

# Revisiting the Conceptual Blending Theory by Fauconnier & Turner: A New Perspective on Conceptual Blending Using the Mathematical Concept of Function

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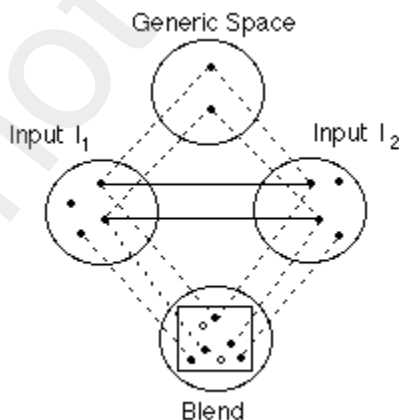
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## Abstract

In my recent cognitive linguistic work on Conceptual Integration (Blending), by Fauconnier & Turner, I noticed problems and shortcomings of the model and I applied a new approach using the mathematical concept of Function to tackle the limitations of Conceptual Integration (Blending) Theory. This is the first time that a Conceptual Blending Theory is proposed that has the potential to explain all blending spaces and frames. Therefore, it is time to revisit the concept of conceptual blending for a better understanding of the process. The complete version of this novel Theory is under final review to be published. Cognitive sciences, cognitive Linguistics and Artificial Intelligence are the main stakeholders of the newly-developed Conceptual Blending Theory.

**Keywords:** Cognitive Linguistics, Conceptual Blending, Function, Artificial Intelligence

In the Conceptual Integration (Blending) Theory proposed by Fauconnier & Turner, there are two empty circles in the Blend space that are not connected to any of the elements from other spaces with a line or dotted line.



This is strange since the elements that appear in the Blend space are the result of the interaction between elements of the input spaces. Schematically, this remains to be answered since no entity cannot appear suddenly without being connected to its origins or at least by showing the interaction between relevant entities.

Moreover, a clear and tangible reason is not provided for the process and result of the interaction between the elements in the input spaces to be reflected in the Blend space.

To solve both problems mentioned above, I have used the mathematical concept of FUNCTION to clearly show what happens during blending. This applies to all four types of networks (simple, mirror, one-scope, double-scope).

In fact, instead of focusing on elements within each space, we should redefine the model in which we have:

- 1) Parent Space (BE Space: Background or Encyclopedic Knowledge)
- 2) Father Space (X)
- 3) Mother Space (Y)
- 4) Child Space (The Space resulted from the blending of Father and Mother Spaces, carrying similar or blended characteristics) (Z)

In this approach, we define Z as a set which is the result of the interaction of X and Y sets. **f** is the function under which X and Y interact to yield Z. Thus,

Z:  $X \succ \langle Y$  ( $\succ \langle$  shows interaction)

$Z = f(x, y)$

$z_i = x_i \succ \langle y_i$

if there is  $x_i \succ \langle y_i$  Then it yields  $z_i$

if there is no  $x_i \succ \langle y_i$  Then  $x_i$  and/or  $y_i$

So,

$z_i = x_i \text{ OR } y_i \text{ OR } x_i \succ \langle y_i$

For instance, in the example provided by Turner (2007) for Simple networks he writes:

A *simplex* network is a conceptual integration network in which one input space has a familiar abstract frame (such as the kinship frame *parent-ego*) that is designed to embrace certain kinds of values, and the other input space is a relatively specific situation presenting just such values. For example, if we wish to say that two people—John and James—stand in a certain kin relation, we say something like "John is the father of James." The *parent-ego* frame of kin relation is in one input space; the other input space has John and James. In the blended space, John is the father of James, and there is a new role *father of James*.

The above justification is not capable of clearly explaining how blending occurs. This can be easily justified using the mathematical concept of Function as follows:

X (Parent-Ego)

Y (John-James)

Z (Father-Son)

The function **f** defines **Gender** (Male OR Female)

Therefore,

Parent (**f**) Ego

Parent (**Male**) Father; John

Ego (**Male**) Son; James

$z = f(x, y)$  yields

Father: Parent (**f**) John

Son: Ego (**f**) James

Now it is clear how blending occurs in mind. This applies to all four types of networking mentioned above. Therefore, it is time to revisit the concept of conceptual blending for a better understanding of the process. The complete version of this novel Theory is under final review to be published. Cognitive sciences, cognitive Linguistics and Artificial Intelligence are the main stakeholders of the newly-developed Conceptual Blending Theory.