

Intersections in the Humanities and Natural Sciences: we are all storytellers.



UNIVERSIDAD
COMPLUTENSE
MADRID

Marta Silvera-Roig, PhD

msilvera@ucm.es

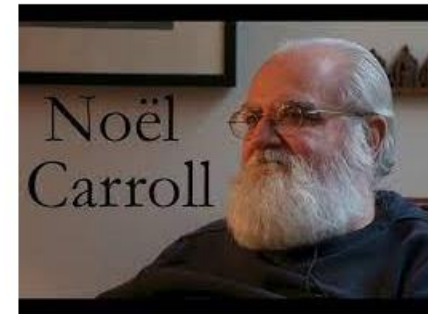


Campus de Excelencia INTERNACIONAL

We are all storytellers

- Humans are storytellers: this powerful and unique feature might be **at the core of human evolution itself.**

art is on a
continuum with
the ordinary



Storytelling and cooperation: Nature Paper



Agta preparing a fire (Jacob Maentz / Getty Images)

Cooperation and the evolution of hunter-gatherer storytelling.

Daniel Smith et al. Nature Communications volume 8, Article number: 1853 (2017)

- Storytelling is a human universal. Here we explore the **impact of storytelling** on hunter-gatherer **cooperative behavior** and the **individual-level fitness benefits** to being a skilled storyteller.
- Stories told by the Agta, a Filipino hunter-gatherer population, convey messages relevant to coordinating behavior such as **cooperation, sex equality and egalitarianism**.
- The presence of **good storytellers** is associated with **increased cooperation**. In return, skilled **storytellers are preferred social partners** and have greater reproductive success.
- They conclude that one of the adaptive functions of storytelling among hunter gatherers may be to **organize cooperation**.

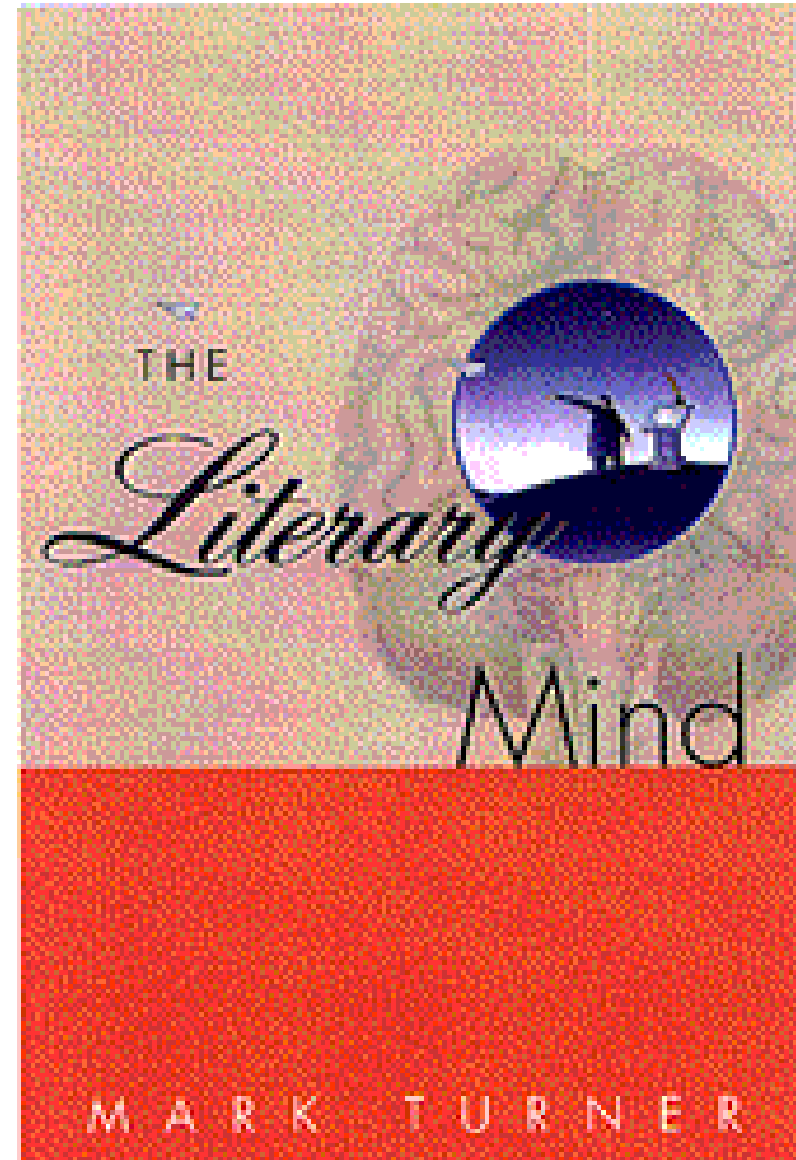
“Cultural meanings peculiar to a society often fail to migrate intact across anthropological or historical boundaries, but **the basic mental processes that make these meanings possible are universal**”.

The Literary Mind

Oxford University Press

Copyright © 1996 by Mark Turner

We are talking about **narratives as a pre-linguistic tool of the mind.**

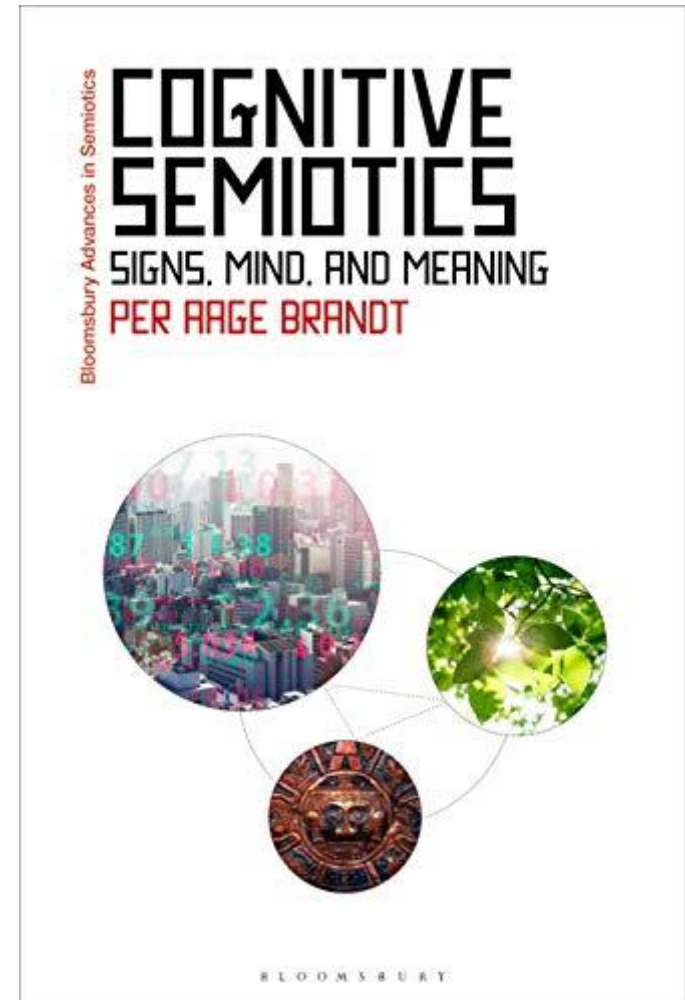


Cooperation and the evolution of hunter-gatherer storytelling.
Daniel Smith et al. Nature Communications volume 8, Article number: 1853 (2017)

- Cooperation is a central problem in biology. Even in situations where cooperation would be the best strategy for all involved, cooperation may not occur due to **'problems of coordination'**.
- **Meta-knowledge** is therefore required to solve these problems of coordination: it is not enough to know how to act in a given situation; **individuals need to know that others also know how to act.**
- While language is undoubtedly essential as a medium of communication for coordination, here they propose that **storytelling** in particular may have played an essential role in the evolution of human cooperation by broadcasting social and cooperative norms to coordinate group behavior.

Not only the so called “skilled storytellers” are storytellers: we all are, we dynamically create our own narrative and live in a social and dynamic narrative co-created by the community (social/distributed cognition)

Cognitive Semiotics by Per Aage Brandt



What is cognitive semiotics? A new paradigm in the study of meaning. Per Aage Brandt

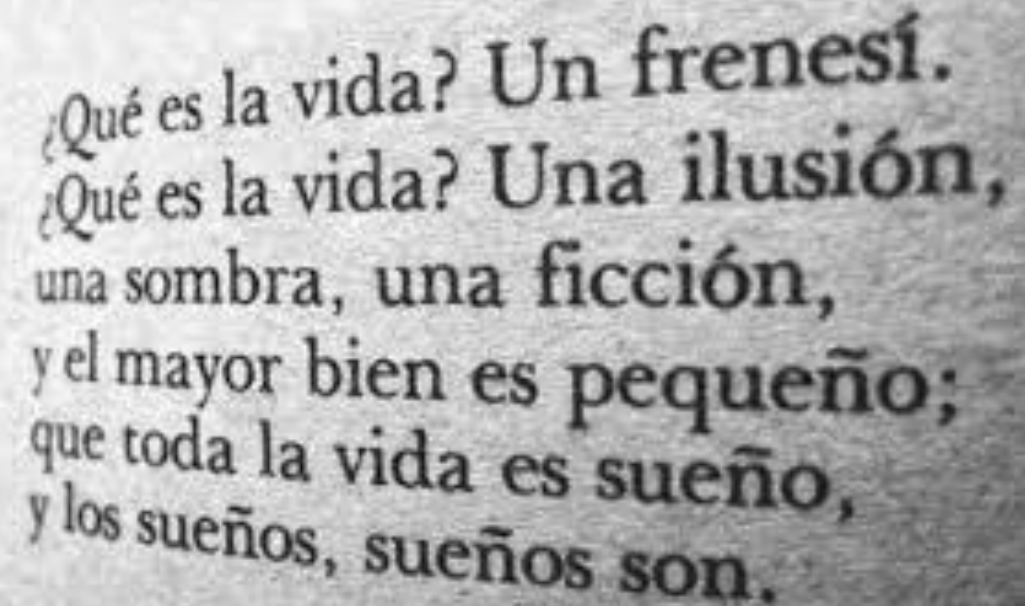
The core endeavor of **cognitive semiotics**:

- To find the principles that make signs and the use of signs possible and specific sign types necessary;
- to find the representational laws of the mind that allow **human imagination and meaning creation**;
- to find the basic principles that allow us to us **make sense (and even nonsense)** of the world we live in.

What is cognitive semiotics? A new paradigm in the study of meaning. Per Aage Brandt

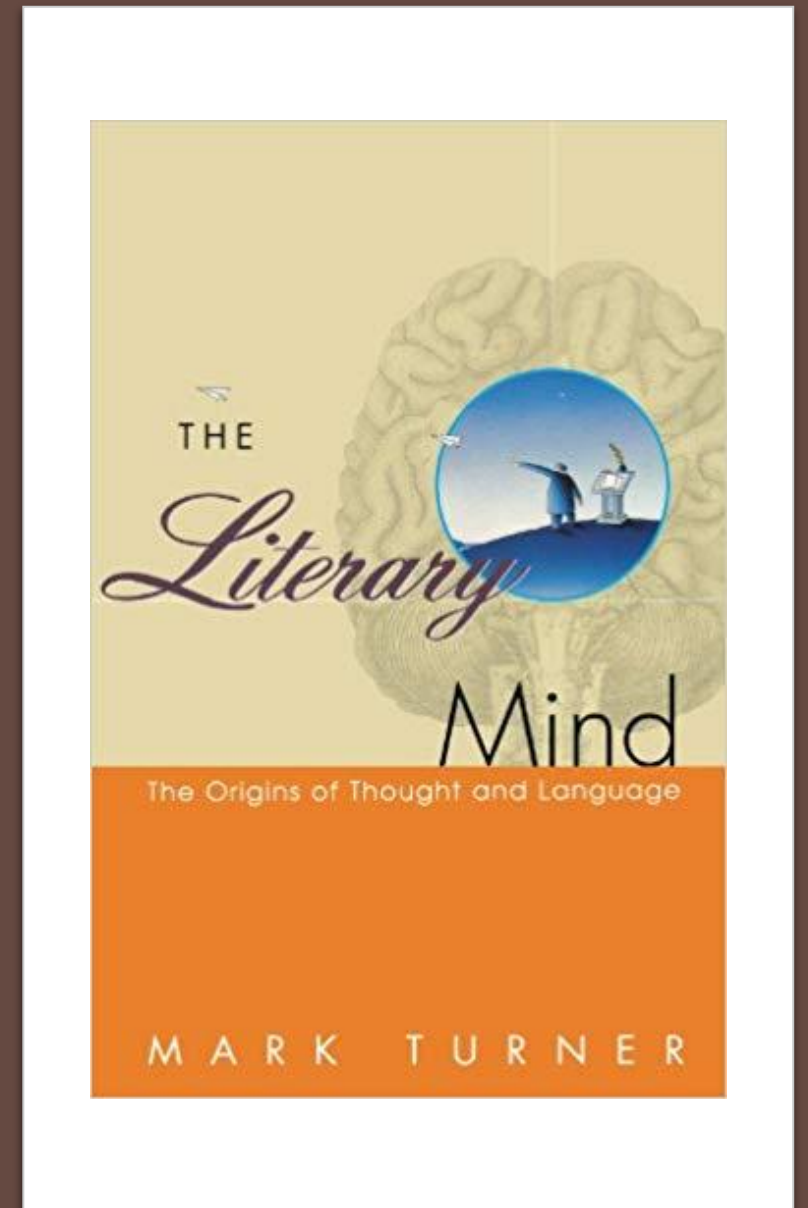
- **Mental spaces:** in semiotic mental space theory, meaning and meaning production in thinking or communication are seen as based, grounded, anchored in human facts, that is, **approached as emerging from personal and interpersonal conscious experience in the actual life world of humans.** This evident but nevertheless most often neglected principle could be called the **phenomenological prerequisite.**
- We cannot just grasp meaning patterns as ideas combined with other ideas out of the blue. The **mind is embodied and situated;** experience takes place in domains of experience, or semantic realms, so in any situation, a human subject will be interacting with specific physical circumstances, with other subjects, collectively or individually, and with its own thinking and feelings.

- We live in situations **that have to be represented** while we live them, that is, represented in certain domains. **The present moment of a human being is also in itself a representation!** *Life is a dream*, as the baroque writers said.
- **We live in experiential scenarios that have a spatio-temporal format.** The present moment, as an episodic representation, is thus a mental space.
- In cognitive semiotic blending theory, we call it the semiotic base space.

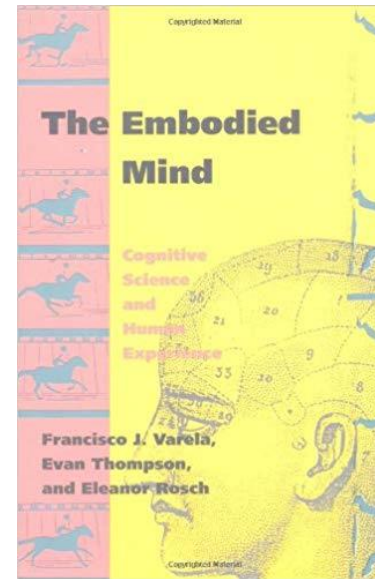


¿Qué es la vida? Un frenesí.
¿Qué es la vida? Una ilusión,
una sombra, una ficción,
y el mayor bien es pequeño;
que toda la vida es sueño,
y los sueños, sueños son.

- How does a text mean?
- How can we model the invisible structures of storytelling?
 - What is the relation between image-schemas and emotions in narratives?
 - We are all storytellers, storytelling is an essential part in human evolution: **thought is structured in narratives.**

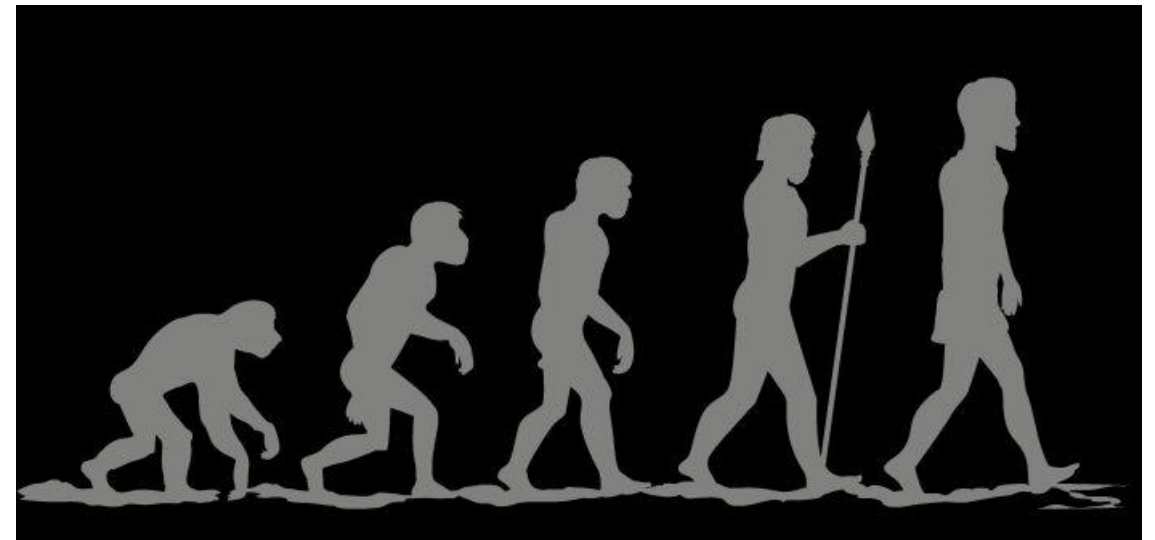


- The Embodied Mind.
- Image Schemas.
- Conceptual Metaphor and Blend
- Affective Neuroscience

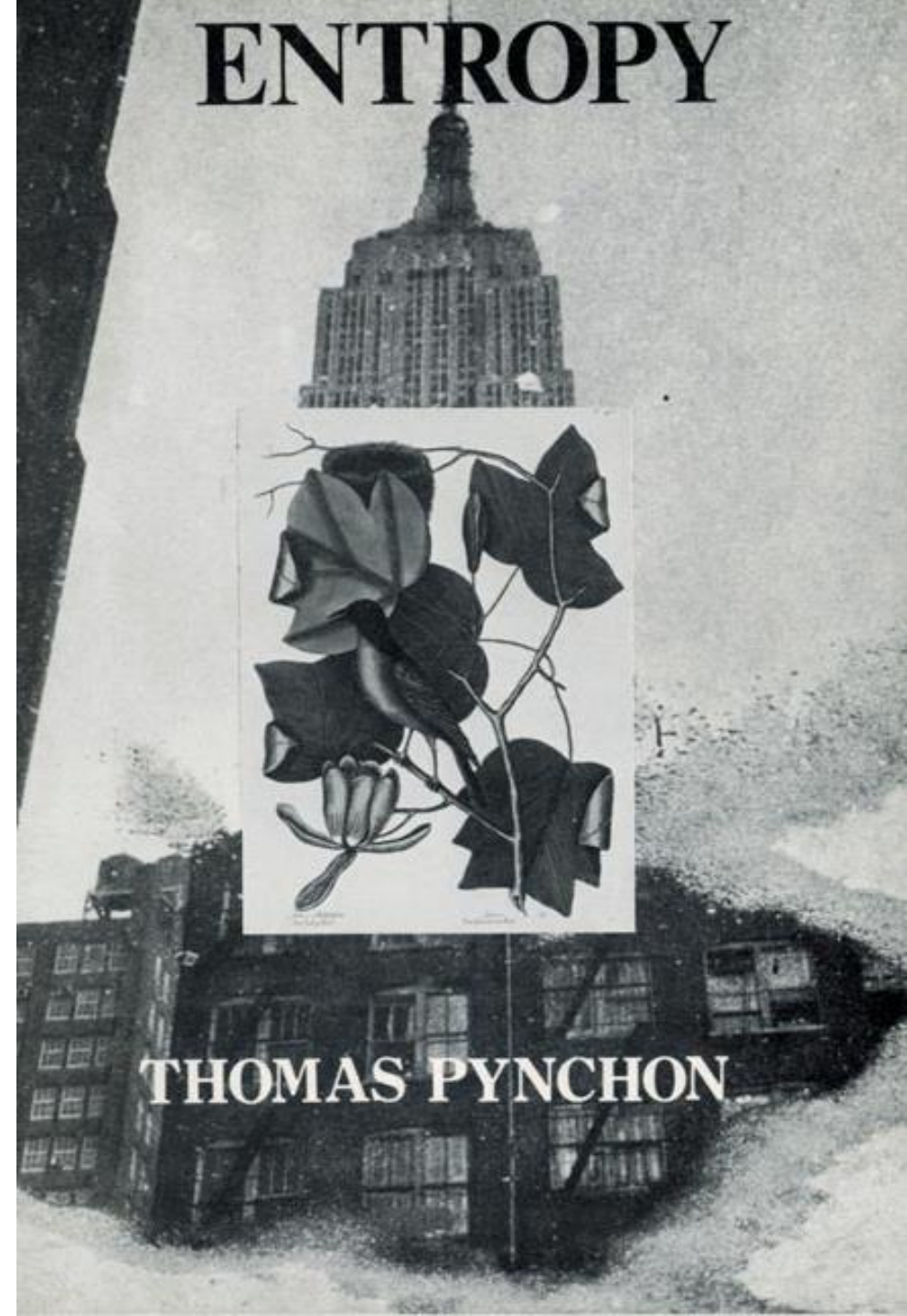


Lakoff & Johnson (1980):
Metaphors We Live By

“Metaphor is pervasive in everyday life, not just in language but in thought and action. Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature.”
(page 3)



- From structuring source domains schematizing body actions – where image schemas are ubiquitous – the most complex and abstract aspects are conceptualized.
- Complex concepts such as **entropy** possess in its configuration an experience basis.
- The changing configurations in space conformed by image schemas might correspond with the occurring of changes in **emotional states**.



LOVE IS A JOURNEY

- Look *how far* we've come.
- We're *at a crossroads*.
- We'll just have to go our *separate ways*.
- We can't *turn back* now.
- I don't think this relationship is *going anywhere*.
- *Where* are we?
- We're *stuck*.
- It's been a *long, bumpy* road.
- This relationship is a *dead-end street*.
- We're just *spinning our wheels*.
- Our marriage is *on the rocks*.
- We've *gotten off the track*.

- “And as every good Romantic knows, **the soul (...)** is **nothing**, substantially, **but air**; it is only natural that warpings in the atmosphere should be **recapitulated** in those who **breathe it**”.

SOUL IS AIR WE BREATH
WE ARE CONTAINERS FOR SOUL

- “wondering how many **more nights** he would have to **give it warmth** before it was well again”.

WE ARE HEAT PROVIDERS – WE ARE CONTAINERS OF HEAT

- “He crawled to the refrigerator and got out three lemons and some cubes, found the tequila and set about **restoring order to his nervous system**”.

MIND/BODY IS A CONTAINER WITH DIS/ORDERED OBJECTS IN IT

- “she **crawled into dreams** each night with a sense of exhaustion*, and a desperate resolve never to relax that vigilance”.

DREAMS ARE A PLACE

- “He (...) envisioned a heat death for his culture **in which ideas**, like **heat-energy**, would no longer be **transferred**, since each point in it would ultimately have the same quantity of energy; and intellectual motion would, accordingly, cease.”

IDEAS ARE OBJECTS YOU CANNOT MOVE

- “and the party trembled on the threshold of its third day”.

PARTY IS A MOVING BEING IN A PATH
TIME IS A CONTAINER

FROM IMAGE SCHEMAS TO
METAPHORS AND BLENDS WE
ORGANIZE LANGUAGE TO CREATE
THE MOST COMPLEX IDEAS

THROUGH STORYTELLING, NEW
MEANINGS AND EMOTIONS ARISE



- In linguistics, figures of speech once defined by their literary use began to establish themselves as essential cognitive tools of thought.
- The **metaphor** then re-emerged as an **abstract structuring of thought** and a way of constructing experiences and meanings. Lakoff and Johnson's publication: *Metaphors We Live By* (1980) became a touchstone. Thus, was born the **theory of Conceptual Metaphor**, according to which the metaphor is not a specifically linguistic element but a **general cognitive mechanism**.



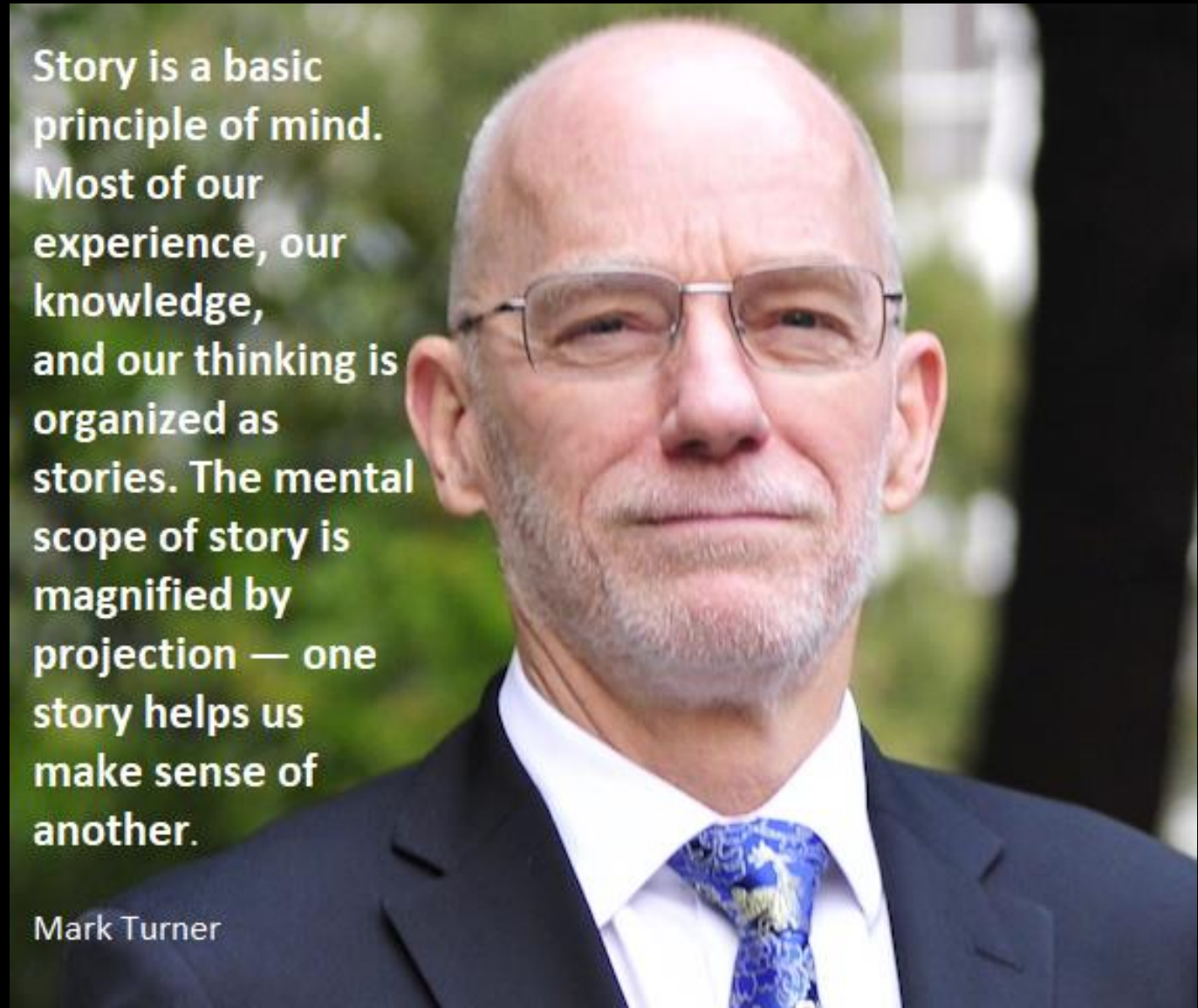
Metaphor is pervasive in everyday life, not just in language but in thought and action. Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature.

— *George Lakoff* —

As stated by one of the leading researchers in what would come to be called **Cognitive Poetics**, Mark Turner, the mind is, in essence, artistic and literary.

Story is a basic principle of mind. Most of our experience, our knowledge, and our thinking is organized as stories. The mental scope of story is magnified by projection — one story helps us make sense of another.

Mark Turner



Some of the existing models we have to encompass this exciting approach come from cognitive linguistics: Conceptual Metaphor Theory, Conceptual Blending and Image Schemas.

Image schema and mirror neurons



In developing the notion of **image schema**, Johnson and Lakoff used the term 'image' in its broad neurocognitive sense of **mental imagery**, and not as something that exclusively indicates visual imagery.

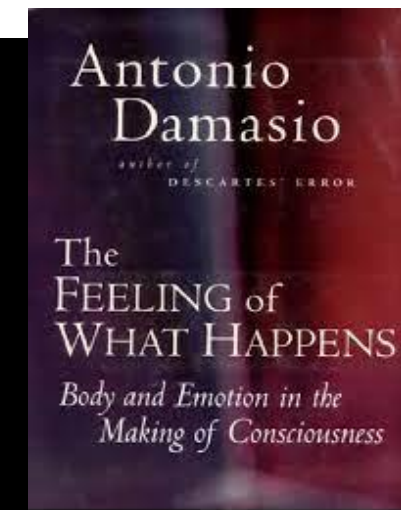
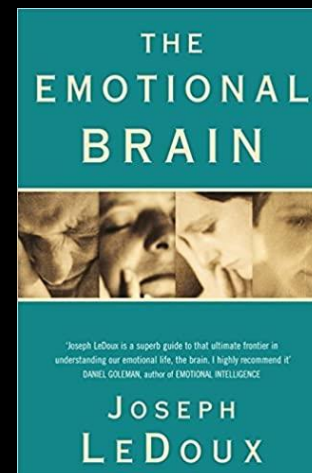
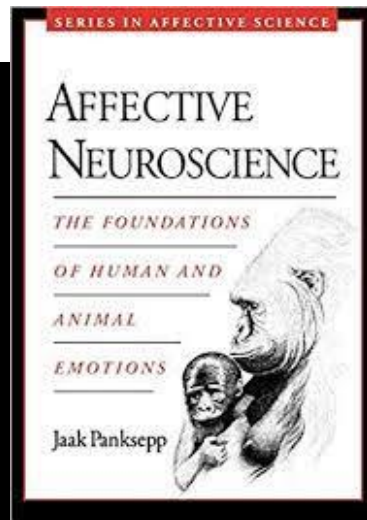
In a series of studies in macaques and humans, Fogassi, Rizzolatti, Buccino, Gallese and their collaborators (2001) found that sensorimotor cortices not only map 'peripersonal' space (what is within our reach) but also, they contain mirror neurons with which the premotor cortex simulates the actions carried out by another monkey (or another human). When a monkey watches another monkey perform a task of grasping something with his hands, **mirror neurons activate the pre-motor regions of the cortex** of the monkey's own hand.

Yes, we understand an action phrase because we are subconsciously imagining ourselves performing that action.



In recent years, **emotions** have been the focus of study in many disciplines, especially neuroscience (which, however, did not take them so much into account in the past).

The development of the newcomer **Affective Neuroscience is key to understanding human motivation in all dimensions of its existence.** Emotions are a major factor in the interaction between environmental conditions and human decision processes, with emotional systems (which underlie the activation of somatic states) that provide valuable implicit or explicit knowledge **when making quick and advantageous decisions..**



“The expression of emotions is the first means of communication of human beings” (Luis Carretié)

- “Feeling of an emotion is a process that is distinct from having the emotion in the first place. So, it helps to understand what is an emotion, what is a feeling, we need to understand what is an emotion.”
- — Antonio Damasio



Secondary inducers are **thoughts** or **memories** of a primary inducer; when we evoke these thoughts or memories, we provoke their corresponding **somatic states** – like the ones “evoked” in **narratives**.

According to the neurobiologist Antonio Damasio emotions correspond to specific groups of changes in the body and brain. Each **emotion is evoked by perception and influenced by thoughts or memories.**



Mental representations of bodily changes provoke a subjective experience or feeling.

Anger, for example, can provoke a mental representation that the blood flow has increased in the upper part of the body, and other bodily states, without coding every somatic change. Body changes after emotions can be evoked by two types of objects and events: **primary and secondary inducers** (Damasio, 1995). Primary inducers cause pleasant or unpleasant states (the inducer can be, from a snake, to the solution of a problem). Secondary inducers are thoughts or memories of a primary inducer; when we evoke (or create) these thoughts or memories, we provoke their corresponding somatic states.



What are narratives made of?

As said before, the universality of narratives suggests an important adaptive goal in human evolution.

Some of the hypotheses in this regard suggest that narratives prepare us for specific situations, provide us with the ability to predict or understand the thoughts, feelings, motives and reactions of others and to understand that others may perceive something differently from us.

Therefore, narratives meet our needs as an ultra-social species, helping us to manage the abundant interpersonal interactions of our daily lives.



Emotion , perception, cognition and actions are part of a psychophysical whole

As Lakoff and Johnson state, our conscious processes are built on functions that serve to control our embodied minds and their movements in space. Hence, the structural characteristic of metaphor and its biological attachment to narratives.

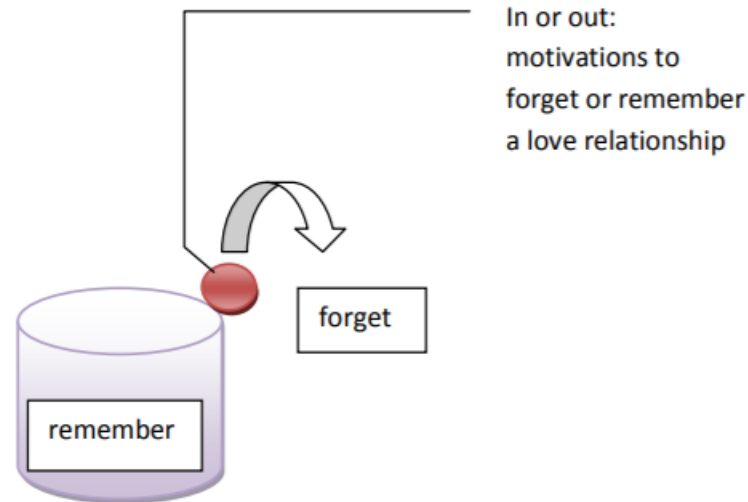
On the other hand, feelings represent both mental and bodily states, and their processes take place through innate dispositions. For this reason, **an approach that assumes that human experiences are intimately linked to concrete specifications of the embodied mind is an integrative approach**, in contrast to classical semiotic models that presuppose an abstract language approach to interpretation, without specifying how emotion , perception, cognition and actions are part of a psychophysical whole.

From *Biopoetics, Cognition and Emotion : conceptual integration and emergence in Thomas Pynchon's "The crying of Lot 49"* (Silvera-Roig, Marta)

<http://hdl.handle.net/10553/18017>

For example, In *The Crying of Lot 49* by Thomas Pynchon, the meaning construction motivated by the image schema CONTAINER marks in a significant way the **spatial disposition as a ubiquitous feature**. In this case, the linguistic metaphoric expression “to the verge of being forgotten” places the character Pierce in a non equilibrium status that will keep on being visible in the narrative. The force behind the movement taking out an element of CONTAINER is the main character Oedipa.

BEING FORGOTTEN IS OUT OF A CONTAINER.



As we have seen, the relational actions of the image-schemas and their inherently embodied and dynamic structure might function as attractors outlining the chaotic trajectory of narratives: the changing configurations in space that make up the image-schemas correspond to emotional mental states.

According to the somatic marker hypothesis, emotional processes are related to body and regulatory state structures, even when these do not arise in the body but in the mind representations of it.

Therefore, **the emotional mind cannot be separated from the cognitive mind**, so the processes of our thought are intrinsically linked to the processes of our emotional responses and feelings which create the **universal narrative mind**.

- *Metaphors we live by*
 - Stories we live by
 - Narratives we live by
 - Narratives we “are” by
- **We are living narratives / feeling narratives**

thank you