



I NEVER METAPHOR I DIDN'T LIKE

HOW COGNITIVE LINGUISTICS CAN HELP YOU BE A (MORE) BAD-ASS DEVELOPER

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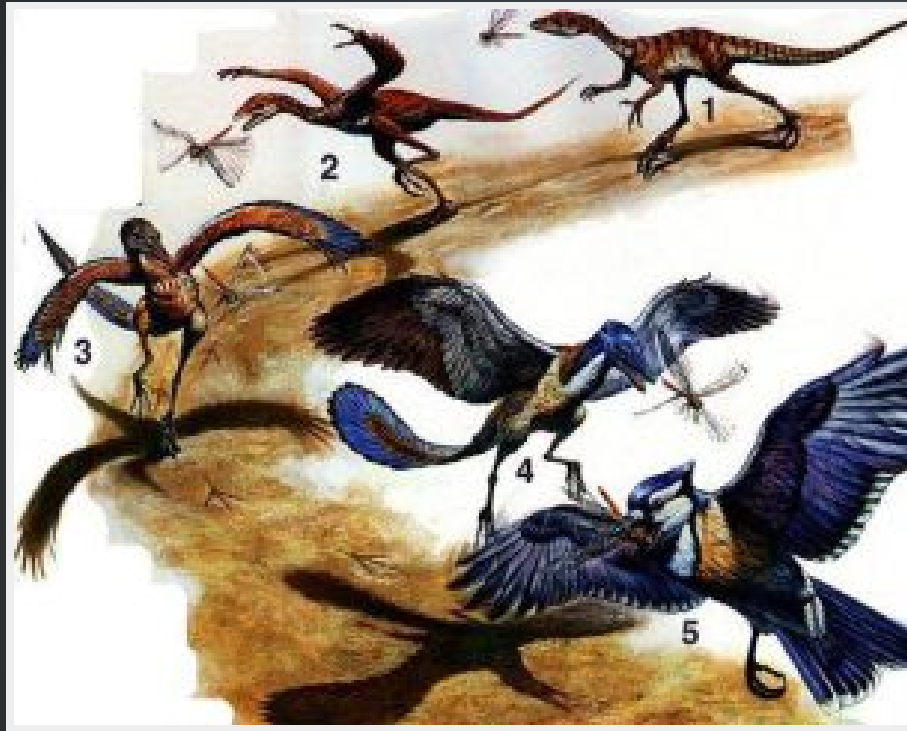
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COMPRESSION

- A blended space is created when two or more input spaces are compressed together.
- These compressions happen when aspects of the input spaces are fused.
- These fusible mappings are called “vital relations”.
 - Identity
 - Part–Whole
 - Change
 - Intentionality
 - Uniqueness
 - (*many others*)
- Metonymies make compressions obvious:
 - “Washington and Moscow at odds on Ukraine”
 - “Obama and Putin spar over gas pipeline.”

DINO COMPRESSION



- Compressions:
 - Identity further collapsed into Uniqueness (same animal)
 - Time (vast time scales reduced to a few steps)
- Millions of years of evolution, countless intermediate species, innumerable individuals, compressed to a story at human scale.

SEMANTIC FRAMES

- Blended spaces which hold what we know about a given domain.
 - Entities
 - Relationships
 - Actions
 - Moral judgments, sensory-motor memories, emotional attachments.
- Closely related to categorization.
- Constantly evolving based on new experiences.

FRAME EXAMPLES

- **A “MEAL” FRAME**

- Food, plates, tables, utensils.
- Expected behaviors, “table manners”, serving order.

- **A “COMMERCIAL TRANSACTION” FRAME**

- A **Buyer** and a **Seller**
- Money exchanged for goods/services.

- **A “RESTAURANT” FRAME**

- A blended space which borrows from both the **Meal** and **Commercial Transaction** frames.
- Adds new aspects like serving staff, additional behavioral expectations like tipping, rules relating to shared social spaces, etc.

METAPHOR

When two domain frames are compressed into a blended space in which aspects of target domain are used to conceptualize the source domain.

(or, auf English...)

When you use something you know deeply to get a handle on something you know less well (or that doesn't yet exist, is more abstract, etc).

PRIMARY METAPHORS

- MORE IS UP

“Her popularity *soared*.”

“Profits are *down* this quarter.”

- WARMTH IS AFFECTION

“They gave her a *warm* reception.”

“He gave us the *cold* shoulder.”

- KNOWING IS SEEING

“I *see* what you're saying.”

“The documentation is a little *opaque*.”

MORE PRIMARY METAPHORS

- IMPORTANT IS BIG
- HAPPY IS UP
- UNDERSTANDING IS GRASPING
- INTIMACY IS CLOSENESS
- DIFFICULTIES ARE BURDENS
- ORGANIZATION IS PHYSICAL STRUCTURE
- TIME IS MOTION
- RELATIONSHIPS ARE ENCLOSURES
- CATEGORIES ARE CONTAINERS
- *(Many, many others...)*

A detailed marble bust of the philosopher Aristotle, showing him with a full, curly beard and hair, and a serene expression. The bust is set against a dark background.

"The greatest thing by far is to be a master of metaphor.

It is the one thing that cannot be learned from others; it is also a sign of genius, since a good metaphor implies an eye for resemblance."

--Aristotle, De Poetica, 322 B.C.

METAPHOR IN SOFTWARE DEVELOPMENT

USER INTERFACE/USER EXPERIENCE

- What most people think of when they think of metaphor in a computing context.
- Iconography, desktops, windows, and trashcans are, like poetry, only the most visible use of metaphor.
- The UNIX command-line filesystem interface depends deeply on primary metaphors of containment and locality.
- GUI metaphors go wrong when their conceptual blends contain elements that do no meaningful compression.
*Laying out a calendar app like a day planner is a good compression
...giving it a leather cover is not.*

PROJECT MANAGEMENT

The language and underlying concepts of project management are an ode to one primary metaphor:

- **A TASK IS A JOURNEY**
 - “We are making good *progress*.”
 - “We just *made it* to our latest *milestone*.”
 - “I hit a major *roadblock* in the database code.”
 - “We need to get things back *on track*.”
- Agile Programming, especially (Sprint, Bottleneck, Impediment, etc)

APPLICATION ARCHITECTURE/API DESIGN

- Most work is analogical (“automate this business process”).
- Even when mimicking an existing process, thinking metaphorically can expand your frame of reference beyond data and transactions.
- Metaphoric analysis especially helpful when breaking new ground.
- Stand back from the problem and ask, “what is this *like*”.

CASE STUDY: OAKLEY

- **THE PROBLEM:**

- Nearly 100 regional offices, worldwide.
- Each office had its own procedures for collecting and storing customer contact information.
- Corporate HQ wanted a normalized, dependable contact list for all registered customers.

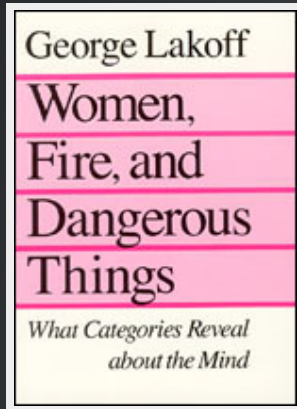
- **THE SOLUTION:**

- Consternation.
- Panic.
- Frustration.
- *“I might as well be panning for freakin' gold...”*

*“Hmm, you know, this **is** sorta like
panning for gold...”*



COGNITIVE CONTEXT



- Had recently read George Lakoff's *Women, Fire, and Dangerous Things*.
- Introduces many ideas behind this talk.
- Ideas further explored in *Metaphors We Live By*.
- Had recently seen John Huston's *The Treasure of the Sierra Madre*.
- A tale of greed and danger among miners prospecting for gold in the Mexican mountains.
- Lots of montages of mining work.

“DATA MINING”

PLACER MINING

Diggers

Hopper

Sluice

Screens/Riffles

Assay

Vault

CUSTOMER DATA AGGREGATION

- > Scripts to pull customer data from individual offices.
- > Local storage for raw records.
- > Event-driven record processing pipeline.
- > Various filters to clean up/throw out erroneous records.
- > Validation and normalization of filtered records via 3rd party.
- > Database storage for known-good records.

LESSONS

- Metaphor is imprecise (but that's okay!)
- Gave us an easy way to get our arms around a complex problem.
- Gave us ready-made application structure.
 - System workflow.
 - Entity names.
 - Class hierarchy.
- In short, applying a solution from one domain frame to a problem in a less well known domain brought the problem down to human scale, made us more productive.

