
UNDERSTANDING TEXTUAL UNCERTAINTY IN DATES

USING INTERACTIVE TIMELINES

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This paper will explore what is understood by common uncertainty terms (e.g. circa, approximately, around) and how the associated date information affects the perceived range, precision and accuracy of a given date. This will be accomplished through a study incorporating an interactive timeline. Participants will be presented with a date and associated uncertainty term, and instructed to mark the possible and probable extents. The results from the study will be used to produce guidelines on the capture of dates, in order to include textual uncertainty and represent them visually. These guidelines will be demonstrated by producing a timeline visualisation from a textual data source.

Epistemic temporal uncertainty is present in varying degrees in all practical time based data and adds a layer of complexity to visualisation. While this type of uncertainty cannot be controlled, it can be described (Bonneau et. al., 2014). Digital processes often do not accommodate the presence of uncertainty and as such, it is frequently ignored when represented graphically (Kräutli & Boyd Davis, 2013), disregarding valuable information and allowing potential insights to go unrecognised.

Since different uncertainty terms associated with dates convey varying amounts of certainty, to fully transfer textual date information into a visual medium the nature of the terms used must be understood. Uncertainty terms are by their nature and intent ambiguous. They are also subject to the interpretation of the parties involved (both audience and the author). This study aims to comprehend what is most commonly intended when these terms are used, in a manner that can then be transferred to a visual medium.

Study participants will be presented with a date and associated description of the uncertainty. The study will be made available through the internet and circulated to the general public and professionals within The National Archives.

By compiling and analysing the results we can gain an understanding of how different factors affect the perceived range. The study will gauge the effect on participants' responses with respect to the term used to describe the uncertainty, the temporal distance of the provided date from the present and the resolution of the date.

The outcome of this analysis will be used to produce recommendations on how to represent dates that include these terms. These guidelines will be demonstrated by producing an interactive timeline from a textual data source ("*The Jacobites: Britain and Europe, 1688-1788*" Szechi, 1994).

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Bonneau, G. P., Hege, H. C., Johnson, C. R., Oliveira, M. M., Potter, K., Rheingans, P., & Schultz, T. (2014). Overview and State-of-the-Art of Uncertainty Visualization. *Scientific Visualization* (pp. 3-27). Springer London.

Kräutli, F., & Boyd Davis, S. (2013) Known Unknowns: representing uncertainty in historical time. *Electronic Visualisation and the Arts, British Computer Society, London*, 29-31 July 2013

Szechi, D. (1994). A Jacobite Chronology. *The Jacobites: Britain and Europe, 1688-1788*. Manchester University Press.