Notes on the Inexact Sciences

Suspended Reason[1]

Popular wisdom warns us against premature optimization. And yet, in a quest for public legitimacy and tidy problem domains, many fields discourage vitally necessary descriptive and conceptual work in favor of statistical analysis and laboratory experiments. Topics of unprecedented complexity are tackled using rote, mechanical approaches, by researchers who routinely fail to realize how much linguistic and conceptual clarification is a precondition of headway. Meanwhile, sociological and professional incentives prevent the sorts of synthetic work that might de-provincialize researchers' theories, and initiate exactly those conceptual refactorings which would advance the discipline.

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.

—Wittgenstein, Blue Book

[Ben] Connable characterizes counterinsurgency as "both art and science, but mostly art." That applies to the management of many other complex situations. The tendency is to treat as pure, measurable science what is of necessity largely a matter of art, requiring judgment based on experience.

—Jerry Muller, The Tyranny of Metrics

Epistemic status: Establishing grounding by making a mess

I. Inexactitude & the rigorizing pipeline

All knowledge is about the same thing, which is the workings of the world. And since the workings of the world are bound up in one another—with kinships that result from shared materials, shared dynamics, shared problems, shared ancestry—the knowledge from one subject can be brought to bear on many others. An institution, like a body, like the cells that make up bodies, must preserve its boundaries and maintain homeostasis, must allow information flows while protecting against intruders. "A factory within a

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[1] http://suspendedreason.github.io

fortress," Deborah Gordon calls the ant colony—as if the description did not apply to all organic systems more broadly. The principles of mimicry, free-riding, and frequency-dependent selection that persevere in butterflies apply equally to bank fraud; the field of economics is nothing if not an ecological inquiry. The problems of neural plasticity and annealing, the tradeoff between structure and potential, explore-exploit: these are eternal dynamics of complex, optimizing systems. Sometimes these parallels are dubbed *metaphor*, as one might call "language games" a metaphor—but the line between metaphor and category is purely a conventional one: to say two objects or events are alike *just is* to create a new category.

Our ongoing conversation about these workings occurs simultaneously at many levels of both systematic abstraction—particle, neuron, mind, society—and of precision or literalism. Much of discourse is impossibly vague and imprecise in carving its objects of inquiry or describing their behavior. When such fields attempt to be precise, and hammer out a tractable definition (of say "anger," "causation," or "etiquette"), they end up studying some other, new construct, that is neither anger nor etiquette. When such studies try experimentally to survey and graph the usage of these concepts, to capture their entirety, they become subject to the historical idiosyncrasies which have informed their society's concepts of anger and etiquette—but then attempt to ground these historical constructs in neuroscience, hormones, MRI studies, regions of the brain, as if this construct were one-to-one with biological features. They go looking for "essences" but know not where to look; the abstract nouns they are theoretically interested in prove ever elusive. These "inexact science" fields, which have not yet reached the status of prediction machines, include psychology, sociology, linguistics, and economics..

Still more wild and inexact are fields like art and literature themselves, which work at high levels of abstraction with the thrownness of life, mapping social patterns and psychological archetypes. Art and literary criticism are a gateway realm, discerning demonstrated structures in artistic creations; compressing and analyzing their patterns: Balzac's observations on social relations, Dostoevsky's on the mind, Kafka on institutions, Austen on sense and sensibility, Beckett on language. The use of Shakespeare (*Hamlet*) or Sophocles (*Oedipus*) in psychoanalytic theory is one example of this rigorizing pipeline; René Girard's mimetic structure (inspired by the *Quixote*) a second. Timur Kuran's theory of preference falsification was first exemplified by Hans Christian Andersen's "The Emperor's New Clothes," while Lewis Carroll's writing birthed the red queen hypothesis and the map-territory distinction. (And this is to say nothing of literature's enormous verbal contribution to cognition—the extent to which many social, emotional, and psychological constructs we take for granted are recent coinages. How can one study what one cannot talk about?)

This rigorizing pipeline, from wilderness to structure, vagueness to precision, ends in the zone of "hard" exactitude, the realm of verification and falsifiability. Kevin Scharp describes the role of philosophy—itself on the "wild" end of the inexact sciences—in this rigorizing pipeline:

> For the past 400 years, philosophy has been shrinking. That is a sociological fact. Physics, geology, chemistry, economics, biology, anthropology, sociology, meteorology, psychology, linguistics, computer science, cognitive science—these subject matters were all part of philosophy in 1600. As the scientific revolution ground on, more and more sciences were born. This process is essentially philosophy outsourcing its subject matter as something new—sciences. The process is rather complicated, but the most important part of it is getting straight on the right concepts to use so that the subject matter can be brought under scientific methodology. Ultimately, the radical therapeutic program—showing the fly the way out of the fly bottle—is taking an active role in this outsourcing process. Identify conceptual defects (Socratic idea) and craft new concepts that avoid the old defects (Nietzschean idea) with an eye toward preparing that philosophical subject matter for outsourcing as a science. The ultimate goal of this process is the potential end of philosophy–escape for the fly.
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> —Kevin Scharp, Reddit AMA

This is the idea popular among rationalists that the goal of philosophy should be to kill itself: that philosophy just is the study of the vague and unverifiable, and that its purpose is dealing with this vagueness in order to demystify the subject domain. As a philosophical idea slowly formalizes itself into something truly testable, it has become no longer philosophy, no longer inexact. There are other kinds of philosophy of course—the therapeutic sort exemplified by Stoics and Epicureans; the re-enchantments of William James—but these are of a very different goal than naturalistic or metaphysical inquiries. (The realm of ought instead of is.)

Some disciplines, ashamed by their identity as inexact sciences, embarrassed by living on the wrong side of the tracks, have tried to get ahead of themselves. Tempted by the prestige, authority, and grant money of science, they have tried to skip over stamp-collecting and case study, description and taxonomy, straight to statistics, hypothesis, and lab coat. These disciplines thus become cargo-cults of scientism, bordering on fraudulence. They resemble the state and sophistication of pre-modern medicine while profiting off the real predictive power and insight of the hard sciences through their nominal and institutional association. They confuse idiographic particulars

for nomothetic law, and mistake adaptive, cybernetic processes for global, hard-coded rules, so that a particular situated behavior becomes unquestioned testimony of the subject's essential, underlying "willpower," "alienation," or "extroversion." Hence the simultaneous replication and generalizability crises in psychology.

Instead of humbly staying at the level of "mere" description, these fields have been driven to a theater of science:

> D: The other day Micky you said psychology was all a bit of a show. A show! And you're right! But what the fuck does that say about what we're doing here?
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> M: It's true, the experiments are just performance to the thinking. Sometimes I wonder if I'd be better off doing close description.
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> —Conversation between psychologists Dave Pizarro, Michael Inzlicht, & Yoel Inbar

As Yarkoni writes in "The Generalizability Crisis" many of the major psychological advancements have been via what is essentially a form of "rhetorical ruse," a performance of empiricism that legitimizes the theory—"insightful qualitative analysis dressed up as shoddy quantitative science." And yet empiricism is the most expensive part of psychological practice, requiring enormous public and academic funding and dominating researchers' time. Wouldn't a return to the qualitative give better bang for our buck, at the same time saving us from a false sense of certainty, from overconfident overhauls of our society based on quantitatively baseless claims? That the intuitions of skilled humans working in their local domains (from hostage negotiators to marketers) consistently outcompete any of our formal psychological (or behavioral-economic, or sociological) models, in terms of their ability to make behavioral predictions, is some evidence that much can still be learned from such analyses—that a single skilled qualitative researcher, embedded ethnographically within a local domain and engaged in close noticing, can outperform the most expensive and elaborate laboratory studies. What we need, as Sarah Perry writes in her essay series for Carcinisation, is "more stamp collecting, less Darwin"—more local, particular, detailed accounts and descriptions, theories specific and developed enough to really be stress-tested by prediction. We cannot get ahead of ourselves in the rigorizing pipeline, which is also a pipeline from the local, descriptive, and specific to the global, the general, the abstract.

And yet the sunk cost of time investment prevents even those researchers like Pizarro and Inzlicht—who fully recognize the performative nature of their purportedly objective methodology—from meaningfully altering procedure or course.

What is needed is a new foundation, for a new field or meta-field, with new methodologies which are suited to the actual level of abstraction under investigation, rather than being optimized for "looking authoritative," for "looking rigorous."

II. Conceptual engineering & ontological remodeling

So you want to make scientific progress. You want to make empirical findings about the nature of reality. If you are in the inexact sciences, you are likely interested not in some material object in the world, or even a physical pattern which precedes human beings, but in a specifically social or cultural or cognitive or affective phenomenon (and there is no easy disentangling of the social from the cultural from the cognitive from the affective). This phenomenon is no doubt vague but far from arbitrary; perhaps it is a construct like "fake news" or "free speech support" or "social extroversion." So the thing you are studying is in actuality a folk-linguistic construct: the concept as it stands (in society's present language game) is part of why the topic is relevant to begin with—that it has a place in our language, and our conceptual schemas. That it weaves itself through our understanding of the world indicates there is something "going on" that is "pertinent" to human beings. And to avoid the cold-start problem, you have started with a word. If you are lucky, this word which describes phenomena at one level of abstraction—developed by social actors playing games with each other, so as to advance their various agendas—will map roughly onto a pattern at a different level of abstraction—social onto psychological, psychological onto cultural, cultural onto chemical. Most likely it will not.[1]

Who knows what shape this concept ("extroversion," "will power") is in? No doubt the idea emerged as the crystallization of a pattern pragmatically pertinent to some social agent's ongoing practical activity—a tool fitted to a particular local context. Other agents found it useful in further contexts, and it began generalizing and naturalizing through analogic extension over time. This is not to dismiss folk concepts, but to say that, at

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[1] Frankfurt began with a word, in "On Bullshit." But his work can serve as a negative example. Rather than understanding bullshit ecologically—that is, situated amidst an ongoing interaction of human desire and social structure—Frankfurt treats it as an object "out there" to be studied. Rather than taking the concept's boundaries and usages—its ontological status—as the contingent product of a long history of gerrymandering by speakers and receivers with vested interests in its deployment or reception, its definition and legitimacies, Frankfurt treats it as an objectively existing phenomenon with clear and natural boundaries. His idea of a rigorous treatment is teasing out these boundaries through a consultation of the dictionary. The paper ends up being whimsical lexicography, rather than substantive understanding.

bare minimum the value the carving provided was comparative: It was better than *nothing*. Moreover, it is to say that the provision of value within the concept's domestic contexts will not automatically be conserved when taken up within a new context (namely the studies of the inexact scientist). The discourse or distinction the concept originally enabled, and its continuing adoption by other social actors, testifies only that it is on to *something*. No doubt a pattern has been identified, but the nature of that pattern is not necessarily a pattern in the sense of physics or biology—even a concept like "depression" emerges to describe a set of similar external-facing behaviors, often classed together on ideological grounds, which pose a similar set of social problems. This similar pragmatic nature does not disqualify the possibility of a coherent underlying causal-chemical structure, but it far from necessitates it either. It is to researchers' credit that it is becoming increasingly common to think, in this way, of many depressions, or of "willpower" as having a complicated relationship with desire, manifesting very differently, even within the same individual, across various tasks and social contexts he might be assigned. The "truth" of a concept's meaning, at least in those pre-rigorized, pre-scientific realms, is primarily its history of language games, the history of strategic appropriations, metaphors, over-extensions, rhetorical inclusions, and definitional plays. It is "arbitrary" in the sense that it is culturally and historically contingent as much or more as it carves the world at its joints. Partly this is a Wittgensteinian reframing of language as use; partly it is a Darwinian reframing of the autonomous agent (or concept, or object) as contingent aspect of a system in flux:

> We are no longer interested in the conformity of an individual to an ideal type; we are now interested in the relation of an individual to the other individuals with which it interacts. Relations will be more important than categories; functions, which are variable, will be more important than purposes, which are fixed in advance; transitions will be more important than boundaries; sequences will be more important than hierarchies.[2]

And yet, unbothered by the objections of a Darwinian or Wittgensteinian outlook (which do not apply to it), everyday language remains as permeated as ever by distortions of shorthand convenience, by anthropic "biases" which, adapted to dealing with interactions between agents, misrecognize non-agentic patterns. We are all familiar with the pull (even among evolutionary biologists) to treat natural selection as having desires and agenda, just as we might say a ball "wants" to drop to the ground because of gravity. We reify processes from their verb form to noun form, so that we feel most comfortable saying a certain vocalization pattern "is a signal of X," rather than saying (more accurately) that the pattern signals a range of messages to a range of possible

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[2] Louis Menand, *The Metaphysical Club*

receivers (who, applying the information to their ongoing projects, make the pattern meaningful). Essentialism, dualism, and selfhood are deeply implicit in our language; we speak of "intent" as if it were some singular desire which "exists" unanimously in our brains. We even speak as if Congress had a desire or intent, in passing a law. And yet clearly laws which Congress passes do not have a singular intent behind them, but are formal resolutions which happen to advance the goals or desires of enough members to pass. Each member who advances a piece of legislation may read that legislation slightly differently, and see in it different aspirations or different, contextualizing "bigger pictures." We cannot attribute a unified spirit to legislation passed this way, and arguably, we ought not to with our own cellular "congresses."

So there is the problem of a shifty foundation, of ontologically-backwards constructions, pragmatic strategies masquerading as world-theories, linguistic vagaries and conflations and splittings which are closer to political gerrymandering than descriptive refinement. And many of the most socially "relevant" concepts (whose study is incentivized by an influx of funding, public interest, and a rush by researchers to claim citational turf) are also the most contested, vague, gerrymandered, and incoherent: fake news, free speech, liberty, trauma, gaslighting, gender, sexuality. We do not have agreed-upon working definitions of these words, and the instrumentalized definitions researchers come up with often have very little to do with real-world uses, or if they do, they only capture a small portion, and are inapplicable to the rest. And we fail doubly when we, as researchers, naturalize these phenomena—treat "fake news" not as a strategic move deployed in a historic conflict between various motivated entities (from presidential candidates to news organizations), but as a concept coherent even outside the discourse of this ongoing conflict, as still meaningful when generalized, and robust from the get-go.[3]

The problem of language is perhaps the central focus of 19th and 20th C philosophy; its best solutions, arguably, can be found in the American pragmatists (William James,

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[3] And just the same way the boundaries and constitutions of our everyday concepts are politically and pragmatically carved, the theoretic maps which we base academic thinking around are similarly massaged. Citation chains constantly over-extend findings: first, the initial discovery is exaggerated and over-generalized from the specific situation studied in order to justify greater capital extractions (for instance, prestige and grant funding). Second, the initial discovery is further generalized and adapted by researchers who have an interest in finding support and sympathy (or else a strawman punching-bag) for advancing their own claims, again in pursuit of capital. Many of the most high-profile findings from these fields are baseless on the premise of their experiment's design alone, and yet get picked up metonymically as evidence of some deep human nature (though advocates may make recourse to its being a product of our "socialization," the sacred status of the finding as illuminating light remains the same). A motte-and-bailey is usually present: when pressed, researchers will pay lip service to the idea that their finding generalizes outside situational specifics, and yet when not challenged, they will readily seize whatever turf, capital, and public notoriety (both inside and outside their fields) which might be seized through exactly this generalization.

John Dewey, Oliver Wendell Holmes), in the later Wittgenstein, in General Semantics, in Schelling's "focal point," and in Nietzsche's "Truth and Lies." From their work come several interventions into the essentialist perspective that constitutes our "natural" and everyday attitude. Words do not so much carve the world at its joints, or capture "essences," as they are pragmatic tools. Distinctions and conflations exist at the level required by the language-users, which is why "dirt" to the layman may be "silty clay" or "sandy loam" to the farmer.
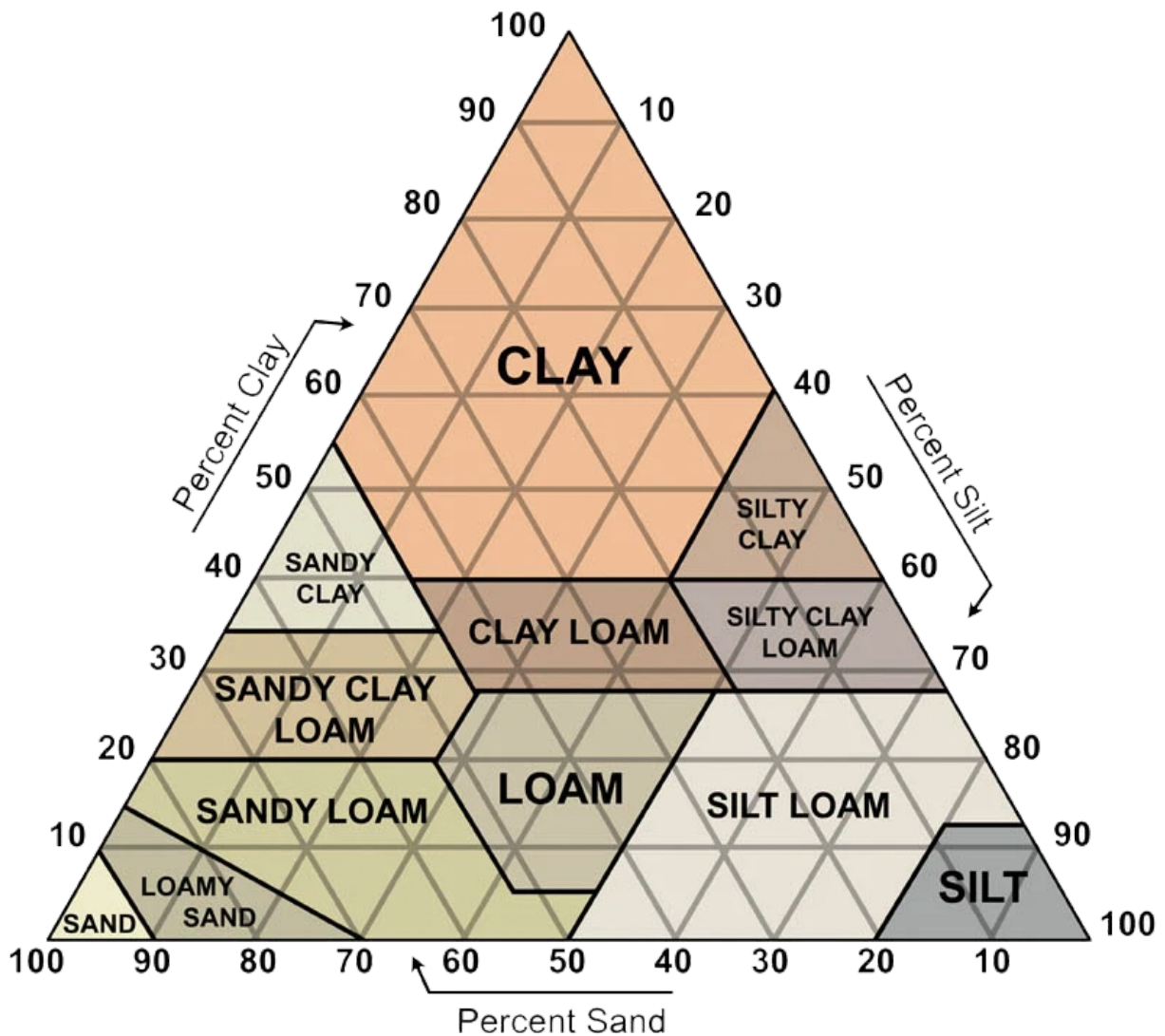

The exact borders of clay and clay loam, loam and silt loam, are themselves "arbitrary," but the general difference between clay and loam—the reason for their distinction—is anything but arbitrary, grounded rather in the different behaviors and properties of each as they are relevant to growing crops. Moreover, they are defined by a simple

measuring technique, in which the soil is placed in a jar with water, and gradually settles at different rates, providing easily readable layers.
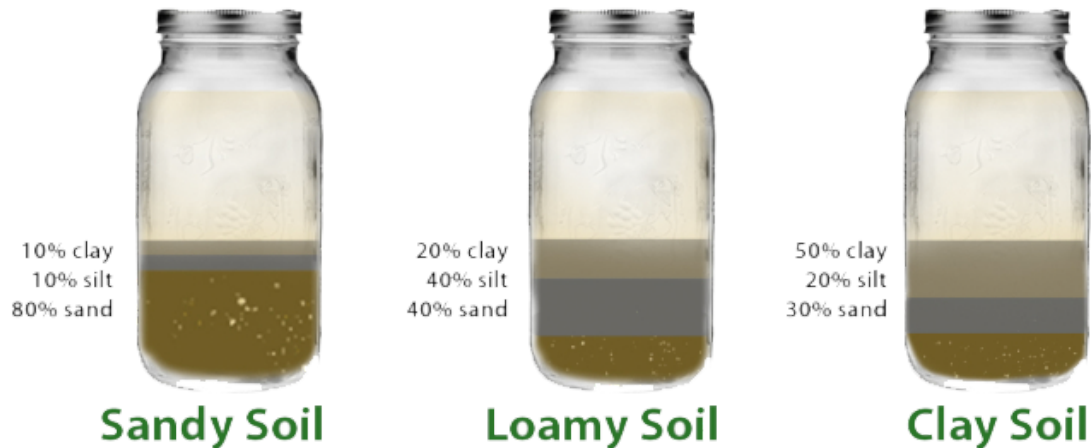
In other words, the soil pyramid as a construct is the product of our uses, goals, and measurement capacities. Can we see the mistake, if we were to go searching for this "loamy soal" as a coherent geologic pattern, outside of its relationship to agriculture (that is, to both plant and human needs)?

That there are "real" (i.e. material, chemical, etc) differences between soil types is indisputable, but any two objects or collections of material will differ; any one collection of sandy loam will differ from any other in potentially meaningful ways. The emphasis, however, lies on potential—the actual taxonomy is structured by which differences matter to the task at hand.

> When a legal distinction is determined… between night and day, childhood and maturity, or any other extremes, a point has to be fixed or a line has to be drawn, or gradually picked up by successive decisions, to mark where the change takes place. Looked at by itself without regard to the necessity behind it, the line or point seems arbitrary. It might as well be a little more to one side or the other. But when it is seen that a line or point there must be, and that there is no mathematical or logical way of fixing it precisely, the decision of the legislature must be accepted unless we can say that it is very wide of any reasonable mark.
>
> —Oliver Wendell Holmes, pioneer of legal pragmatism

And because local communities have different goals, constraints, and norms, their conceptual carvings, and applications thereof, will meaningfully differ. Species appear to us moderns as a matter of natural boundaries. Being taught the half-lie, in biology class, that members of different species cannot produce fertile offspring, we reckon that if there is any realm which can be said to have self-evident "joints," it is this one. And yet it still surprises many to learn that (for instance) the different dog breeds are a single species; that half of our green vegetables are a single species; that the only biological difference between a bluejay and a cardinal is the color of their plumage. It still surprises us to stumble upon ongoing battles, in studies of fungus or insects, about where to carve a species line; it still surprises us that there *are in fact fertile hybrids*. We can begin to get some small sense of the chaotic pre-Linnaean state, in which species taxonomies were hopelessly local and home-spun, which distinguished plants on the anthropocentric basis of being medicines or poisons, crops or weeds; animals as livestock or pests, edible or inedible, "noble" or "base." The natural philosophers spent centuries canvassing villages, asking locals' the names they used for different plants, birds, and parasites. Lengthy reference texts were compiled, which—when there was equivalence—reconciled Latin names with their vernacular equivalents—but just as often were forced to re-litigate boundaries, lumping creatures which had previously been split, and splitting creatures which had previously been lumped.

> Mulleyn (Candelaria) was variously known as high-taper, hagtaper, woollens, Jupiter's staff, hare's beard, and bullock's lungword. John Gerard wrote of treacle mustard: "we call this herb in English penny flower or money flower, silver plate, pricksongwort; in Norfolk sattin and white sattin and among our women it is called honesty." No less than fifty different local names have been recorded for Caltha palustris, the marsh marigold… Hairy caterpillars were "hair worms" in Yorkshire; "millers" in Herefordshire; "devil's rings" in the south.
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> —Keith Thomas, Man and the Natural World

It is uncontroversial to note that Darwin's theory of natural selection was made possible by the fieldwork which came before him, which painstakingly documented, diagrammed, and classified species. To have attempted to apply rigorous statistical analysis to the "hair worm," to dozens of distinct species of caterpillars, in order to understand the "essence" of the hairworm—or perhaps the essence of "worms," period—would have been an exercise in folly. And yet, when we begin to consider more abstract nouns, less tangible and more irregular collections which we have lumped under "anger" or "status" or "freedom of speech," we ought to feel how benighted our inexact sciences presently are, how formidable the task which lies ahead of it, how much work must be done

before a comparable theory to evolution can be found. Where are our compendia of social strategies, interpersonal tactics, and conversational patterns?

> The plant world was just as much an object of practical concern. The use of herbs for medicinal purposes was universal at a popular level. It generated a vast lore about the healing properties of plants, to be transmitted orally or written down in the herbals… It is not surprising, therefore, that natural history at first depended for its progress on absorbing much popular lore.

> Ibid

If we hope to make a new foundation, we must begin with local lore, folk wisdom, cliche and platitude. Luckily for us, social and psychological patterns are just as relevant to everyday life as herbs, and equally well-chronicled. Literary themes, passages from great books, pithy aphorisms—but also dating advice, etiquette guides, Dale Carnegie, daily horoscopes, the "types of guy" starterpacks which circulate on Twitter. Unlike the natural world, where physical boundaries and visually observable phenotypes allow easy Schelling points for "thingdom," our subject domain is a realm of soupy abstraction and messy conceptualization. The rigorizing pipeline is a pipeline from non-thinghood to thinghood, the creation of imaginary objects which exist only through distributed practice and mutual recognition, which begins with art and ends with science. Luckily, our social behaviors are *already* structured by the constructs we employ; it is "propriety" *as used* by Victorians which guided and informed the Victorian behavior. The insight of Geertz's thick descriptions, and Schutz's *verstehende* method, is that how an individual interprets a scene, action, or event—the "meaning" attributed to it—directly mediates his response. What is necessary, then, is to formulate second-order constructs which describe our relationship with those of the first-order: how we employ them, how we manipulate them, how we perceive and act through them. Insofar as human social life—and perhaps the situation of intelligent, intra-generationally adaptive agents generally—is defined by a process of reading and writing information, of making inferences and shaping inferences—then what is needed is second-order reading, a reading of how we read, a writing of how we write.

Ontological remodeling and conceptual engineering may end up playing a central role: discovering carvings born of convenience, or helplessly inflated over time by sloppy usage, or anchored wrongly in the first place—say, what ought to be anchored on social reality being anchored in material reality, such as the belief that an animal, object, or event just "is" higher or base, sacred or profane. The usual dichotomy is between lumpers and splitters, but it is easy to advocate both if you believe that current lumps are sloppily formed, in desperate need of a refactor, a redrawing of borders many-times

gerrymandered by those whose political or personal interest was served in "stretching" them. In this process of remodeling, we may dissolve certain categories entirely, but *even in their dissolution* we understand them better than pre-dissolution:

> For instance, fire was an ontologically basic, formal category for thousands of years. After the Chemical Revolution of the 1700s, it dropped out of official scientific theory. It's an ill-formed category, because there are too many marginal cases. Informally, it describes redox reactions within a nebulous range of rates and temperatures, in which the oxidizer is typically but not necessarily oxygen. An explosion is a too-fast redox reaction; rusting is too slow to count; fuel cell reactions run too cold. Burning sugar with sodium chlorate as the oxidizer sure *looks* like a fire, but should it count? On the other hand, although "fire" is no longer a formal category, the Chemical Revolution made it possible to understand combustion in general, and particular redox reactions, vastly better than before.
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> —David Chapman, "Ontological Remodeling"

III. Generalized compatibilism

> The logic of the operation of fields tends to make the different possibles that constitute the space of possibles at a given moment in time seem intrinsically, logically incompatible, when they are indeed incompatible, but only from a sociological perspective… The logic of the struggle and the division into opposing camps which differ with respect to the possibles that are objectively offered—to the point where each one sees or wishes to see only a fraction of the space—makes options that are logically compatible seem irreconcilable… Very often… the social antagonisms underlying theoretical oppositions and the interests connected to these antagonisms form the only obstacle to getting beyond and to the synthesis.
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> —Pierre Bourdieu, 1968 Princeton lecture

So how must we deal with words to make progress, or what attitude should we take, and what might that attitude entail? For one, it's my growing suspicion that a sort of generalized compatibilism is necessary. Many are familiar with the idea of compatibilism in the free speech vs. determinism debate: philosophers advocating this position claim that the concept of free will refers to a freedom of action, or a lack of external coercion. While acknowledging that in some deterministic way, we "always would have" made a decision the way we end up making it, such philosophers believe this consistent and

physically predictable self-stemming response to the environment is meaningfully different from coercion by others; that our will—our desires and values—is equally bound up in the history of causality, exerting a positive force on the causal chain even as its desires are instantiated from that same history. The dichotomy, in other words, is false, a linguistic and/or sociological confusion, as each side is describing freedom or unfreedom at a different "level," or of a different "kind," and thus talking past one another. (See also the "subscript gambit" for resolving verbal disputes, which was described somewhat earlier than Chalmers as tabooing your words to get to the truth.)

Gluckman's functionalist theory of gossip holds that gossip is a cultural technology to encourage group unity; Paine disagrees, writing that gossip, rather than protecting the group, is motivated by self-interest on the part of the gossiper. We must ask: why not both? Gluckman describes an emergent effect at the community level which might be selected for in a process of cultural evolution. Paine is operating at the scope of individual motivation, and there is no reason not to reconcile, to say that the individual is, almost always, working from self-interest, and that practices which benefit the community are those which may be selected for in the long-term, either through top-down community design or through sheer survival.

Other advocates of gossip argue that it is an invaluable tool for social information, while critics argue it is a source for motivated rumors and reputational sabotage. Again, it is clear that both are, and must necessarily, be true simultaneously. It is gossip's value as a conduit of social information that allows individuals to exploit it for their own ends. If gossip did not hold value as a source of information, it would not be paid attention to, and there would be no ability to damage reputations through it. (This dynamic is called frequency-dependent selection in ethology: if the majority of bright red dart frogs are mimics, or "fakers," then predators no longer trust the bright red coloration as a signal of poisonousness. Mimics must typically be outnumbered by "models" in order to gain protection from mimicry—or, more accurately, the potential cost to predators of eating a bright red frog must in the aggregate outweigh the potential benefit of the extra calories.)

In literary theory, the many battlefronts of the Meaning Wars—each attempting to remodel "literary meaning"—have provided not a clear victor but a much fuller perspective on the hermeneutic cycle, a contemporary generation of thinkers who are themselves hybrids of previously puritanical positions, or themselves make finer-grained distinctions invisible to philosophers of old.

In other words, we believe a suspicion should be applied to any claim that two separate discourses (or even two authors within the same discourse, though this is rarer) are,

despite appearing to make different claims as to the nature of some shared discursive referent, making factually incompatible claims. For one, it is less likely than we usually imagine that the two camps are, in reality, discussing the same *referent* (signified), rather than merely using the same *reference* (sign). Or, alternatively, it is less likely than we usually imagine that they are discussing this referent at the same level of abstraction and in the same sense ("table" can refer to a sense perception, the conceptual class, the material object-in-the-world, etc). And when these camps make arguments, they make these arguments against (what they perceive to be) dominant ideology—which is sometimes the other camp!—in order to correct it. It is altogether possible, and more common than typically assumed, that these warring camps are in reality discussing different phenomena—for instance, a reader's interpretation, and the author's intent—which have for historical and cultural reasons of short-hand been unified under a single umbrella (the text's "meaning"). That both sides have narrow-and-conquered—have chosen a specific sense of a polysemous concept and optimized their theory of the whole to it, talking past each other, describing the same elephant from three different positions, in three different aspects.

Consider the debate in literature studies over whether a novel is a recent European invention some several hundred years old, or else a format stretching before the birth of Christ. Steven Moore, *History of the Novel*, writes:

> The novel has been around since at least the 4th century BCE (Xenophon's Cyropaedia) and flourished in the Mediterranean area until the coming of the Christian Dark Ages. The earliest novels were Greek romances and Latin satires, where the plot was a mere convenience that allowed the author to engage in rhetorical display, literary criticism, sociopolitical commentary, digressions, and so on. It was an elastic form that made room for interpolated poems, stories within stories, pornography, and parodies, where the realistic and fantastic blend together.

Many literary theorists would disagree with none of these facts and yet take issue with Moore's conclusion—purely because, to them, the "novel" is not an umbrella term for long-form narrative text, but a very specific genre or style of long-form narrative text predominant in Western modernity. Are there any facts under dispute here? It is not that the literary theorists who dissent with Moore dispute the existence of the texts that he references. It is that they dispute the texts' categorization as novels. And, because at present the only functional or pragmatic grounding for classifying such texts one way or another rests in such scholars' abilities to advance intellectual projects, there is little reason for a neutral outsider to prefer one factoring or another.

Thus, it appears that many views which could be compatible, or reconciled in some framework, are not presented as such. And not, either, by accident but by design, on account of the natural incentives of the Bourdieusian field: scarcities of recognition, scarcities of attention, scarcities of funding. General compatibilism is the view that we must be on the lookout for claims of "distinct" (read: distinguished) irreconcilability since such claims are structurally incentivized. It carries, by extension, a suspicion of all efforts at theoretical reductionism—reductionism not in the material sense of natural philosophy, but in the sense of monocausal explanations of complex systems. Very few systems we care about can be explained by one to two variables while also providing majority coverage of the phenomena. And yet this reductionism is constantly what we see; class reductionism, signaling reductionism, evolutionary reductionism, technological reductionism; it may not even be explicitly stated, but it is evidenced in the implicit non-compatibilism of both the scholarly outlook, and the natural attitudes of everyday life.

> Roberts: If you wanted to understand why the economy is growing so well, many months into what is a very long expansion now, is that you think due to beliefs that people hold or is it due to actual policy and changes in economic incentives?
>
> Shiller: Well, the answer you might expect from me is: It's both.
>
> Roberts: Well, I knew you'd say that, but go ahead. Keep going.
>
> Robert Shiller: It's just not a simple world that we live in.
>
> —Robert Shiller of Narrative Economics on EconTalk 2020

In the public domain, we see an absolutism which refuses to cede any legitimacy to the positions of the other side: the moral standing of the fetus as human being must be flatly denied rather than simply subordinated to the rights of the bearing woman. Acknowledgment of alternate, vying positions is denied under the "not one inch rule" (a rule of combat, of trench warfare, not collaboration); such acknowledgments would oblige not just integration of the perspective but legitimation of the "other side," in other words, requiring both bounding (compromise) and a ceding of right-to-speak—neither of which is an acceptable outcome for an interested partisan.

And, indeed, the scholarly and the partisan impulses are not so far apart. It is almost always scholarly work, motivated by partisan impulse, which leads to monocausal reductions. Occasionally, these scholars will semi-publicly acknowledge the

impoverishment of their reduction, but in their work they continue to advocate for it as corrective to the existing explanations. In Sociology is a Martial Art, we see footage of Bourdieu confidently asserting that all the personality differences between men and women are of course the result of socialization. "Of course"—as if it were so obvious, as if there were any basis for such reduction other than wishing it to be!

IV. Knowledge logistics

What general compatibilism naturally entails is a practice of knowledge logistics. We can begin by noting its extreme opposite, the distinctively modernist cult of novelty and genius, the imperative to "rip it up and start again."

Bruno Latour, in his infamous analysis "Why has critique run out of steam", discusses the "revolutionary" and deeply incompatibilist mindset of the French theorists:

> The French, it is well known, love revolutions, political, scientific or philosophical. There is nothing they like more than a radical upheaval of the past, an upheaval so complete that a new tabula rasa is levelled, on which a new history can be built. None of our Prime Ministers starts his mandate without promising to write on a new blank page or to furnish a complete change in values and even, for some, in life. Each researcher would think of him or herself as a failure, if he or she did not make such a complete change in the discipline that nothing will hereafter be the same. As to the philosophers they feed, from Descartes up to Foucault's days, on radical cuts, on 'coupure épistémologique', on complete subversion of everything which has been thought in the past by everybody. No French thinker, indeed no student of philosophy, would seriously contemplate doing anything short of a complete revolution in theories. To hesitate, to respect the past, would be to compromise, to be a funk, or worse, to be eclectic like a vulgar Anglo-Saxon.

In other words, we not only wish to distinguish ourselves in the sense of achievement; we wish for exclusivity, because exclusivity is distinction. The achievement is merely what sets apart, or excludes. It is the vehicle, not the destination. You go so fast you skip the synthesis, and proclaim your own innovation from on high. And yet generalized compatibilism appears to be the best way we know to apprehend or process complexity—through recourse to a phenomena's *multidimensionality*. There is a punishing Pareto frontier for any cause taken past moderation, that holds *All is X*, or that *X is only Y*. Even when, in a sense, "neither" position is correct, both positions are

informative, as they report and are based on real data, and resonate with the human beings studying them, and therefore are unwise to write off entirely. A kind of "foxy" (in the Tolstoy, Isaiah Berlin sense) and irreverent approach to frames will beat any single tradition of knowledge. The new field would—must!—be proud of its "vulgar" Anglo eclecticism.

We see some examples of this in our contemporary treatment of literary "interpretations." Each reveals another dimension implicit in the work, and while any one interpretive dimension can be challenged, there is never an expectation of mutual exclusivity. Georgia Warnke, 1999, Legitimate Differences:

> We assume that these new dimensions of the work can appear because
> different interpreters approach it with different experiences and concerns,
> view it from within different contexts, and come at it from the vantage point of
> different interpretive traditions. We assume that we can learn from these
> interpretations and, indeed, that we can learn in a distinctive sense: not in
> the sense that we approach the one true or real meaning of the text or work
> of art but rather in the sense simply that we come to understand new
> dimensions of its meaning and thus to understand it in an expanded way.

I emphasize "contemporary treatment" because this attitude toward interpretations is not "natural." It is the product of the (aforementioned) century of discursive warfare in literary theory, much of which began with warring over the "correct" interpretation of a text, then moved on to warring over the "proper" interpretive frame/s, and has finally settled on a pluralistic indeterminacy.

The most incisive thinkers historically—if not necessarily those recognized in their own times—are those who manage to integrate their opposition into their own frame, who "yes and" or qualify, who can to "maintain coverage" or "preserve ground" rather than reduce multidimensional reality into one-dimensional explanations. We can take it from John Shook, relaying John Dewey's fin-de-siècle philosophical practice:

> There were Hegelian rationalisms flourishing, other kinds of idealisms,
> various kinds of radical naive empiricisms, all kinds of anti-Darwinian
> alternatives. And Dewey […] incorporated what they were trying to say into a
> naturalistic framework so thoroughly that nowadays the field looks very
> cleaned up from our perspective.
>
> —Interview on Pale Blue Dot

This approach should take both sides of the rigorizing pipeline seriously: not just "pre-packaging" knowledge "out of" philosophy and "into" the sciences (knowledge's "promotion" through legibility), but in taking advantage of the rich artistic and literary resources, which have fastidiously mapped observations about human psychosocial life for centuries (obscured, noisily, by tradition, prestige-seeking, and flourish).

What, exactly, does it mean to pursue a knowledge logistics agenda?

Much of what we work on has already been discovered. Perhaps it has been lost, perhaps it has been preserved. Perhaps it is siloed in the dialects of its home discourse, walled off by language games and the natural incentives of academic fields. Perhaps it has been discovered by many fields, many times over—each discourse's insights awaiting conciliation.

Knowledge logistics is the idea that we must bridge disparate dialects, connect the dots of ideas that have emerged from scholarship these last centuries. In an era of information overload, what is needed is curation. In an era of hyper-specialization and borderline parochialism, what is needed is cosmopolitan generalism.

> By a knowledge logistics problem I mean that more knowledge, insight and culture is produced than ever before, and the bottleneck to what somebody more woolly-headed than me might call an "enlightened civilization" is not production volume but packaging, indexing, compression, synthesis and distribution of ideas.
>
> —[John Nerst, Everything Studies](#)

And in an era of rival schools dueling for symbolic capital, what is needed is coherence.

> Another concern is that many scholars spend their time redescribing social phenomena through one or other theoretical lens with no clear reason for selection and no attempt at an overarching synthesis. As Duncan Watts (2017) notes, contradictory findings can thus coexist for decades in the scholarship without anyone noticing or trying to resolve the contradictions, what he calls the "incoherency problem." Rationalist sociologists find ever more colorful metaphors for this state of affairs, from Besbris and Khan's (2017) "wheel of fire" to Gerald Davis's (2015) mystery house with "a number of architectural details that serve no purpose: doorways that open onto walls, labyrinthine hallways that lead nowhere, and stairways that rise only to a ceiling."

—Prasad (2021): Pragmatism as Problem-Solving

We need what Vannevar Bush (1945) called "a new profession of trail blazers, those who find delight in the task of establishing useful trails through the enormous mass of the common record." There is a "mountain" of research debt which needs climbing (Olah & Carter 2017); it has accumulated as a result of poor exposition (a lack of good explainers or introductions), half-digested ideas (that have not yet found a clear, coherent structure of explanation), bad abstractions, and a poor signal to noise ratio of published research. What is needed are good explainers and tl;drs, the making accessible of findings for outsiders and cross-disciplinary expeditions.

> There's a tradeoff between the energy put into explaining an idea, and the energy needed to understand it. On one extreme, the explainer can painstakingly craft a beautiful explanation, leading their audience to understanding without even realizing it could have been difficult. On the other extreme, the explainer can do the absolute minimum and abandon their audience to struggle. This energy is called interpretive labor.
>
> Research distillation is the opposite of research debt. It can be incredibly satisfying, combining deep scientific understanding, empathy, and design to do justice to our research and lay bare beautiful insights. Distillation is also hard. It's tempting to think of explaining an idea as just putting a layer of polish on it, but good explanations often involve transforming the idea. This kind of refinement of an idea can take just as much effort and deep understanding as the initial discovery.
>
> Olah & Carter 2017, "Research Debt"

This is an opportunity for what the NLP researcher Dallas Card has called "professional science critics"—individuals who "collectively work to establish and extend a critical discourse about the thing that they spend their time reviewing, and exert an important influence on pushing a medium in a useful and interesting direction." Their job is working the macro, narrativizing the field, and creating manageable exports for distant researchers. They take the "longer-term, sweeping view"; this high-level narrative helps inform future research directions, focusing the field and asking crucial questions to further understanding.

V. Resonance & intuitive findings

What does it mean, for a field—a *language game*–to be "wild," and how do we navigate a wilderness? One answer lies in resonance, I think—the testing of yet-untested propositions against the accumulated experience and implicit knowledge of the evaluator. But first—the wilderness.

Theory theory, echoed in computational neuroscience's free energy principle, and cognitive science's predictive processing (as well as anticipated by Kant, Piaget, James, Nietzsche, Bergson, Hegel…) holds that individuals build "folk" theories of themselves, of others, and of the world which unites them. Theory of mind—it is in the name—is the idea that we are constantly modeling, anticipating. Anticipation requires inference and analogy—this new situation is similar to another, understood situation—which is to say a pattern across instances of a "kind." Inference then requires what Schutz called "typification": we perceive through categories. At their crudest we call these type-theories "stereotypes"; as we get to know someone, a process culminating in long-term intimate relationships, they become well-calibrated over time, a precise sense of person.

It is no coincidence that Bergson (along with so many historic others) saw fiction as offering a kind of insight untouchable by the standard sciences. Nor that computer geeks—a Bayesian bunch if there ever was one—have a saying, "proof in the form of comics." The artist's job is the capturing of resonant encounters; the resonance is a distributed system of verification, via its audience members' schemas of the world (built through experience). The basic tenets of standpoint epistemology ought to hold—not in the (as is to be expected) extremized political version, where the understanding of unfamiliar accounts is rendered impossible, but in the original, moderated sense in which differently perspectivized accounts are supplementary (i.e. compatible) framings of a shared event.

Theory is not the only thing fiction writers fill their books with. They seek to entertain, to perform, to make homage to the past. But their theories of the world fill even areas not explicitly marked as such: to write "realistic" dialogue is to represent one's model of real-world interaction; to write "realistic" characters, novels, interactions, desires, psychologies, is to do similarly. And even the so-called "unrealistic" texts, such as fantasy or magical realism, are simply working at a different "level" than literalism—to say it rained for one hundred years is to capture a figurative truth. The Impressionists eschewed realism is the "naturalist" sense in order to properly capture perception and the play of light. In the surrealism of David Lynch, a demon is the metaphorical psychopath.

Compare the usual dynamic in psychology, where findings which *violate* folk wisdom are rewarded over those which align with it. (This is because surprising and counter-intuitive results receive an outsized amount of public interest, precisely because they are counter-intuitive. This is "interestingness" in the Murray Davis sense.) Work like Muzafer Sherif's Robbers Cave Experiment, the Stanford Prison Experiment, and David Rosenhan's famous mental hospital infiltration—these studies are among the most discussed and influential of the field precisely because they shock us with a view which overturns our intuitions or assumptions. And yet each of these historic findings has, in recent decades, been discovered to have been taken out of context—to take just one, the Stanford Prison Experiment, it now appears that students guards were pressured by the supervising researcher to act aggressively toward inmates, that the behavior was not spontaneous but instructed. Whenever the proper context is put back in these experiments, they are suddenly rendered comprehensible; the reactions of individuals in the study (e.g., behaving a certain way out of a desire to please a researcher making explicit appeals to enacting that behavior), and thus the studies' power is defanged. (*Metrics* : *holism* :: *psych studies* : *folk wisdom*. Formal vs. informal, with "advantages to both." Enter them into dialectic; do not substitute one for the other.) What we must realize is that psychology is as close, in its current form, to art as it is science—its competitors are as much film and fiction and philosophy as neuroscience. What is the expression from folk wisdom? Premature systematization—the root of all evil.

Resonance is our guide in navigating this forest, a kinship of represented experience with our own schematic, "folk theorized" understandings (or perhaps the more "formal," if not necessarily more precise, theories of the inexact sciences). The n of personal experience can be large indeed, and even if it is not precisely rigorous, there is reason to think it is Bayesian approximate, at least as teleologically motivated. "Skin in the game" is crucial to the formation of strong folk theories; a salesperson or trader has a set of understandings which ought to be taken more seriously than they presently are. Resonance is not a perfect heuristic: it is clouded (even as it is enlightened) by the credibility of the speaker; it is the meaning of behavioral economics' so-called confirmation bias; it is prone to what Carhart-Harris and Friston call "pathological" or maladaptive priors. (Trauma.) But the sympathetic oscillation between two models of the world, each formed over many years and experiences, is "not nothing."

We can take seriously projects such as "slippages"—Freud's, Hofstadter's, those of amateur stoner theorists—as casting light on inner workings. Perhaps we cannot test them rigorously yet, but as anyone who watches crime shows is well aware, plenty of evidence which helps solve cases is inadmissible in court—a start rather than an end, a pointer to where to start gathering. We can engage in close, bottom-up noticing of the kind which ethnomethodology has been so successful at—EM's attempt to mitigate

"ideology" can be construed as an avoidance of pre-committing to a reductive theory, first explaining things in their full sense of life (much like fiction, one notices) before attempting to analyze, and keeping that full sense always at the forefront, protecting its substitution by the reduction. And we can reconcile such observations with high-level theories, grounding and testing schematic models such as psychoanalysis or predictive processing against close noticing in order to find new directions, add nuances, or challenge orthodoxies.

Resonance is not enough though. There are a number of inferential methods that we use in our everyday life, ways of building theories which are not presently statistically amenable or discoverable, which must be found and used.

We are natural anticipators, natural future modelers, and our categories and carvings are ultimately guides to action. Evolutionary epistemology is the idea that an agent must have good predictors, because otherwise it wouldn't survive. Part of how we learn etiquette, conversational forms, and other embodied, implicit theories of the social is from the rapid deployment and testing cycles involved in observing, behaving, and observing again.

VI. The inexact sciences

A few years ago, I started a small community of academics and bloggers who work on problems in the inexact sciences—from NLP to psychoanalysis, linguistics to literary theory, microsociology to military strategy. For simplicity's sake, we have found ourselves referring to this group as TIS ("the inexact sciences"). Our mandate is broad: to reconcile frameworks from various inexact fields, to better understand the stages of their rigorizing pipeline, and to help them advance along that pipeline to a more conceptually sound stage. We will need to improve and integrate our understandings of representation, inference, interaction, emergence, and causality to accomplish this. In the same way Sante Fe Institute has cut a diagonal swathe across the traditional stack of academic fields, organized by a concept of "complexity," we hope to cut a swathe shaped like "communication." For it is precisely the problems and privileges of communication that unite these inexact fields, and which keep them inexact.

To fulfill its mandate, TIS must be radically compatibilist and radically skeptical—by necessity, in the face of what we have already learned about the warping effects of institutions and language.

And we will need to collect new methodologies for advancing, accumulating, and reconciling knowledge. These may include:

1. Stamp collection—compiling an excessive amount of examples, such that taxonomy and theory follows naturally and effortlessly from their features. Literature and film, i.e. "applied philosophy," are rich with such examples, through which a work's themes are demonstrated and explored.
2. Defamiliarization—making the familiar foreign. See Miner 1956, "Body Ritual Among the Nacirema," or attempts to write about the present as if writing about the past. Magical realism and surrealism make certain features of reality salient through their exaggeration.
3. Denaturalization—genealogical investigations into the construction of concepts, re-situating them as tools designed to solve social coordination problems, rather than as unproblematic identifications of phenomena.
4. Comedy—Making the unspeakable speakable through humor. Shedding light on inconsistencies and incoherences in accepted models.
5. Cultural criticism ("artifact processing")—the unpacking of literary stamp collections, and the interpretation of resonant texts.
6. Linguistic reconciliation—the compilation of glossaries from various disciplines which organize differently around a shared subject domain, e.g. lumberjacks, carpenters, forest wardens around wood.

We've also chosen as our mascot the pfeilstorch. Back in the Enlightenment era, no one really knew where birds went in winter. Some thinkers speculated they flew to the moon, or hid underwater, or morphed into other organisms completely. Then some storks were shot down in Europe, with long African arrows through their necks, having made their many-thousand-mile migrations with the injury. The inexact sciences are defined by intractability, by mystery, by the impossibility of measurement. Perhaps some of them merely await the technological advances to crack them open. Others will take a bit more ingenuity.

> The problems, being existential, are universal; their solutions, being human, are diverse… The road to the grand abstractions of science winds through a thicket of singular facts.
>
> —Geertz, *The Interpretation of Culture*

Gardener Comments

Ted Wade:
In SoS we have had papers saying that we are doing the right things wrongly. This paper says that is because we are doing the wrong things. We are investigating constructs that lack agreed-upon meanings, and they get more corrupted and conflicted

over time. We start out to carve at the joints but end up making soup and trying to sell it.

The author proposes multiple corrections to this process. Search out concepts in many places. Curate and compare them and look for compatibilities instead of sharpening conflicts that can only get worse. Continue this harmonizing process as research proceeds. Keep looking for resonance with culture, art, and folk wisdom. Support professional science critics. Eschew language games that are played to win. Recognize that operationalizing concepts is subject to surrogation traps a la Goodhart's Law: the surrogate replaces the target so we chase the wrong ends.

There is a lot more here, and ample examples, and the writing is engaging. References to non-academic sources add freshness and perspective.

I wondered at times how would this revolution proceed? When do you stop, as the paper calls it, "stamp collecting" and curation and start collecting data? Scientists can't live without it. Arguably, all sciences (all the time?) study surrogates for their concepts. So how do you decide when an operational definition is worth trying out?

Textbooks have to present and compare competing theories and their related folk concepts. Why aren't texts more useful in disarming conflicts and dichotomies?

For this paper to be accessible, persuasive, and helpful it needs to be more concise and organized. The major points should be named and described up front. Numerous long quotes should be shortened down to highlighted points. There are numbered sections that lack needed subheadings. This is an important collection of ideas. More brevity could lead people to read it and then come back to it: to *use* it.

Josh Randall:
The concept of an intellectual movement or organization focusing on 'The Inexact Sciences', similarly to Santa Fe Institute's Complexity Science, is both needed and intriguing. Having access to a wider range of knowledge can result in problems synthesizing information and creating tractable hypotheses - noted as significant problems in the fields described and possibly true of this new 'meta-field' of inexact sciences. The author should focus on a specific case study to illustrate the methodology described in the final section. This could include members from the IES group, such as psychology or military strategy, as well as the meta-field. The author should also consider how discussions of theorization, stamp collecting, and transition to empiricism relate to rapidly developed sub-disciplines in 'exact sciences'. The information and critiques presented here are interesting and thought out, but employing them in specific contexts that are relevant to practitioners and historians or philosophers or science would greatly improve it.

Anonymous1:

I am not certain that this manuscript has a strong scientific upshot of the type I take to be important for the Seeds of Science project; a lot of these ideas already exist within the philosophy of the social sciences. The paper overall was very discursive, and it was not always clear what was being argued. There was a lot of use of very poetic and metaphorical language which tended to obscure the main points being presented.

Anonymous2:

While the article has interesting thoughts on the varying aggregations at which different types of investigation can be carried out, it's too digressive and doesn't reach a conclusion or a clarification as it should. I think it needs to be tightened up considerably and argumentation needs to be made clearer.

Izzie:

This was a great reading! Very rich, with lots of food for thought, I am looking forward to sharing it with colleagues!

Being part of a small community with a strong interest in complex systems across different academic fields, I was very glad to discover TIS!

Regarding the manuscript form: Although it is supposed to be read as notes, I feel adding an abstract or a short introduction might help to connect better the different parts of the text and give more strength to what I would see more as an essay. Independently of that aspect, it would be great to have a reference section.

Ctify_:

1. Every field of knowledge progresses at a different pace. Some fields have advanced far, while others have fallen behind, died, or were never developed at all (hence, the inexact science).

2. The "definition crisis" is rampant, both on "the exact science" and "the inexact science".

Problem on "the inexact science" : "Tempted by the prestige, authority, and grant money of science, they have tried to skip over stamp-collecting, case study, description and taxonomy, straight to statistics, hypothesis, and lab coat."

Problem on "the exact science" -> hard to understand technical jargons and buzzwords : "We do not have agreed-upon working definition of these words, and the definitions researchers come up with often have very little to do with real-world uses."

3. To fix this problem we should really investing more in : stamp-collecting, case study, description and taxonomy ("If we hope to make a new foundation, we must begin with

local lore, folk wisdom, cliche and platitude. The rigorizing pipeline is a
pipeline from non-thinghood to thinghood, the creation of imaginary objects which exist
only through distributed practice and mutual recognition.")

What if we make a new collaborative site, like Wikipedia, specifically to address this
issue. Something like tv-trope (collaborative stamp-collecting, case study, description,
taxonomy community) but for "knowledge in general" (not just, literary analysis).

In my opinion, tv-trope did their <stamp-collecting, case study, description, taxonomy
activity> better than Wikipedia. In Wikipedia, the ultimate accepted truth is just ((appeal
to the authority)), which is the so-called, ill-defined "reliable sources". No matter how
strong your argument is, it is unacceptable if you don't appeal to the proper authority
(which is, by attaching your sources). Original research is strictly forbidden in Wikipedia.
A weird rule that ironically limits the potential of this movement.

Dan James:
This paper or 'notes' made me feel like a traditionalist! By this I mean that as I read
through it I began to long for a conventional paper, one that started with an introduction,
ideally developed a cogent argument then ended with a conclusion that drew various
elements together. None of this is to be found in the present paper, on the contrary it
comes across as a polemic that has little in the way of structure and fails to develop
persuasive arguments.

The nearest I came to detecting a recognisable theme was frequent allusion to the
demarcation problem (though strangely this phrase is never used in the text). However
the demarcation problem, as a major problem in the philosophy of science, has itself
been expertly examined for over 100 years in far clearer and more succinct detail, see
for example Lee McIntyre's recent masterly exposition in "The Scientific Attitude"

These notes are an unashamed romp through myriad quotations and references, with
varying degrees of relevance (to the demarcation problem?).

One reference that I did find the paper was unfairly dismissive to happens to be one of
my favourite books, the exquisite "On Bullshit" by Harry Frankfurt, a small book which
demonstrates how even the most prosaic of words can be teased apart by a brilliant
philosopher to reveal its true meaning.

There may well be the germ of an idea, even several, in these notes, however, for me to
recommend publication it would have to become more focussed on a theme and state
the issue or issues being addressed in a clearer less convoluted manner.

Gabe Itzc:
1. I would say yes, a novel idea is presented, and that idea is meant to advance science

in some way. It's not exactly clear how that would be accomplished and that idea would be implemented, but I think that's kind of the point.

2. Yes, I think the author brings up ideas of how this central focus on inexact sciences can improve our understanding of the world and each other, but I found it difficult to find exact proposed experiments, and a hypothesis to be tested

It was a bit difficult for me to understand what the central point of the essay is. But that may be due to how your ideas are organized in the essay- that's not to say that the essay is without a main point- which I think is that we need to put greater emphasis on the inexact sciences to make greater cultural and societal leaps.

I believe some of your supporting theories/ideas are found in these passages:

What we need, as Sarah Perry writes in her essay series for Carcinisation, is "more stamp collecting, less Darwin"—more local, particular, detailed accounts and descriptions, theories specific and developed enough to really be stress-tested by prediction. We cannot get ahead of ourselves in the rigorizing pipeline, which is also a pipeline from the local, descriptive,

and specific to the global, the general, the abstract:

If we hope to make a new foundation, we must begin with local lore, folk wisdom, cliche and platitude.....What is necessary, then, is to formulate second-order constructs which describe our relationship with those of the first-order: how we employ them, how we manipulate them, how we perceive and act through them. Insofar as human social life—and perhaps the situation of intelligent, intra-generationally adaptive agents generally—is defined by a process of reading and writing information, of making inferences and shaping inferences—then what is needed is second-order reading, a reading of how we read, a writing of how we write.

Knowledge logistics is the idea that we must bridge disparate dialects, connect the dots of ideas that have emerged from scholarship these last centuries. In an era of information overload, what is needed is curation. In an era of hyper-specialization and borderline parochialism, what is needed is cosmopolitan generalism.