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**From:** Noam Chomsky <[REDACTED]>  
**Sent:** Wednesday, June 24, 2015 9:51 PM  
**To:** jeffrey E.  
**Subject:** RE: Re:

The third problem can be posed – though few will understand it. The first two can be posed but there is no known way to address them – the first for reasons that Dick Lewontin explained in his important paper on evolution of cognition (which those who write about the topic refuse to read), the second because it reaches to issues that are total mysteries even in much simpler domains – perhaps, though many don't to contemplate the fact, because of limits of human cognitive capacity. Puppet and puppeteer, again.

There are lots of narrower problems that can be posed, but there are issues of general import.

What was very special, maybe unique, about Hilbert in 1900 was the advances in the field had reached the point so that questions had that miraculous combination of being (1) potentially within reach and (2) of very great import for the field of mathematics. That's hard to achieve.

Will think more about it – repeating the Hebrew words to myself. Did you learn them as a kid in Hebrew school?

Noam

From: jeffrey E. [mailto:jeevacation@gmail.com]  
Sent: Wednesday, June 24, 2015 5:09 PM  
To: Noam Chomsky  
Subject: Re: Re:

I understand the limitations of questions too far from the boundary of contemporary thought but as you speak hebrew. i will paraphrase the reason you should consider posing the questions now. -- If not now. when?

On Wed, Jun 24, 2015 at 3:59 PM, Noam Chomsky [REDACTED] > wrote:

The main questions that interest me are about origin of the language faculty, which, I think, created modern humans, the most unusual, nutty, and remarkable of all biological phenomena. There are two problems that seem beyond reach: the origin of elementary human concepts, which appear to be radically different from anything in the animal world; and the "creative aspect of language use," the phenomenon that astonished Galileo, Descartes, and other leading figures since. The third problem has to do with what we've been calling "the Basic Property" of language: a

recursive procedure that generates an infinite array of hierarchically structured expressions interpreted at the interfaces, primarily the conceptual-intentional interface, providing a "language of thought." The most fundamental question here is to what extent the Strong Minimalist Thesis (SMT) holds, that is, to what extent has nature produced a perfect solution to the Basic Property, which underlies our creative capacities in language (and probably much else). That problem can be addressed, and has been, I think with some success.

Very generous proposal. Made good sense for Hilbert in 1900, given the advances of the past century. These enabled him to formulate problems of deep mathematical significance in a form that was not too far from contemporary understanding.

But my feeling is that the cognitive sciences is nowhere near that stage. It's possible to pose many narrower problems, and that's in fact what people work on from grad school on to the limits of research. But understanding, I think, has probably not reached the stage where one can sensibly do what Hilbert did.

Others incidentally disagree – as is usually the case.

From: jeffrey E. [mailto:jeevacation@gmail.com <mailto:jeevacation@gmail.com> ]  
Sent: Wednesday, June 24, 2015 2:40 PM  
To: Noam Chomsky  
Subject: Re: Re:

i will get you a response on israel. / 2. what does amaze you? interest you? . 3/ we could put together some chomsky questions for posterity, like hillberts , fermats etc. I am willing to fund a prize for solutions, Anonymously if you prefer. . . I need to keep up your fun quotient.

On Wed, Jun 24, 2015 at 2:23 PM, Noam Chomsky [REDACTED] wrote:

Forty years ago, Israel was one of the most admired countries in the world. Now it is most disliked. Forty years ago it was pretty clear, as I wrote at the time (and I was far from alone), that those who call themselves "supporters of Israel" are in fact supporters of its moral degeneration, international isolation, constant conflict and security problems, and maybe worse. So it has occurred. Israel even now has an official whose task is to deal with international isolation.

Israelis like to attribute all this to anti-Semitism, which hasn't changed in the past 40 years. Or to appeal to "we have no negotiating partner," which won't wash. The problem is not Netanyahu. The policies and problems are much deeper. The crucial question is how long and how far will Israel proceed on the course to self-destruction.

A lot of work in AI, neural network theory, "Big Data and statistics," etc., is as you describe – mimicking behavior (which I don't even find amazing or particularly interesting). But I think you underestimate the theoretical insights and explanations, such as the few I mentioned in the papers I sent, the theories that yield explanations for such surprising phenomena as rigidity and structure-dependence, with their far-reaching consequences. Those I think are the kinds of results that are rarely found outside the hard sciences. They don't mimic behavior, but explain fundamental properties of cognitive processes that enter into behavior, of course indirectly. And there's a lot more like it.

From: jeffrey E. [mailto:jeevacation@gmail.com <mailto:jeevacation@gmail.com> ]  
Sent: Wednesday, June 24, 2015 6:43 AM  
To: Noam Chomsky  
Subject: Re: Re:

1. do you have any specific questions for him? he thinks its not going in the right direction. ie. bibi, not strong enough to make tough decisions. . ehud trusts hamas more than abbas. I know you dont like telephones but we could set up a text exchange if you wanted to.

2. more important

I use my coin flip analogy often. ie. . single cell experiments, like looking through a microscope at my coin , measure its content it moment, its shape , all trying to figure out why the result after a long while is always the same -equal number of tails and heads. a consistent result. no algorithm , no computation . Why i am pushing you on this , is that i firmly believe that language needs a theory, cognitive science needs a theory, your minions and intellectual offspring are like bio engineers --they will be able to mimic some of the behavior , yes it is amazing but not interesting. you have thought long and hard and more importantly have seen what does NOT work. einsteins thought experiments led to truly remarkable results in physics. Im hoping that results like that can be achieved for biology

On Tue, Jun 23, 2015 at 11:05 PM, Noam Chomsky <[REDACTED]> >  
wrote:

Have a good weekend. I wonder what he thinks about where the state is heading now.

We'll probably be at the Cape, in Wellfleet, if we can make it.

Maybe there are miracles, but I think more prosaic approaches yield rich results in domains like vision (Marr's main concern) and language. Like some of those I've mentioned. I don't see how to progress in other ways.

From: jeffrey E. [mailto:jeevacation@gmail.com <mailto:jeevacation@gmail.com> ]  
Sent: Tuesday, June 23, 2015 10:20 PM  
To: Noam Chomsky  
Subject: Re: Re:

1 you are a treat and I very much appreciate your non finance views.): 2 ehud barak will be with me for the weekend in ny. not sure where you are?

Marr , -try , probabilty , symmetry. entropy. it might look like computation but it is not. it might look like algorithm but it is not. the flip of a coin does not compute, have an algorithm or a mechanism. though it might look as if it does. it is not an input system, there is not mechanism drivning the heads and tails towards equal numbers. , there is not nature looking to see what the previous results were and computing the next result. like your ug it is more of a miracle.

On Tue, Jun 23, 2015 at 9:54 PM, Noam Chomsky <[REDACTED]> <[REDACTED]> wrote:

I wouldn't take the term "mechanism" too literally. It refers to whatever is taking place in the brain. For some, as most of those in the Nowak group, it means neural nets. For Gallistel, it's processes internal to the cell. Useful to look at these matters in terms of Marr's three levels: computation, algorithm, mechanism.

From: jeffrey E. [mailto:jeevacation@gmail.com <mailto:jeevacation@gmail.com> ]  
Sent: Tuesday, June 23, 2015 9:46 PM  
To: Noam Chomsky  
Subject: Re: Re:

1 will do , by the way new housing starts were the highest in 7 years. the mortgage interest deduction cheerleaders , ( not me ). are thrilled.

2. i am willing to be convinced, as always

3. my admittedly naive point is that "mechanism" ,I believe ,is the wrong concept. driven in error, by the machine -computer analog since the early 1900s . instead think of probability , it is not a mechanism ,

On Tue, Jun 23, 2015 at 9:05 PM, Noam Chomsky

> wrote:

1. Not a trivial matter. I'm not the best person to ask. I'd suggest contacting people who've really thought seriously about these issues, like Robert Pollin, a fine independent economist at U Mass Amherst

2. Sherman's speculation is an interesting extension of recent discoveries about conservation, deep homologies, regulatory circuits, and other elements of what's sometimes called "the evo-devo revolution." It remains to be seen whether anything can be done with it. I think you underestimate the contributions of Berwick and his students, including Yang.

3. The idea that there is a "ug" for vision, language, etc., seems to be essentially what Randy Gallistel calls "the norm in neuroscience," quoted in the paper on modularity that I sent you. And yes, they're certainly connected, at least at the level of cells, and presumably well beyond. These are live and significant research areas. These "central modules" do not have input or output, but they are accessed by input systems and in some cases, like language, by output systems. That seems a fair picture of the rough cognitive architecture. I don't follow the rest. It's true that work on human language uses as evidence what is available, namely performance. And much of the work unfortunately is fascinated by the droppings, just as in other fields. But there is some work that seeks to discover the mechanisms, as discussed in the papers I sent you.

<mailto:jeevacation@gmail.com> ]

From: jeffrey E. [mailto:jeevacation@gmail.com]

Sent: Tuesday, June 23, 2015 7:52 AM

To: Noam Chomsky

Cc: valeria.chomsky

Subject: Re: Re:

1. if you would design a fair tax system. what goals would you suggest. I ve been researching how to start a new financial system for Zimbabwe. its now so broken it presents a clean petrie dish, exchange rate of a billion billion dollars equals one us dollar

2 berwick and yang. clever. solution hunters, . not sure if question raisers , sherman better

3 . taking sherman work . and my conjectures ug 's would be genetically created modules of "sense makers. " structures that were able to separate sense from non-sense. I think there would be a ug for vision . smell etc and probably similar or connected in some way.

in previous emails I have been referring to "shapes" as a metaphor for those structures. shapes do not have an input /output . a failing of the computational analogies. let me try this , a cell

membrane , has a shape, it separates inner from outer. it is easy to see what is inside or out. the shape of the membrane is determined solely by a probability distribution. nothing more. The tons of works on spoken language seem in vain to try to make of the mechanism from a minuscule sampling of the combinatorics . silly. in the elephant and the blind man story , they are not even close to touching the elephant they are fascinated by its droppings.

On Tue, Jun 23, 2015 at 12:28 AM, Noam Chomsky <[REDACTED]>

> wrote:

I wouldn't dare to run the show for money 101, but I'm sure I would learn a lot by sitting in.

It's true that grammars stand outside of time, a fact that many linguists and psychologists don't understand. There are suggestions of something like a "universal UG," though not couched in just these terms. Notably Michael Sherman's theory that a universal genome appeared at about the time of the Cambrian explosion, and all forms of life are minor variants of it.

From: jeffrey E. [mailto:jeevacation@gmail.com]

<mailto:jeevacation@gmail.com> ]

Sent: Monday, June 22, 2015 12:06 AM

To: Noam Chomsky

Subject: Re: Re:

1. dont you have any questions about money, . ? ? finance. . ? I owe you some knowledge .

2 .to say the shape can be" decribed " by language is redundant.

the "shape" is the metaphor for an n-dimentional object , it stands outside of time. as do grammars , but sentences do not, they require time. the shape is somewhat like a fitness landscape? contrasted with communication which also requires a time dimension and biololgy that needs and uses energy . I suggest the mammal Ug is a subcategory of all UG.s . and that as biology prefers redundancy . the other modules, ie vision are small distortions of it.

3. during that UN period I often give a " money 101 to world leaders who have in many case. . little knowledge of a subject to which they give many speeches and policy directives , as they only have experinces such as that of a general , a politicitain, in some instancees a disk jockey, before having to run their country. I would love to consider some of what you thought was " fair " . with regard. allocations. if you were running the show.

On Sun, Jun 21, 2015 at 11:13 PM, Noam Chomsky <[REDACTED]>

<[REDACTED]> wrote:

I follow up to the point where you write "the organizing principle of the shape is language..." No doubt it can (partially) be described in language, but that's not what you mean.

Zipf's law is a rank-frequency distribution. And also meaningless, as Mandelbrot showed 60 years ago. I hope Yang is clear about this. He surely knows.

Noam

From: jeffrey E. [mailto:jeevacation@gmail.com]  
<mailto:jeevacation@gmail.com> ]  
Sent: Sunday, June 21, 2015 2:48 PM  
To: Noam Chomsky  
Subject: Re: Re:

it is my failing not yours. the old math requires numbers . too limiting. ( we can put a metric overlay on later in the chain) imagine a shape in real space. it is readily apparent if a line either fits on the shape or not . how do you know. ? you compare the line with the shape. your visual system allows the mental shape to either map onto or not onto the shape in a coherent manner. the shape is not an input device ,it is an object . the organizing principle of the shape is language, the shape is a collection of grammars. lines on the shape are either coherent or not. coherent ones are legitimate sentences .

yang is flexible in his use of the term probability. . for example he in a number of papers refers to zipf as a probabiltiy distribution. i have checked a number of his papers after your last remark, I think it is a mistake. he means that after empirical measurement . for ex word frequency, . if ten times out of 100 the corpus has the word x. then he describes the probablility of finding the word as 10 percent . this is not correct. it is only the probablity of finding the word in the frequency list . but he is very accomplished at mathematical models.

On Sun, Jun 21, 2015 at 1:03 PM, Noam Chomsky <[REDACTED]>

[REDACTED] > > wrote:

Interesting image, but I don't see what it tells us about language.

The problem looks to me like this, roughly.

Take, say, the human visual system. There's a genetic component that determines that humans will have a mammalian and not an insect visual system, and much else. Same with other subsystems of the organism – "organs," "modules." Language in particular. The technical name for this component, whatever it turns out to be, is UG. UG therefore determines that certain systems are possible I-languages for humans, others are not. I presume that is what the "biological organizing principle" for language is. It's plainly not an input

system, though it determines possible input systems for human languages. I don't see how we improve understanding by looking at it from this perspective.

A minor technical problem, not serious, has to do with distinguishing digital infinity from continuity, like continuous lines on the surface of a hemisphere.

I think you'll find Yang interesting.

Noam

<mailto:jeevacation@gmail.com> ]  
From: jeffrey E. [mailto:jeevacation@gmail.com]

Sent: Saturday, June 20, 2015 10:52 PM  
To: Noam Chomsky  
Subject: Re: Re:

1. I will wait on valeria. we can craft a fun few days

2, try this on but only if you get a moment , i know you are busy

it appear to me that ""language" can be defined as the biological organizing principle that creates a shape space. "coherent sentences " are defined as those that fit on the shape. The projections on the sensory motors, allows communication. . There are an infinite digital number of sentences.that do fit on the shape , but orders of magnitude more, that do not fit.- to attempt a naive representation, imagine a hemisphere, ( symmetric), any continuous line drawn on its surface , is a sentence. there are infinite numbers of lines that can be drawn. however , trying to connect two points , directly without traversing the hemishpere is also infinitely possible but most solutions need to leave the surface. The principle that organizes the shape is NOT an input device. one can map inputs onto the shape but it is not THE shape , ex, a hemisphere bowl in 3 space, analogy, one can put marbles in the bowl and they will map a path to the bottom. but the shape of the bowl . determines how fast they move, and in which direction, . the shape of the bowl is the language. there is a shape for vision as well. . it exists without input, certain paths are more probable etc.

3. I will contact Yang

On Sat, Jun 20, 2015 at 10:41 PM, Noam Chomsky <

> wrote:



Valeria's not here right now, so will have to check with her about late September. Really intriguing possibilities, and a delightful offer.

On Yang, I read his work quite differently. He does make use of word frequencies and probability distributions, but as far as I am aware in pretty straightforward and innocuous ways. And he's quite sophisticated about these matters. Smart and interesting guy. You might want to contact him directly.

I don't recall his using Zipf's "laws," but it wouldn't matter much. Mandelbrot showed back in the '50s that they were a statistical artifact, near meaningless. I was, incidentally, surprised to see how he dealt with this result in his autobiography. I think he called it his "Keplerian moment," or something like that.

Noam

From: jeffrey E. [mailto:jeevacation@gmail.com]  
<mailto:jeevacation@gmail.com> ]  
Sent: Saturday, June 20, 2015 12:10 PM  
To: Noam Chomsky  
Subject: Re: Re:

I think you might try to plan on late september , taking my apt and spending a few days with valeria in the city, As it is the opening of the UN general assembly , as well as the Clinton global initiative New york is rife with people with at least influence, if not new ideas. . I , we. can organize many fun interactions. my house becomes a respite for the select few, to take off their ties , and talk openly. You would be welcome to join as many create or participate as you prefer. yang's work deals with language as signals . his reliance on Zipf like distributions is a good example of naive probabilities. . empirically zipf appears. but cannot be derived from any of his or anyones elses to date. so somewhat misleading to suggest the " probability of word , x appearing, " it is the mistake of frequency vs probability, and careless common usage.

On Sat, Jun 20, 2015 at 11:44 AM, Noam Chomsky <[REDACTED]> <[REDACTED]> wrote:

Sounds like a most interesting person. And someone it would be very interesting to talk to. I presume he spends time in NY. Hope we can work it out.

Would be interested in learning more about your critique of the use of probability in language work, mostly by computational cognitive scientists, as far as I know. I've written critiques of it too, but on different grounds: failure to account for what they are trying to show, or even to understand the issue. There are, I think, some notable exceptions, like the recent work of Charles Yang, one of Bob Berwick's students.

<mailto:jeevacation@gmail.com> ]

From: jeffrey E. [mailto:jeevacation@gmail.com]

Sent: Saturday, June 20, 2015 8:22 AM

To: Noam Chomsky

Subject: Re:

He is the head of the human rights court in strasbourg. / former prime minister of norway. . . He would be happy to have a dinner with us. . subj. drones. solitary confinement , death penalty ( europe does not have one , so if killing terrorists is to be under an act of war, argument , then they, as enemies ,have war rights. ). tribalism, mafia, syria, ukraine, saudi, egypt. libya, . We have a great friendship. - I give him his financial ABC's class. he gives me my pragmatic politics lessons. fyi great similarity now as the old political guard seem to reflect the patterns of the old long term investors, ( skills of . planning. executing . etc ) now confronted by media . and pressured to make quick decisions. ie behaving like inexperienced short term traders. fyi I have read a great number of language papers. many if not most, misuse the concept of probability . making naive, erroneous uses of the word , hence forming nonsensical conclusions. ( like the silly , life on other planets " calculation". probability needs repetition and symmetry, historical events do not have either ! )

On Sat, Jun 20, 2015 at 1:08 AM, Noam Chomsky [REDACTED] du

[REDACTED] > wrote:

Glad it worked. Hope that the speech was of some interest.

<mailto:jeevacation@gmail.com> ]

From: jeffrey E. [mailto:jeevacation@gmail.com]

Sent: Friday, June 19, 2015 6:38 PM

To: Noam Chomsky

Subject:

you would have been proud my friend the sec gen of the council of europe thjorborn jagland had to give as speech on terrosism to the security counsel. Last night I presented your arguments, re hypocrisy, he was shocked but loved it.

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