The Distinctiveness of Human Beings

Conceptual Integration

Conceptual Integration achieves mental packing in blended spaces. One exceptionally useful outcome of blended spaces is portable compressions at human scale, congenial to human cognition, that are intelligible, memorable, appropriate to the available bandwidth, and suitable for flexible unpacking in context. Repeated packing and unpacking in context produces changes in conceptual structure (including grammatical structure).
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The highest form of conceptual integration is “double-scope” integration, the hallmark of the singular everyday creativity that distinguishes human beings from other species. 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.
The Distinctiveness of Human Beings

Conceptual Integration and Mental Packing in Blended Spaces
The Way We Think: Conceptual Blending and the Mind's Hidden Complexities

Gilles Fauconnier & Mark Turner, Basic Books, 2002

http://blending.stanford.edu
Creativity: emergence through mental packing in the invention of number
points on line

numbers

containers

proportions

number line with zero

rational numbers
points on line

numbers

containers

proportions

number line with zero

segments

rational numbers

rational + irrational numbers
arcs with transcendental numbers (rational + irrational numbers)
arcs
line in space with rotation
real numbers
numbers with transcend.

rational + irrational numbers
arcs

line in space with rotation

real numbers

drational + irrational numbers

complex numbers

2D space

numbers with transcend.
Grammatical constructions are form-meaning pairs. They are instruments for packing to achieve human scale. Language suitable for the inputs is selectively projected to the blend. New thoughts do not require new language! Consider, for example, the clausal Caused-Motion construction.
Caused-Motion:

**INPUT 1**

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

CAUSE

ACTS

a'  agent

MOVES

o'  object

dm'  direction
Caused-Motion:
Paul sneezed the napkin off the table.
Junior sped the car around the Christmas tree
"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.”
References for Caused Motion Packing:


Resultative Construction:
I boiled the pan dry
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.
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Example: Space and Time packing in “An Inconvenient Truth”: 
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.”
Pale Blue Dot
The Tightly-Packed 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.”
A Parallel Tightly-Packed Time Blend in

“Joey, Katie, and Todd will be performing your bypass.”
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.”
Tight Packing for Portability, Memorability, and Flexible Unpacking in

Seabiscuit:
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.)
Creative Mental Packing:

The Grim Reaper
Reaper

Killer

Human Death

Causal Tautology

manner

specific event of dying

Empty Cause

CAUSE

elements of class of events

reaper

cause

being cut down

reaps

plant

killer

CAUSE

dying

Death-in-General

Death

kills

event of dying

by specific means

person who dies

Death the Grim Reaper

Reaping/Killing/Causing Death

Plant/Victim/Person who dies

Blend: Death The Grim Reaper
Yet further steps in the creative packing are immediately available:

The Person of the Year for 2005 is . . .

The Grim Reaper!
“As of this date, the Person of the Year for 2005 is . . . the Grim Reaper.”

Yet further steps in the creative packing are immediately available:

Anyone who provides food to Lake Tahoe bears is a Grim Reaper for the local population of bears:
“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.
$DA = \textit{disanalogy}, \textit{a vital conceptual relation}$

$A = \textit{analogy}, \textit{a vital conceptual relation}$
Human provides food, bear changes, doomed.
Human feeds animal/bear

Poison

Person/We Feeds/Kill Bear/Bears

Human provides food, bear changes, doomed.
Reaper
Killer
Human
Death
Causal Tautology
manner
specific event of dying

empty Cause
CAUSE
CAUSE

Death

Killer

reaper
CAUSE
being cut down
reaps
plant

Death

killer

Death-in-General
dying

specific event of dying

by specific means
person who dies

Death

person who dies
CAUSE

Death

the
Grim
Reaper
Reaping/Killing/Causing
Death
Plant/Victim/Person
who dies

Blend: Death The Grim Reaper

Death the Grim Reaper
Reaping/Killing/Causing Death
Plant/Victim/Person who dies

Person/We/Grim
Reaper Feeds/Kills/
Poisons Bears/Bear

Human feeds animal/bear

Poison

Human provides food, bear changes, drawn...
“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.

http://www.savebears.org
Creative packing to human scale:

“Missing,” “Gap,” “Hole”:
Disanalogy

Grammar:

Adj+N

(property-thing)
Creative packing to human scale:

Packing 6 record-holders in the mile over 6 decades into one simultaneous mythic race:
World Record in the Mile

- May 6, 1954
  Roger Bannister
  Britain
  YARDS BEHIND 120

- Aug. 6, 1958
  Herb Elliott
  Australia

- June 23, 1967
  Jim Ryun
  United States
  YARDS BEHIND 85

- July 17, 1979
  Sebastian Coe
  Britain
  YARDS BEHIND 61

- July 27, 1985
  Steve Cram
  Britain
  YARDS BEHIND 45

- YESTERDAY
  Hicham el-Guerrouj
  Morocco
  YARDS BEHIND 25

The New York Times
Creative packing to human scale:

Ghosts
Ghost of Northern Light

As we went to press, Rich Wilson and Bill Biewenga were barely maintaining a 4.5 day lead over the ghost of the clipper Northern Light, ...
Creative packing to human scale:
The evolution of birds from dinosaurs
CHANGE, UNIQUENESS, INTENTIONALITY
Repeated packing to human scale:

*King Henry the Sixth, part one*

Triumphant death, smear'd with captivity,
Young Talbot's valour makes me smile at thee.
When he perceiv'd me shrink and on my knee,
His bloody sword he brandish'd over me,
And like a hungry lion did commence
Rough deeds of rage and stern impatience;
But when my angry guardant stood alone,
Tend'ring my ruin and assail'd of none,
Dizzy-ey'd fury and great rage of heart
Suddenly made him from my side to start
Into the clust'ring battle of the French;
And in that sea of blood my boy did drench
His overmounting spirit; and there died,
My Icarus, my blossom, in his pride.

-King Henry the Sixth, part one, Act 4, Scene 7, lines 3-16.
Antic Death

Thou antic death, which laugh'st us here to scorn,
Anon, from thy insulting tyranny,
Coupled in bonds of perpetuity,
Two Talbots, winged through the lither sky,
In thy despite shall 'scape mortality.
O, thou, whose wounds become hard-favour'd death,
Speak to thy father ere thou yield thy breath!
Brave death by speaking, whether he will or no;
Imagine him a Frenchman and thy foe.
Poor boy! he smiles, methinks, as who should say,
Had death been French, then death had died to-day.

-King Henry the Sixth, part one, Act 4, Scene 7, lines 18-28.
Come, come, and lay him in his father's arms.  
My spirit can no longer bear these harms.  
Soldiers, adieu! I have what I would have,  
Now my old arms are young John Talbot's grave.       [Dies]

-King Henry the Sixth, part one, Act 4, Scene 7, lines 29-32.
Input Space 1: John Talbot and the English dominate French soldiers

Input Space 2: Triumphant Death the Warrior Slays John Talbot

John Talbot, warrior

Death, the French warrior foe, is slain

John Talbot, warrior

Death, the French warrior foe, slays

John Talbot, victor

Blended Space: John Talbot Slays Death the French Warrior
Shared Structure

Blended Space: Triumphant Death the Warrior Slays John Talbot

Input Space 1: John Talbot is Slain by French Warriors

John Talbot, warrior
French warrior foes

Input Space 2: Triumphant Death the Warrior Slays A Human Being

Triumphant Death, the warrior foe
French warriors on the field
Shared Structure

person/warrior dies/is slain

warrior who slays

person under duress resists death but dies

causal agent of duress and death

Personified Death Acts to Cause the event of Dying

person resists but dies

Personified Death acts to cause the event of dying

Personified Death acts to cause the event of dying

person/warrior dies/is slain

Death the warrior slays/ causes event of dying

Blended Space:
Triumphant Death the Warrior Slays A Human Being
Shared Structure

- Blended Space: Personified Death causes event of dying

- Personified Death is the cause of event of dying

- Death-in-General causes event of dying

- Person is causal agent of event of dying

- Event of dying

- Person dies
event of dying

Blended Space: Death-in-General causes specific event of dying

Human Death
- person
- specific event of dying
- manner

Death-in-General
- Causes
- by specific means

Causal Tautology
- Empty Cause
- Causes
- elements of a class of events

Blended Space:
Death-in-General causes specific event of dying
Personified Death Acts to cause the event of dying.

Triumphant Death the Warrior Slays John Talbot.

Death-in-general causes specific event of dying.

John Talbot Slain by French Warriors.

John Talbot dominates French warriors.

Triumphant Death the Warrior Slays A Human Being.

Intentional causal agent performs action that causes event.

Warriors in combat.

Human Death.

Causal Tautology.

Intentional causal agent performs action that causes event.

Triumphant Death the Warrior Slays John Talbot.

John Talbot Slays Death the French Warrior.
Lord Talbot understands that imagined scenes can arouse strong emotions and powerfully shape the way we think and behave. Fervently wanting his son to speak to him before dying, and knowing his son's great motivation to defy the enemy, old Talbot prompts young Talbot to construct a blend in which Death intends to terminate John and his activity, to shut him down, to silence him. In such a blend, merely speaking becomes an act of defiance and bravery. This blend accordingly allows the son to tap his greatest sources of energy: his will to obey his father, his will to respect his father, and his will to defy the enemy. In the blend, they all motivate him in the same direction. In the blend, for John, to speak at all becomes simultaneously an act of obedience and respect for his father and an act of defiance of their joint enemy.
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Packing in Art:

The Artful Mind: Cognitive Science and the Riddle of Human Creativity

Edited by Mark Turner.