

Review of Wittgenstein's Philosophical Investigations by David Stern (2004)(review revised 2019)

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ABSTRACT

Overall Stern does a fine analysis of Wittgenstein (W) and is one of the top W scholars, but in my view, they all fall short of a full appreciation, as I explain at length in this review and many others. If one does not understand W (and preferably Searle also), then I don't see how one could have more than a superficial understanding of philosophy and of higher order thought and thus of all complex behavior (psychology, sociology, anthropology, history, literature, society). In a nutshell, W demonstrated that when you have shown how a sentence is used in the context of interest, there is nothing more to say. I will start with a few notable quotes and then give what I think are the minimum considerations necessary to understand Wittgenstein, philosophy and human behavior.

As Stern is aware, throughout W's works, understanding is bedeviled by possible alternative and consequently often infelicitous translations from often unedited and handwritten German notes, with "Satz" being frequently incorrectly rendered as "proposition" (which is a testable or falsifiable statement) when referring to our non-falsifiable psychological axioms, as opposed to the correct "sentence", which CAN be applied to our axiomatic true-only statements such as "these are my hands" or "Tyrannosaurs were large carnivorous dinosaurs that lived about 50 million years ago".

Finally, let me suggest that with the perspective I have encouraged here, W is at the center of contemporary philosophy and psychology and is not obscure, difficult or irrelevant, but scintillating, profound and crystal clear and that to miss him is to miss one of the greatest intellectual adventures possible.

Those wishing a comprehensive up to date framework for human behavior from the modern two systems view may consult my book 'The Logical Structure of Philosophy, Psychology, Mind and Language in Ludwig Wittgenstein and John Searle' 2nd ed (2019). Those interested in more of my writings may see 'Talking Monkeys--Philosophy, Psychology, Science, Religion and Politics on a Doomed

Planet--Articles and Reviews 2006-2019 3rd ed (2019) and Suicidal Utopian Delusions in the 21st Century 4th ed (2019)

Overall, Stern does a fine analysis of Wittgenstein (W) and is one of the top W scholars, but in my view, they all fall short of a full appreciation, as I explain at length in this review and many others. If one does not understand W (and preferably Searle also) then I don't see how one could have more than a superficial understanding of philosophy and of higher order thought and thus of all complex behavior (psychology, sociology, anthropology, history, literature, society) . In a nutshell, W demonstrated that when you have shown how a sentence is used in the context of interest, there is nothing more to say. I will start with a few notable quotes and then give what I think are the minimum considerations necessary to understand Wittgenstein, philosophy and human behavior.

"The confusion and barrenness of psychology is not to be explained by calling it a "young science"; its state is not comparable with that of physics, for instance, in its beginnings. (Rather with that of certain branches of mathematics. Set theory.) For in psychology there are experimental methods and conceptual confusion. (As in the other case, conceptual confusion and methods of proof). The existence of the experimental method makes us think we have the means of solving the problems that trouble us; though problem and method pass one another by." Wittgenstein (PI p.232)

"Philosophers constantly see the method of science before their eyes and are irresistibly tempted to ask and answer questions in the way science does. This tendency is the real source of metaphysics and leads the philosopher into complete darkness." (BBB p18).

"Now if it is not the causal connections which we are concerned with, then the activities of the mind lie open before us." Wittgenstein "The Blue Book" p6 (1933)

"But I did not get my picture of the world by satisfying myself of its correctness: nor do I have it because I am satisfied of its correctness. No: it is the inherited background against which I distinguish between true and false." Wittgenstein OC 94

"If we keep in mind the possibility of a picture which, though correct, has no similarity with its object, the interpolation of a shadow between the sentence and reality loses all point. For now, the sentence itself can serve as such a shadow. The sentence is just such a picture, which hasn't the slightest similarity with what it represents." BBB p37

"Some of the most important logical features of intentionality are beyond the

reach of phenomenology because they have no immediate phenomenological reality... Because the creation of meaningfulness out of meaninglessness is not consciously experienced...it does not exist...This is... the phenomenological illusion." Searle PNC p115-117

"...the basic intentional relation between the mind and the world has to do with conditions of satisfaction. And a proposition is anything at all that can stand in an intentional relation to the world, and since those intentional relations always determine conditions of satisfaction, and a proposition is defined as anything sufficient to determine conditions of satisfaction, it turns out that all intentionality is a matter of propositions." Searle PNC p193

"Superstition is nothing but belief in the causal nexus." TLP 5.1361

"Now if it is not the causal connections which we are concerned with, then the activities of the mind lie open before us." BBB p6

"We feel that even when all *possible* scientific questions have been answered, the problems of life remain completely untouched. Of course, there are then no questions left, and this itself is the answer." TLP 6.52

"Nonsense, Nonsense, because you are making assumptions instead of simply describing. If your head is haunted by explanations here, you are neglecting to remind yourself of the most important facts." Z 220

"Philosophy simply puts everything before us and neither explains nor deduces anything...One might give the name 'philosophy' to what is possible before all new discoveries and inventions." PI 126

These quotes are not chosen at random but (along with the others in my reviews) are an outline of behavior (human nature) from our two greatest descriptive psychologists. In considering these matters we must keep in mind that philosophy is the descriptive psychology of higher order thought (DPHOT), which is another of the obvious facts that are totally overlooked –i.e., I have never seen it clearly stated anywhere.

Here is how the leading Wittgenstein scholar summarized his work: "Wittgenstein resolved many of the deep problems that have dogged our subject for centuries, sometimes indeed for more than two millennia, problems about the nature of linguistic representation, about the relationship between thought and language, about solipsism and idealism, self-knowledge and knowledge of other minds, and about the nature of necessary truth and of mathematical propositions. He ploughed up the soil of European philosophy of logic and language. He gave us a novel and immensely fruitful array of insights into

philosophy of psychology. He attempted to overturn centuries of reflection on the nature of mathematics and mathematical truth. He undermined foundationalist epistemology. And he bequeathed us a vision of philosophy as a contribution not to human knowledge, but to human understanding – understanding of the forms of our thought and of the conceptual confusions into which we are liable to fall.” –Peter Hacker--'Gordon Baker's late interpretation of Wittgenstein'

I would add that W was the first (by 40 years) to clearly and extensively describe the two systems of thought -- fast automatic proto-linguistic S1 and the slow reflective linguistic dispositional S2. He explained how behavior only is possible with a vast inherited background that is the axiomatic basis for judging and cannot be doubted or judged. Will (choice), consciousness, self, time and space are innate true-only axioms. He discussed many times what is now known as Theory of Mind, Framing and cognitive illusions. He frequently explained the necessity of the innate background and demonstrated how it generates behavior. He described the psychology behind what later became the Wason test--a fundamental measure used in EP research decades later. He noted the indeterminate nature of language and the game-like nature of social interaction. He examined in thousands of pages and hundreds of examples how our inner mental experiences are not describable in language, this being possible only for public behavior with a public language (the impossibility of private language). Thus, he can be viewed as the first evolutionary psychologist.

When thinking about Wittgenstein, I often recall the comment attributed to Cambridge Philosophy professor C.D. Broad (who did not understand nor like him). “Not offering the chair of philosophy to Wittgenstein would be like not offering the chair of physics to Einstein!” I think of him as the Einstein of intuitive psychology. Though born ten years later, he was likewise hatching ideas about the nature of reality at nearly the same time and in the same part of the world, and like Einstein nearly died in WW1. Now suppose Einstein was a suicidal homosexual recluse with a difficult personality who published only one early version of his ideas that were confused and often mistaken, but became world famous; completely changed his ideas but for the next 30 years published nothing more, and knowledge of his new work, in mostly garbled form, diffused slowly from occasional lectures and students notes; that he died in 1951 leaving behind over 20,000 pages of mostly handwritten scribbles in German, composed of sentences or short paragraphs with, often, no clear relationship to sentences before or after; that he wrote in a Socratic style with 3 distinct persons in the dialog—the narrator, the interlocutor and the commentator (usually W’s view), whose comments were blended together by most readers, thus completely vitiating the whole elucidatory and therapeutic thrust, that these were cut and

pasted from other notebooks written years earlier with notes in the margins, underlinings and crossed out words, so that many sentences have multiple variants; that his literary executives cut this indigestible mass into pieces, leaving out what they wished and struggling with the monstrous task of capturing the correct meaning of sentences which were conveying utterly novel views of how the universe{mind} works and that they then published this material with agonizing slowness (not finished after half a century) with prefaces that contained no real explanation of what it was about; that he became as much notorious as famous due to many statements that all previous physics{philosophy} was a mistake and even nonsense, and that few understood his work well, in spite of hundreds of books and tens of thousands of papers discussing it; that many physicists{philosophers} knew only his early work in which he had made a definitive summation of Newtonian physics {classical philosophy} stated in such extremely abstract and condensed form that it was difficult to decide what was being said; that he was then virtually forgotten and that most books and articles on the nature of the world and the diverse topics of modern physics{philosophy} had only passing and usually erroneous references to him, and that many omitted him entirely and that to this day, over half a century after his death, there were only a handful of people who really grasped the monumental consequences of what he had done. This, I claim, is precisely the situation with Wittgenstein.

Before remarking on this book, I will first offer some comments on philosophy and its relationship to contemporary psychological research as exemplified in the works of Searle (S), Wittgenstein (W), Baker and Hacker (H), Read etc. al. It will help to see my reviews of PNC (Philosophy in a New Century), TLP, PI, OC, Making the Social World (MSW) and other books by and about these geniuses, who provide a clear description of higher order behavior not found in psychology books, that I will refer to as the WS framework. A major theme in all discussion of human behavior is the need to separate the genetically programmed automatisms from the effects of culture. All study of higher order behavior is an effort to tease apart not only fast S1 and slow S2 thinking --e.g., perceptions and other automatisms vs. dispositions, but the extensions of S2 into culture (S3). Searle's work as a whole provides a stunning description of higher order S2/S3 social behavior, while the later W shows how it is based on true-only unconscious axioms of S1 which evolved into conscious dispositional propositional thinking of S2.

On Certainty was not published until 1969, 18 years after Wittgenstein's death and has only recently begun to draw serious attention. I cannot recall a single reference

to it in all of Searle and one sees whole books on W with barely a mention. There are however plenty of books on it by Stroll, Svensson, McGinn and others and parts of many other books and articles, but hands down the best is that of Daniele Moyal-Sharrock (DMS) whose 2004 volume "Understanding Wittgenstein's On Certainty" is mandatory for every educated person, and perhaps the best starting point for understanding Wittgenstein (W), psychology, philosophy and life. Recently she has produced a half dozen superb articles that show how OC revolutionized epistemology by describing how action issues directly from certain understandings (hinges) that require no judgements. Also, some excellent work has appeared from Coliva and Andy Hamilton. However (in my view) all analysis of W falls short of grasping his unique and revolutionary advances by failing to put behavior in its broad evolutionary and contemporary scientific context, which I will attempt here.

"What sort of progress is this—the fascinating mystery has been removed—yet no depths have been plumbed in consolation; nothing has been explained or discovered or reconceived. How tame and uninspiring one might think. But perhaps, as Wittgenstein suggests, the virtues of clarity, demystification and truth should be found satisfying enough." Horwich 'Wittgenstein's Metaphilosophy'. Horwich also gives there one of the most beautiful summaries of where an understanding of Wittgenstein leads us that I have ever seen.

"There must be no attempt to *explain* our linguistic/conceptual activity (PI 126) as in Frege's reduction of arithmetic to logic; no attempt to give it *epistemological foundations* (PI 124) as in meaning based accounts of *a priori* knowledge; no attempt to characterize *idealized* forms of it (PI 130) as in sense logics; no attempt to *reform* it (PI 124, 132) as in Mackie's error theory or Dummett's intuitionism; no attempt to *streamline* it (PI 133) as in Quine's account of existence; no attempt to make it more *consistent* (PI 132) as in Tarski's response to the liar paradoxes; and no attempt to make it more *complete* (PI 133) as in the settling of questions of personal identity for bizarre hypothetical 'teleportation' scenarios."

"The aim of philosophy is to erect a wall at the point where language stops anyway." Wittgenstein Philosophical Occasions p187

"The limit of language is shown by its being impossible to describe a fact which corresponds to (is the translation of) a sentence without simply repeating the sentence ..." Wittgenstein CV p10

"Many words then in this sense then don't have a strict meaning. But this is not a defect. To think it is would be like saying that the light of my reading lamp is no real light at all because it has no sharp boundary." BBB p27

“The origin and the primitive form of the language game is a reaction; only from this can more complicated forms develop. Language--I want to say--is a refinement. ‘In the beginning was the deed.’” CV p31

Wittgenstein (W) is for me easily the most brilliant thinker on human behavior and this is his last work and crowning achievement. It belongs to his third and final period, yet it is not only his most basic work (since it shows that all behavior is an extension of innate true-only axioms and that our conscious ratiocination issues from unconscious automatisms), but the foundation for all description of animal behavior, revealing how the mind works and indeed must work. The “must” is entailed by the fact that all brains share a common ancestry and common genes and so there is only one basic way they work, that this necessarily has an axiomatic structure, that all higher animals share the same evolved psychology based on inclusive fitness, and in humans this is extended into a personality based on throat muscle contractions (language) that evolved to manipulate others (with variations that can be regarded as trivial). This book, and arguably all of W’s work and all useful discussion of behavior is a development of or variation on these ideas. Another major theme here and of course in all discussion of human behavior is the need to separate the effects of culture from those of genetics and though few philosophers explicitly discuss this, it can be seen as one of the major problems they are dealing with. I suggest it will prove of the greatest value to consider W’s work and most of his examples as an effort to tease apart not only fast and slow thinking (see below), but nature and nurture.

In the course of many years reading extensively in W, other philosophers, and psychology, it has become clear that what he laid out in his final period (and throughout his earlier work in a less clear way) are the foundations of what is now known as evolutionary psychology (EP), or if you prefer, cognitive psychology, cognitive linguistics, intentionality, higher order thought or just animal behavior. Sadly, almost nobody seems to realize that his works are a vast and unique textbook of descriptive psychology that is as relevant now as the day it was written. He is almost universally ignored by psychology and other behavioral sciences and humanities, and even those few in philosophy who have more or less understood him have not carried the analysis to its logical (psychological) conclusion nor realized the extent of his anticipation of the latest work on EP and cognitive illusions (the two selves of fast and slow thinking—see below). His heir apparent, John Searle, refers to him periodically and his work can be seen as a straightforward extension of W’s, but he does not really get that this is what he is doing. Other leading W analysts such as Read, Harre, Horwich, Stern, Hutto and Moyal-Sharrock do marvelously but (in my view) stop short of putting him in the center of current psychology, where he certainly belongs. I eventually came to understand much of W by regarding his corpus as the pioneering effort in EP,

seeing that he was describing the two selves and the multifarious language games of fast and slow thinking, and by starting from his 3rd period works and reading backwards to the proto-Tractatus. It has been extremely revealing to alternate W with the writings of hundreds of other philosophers and evolutionary psychologists (as I regard all psychologists and in fact all behavioral scientists, cognitive linguists and others). It should also be clear that insofar as they are coherent and correct, all accounts of behavior are describing the same phenomena and ought to translate easily into one another. Thus, the recently fashionable themes of “Embodied Mind” and “Radical Enactivism” should flow directly from and into W’s work. However, few seem able to follow his example of avoiding jargon and sticking to perspicuous examples, so even the redoubtable Read and Hutto (see below) have to be heavily filtered to see that this is true and even they do not get how completely W has anticipated the latest work in fast and slow, two-self embodied thinking (acting).

“People say again and again that philosophy doesn’t really progress, that we are still occupied with the same philosophical problems as were the Greeks... at something which no explanation seems capable of clearing up...And what’s more, this satisfies a longing for the transcendent, because in so far as people think they can see the ‘limits of human understanding’, they believe of course that they can see beyond these. - CV (1931)

“How does the philosophical problem about mental processes and states and about behaviorism arise? – The first step is the one that altogether escapes notice. We talk about processes and states and leave their nature undecided. Sometime perhaps we shall know more about them-we think. But that is just what commits us to a particular way of looking at the matter. For we have a definite concept of what it means to learn to know a process better. (The decisive movement in the conjuring trick has been made, and it was the very one we thought quite innocent). –And now the analogy which was to make us understand our thoughts falls to pieces. So, we have to deny the yet uncomprehended process in the yet unexplored medium. And now it looks as though we had denied mental processes. And naturally we don’t want to deny them. PI p308

“Imagine a person whose memory could not retain what the word ‘pain’ meant-so that he constantly called different things by that name-but nevertheless used the word in a way fitting in with the usual symptoms and presuppositions of the word ‘pain’-in short he used it as we all do.” PI p271

“Every sign is capable of interpretation but the *meaning* mustn’t be capable of interpretation. It is the last interpretation” BBB p34

The failure (in my view) of even the best thinkers (with a few possible exceptions)

to fully grasp W's significance is partly due to the limited attention On Certainty (OC) and his other 3rd period works have received, but even more to the inability to understand how profoundly our view of philosophy, anthropology, sociology, linguistics, politics, law, morals, ethics, religion, aesthetics, literature (all of them being descriptive psychology), alters once we accept this evolutionary point of view. The dead hand of the blank slate view of behavior still rests heavily and is the default of the second self of slow thinking conscious system 2, which is oblivious to the fact that the groundwork for all behavior lies in the unconscious, fast thinking axiomatic structure of system 1 (Searle's 'Phenomenological Illusion'). Steven Pinker's brilliant 'The Blank Slate: the modern denial of human nature' is highly recommended preparation, even though it is now dated and he has no clue about Wittgenstein, and hence of what can be regarded as the first and best really deep investigation into the foundations of human nature. He seems not to grasp that the Blank Slate is an expression of the cognitive illusions that constitute our mental life.

The common ideas (e.g., the subtitle of one of Pinker's books "The Stuff of Thought: language as a window into human nature") that language is a window on or some sort of translation of our thinking or even (Fodor) that there must be some other "Language of Thought" of which it is a translation, were rejected by W, who tried to show, with hundreds of continually reanalyzed perspicuous examples of language in action, that language is the best picture we can ever get of thinking, the mind and human nature, and his whole corpus can be regarded as the development of this idea. He rejected the idea that the Bottom Up approaches of physiology, psychology and computation could reveal what his Top Down deconstructions of Language Games (LG's) did. The difficulties he noted are to understand what is always in front of our eyes and to capture vagueness ("The greatest difficulty in these investigations is to find a way of representing vagueness" LWPP1, 347). And so, speech (i.e., oral muscle contractions, the principal way we can interact) is not a window into the mind but is the mind itself, which is expressed by acoustic blasts about past, present and future acts (i.e., our speech using the later evolved Secondary Language Games (SLG's) of the Second Self--the dispositions --imagining, knowing, meaning, believing, intending etc.). Some of W's favorite topics in his later second and his third periods are the interdigitating mechanisms of fast and slow thinking (system 1 and 2), the irrelevance of our mental life to the functioning of language and the impossibility of private language. The bedrock of our behavior is our involuntary, system 1, fast thinking, true only, mental states- our perceptions and memories and involuntary acts, while the evolutionarily later SLG's are descriptions of voluntary, system 2, slow thinking, testable true or false dispositional (and often counterfactual) imagining, supposing, intending,

thinking, knowing, believing etc. He recognized that ‘Nothing is Hidden’ — i.e., our whole psychology and all the answers to all philosophical questions are here in our language (our life) and that the difficulty is not to find the answers but to recognize them as always here in front of us—we just have to stop trying to look deeper (e.g., “The greatest danger here is wanting observe oneself” LWPP1, 459).

W makes these points throughout his works in countless examples and again his whole corpus can be regarded as the effort to make this clear. After all, what exactly is the alternative? W showed over and over that standard ways of describing behavior (i.e., most of philosophy, and much of descriptive psychology, anthropology, sociology, economics, etc.) are either demonstrably false or incoherent. Once we understand W, we realize the absurdity of regarding “language philosophy” as a separate study apart from other areas of behavior, since language is just another name for the mind. And, when W says (as he does many times) that understanding behavior is in no way dependent on the progress of psychology (e.g., his oft-quoted assertion “The confusion and barrenness of psychology is not to be explained by calling it a ‘young science’ --but cf. another comment that I have never seen quoted “Is scientific progress useful to philosophy? Certainly. The realities that are discovered lighten the philosophers task. Imagining possibilities.” (LWPP1, 807). So, he is not legislating the boundaries of science but pointing out the fact that our behavior (mostly speech) is the clearest picture possible of our psychology. FMRI, PET, TCMS, iRNA, computational analogs, AI and all the rest are fascinating and powerful ways to extend our innate axiomatic psychology, but all they can do is provide the physical basis for our behavior, facilitate our analysis of language games, and extend our EP, which remains unchanged (unless genetic engineering is unleashed to change our EP—but then it won’t be us anymore). The true-only axioms of “On Certainty” are W’s (and later Searle’s) “bedrock” or “background”, which we now call evolutionary psychology (EP), and which is traceable to the automated true-only reactions of bacteria, which evolved and operates by the mechanism of inclusive fitness (IF). See the recent works of Trivers and others for a popular intro to IF or Bourke’s superb “Principles of Social Evolution” for a pro intro.

“Thought is surrounded by a halo. Its essence, logic, presents an order, in fact the *a priori* order of the world: that is the order of possibilities, which must be common to both world and thought. But this order, it seems, must be utterly simple. It is prior to all experience, must run through all experience; no empirical cloudiness or uncertainty can be allowed to affect it. It must rather be of the purest crystal. But this crystal does not appear as an abstraction; but as something concrete, indeed, as the most concrete, as it were, the hardest thing there is. (TLP # 5, 5563,

PI 97)."

"There is a kind of general disease of thinking which always looks for (and finds) what would be called a mental state from which all our acts spring, as from a reservoir." BBB p143

"And the mistake which we here and in a thousand similar cases are inclined to make is labeled by the word "to make" as we have used it in the sentence "It is no act of insight which makes us use the rule as we do", because there is an idea that "something must make us" do what we do. And this again joins onto the confusion between cause and reason. *We need have no reason to follow the rule as we do.* The chain of reasons has an end." BBB p143

Beginning with their innate true-only, nonempirical (nontestable) responses to the world, animals extend their axiomatic understanding via deductions into further true only understandings ("theorems" as we might call them, but of course, like many words, this is a complex language game even in the context of mathematics). Tyrannosaurs and mesons become as unchallengeable as the existence of our two hands or our breathing. This totally changes one's view of human nature. Theory of Mind (TOM) is not a theory at all but a group of true-only Understandings of Agency (UA a term I devised 10 years ago) which newborn animals (including flies and worms if UA is suitably defined) have and subsequently extend greatly (in higher eukaryotes). Likewise, the Theory of Evolution ceased to be a theory for any normal, rational, intelligent person before the end of the 19th century and for Darwin at least half a century earlier. One cannot help but incorporate T. rex and all that is relevant to it into our innate background via the inexorable workings of EP. Once one gets the logical (psychological) necessity of this it is truly stupefying that even the brightest and the best seem not to grasp this most basic fact of human life (with a tip of the hat to Kant, Searle and a few others). And incidentally, the equation of logic and our axiomatic psychology is essential to understanding W and human nature (as DMS, but afaik nobody else, points out).

So, most of our shared public experience (culture) becomes a true-only extension of our axiomatic EP and cannot be found mistaken without threatening our sanity. A corollary, nicely explained by DMS and elucidated in his own unique manner by Searle, is that the skeptical view of the world and other minds (and a mountain of other nonsense) cannot really get a foothold, as "reality" is the result of involuntary fast thinking axioms and not testable propositional attitudes.

It is clear to me that the innate true-only axioms W is occupied with throughout his work, and almost exclusively in OC, are equivalent to the fast thinking or System One that is at the center of current research (e.g., see Kahneman--

"Thinking Fast and Slow", but he has no idea W laid out the framework over 50 years ago), which is involuntary and unconscious and which corresponds to the mental states of perception, emotion and memory, as W notes over and over. One might call these "intracerebral reflexes" (maybe 99% of all our cerebration if measured by energy use in the brain). Our slow or reflective, more or less "conscious" (beware another network of language games!) second-self brain activity corresponds to what W characterized as "dispositions" or "inclinations", which refer to abilities or possible actions, are not mental states, and do not have any definite time of occurrence. But disposition words like "knowing", "understanding", "thinking", "believing", which W discussed extensively.

Disposition words have at least two basic uses. One is a peculiar philosophical use (but graduating into everyday uses) which refers to the true-only sentences resulting from direct perceptions and memory, i.e., our innate axiomatic S1 psychology ('I know these are my hands')--i.e., they are Causally Self Reflexive (CSR)-(called reflexive or intransitive in BBB), and the S2 use, which is their normal use as dispositions, which can be acted out, and which can become true or false ('I know my way home')--i.e., they have Conditions of Satisfaction (COS) and are not CSR (called transitive in BBB). The equation of these terms and much else here is my idea so don't expect to find it in the literature.

The investigation of involuntary fast thinking has revolutionized psychology, economics (e.g., Kahneman's Nobel prize) and other disciplines under names like "cognitive illusions", "priming", "framing", "heuristics" and "biases".

Of course, these too are language games, so there will be more and less useful ways to use these words, and studies and discussions will vary from "pure" System One to combinations of One and Two (the norm as W made clear), but presumably not ever of slow System Two dispositional thinking only, since any thought or intentional action cannot occur without involving much of the intricate network of the "cognitive modules", "inference engines", "intracerebral reflexes", "automatisms", "cognitive axioms", "background" or "bedrock" (as W and later Searle call our EP).

Another point made countless times by W was that our conscious mental life is epiphenomenal in the sense that it does not describe nor determine how we act (speak). It is an obvious corollary of his descriptive psychology that it is the unconscious automatisms of System 1 that dominate and describe behavior and that the later evolved conscious dispositions (thinking, remembering, loving, desiring, regretting etc.) are mere icing on the cake. This is most strikingly borne out by the latest experimental psychology, which is nicely summarized by Kahneman in the book cited (see e.g., the chapter 'Two Selves', but of course there is a huge volume of recent work he does not cite). It is an easily defensible view

that the generalities of most of the burgeoning literature on cognitive illusions is wholly compatible with and straightforwardly deducible from W.

It follows both from W's 3rd period work and from contemporary psychology, that 'will', 'self' and 'consciousness' are axiomatic true-only elements of S1 composed of perceptions and reflexes., and there is no possibility (intelligibility) of demonstrating (of giving sense to) their falsehood. As W made clear numerous times, they are the basis for judgment and so cannot be judged. The true-only axioms of our psychology are not evidential.

Evolution by inclusive fitness has programmed the unconscious rapid reflexive causal actions of S1 which often give rise to the conscious slow thinking of S2 (often modified into the cultural extensions), which produces reasons for action that often result in activation of body and/or speech muscles by S1 causing actions. The general mechanism is via both neurotransmission and by changes in neuromodulators in targeted areas of the brain. The overall cognitive illusion (called by S 'The Phenomenological Illusion', by Pinker 'The Blank Slate' and by Tooby and Cosmides 'The Standard Social Science Model') is that S2 has generated the action consciously for reasons of which we are fully aware and in control of, but anyone familiar with modern biology and psychology can see that this view is not credible.

A sentence expresses a thought (has a meaning), when it has clear COS, i.e., public truth conditions. Hence the comment from W: " When I think in language, there aren't 'meanings' going through my mind in addition to the verbal expressions: the language is itself the vehicle of thought." And, if I think with or without words, the thought is whatever I (honestly) say it is as there is no other possible criterion (COS). Thus, W's lovely aphorisms (p132 Budd) "It is in language that wish and fulfillment meet" and "Like everything metaphysical, the harmony between thought and reality is to be found in the grammar of the language." And one might note here that 'grammar' in W can usually be translated as EP and that in spite of his frequent warnings against theorizing and generalizing, this is about as broad a characterization of higher order descriptive psychology (philosophy) as one can find.

Though W is correct that there is no mental state that constitutes meaning, S notes that there is a general way to characterize the act of meaning-- "Speaker meaning... is the imposition of conditions of satisfaction on conditions of satisfaction" which means to speak or write a well-formed sentence expressing COS in a context that can be true or false and this is an act and not a mental state. Hence, the famous quote from W: "If God had looked into our minds he would not have been able to

see there whom we were speaking of (PI p217)" and his comments that the whole problem of representation is contained in "that's Him" and "...what gives the image its interpretation is the path on which it lies," or as S says its COS. Hence W's summation (p140 Budd) that "What it always comes to in the end is that without any further meaning, he calls what happened the wish that that should happen"..." the question whether I know what I wish before my wish is fulfilled cannot arise at all. And the fact that some event stops my wishing does not mean that it fulfills it. Perhaps I should not have been satisfied if my wish had been satisfied"...Suppose it were asked 'Do I know what I long for before I get it? If I have learned to talk, then I do know.'

W can also be regarded as a pioneer in evolutionary cognitive linguistics—the Top Down analysis of the mind and its evolution via the careful analysis of examples of language use in context, exposing the many varieties of language games and the relationships between the primary games of true-only unconscious, axiomatic fast thinking of perception, memory and reflexive emotions and acts (often described as the subcortical and primitive cortical reptilian brain first-self functions), and the later evolved higher cortical dispositional conscious abilities of believing, knowing, thinking etc. that constitute the true or false propositional secondary language games of slow thinking that include the network of cognitive illusions that constitute the basis of our second-self personality. He dissects hundreds of language games showing how the true-only perceptions, memories and reflexive actions of system one (S1) grade into the thinking, remembering, and understanding of system two (S2) dispositions, and many of his examples also address the nature/nurture issue explicitly. With this evolutionary perspective, his later works are a breathtaking revelation of human nature that is entirely current and has never been equaled. Many perspectives have heuristic value, but I find that this evolutionary two systems view is the best. To paraphrase Dobzhansky's famous comment: "Nothing in philosophy makes sense except in the light of evolutionary psychology."

"The more narrowly we examine actual language, the sharper becomes the conflict between it and our requirement. (For the crystalline purity of logic was, of course, not a result of investigation: it was a requirement.)" PI p107

"Here we come up against a remarkable and characteristic phenomenon in philosophical investigation: the difficulty---I might say---is not that of finding the solution but rather that of recognizing as the solution something that looks as if it were only a preliminary to it. We have already said everything. --- Not anything that follows from this, no this itself is the solution! This is connected, I believe, with our wrongly expecting an explanation, whereas the solution of the difficulty is a description, if we give it the right place in our considerations. If we dwell

upon it, and do not try to get beyond it.” Zettel p312-314

“Our method is *purely descriptive*, the descriptions we give are not hints of explanations.” BBB p125

“For the clarity that we are aiming at is indeed *complete* clarity. But this simply means that the philosophical problems should *completely* disappear.” PI p133

One of W’s recurring themes was TOM, or as I prefer UA (Understanding of Agency). Ian Apperly, who is carefully analyzing UA1 and UA2 (i.e., UA of S1 and S2) in experiments, has recently become aware of Hutto, who has characterized UA1 as a fantasy (i.e., no ‘Theory’ nor representation involved in UA1—that being reserved for UA2— see my review of his book with Myin). However, like other psychologists, Apperly has no idea W laid the groundwork for this 80 years ago. It is an easily defensible view that the core of the burgeoning literature on cognitive illusions, automatisms and higher order thought is compatible with and straightforwardly deducible from W. In spite of the fact that most of the above has been known to many for decades (and even $\frac{3}{4}$ of a century in the case of some of W’s teachings), I have never seen anything approaching an adequate discussion in behavioral science texts and commonly there is barely a mention.

INTENTIONALITY can be viewed as personality or as the construction of Social Reality (the title of Searle’s well known book) and I will give some perspective.

About a million years ago primates evolved the ability to use their throat muscles to make complex series of noises (i.e., speech) that by about 100,000 years ago had evolved to describe present events (perceptions, memory, reflexive actions with basic utterances that can be described as Primary Language Games (PLG’s) describing System 1—i.e., the fast unconscious automated System One, true-only mental states with a precise time and location). We gradually developed the further ability to encompass displacements in space and time to describe memories, attitudes and potential events (the past and future and often counterfactual, conditional or fictional preferences, inclinations or dispositions) with the Secondary Language Games (SLG’s) of System Two- slow conscious true or false propositional attitudinal thinking, which has no precise time and are abilities and not mental states).

Preferences are Intuitions, Tendencies, Automatic Ontological Rules, Behaviors,

Abilities, Cognitive Modules, Personality Traits, Templates, Inference Engines, Inclinations, Emotions, Propositional Attitudes, Appraisals,

capacities, hypotheses. Emotions are Type 2 Preferences (W RPP2 p148). “I believe”, “he loves”, “they think” are descriptions of possible public acts typically displaced in spacetime. My first-person statements about myself are true-only (excluding lying) while third person statements about others are true or false (see my review of Johnston ‘Wittgenstein: Rethinking the Inner’).

“Preferences” as a class of intentional states --opposed to perceptions, reflexive acts and memories-- were first clearly described by Wittgenstein (W) in the 1930’s and termed “inclinations” or “dispositions”. They have commonly been termed “propositional attitudes” since Russell but this is a misleading phrase since believing, intending, knowing, remembering etc., are often not propositions nor attitudes, as has been shown e.g., by W and by Searle (e.g., *Consciousness and Language* p118). They are intrinsic, observer independent mental representations (as opposed to presentations or representations of System 1 to System 2 – Searle-C+L p53). They are potential acts displaced in time or space while the evolutionarily more primitive System One mental states of perceptions memories and reflexive actions are always here and now. This is one way to characterize System 2 and System 3--the second and third major advances in vertebrate psychology after System 1--the ability to represent events and to think of them as occurring in another place or time (Searle’s third faculty of counterfactual imagination supplementing cognition and volition). S1 are potential or unconscious mental states (Searle-- *Phil Issues* 1:45-66(1991)).

Perceptions, memories and reflexive (automatic) actions can be described as S1 or primary LG’s (PLG’s --e.g., I see the dog) and there are, in the normal case, no tests possible, so they can be true-only. Dispositions can be described as secondary LG’s (SLG’s --e.g. I believe I see the dog) and must also be acted out, even for me in my own case (i.e., how do I *know* what I believe, think, feel until I act). Dispositions also become Actions when spoken or written as well as being acted out in other ways, and these ideas are all due to Wittgenstein (mid 1930’s) and are not Behaviorism (Hintikka & Hintikka 1981, Searle, Hutto, Read, Hacker etc.,). Wittgenstein can be regarded as the founder of evolutionary psychology, contextualism, enactivism, and the two systems framework, and his work a unique investigation of the functioning of our axiomatic System 1 psychology and its interaction with System 2. Though few have understood it well (and arguably

nobody fully to this day) it was further developed by a few --above all by John Searle, who made a simpler version of the table below in his classic book *Rationality in Action* (2001). It expands on W's survey of the axiomatic structure of evolutionary psychology developed from his very first comments in 1911 and so beautifully laid out in his last work *On Certainty* (OC) (written in 1950-51). OC is the foundation stone of behavior or epistemology and ontology (arguably the same), cognitive linguistics or the logical structure of Higher Order Thought (HOT), and in my view the single most important work in philosophy (descriptive psychology), and thus in the study of behavior. See my article *The Logical Structure of Philosophy, Psychology, Mind and Language as Revealed in Wittgenstein and Searle* (2016) and the recent work of Daniele Moyal-Sharrock.

Perception, Memory, Reflexive actions and Emotion are primitive partly Subcortical Involuntary Mental States, described in PLG's, in which the mind automatically fits the world (is Causally Self Referential--Searle) --the unquestionable, true-only, axiomatic basis of rationality over which no control is possible). Emotions evolved to make a bridge between desires or intentions and actions. Preferences, Desires, and Intentions are descriptions of slow thinking conscious Voluntary Abilities--described in SLG's-- in which the mind tries to fit the world.

Behaviorism and all the other confusions of our default descriptive psychology (philosophy) arise because we cannot see S1 working and describe all actions as SLG's (The Phenomenological Illusion or TPI of Searle). W understood this and described it with unequalled clarity with hundreds of examples of language (the mind) in action throughout his works. Reason has access to working memory and so we use consciously apparent but typically incorrect reasons to explain behavior (the Two Selves of current research). Beliefs and other Dispositions are thoughts which try to match the facts of the world (mind to world direction of fit), while Volitions are intentions to act (Prior Intentions--PI, or Intentions In Action-IAA-Searle) plus acts which try to match the world to the thoughts--world to mind direction of fit--cf. Searle e.g., C+L p145, p190).

Now that we have a reasonable start on the Logical Structure of Rationality (the Descriptive Psychology of Higher Order Thought) laid out we can look at the table of Intentionality that results from this work, which I have constructed over the last few years. It is based on a much simpler one from Searle, which in turn owes much to Wittgenstein. I have also incorporated in modified form tables being used by current researchers in the psychology of thinking processes which are evidenced

in the last 9 rows. It should prove interesting to compare it with those in Peter Hacker's 3 recent volumes on Human Nature. I offer this table as an heuristic for describing behavior that I find more complete and useful than any other framework I have seen and not as a final or complete analysis, which would have to be three dimensional with hundreds (at least) of arrows going in many directions with many (perhaps all) pathways between S1 and S2 being bidirectional. Also, the very distinction between S1 and S2, cognition and willing, perception and memory, between feeling, knowing, believing and expecting etc. are arbitrary--that is, as W demonstrated, all words are contextually sensitive and most have several utterly different uses (meanings or COS).

In accord with W's work and Searle's terminology, I categorize the representations of S2 as public Conditions of Satisfaction (COS) and in this sense S1 such as perceptions do not have COS. In other writings S says they do but as noted in my other reviews I think it is then essential to refer to COS1 (private presentations) and COS2 (public representations). To repeat this critical distinction, public Conditions of Satisfaction of S2 are often referred to by Searle and others as COS, Representations, truthmakers or meanings (or COS2 by myself), while the automatic results of S1 are designated as presentations by others (or COS1 by myself).

Likewise, I have changed his 'Direction of Fit' to 'Cause Originates From' and his 'Direction of Causation' to 'Causes Changes In'. System 1 is involuntary, reflexive or automated "Rules" R1 while Thinking (Cognition) has no gaps and is voluntary or deliberative "Rules" R2 and Willing (Volition) has 3 gaps (see Searle).

I suggest we can describe behavior more clearly by changing Searle's "impose conditions of satisfaction on conditions of satisfaction" to "relate mental states to the world by moving muscles" —i.e., talking, writing and doing, and his "mind to world direction of fit" and "world to mind direction of fit" by "cause originates in the mind" and "cause originates in the world" S1 is only upwardly causal (world to mind) and contentless (lacking representations or information) while S2 has content and is downwardly causal (mind to world). I have adopted my terminology in this table.

Many complex charts have been published by scientists but I find them of minimal utility when thinking about behavior (as opposed to thinking about brain function). Each level of description may be useful in certain contexts but I find that being coarser or finer limits usefulness.

The Logical Structure of Rationality (LSR), or the Logical Structure of Mind

(LSM), the Logical Structure of Behavior (LSB), the Logical Structure of Thought (LST), the Logical Structure of Consciousness (LSC), the Logical Structure of Personality (LSP), the Descriptive Psychology of Consciousness (DSC), the Descriptive Psychology of Higher Order Thought (DPHOT), Intentionality-the classical philosophical term.

	Disposition*	Emotion	Memory	Perception	Desire	PI**	IA***	Action/ Word
Cause Originates From****	World	World	World	World	Mind	Mind	Mind	Mind
Causes Changes In*****	None	Mind	Mind	Mind	None	World	World	World
Causally Self Reflexive*****	No	Yes	Yes	Yes	No	Yes	Yes	Yes
True or False (Testable)	Yes	T only	T only	T only	Yes	Yes	Yes	Yes
Public Conditions of Satisfaction	Yes	Yes/No	Yes/No	No	Yes/No	Yes	No	Yes
Describe A Mental State	No	Yes	Yes	Yes	No	No	Yes/No	Yes
Evolutionary Priority	5	4	2,3	1	5	3	2	2
Voluntary Content	Yes	No	No	No	No	Yes	Yes	Yes
Voluntary Initiation	Yes/No	No	Yes	No	Yes/No	Yes	Yes	Yes
Cognitive System *****	2	1	2/1	1	2 / 1	2	1	2
Change Intensity	No	Yes	Yes	Yes	Yes	No	No	No
Precise Duration	No	Yes	Yes	Yes	No	No	Yes	Yes
Time, Place (H+N, T+T) *****	TT	HN	HN	HN	TT	TT	HN	HN
Special Quality	No	Yes	No	Yes	No	No	No	No
Localized in Body	No	No	No	Yes	No	No	No	Yes
Bodily Expressions	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Self Contradictions	No	Yes	No	No	Yes	No	No	No
Needs a Self	Yes	Yes/No	No	No	Yes	No	No	No
Needs Language	Yes	No	No	No	No	No	No	Yes/No

FROM DECISION RESEARCH

	Disposition*	Emotion	Memory	Perception	Desire	PI**	IA***	Action/ Word
Subliminal Effects	No	Yes/No	Yes	Yes	No	No	No	Yes/No
Associative/Rule Based	RB	A/RB	A	A	A/RB	RB	RB	RB
Context Dependent/ Abstract	A	CD/A	CD	CD	CD/A	A	CD/A	CD/A
Serial/Parallel	S	S/P	P	P	S/P	S	S	S
Heuristic/ Analytic	A	H/A	H	H	H/A	A	A	A
Needs Working Memory	Yes	No	No	No	No	Yes	Yes	Yes
General Intelligence Dependent	Yes	No	No	No	Yes/No	Yes	Yes	Yes
Cognitive Loading Inhibits	Yes	Yes/No	No	No	Yes	Yes	Yes	Yes
Arousal Facilitates or Inhibits	I	F/I	F	F	I	I	I	I

* Aka Inclinations, Capabilities, Preferences, Representations, possible actionsetc.

** Searle's Prior Intentions

*** Searle's Intention In Action

**** Searle's Direction of Fit

***** Searle's Direction of Causation

***** (Mental State instantiates--Causes or Fulfills Itself). Searle formerly called this causally self-referential.

***** Tversky/Kahneman/Frederick/Evans/Stanovich defined cognitive systems.

***** Here and Now or There and Then

One should always keep in mind Wittgenstein's discovery that after we have described the possible uses (meanings, truthmakers, Conditions of Satisfaction) of language in a particular context, we have exhausted its interest, and attempts at

explanation (i.e., philosophy) only get us further away from the truth. It is critical to note that this table is only a highly simplified context-free heuristic and each use of a word must be examined in its context. The best examination of context variation is in Peter Hacker's recent 3 volumes on Human Nature, which provide numerous tables and charts that should be compared with this one.

EXPLANATION OF THE TABLE System 1 (i.e., emotions, memory, perceptions, reflexes) which parts of the brain *present* to consciousness, are automated and generally happening in less than 500msec, while System 2 are abilities to perform slow deliberative actions that are *represented* in consciousness (S2D-my terminology) requiring over 500msec, but frequently repeated S2 actions can also become automated (S2A-my terminology). There is a gradation of consciousness from coma through the stages of sleep to full awareness. Memory includes short term memory (working memory) of system 2 and long term memory of System 1. For volitions one would usually say they are successful or not, rather than T or F.

Of course, the various rows and columns are logically and psychologically connected. E.G., Emotion, Memory and Perception in the True or False row will be True only, will describe a mental state, belong to cognitive system 1, will not generally be initiated voluntarily, are causally self-reflexive, cause originates in the world and causes changes in the mind, have a precise duration, change in intensity, occur here and now, commonly have a special quality, do not need language, are independent of general intelligence and working memory, are not inhibited by cognitive loading, will not have voluntary content, and will not have public conditions of satisfaction etc.

There will always be ambiguities because the words cannot precisely match the actual complex functions of the brain (behavior), that is, there is a combinatorial explosion of contexts (in sentences and in the world), and this is why it's not possible to reduce higher order behavior to a system of laws which would have to state all the possible contexts –hence Wittgenstein's warnings against theories.

About a million years ago primates evolved the ability to use their throat muscles to make complex series of noises (i.e., primitive speech) to describe present events (perceptions, memory, reflexive actions and some Primary or Primitive Language Games (PLG's). System 1 is comprised of fast, automated, subcortical,

nonrepresentational, causally self-referential, intransitive, informationless, true-only mental states with a precise time and location) and over time there evolved in higher cortical S2 with the further ability to describe displacements in space and time (conditionals, hypotheticals or fictionals) of potential events (the past and future and often counterfactual, conditional or fictional preferences, inclinations or dispositions-the Secondary or Sophisticated Language Games (SLG's) of System 2 slow, cortical, conscious, information containing, transitive(having public Conditions of Satisfaction-Searle's term for truthmakers or meaning which I divide into COS1 and COS2 for private S1 and public S2), representational—which I again divide into R1 for S1 representations and R2 for S2) , true or false propositional attitudinal thinking, with all S2 functions having no precise time and being abilities and not mental states. Preferences are Intuitions, Tendencies, Automatic Ontological Rules, Behaviors, Abilities, Cognitive Modules, Personality Traits, Templates, Inference Engines, Inclinations, Emotions, Propositional Attitudes, Appraisals, Capacities, Hypotheses. Some Emotions are slowly developing and changing results of S2 dispositions (W RPP2 148) while others are typical S1 –fast and automatic to appear and disappear. “I believe”, “he loves”, “they think” are descriptions of possible public acts typically displaced in spacetime. My first-person statements about myself are true-only (excluding lying) –i.e. S1, while third person statements about others are true or false –i.e., S2 (see my reviews of Johnston ‘Wittgenstein: Rethinking the Inner’ and of Budd ‘Wittgenstein's Philosophy of Psychology’).

“Preferences” as a class of intentional states --opposed to perceptions, reflexive acts and memories-- were first clearly described by Wittgenstein (W) in the 1930's and termed “inclinations” or “dispositions”. They have commonly been termed “propositional attitudes” since Russell but this is a misleading phrase since believing, intending, knowing, remembering etc., are often not propositions nor attitudes, as has been shown e.g., by W and by Searle (e.g., cf *Consciousness and Language* p118). They are intrinsic, observer independent public representations (as opposed to presentations or representations of System 1 to System 2 – Searle-C+L p53).

They are potential acts displaced in time or space while the evolutionarily more primitive S1 perceptions memories and reflexive actions are always here and now. This is one way to characterize System 2 -the second major advance in vertebrate psychology after System 1 –the ability to represent events and to think of them as occurring in another place or time (Searle's third faculty of counterfactual imagination supplementing cognition and volition). S1 ‘thoughts’ are potential or

unconscious mental states of S1 --Searle-- Phil Issues 1:45-66(1991).

Perceptions, memories and reflexive (automatic) actions can be described as S1 or primary LG's (PLG's --e.g., I see the dog) and there are, in the normal case, NO TESTS possible so they can be True Only. Dispositions can be described as secondary LG's (SLG's --e.g. I believe I see the dog) and must also be acted out, even for me in my own case (i.e., how do I KNOW what I believe, think, feel until I act or some event occurs—see my reviews of Johnston 'Wittgenstein: Rethinking the Inner' and Budd 'Wittgenstein's Philosophy of Psychology'). Note well that Dispositions also become Actions when spoken or written as well as being acted out in other ways, and these ideas are all due to Wittgenstein (mid 1930's) and are NOT Behaviorism (Hintikka & Hintikka 1981, Searle, Hacker, Hutto etc.). Wittgenstein can be regarded as the founder of evolutionary psychology and his work a unique investigation of the functioning of our axiomatic System 1 psychology and its interaction with System 2. After Wittgenstein laid the groundwork for the Descriptive Psychology of Higher Order Thought in the Blue and Brown Books in the early 30's, it was extended by John Searle, who made a simpler version of this table in his classic book *Rationality in Action* (2001). It expands on W's survey of the axiomatic structure of evolutionary psychology developed from his very first comments in 1911 and so beautifully laid out in his last work *On Certainty* (OC) (written in 1950-51). OC is the foundation stone of behavior or epistemology and ontology (arguably the same), cognitive linguistics or Higher Order Thought, and in my view the single most important work in philosophy (descriptive psychology) and thus in the study of behavior. Perception, Memory, Reflexive actions and Emotion are primitive partly Subcortical Involuntary Mental States, that can be described in PLG's, in which the mind automatically fits the world (is Causally Self Reflexive-- Searle) --the unquestionable, true only, axiomatic basis of rationality over which no control is possible). Preferences, Desires, and Intentions are descriptions of slow thinking conscious Voluntary Abilities—that can be described in SLG's-- in which the mind tries to fit the world. Behaviorism and all the other confusions of our default descriptive psychology (philosophy) arise because we cannot see S1 working and describe all actions as SLG's (The Phenomenological Illusion—TPI—Searle). W understood this and described it with unequalled clarity with hundreds of examples of language (the mind) in action throughout his works. Reason has access to memory and so we use consciously apparent but often incorrect reasons to explain behavior (the Two Selves or Systems or Processes of current research). Beliefs and other Dispositions can be described as thoughts which try to match the facts of the world (mind to world direction of fit), while Volitions are intentions to act (Prior Intentions—PI, or Intentions In Action--IAA--Searle) plus acts which try

to match the world to the thoughts—world to mind direction of fit— cf. Searle e.g., C+L p145, 190).

Sometimes there are gaps in reasoning to arrive at belief and other dispositions. Disposition words can be used as nouns which seem to describe mental states ('my thought is...') or as verbs or adjectives to describe abilities (agents as they act or might act -'I think that...') and are often incorrectly called "Propositional Attitudes".

Perceptions become Memories and our innate programs (cognitive modules, templates, inference engines of S1) use these to produce Dispositions — (believing, knowing, understanding, thinking, etc., -actual or potential PUBLIC ACTS (language, thought, mind) also called Inclinations, Preferences, Capabilities, Representations of S2) and Volition -and there is no language (concept, thought) of PRIVATE mental states for thinking or willing (i.e., no private language, thought or mind). Higher animals can think and will acts and to that extent they have a public psychology.

PERCEPTIONS: ("X" is True): Hear, See, Smell, Pain, Touch, temperature

MEMORIES: Remembering, Dreaming?

PREFERENCES, INCLINATIONS, DISPOSITIONS: (X might become True):

CLASS 1: Propositional (True or False) public acts of Believing, Judging, Thinking, Representing, Understanding, Choosing, Deciding, Preferring, Interpreting, Knowing (including skills and abilities), Attending (Learning), Experiencing, Meaning, Remembering, Intending, Considering, Desiring, expecting, wishing, wanting, hoping (a special class), Seeing As (Aspects),

CLASS 2: DECOUPLED MODE-(as if, conditional, hypothetical, fictional) - Dreaming , Imagining, Lying, Predicting, Doubting

CLASS 3: EMOTIONS: Loving, Hating, Fearing, Sorrow, Joy, Jealousy, Depression. Their function is to modulate Preferences to increase inclusive fitness (expected maximum utility) by facilitating information processing of perceptions and memories for rapid action. There is some separation between S1 emotions such as rage and fear and S2 such as love, hate, disgust and anger.

DESIRES: (I want "X" to be True—I want to change the world to fit my thoughts): Longing, Hoping, Expecting, Awaiting, Needing, Requiring, obliged to do

INTENTIONS: (I will make "X" True) Intending

ACTIONS (I am making "X" True) : Acting, Speaking , Reading, Writing,

Calculating, Persuading, Showing, Demonstrating, Convincing, Doing Trying, Attempting, Laughing, Playing, Eating, Drinking, Crying, Asserting(describing, teaching, predicting, reporting), Promising , Making or Using Maps, Books, Drawings, Computer Programs--these are Public and Voluntary and transfer Information to others so they dominate over the Unconscious, Involuntary and Informationless S1 reflexes in explanations of behavior.

WORDS EXPRESS POTENTIAL ACTIONS HAVING VARIOUS FUNCTIONS IN OUR LIFE AND ARE NOT THE NAMES OF OBJECTS NOR OF A SINGLE TYPE OF EVENT.

The social interactions of humans are governed by cognitive modules—roughly equivalent to the scripts or schemata of social psychology (groups of neurons organized into inference engines), which, with perceptions and memories, lead to the formation of preferences which lead to intentions and then to actions. Intentionality or intentional psychology can be taken to be all these processes or only preferences leading to actions and in the broader sense is the subject of cognitive psychology or cognitive neurosciences when including neurophysiology, neurochemistry and neurogenetics. Evolutionary psychology can be regarded as the study of all the preceding functions or of the operation of the modules which produce behavior, and is then coextensive in evolution, development and individual action with preferences, intentions and actions. Since the axioms (algorithms or cognitive modules) of our psychology are in our genes, we can enlarge our understanding by giving clear descriptions of how they work and can extend them (culture) via biology, psychology, philosophy (descriptive psychology), math, logic, physics, and computer programs, thus making them faster and more efficient. Hajek (2003) gives an analysis of dispositions as conditional probabilities which are algorithmatized by Rott (1999), Spohn etc.

Intentionality (cognitive or evolutionary psychology) consists of various aspects of behavior which are innately programmed into cognitive modules which create and require consciousness, will and self and in normal human adults nearly all except perceptions and some memories are purposive, require public acts (e.g., language), and commit us to relationships in order to increase our inclusive fitness (maximum expected utility--Bayesian utility maximization but Bayesianism is highly questionable) via dominance and reciprocal altruism (Desire Independent Reasons for Action-Searle- which I divide into DIRA1 and DIRA2 for S1 and S2) and impose Conditions of Satisfaction on Conditions of Satisfaction -Searle-(i.e., relate thoughts to the world via public acts (muscle movements --i.e., math, language, art, music, sex, sports etc.). The basics of this were figured out by our greatest natural psychologist Ludwig Wittgenstein from the 1930's to 1951 but with clear

foreshadowings back to 1911, and with refinements by many, but above all by John Searle beginning in the 1960's. "The general tree of psychological phenomena. I strive not for exactness but for a view of the whole." RPP Vol 1 p895 cf. Z p464. Much of intentionality (i.e., of our language games) admits of degrees. As W noted, inclinations are sometimes conscious and deliberative. All our templates (functions, concepts, language games) have fuzzy edges in some contexts as they must to be useful. There are at least two types of thinking (i.e., two language games or ways of using the dispositional verb "thinking")—nonrational without awareness and rational with partial awareness(W), now described as the fast and slow thinking of S1 and S2. It is useful to regard these as language games and not as mere phenomena (W RPP Vol2 p129). Mental phenomena (our subjective or internal "experiences") are epiphenomenal, lack criteria, hence lack info even for oneself and thus can play no role in communication, thinking or mind. Thinking like all dispositions (inclinations, propositional attitudes) lacks any test, is not a mental state (unlike perceptions of S1), and contains no information until it becomes a public act in speech, writing or other muscular contractions. Our perceptions and memories can have information (meaning-i.e., a public COS) only when they are manifested in public actions, for only then do thinking, feeling etc. have any meaning (consequences) even for ourselves.

(Memory and perception are integrated by modules into dispositions which become psychologically effective when they are acted upon). Developing language means manifesting the innate ability to substitute words for acts. TOM (Theory of Mind) is much better called UA-Understanding of Agency –my term-and UA1 and UA2 for such functions in S1 and S2) –and can also be called Evolutionary Psychology or Intentionality--the innate genetically programmed production of consciousness, self, and thought which leads to intentions and then to actions by contracting muscles. Thus, "propositional attitude" is a confusing term for normal intuitive rational S2D or non-rational automated S2A speech and action. We see that the efforts of cognitive science to understand thinking, emotions etc. by studying neurophysiology is not going to tell us anything more about how the mind (thought, language) works (as opposed to how the BRAIN works) than we already know, because "mind" (thought, language) is already in full public view (W). Any phenomena that are hidden in neurophysiology, biochemistry, genetics, quantum mechanics, or string theory, are as irrelevant to our social life as the fact that a table is composed of atoms which "obey" (can be described by) the laws of physics and chemistry is to having lunch on it. As W so famously said "Nothing is hidden". Everything of interest about the mind (thought, language) is open to view if we only examine carefully the workings of language. Language (mind, public speech connected to potential actions) was evolved to facilitate social interaction and thus

the gathering of resources, survival and reproduction. Its grammar (i.e., evolutionary psychology, intentionality) functions automatically and is extremely confusing when we try to analyze it. Words and sentences have multiple uses depending on context. I believe and I eat have profoundly different roles as do I believe and I believed or I believe and he believes. The present tense first person expressive use of inclinational verbs such as "I believe" describe my ability to predict my probable acts and are not descriptive of my mental state nor based on knowledge or information in the usual sense of those words (W). It does not describe a truth but makes itself true in the act of saying it --i.e., "I believe it's raining" makes itself true. That is, disposition verbs used in first person present tense are causally self-referential--they instantiate themselves but as descriptions of possible states they are not testable (i.e., not T or F). However past or future tense or third person use--"I believed" or "he believes" or "he will believe" contain information that is true or false as they describe public acts that are or can become verifiable. Likewise, "I believe it's raining" has no information apart from subsequent actions, even for me, but "I believe it will rain" or "he will think it's raining" are potentially verifiable public acts displaced in spacetime that intend to convey information (or misinformation).

Nonreflective or Non-rational (automatic) words spoken without Prior Intent (which I call S2A--i.e., S2D automated by practice) have been called Words as Deeds by W & then by Daniel Moyal-Sharrock in her paper in *Philosophical Psychology* in 2000) Many so-called Inclinations/Dispositions/Preferences/Tendencies/Capacities/Abilities are Non-Propositional (Non-Reflective) Attitudes (far more useful to call them functions or abilities) of System 1 (Tversky and Kahneman). Prior Intentions are stated by Searle to be Mental States and hence S1 but again I think one must separate PI1 and PI2 since in our normal language our prior intentions are the conscious deliberations of S2. Perceptions, Memories, type 2 Dispositions (e.g., some emotions) and many Type 1 Dispositions are better called Reflexes of S1 and are automatic, nonreflective, NON-Propositional and NON-Attitudinal functioning of the hinges (axioms, algorithms) of our Evolutionary Psychology (Moyal-Sharrock after Wittgenstein).

Some of the leading exponents of W's ideas whom I consider essential reading for an understanding of the descriptive psychology of higher order thought are Hutto, DMS, Stern, Finkelstein, Moyal-Sharrock and Read who, unlike many scholars, have posted most of their work free online at www.academia.edu and the leading W scholar PMS Hacker <http://info.sjc.ox.ac.uk/scr/hacker/DownloadPapers.html>.

In OC, as throughout W's works, understanding is bedeviled by possible alternative and consequently often infelicitous translations from often unedited and handwritten German notes, with "Satz" being frequently incorrectly rendered as "proposition" (which is a testable or falsifiable statement) when referring to our non-falsifiable psychological axioms, as opposed to the correct "sentence", which CAN be applied to our axiomatic true-only statements such as "these are my hands" or "Tyrannosaurs were large carnivorous dinosaurs that lived about 50 million years ago".

Finally, let me suggest that with the perspective I have encouraged here, W is at the center of contemporary philosophy and psychology and is not obscure, difficult or irrelevant, but scintillating, profound and crystal clear and that to miss him is to miss one of the greatest intellectual adventures possible.

