

Metaphor: Why It's Important, Why It's Challenging and How to Process It

John Barnden

*School of Computer Science
University of Birmingham*

(and did postdoc at Reading, 1975–1980!)

at

School of Systems Engineering
The University of Reading

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Plan

- ▶ Metaphor and its importance
- ▶ Metaphorical mappings
- ▶ ATT-Meta approach to metaphor understanding —
Theoretical approach and AI system partially implementing it:
System: just reasoning, no natural-language front-end
(but moves are afoot)
- ▶ Non-parallelism and metaphorization of the literal
- ▶ Additional comments and conclusion

Examples of Metaphor

"Japan is becoming **the Britain of** the Far East."

"I don't think **strings are attached**. If there are any they're **made of nylon**."

"From today, the entire **polar ice-cap** of Catholic sexual morality has started to **melt**."

"Juliet is **the sun**."

"In the **far reaches** of her mind, Anne believed that Kyle was unfaithful."

"Can you **look at** your own life, kind of **on a continuum**? **Look down the road of that line and see** what that's gonna do... in your life?"

"**Part of** Mary was **insisting** that Mike was adorable."

"The managers were getting **cricks in their necks** from talking **up** [to some people] and **down** [to others]."

Practical Importance of Metaphor in Ordinary Language

- ▶ Important in *mundane* and *specialized practical* discourse:
news/magazine articles, popular novels, classroom teaching, university lectures, popular science explanations, political statements, ordinary conversations, computer-mediated text chat, doctor/patient dialogue, therapist/patient dialogue, self-help books, workplace dialogue, bureaucratic dialogue, collaborative task-based dialogue, computer science, ...
- ▶ Metaphor is often the only economical, or the most economical, way of discussing something, especially when abstract
- ▶ Metaphor and emotional/evaluative expressions are mutually central
- ▶ Metaphor is important in summarization in extended discourse
- ▶ Metaphor is a tool for topic-change in conversations.

Role of Mappings in General, 1

- ▶ Of course, many words and phrases can have entrenched and hence lexicalized (“lexiconized”) metaphorical meanings.

Conventional metaphorical phrases, many idioms.

But otherwise ...

- ▶ Many theorists rely on the idea of “conceptual metaphors”: ways that language users are familiar with for dealing with (thinking, talking, doing something, ...) about one subject matter in terms of another [goes back to Lakoff & Johnson 1980].

Role of Mappings in General, 2

Each conceptual metaphor is a bundle of *[individual] mappings* between aspects of the two subject matters (the *target-side* and *source-side* subject matters or domains).

Example of a conceptual metaphor:

A LOVE RELATIONSHIP AS A JOURNEY

Some individual mappings for it:

the lovers \longleftrightarrow *two travellers*

their being lovers \longleftrightarrow *their travelling together*

the sequence of states \longleftrightarrow *the path journeyed on*

decision points \longleftrightarrow *intersections etc.*

Role of Mappings in ATT-Meta

- ▶ ATT-Meta is mapping-based, with already-known mappings for a range of *metaphorical views* (roughly, conceptual metaphors).

A view: IDEAS AS PHYSICAL OBJECTS

A mapping for it: *conscious mental usage* \longleftrightarrow *physical operation*

- ▶ Also: **View-Neutral Mapping Adjuncts** (VNMAAs)
e.g. for logical structure, event relationships, value judgments, ...
- ▶ Novel mappings: not implemented in system, but compatible with the general approach.

Emphasis on Map-Transcending Metaphor:

*resting on one or more known metaphorical views
but going beyond their mappings*

“In the **far reaches** of her mind, Anne believed that Kyle was unfaithful.”

“Can you look at your own life, kind of on a continuum? **Look down** the road of that line and see what that’s gonna do... in your life?”

“I don’t think strings are attached. If there are any they’re **made of nylon**.”

“Part of Mary was **insisting** that Mike was adorable.”

“The managers were getting **cricks in their necks** from talking up [to some people] and down [to others].”

Source/Target Non-Parallelism

“In the **far reaches** of her mind, Anne believed that Kyle was unfaithful.”

- ▶ What's the overall meaning?

*Anne believes that Kyle was unfaithful, but **it would be very difficult for Anne to use that idea in her conscious thinking.***

- ▶ Claim: the **far reaches** are merely a mental tool towards that meaning via existing mappings such as:

conscious mental usage \longleftrightarrow *physical operation.*

- ▶ There is no need to, and it could be difficult to, find mappings for the **far reaches.**

More Examples of Non-Parallelism

Non-parallelism somewhat recognized in the idiom literature [notably by Langlotz, 2006], and perhaps implicit in Relevance Theory etc., but not so much in mainstream mapping-based accounts.

*“I don’t think strings are attached. If there are any they’re **made of nylon**”:*
***made-of-nylon**, or **nylon** and **made-of** separately, don’t need parallels.*

*“The managers were getting **cricks in their necks** from talking [‘up’ and ‘down’]”:*
***cricks** and **their necks** don’t need parallels.*

Inferential Connection: Map-Transcending to Mappings

“In the **far reaches** of her mind, Anne believed that Kyle was unfaithful.”

- ▶ Instead: inference within a **PRETENCE** environment is used to infer

*Anne's conscious self has only a **very low degree** of **ability** to **OPERATE PHYSICALLY** on the idea that Kyle was unfaithful.*

- ▶ Then mappings are used to infer the following in the **REALITY** environment:

*Anne has only a **very low degree** of **ability** to **CONSCIOUSLY MENTALLY USE** the idea.*

Source-Elaboration Assumptions for Metaphorical Views

- ▶ Metaphorical views involve *source-elaboration assumptions* [or: *ancillary assumptions*] as well as mappings.
- ▶ For MIND AS PHYSICAL SPACE:
 - (1) If a person's mind is being viewed as a physical space, then the person is also viewed as having a conscious self that is
 - ▶ itself a person
 - ▶ located within the main part of the mind-space.
 - (2) If a person's believing something is viewed as being physically located in the person's mind, then the idea believed is viewed as physically located at the same place.
- ▶ NB: In the Anne/Kyle example, the physical locatedness of the idea is used to infer that the idea is a physical object.

Two Physical Knowledge Rules: Informal Expression

IF O is a physical object AND O is in a physical region RO
AND P is a person AND P is in a physical region RP
AND RO and RP are far apart

THEN {presumably}
NOT(O is physically accessible to P to at least degree *low*).

IF O is a physical object AND P is a person
AND NOT(O is accessible to P to at least degree Δ)

THEN {presumably}
NOT(P is able to physically operate on P to at least degree Δ).

A Physical Knowledge Rule: Prolog Form

```
rule([not,  
    to_degree(at_least(Degree),  
        the_episode(agent_being_able,  
            the_episode(physically_operating, P, 0)))],  
  
[the_episode(being_physical_object, 0),  
the_episode(being_person, P),  
  
[not,  
    to_degree(at_least(Degree),  
        the_episode(being_physically_accessible_to, 0, P))  
]  
],  
  
presumed,    r_lack_phsyopabil_from_lack_physaccess).
```

The Main View-Specific Mapping Used

IF [really] J is an idea

AND [pretendedly] J is a physical object

AND [really] P is a person

AND [pretendedly] P's conscious self is a person

THEN {presumably}

conscious-self-of(P) physically-operating-upon J [pretendedly]

corresponds to

P consciously-mentally-using J [really].

Mapping Used: Prolog Form

```
rule(  
    specific_m4mapping(  
        the_episode(physly_operating,  conscious_self_of(P),  J),  
        the_episode(conscly_mentally_operating,  P,  J) ),  
  
    [currently_within_metaphor_pretence,  
  
     in_outer_space(the_episode(being_idea, J)),  
     the_episode(being_physical_object, J),  
  
     in_outer_space(the_episode(being_person,  P)),  
     the_episode(being_person,  conscious_self_of(P))  
    ],  
  
    presumed,      r_IAPO_MAPPING_physop_WITH_consc_op).
```

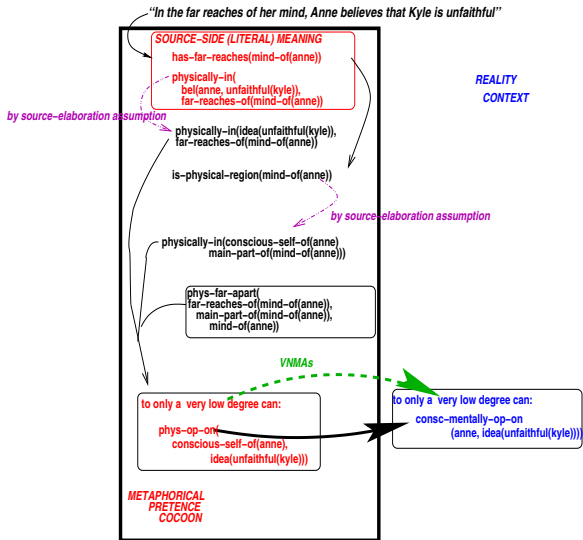
Some View-Neutral Mapping Adjuncts

IF [pretend] action-episode X corresponds to [real] action-episode Y
THEN {presumably}
[pretend] AGENT-ABLE(X) corresponds to [real] AGENT-ABLE(Y).

IF [pretend] episode X corresponds to [real] episode Y
THEN {presumably}
[pretend] COMPLEMENT-X corresponds to [real] COMPLEMENT-Y.

IF [pretend] episode X corresponds to [real] episode Y
THEN {presumably}
[pretend] X-TO-DEG $\geq \Delta$ corresponds to [real] Y-TO-DEG $\geq \Delta$.

REASONING DIAGRAM



More-Radical Non-Parallelism, 1

Adapted from Nick Hornby, *High Fidelity* (1995), + more sentence breaks:

"I tried not to run down Phil too much - I felt bad enough as it was, what with screwing his girlfriend and all. But it became unavoidable, when Jackie expressed doubts about him. I nurtured those doubts as if they were tiny, sickly kittens. Eventually they became major, long-lasting grievances. These cats had their own cat-flaps. This allowed them to wander in and out of our conversation at will."

- ▶ The **cat-flaps** and **at-willness** don't themselves need target parallels.
- ▶ They just emphasize, **via the source scenario**, the **non-deliberateness** (on the part of the conversants) with which the grievances occurred in the conversations.
- ▶ Even the **cat-ness** in the source scenario has no target-side parallel. It just provides a framework.

More-Radical Non-Parallelism, 2

“These cats had their own cat-flaps.”

- ▶ This sentence does not (need to) have its own target-side meaning.
- ▶ The appropriate level for metaphorical interpretation may be a multi-sentence chunk of discourse (or a chunk consisting of multiple metaphorical clauses). I.e.:
- ▶ Individual metaphorical units within the chunk are not necessarily all given separate interpretations. Rather, the whole chunk describes a source-side scenario, and it's from this that the target-side information is derived in a somewhat holistic way.
- ▶ No necessary sentence-by-sentence or clause-by-clause parallelism.

Metaphorization of the Literal, 1

- ▶ Literal elements of a discourse may best be translated into terms of the source side to engage with the scenario there: **metaphorization of the literal**—reverse of normal process assumed!
- ▶ It is intuitively natural to build in one's mind a scenario of **the sickly kittens recovering and growing into (healthy kittens or) adult cats**. But where is this **biological recovery** and **growth** implied?
- ▶ Answer: (partly) in the sentence
“Eventually they became major, long-lasting grievances.”
- ▶ Metaphorization of the info from this sentence is desirable, in order to *enrich and be integrated with the source-side scenario*.
- ▶ And if we claimed that *the integration should instead happen on the target side*, then there'd be more pressure to convert all sentences including “These cats had their own cat-flaps” into target terms.

Metaphorization of the Literal, 2

- ▶ Actually, Hornby's original wording was not
"Eventually they became **major, long-lasting** grievances"
but
"Eventually they became **sturdy, healthy** grievances".
- ▶ But still, desirable to convert grievances into cats (and to convert abstract becoming into biological growth and recovery).
- ▶ Don't want (just) to get target-side info from the sentence taken all by itself.

Summary /Final Remarks

- ▶ Open-ended, map-transcending metaphor can often/usually be tackled by inferential means, without creation of new mappings. [Main related work: Hobbs, Martin, Narayanan.]
- ▶ A lot of power comes from view-*neutral* mapping adjuncts.
- ▶ Metaphorical aspects of an utterance often don't have, and are not intended to have, their own parallels on the target side.
- ▶ The point extends even to some whole metaphorical utterances.
- ▶ Suggests that
 - ▶ discourse meaning is more messily and holistically connected to linguistic units than usually assumed.
 - ▶ Also suggests that metaphorization (a type of reverse transfer) is sometimes desirable during understanding. Implemented in ATT-Meta.

Practical Importance of Metaphor, contd.

- ▶ Gesture is full of metaphor.
- ▶ Sign languages have crucial metaphorical aspects.
- ▶ Pictures, diagrams, etc. have crucial metaphorical aspects.
- ▶ Metaphor in advertisements and product design is a major current research area.

Metaphor Elsewhere

- ▶ Metaphor is important in music, dance, etc.
- ▶ Many theorists believe that in some sense metaphor occurs in thought, not just in language and other communication.

Variation of Metaphorical Idiom

- ▶ “in the recesses of X’s mind”
could conceivably be in a lexicon as a fixed phrase
- ▶ But productive variation is possible:
 - in the dim recesses of X’s mind
 - in the deep recesses of X’s mind
 - in the distant recesses of X’s mind
 - in the unlit recesses of X’s mind
- ▶ Such variation is often map-transcending.

Mental-State VNMA and Anne's Conscious Self

- ▶ There is a VNMA that maps **an agent's believing X** in the pretence to **a corresponding agent's believing X'** in reality
where X corresponds to X' via prevailing mappings.
- ▶ So although we might infer, say, that **Anne's conscious self** in the pretence believes that **it is physically operating** on the idea that Kyle is unfaithful,
this does not mean that Anne has **this** belief:
instead Anne believes that **she** is **mentally using** the idea.