Conceptual Blending in
Higher-Order Human Cognition

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Lascaux Bull
Chauvet
Willendorf
Ivory beads sewn into cloth, Burial at Sunghir
From “The Sanctuary” at Trois-Frères
Cognitively modern human beings
Anatomically modern human beings
Genus Homo

50 kya

2 million years ago

6 million years ago

Pan paniscus
Pan troglodytes
Separation through biological evolution

- **Gorilla gorilla beringei** - Eastern gorilla species
- **Gorilla gorilla gorilla** - Western gorilla species
- **Homo sapiens** - Human beings (Homo sapiens sapiens)
- **Pan paniscus** - Bonobo, or pygmy chimpanzee
- **Pan troglodytes** - Chimpanzee
- **Pongo pygmaeus** - Orangutan
<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Animalia</th>
<th>Kingdom</th>
<th>Animalia</th>
</tr>
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<tbody>
<tr>
<td>Phylum</td>
<td>Chordata</td>
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<tr>
<td>Class</td>
<td>Mammalia</td>
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<td>Order</td>
<td>Primates</td>
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<td>Primates</td>
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<tr>
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<td>Lemuridae</td>
<td>Family</td>
<td>Hominidae</td>
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<td>Genus</td>
<td>Lemur</td>
<td>Genus</td>
<td>Homo</td>
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<tr>
<td>Species</td>
<td>Lemur catta</td>
<td>Species</td>
<td>Homo sapiens</td>
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</tbody>
</table>
Language, Communication, Culture, Diversity?

How can they exist?
Why do they exist?
Emergence of New Meaning?
Emergence of New Meaning?

Evolutionary Psychology
Emergence of New Meaning?

Evolutionary Psychology
Schemata (Learning)
Emergence of New Meaning?

- Evolutionary Psychology
- Schemata (Learning)
- Complexity Theory
Emergence of New Meaning?

Evolutionary Psychology
Schemata (Learning)
Complexity Theory
Conceptual Blending
Human Scale and Compression
Conceptual Integration (Blending)

A gradient from rudimentary forms to an advanced form: Double-Scope Blending
Conceptual Integration
(Blending)

A gradient from rudimentary forms to an advanced form: Double-Scope Blending
What Memory Is For

As Arthur Glenberg (1997) writes in “What Memory Is For,”

To avoid hallucination, conceptualization would normally be driven by the environment, and patterns of action from memory would play a supporting, but automatic, role. (Glenberg 1997, 1)

But as Glenberg astutely observes, for human beings, it is often the case that memory takes the upper hand in conceptualizing the narrative one is inhabiting:

A significant human skill is learning to suppress the overriding contribution of the environment to conceptualization, thereby allowing memory to guide conceptualization. (Glenberg 1997, 1)
The Way We Think: Conceptual Blending and the Mind’s Hidden Complexities

Gilles Fauconnier & Mark Turner, Basic Books, 2002

blending.stanford.edu
Traits
Higher-Order Cognitive Traits: The Wrong View
Higher-Order Cognitive Traits: The Wrong View

- Music
- Art
- Religion
- Science
- Language
- Literature
- Sign Systems
- Advanced music and dance
- Advanced social cognition
- Refined tool use
- Math
- …
Higher-Order Cognitive Traits: The Right View

Double-Scope Blending
Higher-Order Cognitive Traits: The Right View

Double-Scope Blending

Art  Music  Religion  Language  Science  Math  Fashion  Advanced social cognition

Refined tool use

Sign systems

Fashions of dress

Advanced music and dance
Traits
Traits

Double-Scope
Blending
Traits

Double-Scope Blending
Traits

Double-Scope Blending

Advanced social cognition
Sign systems
Culture
Religious tool use
Advanced music
Art
Mathematical and scientific discovery
Fashions of dress
Dance
Language
Language, advanced social cognition, mathematical invention, scientific discovery, art, religion, music, advanced tool use and advanced technology, dance, fashions of dress, sign systems, culture . . . A Pack, a Cohort, a Phalanx, a Troupe, a Self-feeding Cyclone, an Autocatalytic Vortex, a Breeder Reactor, a Self-organizing System . . .

Cub Scout Law of the Pack

• The Cub Scout follows Akela.
• The Cub Scout helps the pack go.
• The pack helps the Cub Scout grow.
Rilke, *Duino Elegies*, 2.

. . . the shrewd animals
notice that we’re not very much at home
in the world we’ve expounded.

und die findigen Tiere merken es schon,
daß wir nich sehr verläßlich zu Haus sind
in der gedeuteten Welt.

(Rilke 1961 [1922]; 2)
Conceptual Integration (Blending)
Conceptual Integration
(Blending)

Double-Scope
Blending
Conceptual Integration (Blending)
A double scope network has inputs with different (and often clashing) organizing frames and an organizing frame for the blend that includes parts of each of those organizing frames and has emergent structure of its own. In such networks, both organizing frames make central contributions to the blend, and their sharp differences offer the possibility of rich clashes. Far from blocking the construction of the network, such clashes offer challenges to the imagination and the resulting blends can turn out to be highly creative.
One evening, after thinking it over for some time, Harold decided to go for a walk in the moonlight.
He made a long straight path so he wouldn’t get lost.
And he set off on his walk, taking his big purple crayon with him.
Representation

Generic Space

World (moon, house, bedroom, mountain, etc.)

Input $I_1$

Input $I_2$

Blend

Harold’s World
(move by drawing, etc.)
represented element

•

representing element

Representation
unique element

represented element

representing element

Representation

Analogy
We are lucky we’re not chickens

“If we were all chickens, you, William, would be about Elizabeth’s age, you, Peyton, would be about Dad’s age, and me, Dad, and Mom would all be dead of old age. We are all five alive. We are lucky we are not chickens.”
An allegory of the American people:

*Seabiscuit* tells how an unimpressive older horse with crooked legs and a short tail stole the hearts and minds of the American people during the Depression. In 1938, the No. 1 newsmaker was not FDR or Hitler; it was a horse that defined the word 'underdog.'

It was the indefinable quality of 'being game' that captured Americans. As one observer put it, Seabiscuit would rather die than be beaten in a race. Yet, unlike many champion thoroughbreds, his off-track personality was low-key, appealing and, frankly, lazy. He was a glutton for food and enjoyed the friendship of a horse named Pumpkin.

In short, he seemed the American Everyhorse, the equine version of how we see ourselves. Yet his race against the favored War Admiral is considered the greatest horse race in history. (Deirdre Donahue, 'Book club is spurred to choose "Seabiscuit",' *USA Today*, Thursday, 23 May 2002, page 1D.)
An Inconvenient Truth

“An Inconvenient Truth” is the film version of Al Gore’s slide-show presentation on global warming. Close to the end, Gore shows a picture of the Earth as a what he calls a “pale blue dot.” The Earth is a single pixel on a huge cosmological screen, difficult even to pick out when he points at it. The picture was taken from a distance in space of 4 billion miles. Gore says, “Everything that has ever happened in all of human history has happened on that dot. All the triumphs and tragedies, all the wars and all the famines, all the major advances. That is what is at stake—our ability to live on planet Earth, to have a future as a civilization.”

And then he concludes the film with this blend: “Future generations may well have occasion to ask themselves, 'What were our parents thinking? Why didn’t they wake up when they had the chance?’ We have to hear that question from them now.”
The Time Blend
at the end of
“An Inconvenient Truth”

And then he concludes the film with this blend: “Future generations may well have occasion to ask themselves, 'What were our parents thinking? Why didn’t they wake up when they had the chance?’ **We have to hear that question from them now.**”
Joey, Katie and Todd will be performing your bypass.

Before you know it, these kids will be doctors, nurses and medical technicians, possibly yours. They’ll need an excellent grasp of laser technology, advanced computing and molecular genetics. Unfortunately, very few American children are being prepared to master such sophisticated subjects.

If we want children who can handle tomorrow’s good jobs, more kids need to take more challenging academic courses. To find out how you can help the effort to raise standards in America's schools, please call 1-800-96-PROMISE. If we make changes now, we can prevent a lot of pain later on.
Joey, Katie, and Todd Will Be Performing Your Bypass.

“Before you know it, these kids will be doctors, nurses and medical technicians, possibly yours. They'll need an excellent grasp of laser technology, advanced computing and molecular genetics. Unfortunately, very few American children are being prepared to master such sophisticated subjects. If we want children who can handle tomorrow's good jobs, more kids need to take more challenging academic courses. To find out how you can help the effort to raise standards in America's schools, please call 1-800-96-PROMISE. If we make changes now, we can prevent a lot of pain later on.”
“A fed bear is a dead bear”

Garbage, Birdseed, Pet Food, Food in Cars, Picnic Baskets, Fruit Trees, Etc . . .

Feeding Our Bears and Cubs Any Time, Anywhere, with Any Food Will Get Them Killed.
Caused-Motion:

- **INPUT 1**
  - NP: agent (a)
  - V: causal action means manner motion
  - NP: object (o)
  - PP: direction (dm)
INPUT 2

ACTS

agents

OBJECT

MOVES

direction

CAUSE
Caused-Motion:
Paul sneezed the napkin off the table.
Junior sped the car around
"I walked him into the room."
"He sneezed the napkin off the table."
"I pointed him toward the door."
"They teased him out of his senses."
"I will talk you through the procedure."
"I read him to sleep."
"They prayed the two boys home."
"I muscled the box into place."
"Hunk choked the life out of him."
"He floated the boat to me."

But also: “We blocked him from the door.”
Resultative Construction:
I boiled the pan dry
Grammatical Constructions

*I boiled the pan dry.* In the diffuse input, the causal chain runs from forgetting to the invariant position of the burner knob, to the flow of gas, to the flame, to the temperature of the pan, to the temperature of the water, to the level of the water, to the dryness of the pan. The agent performs no direct or indirect action on the pan at all. But in the blend, the compressed structure associated with the grammatical construction is projected together with some selected participants from the diffuse chain of events in the diffuse input. And so, in the blend, the agent is now acting directly on the pan. Moreover, although the boiling of the water is an event and its cause was something the agent did or did not do, there is cause-effect compression in the blend so that *boiling* is an action the agent performed. He even performed it on the pan.
Resultative:

Catherine painted the wall white.

She kissed him unconscious.

Last night’s meal made me sick.

He hammered it flat.

I boiled the pan dry.

The earthquake shook the building apart.

Roman imperialism made Latin universal.
Ditransitive:
“Mary poured Bill some wine”
She granted him his wish.
She gave him that premise.
She allowed him that privilege.
She won him a prize.
She bequeathed him a farm.

She gave him a headache.
She showed me the view.
She told me a story.
She denied him the job.
She refused him that courtesy.
“He handed me a dollar.”
“Pour me some milk.”

Elaborate Ditransitive:

“He sang me a song.”
“Slay me a dragon.”
Packing to Human Scale Through Blending
Narrative

- Personal Identity
- Thinking with Feeling
- Past
- Future
- Other minds
- Self and Consciousness: Homo economicus
- Other as Homo economicus
- Counterfactual. Alternative narratives.

- Language. Social ontologies and deontologies.
- Physical Ontology
- Political Ontology and its laws
- Material Anchors
- Social Memory
- Punishment
- Redemption
- Guilt
- Sin
- Money
Borrowing a Compression By Blending
Borrowing a Compression Borrows Constructions

“You are digging your own grave.”
“If Clinton were the Titanic, the iceberg would sink.”

This happens routinely: basic metaphors, force-dynamics, mind is a body moving in space, fictive motion, image-schemas, images, . . .
Compressing outer-space vital relations into inner-space structure in the blend
Outer-space ➔ Inner-space

Blending compresses "outer-space" mappings into inner-space human-scale elements that can then be expressed through existing basic human-scale grammatical constructions.
Outer Space

R

Q

Inner Space
Narrative

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Personal Identity

Identity & Change from Analogy & Disanalogy

“Make this envelope disappear”
Grammar suited to change for object

Analogy

Disanalogy

Change for Unique Element

Grammar suited to change for object
"At what altitude do the deer turn into elk?"

"The new theory is that dinosaurs turned into birds."

"My tax bill gets bigger every year." (Fauconnier)
“The President changes every four years,” (Fauconnier 1994 [1985])

“The cars get three feet bigger when you enter Pacific Heights,” (Sweetser 1997)

“The fences get taller as you move westward across the United Statues,” (Sweetser 1997)

“The paint gets darker as you move down the wall.” (Sweetser 1997)
Personal Identity
• Personal Identity

• Creating a Human-Scale Compression extending over ranges of activity, time, and space that are not at human-scale.
Personal Identity

Creating a Human-Scale Compression extending over ranges of activity, time, and space that are not at human-scale.

Certification, credentials, contracts, character, essence, promises, . . .
Narrative

- Personal Identity
- Thinking with Feeling
- Past
- Future
- Other minds
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- Counterfactuals. Alternative narratives.

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Narrative

- Thinking with Feeling (not like H.G. Wells’ Time Machine)
  - Past
  - Future
- Other Minds
• Other Minds

• Character, Intentions, Plans, viewpoint, focus, perspective, decision, interdependent decision, risk, planning, imputing motive, giving advice, . . .
Narrative

- Personal Identity
- Thinking with Feeling
- Past
- Future
- Other minds
- Self and Consciousness: Homo economicus
- Other as Homo economicus
- Counterfactuality. Alternative narratives.

- Language. Social ontologies and deontologies.
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- Sin
- Money
Self and Consciousness: Homo economicus

- Choice, Decision
  - Imputing decision processes, motives, etc. to self
• Other as Homo economicus
Narrative

- Personal Identity
- Thinking with Feeling
- Past
- Future
- Other minds
- Self and Consciousness: Homo economicus
- Other as Homo economicus
- Counterfactuality. Alternative narratives.
- Language. Social ontologies and deontologies.
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- Sin
- Money
Counterfactual. Alternative narratives.
Disanalogy

Grammar:
Adj+N
(property-thing)
caffeine headache
money problem
nicotine fit
security problem
arousal problem
insulin coma
insulin death
food emergency
honesty crisis
rice famine
Safe beach.
Fake gun. (Coulson & Fauconnier)
Place the flowers in front of the missing chair.
There is a gap in the fence.
• Counterfactual
  • Alternative narratives
    • Blame for omission
Narrative

- Personal Identity
- Thinking with Feeling
- Past
- Future
- Other minds
- Self and Consciousness: Homo economicus
- Other as Homo economicus
- Counterfactualilty. Alternative narratives.

- Language. Social ontologies and deontologies.
- Physical Ontology
- Political Ontology and its laws
- Material Anchors
- Social Memory
- Punishment
- Redemption
- Guilt
- Sin
- Money
• Punishment, Redemption (Unpunished, Expiating Guilt)
Narrative

- Personal Identity
- Thinking with Feeling
- Past
- Future
- Other minds
- Self and Consciousness: Homo economicus
- Other as Homo economicus
- Counterfactualinity. Alternative narratives.

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