Getting closer to iconic logic

Abstract
Visual representations of information and reasoning about it are gaining increasingly more ground in the contemporary intersections of logic, computer science and linguistics. I will argue that Charles S. Peirce’s multi-part system of existential graphs (EGs), being a comprehensive representational system for the “action of the mind in thought” and “a moving picture of” it, is the best logical method in town for the purpose. By taking unpublished sources into account, I suggest that the true iconic logic of diagrams is to be found within those systems. These diagrams should be “as iconic as possible” in order to represent “visible relations”. Contrary to Tim Crane’s claims, for instance, it is seen that iconic, and in particular diagrammatic, representations of the facts are constantly formed and presented to the mind. But there are other icons, too. One of the key open questions is: Precisely what kind of logic corresponds to images and metaphors in the fashion in which the logic of graphs corresponds to diagrammatic icons? I will suggest that, by taking clues from cognitive semantics, it is the degree of analogicity contained in the representations and in the facts represented rather than the quality that distinguishes these three logics from one another, two of which are yet to be developed.

Extended abstract
Visual representations of information and reasoning about it are gaining increasingly more ground in the contemporary intersections of logic, computer science and linguistics (Paper 2003,2004a,b,c,d). But what are the best systems to be used for such multi-lateral, exact purposes? If the goal is to strive for as great an iconicity of representations as possible, then the best logical method in town is, I will argue, what Charles S. Peirce proposed through his multi-part system of existential graphs (EGs). It is a comprehensive representational system for the “action of the mind in thought” and “a moving picture of” it (MS 298: 1, 1905; Paper 2005c). Above all, it is a “system for diagrammatizing intellectual cognition” (MS 292: 41, 1905). These sentiments are characteristic of Peirce, who thought never to “reflect in words”, but to “employ visual diagrams, firstly, because [this way of thinking] is my natural language of self-communion, and secondly, because I am convinced that it is the best system for the purpose” (MS 619, 1909).

This talk will begin with touring the essentials of the system of EGs. I will note that, by taking unpublished sources into account, the true iconic logic of diagrams is indeed to be found within it.

Though the system that Peirce’s proposed provides a “rough and generalized diagram of the Mind”, from the point of view of logic it gives us a “much better idea” of what the mind is than could be conveyed by any abstract account of it. Moreover, these diagrams should be “as iconic as possible” in order to represent “visible relations” (MS 492: 22). They do involve some indexicality and conventionality, but, as I will argue, are inherently iconic in terms of their representations of the analogous relations between its components as are the relations between what they represent.

The need for iconic logic is for humans to enhance their representational apparatus: “There are countless Objects of consciousness that words cannot express; such as the feelings a symphony inspires or that which is in the soul of a furiously angry man in [the] presence of his enemy” (MS 499, 1906).

Now Tim Crane has claimed that not nearly all words have their mental correlated in pictorial or iconic form, such as prime number or because. In fact, according to him, “Much thought is not
pictorial or imagistic in any case ... pictures too cannot explain the logical structure of thoughts or sentences: how could a purely pictorial representation represent the thought that ‘If it isn’t raining next Saturday, we’ll go to the sea’ (‘Representations’, The Oxford Companion to Philosophy, 1995, p. 770).

I will discharge this claim by alluding to the ways in which EGs indeed can represent such scenarios. Prospects are that some sort of iconic, in particular diagrammatic, representations of the facts are constantly formed and present to the mind. They may be visual, geometric, algebraic, analogous or even haptic and tactile, but always encompass essentially iconic features (Paper 2005a,b,d,e,f,h).

We should remind ourselves of the fact that, according to Peirce, there are three main types of icons: “Those which partake of simple qualities, or First Firstnesses, are images; those which represent the relations, mainly dyadic, or so regarded, of the parts of one thing by analogous relations in their own parts, are diagrams; those which represent the representative character of a representamen by representing a parallelism in something else, are metaphors” (EP 2:273, 1903). It is one of the future’s big challenges to discover and articulate precisely what kind of logic corresponds to images and metaphors in the similar fashion in which the logic of graphs corresponds to diagrammatic icons.

Towards fulfilling this goal, I will suggest that, by taking clues from cognitive semantics (Pietarinen 2005g), it is the matter of the degree of analogicity contained in them rather than the matter of quality that distinguishes these three logics from one another, two of which are yet to be developed.

References


Pietarinen, Ahti-Veikko, 2005h. *Signs of Logic: Peircean Themes on the Philosophy of Language, Games, and Communication* (Synthese Library Series), Dordrecht: Springer.