

Timelines: Conceptual Integration, Emotion, and Poetic Effects

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Abstract. One of the most broadly investigated topics in the literature on conceptual mappings is the importance of spatial construals for thinking and talking about time. In two forthcoming articles [1] [7] we explore how people understand timelines – both as graphical objects, in discourse about timelines taken from newspapers and the web, and in poetic examples. A comparison with metaphors incorporating circular patterns shows that temporal and affective meanings can change dramatically when they arise from different spatial structures.

Keywords: timeline metaphors, time-space mappings, generic templates of conceptual integration, material anchors for conceptual blends, image schemas, emotion.

1 The Timeline

When instantiated graphically, the timeline serves as a material anchor [4] in a conceptual integration network [2] representing partial cognitive models of time, lines, objects, and a hybrid model known as a *blend*. When understood with respect to this network, the analogue properties of the line give it novel computational properties that facilitate inferences about the events it represents.

The history of the modern timeline reflects a distributed cognitive process involving multiple individuals over a large span of time. It illustrates the cultural development of conceptual integration networks. Conventional mapping schemas are best viewed not as determining the interpretation of timelines, but rather as providing soft constraints that help guide meaning construction.

2 Anchoring the Time-Space Scene: Computational Properties of Timelines

A detailed analysis shows that the cognitive linguistic research on time-space metaphors does not merely describe a set of mappings from space to time; it rather describes a particular spatial scene with temporal meaning, which recurs across many metaphoric expressions. This scene is framed by a simple, familiar spatial event: an object or objects travel towards a reference point or observer.

The temporal version of the motion scene has restrictive and often contradictory properties. For instance, in this schematic narrative all observers are on the same spot, all objects are aligned to travel along the same path, objects cannot overtake one another, arrive at the same time or from different directions, change trajectory, etc. None of these occur in our normal experience of motion through space. These properties rather originate from cognitive constraints set by our existing knowledge of time. Instead of being the result of direct space-time projections, they emerge from successive integrations of a variety of conceptual materials, including event structure, motion, and a cultural mechanism to measure duration [3]. The properties of the line comply with these constraints, and provide an adequate topology for the blend, although they clash with many other basic aspects of

our experience of traversing paths. Thus the timeline has properties distinct from those of the cognitive models in each of its inputs.

Although it instantiates some of the mappings in the TIME IS SPACE metaphor [6] [5], the timeline itself is an integrated construct with computational affordances that differ from those available in the input domains. For example, studying a timeline might enhance one's memory for the sequence of salient events, or allow us to more easily recognize the most productive periods via the density of points. Researchers in the field of information visualization recommend timelines because their visual properties facilitate inferences about temporal events (such as temporal and causal contingency) that are either difficult or impossible to make using other representational formats [8].

Much of the emergent structure of the timeline and its novel computational properties result from the compression of temporal relationships to spatial ones, as well as from the congregation in the blend of structures from multiple inputs. Rhetorical goals are also crucial, as shown by everyday metaphoric expressions providing further emergent properties: timelines can be cut or compressed into analogous but shorter ones, years can be taken away from them, they can be accelerated, etc.

3 Linear and Circular Patterns in Poetic Time Metaphors

In addition to the analysis of the computational properties of timelines and the metaphoric language related to them [1], Pagán Cánovas and Jensen [7] compare time metaphors by Borges, Kavafis, Heraclitus, Manrique, Lorca, Quevedo, Paz, and Shakespeare, and by recent prose writers Ian McDonald and Karen Russell. These metaphors exhibit a linear pattern (such as a river) or a circular pattern (such as a winding labyrinth).

Analysis of this corpus suggests that static lines and circles can acquire narrative properties, be instantiated according to relevant cultural frames and rhetorical goals (e.g. a line can be a snake, a circle a magnifying glass), blend with the self, with emotional scenarios, with motion along a path, etc., while still retaining their temporal values. Although straight lines or circles, or time itself for that matter, are not by themselves loaded with emotion or intentionality, the image-schematic properties of these blends can be opportunistically exploited on-line for further integrations with contextual and background knowledge, in order to produce emergent affective meanings.

In our poetic examples we see that the linear pattern is more suitable to function as a material anchor, which helps ground conceptualization on a perceptual structure. Unlike the timeline, the circular pattern is not so appropriate to provide spatial landmarks on which to ground temporal relations. Past, future, periods of human life, duration differences, or remaining time available are not so easily "seen" at a glance in the circle.

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