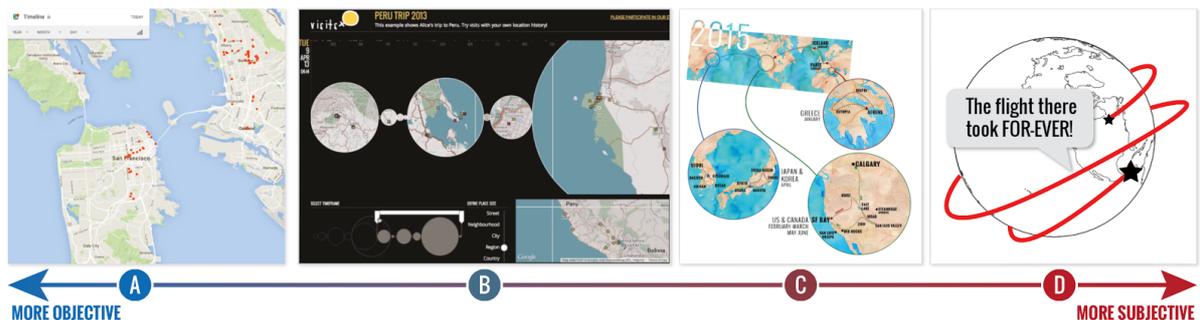


Alice Thudt, Charles Perin, Wesley Willett, Sheelagh Carpendale

## Subjectivity in Personal Storytelling with Visualization



**Figure 1.** Four different visualizations of personal location histories. Raw plots of location history (A) accurately communicate sensor data, but give little authorial control. Tools like visits (B) semi-automatically curate data into time-oriented stories. Manually-created representations (C, D) are less beholden to the original data, and provide opportunities for subjective expression, exaggeration, and irony.

In this paper we are exploring the importance of subjectivity in personal data-driven storytelling. Many people now use applications and devices that capture enormous amounts of data about themselves. This personal data supports self-reflection and creates opportunities to tell data-driven personal stories. Personal informatics and visualization research has focused on using this data to support behaviour change – promoting fitness, improving eating habits, and reducing environmental footprints [1]. More broadly, journalists and researchers have explored data-driven storytelling on the web, in the media, and in data journalism [4]. Yet these approaches – both for public and personal data – assume a high level of objectivity and aim to use data to truthfully and accurately illustrate events.

However, personal narratives are often much more subjective [5]. Storytellers may omit, invent, or embellish specific details in order to craft an engaging story or communicate a perspective. Rather than being strictly truthful, these stories mediate an experience and may use humor, irony, and other narrative tools to communicate the narrator’s value system [2,3]. We therefore explore the following question: As new tools allow us to leverage *data* to build and enrich our personal stories, can they still support this kind of subjectivity?

Subjectivity can be introduced into personal visual narratives during three stages of the process: (1) during *data collection* through omission, invention of data points or selective capturing, (2) during *data processing* through omission, invention or correction of data points, (3) in the *representation* through exaggeration, embellishments, emphasis/de-emphasis, hiding, obscuring data (e.g. through aggregation), annotation, layout and flow as well as through adjusting the style. The style can be adjusted to match the personal aesthetic preferences of the narrator, but also to convey a specific experience or feeling. For each of these techniques for introducing subjectivity we describe the motivation for using them in personal visual storytelling and how they can be supported.

Personal narrative visualizations can incorporate more or less of these techniques (see Figure) from a purely algorithmic mapping, over simple customization of the view or the data to a completely free form representation “inspired by data”, rather than a traditional

representation of the data. We illustrate this spectrum by discussing different examples of personal narrative visualizations from our own work as well as other visualization designers. Using the example of a visualization of different data streams that tell the story of a crunch time before a deadline, one day as a mosaic of pictures from a SenseCam, a travel memory based on movement data and hand-crafted postcards telling the story of one year. In each example we discuss how subjective interpretations were integrated and what problems we encountered. Our contributions include: (1) Identifying unique challenges of personal visual storytelling (2) introducing ways to incorporate subjectivity in personal visual narratives and (3), showing examples of integrating subjectivity in visualizations for personal storytelling. We conclude by providing future directions that open up visualizing subjectivity as new research area for visualization including how to integrate exaggeration, omission or irony.

**Keywords:** Personal Visualization, Narrative Visualization, Subjectivity

**References:**

[1] Huang, Dandan, et al. "Personal visualization and personal visual analytics." *Visualization and Computer Graphics, IEEE Transactions on* 21.3 (2015): 420-433.

[2] Labov, William, and Joshua Waletzky. "Narrative analysis: Oral versions of personal experience." (1997).

[3] Langellier, Kristin M. "Personal narratives: Perspectives on theory and research." *Text and Performance Quarterly* 9.4 (1989): 243-276.

[4] Segel, Edward, and Jeffrey Heer. "Narrative visualization: Telling stories with data." *Visualization and Computer Graphics, IEEE Transactions on* 16.6 (2010): 1139-1148.

[5] Thudt, Alice, et al. "Visual Mementos: Reflecting Memories with Personal Data." *Visualization and Computer Graphics, IEEE Transactions on* 22.1 (2016): 369-378.