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Is the Man Who Is Tall Happy?

By Michel Gondry

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I discovered Noam Chomsky
by picking up a couple
of DVDs at a video store
in New York a few years ago:
Manufacturing Consent and
a Rebel Without a Pause.
I remember this sequence
where a few kids from a
school radio station
are interviewing Professor
Chomsky at their little station.
Noam was giving them
his full attention,
as he does to everyone
who requests it.
Film and video are both, by
their nature, manipulative.
The editor or director
proposes an assembly
of carefully selected segments
that he/she has in mind.
In other words, the context becomes
more important than the content.
And as a result, the voice that
appears to come from the subject
is actually coming
from the filmmaker.
That is why I find the
process manipulative.
The human brain forgets the cut,
a faculty specifically human
that, I will learn, Noam
calls psychic continuity.
The brain absorbs a constructed
continuity as a reality
and consequently gets convinced
to witness a fair
representation of the subject.
On the other hand, animation that
I decided to use for this film
is clearly the interpretation
of its author.
If messages or even

propaganda can be delivered,
the audience is constantly reminded
that they are not watching reality,
so it's up to them to decide
if they are convinced or not.
Also I have been
looking for a project
that would add up a long process
to a hopefully coherent result,
a way to focus
my often shattered creativity
and maybe contribute
to expose values I share.
Of course, the egotistic side
of me also felt empowered
about the prospect
of spending some time
with "the most important
thinker alive,"
as he is described in a paragraph
which coincidentally ends by asking
why Chomsky is "an American hater,"
a misconception only possible
if you consider
that the same people who run a
country also constitute it.
But what the hell?
Professor Chomsky is not getting any
younger, and I better hurry up.
After all, I just did a film about
my aunty for similar reasons...
not animated, though.
Then again,
she is less controversial.
Or is she?
We're going to have a conversation,
and sometimes this going to
run and sometimes not so.
Hopefully, it's not going
to be too distracting.
Oh, it doesn't bother me.
Okay, 'cause it's a bit noisy.
It's like that.
It's an old-fashioned sound,

so I wanted you to be prepared.
Hearken back to your youth.
Doesn't it wreck the audio?
Well, a little bit.
We will hear the camera.
But as long as we understand
the word, I don't mind.
Yeah.
So I prepared my question
a little bit,
but I... ah, I'm sorry.
I'm a little bit nervous. I... I...
You are nervous?
He is.
After all your experience
in the public eye?
No, not... it depends
on the person I'm meeting
more than me.
So I wanted to start
with asking you
if you could record the very
first memory of your life.
- The first memory of my life?
- Yeah.
Yeah, I suppose.
There are memories that I can date
because I know where they were,
you know.
So I can date memories
from about a year and a half,
when I was sitting on a...
I know where it was,
so it had to be a year and a half,
where I was sitting on a counter,
and my aunt, who...
My parents had jobs,
which was unusual.
This was the 1930s.
So there was a stream
of aunts and cousins
and others who came through,
and there were several aunts
who spent time with us.

One of them was trying to get me
to eat oatmeal,
which I didn't want to eat.
So I just put it in my cheek
and refused to swallow it,
and she was... tried to figure out
how to get me to swallow
that oatmeal.
But I must have sat there
for a long time.
I was a stubborn kid.
I was not going to eat
that oatmeal.
I remember that very well,
and that had to be at about
16 months or 17 months,
and I remember other things
from that time.
I was in a nursery school,
I remember,
and sort of standing there
looking around,
wondering what all these kids
were up to and why and so on.
And do you think it's connected
with the development of language,
the formation of memories?
Does it correspond to where
the brain start to grasp...
A lot is being learned
about language acquisition.
The more intensively
the topic is studied,
the more sophisticated
the research techniques,
the more we learn
that children know
quite a lot of language,
much more than you would expect,
before they can exhibit
any of that knowledge.
The direct evidence about this...
and there's also indirect evidence.
So just to mention

some of the indirect evidence,
there is a technique
of teaching language
to the deaf-blind.
Actually, my wife did
a lot of the work on this.
It's called the Tadoma method.
Yes, with the hand.
Well, what they do
is teach the person
to put their hand on someone's face
and, using the motions
of the face and the vocal cords,
to interpret what you're saying.
Extremely little, very little
information comes through.
But people get
a very satisfactory knowledge
of language from that,
I mean, so much so
that you have to do
pretty complex tests
to see what they don't know.
However, they have never
succeeded in using this method
for people who lost sight
and hearing
before about 18 months old.
What seems to be the case
is that during
the earlier exposure,
where the child is not
manifesting very much knowledge,
maybe producing a word
or two-word sentences,
they're acquiring
the basic character
of language,
quite a lot of knowledge,
which they can then build on
when they...
it's unconscious, of course,
but they can build on it
when they get

this later instruction,
which has very little evidence.
And they can, in fact,
live in a society
where people are talking,
and they can understand
what they're saying
if they can put their hand
on your face.
In fact, I should say that,
you know,
one of the most striking things
about language
which has really not
been studied...
just consider an infant,
you know, a one-day-old infant.
Now, the infant...
There's all kinds of things
going on in the world.
How does the infant figure out
what part of what's going on
in the world
has to do with language?
It's an incredible feat.
No other organism can do it.
Well, you know, when I grew up,
we used to believe
in reincarnation.
Reincarnation?
It's a fairy tale, but I think
it make me look to a new being
as a fully completed person.
That's Plato.
That's Plato's theory
of remembrance.
He was puzzled by the question
of how you would know so much.
And he said, "Well,
you must remember it
from an earlier life."
You're as smart as Plato.
So I wanted to ask you quickly
the type of education

you received from your parents
and quickly about at school.
It was a Deweyite
progressive school,
which was very successful.
For me, at least, it was perfect.
It was not unstructured,
but it did emphasize
initiative, creativity,
working with others.
There was no grading, you know,
but you were encouraged
to pursue your own interests
and... within a structure
that was established,
so you did, you know, learn
the things you had to learn.
But, I mean, you were all
pursuing your own interests
and often working with others.
In fact, I didn't...
I wasn't even aware
that I was a good student
until I went to high school.
I went from this relatively
free, creative,
exciting environment
to a pretty regimented
and academic high school
where everyone was ranked
and you'd do exactly
what you were supposed to do
and everyone's trying
to get into college and so on.
And then I discovered
I was a good student.
I mean, I knew
I had skipped a grade,
and everyone else knew
I'd skipped a grade,
but nobody else...
The only thing anyone noticed was,
I was the smallest kid
in the class,

but it didn't mean anything
aside from that.
And I can remember
the school years very well.
I barely remember high school.
It's kind of like a black hole.
And do you think competition
is counterstimulating?
It shouldn't be.
What's the point of being
better than someone else?
And where was this school?
Right outside the city limits
of Philadelphia.
It was in a... kind of
an open countryside.
So, you know, by the time
I was old enough to,
my best friend and I
would spend Saturday
riding our bikes
all over the countryside.
Did you kept friend from this age
all during your life?
We sort of separated
by high school, you know,
went our separate ways.
Well, you spent a lot of time
on your own.
With my father by the time
I was 10 or 11 or so,
every Friday night, for example,
we would read Hebrew classics,
you know,
19th-century literature, essays.
It was just part of the routine.
And incorporating the emerging,
reviving Hebrew culture,
that was all of their lives.
I mean, that's what they were

devoted to:

the revival of the language,
the culture,

the Palestinian community,
this Hebraic revival that...
Did you say Palestinian community?
Well, you know, it was pre-Israel,
so it's a Jewish community
in Palestine.
Okay, okay.
I suppose by now, my father
would be called an anti-Zionist.
He was then
a deeply committed Zionist,
but for him, it was
a cultural revival, basically,
not particularly interested
in a Jewish state.
Mm-hmm.
Do you remember
if you had an ambition
for your future as a child?
A lot of crazy ambitions.
I remember once telling my mother
that I had decided
that when I grew up,
I wanted to be a taxidermist.
Don't ask me why.
I guess I liked the word.
I was about eight years old.
So since I'm ignorant, I got
the luck to discover Descartes.
I mean, I knew who Descartes was,
but I read him after I read you,
and I noticed he give you the tools
to doubt what he's saying.
It's like the opposite
of dogmatism.
I mean, that, you know, ought to be
the ideal of teaching anyway.
Whether it's children
or graduate students,
they should be taught
to challenge and to question.
Images that come from
the enlightenment about this
say that teaching should not be

like pouring water into a vessel.
It should be
like laying out a string
along which the student travels
in his or her own way
and maybe even questioning
whether the strings
in the right place.
And, you know, after all,
that's how modern science started.
For thousands of years,
it was accepted by scientists
that objects move
to their natural place.
So a ball goes to the ground,
and steam goes to the sky.
These things are kind of
like common sense,
and they were taken for granted
for literally thousands
of years, from Aristotle.
And it wasn't until Galileo
and the modern
scientific revolution
that scientists decided to be
puzzled by these obvious things.
And as soon as you start
to question things,
you see nothing like that
makes any sense.
And every stage of science
or, you know,
even just learning,
serious learning,
comes from asking,
"Why do things work like that?
Why not some other way?"
All right, you find that the world
is a very puzzling place,
and if you're willing
to be puzzled,
you can learn.
If you're not willing to be puzzled
and just copy down what you're told

or behave the way you're taught,
you just become a replica
of someone else's mind.
Some of the technical work
I'm doing now
is initiated
by my suddenly realizing
that assumptions
that have been standard
throughout modern history
of generative grammar
but, in fact, throughout the
traditional study of language
just have no basis.
And when we ask, "Okay,
then why do we assume them?"
you have to look for a basis,
and lots of avenues open up,
and that happens constantly.
And do you remember
when you start to build
your own voice or your own
philosophy, in a way?
And could you describe
how this process happened?
It's a constant process,
and it probably starts
with my not wanting
to eat my oatmeal, you know.
Why, you know?
Uh-huh.
And in any kind
of scientific inquiry,
any kind of rational inquiry
that's striking in science,
you have a conception
of how things ought to work.
If you look at the empirical data,
they're usually at least
partially recalcitrant.
Things don't fall into place.
So you typically are working
with a conflict
between a conception

of the way things ought to work
in terms of elegance,
simplicity, naturalness
and a look at the messy way
in which things do seem to work.
The Galilean revolution,
which was a real revolution
in the way of looking at the world,
for one thing because of
the willingness to be puzzled
about what seemed to be
simple things,
it's a hard move to make.
In the case I mentioned,
it was 2,000 years.
You know, smart people.
They said that nature is simple
and it's the task of the scientist
to show that it's simple.
And if we've not been able
to do that,
we've failed as scientists.
So if you find
irreducible complexity,
you just haven't understood.
Well, that's a pretty good
guideline.
And it does turn out to be
a very effective driving element
in inquiry,
because there's good reasons
why things ought to turn out
to be simple, you know.
I mean, for Galileo
and the whole of early modern
science right through Newton,
great scientists...
you know, Huygens, others,
Bernoulli, up through Newton...
you know, this kind of
classic period
of modern science...
there was a very clear
concept of intelligibility.

The goal of science was to show
that the world is intelligible.
And intelligible meant something.
It meant something
that an artisan could create,
like gears and levers,
and something like...
A model was these,
let's say, medieval clocks,
you know,
which did all sorts
of amazing things.
Now, that goes
right through Newton.
It's called
the mechanical philosophy.
"Philosophy" just meant "science,"
so it's mechanical science.
And that's the goal.
I mean, Galileo,
at the end of his life,
was kind of distraught
because he was not able
to construct mechanical models
of the tides
and the motion of the planets
and so on,
so he felt his life...
scientific life had failed.
But then it went on.
Finally get to Newton,
and Newton demonstrated,
to his dismay,
that the world doesn't work
like a machine,
that there are
what his scientific colleagues
called occult forces,
namely attraction and repulsion,
which don't operate by contact.
So you can attract things
at a distance,
which was just unintelligible.
Newton himself thought

that this was what he called
an "absurdity"
which no person with any scientific
understanding could ever believe.
There were just inherent mysteries
which were beyond
our cognitive capacities.
Well, that was correct, and that
was a real shocking discovery.
It has now been absorbed.
So to talk about
the current stage is misleading
if you're thinking
about emerging fields
like cognitive science,
'cause we're not in that stage.
We haven't got
to the Galilean stage yet.
Me, I work like a machine.
I know this sequence
is quite a struggle.
And, believe me, it's taking me
forever to animate it.
So I'll take a break.
Noam kept coming back
to Galileo, Newton,
the enlightenment,
and I tried very hard
to keep it short,
but it seems endless.
However, this is
a very important part, in fact,
and I must get through it.
I think that Noam is
telling me what it takes
to do true science...
something to do with ideas,
creativity and rigorous
observation of nature,
and the willingness
to be proven wrong
and start the experiment again
all over at any time.
Richard Feynman,

the great physicist,
often talked
about science integrity
and said you should always publish
the result of your experiment,
especially when
they prove you wrong.

He also had a funny story
about a good scientist
that was ignored.

In 1937, Young, he was called,
was trying to teach a rat
to count three doors
to get some food.

So he would place the food
each time in a maze
three doors away from the rat
to get it to count three doors.
He would place the rat
in a different place each time,
with the cheese three doors away.
But the rat never counted
the doors.

He always went right to the door
where the food was placed
the time before.

No matter where Young placed
the rat and the food,
the result was the same.

He thought the rat must
recognize a detail on the door,
so he repainted them all
identically.

Still the same result.

He then thought the rat
could still smell the food
from where it was the previous
time, so he put some chemical
to wipe any possible
remaining smell.

Still the rat went
to the exact same door.

Maybe the rat could notice
some light from the lab

and use them as a guide,
so he covered the maze.
Still the same result.
He eventually found out
that the rat could tell
by the way the floor sounded
when he was running
down the corridor.
So he put the whole maze on sand.
The rat couldn't tell anymore
and had to learn
to count the doors.
Feynman called this experiment
an A class experiment,
because Young had to go through
all the possible steps
before he could affirm
it was conclusive,
a rigor that he felt
was unfortunately uncommon
in the science the way it was
conducted at his time.
Now I am just adding stuff
that is not even from Noam.
But I've put a loop under it
so it is not so much work.
The truth is that I am
frantically going through
this animation,
and it has been two years
since I started,
so Noam is now 84.
I neglect my appearance,
and I should be focusing
on the film I am preparing,
L'cume des jours,
but I won't stop.
I must finish the film
and show it to Noam before...
well, before he's dead.
My room is a pile
of animation paper,
my mother is at the hospital,
but I only care

about Noam's health,
only to show him the finished film.
This is childish
and unscientific but true.
A few session we did before,
we talked about evolution,
and you were very skeptical,
and I thought...
I'm not skeptical about evolution.
There's a common confusion
outside of serious biology.
I mean, natural selection
is a factor in evolution.
No serious biologist doubts that.
But it's one of many factors.
For example, mutation is a factor.
I mean, there are
many other factors.
For example, if you just take a look at
our... you know, our own genetic endowment,
a lot of it comes
from transposition.
When you talk
about the endowment...
the endowment?
I'm sorry. How do
you say endowment?
When you're born with what...
Well, like a...
- Innate?
- Yeah.
But do you use the
word "endowment"?
How do you spell it?
Write it on the blackboard.
Endowment.
- Endowment.
- Oh, endowment.
Sorry.
So you think that we have a way
to comprehend the world
within ourself
and we can only comprehend
the world up to this limit...

That's just Hume.
That's Newton and Hume.
So you try to discover,
what is this cognitive endowment
that we have?
That it is
a fixed cognitive endowment
is not really arguable
unless you think we're angels.
But if we're part
of the organic world,
we have fixed capacities,
just like I can't fly, you know.
These capacities have
a certain scope,
and they have certain limits.
That's the nature
of organic capacities.
Then comes the question,
"Okay, what are they?"
In fact, one of the striking things
is what I just mentioned.
We... our cognitive endowment
sort of compels us
to regard the world
in mechanical terms.
We know that's wrong,
but we can't help
seeing the world like that.
If you look at the moon
rising in the early evening,
at the horizon, it's big,
and then it gets smaller
and smaller.
It's called the moon illusion.
We know it's not true,
but you can't help seeing it.
Well, I thought of it a lot,
and I know it's one of the paradox,
but I think our brain zoom...
It's like if you see the world
through a window
which is at a far distance
and you will see a bridge

in the distance
and the window delimits
your attention,
then you would feel the bridge
is much bigger than what it is.
But now you're trying
to give an explanation,
and there's been a lot of work
on what the explanation is.
But whatever...
and it's not so trivial,
but whatever the explanation is,
we can't help seeing it, okay?
We just see it,
just like we can't help thinking
that the world works by
physical interaction, contact.
Some other part of our brain
tells us it's not true
because of theories
that have been developed
that say it can't work like that.
But that can't change our
perception and interpretation,
'cause that's just fixed.
Okay, I'm trying to visualize...
or I guess it's not visualizable...
but this endowment.
So we see a tree,
and we understand it's a tree.
Does it mean that our brain
is equipped
with a fixed capacity
that tells us,
"This is a tree"?
Here's another question
where it's good to be puzzled.
How do we identify
something as a tree?
It's not so simple.
So, for example,
if you plant a tree...
say, a willow tree,
which is a good example...

it grows.

And at some point,
you cut a branch off it,
and you put that branch
in the ground.

Suppose it grows
and becomes exactly identical
to the original tree.

Now suppose the original tree
is cut down.

Is that new one
the same willow tree?

Why not?

It's genetically identical,
it has all the same properties,
but we know it's not the same tree.

Why not?

I mean, and if you go further,
it turns out
our concept of a tree or a rock
or a person or anything
is extremely intricate.

And furthermore...

See, here's what I think.

It's just a classic error
that runs right through
philosophy and psychology
and linguistics
right up to the moment.

That's the idea that words...
say, meaning-bearing elements,
like, say, "tree" or "person"
or, you know, "John Smith"
or anything...

pick out something
in the extramental world,
something that a physicist
could identify
so that if I have a word...
say, "cow"...

it refers to something,
and a, you know, scientist
knowing nothing about my brain
could figure out

what counts as a cow.
That's just not true.
That's why you have classic books
with names like Words and Object...
Word and Object,
Quine's major book,
or Words and Things,
Roger Brown's major book.
That referentialist assumption
is simply false about humans.
I mean, it's true of animals.
Like, as far as we know
of animal communication,
yeah, that's actually true.
But for humans, it's simply untrue,
and, furthermore,
every infant knows it.
And that poses
a huge evolutionary problem.
Where did that come from?
It imposes an acquisition problem,
a descriptive problem,
an evolutionary problem.
It's never been looked at,
because everyone assumes,
"Well, there's just
a relationship."
That's like assuming things move
to their natural place.
We're never going to have a real
understanding of semantics
unless those illusions
are thrown out.
Well, something that always
struck me since I was young
is, like, you get
the representation
of the world by symbols first.
Like, logically,
you would see a dog,
and then you would see
a drawing of a dog
and make the connection.
But in your life, you get exposed

to the representation of a dog
in a very, actually,
simplified way,
and then you go to...
or let's say you go outside
and you see a real dog.
That's not the way it works.
Yeah, that's very
commonsensical, just false.
No, I'm not... I'm saying
it's how it's exposed, like...
It makes sense,
and every work on philosophy
or linguistics
says exactly that.
It just happens to be false.
And, furthermore,
every infant knows it.
Now, fairy stories are based
on the fact that it's false.
Like, take a fairy story
that any child understands.
No, I'm not saying the child
believes it's a real dog.
What I'm saying...
That's not the point.
We do not identify dogs
in terms of
their physical characteristics.
As you can see,
I felt a bit stupid here.
Let me explain.
I think I couldn't get
my point through to Noam.
Misuse of words
and heavy accent aggravated...
I mean aggravated my attempt.
I was simply expressing
that in life,
we first encounter image
of certain things,
such as animals,
then later we would see
the real thing.

For instance, I saw
many picture of a tiger
before I saw a real one in a zoo.
There is nothing to argue
about that,
but Noam kept saying it was false
because of my use
of the word "representation."
I'm pretty sure
that he understood it
as mental representation,
as I was just talking
of an image in a book.
Nevertheless, it gave him
the opportunity
to deepen his argument,
which is hard to understand,
so I kept the whole thing,
even though I look stupid.
Meanwhile, I decided to recycle
some of my drawings,
since he was making
the same point again.
We do not identify dogs
in terms of
their physical characteristics.
We identify dogs, for example,
in terms of a property
of psychic continuity.
Like, if a witch turns a dog
into a camel
and then some fairy princess
kisses the camel
and it turns back to a dog,
it's been a dog all along,
even when it looked like a camel.
I mean, that's the basis
of fairy tales.
I was not saying that it's...
But psychic continuity
is not a physical property.
It's a property
that we impose on things.
So, therefore, there is no hope

for finding away
of identifying the things
that are related to symbols
by looking
at their physical properties.
They're individuated,
they're identified
in terms
of our mental constructions,
so they're basically
mental objects.
Mm-hmm.
And that means
the whole referentialist concept
has to be thrown out.
Now you have to look
at the relation of language
to the world
in some different fashion.
And so... and do you think
we constructed the world
in mirroring this image
we had in our mind?
We do it, but we don't do it
the way philosophers
and linguists think we do it.
We certainly do it.
So, for example, sure,
we see the world
in terms of trees and dogs
and rivers and so on,
but then the question is,
"Well, what are those concepts?"
Now, the standard assumption is,
those concepts are linked
to physical, identifiable
physical things
in the extramental world,
and that assumption is just false.
And unless we rid ourselves
of that assumption,
we won't be able to understand
the way thought and language
relates to the world.

But that's a topic
that's just taboo
in philosophy and psychology.
So they're stuck.
They're like mechanics pre-Galileo,
where everything went
to its natural place.
Well, as long as you keep
to that for thousands of years,
you're never going to understand
the mechanics of the world.
That's why I think
these are the kinds of reasons
why it makes very good sense
to think back
to the earliest stages
of the scientific revolution.
Not Einstein;
that's too sophisticated.
Let's go to the earliest stages,
where people had that incredible
intellectual breakthrough
and they said, "Let's be puzzled
about what seems obvious."
So why should we take it
to be obvious
that if I let go of a ball,
it goes down and not up?
I mean, it's sort of obvious,
but why?
Well, as soon as you're willing
to ask that question,
you get the beginnings
of modern science.
If you're not willing
to ask that question,
you say, "Well, it goes down;
it belongs on the ground,"
no science develops.
Once again, I had posed
my question the wrong way.
I was trying to ask
if the way humans built things
such as cities, art, cars,

and so on
was reflective
of a sort of blueprint
we would carry
within our endowment...
like bees constructing
their hives, for instance.
So next time I met Noam,
I showed him this animation,
hoping it would help to make sense.
And it did make sense.
At the beginning
of the second interview,
I showed the work
in progress to Noam,
who was quite pleased, it seems.
And I noticed
in the second interview
that he was more receptive
to my ideas.
So I asked my question again,
but using bees and hives
as an example
made it more confusing.
Well, I suppose there is
an interaction.
So if you watch children building,
trying to build a
house with cards...
you know, you stack them up
and you put something on top...
they must have some
initial conception in mind
of what they're planning to do,
but it's certainly altered
by the process.
You see, "Well,
this is not going to stand,
"so I have to rearrange it
and do something
in a different way."
I mean, take the building we're in.
One of its striking characteristics
when you're sitting in my office

is that there aren't
any right angles
in many of the buildings,
so everything's a little skewed.
The... I don't know what was
in Frank Gehry's mind,
but one architect who came through,
working on the... looking at
the structure of the building
suggested to me that it has,
in some respects,
the character
of a three-dimensional version
of a Mondrian painting.
Yes, so I wanted to know
if you have any thinking of
the mechanism of inspiration.
It's a mystery.
It's something common to humans.
You see it in young children.
You see it in scientists.
You see it in carpenters
trying to solve
a complex problem
of how to build a house.
But it's just something
that happens
in all kinds of conditions,
strange conditions.
So, for example, I was watching
a couple of carpenters
working on a summer cottage.
They had kind of an idea in mind
but were kind of going along
to see how it would work.
They reached a problem that
looked insoluble, you know,
and they sort of took off
for a while,
and then they came back,
and they immediately did it.
And I asked, "How did you do that?"
And they said, "Well,
we went out and smoked some pot,

and it just kind of came to us."
Who knows? That's inspiration.
I wanted to cut out this sequence.
For a short time period,
I had an episode myself
where I indulged into this habit...
very shortly, in fact.
And looking back, it didn't
do me very good at all.
Now that I've said it,
I can keep this sequence.
That's interesting.
For instance, in my case,
I use a lot of my misunderstanding
as a source of inspiration,
and I realize that lately,
like, because my English
is not good,
many times when people talk to me,
I understand something different.
I remember I was talking
to my friend,
and she told me she had made
a model of a boat in a forest,
and I understood
the forest was in the boat,
so I imagined a sort of
vegetable ark of Noah,
Noah's ark.
I think something jarring
takes place,
and that can happen in a class,
for example.
You're lecturing.
A student raises a question,
and suddenly you recognize
that something you thought
was obviously true
has a problem with it.
And for a while,
it may seem insoluble,
but you may take a walk,
or maybe overnight
there's something...

you're sleeping and something comes to you,
and all of a sudden, you just see ways
of looking at the issue
and the world
a little bit differently.
I think that's how,
from childhood on to...
people do creative work.
That's somehow the way it happens.
Actually what's going on,
nobody understands.
In a little clip I'll show you,
you talk in length about how
we try to interpret the world
and how we ought to throw away
what's believed
in linguistics or philosophy.
You say, "Why do we recognize
that this is a different tree
when it's been cut and it grows
and it's identical?"
And since then,
I read about genetics,
and that's a clone, basically.
When you reproduce
as asexual reproduction,
it's a clone.
So it's potentially identical.
But my only... the only answer
I could give
was that I know
it's a different tree
because I saw somebody come and
cut it and then grow again.
So I was thinking, it's probably
less trivial than that.
Well, actually, I think
there's a real point there.
Part of our concept of a tree
has to do
with a certain pretty abstract
notion of continuity.
So the original tree
has a continuous existence

which we impose on it,
because, genetically speaking,
the branch that was cut off
is the same object.
But when it becomes a tree,
it doesn't have
the kind of continuity
that we interpret as continuity.
And a different intelligence
could interpret continuity
quite differently
and say that the new one
is the real tree.
That's our conception
of continuity,
and it's a very complex one.
So, for example,
there's a children's story
which my grandchildren like...
liked when they were little.
It's a story about a donkey
named Sylvester,
and something happens,
and it turns Sylvester into a rock,
and the rest of the story
is the rock Sylvester
trying to explain
to his parents, parent donkeys,
that it's really
their baby Sylvester.
And since children's stories
have happy endings,
something else happens,
and it turns him back to Sylvester,
and everybody's happy.
Well, the children understand
that the rock,
though it has none of
the properties of the donkey,
physical properties,
and has all the properties
of a rock,
is really Sylvester.
And, for example,

if he was turned into a camel later
or suddenly would be a jar,
he's got to come back
and be what he is, Sylvester.
All right, what that tells you
is that without
any instruction, of course,
an infant understands
a certain special kind
of continuity.

It's a very specific kind,
even much more abstract, even,
than in the case of the tree.
But there's a kind of psychic
continuity that we impose on...
It's a part of the interpretation
we impose on the world...
that identifies the objects
that are around us,
whether it's persons or rivers
or rocks or trees
or anything else.

I think I have an example
that maybe make me understand
the concept.

When I meet a friend that
I didn't see for 20 years
and his appearance
is completely different,
first I feel I'm meeting
a different person.
And then, in the course
of the conversation...
it's generally 20 minutes,
30 minutes...
this person become my friend.
And the old image of my friend,
like his picture,
become younger than he is,
so I readjust.

And I was wondering
if this is a phenomenon
that everybody perceive...
All the time. I mean, we...

But is this the same phenomenon
that we apply to objects?
Yeah, the same as with objects,
like the tree or a river.
Or, let's say,
take the Charles River,
the river going past the building.
What makes it the Charles River?
You can have
substantial physical changes,
and it would still be
the Charles River.
So, for example,
you can reverse the direction;
it would still be
the Charles River.
You can break it up
into tributaries
that end up somewhere else,
and it would still be
the Charles River.
You can change the contents.
So maybe you build
a manufacturing plant upstream
and the content
is mostly arsenic, let's say.
Well, it's still the Charles River.
On the other hand, there are
very small changes you can make
in which case, it won't be
the Charles River at all.
So suppose you put panels
along the side
so it goes in a straight path
and you start using it
to ship freight up and down.
It's not the river anymore;
it's a canal.
Oh, yes.
And suppose you make
some minimal physical change,
almost undetectable change
which hardens it.
It's called a phase change,

undetectable,
but it makes it glass, basically.
And you paint a line
down the middle,
and people start to using it
to commute to Boston.
It's a highway; it's not a river.
Now, somehow we can go on
and on like this.
We understand all these things
without instruction,
without experience.
They have to do
with very complex notions
of continuity of entities
a physicist cannot detect,
because they're not part of...
I mean, of course
the physical world is part of
them, but it's only one part.
A major part of how we identify
anything in the world,
no matter how elementary,
is the mental conceptions
that we impose
on interpreting
very fragmentary experience.
And our experience
is indeed very fragmentary,
so visual experience is just,
you know,
stimulations of the retina,
but we impose
an extremely rich
interpretation of it,
including things like,
say, continuity.
Actually, a lot of science fiction
is based on this.
So if you... you know, if somebody
is in a spaceship
and they get... I forget
what the word is used.
They're transposed or something.

- Teleportation?
- Yes, tele... tele...
- Teleportation.
- Yeah, okay.

And they go somewhere else,
and they reappear.

Well, I've watched my kids
watching these things.

They understand immediately
that it's the same person
who appeared over there,
though there's no continuity.

On the other hand,

I ask them sometimes,

"Well, suppose that they
had this teleportation"...

or whatever it's called...

"and he appears over there.

"And suppose he's still here.

Which one is the person?"

And at that point,

you get confused.

You don't know,

because our conceptions
don't give an answer to that.

Actually, there are classical
philosophical problems
that are based on this.

One famous one that's called
the ship of Theseus
goes back to the Greeks.

Suppose that Theseus has a ship
and he's on the ocean
and one of the boards falls off.

So he throws it into the sea,
and they put another board there.

It's still the ship of Theseus.

Well, suppose this keeps happening
until every board
has been replaced.

It's still the ship of Theseus.

Suppose someone on the shore
has been collecting
all these boards

and reconstructs what, in fact,
was the actual original ship.
That's not the ship of Theseus.
It's the one that Theseus is on,
even though it's the other one
that's physically identical to it.
This one isn't.
So there's no point trying to
solve the philosophical problem.
The problem is an
epistemological one.
It's something about the nature
of our cognitive systems.
So it appears
that as far as it's understood,
nonhuman animals
have a direct connection
between the symbolic
representations in their minds
and identifiable physical events
in the world.
So you take a vervet monkey,
which has alarm calls,
and apparently those alarm calls
are triggered automatically
by certain... you know,
movement of leaves in a tree,
which they give a predator call,
and apparently it's reflexive.
While I was doing these interviews,
I was editing The Green Hornet.
One day, I walk into the edit room,
and I realized
that some of the object
had a different kind
of entity than the other,
the ones I had interacted with.
It's like if they jumped to tell
me the story we shared.
The sofa... I was so tired
after the shooting
that I asked for something
more comfortable to rest on.
They treated me with a sofa.

But I had to move the chair
to the side to make room.
The coffee table, I dragged it
closer to the sofa
so I could check my emails
while watching the editing
on a giant screen
that was specially installed
for me.
And my editor, of course...
but he's a person,
so it's not surprising
to have a relation with this.
Do you remember the first
exposition you had to science?
Should I tell you
an embarrassing experience
which I've felt guilty about
all my life?
Okay.
In third grade, I decided
I wanted to do a science project
on astronomy,
so the teacher said,
you know, "Fine."
And what I finally did was took
the Encyclopedia Britannica,
and I copied out the
section on astronomy,
and I handed it in,
knowing that that's not
the right way to do it.
And nobody ever... there was no...
I mean, the teacher could
obviously tell, you know,
but there was no
censure or anything.
And... but it's in what must
have been third grade,
so I was eight years old,
so that's about 75 years of guilt.
I had the same experience
than you at school, much later.
The first essay I wrote,

my best friend wrote it for me,
and I got the best notation
for the class,
so I had to read it
in front of everyone.
And have you felt
guilty all your life?
Oh, so horrible!
But the funny part is, I...
We're partners.
But the funny part is,
I got good grades after that.
Yeah, you know, like a lot of kids,
I had a chemistry set
down in the basement
and producing horrible smells
that drove my parents crazy.
And they were hoping I wouldn't blow
the place up and that sort of thing.
Electrical circuits, chemistry,
things like that.
With one... my closest friend
since nursery school
right through high school was...
We would go
every Saturday afternoon.
By the time we got old enough
to take the subway...
you know, 10, 11...
we'd go to The Franklin Institute.
That's a science institute
in downtown Philadelphia
which had lectures, exhibits.
And we'd spend most
of the afternoon
either in The Franklin Institute
or the museum of natural history,
which was right next door.
That was our Saturday afternoon.
Noam spent also
hours at the library,
devouring 19th century
French and Russian literature.
I had just finished reading

Fathers and Sons by Ivan Turgenev,
and I pointed out to Noam
that constant feeling
of generalized deterioration
of the world
that each generation
blames the next one for.
"When I was young, life was better.
"Things were much simpler,
blah, blah, blah,
blah, blah, blah."
I was wondering if there were a biological
explanation for this phenomenon.
"When I was young, life was better.
"Things were much simpler, blah,
blah, blah, blah, blah."
But Noam took the conversation
to a different place.
It could well be a property of
urban industrialized societies.
I'm not sure it's true
of peasant societies,
a farming society
where you learn the skills
and you apply the skills
and you transmit them
to your children and so on.
I mean, for example, one thing
that has been discovered
that surprised a lot
of anthropologists
and agricultural scientists
is that when there have been
development programs in which...
say, you know, Liberia
happened to be one...
where scientific agriculture
was introduced.
You know, peasants were taught
the most sophisticated
techniques of agriculture
and so on.
And they determined
that yield dropped.

And when it was investigated,
it turned...
Eel dropped?
- Yield, the production.
- Oh, yeah, okay.
So they were producing less
with scientific agriculture
than with traditional
peasant agriculture.
And at first, nobody knew why,
but when it was investigated,
it turned out that agriculture
had, in fact, become a science
known only to women.
So women had extensive
detailed lore about planting.
You know, you plant this
seed under this rock
at this hour of the day
and so on and so forth.
And it was transmitted
from mother to daughter
for maybe thousands of years.
And it got more and
more sophisticated,
and it got to give very high yields
in not very productive soil,
and the men in the community
didn't even know about it.
Nor, of course, did
the outsiders who came in.
Well, you know, that's a case
where people kind of reproduce,
improve...
I doubt that, say,
those little girls
would have had the feelings
that you were describing.
You're getting something
from your mother,
which is a repository of,
you know, endless tradition,
and maybe you find ways
of adapting it

or slightly improving it,
but you're essentially reproducing
what you grew up with.
And so how do you balance
this knowledge
that's come from the ages
to the improvement of science?
Like, now science and
the technology has advanced,
you would feel that previous
knowledge would be obsolete,
but yet there is an instinct...
or I don't know if it's correct
to call it an instinct,
but people know there is a science
of knowing what plant to use.
It's lore, not instinct.
Yeah, how do you call that? Lo?
Lore, just accumulated
unarticulated knowledge.
It's like you know how to behave.
I mean, you know, you're taught
or you learn in childhood
how to behave in social situations.
You can't articulate it.
You're not conscious of it.
So if you find a child who has,
let's say, Asperger's syndrome,
I mean, they just don't pick up
social cues.
They don't understand when you're
supposed to talk to someone
and when you're not supposed
to talk to them
and how you're supposed to act
towards them.
I mean, these are children
who have a lot of problem
from nursery school on.
I once asked a mental
health specialist
what it was.
I didn't know what
Asperger's syndrome was.

Of course, I'd heard about it.
And she laughed, and she told me,
"Walk down the halls of MIT,
and half the people you see
have Asperger's syndrome."
How do you deal with somebody
come to you
and talk about astrology?
- Astrology?
- Yeah.
Because a lot of women,
for instance...
And it's terrible to generalize.
Michelle here,
she's going to kill me.
But my girlfriend, for instance,
she gets mad at me
if I dismiss her belief
in astrology.
And I want to maintain
my relationship.
I don't dismiss
the person's interest in it.
People have all sorts
of irrational beliefs.
You know, I may think
they're irrational,
but to them, they're meaningful.
And after all,
some pretty smart people
were interested in astrology,
like Isaac Newton, for example.
So it's not... you know,
it's not imbecility.
I mean, humans have kind of like
an automatic, in this case,
instinctive drive
to find causal relations,
to explain things that are
happening in terms of causes.
When you can't see the causes,
you postulate hidden causes.
I mean, infants do this.
You can do experiments with infants

in which, you know,
something is moving along
and then something
starts moving this way.
They'll make up in their minds
that there's some hidden contact
there that you can't see,
you know, and we just do this
instinctively.
I mean, if things are happening
around us,
we try to find some agent
behind it...
often an agent, you know,
like an active intelligence
that's doing it sometimes,
something mechanical.
So it pretty naturally leads
to beliefs like astrology,
especially because you find...
I mean, life is full
of coincidences.
So you try to make a connection
between the coincidences,
and you find a pattern in the stars
or, "it's a full moon,
so this is going to happen,"
and so on and so forth.
Because I notice
in what you're saying,
like, you're not a believer.
If I do some research on you,
you're not going to
come up as atheist,
and I think because the religion
is really for a lot of people,
you don't want to hurt that.
Well, I think one or another
kind of religious belief is...
It's a real cultural universal.
I don't think any group
has ever been discovered
that doesn't have some sort
of belief in something,

you know, beyond
their conscious experience
that's directing things
or that's somewhere
in the background
and giving their lives meaning.
I mean, they may not believe
in a divinity, you know,
but some sort of a spirit
in the world
that we can't grasp
that's making sense of things,
that's giving meaning to life.
Throughout history
and throughout every society
we know,
people are just not satisfied
to think,
"Look, I go from dust to dust,
and there's no meaning to my life."
Well, what's your personal
feeling on that?
I think you go from dust to dust
and there's no meaning
in your life.
But that's hard for...
I can easily understand
why plenty of people wouldn't
be happy to accept this.
I mean,
you can easily understand if...
Let's suppose a mother
has a dying child
and wants to believe
that she's going to see him
again in heaven.
Okay,
that's an understandable belief,
and I certainly don't ridicule it
or try to teach her that...
give her a lecture
in epistemology or something.
You don't want to hurt people.
It's something

that I don't personally have,
and I don't listen
to rock music either,
but it doesn't mean that
other people shouldn't do it.
And, furthermore,
the fact of the matter
is that religious beliefs
do create communities.
They weld communities together,
and we're a tribal society.
You know, people form families
and clans and groups,
social groups, professional groups.
You want to be part of something.
And religion happens to be,
in fact, again cross-culturally,
one of the ways
in which the group coheres
and gets something more out of life
than just my individual existence.
So it's understandable
that there should be
one or another form
of religious belief.
I think we should change
the camera.

I think it's time for the break.

- Lunch break.

- Oh, I see, okay.

So we get another camera next time?

Yeah, I'm going to use
this one, because I...

Okay.

The discussion is so good,
I don't want to lose a drop.
In fact, I eventually decided
to stick to my plan
and continue to shoot
the rest of the interview
with my old mechanical Bolex.
This way, I could only film
short fragments of Noam,
and I was committed

to what moments he would appear
in the final version.
I was also committed
to have to animate 98%
of the whole film
and hear the sound
of my cranky camera
each time Noam would appear
so I would have to illustrate
its sound every single time.
Do you remember
what was your first
thinking of linguistics?
There's background.
Like, when I was a child,
my father worked on history
of the Semitic languages,
so I read work of his.
Like, I read
his doctoral dissertation
when I was... I don't know...
10,12 years old.
It was on a medieval grammarian,
medieval Hebrew grammarian,
so I kind of knew... had some
acquaintance with the field.
Later I sort of got into it
by accident.
And when I got into it,
I found it intriguing, but...
and did things
that we were taught to do.
And at some point, I realized,
"This doesn't make any sense."
You know, the way
we're taught to do things
was descriptivist.
So the way you...
linguistics at that time
and, to a large extent, still
is a matter of organizing data.
So a typical assignment
when I was an undergraduate,
let's say, would be to take data

from some American Indian language
and put it into an organized form.
You didn't ask the question,
"Why is the data this way
and not some other way?"
That wasn't a question
that was asked.
In fact, I remember, dramatically,
the first talk I gave
when I was a graduate student
invited to a major university
to give a talk
on work that I was doing,
the normal thing.
The leading figure
in the department,
one of the famous linguists,
met me at the airport,
and, you know,
we drove to the college,
and on the way, we talked,
and I asked him
what he was working on.
And he said
he's not doing any work now.
What he's doing is just
collecting data and storing it,
and he had a good reason,
which is implicit
in the linguistics of that day
in Europe and the United States.
Computers were coming along,
so pretty soon,
you'd be able to analyze
huge masses of data.
It was assumed that the procedure,
the methods of analysis
that had been reached
in the structuralist traditions,
that they were the right way
to understand everything
about language.
Well, you know, if you
sharpened up those procedures,

you could program it
for a computer.
Then you feed the data in,
and you're done.
How old were you?
- That was 1953.
- Okay.
So, I mean, I kind
of half believed it,
because that's the way
I was trained,
but the other half of my brain
was telling me,
"This makes absolutely no sense."
Can you tell me the transition
and also the inspiration
that started your theory?
It was pretty straightforward.
When I was an undergraduate,
I had to get an honors thesis.
You do a piece of work
that's your honors thesis.
And the faculty member
who I was working with...
very famous and very
significant person,
very influential, rightly...
he suggested to me
that I do a structural analysis
of modern Hebrew.
Well, I knew some Hebrew,
so it made sense,
and I did what we
were supposed to do.
What you're supposed to do
is get an informant
and then carry out
field work procedures.
So there's a set of routines
you go through
to take the data
from the informant, you know,
find the phonology,
find the morphology, you know,

a few comments about syntactic structure, comments about the semantics, and that's your thesis. So I started going through the routine with him. And after about a month, I realized, "This is totally ridiculous." I mean, I know the answers to these questions. Why am I asking him? And the questions that I don't know the answers to, like the phonetics, I don't care about. But the parts that I care about, I already basically know the answers, so what do I care? Why do I have to get it from him? So I stopped the informant work, and I just started doing what seemed like the obvious thing to do: write a generative grammar. And that's what I did, but it was kind of a hobby. I don't think anyone even looked at it. You know, in fact, it finally was published about 30 years later, I think. Can you tell me, like, in a simple way, like, this first approach of generative grammar? It's almost a truism. I mean, if you think about what a language is, say, what you and I know, we have somehow in our heads a procedure for constructing an infinite array

of structured expressions,
each of which is assigned a sound
and assigned
a semantic interpretation.
This is like a truism.
Furthermore,
these structured expressions
have the property of
what's called digital infinity.
They're like the numbers,
the natural numbers.
You know, there's five and six
but nothing in between.
That's not natural numbers anymore.
And the same with language.
There's a five-word sentence,
a six-word sentence.
There's no $5\frac{1}{2}$ word sentence.
They're very much unlike, say,
the communication system of bees
or any other system, you know.
Now, that's very rare
in the natural world,
digital infinity.
And by that time, say, late '40s,
the mathematics of it
were well understood.
The theory of computation
had been developed,
theory of recursive functions.
So these were familiar concepts
within contemporary mathematics,
and, you know, I studied them
when I studied advanced logic
and mathematics.
And it just sort of fell together.
The... you have this system
of digital infinity.
It's a procedure of some sort
that generates an infinity
of structured expressions.
That's a generative grammar,
in fact; that's all it is.
So that ought to be

the core of the study.
And then comes the question,
"Well, okay, what is it?"
Then you run into the problem
I mentioned before.
As soon as you try to do it,
you find
that in order to deal
with the data available,
it has to be extremely complex
and intricate.
But that doesn't make any sense
either,
because every child masters it
in no time,
so somehow it can't be rich
and complex.
And then comes the field.
The field is to try to show
that what appears to be
rich and complex
is, at the core, just very simple.
Actually, you know,
when you think about it,
as we started to do from the '50s,
there's an evolutionary basis
for this too.
Language is a very
curious phenomenon.
I mean, one question
we ought to be puzzled with,
two questions is, "Why are there
any languages at all?"
And another one is,
"Why are there so many?"
If you go back, say, 50,000 years,
both of those questions
were answered,
because that's when
our ancestors left Africa.
And there's been no relevant
cognitive change since,
so children everywhere in the world
have the same capacity

for language acquisition.
So the questions were finished
by about 50,000 years ago,
and if you go back
very shortly before that,
like, maybe 100,000 years ago,
the questions were answered,
'cause there weren't any languages.
From an evolutionary point of view,
that's the flick of an eye.
How do you have this record?
Well, that comes
from paleoanthropology.
Yeah, the tombs and...
Well, we know the fossil record.
We know the record of, you know,
creation of artifacts and so on,
and it's pretty well recognized
that there was a sudden explosion,
sometimes called
the Great Leap Forward,
roughly in that period...
you know, maybe 75,000 years ago.
You can argue
tens of thousands of years;
it doesn't matter much.
From an evolutionary
point of view, it's an instant.
So somewhere in that instant,
some small hunter-gatherer group...
you know, it could have been
a couple of thousand people...
you suddenly find a burst
of creative activity:
complex tools...
recording natural phenomena,
more complex family structures...
symbolic representation,
you know, art, and so on.
From an evolutionary
point of view, it's an instant.
Now, it's generally assumed
that it's hard to think
of an alternative,

that that instant must be the time
when language suddenly appeared,
because language is required
for all these things.
Before, there could have been,
you know,
primitive communication systems
like every animal has,
but human language with
the property I just mentioned,
the capacity
for thought constructing
in your head...
When you walk around,
you're talking to yourself.
You can't stop.
I mean, it takes a real act
of will not to talk to yourself,
and what you're doing
is thinking, basically,
recollecting,
or, you know, whatever it is.
But you're making use constantly
of this capacity
to construct an unbounded array
of structured expressions
which have a meaning and a sound.
Now, that's the core of our ability
to create, invent, you know,
plan, interpret, and so on.
Well, that must have happened
right about that time.
But if it happened suddenly,
it has to be simple.
There's no time.
In evolutionary time,
that's nothing, remember,
which means that some small
thing must have happened,
some small mutation, probably.
And a mutation is in one person;
it's not in a group.
Suddenly gave that person
the capacity to... this capacity.

Well, that person was unique
in the animal world.
It could plan, it could think,
it could interpret, and so on.
But if that happened...
And there's no pressures
on that system,
no selection or other pressures.
It just appeared.
Well, if it just appeared,
it's going to be perfect.
It's going to be like a snowflake.
You know, it just follows
from natural law.
That's what appears.
Like a snowflake is what it is.
You know, it doesn't evolve.
Well, you know, that capacity
would have been, in fact,
transmitted to offspring partially.
And after some time,
maybe a couple of generations,
this capacity might have
dispersed through the group.
And at that point, there becomes
a reason to externalize it,
to find a way to take
what's going on in your head
and turn it into sound
or gesture or something.
But does this capacity
give an advantage
to this person
or this group of people?
It does give an advantage
to the person,
because, look, if you have
the capacity to plan
and interpret and so on,
yeah, you have advantages
over others.
It's not such a trivial matter
for advantageous traits
to proliferate.

They often just die off.
So for all we know,
this might have happened many times
in the preceding
couple hundred thousand years.
But once it took,
we know that it took,
'cause we're here, you know.
So at one point, this took.
A number of people had it.
At some point, you start
getting externalization.
Then you can get communication.
But what that means
is that contrary to thousands
of years of speculation
and what's almost universally
assumed now,
communication couldn't have been
a significant factor
in evolution.
It's a secondary process.
Today during the lunch pause,
Noam went to see his doctor
and get some test results.
Are you worried about your health?
I'm not. Doctors are, but I'm not.
So you don't have anxiety?
I figure, three score and ten,
that's what we're supposed
to have, 70 years,
according to the Bible.
Anything else comes free.
When I was about ten years old,
I used to get frantic
about dying, you know.
What happens when that spark
of consciousness disappears?
And I would have nightmares
about it.
But by the time I was a teenager, I
figured, "That's ridiculous," you know.
My model is David Hume.
When he died, he had

his friends with him,
like Adam Smith.
He was very placid.
You know, he said,
"You know, this is the way
existence works.
And good-bye."
No afterlife, nothing.
Do you mind if I ask you
about your feeling
when your wife passed away?
I'd just as soon
not talk about that.
It's too soon?
I can't get over it, you know.
Yeah, I know. I'm sorry.
I'm so sorry.
I gave you my home
I gave you my hope
It seems that you had
the perfect relationship
from the outside point of view.
It wasn't.
You know, nothings perfect.
But it was very intimate.
I think a lot of human beings
spend a lot of their life
trying to solve problems
of relationship
or find a relationship and...
We pretty much solved it
when we were children.
We were children
when we got married.
You know, she... Carol was 19,
and I was 20.
In my kitchen
Soup is on
Lover, lover
Come on over
And do you think it
helped you in your work?
It's hard to say.
I mean, Carol was kind

of a social butterfly.
You know, she was...
as a teenager, you know,
went to all kind parties,
dating, this and that.
And I was very solitary.
But... and for a couple of years,
we more or less lived
her style of life.
But, you know, I'd sit
in a corner at the parties.
But after a while,
we just drifted
into a very private life,
you know, saw a
couple friends and...
I mean, we weren't hermits.
Like, we have children,
grandchildren,
friends, and so on.
But mostly we lived...
we preferred to be alone,
you know, so...
We started to talk
about your education last time
but more about the school.
Can you tell me a bit more
about the relationship you had
with your parents?
Things were quite different
in those days.
I mean, the relationship
was fine, you know,
but not very close, really.
So, for example, there were
things happening in my childhood
that I never would have dreamt
of talking to them about.
We were the only Jewish family
in a neighborhood
that was largely Irish
and German Catholic...
this is in the '30s...
and very anti-Semitic

and pretty pro-Nazi, in fact...
the Irish
'cause they hated the British
and the Germans
'cause they were Germans.
It's not like today;
a boy in the streets wasn't
going to get shot, you know.
But it was unpleasant.
You know, there was a lot
of anti-Semitism in the streets.
There were streets
I couldn't walk through
because the Irish kids lived there.
I'd go somewhere else, you know.
But I never talked to my parents
about it.
I don't think they knew
until their deaths.
You know, by the time
the Second World War came,
everything changed, superficially.
So in December 7, 1941,
the people who had been
still having beer parties
at the fall of Paris,
which I remember,
were walking around with tin hats,
telling everyone
to pull down their shades
because the Luftwaffe was going
to bomb the city and so on,
a very striking transition,
which taught me something.
But then during the war,
for reasons I don't understand,
there were race riots
all over the place.
In fact, there was
a teenage curfew,
for a couple of years, at 7:00.
In Philadelphia?
Yeah, if we wanted to go out

after 7:

we had to have parental permission.

And I went to a Hebrew school,
and, actually, we had
police protection
from the subway stop
to the school and back.

And once we were on the subway,
you were kind of on
your own, but...

I don't know why, but there was
some kind of phenomenon
that took place during the war.

And when did you hear about
the camps for the first time?

Well, rumors were
coming through by '42, '43,
yet nobody really knew the scale,
and it was downplayed,
strikingly downplayed.

The most dramatic...

Actually, as I'm sure you know,
there were international
conferences
to try to do something
about the people
who wanted to flee the continent,
but nobody was willing
to do anything.

Roosevelt, in fact, turned back
a ship, the St. Louis,
which came with, I think,
1,000 refugees from Europe,
and they went to Cuba, sort of
wandered around the region,
but the US. just turned it back.

They were sent back to Europe.
Most of them ended up in,
you know, gas chambers.

The most striking thing was,
after the war,
in 1945, there was...

By then, everybody knew.

There was no longer any pretext

for not saving the survivors,
and there were a fair number
of survivors,
and they were living
in concentration camps.
The camps were not very different
from the Nazi camps
except that, you know,
the gas chambers weren't...
no extermination
but living
under horrible conditions.
And they came back
with a very grim picture
of what life was like in the camps.
You mean the same camp in Poland?
Same camps.
You know, maybe another
detention camp,
but the circumstances
were not very different.
They were, like, not in detention.
They were...
Well, you know, they weren't
extermination camps,
no gas chambers, you know,
no killing, no slave labor,
but the conditions were horrible.
You should read
the Harrison commission,
Truman's commission.
How do you call that? Harrison?
Harrison, H-A-R-R-I-S-O-N.
I suppose it's obtainable.
It's a pretty grim picture
of life in the camps.
"Generally speaking,
"three months after victory
in Europe
"and even longer
after the liberation
"of individual groups,
many Jewish displaced persons
"and other possibly

non-repatriables
"are living under guard
behind barbed-wire fences,
"in camps of several descriptions
"built by the Germans
for slave-laborers and Jews,
"including some of
the most notorious
"of the concentration camps,
"amidst crowded,
frequently unsanitary,
"and generally grim conditions,
in complete idleness,
"with no opportunity,
except surreptitiously...
"In spite of
the many obvious difficulties,
"to find clothing
of one kind or another
"for their charges,
"many of the Jewish
displaced persons,
"late in July, had no clothing
"other than
their concentration camp garb,
"a rather hideous
striped pajama effect,
"while others, to their chagrin,
"were obliged to wear
German SS uniforms.
It is questionable which
clothing they hate the more."
Actually, you know,
this is pretty normal.
I mean, treatment of
Holocaust victims is grotesque.
Right now, take France.
The Roma were...
You know, they were treated
pretty much like the Jews.
France is expelling them
to miserable poverty.
They're expelling, basically,
Holocaust survivors

and their descendants.
And it's particularly dramatic
in France,
because there's so much
posturing there
about Holocaust denial.
I mean, you can't have
a more extreme case
of Holocaust denial
than taking survivors
and punishing them.
And as far as I can see, in France,
there's almost no discussion
of this.
In fact, when the European Union
protested,
Sarkozy condemned them, you know,
for their anti-French extremism
and so on.
I mean, you know, the
cynicism about all of this
is pretty remarkable.
Can I come back to maybe
more happy matters?
Pick at random in the world,
it won't be very happy.
I know, but we're
going to come back,
go more inside your memories and...
Okay.
I wanted to know
if the education you gave
to your children
was influenced by what you believe
in language acquisition
or what's going on with the brain.
Well, I mean,
the education at home, yes.
So, you know, we read to the kids
and encouraged the kids to read
and encouraged them to follow
their own interests.
The three kids
were quite different.

My son, from a very early age,
was mostly interested
in science and mathematics,
so, you know, by the time
he was ten years old,
we were reading together
popular books
on relativity theory
and things like that.
But we just let the kids go where they
wanted and encouraged them, you know.
They went in different directions.
It was fine with us, and, you know,
tried to just encouraged them
to do what they wanted.
School was conventional.
We wanted them to go
to the public schools,
and it worked reasonably well.
And if one child was not
making out in public school,
we moved her to a Quaker school,
which was better.
They essentially picked
their own paths.
As soon as they left home,
they went off to become
political activists.
One... my older daughter spent
a couple of months at college,
couldn't stand it,
went off and joined
the United Farm Workers,
and ever since then
has been very involved
in political activity.
And her younger sister
went to Nicaragua in the 1980s
and stayed.
And my son went off
in a different direction.
But my children grew up in an atmosphere
of extreme political tension.
I don't know how much they felt.

For example, I was in and out of jail,
and I was facing a long jail sentence,
enough so that my wife went
back to college after 17 years
to try to get... to get a
degree, an advanced degree,
because we assumed she'd have
to take care of the children.
She'd need a job.
And the kids kind of grew
up in this atmosphere,
but I don't think they felt
any particular tension.
My wife told me once
that my probably eight...,
ten-year-old daughter, I guess,
told her when she came
home from school...
She asked, "What did you
do in show-and-tell?"
She said, "Well, I described...
I told them how my
father was in jail."
What makes you happy?
Happy?
Children, grandchildren,
friends, you know.
I don't really think about it much.
I don't spend much... anytime
in self-indulgence.
Especially since my wife
died, I do almost nothing.
You know, don't go the movies, don't
go to the theater. I don't eat out.
I do what I have to do.
But, I mean, there
are a lot of things
that are very gratifying,
so, for example...
especially seeing victims.
Like, I just came back from
Turkey, where I was...
I've been there several times.
It's always issues

related to the
repression of the Kurds.
Actually, I was there...
the first time I was there
was to take part in a trial
and be a codefendant.
But this time, it was for a
conference on repression
and freedom of expression.
You see people who are
really dedicated, courageous,
struggling all the time,
standing up against repression.
It's quite inspiring.
A couple of months before that,
I was in southern Colombia.
Colombia has the worst
human rights record
in the hemisphere
and, of course,
the most US. military aid
in the hemisphere.
They correlate.
In these places,
I was visiting quite remote
endangered villages,
and the people were just inspiring.
It actually was a very moving
experience, personally.
I was there in part because
they were dedicating a forest
to the memory of my wife.
And it's the kind of
compassion and kindness
that you just don't see
in the world we live in.
And it was just kind of natural,
no pretentiousness
about it, ceremony.
And you see things like that
all over the world here too,
not much in the circles in
which we live, you know,
mainly in intellectual

circles and elsewhere.
Much more abstract, even,
than in the case of the tree.
There was a sudden explosion...
Answers to, like the phonetics,
I don't care about.
My father worked on history
of the Semitic languages...
During the earlier exposure,
where the child is not...
We learn that children
know quite a lot...
It's a story about a donkey
named Sylvester...
In one of your books from the '70s,
you give this example
of the sentence,
"The man who is tall
is in the room,"
and how the child naturally
can postulate the question.
And I was wondering
if you could explain just quickly, because I
could do a very nice animation from that.
There's a simple question, and it's
interesting that it never bothered anyone.
It's a little bit like,
for 2,000 years,
scientists were satisfied
with simple explanation
for an obvious fact.
If you take an apple
and you detach it from a tree,
it's going to go down.
If you take steam,
it's going to go up.
So 2,000 years, the answer was,
"Well, they're going
to their natural place.
End of discussion."
As soon as people started
getting puzzled about that,
like Galileo and Newton,
then you have modern science.

- But can you...
- This is the same.
Take the sentence that you gave me,
"The man who is tall is happy,"
or whatever it is.
If you want to form a question
from that,
you take the word "is,"
and you put it in the front.
So, "Is the man who is tall happy?"
Right? That's the question.
You don't take
the first occurrence of "is."
You don't take the closest one
to the front...
and say, "Is the man
who tall is happy?"
That's gibberish.
How does it... why?
I mean, why doesn't the child
do the simple thing,
take the first occurrence of "is"
and put it in front?
That's... computationally,
that's much easier
than finding the main occurrence,
which requires knowing
the phrases and so on.
But it's an inconceivable error.
No child has ever made that error.
And it's the same in all...
You know, with minor variations,
the same principle holds
in all languages, so why?
Well, you know, there are
some interesting explanations
for why, but this is a good example
of the brute force approach.
In computational cognitive science,
where they,
as a matter of principle,
want to believe that the mind
is essentially empty...
The man who is tall is happy.

The man who is tall is happy.
The man who is tall is happy.
Then Noam took my pen
and wrote the following sentence.
Look, there are
serious questions about it.
Like, take, "The man who is tall
is happy."
This is the predicate,
this is the subject, okay,
and this is sort of
the main element.
You know, that's the main element
of the whole sentence,
and that's the one
that structurally is closest to
the middle, to the beginning.
This one is more remote from
the beginning structurally,
because you have to work through
this whole business, okay?
So structurally speaking,
this is the closest to the front.
Linearly, this is the closest
to the front.
Now, the question is,
"Why do you use
structural proximity and
not linear proximity?"
And it's not just this case;
it's everything...
every language, every construction.
Is that evidence of this
generative grammar?
Well, that's the data, and
there is a principle.
I mean, the principle is, "Keep
to minimal structural distance."
Okay, now, where
does that come from?
This part is probably
just a law of nature.
Computation tries to do
things in the simplest way,

but the structural distance
part is a fact about language.
I mean, you could have
minimal computation
if you did it this way.
In that case, what we would say:
"Is the man who tall is happy?"
The child picks
structural closeness
because that's a
property of language,
probably genetically determined.
Yeah, but that's about
all there is to it.
The man who is tall is happy.
Yes, the man who is
tall is very happy.
Is the man tall is happy?
Is the man who is tall happy?
Is the man who is tall happy?
Is the man who is tall is happy?
Is the man who is tall happy?
Is the man who tall is happy?
I guess we've been...
Okay.
We got to rush him over.
He's going to miss the thing.
Okay.
- Good to see you again.
- Yeah.
I'm glad you're doing well.
We got to get you out of here.
Your bags...