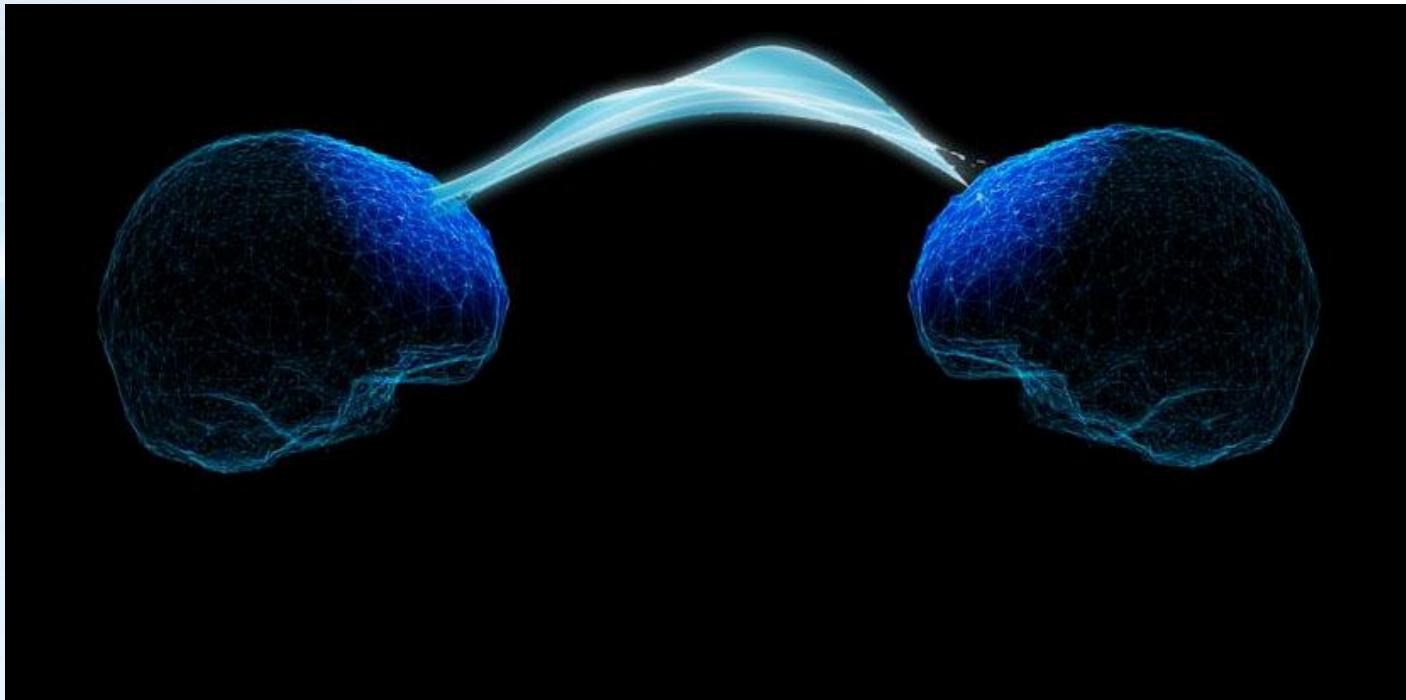


Cognitive Modeling in Linguistics: Conceptual Metaphors



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“Language does not represent objects but rather the concepts which in the process of speech have been formed by the mind...



...When, for example, in Sanskrit the elephant is sometimes called the twice-drinker, sometimes the double-booted one, and sometimes the one-provided-with-a-trunk, many different concepts are designated even though the same object is meant.”

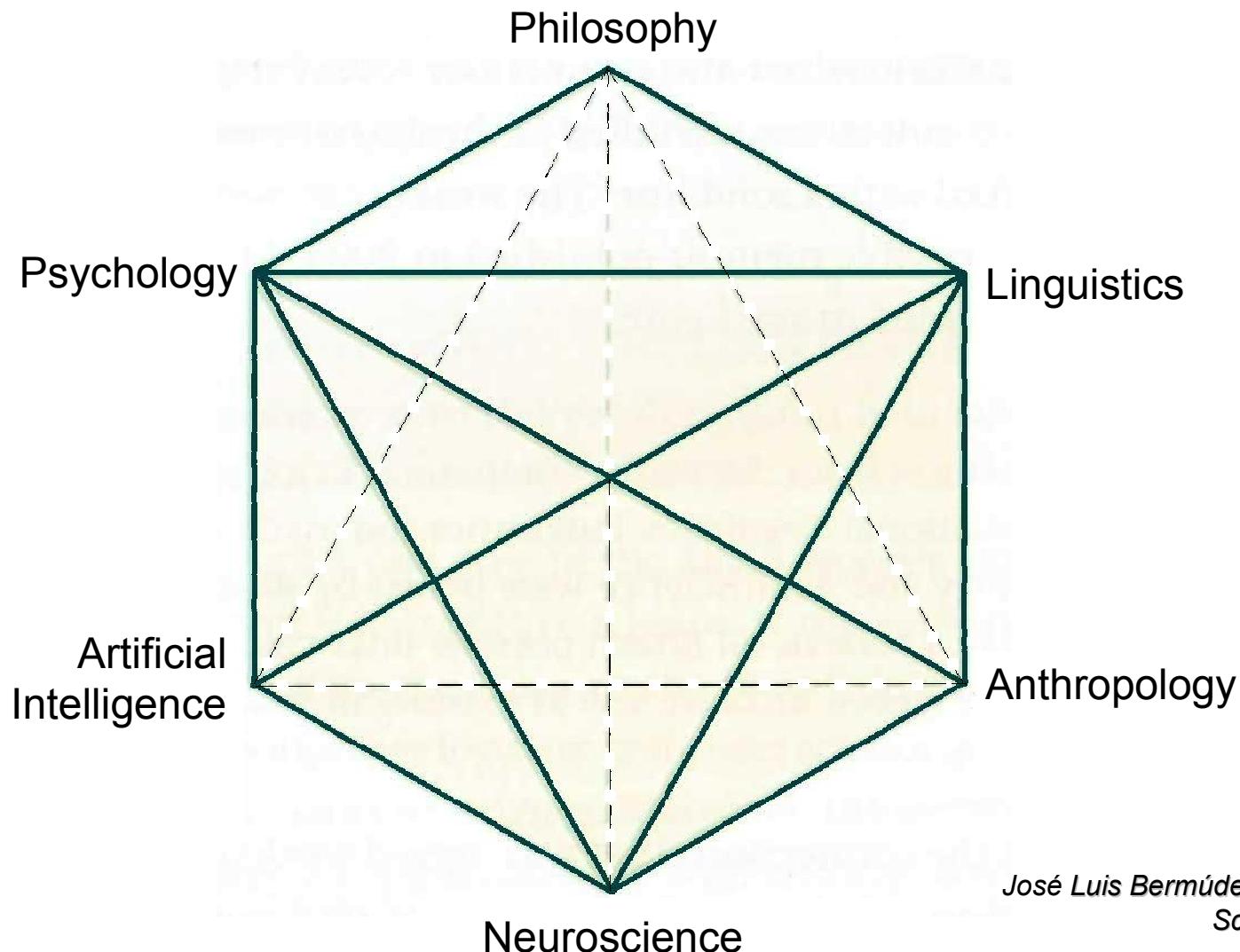
W. von Humboldt

Three worlds: real world
idea world (conceptual world-view)
word world

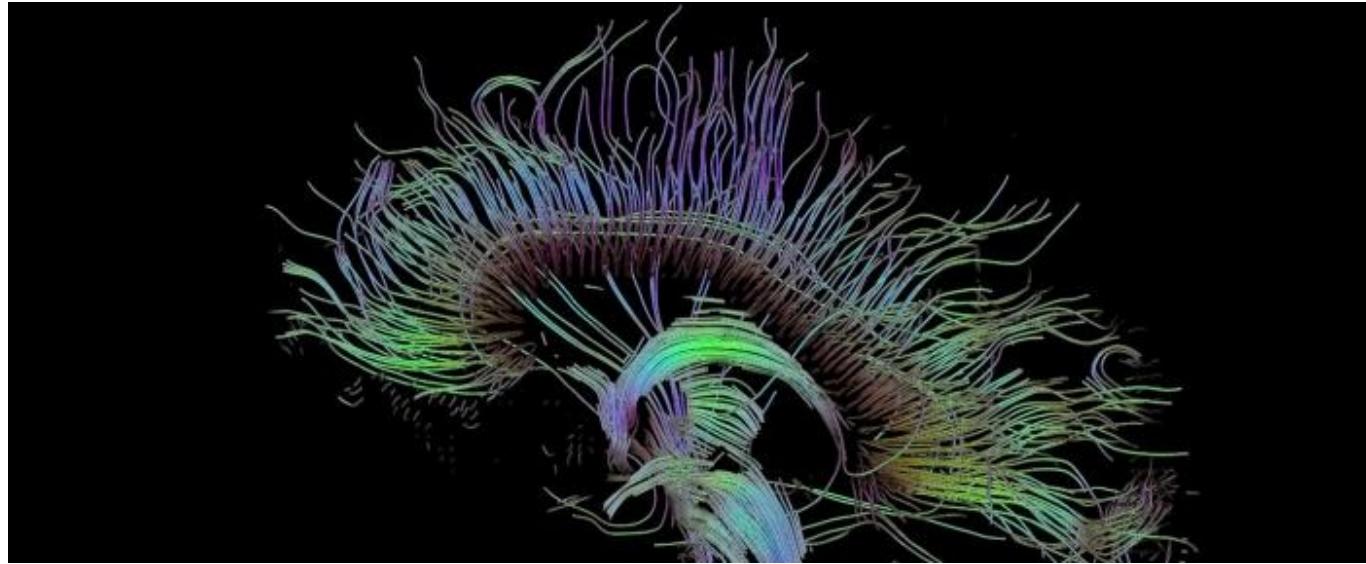
What is behind Thought

- Rene Descartes - something of obvious necessity, namely, the necessity of his own existence: *cogito ergo sum*
- William James - stream of raw sensory experience
- Ivan Sechenov - background of individual action
- The psychoanalyst Wilfred Ruprecht Bion - frustration born from ignorance
- Merab Mamardashvili - personal feelings
- Albert Einstein - visual images and even muscular sensations
- Vygotsky saw *the word* behind thought, and he saw emotional and volitional tendencies
- “The thought itself is born not from another thought but from the motivational sphere of our consciousness which encompasses our drive and mind, our needs, our interests and intentions, our affections and emotions” (Vygotsky, 2011)

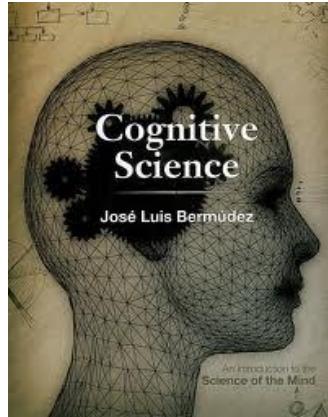
The integration challenge facing the cognitive science



José Luis Bermúdez, Cognitive
Science, 2011



The integration challenge for cognitive science is the challenge of providing a unified **theoretical framework** for studying cognition, that brings together different disciplines studying the mind



Solutions to the integration challenge:

a) Mental Architecture

Disciplines and sub-fields of cognitive science differ across three dimensions:

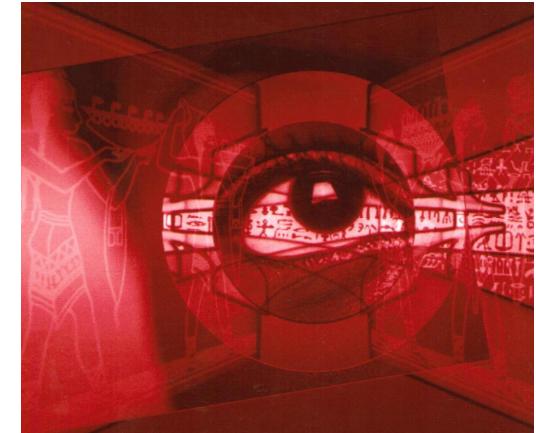
- According to the type of cognitive activity being studied
- According to the level of organization at which that type of cognitive activity is being studied
- According to the degree of resolution of the techniques that are being used

(José Luis Bermúdez, Cognitive Science, 2011)

b) Multiple levels of analyzing cognitive systems. David Marr's "Vision"

His analysis of vision is a top-down analysis of a cognitive system

1. Computational level:
 - the analysis of the particular type of task that the system performs
2. Algorithmic level:
 - explains how information-processing task can be algorithmically carried out
3. Implementation level:
 - shows how algorithm is actually implemented



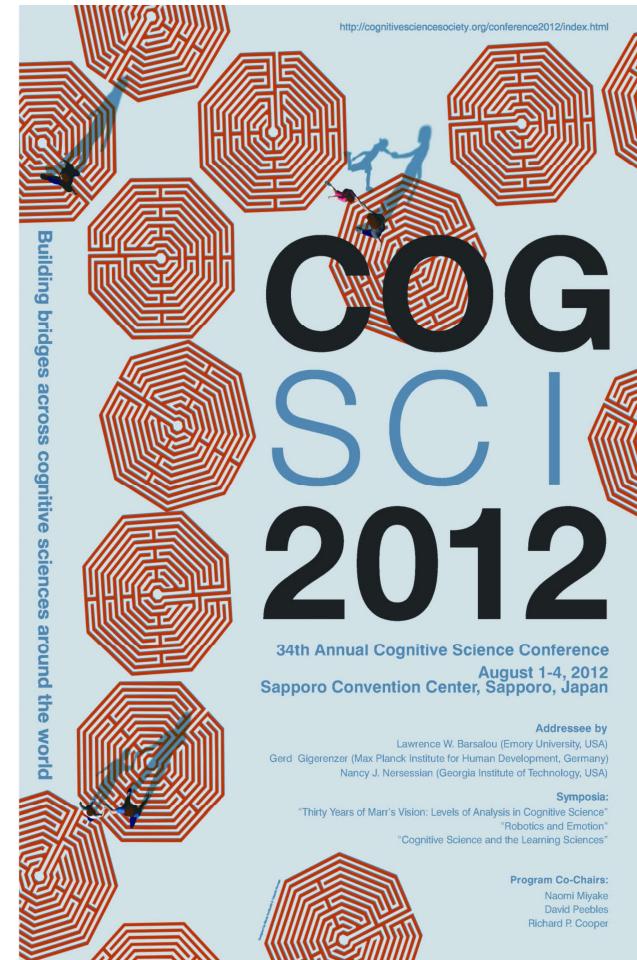
The three levels differ in how abstract they are

Cognitive Science Society (COG SCI)

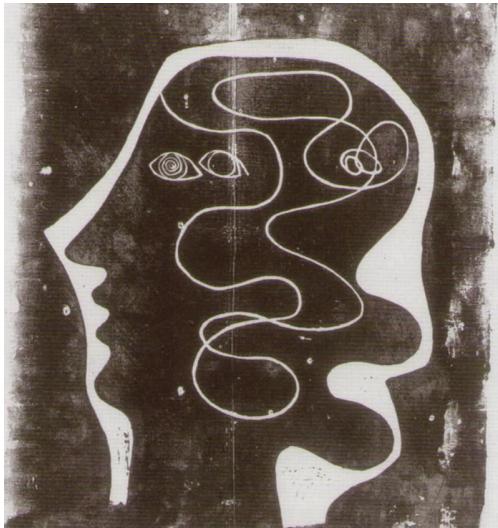
Symposia:

"Thirty Years of Marr's Vision:
Levels of Analysis in Cognitive
Science"

"Robotics and Emotion"



Metaphors we live by



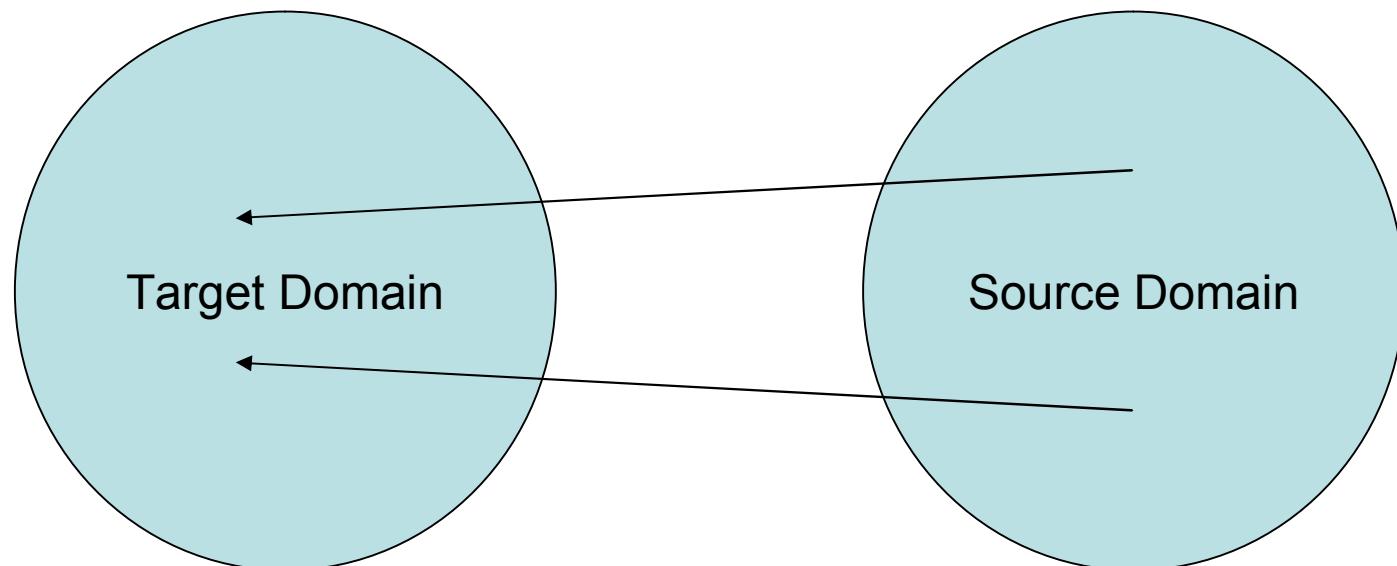
“The concepts that govern our thought are not just matters of the intellect. They also govern our everyday functioning, down to the most mundane details. Our concepts structure what we perceive, how we get around in the world, and how we relate to other people...

...Our **conceptual system** thus plays a central role in defining our everyday realities. If we are right in suggesting that our conceptual system is largely metaphorical, then the way we think, what we experience, and what we do every day is very much a matter of metaphor...”

(Lakoff & Johnson)

Conceptual Metaphors (CM)

Conceptual metaphor (CM) as conventionalized cognitive structures are based on mapping relations from a source domain to a target domain, where the source domain concepts are taken to be “literal” (more concrete) and the target domain concepts are “figurative” (abstract)

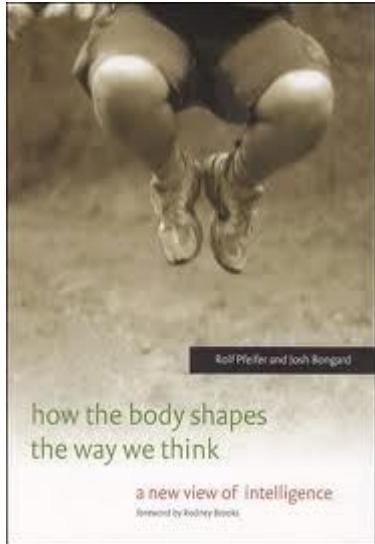


Examples

- Universal: LIFE IS A JOURNEY, POLITICS IS WAR, ARGUMENT IS WAR.
- Culture-specific: TIME IS MONEY - save time, invest time, spend time, cf. valuable time, to live on borrowed time. In Korean culture – TIME IS HONOUR.
- New (XX c.): TIME IS A SOLID STRUCTURE - time slot, time slice, time frame.

EARTH IS A GREEN HOUSE, EARTH IS A GLOBAL VILLAGE, EARTH IS A LIFE-BOAT - life-boat ethics

WORLD IS A GLOBAL CASINO - to play the green card
cf. with traditional LIFE IS A GAMBLE - to take our chances,
the odds are against us, to have an ace up one's sleeve



Embodied Cognition

Conceptual metaphors can be decomposed into combinations of simpler metaphors and ultimately to **“primary” metaphors**, which don’t decompose further.

Primary metaphors are motivated by **embodied experiences** coming together regularly. For example, when children are held affectionately by their parents, the experience of affection correlates with the experience of warmth, leading to the conceptual metaphor Affection is Warmth (Lakoff, 2012).

Embodied Cognition

Metaphors for emotions arise from the internal body states.

For example, in anger, skin temperature and blood pressure rise. Thus, anger can be conceptualized as the heat of a fluid that releases pressure:

“his blood was boiling”, “he let off steam”.

(Lakoff, 2012)

Analogy

Analogy as a universal mental operation that lies at the basis of CM (Kubryakova, 2010). In accessing new information humans create mental models by proceeding from existing knowledge.

- Johnson-Laird's theory of **mental models**: based on the experienced situation, the speakers build analogous representations from which they can infer implicit information.
- Jean Piaget: during individuals' active information processing he\she integrates new information into their existing assimilating schemata.

CMs are frame-to-frame mappings, with the roles of the source frame mapping to corresponding roles of the target frame.

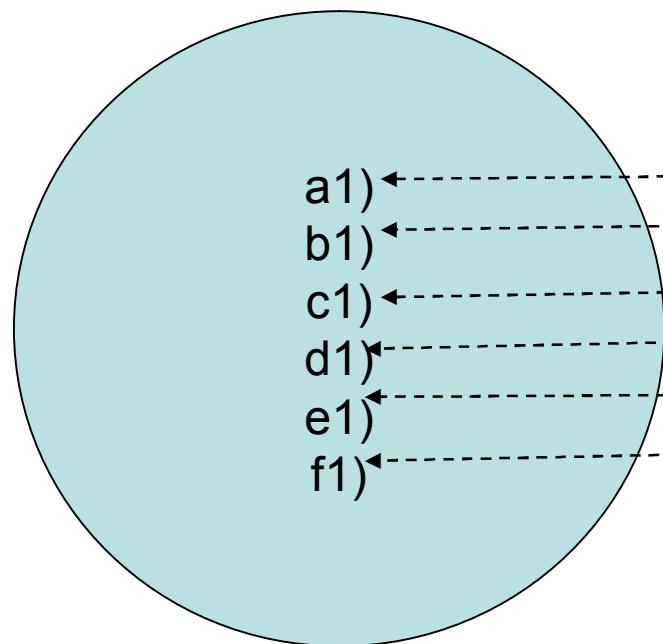
The mappings are not necessarily one-to-one. There are cases where not all the roles fillers are mapped, and other cases where metaphorical roles are *added to the target domain*.

Conceptual metaphors of time

TIME IS GOD'S GIFT

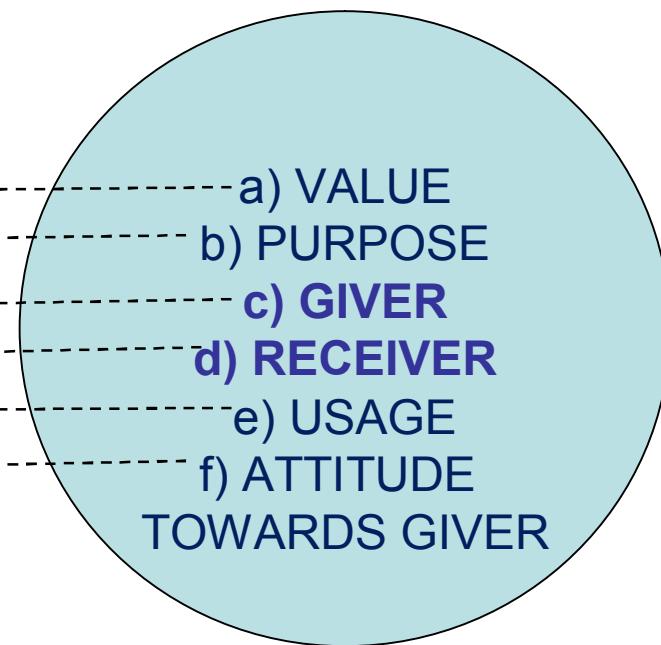
Target domain:

Time



Source domain:

Gift



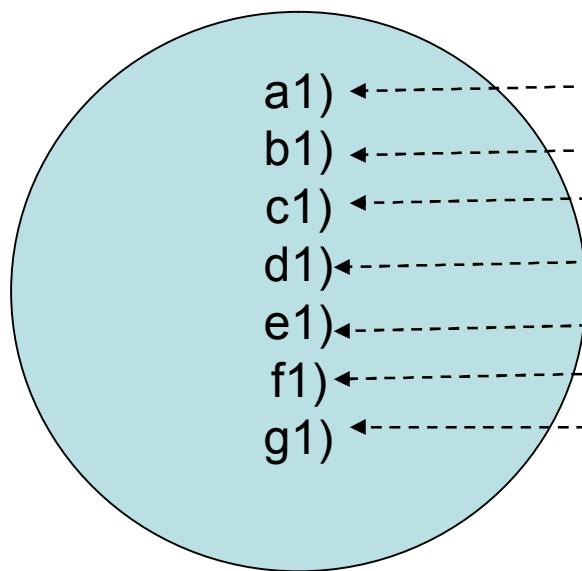
"We humbly pray mighty Father that *Thou wilt prolong our lives for many years*"
(Dickens 1935)

"Alle Tage, die Gott gibt" ("All the days that God gives") (Röhrich 1978)

TIME IS MONEY

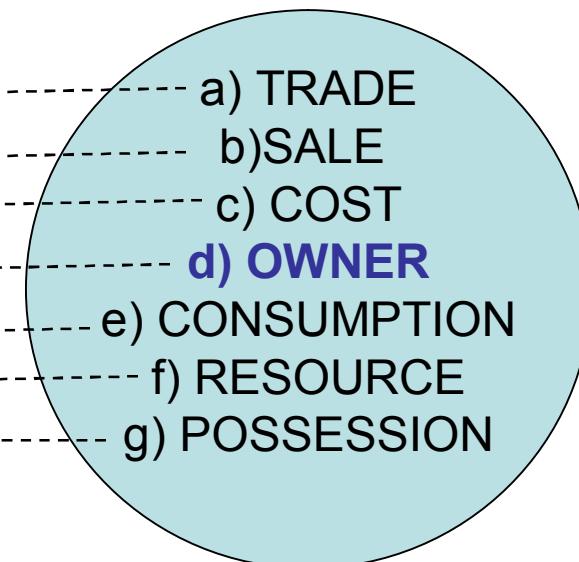
Target domain:

Time



Source domain:

Money



"We...only end up **exploiting** and **devaluing** each other's time" (Rifkin)

"He was a slave to a gentleman who allowed him **to buy his time**"
(1865 Atlantic Mo. April 509/1) [Mathews]

TIME IS VIRTUAL ENTITY:

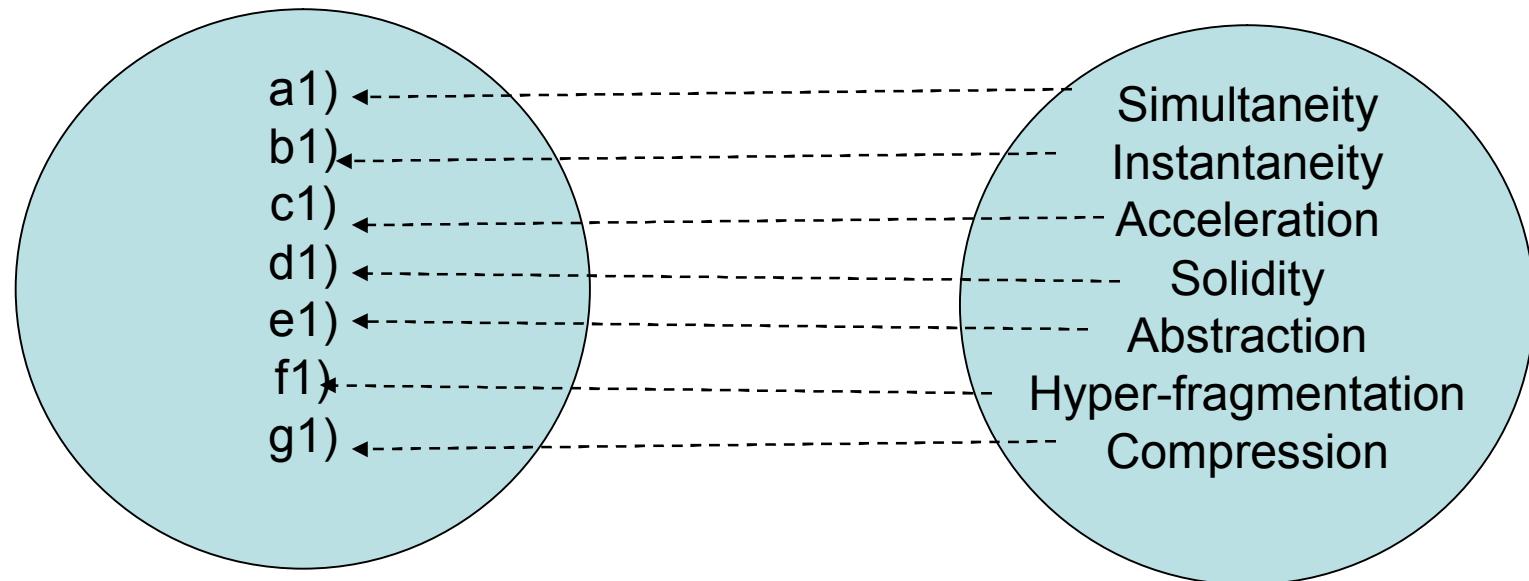
"Digital time is...time as a **sequence of numbers**"
(Strate)

- *computime*: "Many people first experience the difference between the *worlds of computime* and *clock time*..."
(Rifkin)
- *cybertime*: "...the cyberspace that is associated with computing and computer-mediated communication has a counterpart: *cybertime*" (Strate);
- "The *instantaneity of electronic speed* is commonly said to annihilate distance...but it also **annihilates duration**..."
(Strate)
- "*cybertime is quicktime*, based on the *hyperspeed* of the nanosecond" (Strate)

Main prototypical conceptual features of ‘virtual’ time:

Target domain:
Time

Source domain:
Computer system



Qualia-structure

QUALIA= {
 CONST = **what *x* is made of**
 FORMAL = **what *x* is**
 TELIC = **function of *x***
 AGENTIVE = **how *x* came into being**

- Qualia-structure of the noun “cake”

QUALIA = {
 CONST = flour, egg
 FORMAL = physobj
 TELIC = eat
 AGENTIVE = bake}

Gender Conceptual metaphors

- Women are sweet things
- Qualia-structure of the novel meaning of the noun “cake” (an attractive girl or woman)

CONST = human being
QUALIA = FORMAL = female
TELIC = to love, to be loved
AGENTIVE = person

- Qualia-structure of the noun “bird”

QUALIA =

CONST = fauna

FORMAL = animate

TELIC = to fly, to be watched

AGENTIVE = naturefact

Gender Conceptual metaphors

- Women are birds
- Qualia-structure of the meaning of the noun “bird” (an attractive girl or woman)

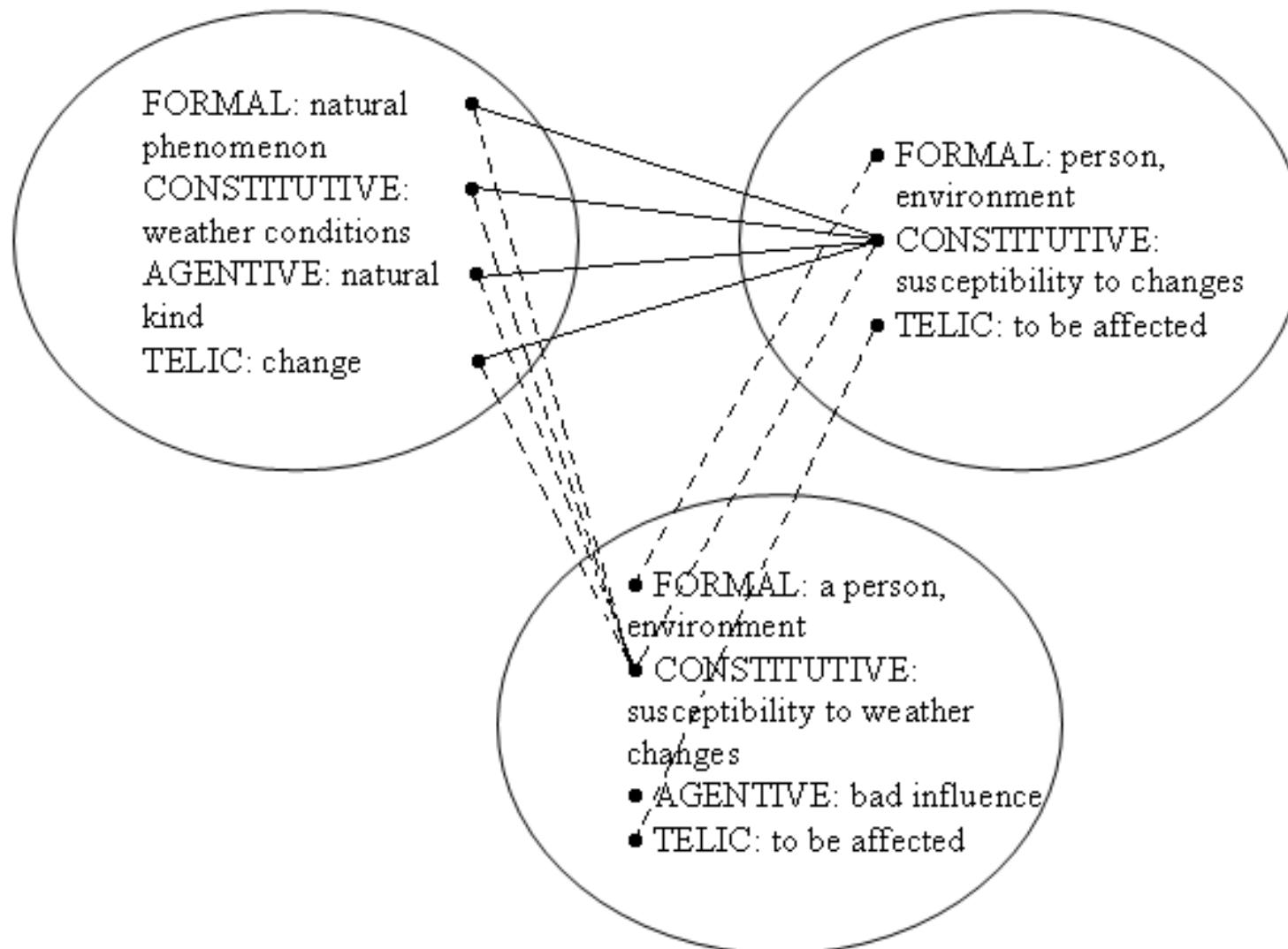
QUALIA = CONST = human being, female

FORMAL = animate

TELIC = to love, to be loved

AGENTIVE = person

Conceptual blending in “climate canary”



Thank you!

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