through *connecting* and *contrasting* ideas by:

1. **Resemblance** – the picture of a friend reminds us of that friend
2. **Contiguity in time/space** – personal belongings of a friend remind us of that friend; and
3. **Cause/Effect** – when we see lightning, we expect to hear thunder, etc.

2.1. Dialectical vs. Metaphysical Ways of Thinking

When we consider things, we can view them through the wide-angle lens (dialectically) and through the zoom lens (metaphysically).

Dialectics is a method of reasoning which aims to understand things in their essential interconnectedness, complexity, motion, development and change – in their origin, evolution, and ending. It explains all change through the resolution of opposites: the dominant force (**thesis**) is opposed by its opposite (**antithesis**). When the opposite force (antithesis) gains dominance, tensions between them are resolved in a new synthesis, in which it becomes the thesis which generates a new antithesis, and so on:



The three basic laws of Dialectics are:

1. **Everything is a 'struggle of opposites'**: day/night; knowledge/ ignorance; joy/ grief, life/ death, etc.
2. **Quantity changes the Quality**: larvae→caterpillar→butterfly; childhood→youth →adulthood→old age; ice→water→steam (gas), etc.
3. **Change moves in spirals**: every morning is a new morning, not the same as another day's (see the spiral of change in the diagram above).

You could not step twice into the same river, for other waters are ever flowing on to you.

Heraclitus, *On the Universe*

2.2 The Learning Process

Synthesis and **analysis** of ideas are the 'opposite' parts of learning, just as **inhalation** and **exhalation** are the 'opposite' parts of breathing. Awareness of something (as a whole) does not amount to the knowledge of **how** or **why** it is what it is – we must zoom in, isolate and examine the details, before panning out again, to get a better picture.

(a) Synthesis (Dialectics) is the Wide-Angle lens of our mind's eye. Dialectics views things as a whole – in their essential interconnectedness, motion, development and change. The photo below is wide-angle – it shows the Earth as a whole.



(b) Analysis (Metaphysics) is the telephoto/ 'zoom-in' lens of our mind's eye. It focuses on **parts** of the whole, and examines them **in isolation from it**. What are the continents in the photo of the Earth on the left? Zoom in – take a closer look!

When studying, trying to *understand* things, we constantly shift focus from

the 'whole' (the *wide-angle/synthesis* approach), to the zoom (*analysis*).

2.3 The Measure of Truth

The Truth of our understanding is measured by the Physical World (by whether our ideas correspond to reality); this is how **Science** differs from **Art**:

(a) Science seeks to discover the physical world the way it is.

The **Scientific Method** is based on inductive logic (generalization); it involves

- Observation of similarities/ differences between several particular events,
- Looking for the 'causes' - the **hows** and **whys** of things (hypothesis making),
- Designing and conducting controlled experiments, and
- Validation or rejection of hypotheses on the basis of experimental results.

(b) Art represents the artist's perceptions, opinions, attitudes, imagination, and view of the world. An artist's view may or may not reflect reality.

Example: Pa Grass and his buddy through the eyes of the artist:



Source: GrassrootsCalendar 2008

Thinking is connecting ideas (by resemblance, contiguity, and cause/ effect); what about speaking? How does Language enable us to connect and communicate complex ideas? Please read on.

Further Reading: Appendix I

Reading 3 – On Dialectics

<http://www.art-mind-soul.com/003-Yin-Yang.enlarge.html>

YIN-YANG

A painting by Jim Thompson

