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Trees cannot Lie, but we can. © Robert Thibadeau, 2007.

# Lies in the Intermodal Brain

The Majesty of Neocortical Intellect



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Science often stumbles across majestic beauty that God has waiting for us to see.

We are beginning to understand how the human brain computes and what we see is unbelievably fast, precise, beautiful, and enormous. But there are holes in our evolutionary engineering that did not expect the Internet.

Our neocortical intellect has built in dangers to our own survival that are inescapable if we do not take the dangers seriously and control them, like we have done before.

I have been a student of the “Intermodal Brain” for over 50 years believe it or not. I published the first scientific paper on this in 1973!

Our intermodal brain is the brain where all the senses and motor actions are joined together and dealt with. All modalities for communication with the outside world come together and our intermodal brain figures out how to survive and thrive.

Since I am a computational cognitive neuroscientist, an oddly rare and endangered type of A.I. guy, I try to figure out how the brain computes the information from the input modalities to the output modalities.

I keep the faith that God has some beautifully simple way to accomplish this. This, despite the sure fact that our brains are composed of many different brains evolved over hundreds of millions of years, and certainly unbelievably complicated in their electrochemical detail.

Like your laptop, no one person can understand all the detail that is in it, but if you pull back and ask how it computes, your laptop is pretty simple.

One person who claims to have discovered how the intermodal brain computes is the inventor of the Palm Pilot, Jeff Hawkins, in “On Intelligence”:

<https://www.amazon.com/On-Intelligence/dp/B0007OB404/>. For updates on Jeff’s work which he now calls “the thousand brains” theory see [www.numenta.com](http://www.numenta.com) but the book is still good.

He says he knows how the intermodal brain (the neocortex) computes, and he says he lays it out in this book. His claim, alas, is not true. As a scientist, if he was fully right, we would have a machine right now to do it. We do not.

I am certain, nevertheless, that he does capture a beautiful glimmer of truth on how the intermodal brain computes. But, alas, it is just a glimmer. The glimmer is that there is a universal neocortical algorithm. I, too, believe this is true. I just don’t believe he, or I, or anybody else, knows the algorithm well enough to scientifically prove we know it.

All we have today are such glimmers. Because Jeff only had a glimmer, we have other new glimmers, and many others have seen other glimmers. But we still don't have a clue how the intermodal brain computes so elegantly, precisely, and with such majesty.

So, you might ask, how to see it through my eyes as someone who knows he will likely be long gone before that computational cognitive scientist shows up who sees and can prove the simple universal neocortical algorithm.

My view on this algorithms is in two books, one on a theory of human privacy <https://www.amazon.com/HOW-GET-YOUR-PRIVACY-BACK/dp/1981002456/>, one on the related theory of lies <https://www.amazon.com/How-Get-Your-Lies-Back-ebook/dp/B07Q2DNJJK/>. Here is a summary of the second book that summarizes aspects of a cognitive science theory of lies, and the existential danger we know we are now in.

### **Fiat Lies are Genocide on the Human Race**

The Internet Court of Lies

medium.com

### **To restate the theory in my books and the above article:**

The Intermodal brain is a huge predication engine, joining subjects and predicates, which we can observe directly as is possible in full, glorious, motion in our human natural language.

When we communicate among each other with the full expressive powers of our natural language, we are using a unique gift from God that is evolved to be the most direct and complete neocortex to neocortex communication channel between people's brains.

If we can figure out how humans solve the Natural Language Understanding and Production A.I. problem, we have solved our problem of figuring out the universal neocortical algorithm.

It has nothing to do with synapses, or neural chemistry, or how all those brains inside our brain interact in detail. Sorry Jeff. But your glimmers are still good just a bit too low level to work simply.

We can, of course, suppose a bit how Jeff's glimmers and my glimmers join.

For example, Hawkins, very weakly saw that “cortical columns” that make up the neocortex seem to start at one wired end on each of the approximately 150,000 columns with abstract concepts and end with bound concrete subjects — the concrete objects that the abstract ideas are conceptually modifying.

We also more recently have discovered that content, things like our intermodal knowledge of places versus people, are in different parts of the neocortex, and these *are astoundingly in the same places in the neocortex for every person.*

Our scientific focus is still poor on seeing this content in motion, but the universal computational content location seems to be there. Which cortical columns, in Jeff’s sense, process what content, seems to possibly be universal among (normal) people. This is amazing. How is our episodic knowledge distributed in every human brain in the same biological places?

Be forewarned though, we still do not know how memories are stored in the brain. We just know they are stored, somehow. But that may be irrelevant to understanding how our intermodal brain computes.

We also know that our Intermodal brain only works by “episodes” where episodes are equivalent to sentences or clauses in natural language, in shots in movies, or bars in music, actions in sports, making a meal, telling a story, and the list goes on and on and on in every way we perceive and act on the world outside of us, and inside of us. What’s a episode? It is what is asserted in a sentence.

All episodes can embed other episodes in hierarchies of episodes when we communicate. Stories, narratives, are universally organized in such hierarchies of episodic — subject-predicate — communications of our episodic memories.

The plain fact of the majesty of our intermodal brains is in the complexity and precision we can communicate, one person to another, in our full natural language (to include hand waving and smiling, making movies, feeling feelings, tasting food, playing basketball, and on and on) with speed, accuracy, and precision that is awe inspiring.

All coming out of that goey grey mass in our heads.

We also know that the main place humans understand “truth” is our episodic memories.

What we see, hear, feel, do, is the only truth our intermodal brains know.

We can know what we see and also what someone says. We can know what we see is true, and what someone said, but not the truth of what he said.

It is true that he said it. Just as true as, for example, that he did it. Our cognitive brains knows which senses the information that it manipulates comes from, and which actions our neocortical conclusions go to.

We know when it comes from our eyes, our ears, or just our brains, when we think or feel happy or sad. We can know we acted, or decided to be silent or still. Causation and its subclass agency (or self-causation), are central to predications, and how they are organized in the intermodal brain.

This computation is all about predications, subjects and predicates, that we see when we are asked to hierarchically graph a sentence in school. How we organize these in memory and juggle them in verifying what we see, thinking about them, forming new ones out of all the possible inputs, and making decisions is only dimly understood.

We know a lot about this stuff, just not how humans compute it all, in an elegant sense.

This brings me to lies. The science of lies (and, by the way, truth) is a cognitive science.

It says that since the only truth we know is through our episodic memories, then no two people can possibly understand the same sentence, the same episode, in exactly the same way.

Not even close, by the way. Often when someone says something we do not understand, we might think it might not be true. We might suspect it is a lie.

A property of the predication engine in our brains is that any single episodic predication can be understood in an uncountable number of ways.

It all depends on the predication context in which the predication is put.

What we can directly prove to ourselves is that any sentence can be a lie, or any sentence can be true. It just depends on the context in which is understood.

I call a predication or assertion a Fiat Lie if we suspect some sentence (or episode) has been said that might be a lie. It might not be the truth, the whole truth, and nothing but the truth. It might involve known deceit, intention, and motivation. And, importantly, the lie, even if is a lie, might be socially acceptable, or not.

The only way we have to align our understanding between ourselves is to put the sentence in a mutually agreed context when both people agree they see the sentence is true or a lie.

The simplest way to agree is that both people observe the truth directly with their senses. This is what the rules of evidence in court, or replicated results in modern science, are all about.

This is an existential problem for humankind if we accept truth simply because someone asserts something without such proof of truth.

Without dialogue in our natural language to clarify the context of what is asserted, a fiat lie simply floats as a suspected lie. There is no other way to figure the context if we do not see the truth directly ourselves.

Now, the media could, and does try, to simulate some dialogue. They ask questions to align their own understanding. Journalism writes whole stories around assertions to help align understanding about the themes.

But this may not align the understanding for other people. The science says that alignment, particularly if it is actually a lie and not true, can always continue to be imperfect.

If the receiver of the assertions cannot actively engage the producer of the assertions in one to one, human, natural language dialogue, we cannot hope to know the truth of a fiat lie. We cannot have the benefit of disambiguation except through a court or scientific verification that delves into the possible lies and exposes what is true or false with verifiable evidence.

There is no other way to deal with Fiat Lies. It is the way our brains compute.

How they actually compute this way, we do not know, but we can observe through the window of human natural language, that they do, in fact, compute that way.

Now, it is a practical impossibility for every person on the face of the planet (in the age of the Internet) to have a natural language dialogue with every other person who communicates an episode which may be true or a lie.

The only conclusion we can come to is the one we came to for a “printed world” in the 1600s: An Internet Court of Lies that adjudicates Fiat Lies based on Evidence produced through Enforced (moderated with time limited) Dialogue.

Fiat lies can be brought to the court by the plaintiffs. Defended by questions that must be answered with evidence. In our courts we have mature knowledge of how to enforce dialogue to reveal truth as humans can best understand it. There is no other option.

Otherwise, the fiat lying will kill us all, or, at the very least, as George Washington pointed out in his Farewell Address to the future, will kill our liberty.

<p><b>George Washington's Case for Convicting Donald Trump</b></p> <p>Truth to Power</p> <p>medium.com</p>		
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