

Autonomy, Singularity, Creativity

Mark Turner

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<http://marktturner.org>

Department of Cognitive Science



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COGNITIVE SCIENCE

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 Distinctiveness of Human Beings

Conceptual Integration

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.



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The Distinctiveness of Human Beings

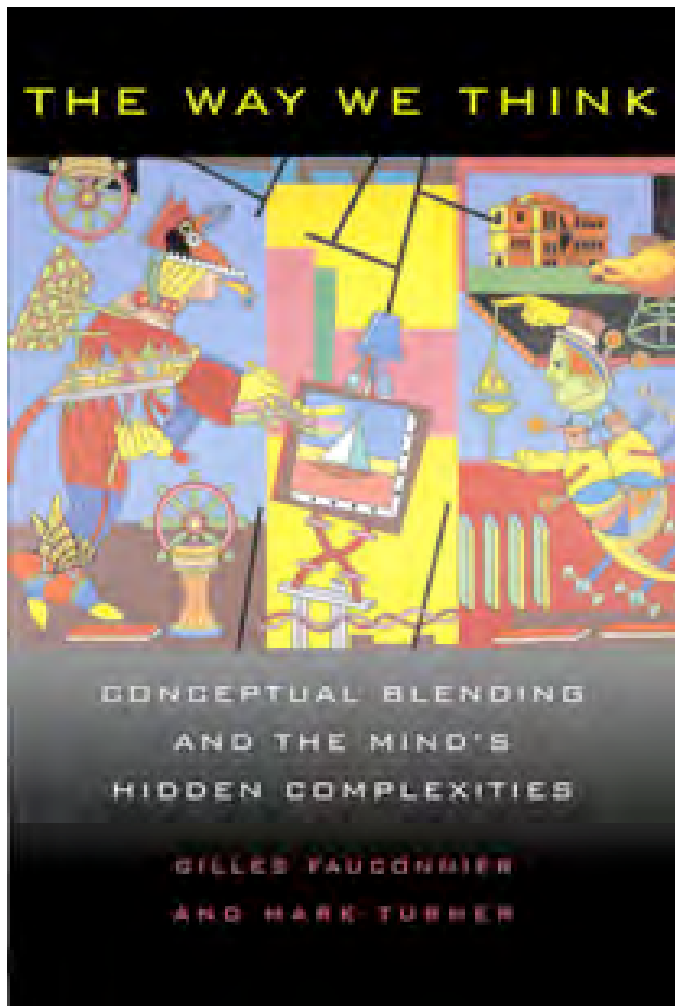
Conceptual Integration and Mental Packing in
Blended Spaces



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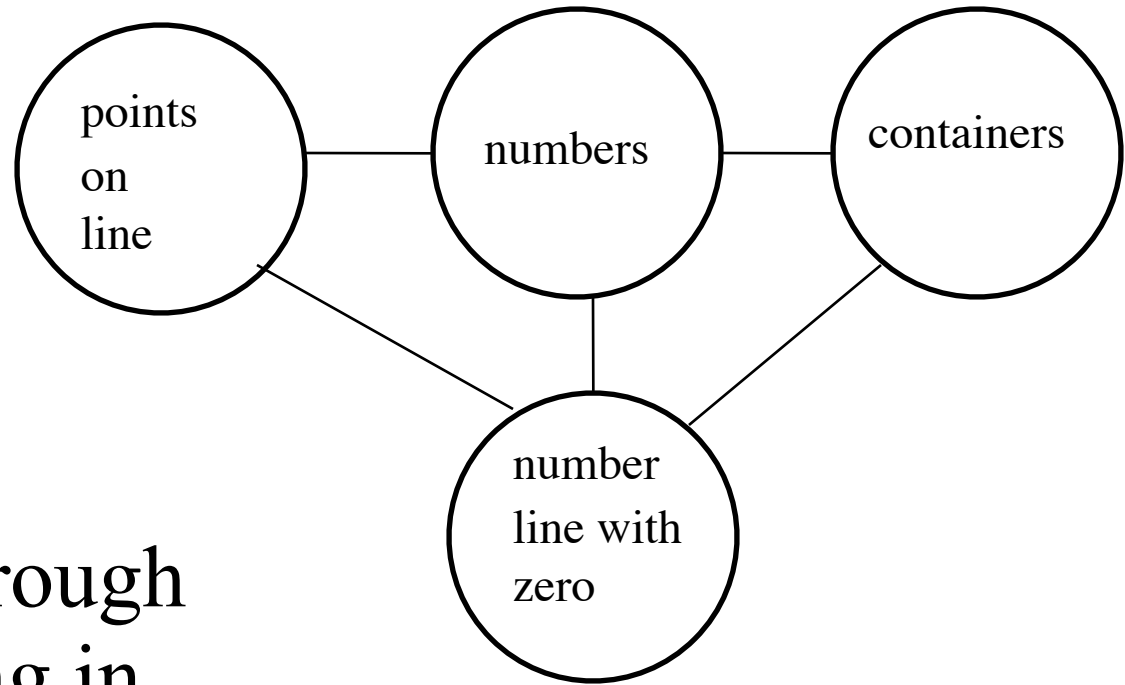
COGNITIVE SCIENCE



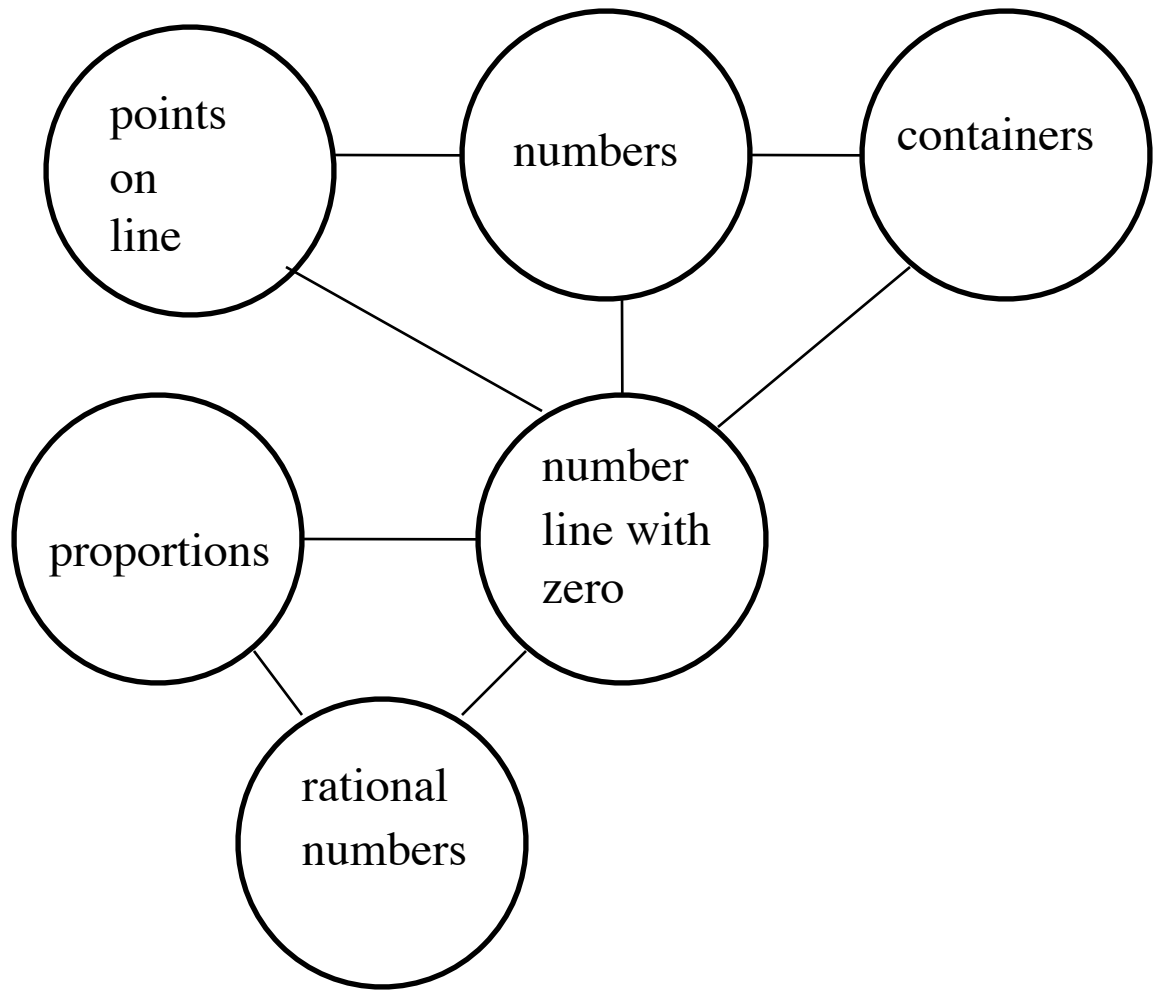
*The Way We Think:
Conceptual Blending and
the Mind's Hidden
Complexities*

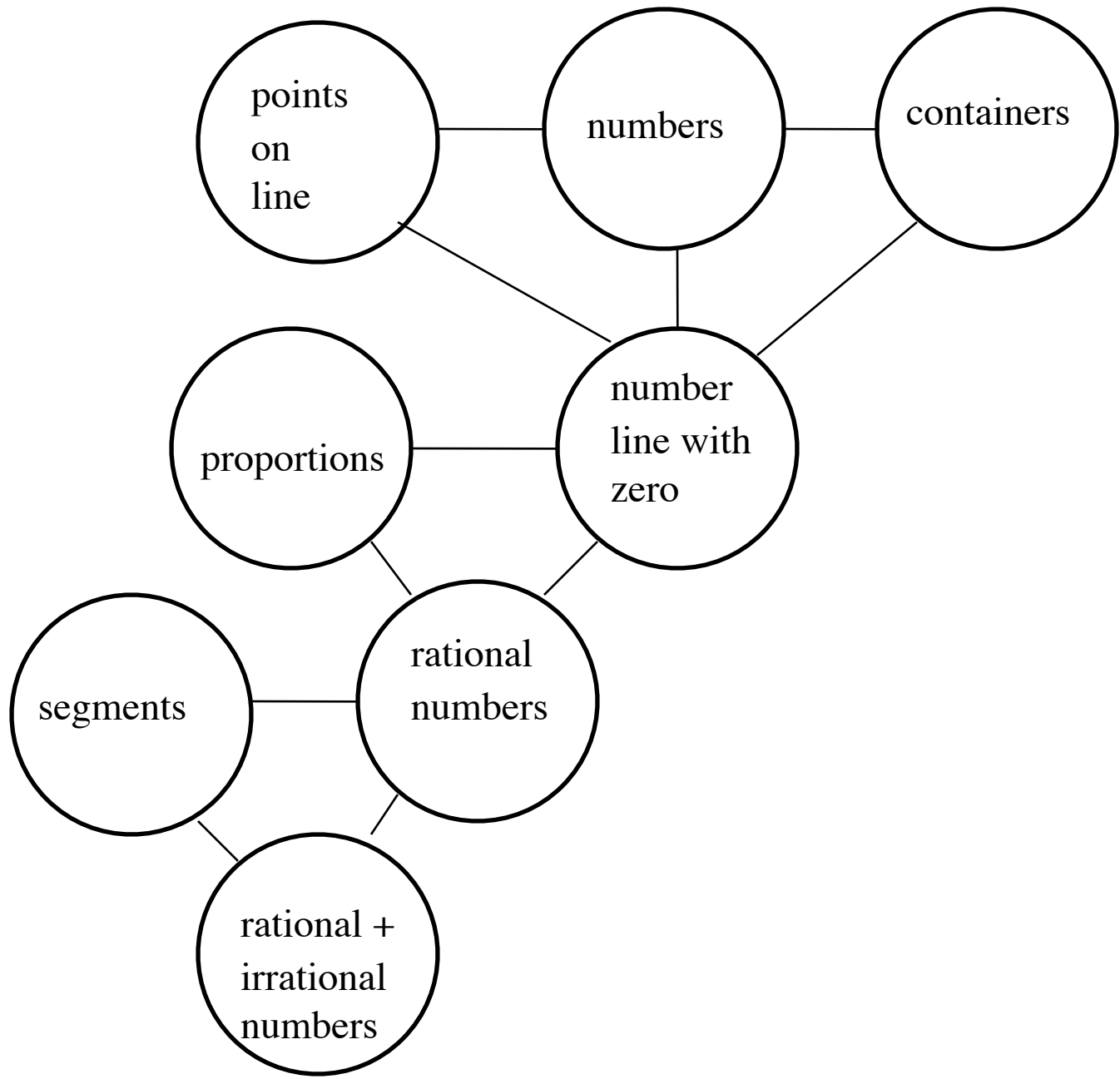
Gilles Fauconnier & Mark Turner,
Basic Books, 2002

<http://blending.stanford.edu>



Creativity:
emergence through
mental packing in
the invention of
number





points
on
line

numbers

containers

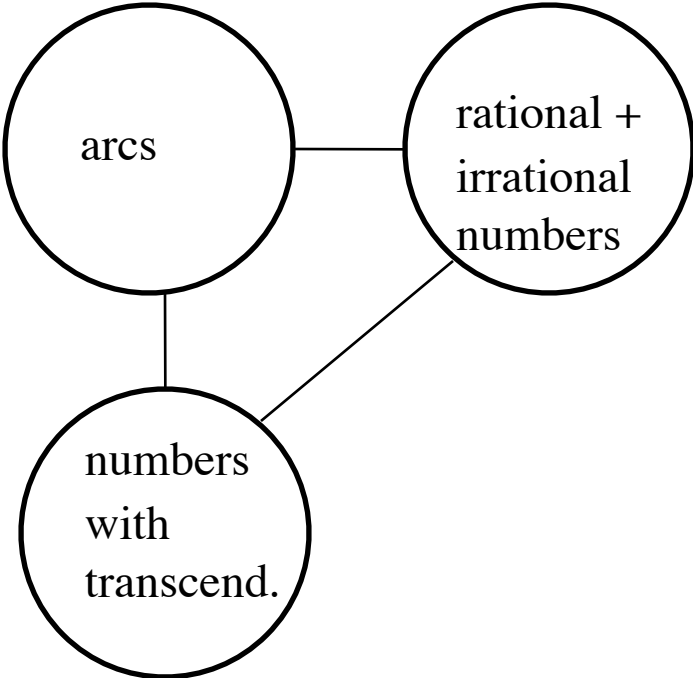
number
line with
zero

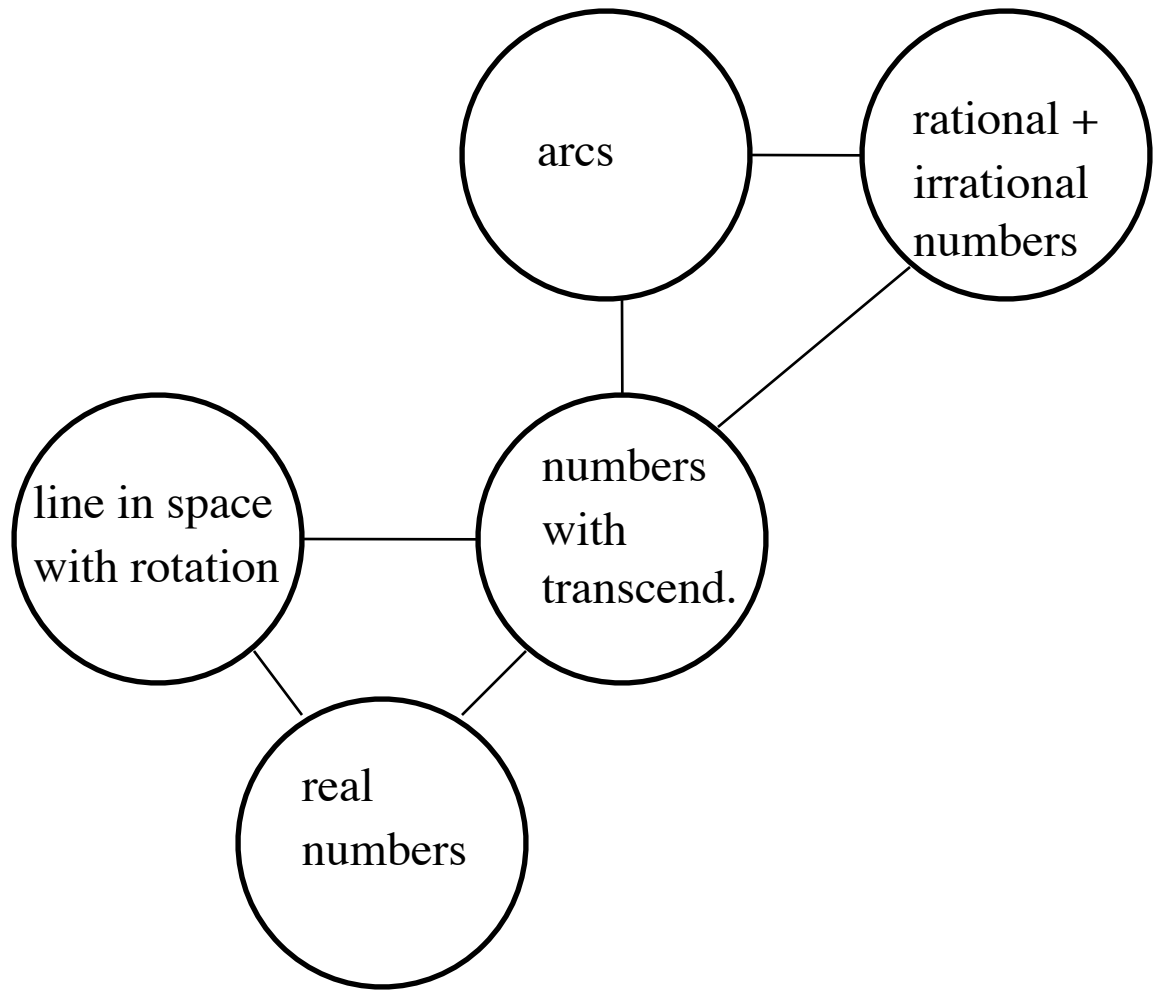
proportions

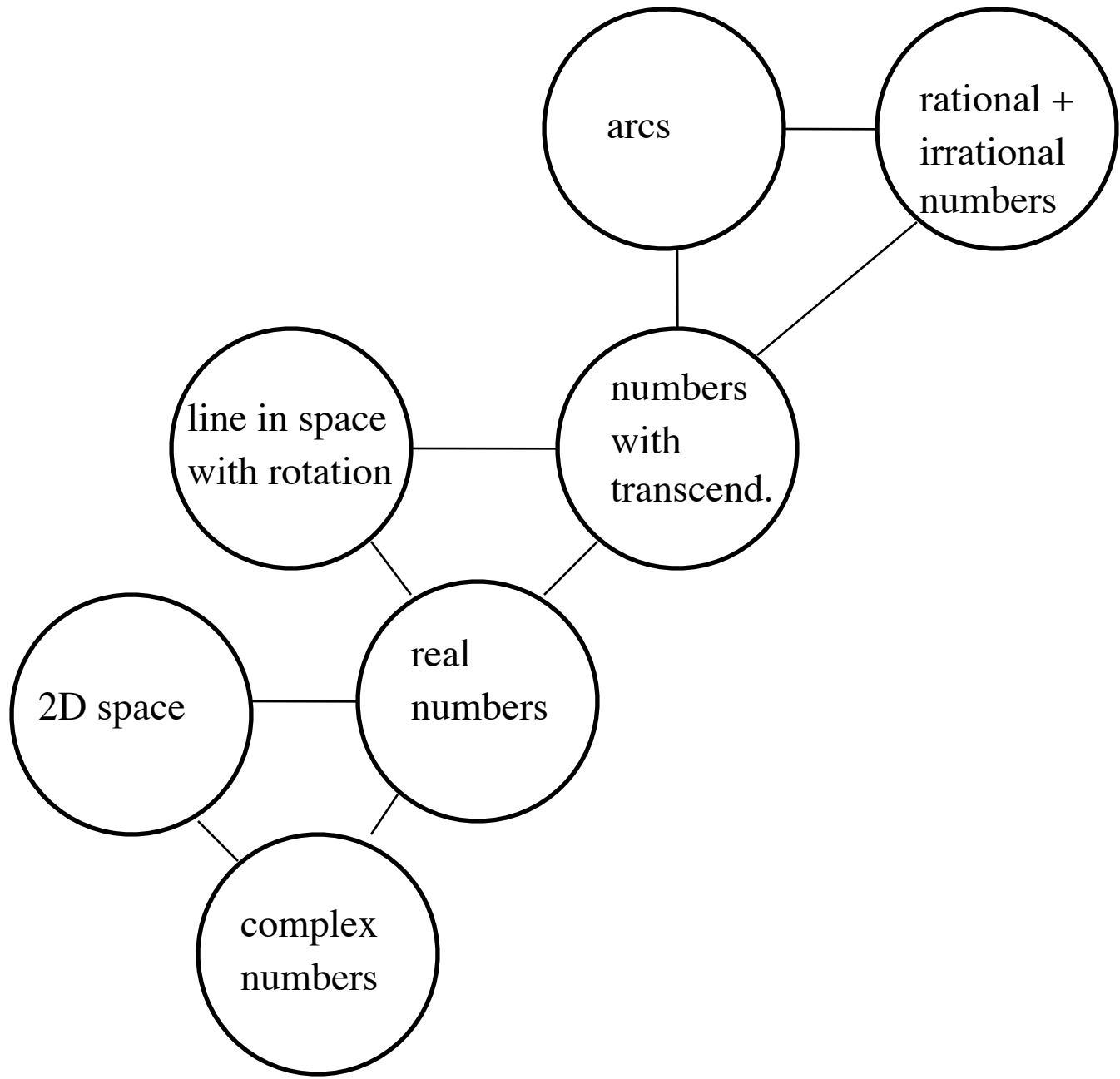
rational
numbers

segments

rational +
irrational
numbers









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The Distinctiveness of Human Beings

Conceptual Integration and Mental Packing in Blended Spaces

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

e

means

manner

motion

NP

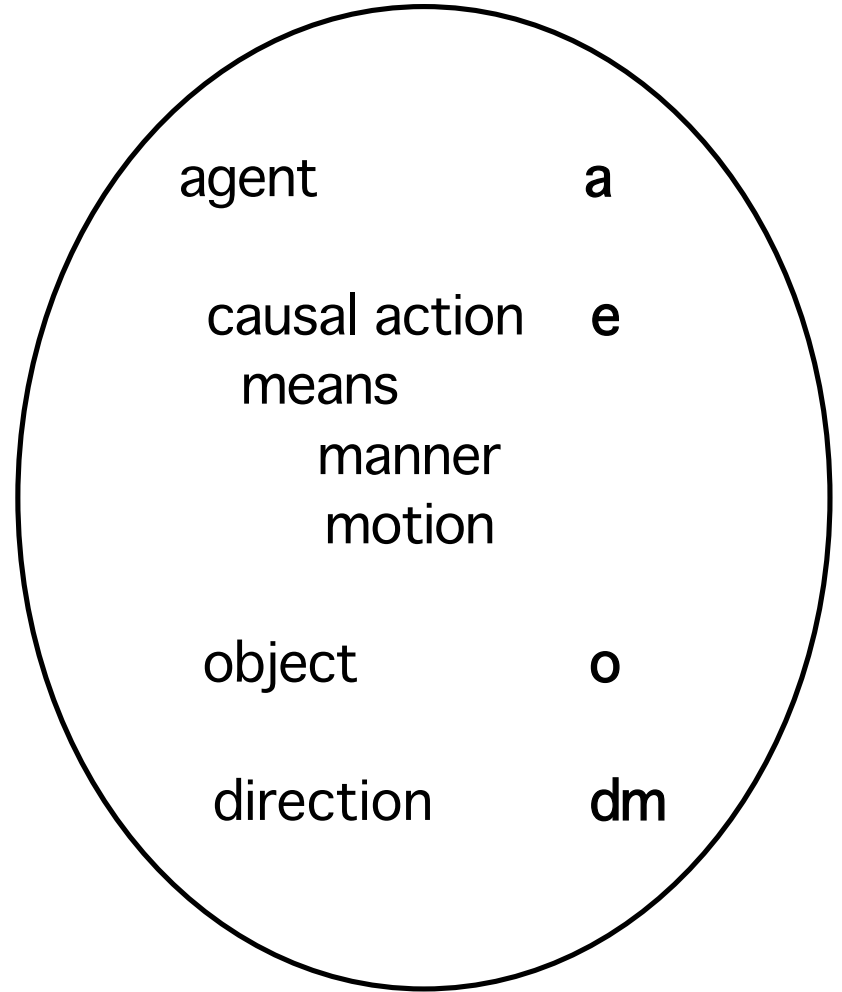
object

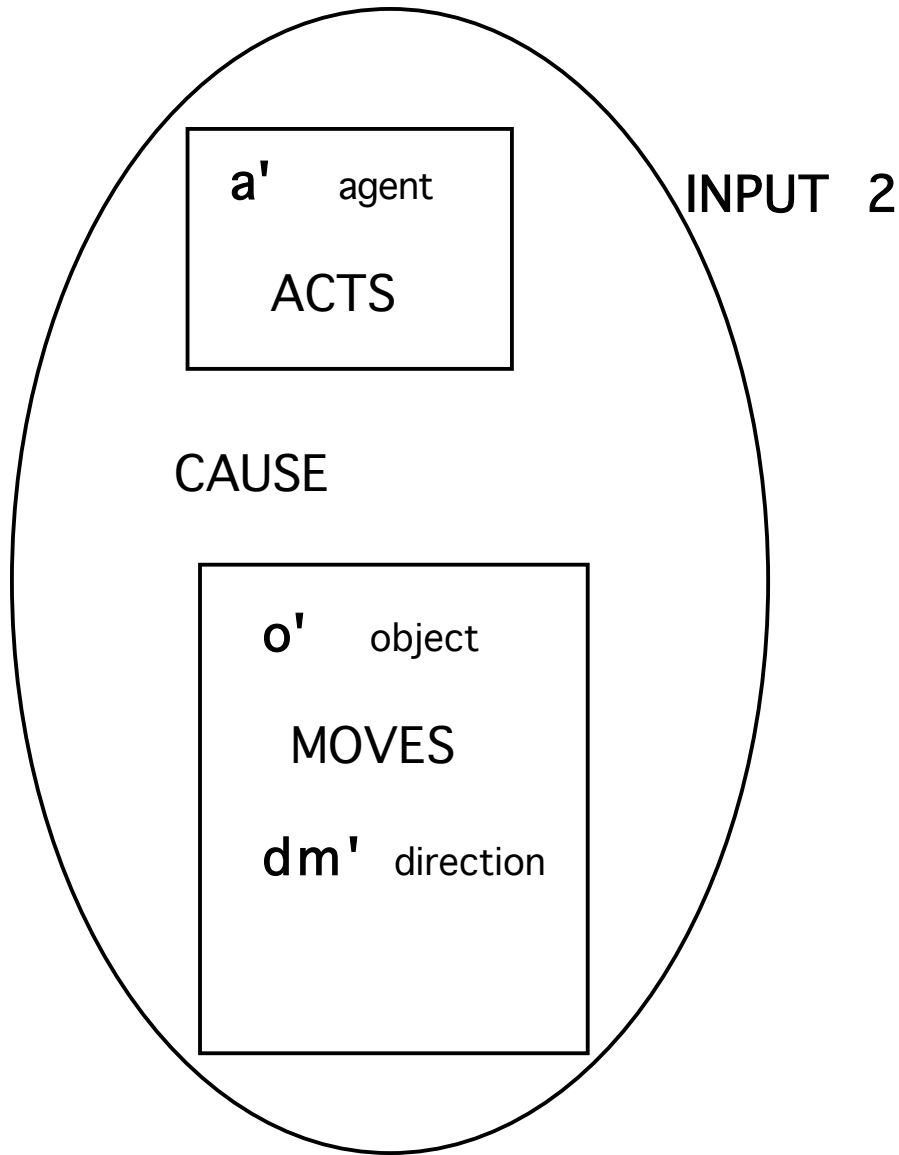
o

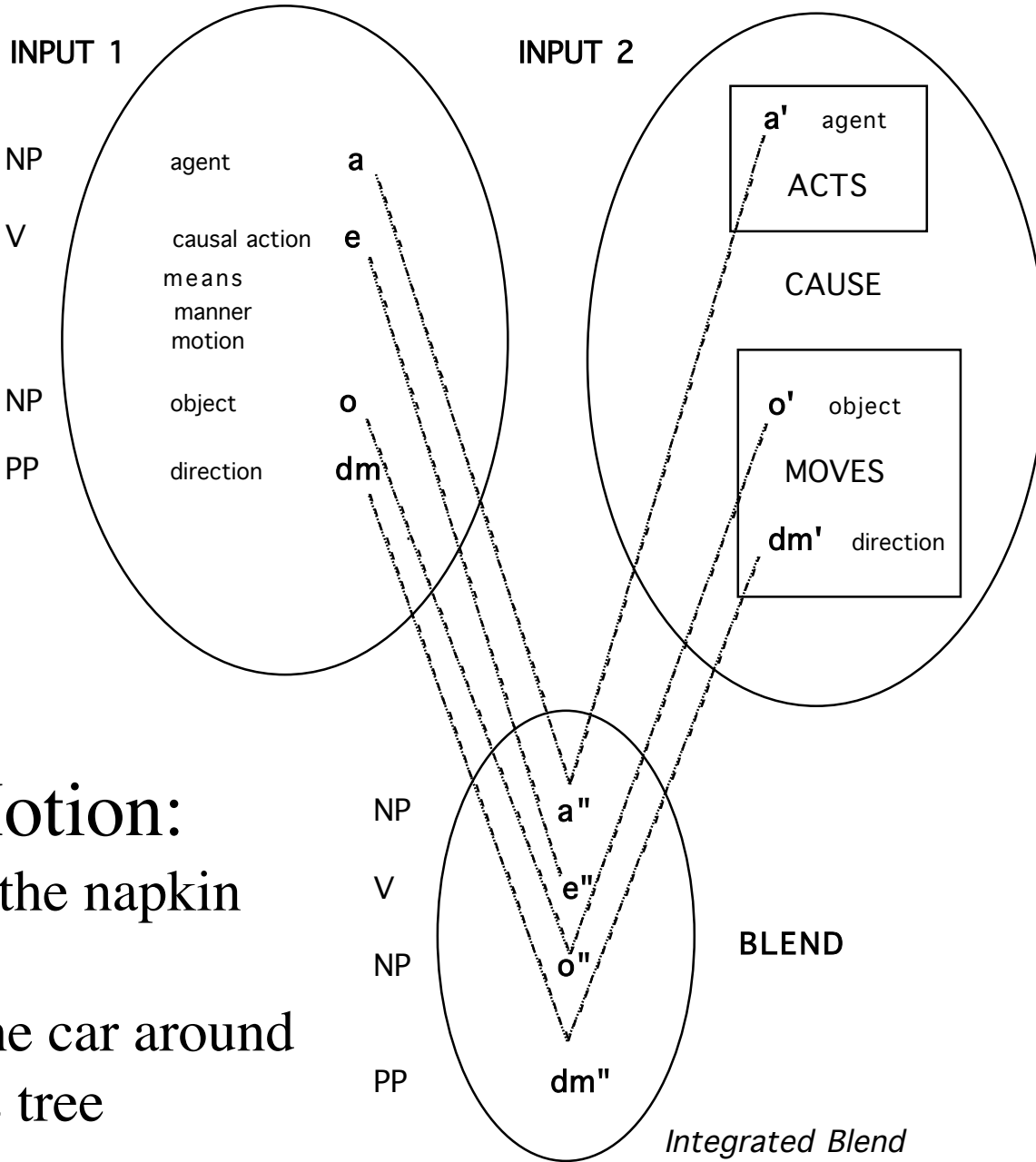
PP

direction

dm





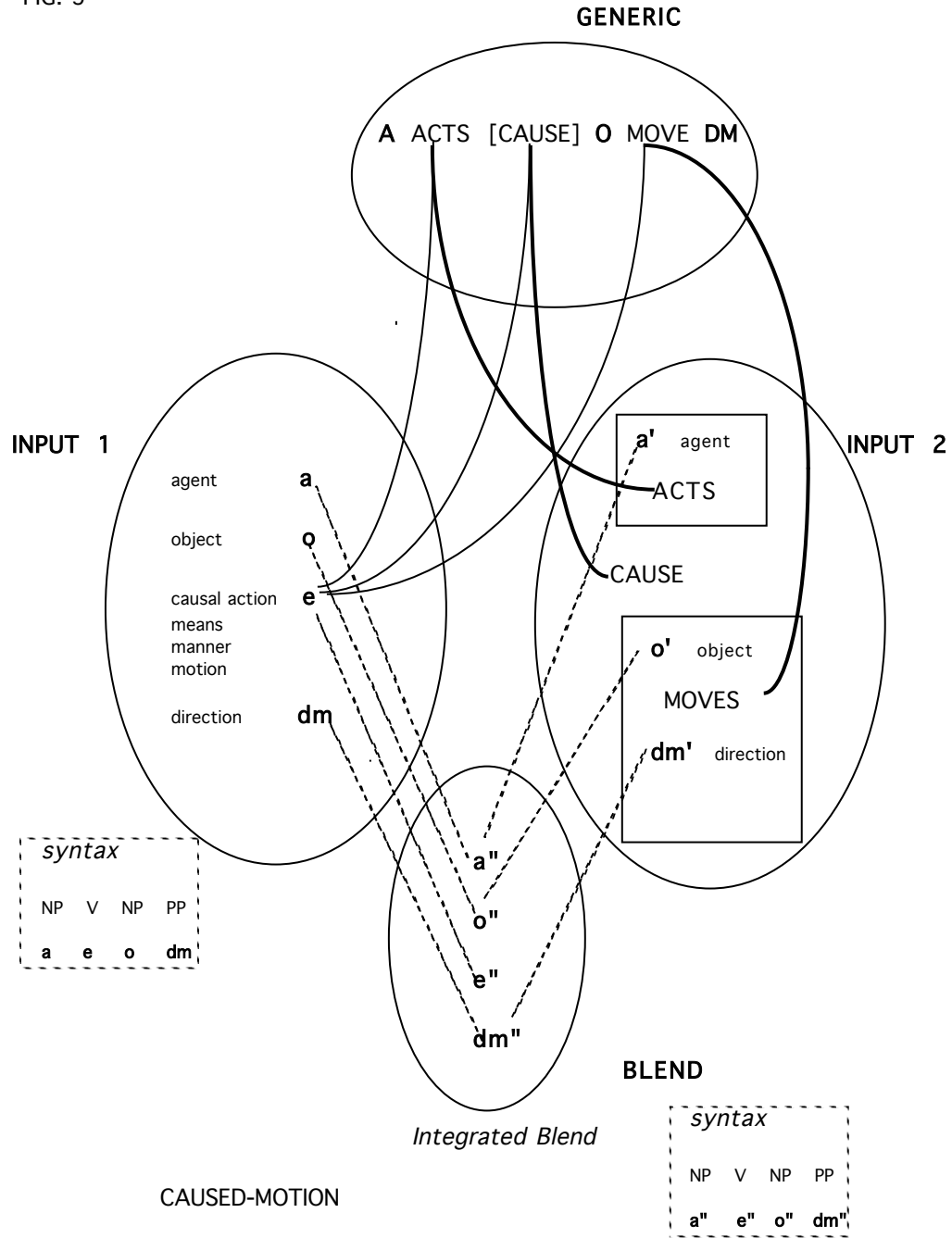


Caused-Motion:

Paul sneezed the napkin
off the table.

Junior sped the car around
the Christmas tree

FIG. 5



"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:

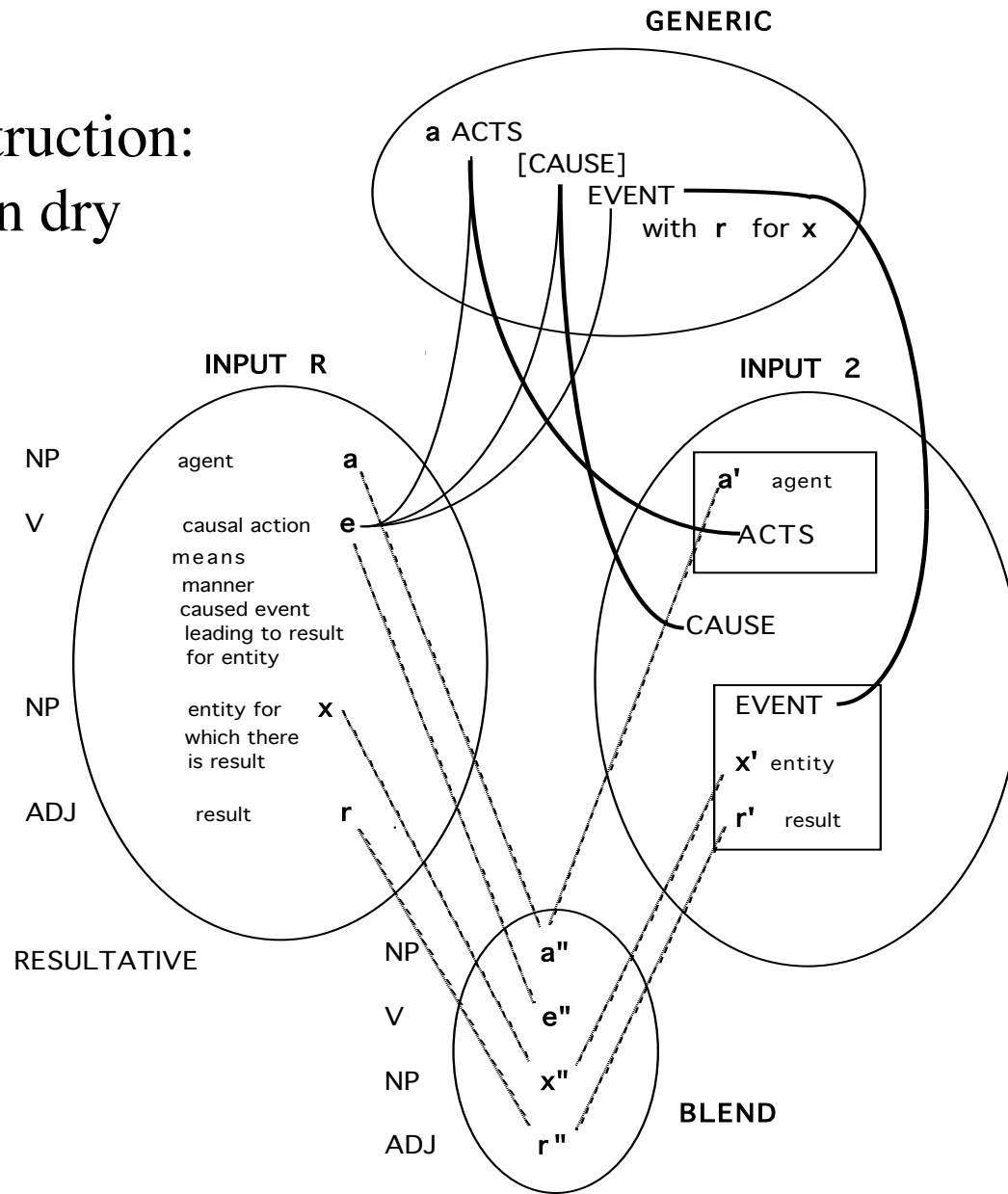
Fauconnier, Gilles & Mark Turner. 2002. **The Way We Think: Conceptual Blending and the Mind's Hidden Complexities**. New York: Basic Books.

Fauconnier & Turner. 1996. "**Blending as a Central Process of Grammar**" [expanded Web version] in *Conceptual Structure, Discourse, and Language*. Edited by Adele Goldberg. Stanford: Center for the Study of Language and Information (CSLI).

Goldberg, Adele. 1995. **Constructions: A Construction Grammar Approach to Argument Structure**. Chicago: University of Chicago Press.



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.



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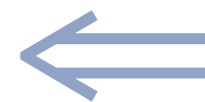
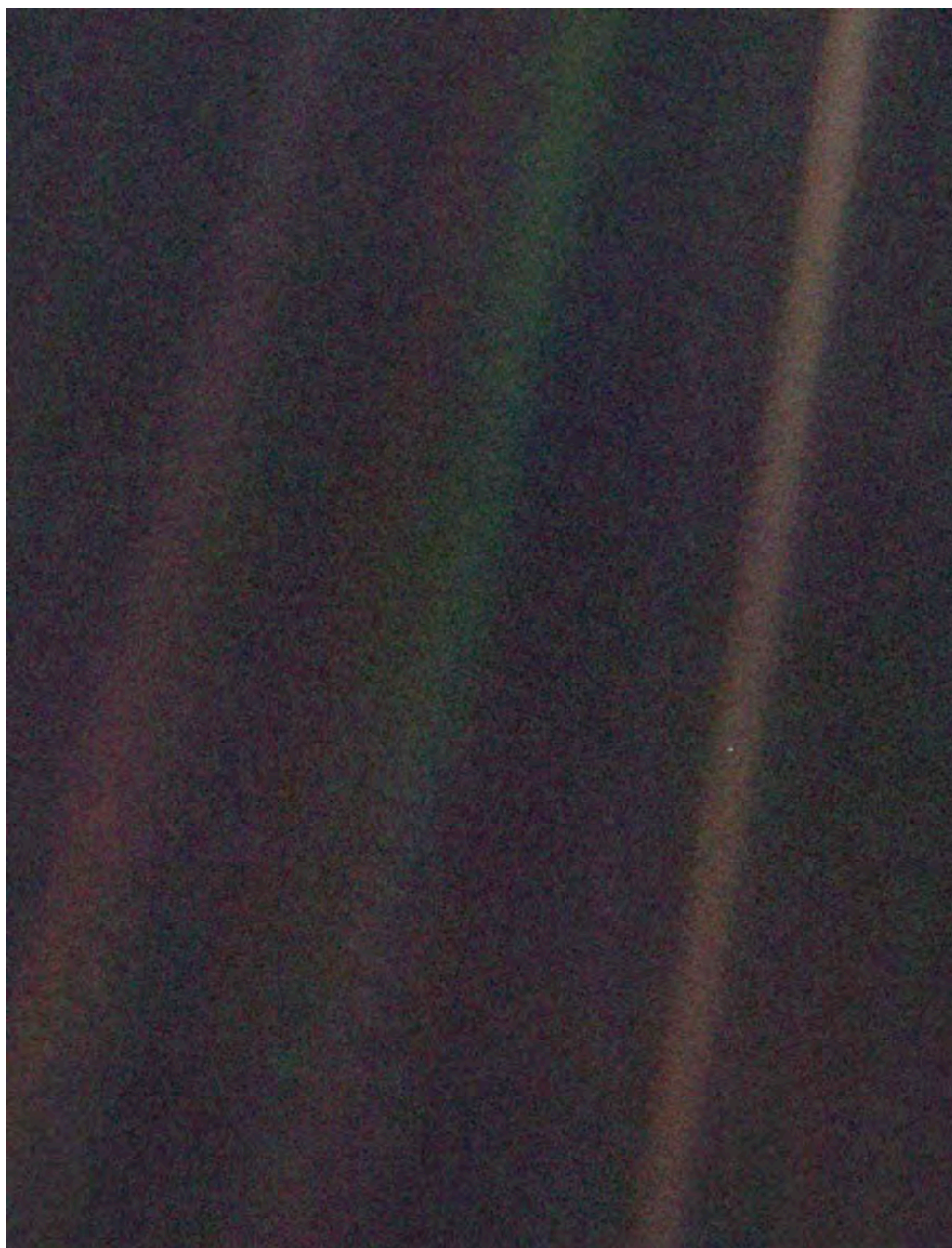
Example: Space and Time packing in “An Inconvenient Truth”:

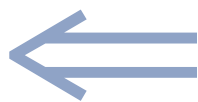
An Inconvenient Truth

“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







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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.**”



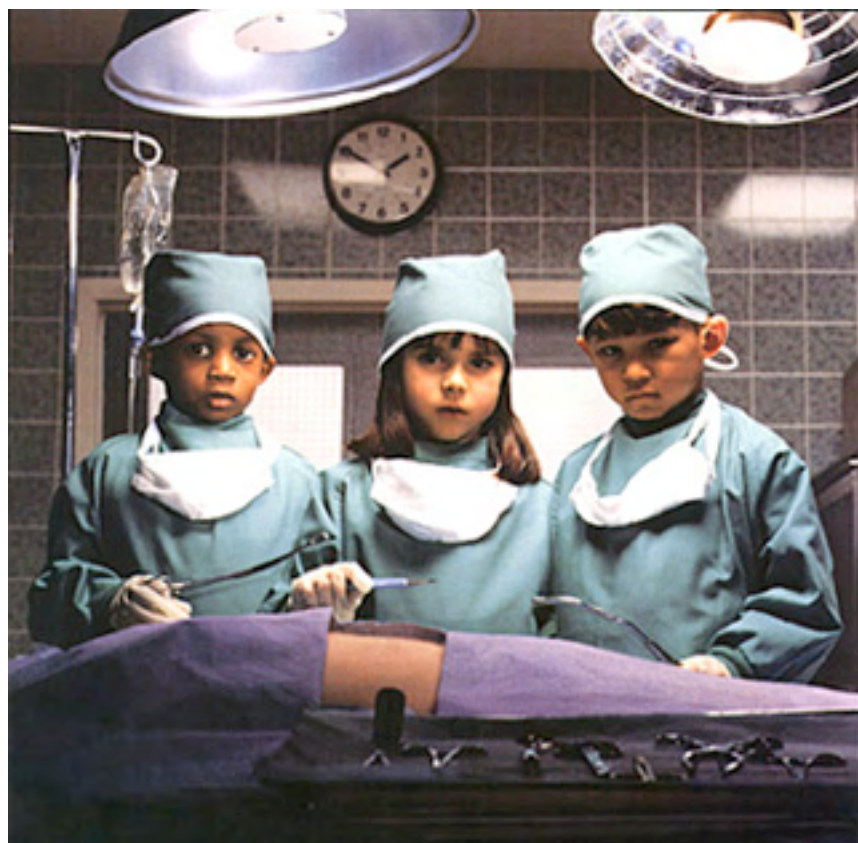
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A Parallel Tightly-Packed Time Blend in

“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 1-800-95-PROMISE.

If we make changes now, we can prevent a lot of pain later on.

The American Revolution
U.S. Department of Education
National Education Association
American Federation of Teachers
The National Council on Education
1995



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.”



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Tight Packing for Portability, Memorability,
and Flexible Unpacking in

Seabiscuit:

***Seabiscuit: An American Legend*, Laura Hillenbrand**

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.)



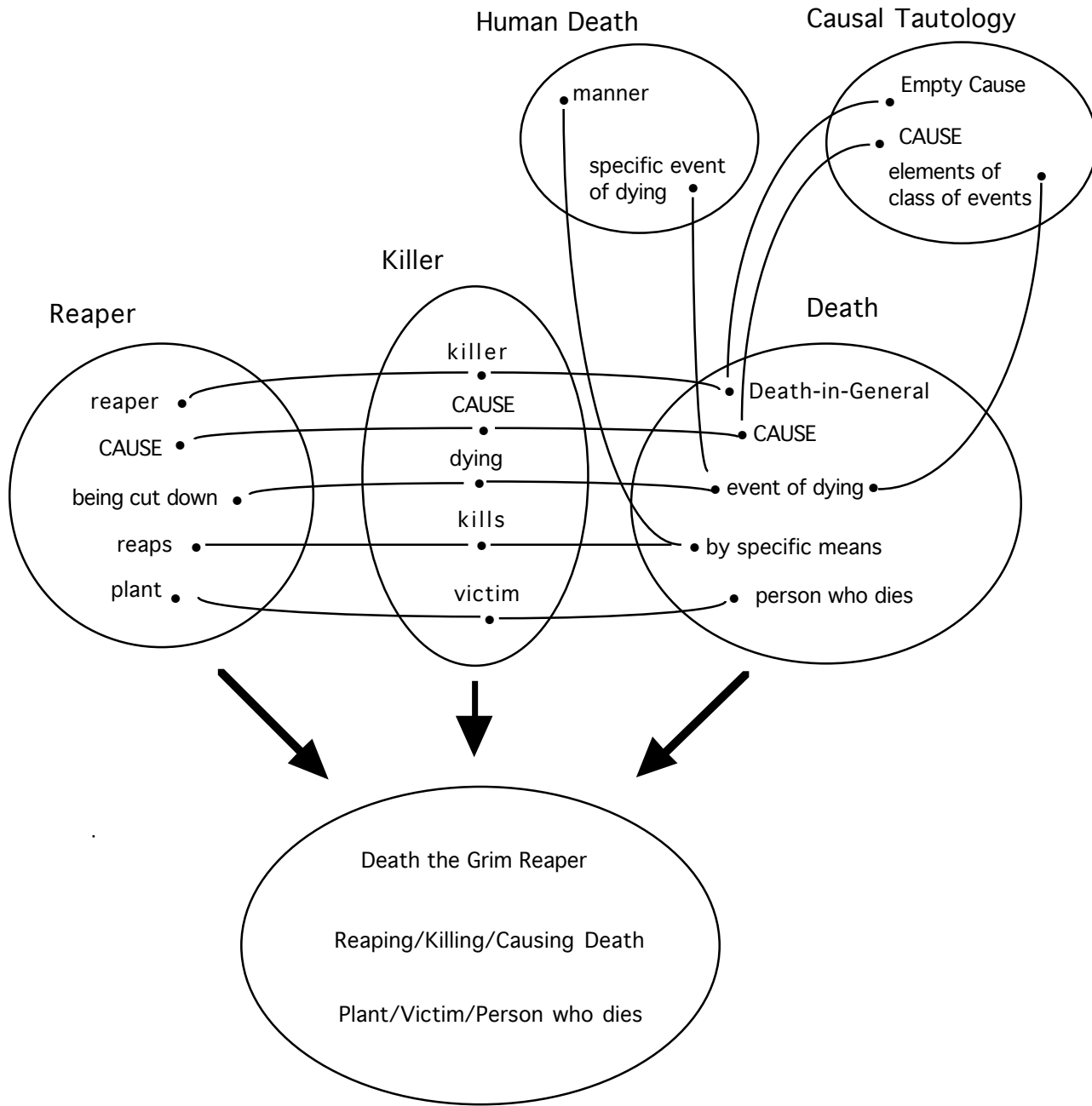
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Creative Mental Packing:

The Grim Reaper



Blend: Death The Grim Reaper



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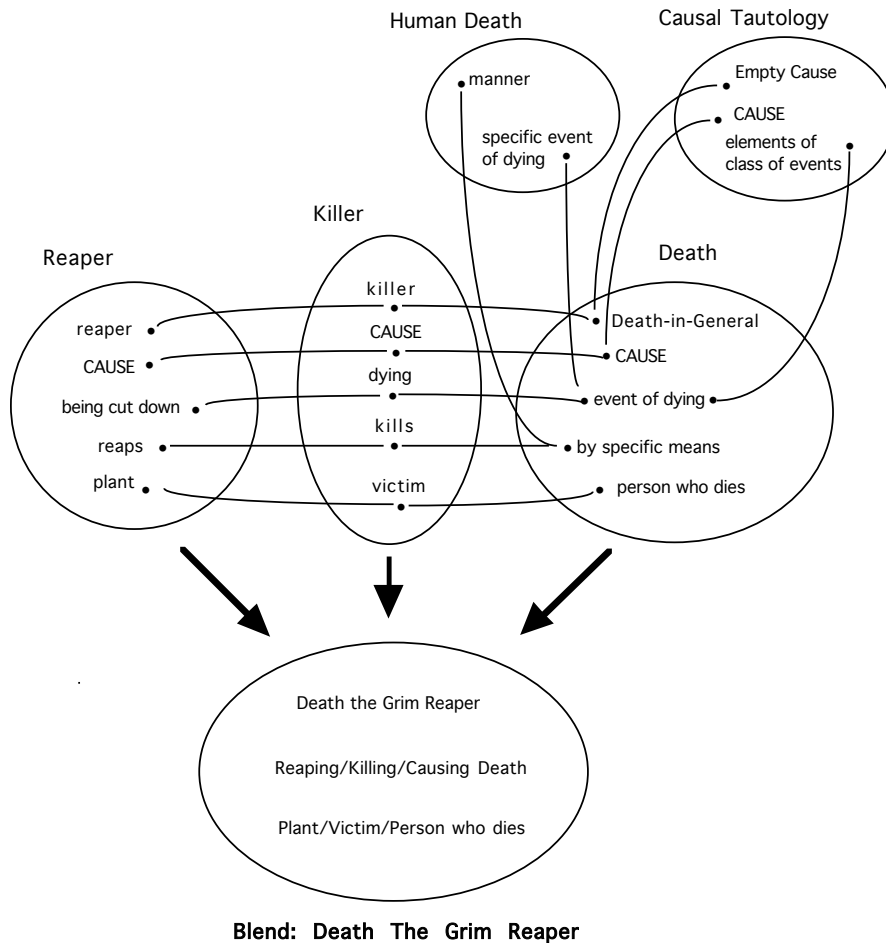
Yet further steps in the creative packing are
immediately available:

The Person of the Year for 2005 is . . .
The Grim Reaper!

Death, Thou Shalt Die

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

http://www.stonescryout.org/archives/2005/04/death_thou_shal.html. April 04, 2005





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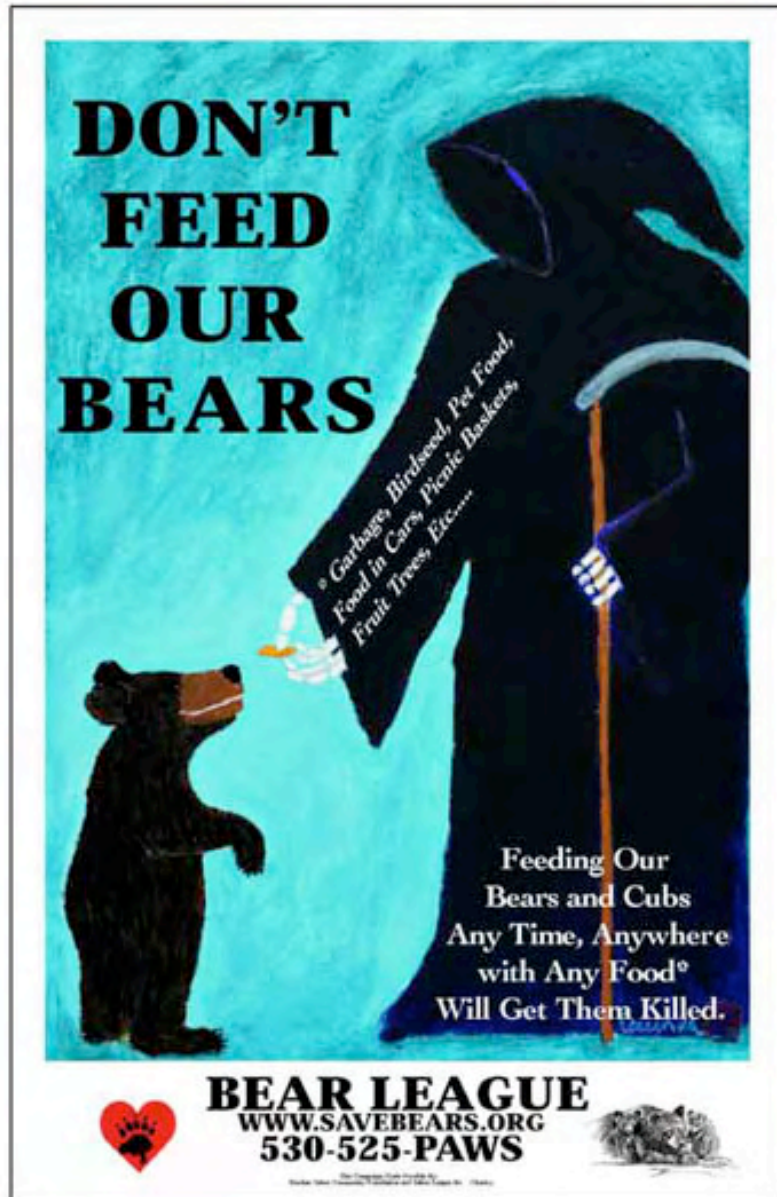
COGNITIVE SCIENCE

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:

<http://www.savebears.org>

**“A fed bear is
a dead bear”**

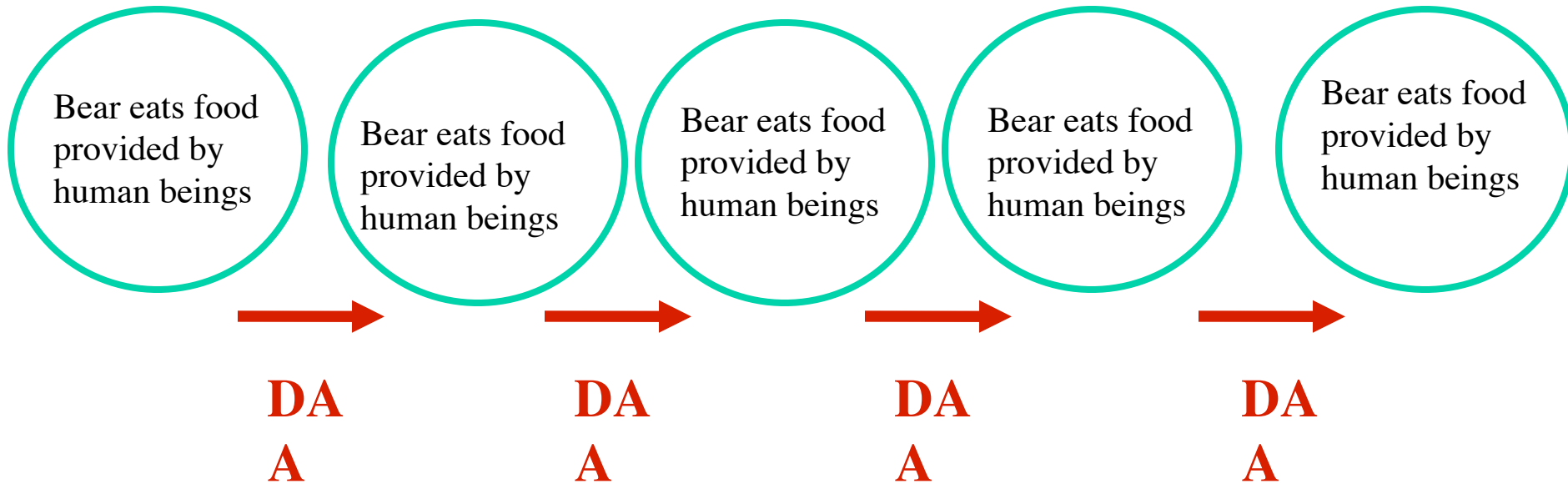


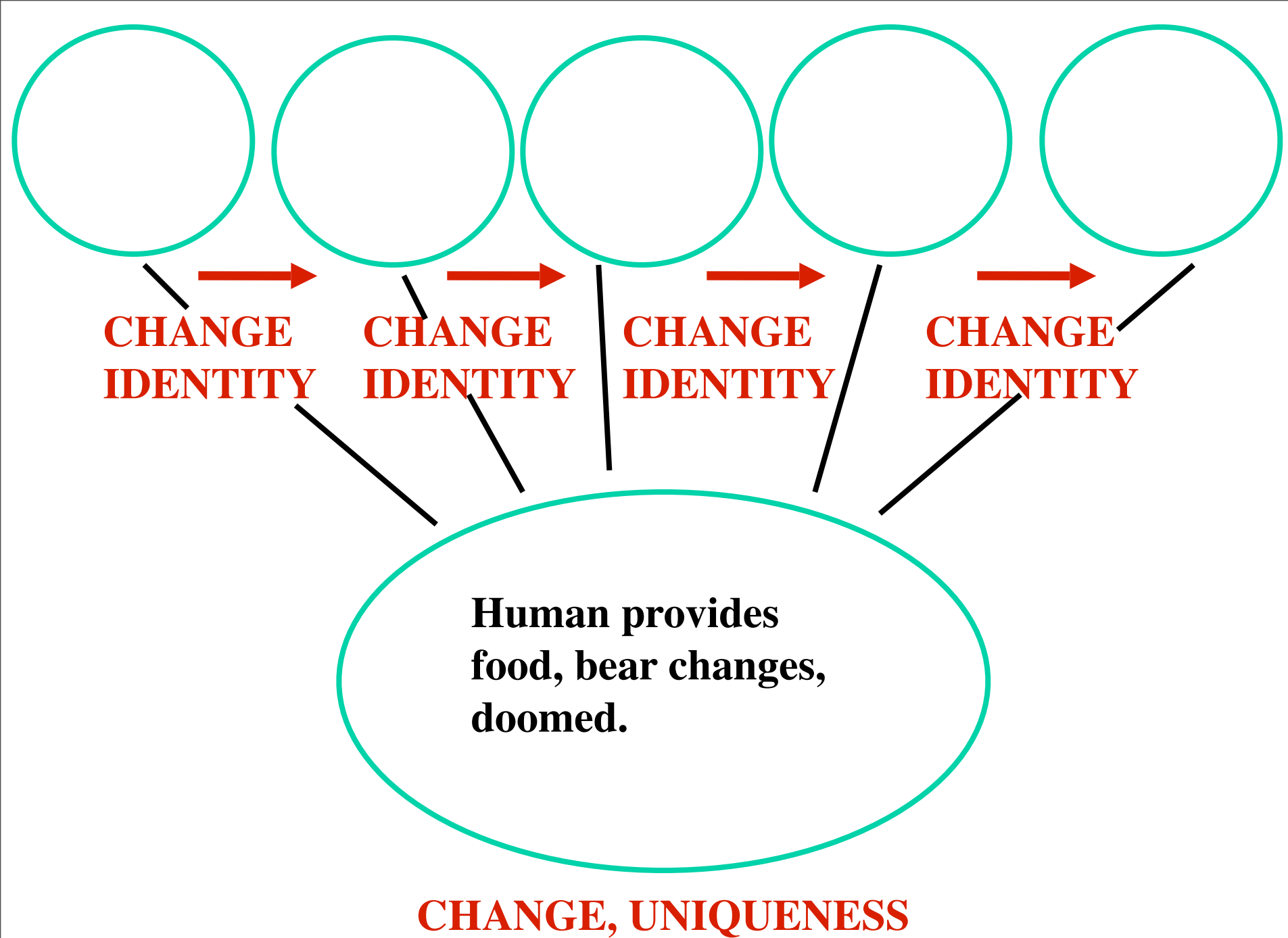
**Garbage, Birdseed, Pet Food,
Food in Cars, Picnic Baskets,
Fruit Trees, Etc . . .**

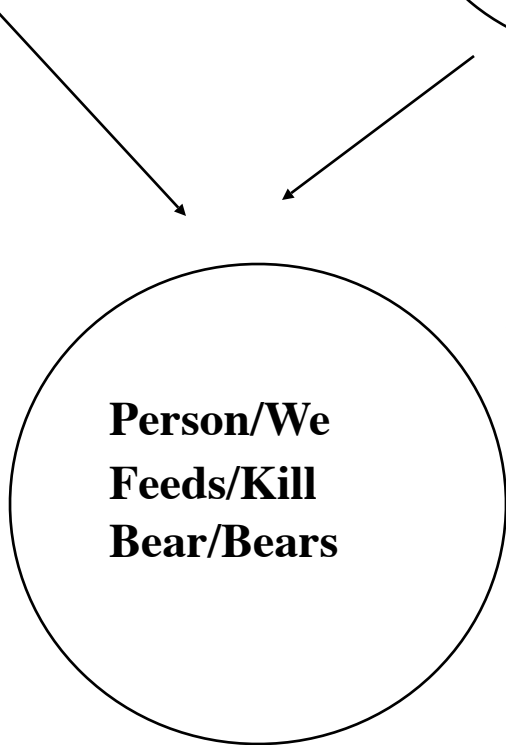
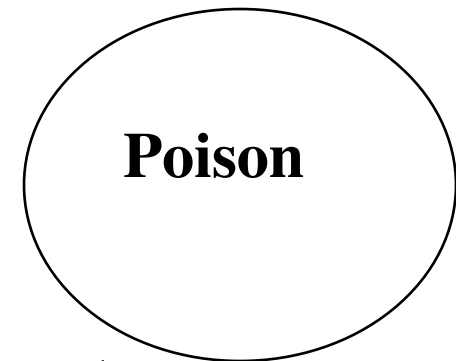
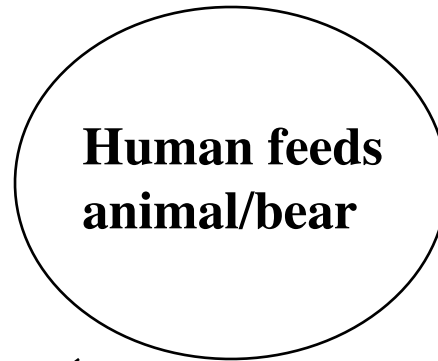
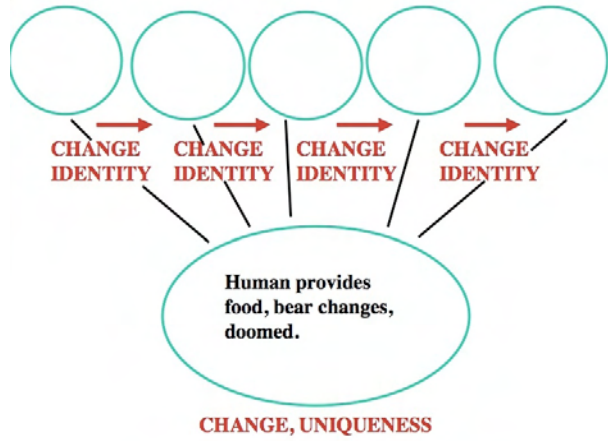
**Feeding Our Bears and Cubs Any
Time, Anywhere, with Any Food
Will Get Them Killed.**

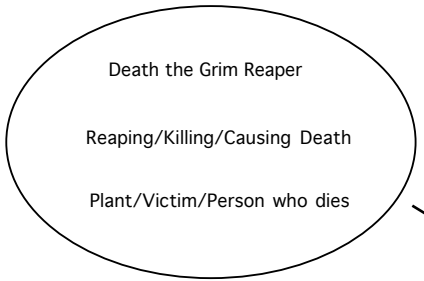
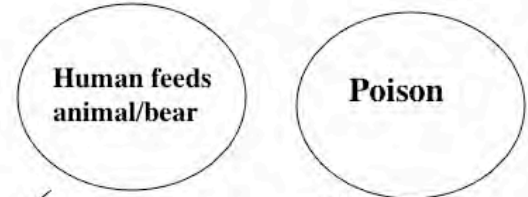
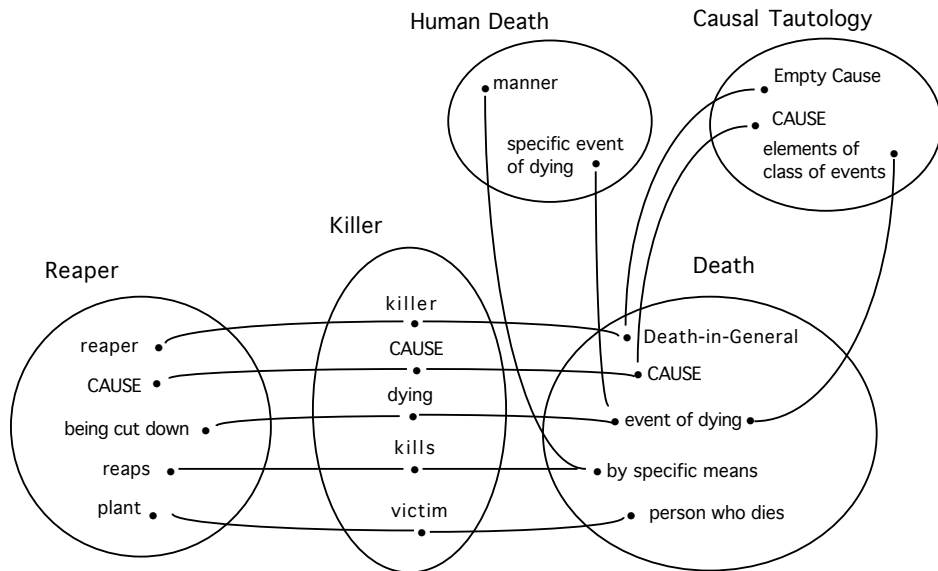
DA = *disanalogy*, a vital conceptual relation

A = *analogy*, a vital conceptual relation







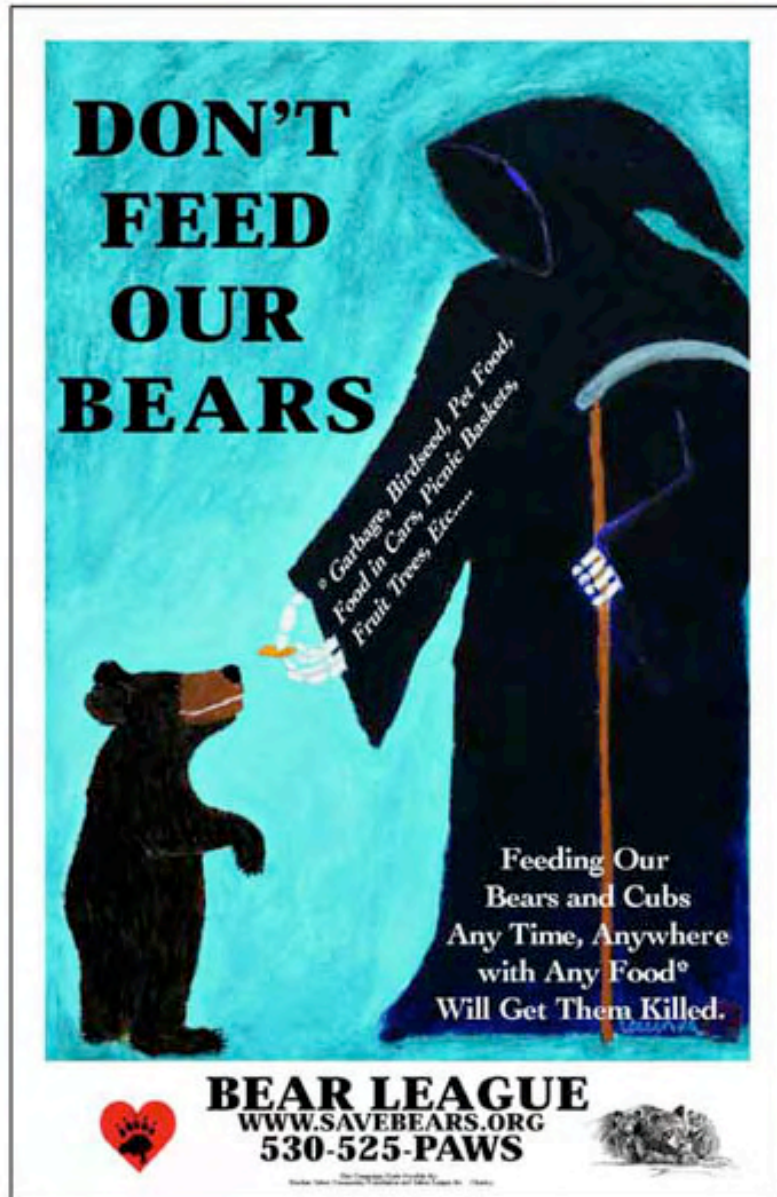


Blend: Death The Grim Reaper



<http://www.savebears.org>

**“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.**



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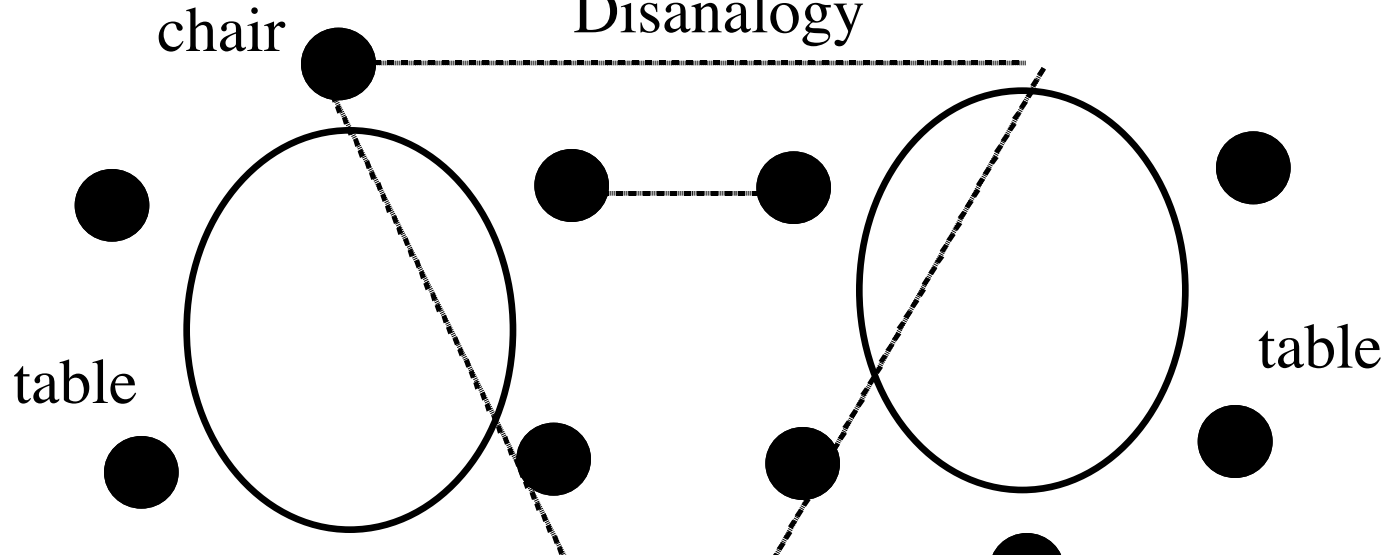
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Creative packing to human scale:

“Missing,” “Gap,” “Hole”:

Disanalogy

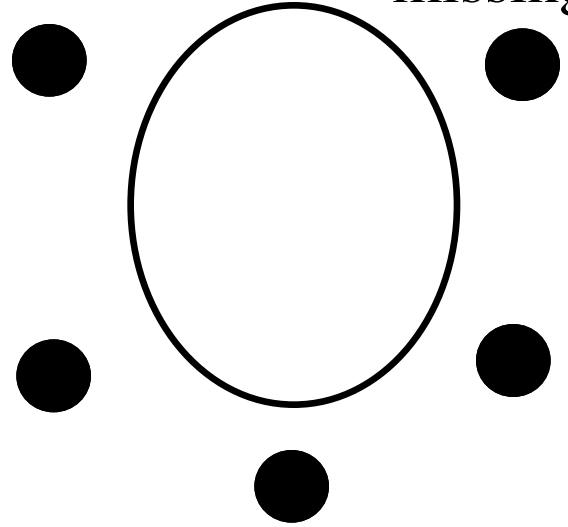


counterfactual input

“real” input



missing chair



Grammar:
Adj+N
(property-thing)



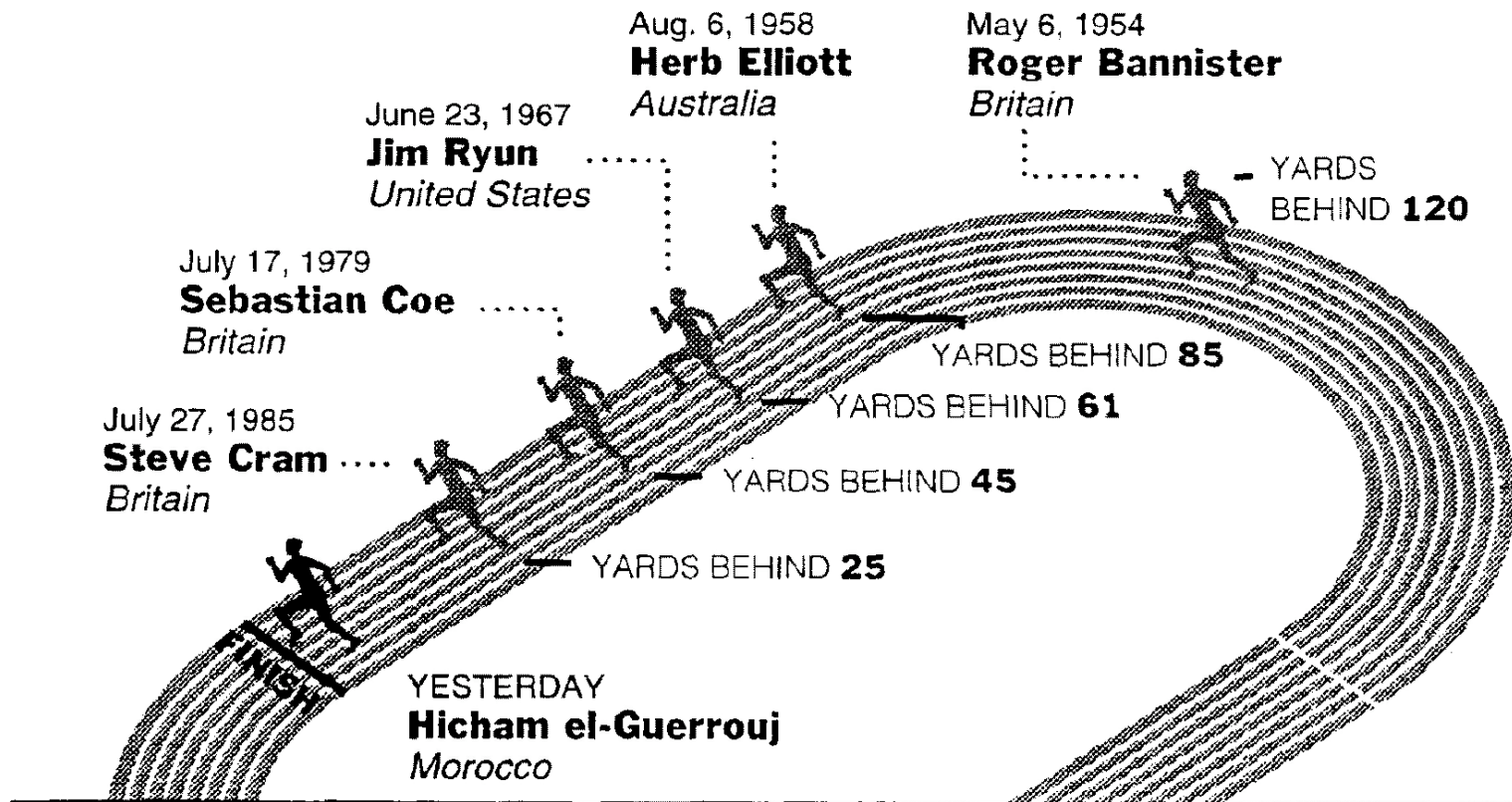
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Creative packing to human scale:

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



The New York Times

World Record in the Mile



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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, ...



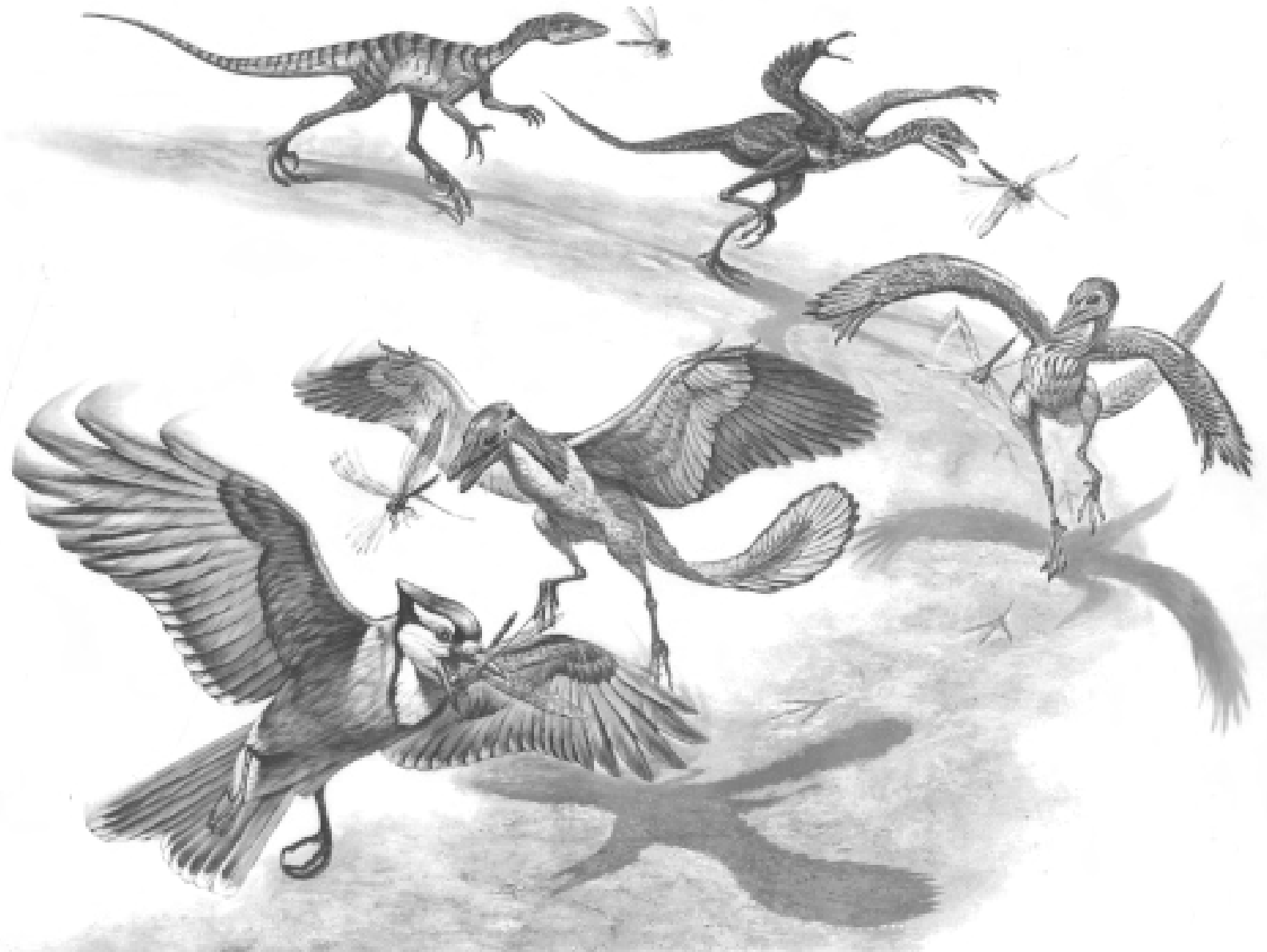
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Creative packing to human scale:

The evolution of birds from dinosaurs



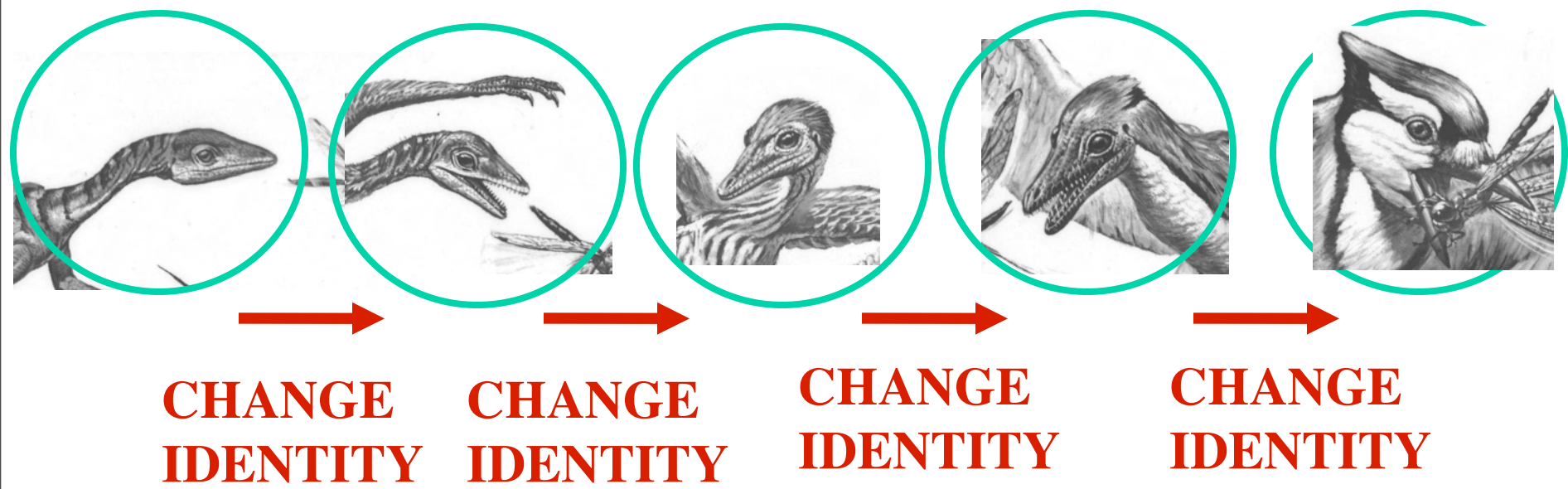
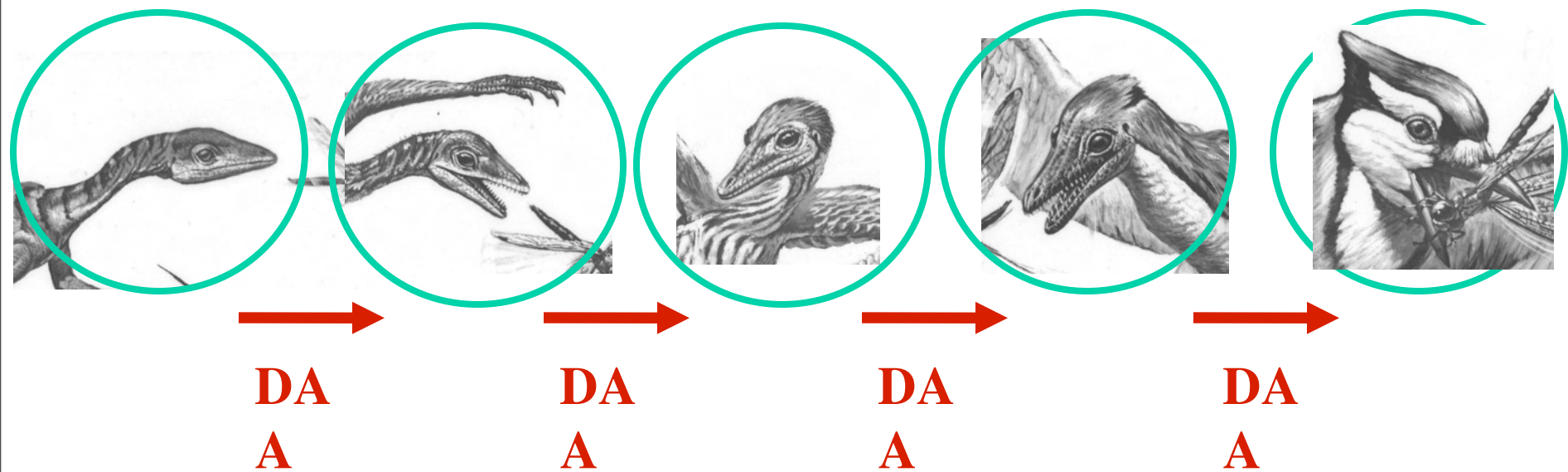


DA
A

DA
A

DA
A

DA
A





**CHANGE
IDENTITY**

**CHANGE
IDENTITY**

**CHANGE
IDENTITY**

**CHANGE
IDENTITY**



CHANGE, UNIQUENESS, INTENTIONALITY



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Repeated packing to human scale:

King Henry the Sixth, part one

Reference: Mark Turner, "**The Ghost of Anyone's Father.**" *Shakespearean International Yearbook*. Edited by Graham Bradshaw, Thomas Bishop, and Mark Turner. Volume 4. Hants, U.K.: Ashgate Publishing Limited, 2004, pages 72-97. Part of a special section on "Shakespeare in the Age of Cognitive Science," guest editor, Mark Turner.

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.*

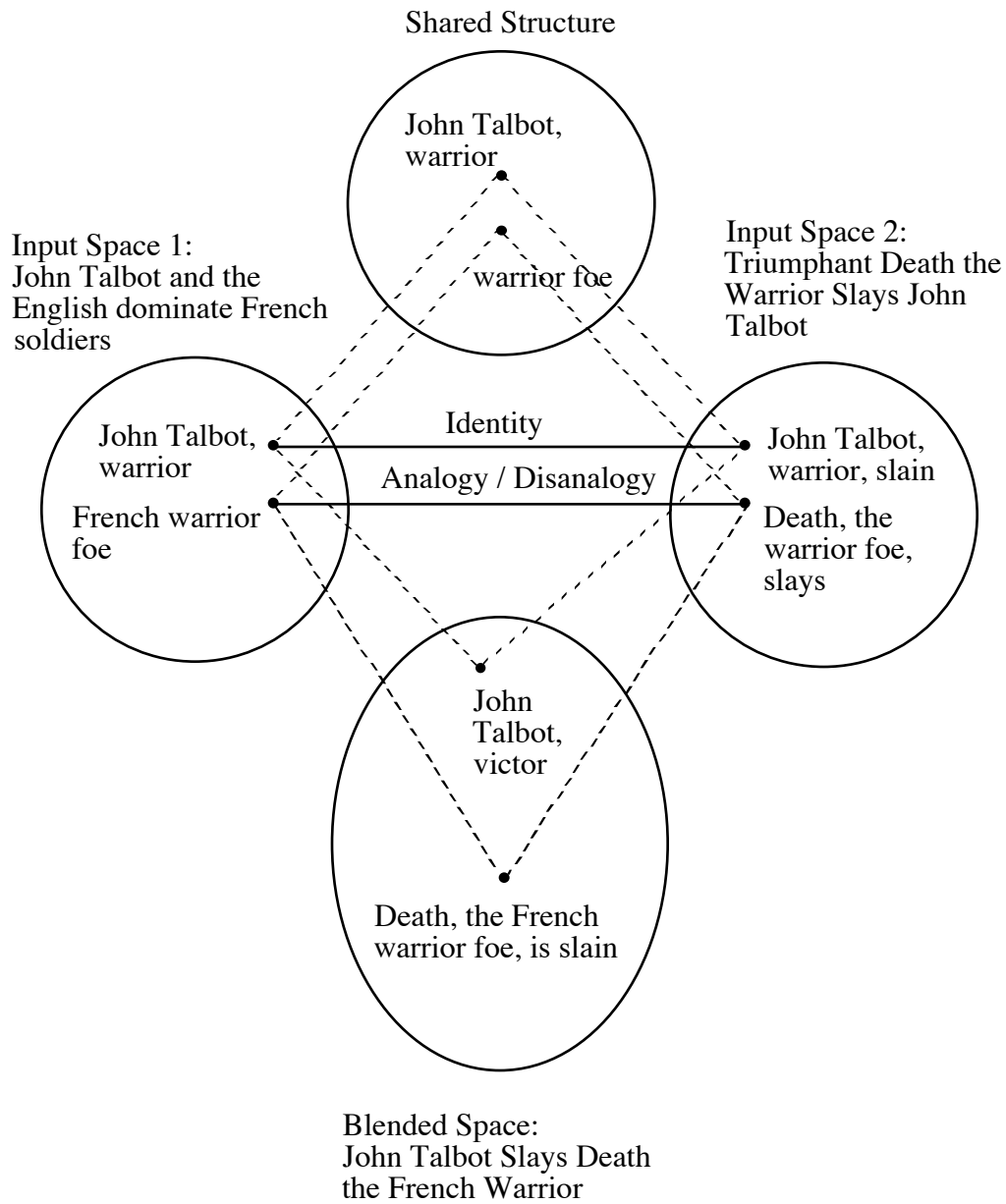
Antic Death

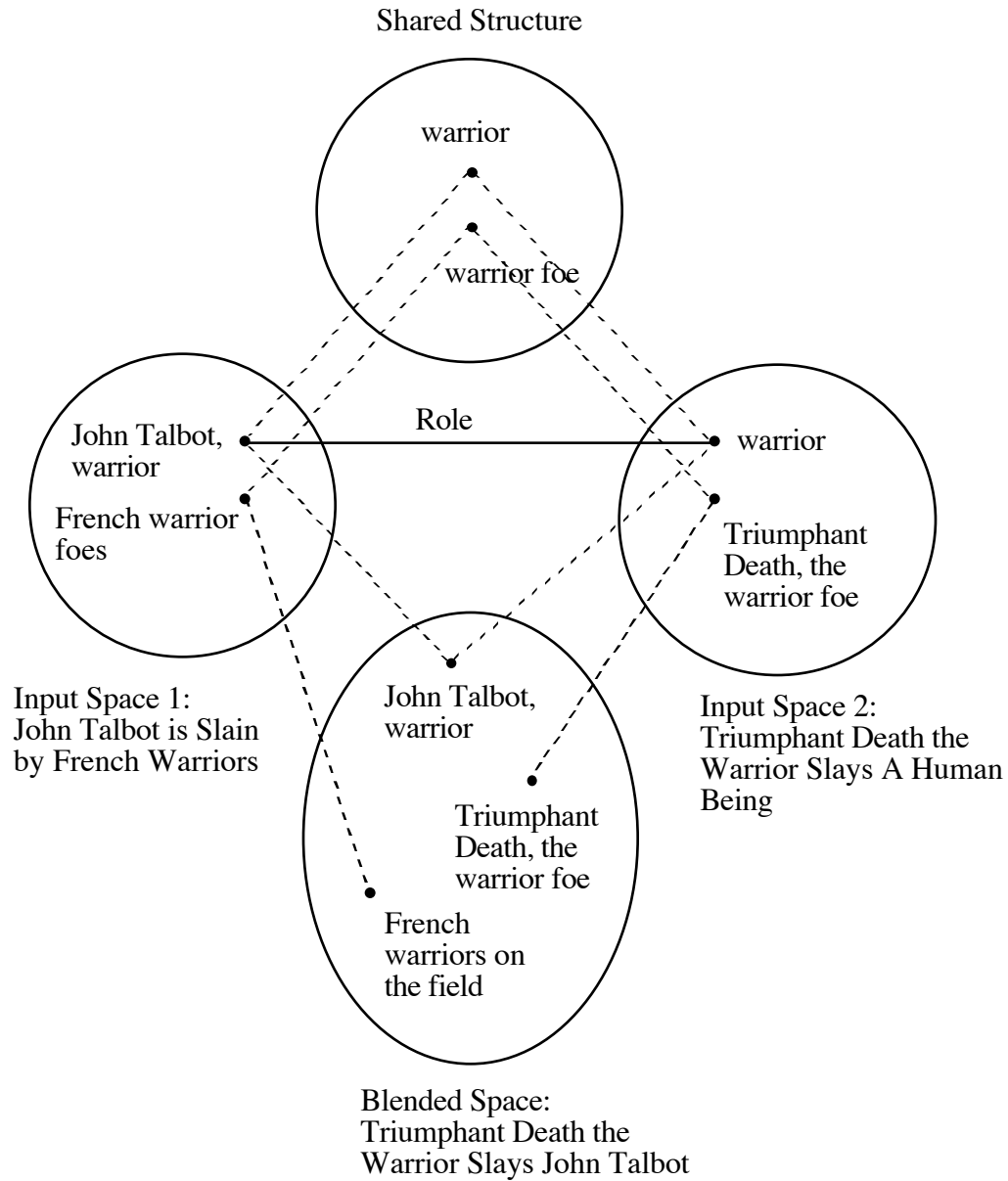
Thou antic death, which laugh'st us here to scorn,
Anon, from thy insulting tyranny,
Coupled in bonds of perpetuity,
Two Talbots, winged through the lither sky,
In thy despite shall 'scape mortality.
O, thou, whose wounds become hard-favour'd death,
Speak to thy father ere thou yield thy breath!
Brave 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.

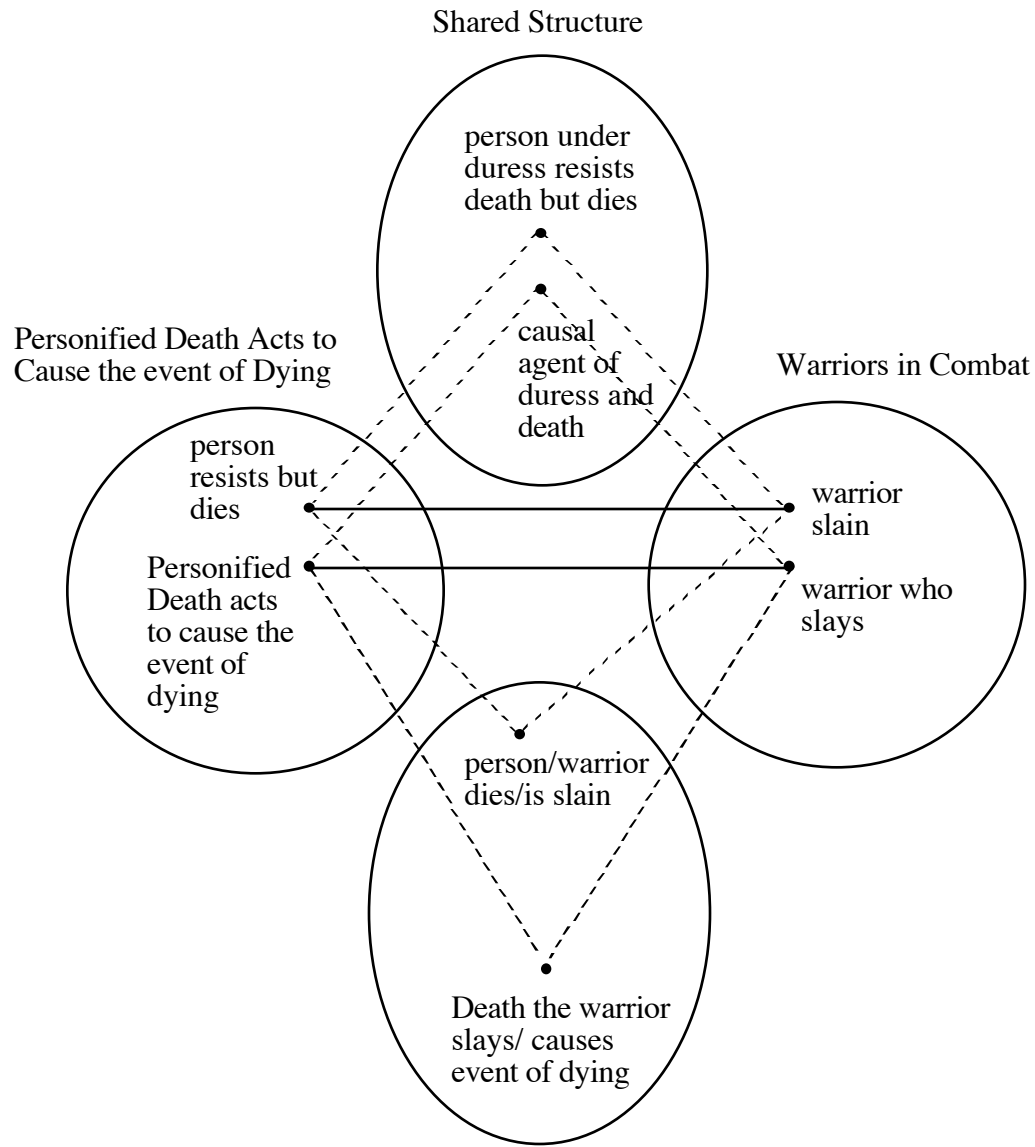
-King Henry the Sixth, part one, Act 4, Scene 7, lines 18-28.

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.

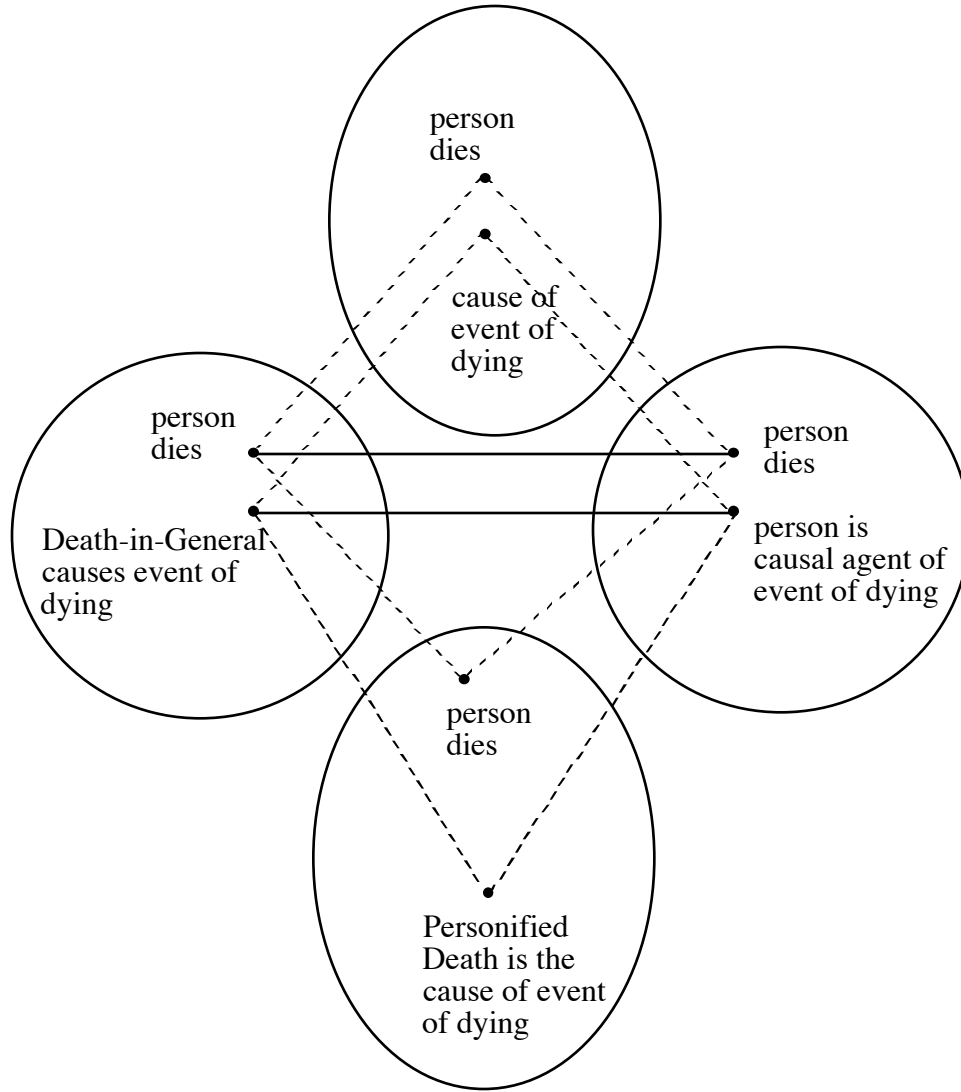






Blended Space:
 Triumphant Death the Warrior
 Slays A Human Being

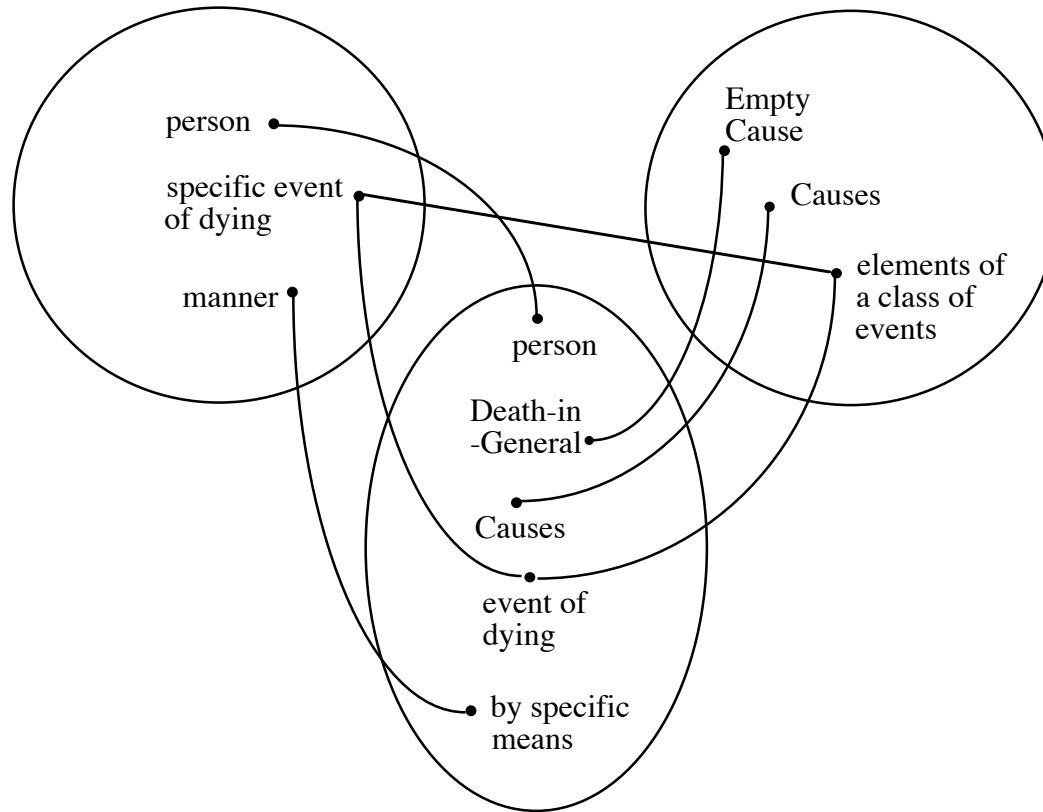
Shared Structure



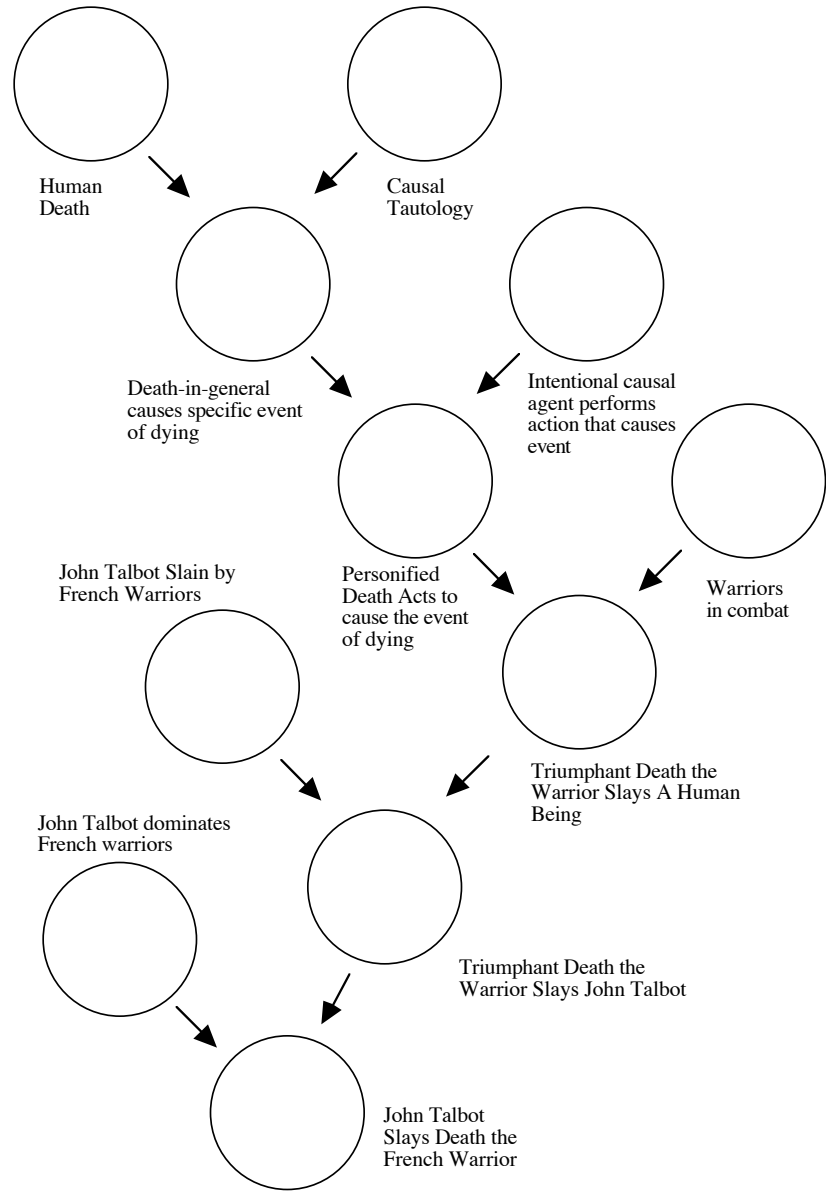
Blended Space:
Personified Death causes
event of dying

Human Death

Causal Tautology



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



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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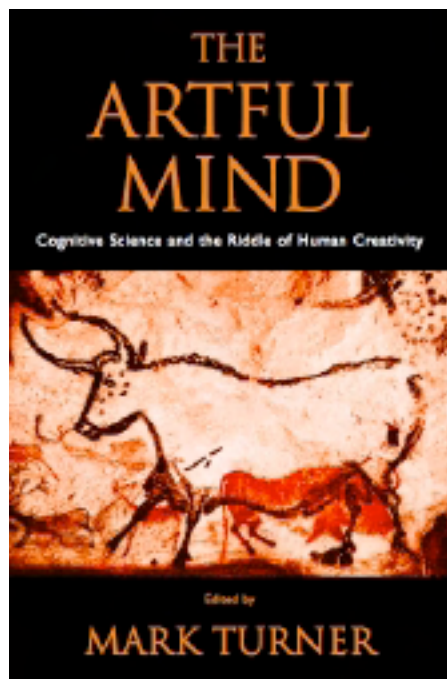


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Packing in Art:



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

Edited by Mark Turner.

New York: Oxford University Press, 2006.

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