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Characterizing Representation of Temporal Data Visualization

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We characterize time visualization techniques from the literature and organize them into a framework according to the time primitive referencing data points, coordinate system, presence of a path connecting data points and to which visual variable time is mapped.

TIME REFERENCE PRIMITIVE

- Instant
- Interval

COORDINATES

- Cartesian
  - Connecting Path
  - No Path

- Polar
  - Connecting Path
  - No Path

TIME AS VISUAL VARIABLE

- Position
- Size
- Color

We are using this framework to identify the commonalities between the visual encodings and interaction methods, and how to transition from one to another. Our objective is to support the navigation through this design space as part of a visual exploration process.

NEXT STEPS:

- Use this framework to identify commonalities between visual encodings. How can we transition between them?
- Identify the interactions which would be needed to transition between these visual encodings as part of a visual exploration process.
- Develop a formal language that describes this design space and navigation through the design space.