Beyond Truth Theory: Cognitive State Semantics and the Linguistic Analogs of Non-Reductive Physicalism

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June 5, 2019

Abstract

> On connaît la célèbre affirmation de Claude Lévi-Strauss: "les sciences humaines seront structurales ou ne seront pas". Nous aimerions lui en adjoindre une autre: "les sciences humaines seront des sciences naturelles ou ne seront pas". Evidemment, sauf à en revenir à un réductionnisme dogmatique, une telle affirmation n'est soutenable que si l'on peut suffisamment généraliser le concept classique de "naturalité", le généraliser jusqu'à pouvoir y faire droit, comme à des phénomènes naturels, aux phénomènes d'organisation structurale.
> — Jean Petitot, [**?**, p. 1]

> The nature of any entity, I propose, divides into three aspects or facets, which we may call its form, appearance, and substrate. In an act of consciousness, accordingly, we must distinguish three fundamentally different aspects: its form or intentional structure, its appearance or subjective "feel", and its substrate or origin. In terms of this three-facet distinction, we can define the place of consciousness in the world.
> — David Woodruff Smith, [**?**, p. 11]

A leitmotif of Cognitive Linguistics is critiquing "truth-theoretic" semantics — part of a broader objection to linguistic and philosophical paradigms which appear to underappreciate language's subtlety, its lack of mechanical determinism, and its rootedness in human consciousness and sociality. To make the critique precise, I think we can define "truth-theoretic semantics" with an emphasis on two dimensions: first, the idea that linguistic meaning is closely associated with propositionality — that meaning is grounded in states of affairs that make (or would make) statements true; and, second, that there is a formalizable (and potentially computationally reproducible) process whereby language-users parse utterances or sentences to recover their signified propositional content. In this paper I will try to lay out a rigorous theory of the limitations and motivations for these paradigms and then suggest alternative "metatheories" for semantics, or the philosophy of language, which are philosophically stronger.

Truth-theoretic paradigms are not entirely off-base: certainly there is *some* propositional content which is usually essential to meaning. Although not every sentence baldly asserts some proposition, there is typically a propositional content for which each sentence stands as a kind of complex signifier, and then the sentence as a whole acquires its full meaning in orientation to that signified:

- (1) Please close the window?
- (2) I think the window is closed.
- (3) The window is closed.

There are indeed several issues which complicate a "mechanical" translation of sentences to propositional contents.[1] The diversity of illocutionary forms (like questions, imperatives, and statements of belief as well as direct assertions) is one complication. A second is context-

[1] Henceforth I will talk about sentences as proxy for linguistic utterances (or written discourse segments) in general.

sensitivity: normal sentences are truth-theoretically incomplete: taken out of context, they do not internally have sufficient precision to fully specify propositional content in isolation. Anaphoric resolution, pronouns, deictic references (*here*, *there*, *now*), and so forth, all are open-ended semantic units that demand pragmantic processing to be completed. Subtler contextual effects are also in play — in a vegan restaurant, say, someone requesting

▾ (4) Can I have some milk in this coffee?

is presumably intending a vegan milk substitute. Making it the case that *actual* milk is in her coffee is *not* fulfilling her request, as a cooperative conversational partner.

Such pragmantic and contextual nuances, however, do not intrinsically point against a semantics grounded in propositional meanings. We cannot reject the possibility that contextual processing is just one stage in mapping language content to propositional constituents. If for instance *her* is in some context a designation for Alexandria Ocasio-Cortez, U.S. Representative from New York, the relevant sentence can be generalized by substituting for "her" the definitive phrase. Contextuality is a factor for any semantic theory; we should assume that it specifically disfavors truth-theoretic approaches unless there is reason to believe that context is *more* difficult to model truth-theoretically than on other paradigms. Here, instead, I will concede that for typical sentences there *is* a propositional content that determines sentence-meaning and that can be designated, at least under reconstructive analysis, in context-neutral ways — in effect a kind of semantic "deep structure" which resolves pronouns, anaphora, deixis, and other open-ended linguistic surface structures. I take it that such a logically refined *intermediate representation* is necessary but not sufficient for truth-theoretic semantics. Since I also accept this intermediate representation as appropriate for normal language, I will here focus on the *not sufficient* part.

In general, I contend that each sentence has a corresponding propositional content, based off of relevant contextual and enactive situations where language use is involved. Certain interpretive processes may be needed to uncover propositional details from surface language, but I will argue that related interpretations are intrinsic to language-understanding on any theory. So I will argue that an important dimension to language is the designation and negotiation of propositional content.

At the same time, I also believe that cognitive engagement with propositional content is endemic to any purposeful, goal-directed, social human activity, including but hardly limited to language. A defence of truth-theoretic semantics would need to demonstrate that linguistic performance, in some essential or formal manner, thematizes propositional content *above and beyond* the latent logicality of human reason and practice in general — or at least that language embodies an especially structured and formalizable manifestation of this logicality. Conversely, a *critique* of truth-theoretic semantics should present arguments that language's logical order is derivative of the ambient rationality of human action in general, and that the specific *linguistic* structures of syntax and semantics do not derive, directly, from the priority of signifying propositional content. For the latter perspective, the question is then from whence syntax and semantics *do* derive, and how that origin connects to the logicality which (I contend and conceed) *is* certainly present in language.

So my second goal in this paper is to sketch a theory of this other origin — drawing from various perspectives, including phenomenology, Cognitive Linguistics, and the philosophy of science. My overall approach is to, rather than treat natural language as a self-contained system, theorize language as a bridge between multiple "ontological" and scientific registers: social action and private cognition; practical embodied-enactive engagements and structurally analyzable cerebral routines; consciously mediated rationality and neurophysical substrata. Linguistics itself spans a subdisciplinary tableau which stretches from the social/quotidian to the mathematical or microscale — trying to uncover the formal underpinnings of syntactic and semantic systems at the neurocognitive level (or at least via formalizations we can see as potentially realizable at the neurophysical scale) or at a computational level where we try to establish language's functional organization and schematic regularities.

Intrinsic to this disciplinary spread is the question of what qualifies as a scientific theory of language. Ideally linguistics would take us to a causally closed and complete account of language as a phenomenon in the world, analogous to how biology provides a theory of life, disease, and reproduction grounded in phyical and

chemical explanations. On this analogy we can then debate whether the best scientific theory would be ultimately reducible to neurocognitive principles — taking brain activity as the physical realization of linguistic processes akin to cells and organic molecules as the realization of biological phenomena — or whether language is best treated, in the scientific vein, more as a structured system; the system-properties constituting language which our language-using brains must instantiate are more scientifically salient than their neurocognitive implementation. But whether on a neurophysical or computational track, this philosophy implies that the essential goal of linguistic *science* is to strip it, at least for explanatory purposes, of its human and societal context. The distinctly human qualities of language are perhaps an "emergent property" of structured neurophysical systems, and linguistics needs to bring us to the threshold of explain the laws governing the reductive base of that emergence, as opposed to itemizing the rules of the emergent system on its own terms.

I believe similar metatheoretical intuitions have buttressed the intuitive appeal of truth-theoretic semantics, because excavating the logical rules of language can seem like a path for us to understand language on the terms by which it manifests at the neurocognitive level (as opposed to how it appears to us consciously and intersubjectively). However, while I agree that on some level a scientifically complete theory of language (and of all human reason) needs to explain down to neurophysical substrata (on pain of implying some sort of *elan vitale*-like rational essentialism), I believe it is erroneous to site this reduction *inside linguistics itself*. Our world-view may call for an overall reduction of *all* reason and consciousness to neurophysical substrata; but I question whether linguistically inflected cognition has a reductive analysis separate and apart from this ambient, metaphysical reductionism. Thus, I will argue that logico-mathematical analyses of language, even if they are motivated by an understandable commitment to physicalism or functionalism as an overarching mind-body paradigm, are inappropriately reductionistic vis-à-vis *language* as such. Our reductionistic commitments should not compel us toward reductive theories of syntax and semantics within the confines of the study of language itself.

In short, I will try to outline a theory of language which would be a philosophical complement to the "nonreductive physicalism" of John Searle or David Woodruff Smith: we can take mind-body reductionism as an ideological axiom but not a humanistic *methodology*. This includes critiquing paradigms in *computational* linguistics, and the larger "AI" trend of "mind as computer"; the assumption that cognitive processes are reproducible or can be modeled via computer software. I think there is a role for computational models which can shed some light on linguistic structures, but not to the extent that language understanding can be fully replicated on a computer (AI systems right now evince *some* realistic language-behavior but hardly reveal a human-like competence). I will therefore consider what class of computer models *can* be useful.

Overall, I dispute the assumption that linguistic analysis needs to be a self-contained science; or to engender self-contained "Natural Language Processing" software. Instead, it is appropriate for practitioners to understand linguistics in federation with other fields and sciences, both in the humanities and natural or mathematical sciences. The proper metatheoretical role for linguistic analysis is to isolate properly *linguistic* (syntactic, semantic, and pragmatic) structures as theoretical targets, strategically defering to other sciences outside the circle of language proper (whether in the sociological or neurocognitive direction). In this guise linguistics can act as a "bridge" theory, connecting sociology to neurophysics, for example, by analogy to biology bridging medicine and chemistry. If linguistics' proper metascentific role is to serve as a social-to-natural science (and humanities-to-mathematics) bridge, I will argue that truth-theoretic perspectives are less than ideal for this role, and will propose an alternative more grounded in Cognitive Semantics and Cognitive Grammar.

1 Truth-Theoretic Semantics and Enaction

I will start by reviewing illocutionary pragmatics, to identify some of the contextual and interpretive transformations that pertain to mapping surface language to propositional contents. My point is to establish what should be a common theory of logicality that can be shared by both critics and defenders of "truth-theoretic" paradigms, on which basis their legitimate disputes can be investigated.

Many linguists (on both sides, I would say, of my central truth-theoretic pro/con), seem to analyze hedges like "could you please" as merely dressing over crude commands: we don't want to come across as giving people orders, but sometimes we do intend to ask pople to do specific things. As a result, we feel obliged to couch the request in conversational gestures that signal our awareness of how bald commands may lie outside the conversational norms. These ritualistic "could you please"-like gestures may have metalinguistic content, but — so the theory goes — they do not *semantically* alter the speech-act's directive nature.

The problem with this analysis is that sometimes directive and "inquisitive" dimensions can overlap:

- (5) Do you have almond milk?
- (6) Can you get MsNBC on your TV?
- (7) This isn't a screw-cap bottle: I need a corkscrew.

These *can* be read as bare directives, and would be interpreted as such if the hearer believed the speaker already knew that yes, he has almond milk, and yes, he gets MsNBC. In (7), if both parties know there's one corkscrew in the house, the statement implies a directive to fetch *that* corkscrew. But, equally, (5)-(7) can *also* be read as bare questions with no implicature: say, as fans of almond milk and MsNBC endorsing those selections, or pointing out that opening the bottle will need *some* corkscrew. And, meanwhile, (5)-(7) can *also* be read as a mixture of the two, as if people expressed themselves like this:

- (8) I think the window is open, can you close it?
- (9) I see you have almond milk, can I have some?
- (10) If you get MsNBC, can you turn on Rachel Maddow?
- (11) If there is a corkscrew in the house, can you get it?

I think the mixed case is the most prototypical, and pure directives or inquiries should be treated as degenerate structures where either directive or inquisitive content has dropped out. After all, even a dictatorial command includes the implicit assumption that the order both makes sense and is not impossible. On the other hand, we don't ask questions for no reason: "do you have almond milk" may be a suggestion rather than a request, but it still carries an implicature (e.g., that the addressee *should* get almond milk).

Ordinary requests carry the assumption that addressees can follow through without undue inconvenience, which includes a package of assumptions about both what is currently the case and what is possible. "Close the window" only has literal force if the window is open. So when making a request speakers have to signal that they recognize the request involves certain assumptions and are rational enough to accept modifications of these assumptions in lieu of literal compliance. This is why interrogative forms like "can you" or "could you" are both semantically nontrivial and metadiscursively polite: they leave open the possibility of subsequent discourse framing the original request just as a belief-assertion. Developments like "can you open the window" — "no, it's closed" are not ruled out. At the same time, interrogative forms connote that the speaker assumes the addressees can fulfill the request without great effort: an implicit assumption is that they *can* and also *are willing to* satisfy the directive. This is an assumption, not a presumption: the speaker would seem like a bully if he acted as if he gave no thought to his demands being too much of an imposition — as if he were taking the answer to "can you" quesions for granted. This is another reason why requests should be framed as questions. So, in short, "commands" are framed as questions because the speaker literally does not know for sure whether the command is possible; given this uncertainty a command *is* a question, and the interrogative form is not just a non-semantic exercise in politesse.

Sometimes the link between directives and belief assertions is made explicit. A common pattern is to use "I believe that" as an implicature analogous to interrogatives:

- (12) I believe you have a reservation for Jones?
- (13) I believe this is the customer service desk?
- (14) I believe we ordered a second basket of garlic bread?
- (15) I believe you can help me find computer acessories in this section?

These speakers are indirectly signaling what they want someone to do by openly stating the requisite assumptions — *I believe you can* in place of *can you?*. The implication is that such assumptions translate clearly to a subsequent course of action — the guest who *does* have that reservation should be checked in; the cashier who *can* help a customer find accessories should do so. But underlying these performances is recognition that

illocutionary force is tied to background assumptions, and conversants are reacting to the propositional content of those assumptions as well as the force itself. If I *do* close the window I am not only fulfilling the request but also confirming that the window *could* be closed (a piece of information that may become relevant in the future).

In sum, when we engage pragmatically with other language-users, we tend to do so cooperatively, sensitive to what they wish to achieve with language as well as to the propositional details of their discourse. But this often means that I have to interpret propositional content in light of contexts and implicatures. Note that both of these are possible:

- (16) Do you have any milk?
- (17) Yes, we have almond milk.
- (18) No, we have almond milk.

A request for milk in a vegan restaurant could plausibly be interpreted as a request for a vegan milk-substitute. So the concept *milk* in that context may actually be interpreted as the concept *vegan milk*. Responding to the force of speech-acts compels me to treat them as not *wholly* illocutionary — they are in part statements of belief (like ordinary assertions). One reason I need to adopt an epistemic (and not just obligatory) attitude to illocutionary acts is that I need to clarify what meanings the speaker intends, which depends on what roles she is assigning to constituent concepts.

Suppose my friend says this, before and after:

- (19) Can you put some almond milk in my coffee?
- (20) Is there milk in this coffee?

Between (19) and (20) I do put almond milk in his coffee and affirm "yes" to (20). I feel it proper to read (20)'s "milk" as really meaning "almond milk", in light of (19). Actually I should be *less* inclined to say "yes" if (maybe as a prank) someone had instead put real (cow) milk in the coffee. In responding to his question I mentally substitute what he almost certainly *meant* for how (taken out of context) (20) would usually be interpreted. In this current dialog, the *milk* concept not only includes vegan milks, apparently, but *excludes* actual milk.

It seems — on the evidence of cases like this one — as if when we are dealing with illocutionary force we are obliged to subject what we hear to extra interpretation, rather than resting only within "literal" meanings of sentences, conventionally understood. This point is worth emphasizing because it complicates our attempts to link illocution with propositional content. Suppose grandma asks us to close the kitchen window. Each of these are plausible and basically polite responses:

- (21) It's not open, but there's still some cold air coming through the cracks.
- (22) It's not open, but I closed the window in the bedroom.
- (23) I can't — it's stuck.

In each case I have not fulfilled her request vis-à-vis its literal meaning, but I *have* acted benevolently in terms of conversational maxims.

Part of reading propositional content is syncing our conceptual schemas with our fellow conversants. The illocutionary dimension of a request like *can I have some milk?* makes this interpretation especially important, because the addressee wants to make a good-faith effort to cooperate with the pragmatic intent of the speech-act. But cooperation requires the cooperating parties' conceptual schemas to be properly aligned. I therefore have to suspend the illocutionary force of a directive temporarily and treat it as locutionary statement of belief, interpret its apparent conceptual underpinnings in that mode, and then add the illocutionary force back in: if I brought *real* milk to a vegan customer who asked for "milk" I would be *un*-cooprative.

The upshot is that conversational implicatures help us contextualize the conceptual negotiations that guarantee our grasping the correct propositional contents, and vice-versa. This means that propositionality is woven throughout both assertive and all other modes of language, but it also means that propositional content can be indecipherable without a detailed picture of the current context (including illocutionary content). The proposional content of, say, *there is milk in this coffee* has to be judged sensitive to contexts like *milk* meaning *vegan milk* — and this propagates from a direct propositional to any propositional attitudes which may be directed towards it, including requsts like *please put milk in this coffee*.

Suppose the grandkids close grandma's bedroom window when she asks them to close the kitchen window. The propositional content at the core of grandma's re-

quest is that the kitchen window be closed; the content attached to it is an unstated belief that this window is open. Thus, the truth-conditions satisfying her implicit understanding would be that the kitchen window went from being open to being closed. As it happens, that window is already closed. So the truth-conditions that would satisfy grandma's initial belief-state do not obtain — her beliefs are false — but the truth conditions satisfying her desired result *do* obtain. The window *is* closed. Yet the grandkids should not thereby assume that her request has been properly responded to; it is more polite to guess at the motivation behind the request, e.g., thay she felt a draft of cold air. In short, they should look outside the truth conditions of her original request taken literally, and *interpret* her request, finding different content with different truth-conditions that are both consistent with fact and address whatever pragmatic goals grandma had when making her request. They might infer her goal is to prevent an uncomfortable draft, and so a reasonable "substitute content" is the proposition that *some* window is open, and they should close *that* one.

So the grandkids should reason as if translating between these two implied meanings:

- (24) I believe the kitchen window is open — please close it!
- (25) I believe some window is open — please close it!

They have to revise the simplest reading of the implicit propositional content of grandma's *actual* request, because the actual request is inconsistent with pertinent facts. In short, they feel obliged to explore propositional alternatives so as to find an alternative, implicit request whose propositional content *is* consistent with fact and also meets the original request's illocutionary force cooperatively.

In essence, we need to express a requester's desire as itslf, in its totality, a specific propositional content, thinking to ourselves (or even saying to others) things like

- (26) Grandma wants us to close the window.
- (27) He wants a bottle opener.

But to respond politely we need to modify the parse of their requests to capture the "essential" content:

- (28) Grandma wants us to eliminate the cold draft.
- (29) He wants something to open that bottle.

We have to read outside the literal interpretation of what they are saying. This re-reading is something that may be appropriate to do with respect to other forms of speech also; but our conversational responsibilty to infer some unstated content is especially pronounced when we are rsponding to an explicit request for something.

Certainly, in any case, meanings are not literal. But how then do we understand what people are saying? Trying to formulate a not-entirely-haphazard account of this process, we can speculate that interpreting what someone is "really" saying involves systematically mapping their apparent concepts and references to some superimposed inventory designed to mitigate false beliefs or conceptual misalignments among language users in some context. That means, we are looking for mappings like *milk* to *almond milk* in (30) from a vegan restaurant, or *kitchen window* to *bedroom window* in (31) if it is the latter that is open:

- (30) Can I have some milk?
- (31) Can you close the kitchen window?

The point of these "mappings" is that they preserve the possibility of modeling the *original* propositional content by identifying truth conditions for that content to be satisfied.

A *literal* truth-condition model doesn't work in cases like (30) and (31): the diner's request is *not* satisfied if it is the case that there is now (real) milk in her coffee; and grandma's request is not necessarily satisfied if it is the case that the kitchen window is closed. The proposition "the kitchen window is closed" only bears on grandma's utterance insofar as she believes that this window is open and causing a draft. So if we want to interpret the underlying locutionary content of (30) and (31) truth-theoreticaly, we need to map the literal concepts appearing in these sentences to an appropriate translation, a kind of "coordinate transformation" that can map concepts onto others, like milk/almond milk and kitchen window/bedroom window.

1.1 *The Doxa System and the Ledger*

Illucutionary acts expressly signify our desire for something to change in our environment (with the help of our addressees), but similar implications of pragmatic desire

are evident even when sentences are more directly assertorial, or less directly illocutionary. Compare between:

- (32) Remember that wine we tasted on the Niagara Peninsula last summer? Can you find it in our local liquor store?
- (33) Remember that wine we tasted on the Niagara Peninsula last summer? What varietal was that again?

The first sentence in each pair attempts to establish a common frame of reference between addresser and addressee — it does not, in and of itself, request any practical (extramental) action. The second sentence in (32) *can* be read as requesting that the addressee buy a bottle, though an alternate interpretation is to learn for *future reference* whether someone *could* buy that bottle. The second sentence in (33) carries no directive implicature at all, at least with any directness; it asks for more information.

Despite these variations, it seems reasonable to say that language is always performed in an overarching setting where concrete (extralinguistic) activity will *eventually* take place. If in (33) I intend to recommend that grape variety to a friend, I may not be making a direct request of him, but I *am* proposing an eventual action that he might take. If in (32) I am not issuing a directive, I am however establishing (and reserving the future possibility) that such a directive would be reasonable. As a result, some extralinguistic state change seems to be lurking behind the linguistic content: I want my friend to go from having never tasted that varietal to having tasted it. Or I want to go from not having a bottle of that wine to having one. Or, if I do not want these things at the moment, I want to confirm intellectually that these wishes are plausible. We seem to use language to set up the interpersonal understandings needed to *eventually* engage in (usually collective) practical activity, which means effectuating some (extralinguistic) change.

Having said that, most expressions are not direct requests or suggestions of the "close the window" or "let's get some wine" variety. We may have a *holistic* sense that meanings orbit around extralinguistic and extramental state-change, but at the level of particular sentences most changes that occur, or are proposed, tend to be changes in our conceptualization of situations. Nevertheless, we can pursue a semantic theory based on state-change if we stipulate that — even if many changes which occur in the course of linguistic activity do not have immediate, apparent physical effects — there are still multiple kinds of changes that can occur. Dialogs themselves change: the first sentences in (32) and (33) modify the discursive frame so that, for example, a particular wine becoms available as the anaphoric target for "that" and "that wine" — and also, metonymically, "that varietal", "that grape", "that winery". Conceptual frames can change: if we are discussing a visit to Ontario and I mention one specific winery, one effect is to (insofar as the conversation follows my lead) refigure our joint framing to something narrower and more granular that the prior frame (but still contained in it; I am not changing the subject entirely). We can pull a frame out as well as in — e.g., switch from talking about one winery visit to the whole trip, or one Leafs game to the entire season. Moreover, our beliefs can change/evolve: if you tell me the wine was Cabernet Franc, I have that piece of info in my arsenal that I did not have before.

I am now in position to argue that linguistic manings are grounded in state-changes, assuming that the "register" where the changes occur can vary over several cognitive and extramental options: actual change in our environment (the window closed, milk in the coffee, the bottle opened); changes to the dialog structure (for anaphoric references, pronoun resolution, metalinguistic cues like "can you say that again", etc.); changes to conceptual framings (zoom in, zoom out, add detail); changes to beliefs. Each of these kinds of changes deserve their own analysis, but we can imagine the totality of such analyses forming a robust semantic theory.

During the course of a conversation — and indeed of any structured cognitive activity — we maintain conceptual frames representing relevant information; what other people know or believe; what are our goals and plans (individually and collectively); and so forth. We update these frames periodically, and use language to compel others to modify their frames in ways that we can (to some approximation) anticipate and encode in linguistic structure.

In the simplest case, we can effectuate changes in others' frames by making assertions they are likely to believe to be true (assuming they deem us reliable). In general, it is impossible to extricate the explicit content of the relevant speech-acts from the relevant cognitive, linguistic, and real-world situational contexts:

- (34) That wine was a Cabernet Franc.

▼ (35) Those dogs are my neighbor's. They are very sweet.

Although there is a determinate propositional content being asserted and although there is no propositional attitude other than bald assertion to complicate the pragmatics, still the actual words depend on addressees drawing from the dialogic conext in accord with how I expect them to (as manifest in open-ended expressions like "that wine", "those dogs", "they"). Moreover, the open-ended components can refer outward in different "registers": in "that wine" I may be referencing a concept previously established in the conversation, while "those dogs" may refer to pets we saw or heard but had not previously talked about. Of course, the scenarios could be reversed: I could introduce "that wine" into the conversation by gesturing to a bottle you had not noticed before, and refer via "those dogs" to animals you have never seen or heard but had talked about, or heard talk about, in the recent past.

Surface-level language is not always clear as to whether referring expressions are to work "deictically" (drawing content from the ambient context, signified by gestures, rather than from any linguistic meaning proper), "discursively" (referring within chains of dialog, e.g. anaphora), or "descriptively" (using purely semantic means to establish a designation, like "my next-door neighbor's dogs" or "Inniskillin Cabernet Franc Icewine 2015".

Let's agree to call the set of entities sufficiently relevant to a discourse or conversation context the *ledger*. By "sufficiently relevant" I mean whatever is already established in a discourse so it can be referenced with something less that full definite description (and without the aid of extralinguistic gestures). I assume that gestures and/or descriptions are communicative acts which "add" to the ledger. The purely linguistic case — let's say, *descriptive additions* — can themselves be distinguished by their level of grounding in the current context. A description can be "definitive" in a specific situation without being a *definite description* in Russell's sense (see "that wine we tasted last summer").

So, descriptive additions to the ledger are one kind of semantic side-effect: we can change the ledger via language acts. I will similarly dub another facet of cognitive-linguistic frames as a *lens*: the idea that in conversation we can "zoom" attention in and out and move it around in time. "That wine we tasted last summer in Ontario" both modifies the *ledger* (adding a new referent for convenient designation) and might alter the *lens*: potentially compelling subsequent conversation to focus on that time and/or place. Finally, I will identify a class of frame-modifications which do directly involve propositional content: the capacity for language to promote shared beliefs between people whose cognitive frames are in the proper resonance, by adding dtails to conceptual pictures already established: *those dogs are Staffordshires*, *that wine is Cabernet Franc*, *we have almond milk*, etc.

For sake of discussion, I will call this latter part of the "active" cognitive frame, for some discussion — the part concerning shared beliefes or asserted facts — the *doxa inventory*. This "database"-like repository stands alongside the "ledger" and "lens" to track propositional content asserted, collectively established, or already considered as background knowledge, vis-à-vis some discourse. Manipulations of the lens and ledger allow spakers to designate (using referential cues that could be ambiguous out-of-context) propositional contents which they wish to add to the "doxa inventory". I'll also say that modifying this inventory *can* be done through language, but participants in a discourse are entitled to assume that everyone formulates certain beliefs which are observationally obvious, and can therefore be linguistically presupposed rather than reported (the likes of that a traffic light is red, or a train has pulled into a station, or that it's raining).

So, I will assume that the machinery of frames is cognitive, not just linguistic. We have analogous faculties for "refocusing" attention and adding conceptual details via interaction with our environment, both alone and with others, and both via language and via other means. Some aspects of *linguistic* cognitive framing — like the "ledger" of referents previously established in a conversation — may be of a purely linguistic character, but these are the exception rather than the rule. In the typical case we have a latent ability to direct attention and form beliefs by direct observation *or* by accepting others' reports as proxies for direct observation.

When we are told that two dogs are male, for instance, we may not perceptually encounter the dogs but we understand what sorts of preceptual disclosures could serve as motivation for someone believing that idea. We therefore assume that such belief was initially warranted

by observation and subsequently got passed through a chain of language-acts whose warrants are rooted in the perceived credibility of the speaker. Internal to this process is our prior knowledge of the parameters for judging statements like "this dog is male" observationally.

True, sometimes such observational warrants are less on display. If I had never heard of Staffies (Staffordshire pit bulls), I would be fuzzier about observational warrants and could end up in conversations like:

- (36) Those dogs are Staffordshires.
- (37) What's a Staffordshire?
- (38) It's a breed of dog.

Here I still don't really have a picture of what it is like to tell observationally that a dog is a Staffordshire. There may not be any visual cues — at least none I know of — which announce to the world that some dog's a Staffy (compared to those announcing that it is male, say). But insofar as I am acquainted with the concept *dog breed*, I also understand the general pattern of these observations. For instance I may know breeds like poodles or huskies and be able to identify *these* by distinctive visual cues. I also understand that dogs' parentage is often documented, allowing informed parties to know their breeds via those of their forebearers. That is, I am familiar with how beliefs about breeds are formed based on observation rather than just accepting others' reports, so I know the extralinguistic epistemology anchoring chains of linguistic reports in this area to originating observations — even if I cannot in this case initiate such a chain myself.

My overall point is that language enables us to formulate beliefs based on the beliefs of others, but this is possible because we also realize what itis like to formulate *our own* beliefs, and envision that sort of practice at the origin of reports that later get circulated via language. If we can't sufficiently picture the originating observations, we don't feel like we are grasping the linguistic simulacrum of those reports with enough substance. If I never learn what Stafforshire is, an assertion that some dogs are Staffordshires has no real meaning for me — even if I trust the asserter and do indeed thereby believe that the dogs are Staffordshires. Notice that merely knowing Staffordshire is a breed of dog does not expand my conceptual repertiore very much — it does not tell me how to recognize a Staffordshire or what I can do with the knowledge that a dog is one (it cannot, for instance, help me anticipate his behavior). Nevertheless even (only) knowing that Staffordshire is a breed of dog seems to fundamentally change the status of sentences like "those dogs are Staffies" for me: I do not *have* the conceptual machinery to exploit that knowledge, but I understand what *sort* of machinery is involved.

In short, the *linguistic* meaning of concepts is tightly bound to how concepts factor in perceptual observations anterior to linguistic articulation. As a result, during any episode wherein conversants use language to compel others' beliefs, an intrinsic dimension of the unfolding conversation is that people will form their own (extralinguistic) beliefs — and can also imagine themselves in the role of originating the reports they hear via language, whether or not they can actually test out the reports by their own observations.

This extralinguistic epistemic capacity is clearly exploited by the form of language itself. If a tasting organizer hands me a glass and says "This is Syrah", she clearly expects me to infer that I should take the glass from her and taste the wine (and know that the glass contains wine, etc.). These conventions may be *mediated* by language — we are more likely to understand "unspoken" norms by asking questions, until we gain enough literacy in the relevant practical domain to understand unspoken cues and assumptions. But many situational assumptions are extralinguistic because they are (by convention) not explicitly stated, even if they accompany content that *is* explicitly stated. "This is Syrah" accompanied by the gesture of handing me a glass is an indirect invitation for me to drink it (compare to "Please hold this for a second?" or "Please hand this to the man behind you?").

I bring to every linguistic situation a capacity to make extralinguistc observations, and to understand every utterance in the context of hypothetical extralinguistc observations from which is originates. My conversation peers can use language to trigger these extralinguistic observations. Sometimes the "gap" — the conceptual slot which extralinguistic reasoning is expected to fill — is direcly expressed, as in "See the dog over there?". But elsewhere the "extralinguistic implicature" is more indirect, as in "This is Syrah" and my expected belief that I should take and taste from the glass. But in any case the phenomenon of triggering these extralinguistic

observation is one form of linguistic "side effect", initiating a change in my overall conceptualization of a situation by compeling me to augment beliefs with new observations.

All told, then, the language which is presented to me has the effect of initiating changes in what I believe — partly via signifyimg propositional content that I could take on faith, but partly also via directing my attention and my interpretive dispositions to guide me towards extralinguistic observations. If this gloss is credible, it remains to be discussed whether side-effects like these are just side-effects of linguistic meaning, or are in some sense *constitutive* of meaning. I can understand the intuitive appeal of the former idea, but I think the latter may be closer to the truth. I will discuss these alternatives in the next two subsections.