Pervasive metaphors in mathematics-in-physics: fictive motion and animation of the inanimate

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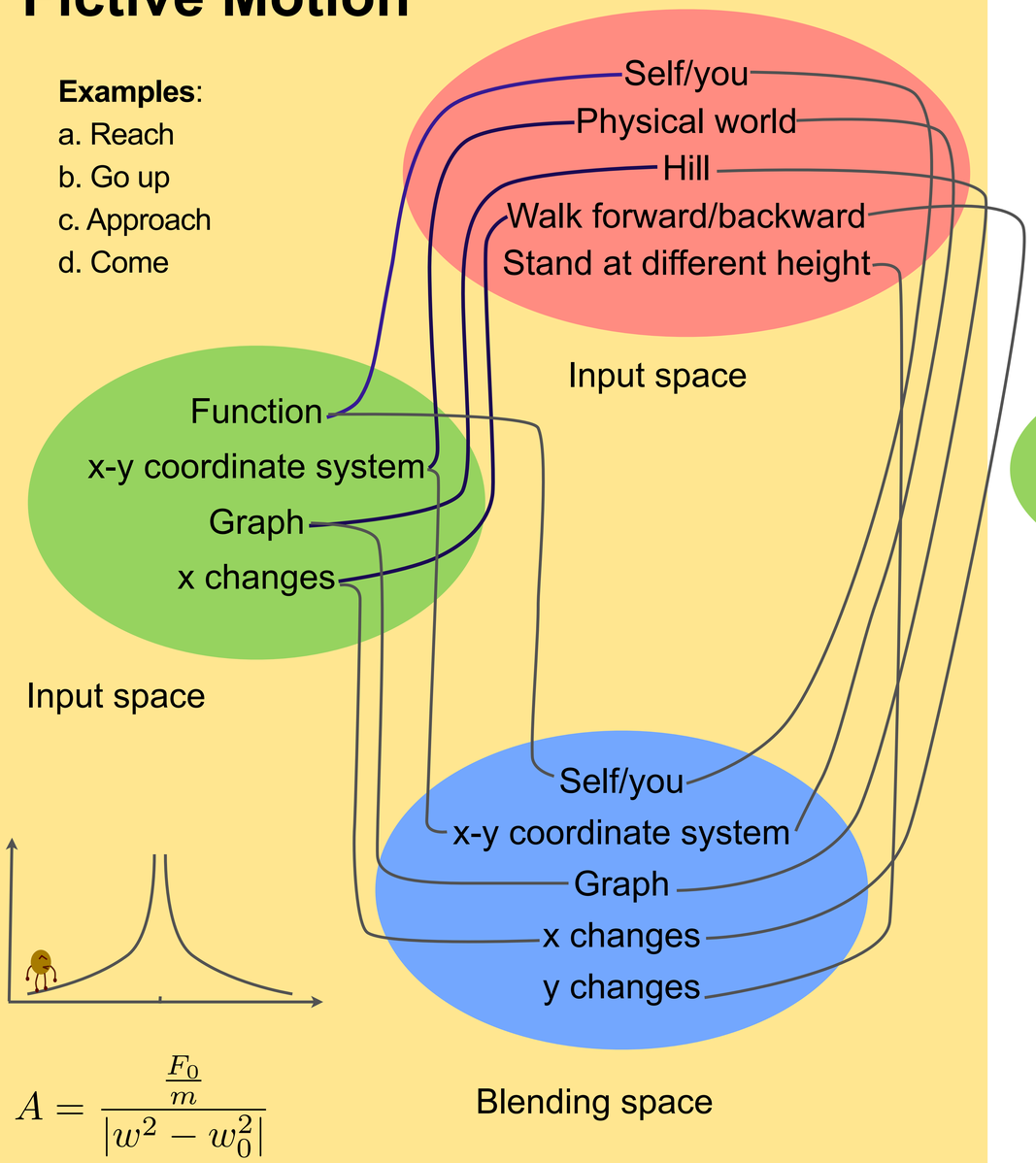
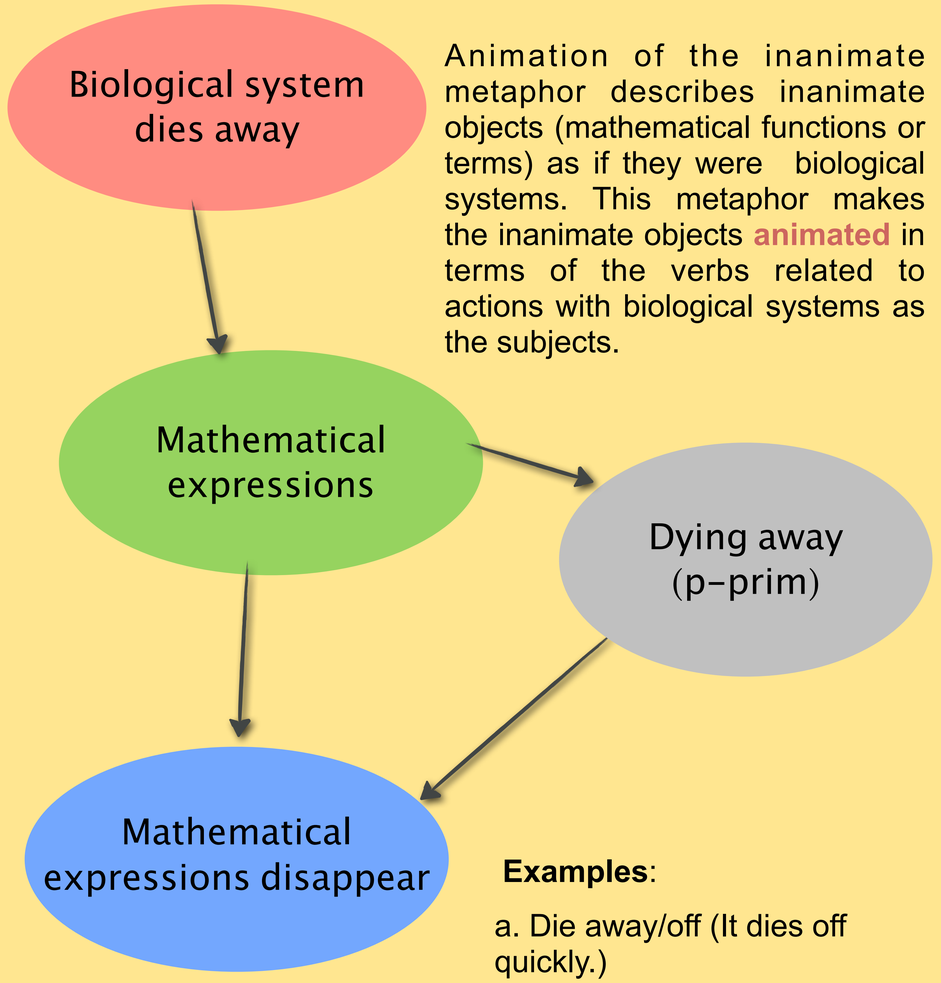
Fictive Motion

Examples:
a. Reach
b. Go up
c. Approach
d. Come



$$A = \frac{\frac{F_0}{m}}{|w^2 - w_0^2|}$$

Animation of the Inanimate



Animation of the inanimate metaphor describes inanimate objects (mathematical functions or terms) as if they were biological systems. This metaphor makes the inanimate objects **animated** in terms of the verbs related to actions with biological systems as the subjects.

Examples:

a. Die away/off (It dies off quickly.)

b. Kill off (Monopole term is killed off.)

c. Rob (Friction robbed the energy from the system.)

Conceptual Metaphor: the work of conceptual metaphor has been well documented by Lakoff and Johnson (1980), is said to be not just a linguistic phenomenon. It is also assumed to be part of the human conceptual system. The two domains between which the conceptual metaphor posits systematic mappings are called the source domain and the target domain.

Conceptual Blending: the work of Fauconnier and Turner (1994, 1998) seeks to explain much broader linguistic and conceptual phenomena with its central idea of conceptual integration networks theory, including conceptual metaphor as a two-space integration special case (Joseph Grady, 1999).

Resource Framework: claims that during the process of people thinking and reasoning, a bunch of small pieces of cognitive elements are activated while some others are not. The cognitive mechanism is considered as a state that people can enter instead of big, coherent and robust mis/conceptions.