

Summary of Dennett's CE, Chapter 8

1: E Pluribus Unum?

In previous chapters, we've gone over the various bad habits of thought encouraged by imagining there is something like a Cartesian Theater where a show is performed for an audience. There is no audience in the brain, just independently evolved specialist circuits doing their jobs. In effect, they create an illusion that there is a central self directing all the action. But this "captain" is merely virtual. Nonetheless, there are functions the captain performs that have to get done by something, somewhere, for "We are not like drifting ships with brawling crews." (p. 228).

Language use is one such function that is difficult to imagine without a real as opposed to virtual "Author" or "Meander of all the meanings". After all, speech acts are things that we interpret as acts of communication by a person, a rational agent with beliefs, opinions, desires, percepts, and so on.

One bad way of responding to this requirement would be to imagine that there is something in the brain that functions as a sort of internal "president of the United States, who may direct a press secretary or other subordinates to issue the actual press releases, but when they speak, they speak on his behalf, they execute his speech acts, for which he is responsible, and of which he is, officially, the author." (p.229) This will not do for the simple reason that there is no such chain of command in the brain that governs speech production.

Back to Shakey the robot. Recall that when asked, Shakey was programmed to offer reasons and reports about how it could discriminate objects from one another. Shakey's answers were limited, in part, by how much access it had to its own internal processes. Dennett gave us a range of possible responses, from the detailed to the utterly confabulated. The point in doing this was that "if a sentence-emitting system had only limited access to its internal states, and a limited vocabulary with which to compose its sentences, its 'reports' might be interpretable as true only if we impose on them a somewhat metaphorical reading." (p.229)

But Shakey is too simplistic for the purposes of imagining a valid language producing system. Its answers were largely "canned" in the standard way that software systems are when they communicate with us. And to make this point, Dennett introduces an important character who will be appearing from time to time throughout the rest of the book: Otto the skeptic.

Otto's chief objection to taking Shakey's speech acts seriously is that "its input and output are attached to each other in the wrong way—a way that eliminates the observer (experiencer, enjoyer) that has to lie somewhere between the visual input and the verbal output, so that there is someone in there to mean Shakey's words when they are 'spoken'" (p. 230)

One way Otto's intuition puts this is that when we issue reports, we form sentences especially tailored to the inner experiences we are trying to describe. Reports are about something, they express a determined, internal meaning or intention. And of course, this doesn't just apply to actions like describing a conscious experience. It applies whenever we make a speech act—when we speak, we are expressing something internal, trying to find a best-fit between our words and the intended meaning.

Treating Otto as a heterophenomenological subject, we bracket his claims into two parts. How speech production feels to Otto is inviolable—if he says that it feels as if words describe a definite internal state or intention, then that is how it truly feels, and this is noted in the heterophenomenological text. But any theories he may have (expressed as observations about what indeed is going on inside) do not have this special standing. They are subject to confirmation and refutation like any other empirical claim.

2: Bureaucracy versus pandemonium

In this section, we are introduced to a model of speech production based on the work of psycholinguist Pim Levelt. It is an example of something that Dennett has called "boxology" in cognitive science: the tendency to create models based on flow charts with boxes representing proposed functions and arrows leading to and from them.

The three most important boxes in Levelt's model are the Speech Comprehension System, the Formulator, and the Conceptualizer.

The Speech Comprehension system is just that—the system responsible for understanding language. In speech production, its role is to facilitate the “audition” of an intended speech output.

The Formulator's job is to use the rules of grammar and phonological encoding to create the intended sentence.

The Conceptualizer, however, is the most important and interesting part of the model. Its job is to produce the intent to output a sentence, and “approve” of the result before and after it is issued (matching the output with the intention, one imagines). It sends its speech-intentions to the Formulator, and thus the ball gets rolling.

Dennett is particularly interested in looking at this relationship—at just what is meant by imagining one system with an intent to speak, and another which takes its output and creates a statement in a language. Intuitively, it seems that this must be the way to understand things—for otherwise, we would have no way (or so it seems) to understand how something could be a speech error, or how a sentence in a language could correctly or incorrectly “capture” the “original” meaning of the speaker.

The problem, argues Dennett, is that the Conceptualizer is just an unanalyzed Cartesian “Central Meaner,” seemingly necessary to begin the process, but guilty of subtly hiding the very things the model is supposed to explain. It becomes the Boss that “give(s) the marching orders to the rest of the team.”(p. 233)

To tease out what is wrong with this picture, Dennett asks us to imagine a scenario and run it through the model, starting with a sort of cartoony caricature. The Conceptualizer decides that it wants to insult someone by commenting on the size of his feet, and so issues a command to the Formulator: “Tell this bozo his feet are too big!”. The Formulator, acting as kind of internal public relations firm, consults a lexicon of words, the rules of grammar and pronunciation, runs its ideas through the Speech Comprehension system (which sends its approval or criticisms back the Conceptualizer), and finally, a result emerges: “Your feet are too big!”.

Immediately we can see the beginning of a problem, made obvious by the simplistic nature of the scenario—the command given by the Conceptualizer (Levelt's “preverbal message”), when characterized as a sentence in English, already accomplishes most of what the entire model is supposed to explain. The other systems don't really have to do much with it, other than make trivial adjustments. Dennett asks:

Then is the preverbal message in some other representational system or language? Whatever it is, it must be capable of providing the basic ‘specs’ to the production team for the object they are to compose and release, and it must be couched in terms they can ‘understand’—not in English but some version of Brainish or Mentalese. It will have to be in some language of thought, Levelt argues, but perhaps in a language of thought that is used only to order speech acts, not for all cognitive activities.(p. 234).

This can't work either, for now we are looking at a looming regress similar to that of the homunculi watching a show in the Cartesian Theater: just what is it the Conceptualizer is doing in order to choose the correct words in Mentalese that it uses to talk to the Formulator? Don't we have to imagine another subsystem within it that acts like another Conceptualizer and another Formulator?

Some process has to start with the preverbal desire to “go on the offensive,” leading first to a choice that an insult would be a good solution, gradually incorporating refinements such as like concentrating on a body part, to the output “Your feet are too big!”. Everyone can agree on this. But the issue Dennett raises is whether the best way to picture this process is in terms of “a bureaucratic hierarchy of commanders giving orders to subordinates.”(p. 235)

Interestingly, Dennett here thinks that Levelt was too influenced by von Neumann machine architecture as a model for mental processes.

When a computer outputs the contents of a workplace to the accumulator, in terms of a strictly preverbal binary code (10110101, and so on), and this accumulator takes the message and outputs it to, say, a screen or printer, the message already has a determined content. That content may be translated in terms of ones and zeros, letters, or even

whole sentences, but there is a one to one relationship between the “preverbal” content and the output content. The translating job that occurs is done, in a von Neumann machine, by entirely fixed, bureaucratic functions and systems that the builders of the hardware and software have carefully designed.

So, Levelt’s model shares two characteristics with these machines: the preverbal content is determinate (we can be “Realists” about it), and the translation job is done by rigid, rule-based functionaries.

Dennett sketches an alternative, based on the Multiple Drafts Theory, which accomplishes the same ultimate task of explaining speech production, but in a manner that avoids either determinate content or hierarchies of strict functions. Evolutionary considerations form the core of his rival approach, as it is hard to see how either of these von Neumannesque characteristics could arise naturally.

He begins by contrasting Levelt’s orderly bureaucracy with an extreme example, a pandemonium of mindless “word demons”. Word demons are basically homunculi with various talents at different levels of sophistication, depending on the task.

At the lowest level, we can imagine that the first set of demons gets to work squawking various basic phonemes, mindlessly and randomly outputting them. Further sets of demons take this stream and shape it through a series of basically mindless steps leading ever so closer to an appropriate response: the phonemes are combined into quasi words, then English babble, then (through the introduction of grammar demons), random sentences.

The word-demons operate in massive, parallel fashion to generate countless sentences—these are like the drafts in the Multiple Drafts model, and only one draft will be chosen to make it to the outside world in the form of a spoken sentence.

But who or what judges the contest and picks the output? What determines the desired content?

When one word or phrase or whole sentence beats out the competitors, how does its suitability or appropriateness to the current mind-set get discriminated and valued? What is a mind-set (if not an explicit communicative intention), and how does its influence get conveyed to the tournament? For after all, even if there isn’t a Central Meaner, there has to be some way for the content to get from deep inside the system. . .to verbal reports.(p. 238)

Thus, while Levelt’s model erred in passing the buck to the Conceptualizer, the pandemonium model forgets that something very much like the job of the Conceptualizer has to get done somehow: “we need to find a way in which sources of content can influence or constrain the creative energies of the word-demons without dictating to them.”(p. 238)

Perhaps the way out is to think back to the party game in Chapter One. Recall that the game generated a story that had no author: responses to questions by an intelligent questioner were generated by an utterly mechanical procedure. The problem postponed by the metaphor was figuring out how to replace the questioner with an equally mindless algorithm. Here’s Dennett’s idea:

What if the word-demons are, in parallel, the questioners/contestants, and the content-demons are the answers/judges? Fully fledged and executed communicative intentions—Meanings—could emerge from a quasi-evolutionary process of speech act design that involves the collaboration, partly serial, partly in parallel, of various subsystems none of which is capable on its own of performing—or ordering—a speech act.(p. 239)

The final shape of any such model is, of course, an empirical issue, and Dennett notes that the Multiple Draft approach can merely supplement, rather than overthrow, Levelt’s own offering. The main question empirical investigation might concern itself with is the nature of interactions between specialists devoted to content and style, and those devoted to words and grammar. On one extreme, interaction might be between a pandemonium-like Conceptualizer and a bureaucratic Formulator. At the other, content and word/grammar demons might both shape the output all the way down, with almost nothing like structures having definite boundaries. Dennett tends to think the truth is more like the latter.

3. When Words Want to Get Themselves Said

I recently was asked by a friend to describe a recent film. What I intended to say was, “It’s a sad, beautiful love story.” What came out, before I corrected myself in midstream, was “It’s a sadiful, beau love story.”

Slips like these show that while outputting a sentence is a serial process, speech production might not be—somehow, a word section which ought to have appeared later managed to harness the resources of my brain and make its entrance a little earlier than I intended.

Experiments which induce slips like this, examples of brain trauma which disrupt speech production, and even the traditional Freudian slip are all evidence to Dennett that a pandemonium process of some kind involves interaction with brain resources devoted to content/style control, and those devoted to word choice/grammar control, all at a very fine grained level.

In a sense, words and goals each seem capable of gaining control of language production systems:

. . .creative language use can be accomplished by a parallel process in which multiple goals are simultaneously on the alert for materials. But what if the materials themselves were at the same time on the alert for opportunities to get incorporated?(p. 243)

(This should remind us of the introduction of memes in the last chapter—they would in effect become one of the word or goal demons competing with one another in the brain for verbal expression.)

The way of putting things is in contrast to Dennett’s earlier work in *Content and Consciousness*, in which he argued that there had to be something like a “Central Meaner” or logical line in the brain between the preverbal goal of communication and the final expression. Errors in the former would change the intended meaning of the content, whereas those in the later would be correctable errors of expression. Lines can be drawn for sure, but they will be somewhat arbitrary, depending in no way on “facts” in the world—just as the distinction that sometimes dissolves between Orwellian and Stalinesque revisions discussed in earlier chapters. Yes, there are some circumstances in which we can carefully rehearse and try out several variants before finally outputting a sentence—but these occasions are the exception, not the rule. In the fast world of real time communication by speech, the speaker and the listener learn which sentence won the tournament at effectively the same time.

This is not to deny, incidentally, that it makes perfectly good sense to imagine that our sentences can be measured against an intended goal of expression. The “distance” between them is a real thing that must be closed for successful speech production. And certainly, this happens by some kind of feedback process. But rather than the more structured and bureaucratic model visited earlier, the pandemonium alternative for this feedback suggests that

. . . it is just as possible for the content-to-be-expressed to be adjusted in the direction of some candidate expression, as for the candidate expression to be replaced or edited so better to accommodate the content-to-be-expressed. In this way, the most accessible or available words and phrases could actually change the content of the experience (if we understand the experience to be what is ultimately reported—the settled event in the heterophenomenological world of the subject).(p. 247)

Dennett examines several bits of suggestive evidence for this while in no way suggesting he has put together a definitive proof. I’ll examine just one before closing the summary.

Blindsighted subjects—to be dealt with in greater detail in later chapters—claim to be blind, yet something like visual processing must be happening in their brains, because they can respond at better than chance when asked if a light or object is in a particular part of the visual field. So, while some specialist networks in the brains of these patients are reacting normally to visual input, the signals from these centers don’t always succeed in making it to the brain areas responsible for motor output.

An ingenious experiment by Tony Marcel isolated this phenomenon. Subjects were asked to report if they saw something in their visual field, and respond with three different, roughly simultaneous “Yes” signals—a verbal report (saying “Yes”), pressing the “Yes” button, and blinking a prearranged “Yes” signal. Remarkably, subjects

sometimes gave mixed signals, indicating a “Yes” response with only one or two of the options. This indicates that various internal “drafts” about the content of experience prepared by the brain were still in competition, with some winning the competition and making it to just one or two of the “Yes” outputs, and others languishing behind. Subjects themselves, in such circumstances, could not examine their own experiences to mediate: they could not tell which responses were correct or just slips of the tongue (or finger, eyelid, etc). Other examples of aphasia or confabulation show (apparent) struggles within the brain to mediate between intended meaning and final word choice.

The final point of the chapter (and the reason I chose the blindsight experiment) is that a pandemonium or competition model of various elements in the brain struggling to gain control doesn’t just apply to language production under the Multiple Drafts Theory—it applies to intentional action across the board.

By Faustus