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I. What is interpretation? Introductory remarks

Interpreting "things" is an activity that people (and maybe some animals) engage in. Sometimes we call this activity of interpreting trying to understand or trying to make sense of something. In some sophisticated circles, interpretation is called the search for meaning. What results from interpreting is an interpretation or, perhaps, some degree of understanding. Some people might say the interpreter have found out what the meaning of something is or has constructed a meaning.

The use of the word "interpretation" itself carries an ambiguity between the process of interpreting, the activity, and the product, an interpretation that results from that process—a basic process-product problem. However, since the activity, typically, is undertaken with the goal of producing the product, the process and the product are inextricably linked. Still it is good to keep these different meanings in mind for their conflation may cause confusion in some circumstances. Not everything we may say about the act makes sense when said about the product (and conversely). So one must be clear on how one is using the word “interpretation”.
Just these simple reflections lead to more questions. What kind of activity is interpreting? What do we expect as a result of an act of interpretation? What kinds of things do we interpret? Intuitively one might say that interpreting something is trying to make sense or trying to understand of that thing. This intuition then leaves us with the job of trying to interpret understand or making sense. Making sense is an interesting metaphor that may well have its roots in the belief that experiences that are tied closely to the perception and the senses are more intelligible than those that are more distant, or more theoretical, or inferential. Sense experience is, on this view, supposed to underlie (stand under) all understanding, and somehow be the basis for justifying our state of having come an understanding. This view is often identified as some form of empiricism, yet even medieval scholastics had similar doctrines. Thomas Aquinas (Summa Theologica) said "There is nothing in the intellect that was not first in the senses." On such an etymological (and justificatory) view, non-sense would be the result one gets when trying to interpret something that cannot be tied or attached somehow to sensible experience, when one somehow departs too far from sense perception or sense experience. This connection to the senses is interesting both in cases of art and science, for both of these practices are supposed to be connected with and somehow founded on sense experience, though in different ways. We'll return to these differences later.

Now notice that above we explicated "tied to the senses" by using the word "intelligible". Making something intelligible is just making sense of it, though the concept of intelligible allows one to deal with more abstract things, things father from the senses, without negative connotation. This distance from the senses is necessary. First it is necessary because we need to speak about things in general and not just particulars.
Also, in the course of this essay while there will be discussions of interpreting sensible things, there will also be musings on interpreting mathematics, philosophy and abstract objects. I take it that, *prima facie*, these latter are as far removed from the sensible realm as can be. So it is that one may ponder the various interpretations of *justice as fairness* or *right action* or the changes in style and substance when, in the 18th Century, physics moves from using geometry to algebra. These are pretty abstract. So maybe "intelligible" (or "intelligibility") is a better word to describe the goal of giving an interpretation. Intelligible, though less common, is clearly semantically tied to understanding, and understanding, in turn, is tied to knowing. Both understanding and knowing are much discussed philosophical and psychological concepts. Recall the etymologically of what "stands under", and then look literally *under-standing*. What stands under or grounds supports or justifies one's knowledge, and inferences made therefrom; and knowledge, in traditional epistemology, has as one of its conditions, that the belief is justified. So both of these concepts, understanding and knowing, take us back to conditions of justification. The concept of *intelligible*, at least, avoids implications that there is some further basis or foundation that is necessary.

Intelligibility does get us somewhere. Most times when we interpret we are trying to bring about or achieve some cognitive or, note the addition, some experiential, state (in some one—maybe oneself). The cognitive dimension is captured by the phrase "making something intelligible". This is what allies *interpreting* with other cognitive goals such as *making sense, understanding, knowing*, and now let us add, *explaining*. So to interpret something may be, at least in part or on some occasions, to find an explanation for some aspect of that thing; e.g. to find out how it is coherent or how it fits into some structured
whole. To interpret some person's action, very often, is to find an explanation for it, and so to find out why it occurred given the context and background of the person acting. So if I want to know why you shrieked “Eeeck,” I will look for the mouse that might explain it.

Interpreting has also been spoken about in terms of ways of knowing. One interprets a poem, a social structure, or a physical event and thereby gains knowledge about what has been interpreted. However, some people think that in each type of case (the art, the human science, or the physical science) that the kind of knowledge gained is different. Or, to put it more congenially, the ways of knowing in these cases are not always the same. Clearly, there are obvious differences among the objects and practices involved in the different domains of knowing, but exactly how these differences relate to different ways of knowing needs to be explored at some length.

Also importantly, the word "know", if this is the result of interpreting, needs to be used in a way that allows for more or less. You and I may both know about jealousy, but you having read and studied Freud may well know more than I. While I having experienced painful jealousy during many of my relationships know it differently and in some way more deeply than you who have never been jealous. We must eschew the typical epistemologist's use of "know" where one either does or does not know. Knowledge, in this sense, is not all or nothing. It is more like understanding and it comes in different degrees. An interpretation too may be more or less deep, more or less convincing, more or less insightful.

I will argue later that a part of all interpretations, even those that result in emotions, contain some sort of cognitive content, which regardless of domain or subject
matter, comes from important similarities and differences, by implicit or explicit comparisons, with the object being interpreted. These differences among objects or events in a domain, or among those in different domains or environments, need to be registered by the interpreter. Often the most fruitful comparisons are clear exemplars or prototypes of the domain. So, for a cinematic example, what I say about *The Killing* will be different from what I say about *Eyes Wide Shut*, even though both belong to the domain of film, the same genre *film noir*, and were made by the same director Stanley Kubrick. Or take an example from physics, Carl Anderson compared tracks made by particles in a bubble chamber as part of his strategy for discovering the neutrino.  

[*Physical Review* **43**, 491 (1933).] It is noting these differences that allows us to better understand by way of comparison. So comparisons lead to more or less understanding. Furthermore, there may be no final or complete state that constitutes ultimate understanding. I shall argue this is true, but that this does not entail that all partial understandings are equal or that all understanding is relative.

Further, it may sound as though I am only talking about individuals as the locus of interpretation. I, and many of us, often lapse into such individualistic talk. Maybe this is just a reflection of the individualistic form of capitalism in which we were raised. Yet, this is my point here, which I shall detail at some length below. Individuals do on constitute closed systems. They are part of and constitutive of physical, human and social environments. Every individual functions as part of physical, personal and social systems, which may not always be separable even in an analytic or abstract sense. Hopefully, when we come to talking about the parts of an interpretation we shall make this clearer.
Here it is important to introduce yet another qualification concerning what I said above, and will say below. Interpretation is not just one unitary kind of process or activity. In different interpretations different neural, cognitive and social mechanisms may be, and most often are, involved. Despite these differences, and further differences concerning the levels of processing (e.g. conscious-non-conscious; physiological-personal; or personal-social) I think it is salutary to consider interpreting at an abstract level in order to see how it functions in many of our activities. More importantly, I look at interpretation as a neuro-cognitive-socio activity regardless of the mechanisms involved or the level of processing, all of which are somehow necessary to our being humans in a rational way. This is true despite, as we shall consider in detail, the wide variety of individual and cultural differences that may enter into any given interpretation. Individual and cultural differences may lead some people to think interpretation is personally or culturally relative. And, in some sense, it obviously is so. But this does not preclude claiming that the activity, considered in general and abstracted away from such differences, is necessary for all persons. Indeed is making intelligible or making sense of the physical and social worlds around us is of the aspects that constitutes our rationality.

However, none of these concepts, intelligible, knowledge, understanding, or making sense, when seen as the only goal for interpretation, even of individual persons, will suffice, for, as we shall see at some length, the goals that people have when they give interpretations are many and varied. Many of the goals or purposes are not even clearly cognitive or epistemic. For example, one can interpret a musical performance or a professor's remarks solely for the social purpose of impressing one's friends or for the emotional end of creating a feeling. Further, cognitive aspects of interpretation do not
exhaust the features of the interpreting activity nor are they sufficient to explain all the aspects of the produced interpretation. This is just to say that what we are talking about here is not purely an intellectual activity. It probably is the case that no activity can be purely intellectual--but more about this later.

Certainly not all human activities, including reasoning, have an interpretive goal, or even an interpretive component. But there are many that do, and sometimes in surprising or unexpected ways. One goal in making love to another person is to lose one's sense of self and ‘turn off’ any intellectual reflection so that one may just attend to the bodily sensations themselves. Don't think, feel it, can be very good advice. Yet such an action does reflect how the lover has learned to make love. And, for good lovers, interpretative cognition was needed to refine performance and to come to know how and when to move one's body. Good lovers are made, not born. Of course, feeling and acting, in a deeper sense, are never completely divorced from cognition.

Interpretation also centrally involves many ways of doing, many ways of acting. This has two aspects: first the activity of interpreting, of producing the interpretation, as an activity has seemingly non-cognitive or practical aspects. In this sense often the interpretation-product itself exhibits aspects of the procedural act of interpreting. Second, most often the interpretation, the act and the product, leads to important action or behavioral consequences. Interpretations lead to doing things differently, and doing includes perceiving and feeling, e.g. as in the love case above or as in learning how to feel or see properly. Much of what we call intuition or tacit knowledge is the result of learning how to attend, respond, and reflect differently than we had before. [Hercule Poirot says, upon discovering a clue, and being queried as to how he figured out what it
meant, that what he used was not intuition, but just the result of his having trained though experience to use his ‘little gray cells’, [Agatha Christie, *ABC Murders*].

Some things I shall call an interpretation of something even though there is no clear independent act of interpreting nor any identifiable conscious procedure that the interpreter may recognize as an act of interpreting. When one sees a grape colored Volkswagen Bug (Beetle), and recognizes it as a VW Beetle of the grape color, it is not clear that you are interpreting (in any conscious sense.) Nor more so, when you see your friend at close range, and recognize her. The interpretation in these cases, as in the examples in the last paragraph, came with the learning --the discriminations, categorizations, and differential actions that were acquired by practice, and that now constitute how your seeing proceeds at this point. Some philosophers, e.g. Wittgenstein (1953), Hanson (1958), etc., restrict the use of "interpretation" to talk about episodes when one is presented with an object that is puzzling, or complex, or whose “meaning” is not straightforward, and where one consciously sets out to figure out what it is. Similarly, some people, J.J. Gibson and the direct perception theorists, refuse to use the word “interpretation” for perception that is 'direct' and immediate. Whatever may have happened the past, they say, is not part of what is happening now. Again they focus on the interpretation as conscious process. Such conscious puzzling through is a good and proper use of “interpretation”, but my use will be broader and more inclusive. It will include unconscious cognitive processing. Where there may be unclarities I shall talk about "conscious interpretation".

One reason for this broader use, that I will explore at greater length later, is that if we take a longer time-scaled view, children are puzzled by many things that they later
come to understand. Similarly, many things are complex to them that will be thought 
simple later in their lives. So in that sense, even things we do not consciously interpret 
now, were interpreted earlier in our life histories. Of course, to say we once consciously 
interpreted is not to say we now do so. Further, even with regard to children's learning,
“interpretation” is not always the most accurate descriptive word. Many of the things we 
have learned are not things we have interpreted, even at an earlier time. We learn as 
young children to see pictures and photographs as three-dimensional objects, but have we 
interpreted something, the data of sense, in order to learn this? Sometimes brain stem 
action results from hearing music and produces a level of arousal that we feel as an 
exhilarating emotion. There was no conscious learning process in such cases, and there 
was no data of sense given to us first. Similarly, there may seem to be no interpretation in 
learning to ride a bicycle. So, perhaps, one ought not talk about interpretation in such 
cases. Yet, such events often have great meaning in our lives, and if we apply an analysis 
of interpretation to them, we may help to explicate the whys and wherefores of that 
meaning.

By "interpretation," in a cognitive sense, I mean that certain cognitive strategies 
are followed, whether or not we are conscious of them. In fact many of the same 
processes are involved now as were involved when we first learned, and it is these that 
may constitute the interpreting. It seems a matter of indifference whether one is 
conscious of them. Yet, as I shall note, there are some important differences as to what 
one may do when conscious of something or when one entertains it in imagination. In 
such cases the object being interpreted remains in front of the 'mind's eye', and can be 
referred to and re-inspected, and one may draw inferences from it. There are some
difficulties with the exact nature of such conscious or imaginary objects, and we will discuss some of these later.

II. *What interpretation is not.*

Interpretation is often contrasted with explanation. In the hermeneutic tradition (Gadamer and originally Wilhelm Dilthey) hermeneutics or interpretation is thought to be key to the human sciences, while explanation is reserved for what happens in natural science. Often, this distinction is explicated further by claiming natural science explains by using laws, while this cannot be what happens in other domains of inquiry, for there are no such laws. Often upholders of this distinction provide additional suggestions concerning proper methods in each of these domains. The human sciences, it is said, rely on some sort of individual understanding (*verstehen*) of concrete particular instances, which contrast with the universalist "scientific" methods of empirical inquiry. I take this to be an unhelpful dichotomy for many reasons. Most simply, it is not clear in most natural sciences (biology or neuroscience, for example) that there are many or any universal laws. Second, in all sciences one deals with particulars as evidence. These two points mean the differences between the natural and human sciences do not exist as characterized. Finally, no one has made clear what the difference in cognitive processing is among domains. But I shall return to this below.

There is a distinction that is somewhat useful between Henri Bergson's two ways of knowing, by acquaintance and by description. Bergson said there are two ways to learn about the streets of Paris. One is to walk about them and learn them by experiencing the "lay of the land". The other way is to study a map and internalize it, so
that one may follow it in one's head ("Essay on Metaphysics" 1903). There are probably more than these ways to learn the streets. I knew a person once who had learned some of the streets of London by reading the novels of Charles Dickens, who gave most accurate descriptions. This is not the same distinction as that between knowledge by acquaintance and knowledge by description that was a little later used by Bertrand Russell (and Gustav Bergmann, et al.), who tried to erect a bad foundationalist epistemology on it. It is somewhat similar to the common sense distinction between experiential learning and book learning.

In what follows it will be shown that many of the traditional distinctions are bogus. These positions, I will argue, misrepresent the natural sciences and how they work and the human sciences and how they work. It is only by maintaining an inadequate and mistaken view of disciplines that these claims for different types of inquiry or knowing get off the ground. One might begin to appreciate the problems with these views by again pointing out that in biology, a quite respectable natural science, there are no clear instances of causal universal laws (as traditionally described.) This would be a step towards undercutting this mistaken characterization of natural science. On the other side, one could begin to show that explaining how a person keeps promises, and why this is useful social institution, is like explaining how Baroque painters innovated new ways of using hard curved lines, and why this was an effective change when set against the classical forms. Both of these examples could then be shown to be similar to what is involved when explaining some phenomenon by using a particular scientific theory, say, using a certain form of neo-Darwinian evolution to explain how human sight became limited to the "visible spectrum" as opposed to vision in some other
animals. But rather than arguing directly against this tradition, I hope to elaborate a
theory that will show the similarities among interpreting and explaining in natural
science, in human science and in the arts. Understanding this theory will then allow for
understanding how the human intellectual operation of explaining and interpreting are
similar, despite important differences in types of subject matter in the various domains.

Yet, I also hope to show how these positions that advocate the \( \textit{sui generis} \) nature
of the human sciences have found something neglected by the more natural scientific
types. What they focus on is the experiential, ineliminable subjective element that is
crucial for understanding human action. But we must wait until later to spell this out.

III. \textit{Domains of Interpretation}

Interpretation is always of something, the object of the interpretation. Objects of
particular interpretations may be almost any kind of thing or not even things. It could be
a sight that arouses interest, hearing of an event, reading about an experiment, or even
watching a spider mend of broken web. There is probably nothing that in certain
circumstances could not be interpreted. This suggests that even "object" may be too rigid
a term for describing what may be interpreted. We also, for example interpret our
feelings; was it love or only lust that I felt last night? Sometimes it is most important to
come to understand the answers to such questions. Making this even more complex is the
fact that objects of interpretation may include events or processes. A broader, less
substantive term for what interpretation is about or of might be "phenomenon". Such
objects or phenomena of interpretation may be quite complex and extend over
considerable time, e.g. why did the American Revolution occur when it did? How did the
dinosaurs become extinct? Furthermore, we do not talk only about particular objects, events or phenomena. We often interpret kinds, classe4s, genres and other general types.

Fortunately, objects of interpretation (or phenomena) break into classes or kinds that often share some certain characteristics. The kinds or classes to avoid confusion I shall call domains or sometimes fields. (Cf. Shapere, Darden, Maul and Darden). A first approximation is to break objects or phenomena into separate domains or fields by academic discipline. These are not historically fixed, exclusive or exhaustive. They do provide some starting point, however. Here is one such list:

- Natural science, e.g., natural phenomena such as optical phenomena, electricity, matter theory, or chemical bonding.
- Psychological science, or more broadly, cognitive science, e.g., human problem solving, visual processing, emotional responses
- Social science (or human science), e.g., human actions, social institutions, cultural practices
- Humanities, e.g., humanly constructed objects, texts, and historical narratives
- Arts, e.g. painting, films, musical performances, novels, plays

There is an important distinction needs to be drawn within each domain. The two are: (1) Interpretation as involved with those who do natural science, psychological or social or humanities, (the actors, producers or practitioners in the domain) and (2) interpretation as it involves those who respond to the products made by those who produce or practice in that domain (the audience, spectators, evaluators, or consumers). Of course, some persons may do both roles at once. Interpretation is involved in both processes, though often in different ways and with different goals.
Another historically important way of dividing domains is by the typical or paradigmatic purpose for which interpretations are given in each domain. So following Aristotle, we may divide purposes in general into

Purpose 1: Theoretical: providing explanations, or finding mechanisms.

Purpose 2: Practical: inculcating ways of acting or of experiencing.

Purpose 3: Productive: producing a product; e.g. the scientific paper, the critical review, the peer group review, the artifact.

These are not exclusive or exhaustive.

This last tripartite distinction does not always pick out domains or phenomena that are distinct from one another. A scientific experiment, for example, most often involves using a number of scientific theories and beliefs, acting to set up and run the experiment, and hopefully, obtaining results in the production of data that may then be used to test one of the theories used, and, hopefully, arguing that the data has external validity vis a vis the phenomenon we sought to make intelligible.

Another non exhaustive, non exclusive way of distinguishing domains is by types of product produced by the interpreting: An exposition as in a scientific theory or paper; a particular way of acting as in a behavior or a painting, or creating an internal state such as a feeling of sadness.

Yet another way of describe the domain would be to take physiological, neural, personal, and social events as the kinds of things that need interpretation.

None of these ways is ultimately helpful for all the cases I wish top consider, but each of them in their own way can help us to fruitfully start thinking about the objects of interpretation and the different environments in which they have their being.
IV. *A Potpourri of Examples for the Disciplines*

Before going further in explicating and explaining this view of interpretation, I think it might be worthwhile to briefly describe some examples. It is my hope that the details provided will be sufficient for the reader to understand the example when it is referred to later and used in the course of illustrating some particular point. Of course, in some examples we can only provide part of the relevant phenomena for demonstrating how it should work. For example, with music we cannot provide in this text the sounds to hear, nor the original of the colors or brush textures for paintings, nor all the details of the scientific or social cases we will describe. In each case, the interested reader will have to go further, and gather further and sensory relevant for information for her or himself.

A. *The Natural Sciences: Physics, Astronomy, Chemistry, Biology, and Neuroscience*

1. Galileo and the sunspots

In Letters on the Sunspots (1613) Galileo uses optical theory to describe foreshortening effects of the observed sunspots, and also the irregular pathways of the spots in order to object to Scheiner's claim that the sunspots as planets. [Insert Galileo's drawings of the sun spots].

http://mintaka.sdsu.edu/GF/vision/Welser.html

2. Interpreting data example. How Anderson interprets the photographic data of paths to argue that there must a be a positive electron (positron.

“On August 2 1932 during the course of photographing cosmic-ray tracks produced in a vertical Wilson chamber (magnetic field 15,000 gauss) designed in the summer of 1930 by Prof R A Millikan and the writer the track shown in fig 1 was obtained which seemed
to be interpretable only on the basis of a particle carrying a positive charge but having the same mass of the same order of magnitude as that normally possessed by a free electron.”


This is a picture of one of the first positron tracks observed by Anderson in 1933. It was taken in a cloud chamber in the presence of a magnetic field (so the particle paths are curved). A cloud chamber contains a gas
supersaturated with water vapor. In the presence of a charged particle (such as a positron), the water vapor condenses into droplets - these droplets mark out the path of the particle.

The band across the middle is a lead plate, which slows down the particles. The radius of curvature of the track above the plate is smaller than that below. This means that the particle is traveling more slowly above the plate than below it, and hence it must be traveling upwards. From the direction in which the path curves one can deduce that the particle is positively charged. That it is a positron and not a proton can be deduced from the long range of the upper track - a proton would have come to rest in a much shorter distance.

Carl Anderson won the 1936 Nobel Prize for Physics for this discovery.

From: http://www.hep.man.ac.uk/babarph/babarphysics/positron.html

3. How Chemical Bonding works

Mechanisms for understanding how 'things' hold together.

Chemical Bonding

Chemical compounds are formed by the joining of two or more atoms. A stable compound occurs when the total energy of the combination has lower energy than the separated atoms. The bound state implies a net attractive force between the atoms ... a
chemical bond. The two extreme cases of chemical bonds are:

**Covalent bond**: bond in which one or more pairs of electrons are shared by two atoms.

**Ionic bond**: bond in which one or more electrons from one atom are removed and attached to another atom, resulting in positive and negative ions which attract each other.

Other types of bonds include metallic bonds and hydrogen bonding. The attractive forces between molecules in a liquid can be characterized as van der Waals bonds.

**Covalent Bonds**

Covalent chemical bonds involve the sharing of a pair of valence electrons by two atoms, in contrast to the transfer of electrons in ionic bonds. Such bonds lead to stable molecules if they share electrons in such a way as to create a noble gas configuration for each atom.

Hydrogen gas forms the simplest covalent bond in the diatomic hydrogen molecule. The halogens such as chlorine also exist as diatomic gases by forming covalent bonds. The nitrogen and oxygen which makes up the bulk of the atmosphere also exhibits covalent bonding in forming diatomic molecules.

Covalent bonding can be visualized with the aid of Lewis diagrams.
Polar Covalent Bonds

Covalent bonds in which the sharing of the electron pair is unequal, with the electrons spending more time around the more nonmetallic atom, are called polar covalent bonds. In such a bond there is a charge separation with one atom being slightly more positive and the other more negative, i.e., the bond will produce a dipole moment. The ability of an atom to attract electrons in the presence of another atom is a measurable property called electronegativity.

Ionic Bonds

In chemical bonds, atoms can either transfer or share their valence electrons. In the extreme case where one or more atoms lose electrons and other atoms gain them in order to produce a noble gas electron configuration, the bond is called an ionic bond.

Typical of ionic bonds are those in the alkali halides such as sodium chloride, NaCl.

From: http://hyperphysics.phy-astr.gsu.edu/hbase/chemical/bond.html#c2

4. L(ong) T(erm) P(otentiation) and memory.

The search for mechanisms; what really is a phenomenon?

In neuroscience, long-term potentiation (LTP) is the long-lasting enhancement in
efficacy of the synapse between two neurons. Though its biological mechanisms have not yet been fully determined, LTP is believed to contribute to synaptic plasticity in living animals, providing the foundation for a highly adaptable nervous system. Most neuroscientific learning theories regard long-term potentiation and its opposing process, long-term depression, as the cellular basis of learning and memory.

Experimentally, a series of short, high-frequency electric stimulations to a nerve cell synapse can strengthen, or potentiate, that synapse for minutes to hours. In living cells, LTP occurs naturally and can last from hours to days, months, and years.

LTP was discovered in the mammalian hippocampus by Terje Lømo in 1966 and has remained a popular subject of neuroscientific research since. Most modern LTP studies seek to better understand its biology, while other research aims to develop drugs that exploit these biological mechanisms to treat neurodegenerative diseases such as Parkinson's and Alzheimer's disease.

From: http://en.wikipedia.org/wiki/Long-term_potentiation

B. The Human sciences, including Cognitive science

5. How to catch a fly ball?

Problem solving in the environment: The visual and proprioceptive system acting together to produce action; looming object and centering behavior; the body and the visual field.

6. Human jealousy:

Understanding human behavior by categorization and analysis. Differentiate from envy,
which has to do with objects and involves only two persons. Freud's internalist psychical analysis and its relations to external objects: Involves three persons, is composed of envy, self-pity, grief or fear of loss, and narcissism. Social acceptability is a conventional element that changes historically.

Sigmund Freud “Certain Neurotic Mechanisms in Jealousy, Paranoia and Homosexuality” (1922).

7. How to understand emotions? Lust and/or anger?
Tell a story of lust? Thomas Mann, *Death in Venice*.

Sexual desire as motivating action: teleology and experience.

Phenomenology, valence, causes, e.g. anger as a response to perceived injustice, typical lustful or angry behaviors.


C. *The social sciences*

8. Legal systems

Social institutions as causal; the driving laws "rules of the road"

9. Historical example, the 'invention' of privacy in the 17th Century

Introduction of the corridor and the private bedroom. Bathrooms come later.
10. Another culture's practices, e.g. female circumcision. Marriage practices

D. The Arts


Genre analysis as *film noir*

Compare to John Huston's *Maltese Falcon* (1941); Billy Wilder's *Double Indemnity* (1943), Kubrick's *The Killing* (1956)

12. Leonardo da Vinci's *Mona Lisa* (Louvre)

Scientifically interpreting the enigmatic smile:
*Mona Lisa,* or *La Gioconda (La Joconde)*, is a 16th-century oil painting on poplar wood by Leonardo da Vinci, and is, perhaps, the most famous painting in Western art history or even the world. Few other works of art are as romanticized, celebrated, parodied or reproduced. It is owned by the French government and hangs in the Musée du Louvre in Paris.

Professor Margaret Livingstone of Harvard University has argued that the smile is mostly drawn in low spatial frequencies, and so can best be seen with one's peripheral vision[6]. Thus, for example, the smile appears more striking when looking at the portrait's eyes than when looking at the mouth itself. Christopher Tyler and Leonid Kontsevich of the Smith-Kettlewell Institute in San Francisco believe that the changing nature of the smile is caused by variable levels of random noise in human visual system.[7] Dina Goldin, Adjunct Professor at Brown University, has argued that the secret is in the non-static position of *Mona Lisa's* facial muscles, where our mind's eye unconsciously extends her smile; the result is an unusual dynamicity to the face that invokes subtle yet strong emotions in the viewer of the painting.[8]


From: http://en.wikipedia.org/wiki/Mona_Lisa
Film and music; see Stanley Kubrick's *Barry Lyndon*, seduction scene

Cultural context of music

15. Leonard Cohen's *Hallelujah*, various singers' interpretations
and

Douglas Rich
John Cale
Rae Garvey
Rob de Nijs
Henna Heikkinen
Allison Crowe
Bob Dylan
K.D. Lang

From: http://www.last.fm/user/jammamamma/journal/2006/05/11/133747/

**Leonard Cohen - Hallelujah Lyrics—sometimes**
Now I've heard there was a secret chord

That David played, and it pleased the Lord

But you don't really care for music, do you?

It goes like this

The fourth, the fifth

The minor fall, the major lift

The baffled king composing Hallelujah

Hallelujah

Hallelujah

Hallelujah

Hallelujah
Your faith was strong but you needed proof

You saw her bathing on the roof

Her beauty and the moonlight overthrew her

She tied you

To a kitchen chair

She broke your throne, and she cut your hair

And from your lips she drew the Hallelujah

Hallelujah, Hallelujah

Hallelujah, Hallelujah

You say I took the name in vain
I don't even know the name

But if I did, well really, what's it to you?

There's a blaze of light

In every word

It doesn't matter which you heard

The holy or the broken Hallelujah

Hallelujah, Hallelujah

Hallelujah, Hallelujah

I did my best, it wasn't much

I couldn't feel, so I tried to touch
I've told the truth, I didn't come to fool you

And even though

It all went wrong

I'll stand before the Lord of Song

With nothing on my tongue but Hallelujah

Hallelujah, Hallelujah
Hallelujah, Hallelujah
Hallelujah, Hallelujah
Hallelujah, Hallelujah
Hallelujah, Hallelujah
Hallelujah, Hallelujah
Hallelujah, Hallelujah

Hallelujah, Hallelujah

Hallelujah


16. Cooking and Tasting

Sensory interpretive creation and interpretation during tasting; how to make a tasty vegetable dish?

Greens, peppers, and tomatoes

1/2 Tablespoon olive oil

1/2 lb. (or so?) Kale, washed and de-stemmed; green leaf part only, torn into mediumsized pieces; it is hard to buy kale by the pound. It is usually sold by the bunch, and the bunches vary in size. What one wants to end up with is 2-3 handfuls of de-stemmed kale per person. Usually one packaged bunch may serve 3-4 people.

1/8 cup of Balsamic vinegar

1/2 Tablespoon olive oil

2 cloves of garlic, chopped finely
1 red bell pepper, seeded and sliced into strips 3/4" by 1/4"

2 Jalapeño peppers, seeded and sliced in strips, 1/4" by 1/4"

2 large or 3 medium tomatoes, seeded, diced

In a medium frying pan over medium heat, in 1/2 tablespoon of olive oil, sauté garlic and all peppers, for about 5 minutes. After 3 minutes, sprinkle with half of the Balsamic vinegar. Add tomatoes, mix in; and immediately remove from the heat until ready for the next step.

In a large frying pan over high heat, heat oil until quite hot. Toss in shredded kale, and stir around constantly until all the kale has had contact with the oil and begun to wilt (about 5 minutes). Turn down heat. Add content of other pan (garlic, peppers and tomatoes) to kale, stir thoroughly and heat through (about 3 minutes.) At the last minute, sprinkle with remaining Balsamic, and remove to warm serving dish. Sprinkle with a little olive oil, and serve immediately.

V. Components of an Interpretation

It will be useful at this point to present an outline of the components or parts of an interpretation, identified analytically. What this means is that we, for our purposes of theoretical understanding, may separate and discuss each of these parts, but they will not always be so identifiable in actual interpretations. They are not usually identifiable because they are not distinct temporal episodes, even when we consciously interpret
something. Further, they are not discrete events in that they interact with one another, and sometimes one part comprises some of the content of another part or is part of another part. Worse yet, all of these components have subparts composed of different entities and activities, and one component may include another as a subpart. And, as noted above, the overall functioning of each of these parts may be carried on by different neural, cognitive and social mechanisms, in ways that reflect many individual and cultural differences. But despite such problems, I believe laying down the outline will be useful for understanding what counts as an interpretation, and for beginning to isolate and describe the mechanisms at work and where these differences make a difference.

Interpretation is taken here in its fundamental sense as the act of interpreting, not merely the product. As we said above, interpreting is cognitive and social act. A complete and total interpretation contains, implicitly or explicitly, the following components:

1. An **object** (what is interpreted)

   Objects of interpretation belong to domains. Objects of interpretation are not just entities, but also activities, events, or phenomena. They may be particular or general, concrete or abstract. They may be physical, personal, or social.

   The object of interpretation, or what we may call the ‘content of the object’, is the main source of evidence we have that an interpretation is viable, adequate or good in some sense. But objects exist in historical, cultural contexts, so many if not all objects require the interpreter to have or assume historical and cultural information to understand
the object and to be break the into appropriate elements. Of course, how relevant such
information is will depend, as noted below, on the purpose of the interpreter.

(2) An interpreter (who does the interpreting)
The interpreter is usually an individual person, but the concept may be extended to
include some animals, or to dialogic group activities, or even to social institutions.

(3) A purpose (the reason or cause for engaging in the act of interpretation)
This is a clearly teleological component that is specified in terms of purposes, goals and
desires of the interpreter. A person's purpose provides the reasons or causes why an
interpretation is being given. The interpreter need not be aware of what her purpose is.
The purpose is the goal that the end-product (the interpretation) is supposed to satisfy or
fulfill.

(4) Prior experiences, learning, and memories of the interpreter (the interpreter’s
background knowledge, beliefs, and practices) Episodes in the interpreter's personal
history play a role in selecting what interpretations are sought and how those
interpretations are presented. They also function to direct the interpreter's intention, or to
select the goal she is pursuing when giving the interpretation. To be effective these life
episodes must bring about changes in the person. Many episodes in our lives, even ones
that may register with us for a short while, very soon 'evaporate' and leave us basically
unchanged. However, many others do not and remain, in some form, in us after the event
has passed. Those changes in our mind and/or central nervous system that remain are
often called background knowledge and past experiences. Relevant aspects of experience include the things a person has learned, what she has come to believe, how he has been trained to act, and how and in what ways experiences and emotions make a difference. These changes constitute one's various forms of memory.

But it is not just personal, idiosyncratic history that is important here, because many of our memories and all of our learning are culturally affected, and so inevitably involve social dimensions and socially normative constraints or forms.

(5) A **method** (a procedure that is used in performing an interpretation)

Every interpretation may be represented in terms of the above analytic components and the links that tie these together. This means there are state-like or stage-like components that may be identified as parts of the interpretation, and there is a procedural strategy or a systematized procedure by which these are accomplished. One must start somewhere and then close the act of interpreting at some point. Such strategies or procedures are learned and constitute the method or procedure utilized in interpreting. Such a method is not always explicit or conscious to the interpreter, nor need the interpreter be able to reflect on the act of interpreting. In addition, there is not always any chronological separation among the stages or parts.

(6) A **context** (the social or environmental conditions that obtain when the interpretation is given)

This is the environment, physical, cultural and social, in which the act of interpreting occurs. It includes the physical, environmental, social and cultural conditions in which
the act is performed and which affect how it is carried out. It also may need to include the histories of what typically is done in such conditions. Or the rituals or traditions associated with such a practice.

In some cases the relevant context can be about the interpreter’s frame of mind, mood or emotional state.

(7) A **product** (what the act of interpreting produces)

Interpretations come to an end, as do all overt acts. The end state is the product of the act. The product may be concrete as painting or research paper, or it may be a state of the interpreter such as a degree of understanding or an experience.

(8) **Criteria of success** (satisfaction conditions that determine the degree of success or failure of the act of interpretation or the product of interpretation)

Since performing interpretations is a learned ability, the performance and/or the product must be able to be evaluated as to its success or failure *relative to the goal* of the interpretation and the normative criteria that are in place for such kinds of evaluations. What is learned, and how it is accessed and used are all subject to critical evaluation. This is to say interpreting is a normative activity. Such norms ought to be articulated. Many disputes about interpretation actually turn out to be disputes about the adequacy, validity or reliability of what is produced. There exist criteria, albeit often implicit, for whether or not learning has taken place adequately or correctly. These normative criteria are not absolute. Yet, they are not person relative. They are subject to historical change. They may be justified, though not with any certainty.
The data that provide the reasons that can be produced for the legitimacy of an interpretation are, for the most part, drawn from the contents of the interpreted object. That is, we must look to parts of the objects to back up or support our interpretative claims. The effectiveness of an interpretation, by contrast, is supported by seeing how well the interpretation works, in so far and it affects or brings about changes in ourselves or others. Data in support of effectiveness is drawn from the people affected.

VI. Thinking about The Object of interpretation

First, as I have noted, the object of interpretation is not always an object in any usual sense. Objects of interpretation may be sensory experiences (listening to an opera), long lasting events (the Thirty Years War of the 17th century), or a brief episode (a kind word from someone you respect). Of course, the object may also be an object (Picasso's painting, Girl Before Mirror) or an event (John Coltrane's performance of "My Favorite Things" at the New York Club, The Five Spot, in December 1963.) The object also might may be a representation of an event (like the vinyl record or the CD I have of another performance of Coltrane doing "My Favorite Things" (1961), or the postcard I have of Picasso's painting. Or it may be more abstract, like the song, from The Sound of Music, "My Favorite Things" which has various instantiations of the song, Julie Andrews singing it on the Broadway stage or as she recorded in the film version, or Coltrane's 'hot' jazz rendition. These are all the same object in one sense, though Coltrane’s interpretation of the song is quite different from Andrew’s. So in this sense the objects are different. Further, I, as a listener, am interpreting both. So what is the proper object of interpretation may be complicated and confusing, unless one is careful. Usually
however, context will help us to be clear about that to which we are referring. But not always. Many of us have had the experience of a conversation about a person, say, John, that went on for some time, only to discover, at the end, we had been speaking about different persons. You had been talking about John Doe and I about John Smith. It is this kind of mis-identification, mistaken reference, that many comedies of manners use to such great effect. (E.g. Oscar Wilde’s "Importance of being Ernest" or Richard Sheridan’s "School for Scandal"). But lest the problem of what is the proper object seem too much a problem, it should be noted that we most often do find out (or could have) that a mistake had been made.

These objects, in their manifold forms, are the phenomena that are addressed in an interpretation. An object of interpretation, or a phenomenon, typically has associated with it both demonstrative and descriptive practices. There are specific procedures used to pick out, select, attend to, or identify the object or the activity that is the subject of the interpretation. These are the demonstrative practices connected with that object or objects of that kind. Demonstrative practices are ways of showing to oneself and others what the object is. Perhaps the most obvious such practice is pointing. When I point at this man, Fred, I direct your attention to him as an object. If he notices me pointing then he also knows he is being picked out. This is probably why your mother told you never to point (at people) for by pointing you pick the person out and may thereby embarrass him and/or yourself.

Being able to pick out the object of interpretation is a necessary condition for interpreting.
Even more important for thinking about interpretation is how one perceives, attends to, or selects an object in ways that affect the outcome of the interpretation. No one can expect you to identify the emotion of disgust or a Volkswagen if you have not experienced those objects before and remembered them. We must make distinctions among the ways we pick out objects. The most fundamental, but necessary, step is discrimination (usually perceptual). This is distinguishing an object from its background or from other objects. Such perceptual discriminations are required to isolate the object from other things with which it might be confused. Another terminology that makes the same point is that one must be able to distinguish the signal from the noise. This not always easy, as anyone who tried to listen to a radio in loud traffic may attest. I called it fundamental because this is what animals must do also. Animals have the ability to discriminate objects, either by inheritance or by learning. For many kinds of objects, humans too must learn to discriminate. It takes some training for a person to learn to pick out and estimate the acid (measured as tartaric) level in a red wine, and more training still to learn to detect tannin content. Still more detail and work is needed to learn about how these two combine, with other physical features of the wine, to provide information about how long it will be until that wine is at its peak (when it will be ‘mature’, and so that will taste best). We'll return to this wine theme again later.

Beyond mere discrimination there are the processes of identification and recognition. Briefly, identification consists in being able to know that a discriminated object is the same (or as being of the same kind) as you had seen before. You may not know what it is, or anything about it, but you may see it as the same as before. I will not spend time discussing this aspect, for while it is necessary for many kinds of knowledge,
it will not play a large explanatory role in our discussions of interpretation and cognition.

Recognition, however, is most important. Objects must be conceptualized or categorized before one can think of them as being of a kind or before one may draw inferences about the object. This mental action may be thought of as placing a discriminated object into a category or bringing it under a concept. Another way to think of this is fitting a representation of a perceived object into a mental network (where the network is the concept). So I recognize the object as being a bird because it has wings a beak, and feathers. This recognition process, however described, need not be chronologically separate from the discrimination, so we are not talking about a temporal, causal sequence of events here. These are analytic distinctions that are useful for us to understand the cognitive components involved is interpretation.

Such categorization however is not necessary for all actions that may causally follow from perceiving the object. A person may have a non-categorical or non-conceptual experience (direct perception, for example) of something and act towards it on that basis. In this case there is no kind of experience it is for the person having it; she just has something that happens to her in she can discriminate as occurring and making her different from what she was a moment ago. It’s a something-different-is-happening-to-me, but I know not what. Usually, such an occurrence is a first time experience, one such that the person does not know what to think. From descriptions from friends and in novels, I think that maybe the first orgasm of a naïve young person may be an example of non-conceptualized experience. Whereas older or more experienced folks, like William Butler Yeats at 37, have orgasms that are highly conceptualized and strongly anticipated.
Of course, in such a case the person cannot express in descriptive words what is being experienced, except in the most general terms, e.g. “Wow, this is different.”

Objects of interpretation have properties (or attributes) that belong to them, as illustrated by the bird example above. Objects and phenomena do things or have activities that characterize them, and they bear important relations to other objects. Often, these are the criteria we use to recognize them. People, and some other animals, mentally group objects into kinds by virtue of their important properties, activities, or relations. These are the properties by which objects may be compared to each other. Very often the properties that specify a kind are those which the particular objects have in common, but not always. Some categories are only formed from overlapping properties and have, what has been called, an "open texture". (E.g., Wittgenstein's example of game, 1953).

Structures formed by these properties, activities and relations are the concepts, categories or classifications which the objects “fall under”. If we were to think about categories in linguistic terms, categories would be the nouns and predicates which are true of objects or which we a person believes about objects. The objects of a kind are similar to each other in the respect that they are all described by (at least some of) the same terms. In this way, categories or concepts are like general terms. But do not be misled by this linguistic analogy. Many of our categories or concepts do have linguistic correlates (or associated verbal terms), but it is not clear that they all must. Indeed, as we shall argue below, there are some domains of experience (perhaps smell is the best example) where it is not clear that there are terms to describe the objects of experience, yet we do wish to say they are conceptualized (albeit, non-linguistically). Most all of us can recognize the smell and taste of a banana, but our words fail when we try to describe
that smell and taste, except by comparison or analogy.

Placing an object into a structured mental network that has been previously accepted, subsuming an object under a concept, gives that object a place within a coherent network, which is an accepted schema or memory structure. The concept by virtue of the connections within the network licenses inferences along the lines of connection. So, to use our old example (from Collins and Quillian 1969), the concept *Bird* is connected tightly to *wing* and less tightly to *fly* (since an ostriches are birds that do not fly.) So one may infer from the categorization *it's a bird to it has wings*. This is obviously not a deductively valid inference, for some birds may have lost their wings. One could also infer *it is able to fly*, but this is even more defeasible or subject to error because of the modal verb (*able*). Many philosophers believe that these inferences may exist only among propositions, which are linguistic sentence-like structures that represent or express concepts. Whether this is true or not, the inferences that a particular individual can make or the extent and correctness of the person's network most important, because the scope of such inferences is one aspect of the depth of understanding the person has of the concept. Notice here there is some ambiguity, for the word "concept" is used to discuss both *bird* itself and the network in which *bird* functions. Further discussion of conceptual schemes, inferences (and expectations) will be given when we discuss prior learning and memory below.

Understanding by developing conceptual schemes, also involves having an explanation. An explanation could be said to be like a map--locating an object in a conceptual space (Wittgenstein 1953; Toulmin 1953). As noted above, a conceptual space is demarcated by the network of legitimate inferences that one may draw from the
concept. In addition to inferences, a concept may also legitimate certain actions or practices. Some of these actions are related to actions or procedures used to recognize instances of the concept and to apply it in various situations. So if I am trying to determine if a certain painting was made by a pointillist painter, I must move very close to see whether brushwork is composed of many small dots.

In many cases, especially in the sciences, we explain, or come to understand, what is produced by discovering the mechanism by which it works. Showing how the phenomenon is produced is showing how it fits a mechanism schema that has been used to understand other things and by showing how the phenomenon relates or compares to other objects and activities. In the sciences, trying to fit phenomena under laws is one way of classifying. But trying to understand the mechanisms by which things work in terms of known entities or activities is more common.

In the arts, one often classifies or categorizes objects by genre (from genus or kind), by style, by schools, by artist (author composer, director, etc.), or by intended audience (family movies, teen movies, chick flicks, etc.) Such categorization leads to inferences about what to expect from such a kind of thing. Initial categorization of an object as being of a certain kind provides guidance for what to do or look for next. Paul Thom has called such initial classifications “Guiding Concepts". (See Thom & review, http://www.arts.adelaide.edu.au/humanities/wp/jmcmahon/reviewThom.pdf)

So for example, identifying a film as being a film noir means one should look for dark urban streets, a "hero" caught up in events not quite of his own making, a femme fatale, etc. It is in this way that categorization or schematization provides expectations in the form of instructions about how to act (and think) with regard to the object. The
network specifies, by the inferences it allows, what to expect. Categorization or schematization are the forms of our memory and knowledge. I shall elaborate this point is when discussing the interpreter and his or her background knowledge.

But categories or concepts do not just belong to individuals. Groups and cultures share concepts, and it is these sharings that help to bind them into a group. Furthermore, what categories a group or culture has, they have for some reasons. What similarities are important to these people such that the object will be categorized in one way and not another? Importance is relative to what the categorization is going to be used for (its purpose) or what one expects to find out, come to know, or understand. Group concepts have an historical, changeable character. That is, their content and applications may change over evolutionary time, over historic time, over a culture’s and person's lifetime. Concepts often vary among different species, different cultures, and different individuals.

We may summarize the practical side of dealing with an object of interpretation by discussing how one goes about a formal analysis of the object of interpretation. One first needs to identify the object that is to be analyzed. Then one needs a selection principle to select ‘compositional elements” of the object, i.e., those elements, properties, or aspects which need to be picked out as being necessary, important, or useful for the analysis, given the purpose of the interpretation.

Two selection procedures, with a variant, suggest themselves:

a) Top down.

Assign the object to a category or genre. Get list of criteria or defining traits of that category or genre. Select those elements of the object that correspond to the criteria or
traits.

b) Bottom Up.

Select another object that is at least prima facie similar to the one you wish to analyze. Do a trait by trait (element by element) comparison. Note which elements are to some degree similar (which is a clue to genre’s definitional traits or criteria), and where differences lie (which is a clue to as to what properties might make one object better or worse than the other). If it turns out that the second object chosen is not really of the same kind, falls under the same category or genre, then this exercise has less definitive results.

In best case, this second object will be one that is taken (by people, by experts, by you?) to be good example of its kind.

Certain elements seem to be basic or fundamental to kinds of objects, not as categorical or genres in the sense above, by as disciplinary or traditional artistic types. Some examples would be that color and form are basic to painting; form and texture are basic to sculpture; viscosity, dryness and fruit intensity and flavors are basic to wines.

Now that one has the elements identified, we need a way to think compositionally how they fit together. Elements usually are formed in to compositional hierarchies. Sometimes, they are mereological part-whole relations, e.g., an arm is part of a body. (See http://plato.stanford.edu/entries/mereology/ ) Often composition relations are more complex relations among the ‘simpler’ elements, e.g. balanced. sexy male body, good resolution, harmonious, etc.
VII. Thinking about interpreters

An interpreter is either (a) a creator (for example, the artist or scientist) who produces or selects the object of interpretation; the person who constructs the phenomena. Or an interpreter (b) can be the audience, spectator or critic who observes or evaluates the product or the process of the producer.

The producer is the person who makes or creates some object or event. It may be a physicist developing a theory or trying to establish a mechanism. It may be an artist making a painting. An historian who is writing about court life and rules of conduct in the Renaissance is interpreting documents and artifacts. Interpretation is going on when a producer creates some piece of science or art. Interpretation here again is a function of what the producer has learned, both declaratively and procedurally for these are partial determinants and/or constraints on the selections made which get reflected in the product. What the producer selects for inclusion and exclusion in what he produces is determined by her prior experiences, background knowledge, and socio-cultural context.

The other kind of interpreter is more common. We apprehend the products produced by others. Most of us are the spectators of, or the audience for, what others have created. In the acts of viewing, hearing, tasting and criticizing, we interpret, consciously or unconsciously, the object that we take in. As audience, one might try to understand a given scientific theory or ascertain if it has implications for what ought to be public policy (say, about environmental controls.) Or a person might attempt to figure out what another person's (or one's own) action means. Or, why one likes a certain film.
Though most of us are not artists or scientists, we are all both producers and audiences, and often both at the same time. We might try to understand an action we did some days or ago or at the time we are doing it. And we may grow as interpreters. We can get better at it.

VII. *The purposes or goals of the interpretation*

The purposes that lie behind our giving interpretations are many and varied. Reflect on the following lists of reasons why someone might do something that involves interpretation. One scientist may do science in order to win a Nobel prize; another to make her father happy; and still a third may choose research out of curiosity about the world, Yet, again interpretation is involved when one evaluates scientific peers for your own gain, or prestige, or to ensure credibility of the field as social obligation as a member of the editorial board.

A person may choose to do social science or psychology to laugh at the poor primitives or the revel in the dark side of human nature. Or, to have scintillating vicarious or real experiences (a sense of adventure), to better understand human actions, to learn how to act better socially, to help patients to experience emotions more clearly, or even to understand oneself better.

One fellow may read and critically evaluate social and psychological science in order to be a responsible peer reviewer for submitted journal articles; another to help better train herself to therapeutically help others; some to gain knowledge; others to get grants by emulating the competition, and still others for prurient interests

Artists produce art for money, for fame, to "act out" their own psychological
(pathological) problems, because they're obsessed, or because it's fun to draw with nudes.

Members of an audience may go to art for social status, for self-improvement, for escapism, for vicarious living, or to view socially acceptable pornography.

Obviously these are only a few motives. There are myriad more. Yet there seems to be some belief that each one of these disciplines ought to be done for one normative exemplary reason. So it is thought the scientist ought to do his science to gain knowledge of the phenomena of nature or to provide explanations of the phenomena of nature.

The audience of science is expected to learn about science in order to better understand the world and to learn science for the practical goal of being educated citizens who will help make informed decisions in the democratic decision making processes, many of which are based or claim to be based on scientific evidence. They will also, as citizens, be informed or be capable of becoming informed sufficiently to criticize such decisions that are made.

A psychologist or social scientist ought to be gaining similar kinds knowledge but about the psychological and social worlds. Yet, here there is a proviso, in some psychological and social sciences one is also expected to aid people or help to provide real-life solutions. So clinical psychologists, some economists, some sociologists are expected to change the way people and institutions behave. The have a practical purpose in addition to their theoretical one. The assumption often is that theoretical wisdom will aid in pursuing the practical goal.

The audience of social science is supposed to learn better how to understand their fellow humans and their social institutions. This both with regard to gaining knowledge
and understanding which is taken as an epistemic good, and with regard to greater
tolerance of differences among behaviors and customs. There is also the practical goal of
evaluating and helping to make decisions or critically assess social policy. So far the
purposes of social and psychological science mirror the natural sciences.

When we consider the humanities and arts things change. It is very difficult to
say what knowledge comes from reading poetry seriously or from listening to music.
This is because we state the goal wrongly. The normative goal of reading poetry or
listening to music is to give oneself an experience that for some reason one ought or
desires to have. But where does that reason come from? Since the experience is going to
be fundamentally subjective, the reason has to come from you. But there need not be one
reason. You may listen to music for pleasure, or to come to be familiar with the corpus
of an artist, or to be able to talk to your friends. Yet for all these purposes you need to
have the experience of having listened.

Interestingly most artists do not have as a goal to give their audience an
experience, though some do. Performance art often has as its goal to shock or awaken the
audience by providing the occasion to have an unusual experience. Maybe Andy Warhol
silk-screened his Brillo Box to draw attention to the banal consumerist society. Often
artists claim to express themselves in their medium of choice in order to somehow
articulate their own personal experiences.

Where the art is good it rises above such individualistic goals, and becomes a way
for others to experience things they otherwise would not. But the experience will not be
the same as the creator’s experience. When you experience a flash of desire, or the thrill
of the chase while watching a movie, this is a vicarious experience. It is clearly not the
same as having desire for something that is attainable, nor like being in a real car chase. However, it is in its own right a real experience, and if no such experience occurs in you, then it will very difficult for you to understand someone else who has that experience. In fact, many disputes about art, and disagreements about taste or likes and dislikes, hang on this difference. I shall elaborate on this below.

But let’s return to my main claim, which has not been much noted. In some normative sense, doing science or reading science is for the sake of understanding, for coming to know how the world works. In a different sense, doing art or interacting with arts is for the sake of having experiences. Experiences may teach us something, but they need not. Sometimes it’s quite enough to just wallow in them, and enjoy them as they take us over.

It is not often remarked or understood that the social and psychological sciences, often also, have an experiential dimension too. It was hinted at in passing in the examples above. Sometimes, we want to learn about people and cultures so that we may change our experiences. One reason we want to learn about love and the bodily places of love is so that we may become better lovers and have better experiences while making love. We want to learn about jealousy in order to avoid experiencing its excesses.

Social and psychological science has an ineliminable experiential dimension, both in its learning and in its application. You must learn about the law not just by reading the cases and looking at flow charts of the system, you must experience it at work to understand it in its application. You must know what people charged under the law are experiencing while they are in grip of the law, if you want to change the system in order to make it more humane.
IX. Prior learning, encoding in memory

What and how we interpret is a function of our prior experiences, learning (of many kinds), and what we have represented (in various forms) in memory. It also may reflect, at times, our evolutionary heritage. Many people, including some philosophers, often talk glibly about how background knowledge and beliefs shape our current thoughts and experiences. In more recent times, there has also been discussion about practices that help determine what it is that we do and think we do. Practices came in with the realization that not everything that affects us or that we effect is due to propositional modes of representation. In psychology, practices are often is called procedural learning; a classic example is learning to ride a bicycle. But it also covers the way we learn to attend to objects. For example some painting need to be scanned slowly, while others can be looked at as a whole. Or, you need to know how to properly swirl the wine in your mouth, before you can extract information about acid and tannin. In fact, in this case, you need to learn where to look in the mouth, on what part of the tongue, to pick up that information.

Knowing implies that what comes to be known has been learned, except in the evolutionary cases. So knowing implies learning. For present purposes I shall ignore the differences among what evolution gives us, what development gives us and what learning gives us. That something has been learned implies that somehow it is represented, stored, or encoded in some memory system. Thais, learning involves some structural changes in the person. If you know something, you must be able to access it at least sometimes, which means it must be stored somewhere accessible. It does not have to be accessed in
the form of a conscious thought or any other sort of conscious event. Memory is of different kinds, and there are different memory systems that are repositories for different kinds of knowledge. Though there is not always agreement, a typical taxonomy of types of memory are:

Declarative--linguistic, conceptual,
Episodic (personal memories)
Spatial
Procedural or skills: motor, sensori-motor, attentional, perceptual

There is also a working memory system, which is commonly thought to be the mechanism that takes sensory inputs, and “works them up” for long term memory (LTM) systems. Working memory often was called short term memory (STM).

Another way of looking at learning and memory deals with the forms of knowing (or sometimes believing), and types of learning. We may think of knowing something as

1. Knowing That (propositional knowledge)
2. Sensory representation
   resulting in recognition (categorical)
   resulting in re-identification (maybe conceptual)
3. Spatial Knowing
   Own body location (proprioceptive)
   For places or locations
4. Knowing How (skills)
   Conceptual
Motor

Perceptual

5. Knowing Why

Perceiving productions of activities, seeing causal relations

6. Knowing When

Time sense; simultaneity, now, past, time passing, etc.

Note: Conscious/Unconscious; Explicit/Implicit are retrieval qualities that modify the way the knowledge is presented and used by the system.

We may also asked if what is learned, what knowledge or belief is "represented," is RELIABLE?

We generally have tests for reliability or adequate learning. There are public tests, like testing someone who has purportedly learned their multiplication table, or how to do long division. The reliability is certified by appropriately sanctioned tests (or testing tasks)

But usually our warrant for reliable knowledge lies in the reliability of the memory, But then we need to think more about the basis for making reliable claims or claiming that a system is reliable. Sometimes it is said that a system if reliable if it outputs more true beliefs than false ones. But if "true" only predicable of propositions, then many of the forms of knowledge are not eligible to be true, so cannot be considered reliable on this account.

Further, you must be able to use what you know, or it is not really a case of knowledge. See Machamer and Osbeck 2004, “The Social in the Epistemic”). Some years
back Lisa Osbeck and I argued that the concept of knowledge should be expanded to include:

(1) *Acquisition*. The most obvious examples of the social nature of learning derive from the uncontested fact that our actions and utterances are assigned meaning and thus rendered sensible within a social context, system, or “form of life”. Linguistic categories arising from this communication structure are learned or acquired.

Yet learning and its social nature are not limited to language. Our very conceptual scheme and many of our discriminatory abilities are the result of social interaction. Clearly, in many kinds of learning, the physical world plays a causally effective and important structuring role. The physical and the social and our actions/reactions, as mutually interrelated systems, determine what we take in, how we represent the world, and how we “process” information.

This claim about learning applies no less to the acquisition and uses of scientific knowledge. Acquisition of a specialized lexicon is certainly an important part of one's initiation into a scientific specialty. However, there is more to the initiation than the verbal/linguistic mastery. There are cannons of procedure, official instruments for measurement and models of analysis (e.g. microscope, multiple regression techniques), standards for interpretation and acceptable forms for communication of results, all of which are socially established, and endure for historical periods during which they are and maintained. These are some of the forms and structures that make possible the acquisition of scientific knowledge. Similarly, one acquires in a social context, knowledge of what is valuable in relation to theories. One must be taught initially, by others, to recognize simplicity and fecundity in relation to theories, implicitly (by
modeling or problem solving), or explicitly by learning rules. In short, learning is a social process and what is learned has social content.

(2) Memory. It makes little sense to speak of acquisition or learning if what is acquired is not stored in some cognitive system or remembered. Any knowledge must be "represented" in one or more of the memory systems, whether sitting calmly as a trace, as a somewhat permanent systemic modification of some kind (e.g., a long term potentiation), or by being reconstructed from stored elements on the occasion of its (conscious or unconscious) recall. Now most knowledge representations, other than purely idiosyncratic episodic or autobiographical ones (if such are even possible), will have something in common with those memories found in other people. Therefore, related to the first acquisition sense there is the sense of social as shared memory, as in discriminatory reactions, concepts, linguistic categories, assumptions, tastes, preferences, or standards held in common. Some of these constituents of group memory were noticed by Thomas Kuhn (1973), and Helen Longino (19XX) also notes some that frequently function implicitly as presuppositions within a scientific community; often taken for granted and unarticulated, yet powerful in structuring and directing actions through of goals, procedures, problem solving, and even interpretation and observation.

These are our internalized shared memorial schemata, including our conceptual schemes. Yet, there is even another social dimension to be noticed here. The internal parts of memory also include social memories. These may be seemingly trivial such as remembering what fork to use at dinner or more epistemic as in recalling where a co-worker stored the proper form of regression analysis to use when trying to analyze a certain type of data. In some cases that are most important in science, these social
memories reflect what Valisner and van der veer (2000, p. 5) call “the institutionalizing of a particular knowledge-construction device”, e.g., establishing the use of statistics in the social sciences such that it becomes the normative, shared goal and methodological cannon of the discipline.

This individualistic internal representation, even when it is social in content, is only part of the whole knowledge mechanism. Another part, as we discussed above, is learning or acquisition. However, there is yet a third, and most important part.

(3) Use and Norms. This leads to the important sense in which knowledge, whether procedural or declarative or otherwise "encoded" in memory, presupposes that there are shared social norms of appropriate or correct application of what is acquired. These application norms apply to the uses of what has been internalized and function as criteria as to whether one has acquired knowledge at all. To be counted as knowledge, what is learned and stored must be used; it must be applied (note that this is not intended to mean that only applied fields of scientific knowledge, as in engineering or organizational psychology, are useful). That is, it is theoretically insufficient to speak only of acquisition and representation, we must also consider how people exhibit through appropriate or correct action (including correct uses of language) that learning has taken place. Normative criteria for knowledge and knowledge claims are social, public and part of shared memory. What is learned has to enter into the public sphere and be warranted in public ways for it to count as knowledge. Traditionally learning has been either defined or, certainly, tested in terms of performance (say, a rat's rate of lever pushing in operant conditioning paradigms). This is surely Wittgenstein’s point in tying
acquisition of linguistic rules (or more generally, grammar) to socially appropriate use of language, and the following of these implicit rules (1953).

Knowledge is in part, then, (but inseparably so) constituted by action, broadly defined (e.g. action here includes appropriate judgment or use of words). That is, knowledge always has a constitutive practical part, or we might say that every bit of even theoretical knowledge is tied inextricably with practical reason, as even Aristotle knew. Importantly, these knowledge acts occur in a social space, wherein their application is publicly judged as appropriate or adequate (or even correct). One way to see this is to note that truth conditions, at least in practice, are use conditions, and even those "norms set by the world" (empirical constraints) structure human practices concerning correct or acceptable use, e.g., of descriptions of use of instruments or even the right ways to fix a car. Human practices are social practices, and the way we humans use truth as a criterion is determined not only by the world, but also the traditions we have of inquiring about the world, assessing the legitimacy of descriptions and claims made about the world and actions performed in the world.

In each of the above aspects of knowledge, it is impossible to determine where the social ends and the cognitive begins. The processes by which learning takes place are social and the content of what is learned are social to an indeterminable degree, and the means by which knowledge is demonstrated (i.e. what has been learned is counted as knowledge) relies upon public recognition and sanction.

(3b) *Making explicit.* Another aspect of knowledge in use is very important in many contexts, and especially in science. A person many times does not just exhibit her knowledge, and then wait for others to check or to approve of what she has said or done.
Demonstration of knowledge leads (in some cases) to public dissemination, e.g., of scientific findings. Such public presentation is a necessary condition for critical interchange or "dialogue", the novel construction of ideas through social interaction or what has been termed “intellectual interdependency as constructive communication” (Valsiner and van der Veer, 2000, p. 11). That is, an individual’s insight is communicated to people in her community and so made public. The insight is ignored by some and appropriated by others for use in further theorizing. The novel products of those appropriations are made public, and so on. For this reason the dialogical nature of knowledge construction and the process of discovery itself has been a recurring theme (e.g. Wertz et al., 1997). Longino (2002) also makes a similar point when she writes" Those assumptions are epistemically acceptable which have survived critical scrutiny in a discursive context characterized by...(1) availability of venues for and (2) responsiveness to criticism, (3) public standards (themselves subject to critical interrogation), and tempered equality of intellectual authority." (p. 206). In any of these cases of interpersonal exchange that lead to a new mutual understanding of what is being discussed, the extant criteria for what is acceptable play a role along with the persons rethinking their positions and claims by trying to accommodate or modify them in order to better fit what is being said. The dynamics of such dialogic or critical construction are complex and variegated, and never is there any assurance of success even when mutual agreement becomes established. Such critical interchanges take us back again to social aspects of acquisition, for it is by such that much important learning takes place, in science and in all fields. Learning is not confined to conditioning or training of one
person or organism by another, but often results from cooperative activities that result in mutual restructuring of knowledge representations and structures (as in sense 2 above.)

Recently I came across another way of thinking how certain forms of knowledge or certain experiences are acquired. Patrik Juslin and Daniel Vastfjall (2008, mss. for *Behavioral and Brain Sciences*). They wrote an article discussing emotional responses to music, and sketched some hypotheses about the different mechanisms involved in bringing about those emotional responses. They identified six mechanisms through which music listening may induce emotions. Their mechanisms are (a) brain stem reflexes, (b) evaluative conditioning, (c) emotional contagion, (d) visual imagery, (e) episodic memory, and (f) musical expectancy. Simply put, brain stem reflexes are hard wired and cause emotions by the music’s triggering pleasant or unpleasant arousal. Evaluative conditioning is a form of classical conditioning where the conditioned stimulus becomes paired with an “affectively valenced unconditioned stimulus.” Emotional contagion is empathetic response to the acoustical features of the music that have patterns similar to those of emotional speech. Visual imagery is an emotional response to the images evoked by the music. Episodic memory is where the music evokes some prior emotional experiences that we had to that same music. Finally, musical expectancy is where the structure of the music itself leads one to expect certain musical structures to come next. When they don’t we get anxious, and when they do, the expected resolution provides comforting feelings.

I do not wish to argue the merits of this analysis, though I think it is very thought provoking unlike most of the literature on emotions and music. But I do wish to point out that the way it divides up the emotional states that arise from listening to music cuts
across mechanisms of acquisition, models of memory, and structural properties of the stimuli.

X. Criteria of Success

Criteria of success (point 8 on the outline) are in part social, normative standards that have become established in a group or culture by training in a tradition or sometimes by 'experts'. The tradition is paradigmatically carried on the 'experts' in the field. (see Hume, Essay on the Standard of Taste) The way in which the experts reach their decisions as to the success of interpretations or product production are the prototypical standards for the rest of the people. Yet experts may differ. The criteria used by experts change over time. Different experts with different training may have different criteria at the same time. Nonetheless, the experts, so called at any given time, are a good starting point for one to learn about such criteria and the training ground for learning to apply such criteria in order to test if they are being applied correctly (see Aristotle, Nichomachean Ethics).

Sometimes it is said that one ought to judge a work of art or any produced object by whether or not it succeeds in fulfilling the artist's intention. Certainly when we use words like "sincerity" or "authenticity" as affirmative evaluations of a work, we are appealing at least implicitly to the producer's intention. In some cases, as in the performing art's we need not only assess the original artists' intention but also the performing artist's intention, and these may differ. A modern adaptation of Hamlet, in 1950s dress and with the language modified in a way to make it more intelligible to modern English speakers (as Kenneth Branaugh sometimes does), is clearly not being
faithful to the Shakespeare's intention. For Shakespeare lived in the late 16th and early 17th century, a different historical epoch, and could have thought of no such things. But the more general questions concerns producer's intentions in general. In the 1950s there were group of literature critics (W.K. Wimsatt, *The Well Wrought Urn* and the new critics) who claimed the artist's intention were never relevant to assessing a work. The main reason for this is that another person, in this case the spectator or assessor, can never be sure of what a different person's intentions are. The old philosophical slogan for this view was "a person can never know the mind of another". There were papers written on "other minds' by J.L. Austin and John Wisdom in the 50s. Now what is strange about this problem is ambiguous truistic yet obtuse character. Certainly it is truism that we cannot 'know' the mind of someone else in that it is not our mind; yet we do know lots about what are on the minds of other people. We also can try to ascribe intentions based on textual evidence.

Another aspect of the other minds problem is the other periods problem. In this form a person living at some time, can never really know what a person living at some earlier time (some earlier historical period) thought. This, of course, just falls out as an instance of the other minds problem, but let's look at a different and more important motivation. The reason why we cannot know about historical persons is that we are a product of our own times and our own historical environment, and since the but attribution of intention or beliefs to a person at an earlier time must reflect our own beliefs at this time, we can never be sure what the earlier person was thinking. This is the anachronism or Whig history problem. The problem was seen in literature as well as history, but turned into a virtue by T.S. Eliot, [*The Sacred Wood*] who called it the
objective correlative, and said this is the only way we could make works from an earlier period relevant to ourselves at a later period, i.e., by reinterpreting them in our own way that reflected our own understanding and pre-dispositions. Despite these philosophical and historical worries, most people today think we can, to some degree, ascertain and correctly ascribe the intentions of other people and even come to know some of the thoughts that were had by those persons in the past. Such knowledge is an empirical, if you like scientific inquiry, based on data and so might come out wrong or with incorrect attributions. And while we can never be certain, we may be sure enough for our scholarly and interpretive purposes. While we may never be completely non-anachronistic, for that would mean that we would have to have been born and lived in another time, we can know something about the past. To some degree we can ignore our own contemporary prejudices or, at least, get some distance from them, and by learning more about our topic, we may come to be able to think more like those people who did live in the past. Such research is not easy, but, to some degree, it can be done.

But why would we wish to know about an originator's intention? And how will it aid us in our interpretation? First, let's turn the anachronistic argument above, on its head. Since the product that the historical person produced is a reflection of that person and his historical environment, the product itself constitutes an historical "text" which may use to glean some information about the person and his environment. Put another way, any product in some ways must represent its producer and the environment that that producer is in. The product literally contains information about its origins. An old vase or a skirt will have certain shape, color and style to it, and those properties may provide information about the origin of the object. There is nothing mysterious about this. A
woman I know easily identifies, usually to within 3 years, the date that a film was made in by virtue of the clothes and hairstyles of the women in the film. Connoisseurs are able to date and place of origin of a vase from its visible properties. They may seek further confirmation or support from other dating and locating techniques.

X. Evaluations and Values in Interpretation

Normative criteria represent accepted group or personal values. Normative criteria for success, and the ways in which we apply these criteria, are always, at least implicitly comparative. There are no absolutes, relative rankings. Another way to think about this is that there is no (absolute) best, only 'betters' and 'worses'.

XI. Reason Giving and Evidence

Justifying interpretations is most often done by explicitly providing reasons for your interpretation, or evaluation. The basic form of reason giving [RG] is:

[RG] (1) An object \( x \) has some property \( P \) because (2) \( x \) has some other property \( Q \).

(2), \( x \) has \( Q \), is put forward as the reason why (1) \( x \) has the property \( P \) is true, or the reason why \( P \) is true of \( x \). So we need to look at what type of claim is (1), and then at how (2) relates to (1). Prima facie, statements like (1) look like categorical or attributive claims. This according to our theory means they have associated criteria, so then a reason might well be construed as a claim implying that certain of the criteria for something’s being \( P \) is satisfied.

Another way to think of this is that the reason given provides evidence (at least partial) for believing that claim is true.
So if \( P \) is film noir, we could say Kubricks' film, *Eyes Wide Shut*, is a film noir. This would be a claim of the form (1). Our (2) must provide a reason (or some reasons) for the truth of this claim. So we would point to the alienation, shadowy lighting, dark street shots (pans) in the film (as examples of Q). The reasons would be said to support the claim or provide evidence for the claim. The reason why citing alienation, shadowy lighting and dark streets is evidence for a film's being a noir-type is because there are accepted criteria for a film's being of the genre noir, and these properties are among them. Now it is possible to dispute the adequacy or aptness of these criteria, and sometimes it may be good to do so, but we'll deal with this later. At this point we are assuming that there are standards which tell us what are the criteria, and the reason is good reason because it shows those standards are adhered to.

A reason is given for some assertion or claim (usually expressed in the form of proposition or statement). Reason giving is a linguistic activity. (Cf. Wilfrid Sellars, John McDowell and Robert Brandom). But being linguistic, one can always worry about the clarity of what is put into the schema. So first, one must ascertain if the claim is clear and unambiguous. As we saw with “This is good” (see Lycan and Machamer), “good” is not specified fully enough, does not carry enough information, for us to provide reasons as to why it maybe good or not. The criteria for something’s being good is not specifiable as such in general. There is no useful generalization that meaningfully tells you why all things that are good are so. Things are good in too many quite different ways; so just saying “good” is too vacuous. We need further specification. Now whenever an evaluation is claimed, it will presuppose many things. Claims often presuppose what the claimer (person claiming) thinks is important, or reflects this or her
valuation of what are the important aspects of the property being claimed. What someone holds to be important, implicitly or explicitly, is the set of criteria they believe makes for a thing's being good (of its kind). Such claims may also presuppose values taken from culture or gender biases. Many men seem to value extreme thinness in women, and so would cite this as reason for a woman's being good looking.

Often claims are not put in the form of assertions or statements, but posed as questions. So “x has P” may be phrased “Does x have P?” or “Is x, P?” And questions, of course, carry presuppositions too. So the point is the presuppositions to an assertion or question may well have to be elucidated and made explicit before one, knows what is really being attributed or claimed, or what may be used as a reason. Elucidating or making presuppositions clear is often a tricky business. But it is important. Sometimes, with some philosophers, presuppositions are called background beliefs or background theories.

We have discussed some of the relevant aspects of these when we discussed categorization and background in the interpretation section. That is, they play a role in why people categorize things in certain ways (rather than others).

Besides looking at the claim (1) made, for which a reason will be given, we must also look at the reason (2), and most importantly at the connection between the reason and the claim. Generally, as we said, the reason often provides a specification of the fact that satisfies the accepted criteria. Yet people sometimes have widely varying criteria. Some people give as a reason for acting in a certain way that the position of the planets makes that action desirable. Thus, astrological beliefs provide the criteria by which a rationale is provided for a certain action. I knew a businessman who always consulted his Rabbi for Talmudic guidance before closing a business deal, and this guidance figured
into the rationale he gave for acting in the way he did. Numerologists find syntactic affinities to be persuasive and a rationale for action. Recall the old children’s game of counting letters in your name and of the boy (it was usually girls who played this game) you ‘loved’ to find out if you were sympathetic and would eventually wed. So the connection between the reason and the claim is provided by some background theory, or set of beliefs that gives the linkage.

It is often assumed that the link between reason and claim must be or ought to be provided by some rational theory. For, it is said, reason giving is the epitome of rational discourse. So, it would seem that only rational theories ought to be allowed to enter into our reason giving. This stance raises many problems. Not the least of which are: what is a rational theory? How can one tell rational from non-rational theories? And what status does a normative claim “the reason ought to be backed by rational theory” have, and how is it grounded?

I am afraid at this point we must leave these questions until later.

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“Verstehen” in German has the same etymology. Heidegger also tries to tie the idea of uncovering (foundations) to the origin of the idea of alethea or truth in ancient Greek.