

***Body of Knowledge:
Metaphor and Muscle Memory
in Teaching Technical Concepts***

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May 31, 2007

Concept of Mapping and Category; Lakoff (1987)

- Language has built-in categories
 - Categories are constructed from our bodily experiences and imaginative mechanisms rather than solely from properties shared by their members
 - Metaphor is the use of a category relation
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Metaphor: Anger

The physiological effects of anger include increased body heat, increase in blood pressure and muscular tension. The metaphors for anger are built on this known physiological reaction.

- He lost his cool.
 - She blew her top.
 - He did a slow burn.
 - You make my blood boil.
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Metaphor: Invariance

- A vector is **invariant** under a transform if the transformation returns the equivalent vector.
 - The product of two orthogonal vectors is invariant under the transform if the following are true:
 - Both vectors are invariant under the transformation
 - Neither vector is invariant under the transformation
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Metaphor and Category

- Ruby
 - Perl
 - Python
 - PHP
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Metaphor and Category

- Languages

- Ruby
- Perl
- Python
- PHP

- Languages

- Scripting
 - Web-programming
 - Open Source
 - Interpreted
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Conclusion

Categories are generated from our bodily experiences. To explain that category in a way that any audience can quickly understand, use a physical representation of the category—a muscle metaphor.

Examples of Metaphor in Action

- O'Reilly's **Head First** Series
 - “Head First”: the “jump” metaphor
 - “We jumped right in!”
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