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Visualising Italo Calvino's literary geography

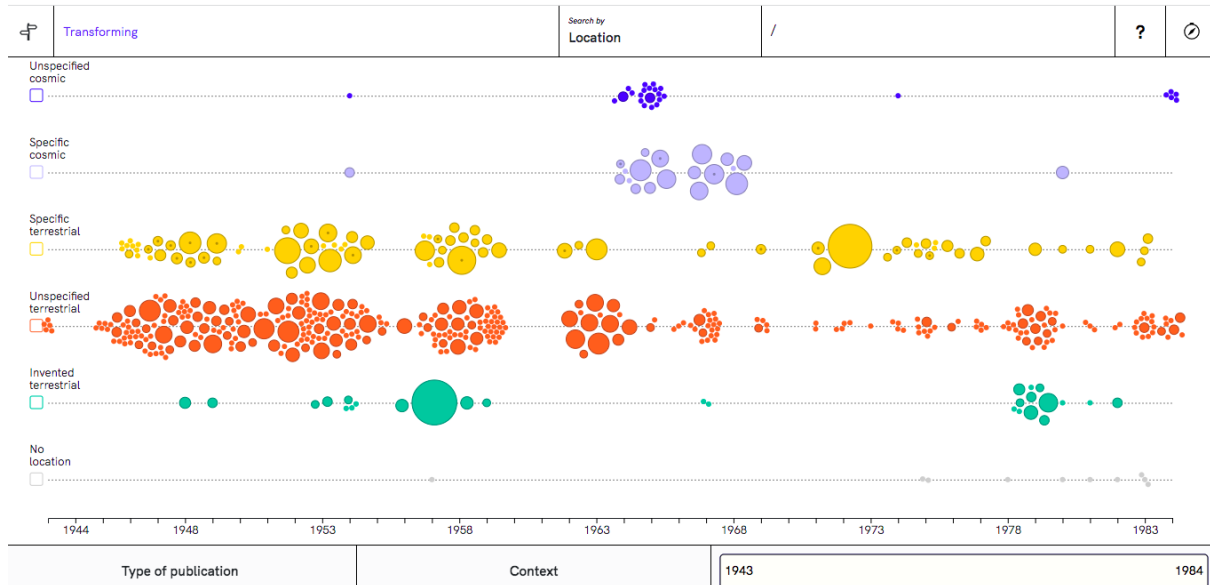


Fig. 1: The interactive visualization allows exploration of all settings in Italo Calvino's body of work. Places are represented as circles, positioned depending on chronological order of publication (horizontal axis) and literary geography category (vertical axis).

The aim of this paper is to show how data visualization can help investigate the relationship between space and reality in the body of work of Italo Calvino, one of the most prominent Italian authors of the 20th century. Starting from the assumption that in modern novels each space determines a type of story (Moretti 1997), and keeping in mind the Bakhtinian concept of chronotope (Bachtin, 1979), this work will highlight the process of research and visual design that led to the creation of an interactive visualization representing all the settings in Calvino's body of work, a corpus composed of roughly 200 short stories and ten novels¹.

Italo Calvino (1923-1985) is an author that devoted an uncommon amount of attention to space and topology. This fact has different explanations: biographical reasons and lived

¹ This interactive visualization, created for the *Atlante Calvino. Literature and Visualization* (a project funded by the SNSF, which connected a literary team from the Italian section of the University of Geneva to the DensityDesign Research Lab of the Politecnico di Milano, specialized in projects of Digital Humanities and Data Visualization), is available here: <https://atlantecalvino.unige.ch/space/phase2?lang=en>.

experiences, but also a historical and geographical context that in the second half of the 20th century made it necessary to reconsider and redefine the key concepts of space and time. As such, analyzing the way in which space is configured inside Calvino's work means reflecting on the complex relationship that his stories have with reality.

The original idea was to create a large literary map that could represent in full the complexity and variety of the locations in which Calvino sets his stories: from the Ligurian landscape forming the background of the short stories published in the late 1940s and early 50s, to the Italian industrial city of the 50s; from the Parisian metropolis of the 70s, to the crystalline invisible cities of Kublai Khan's empire. And more: the invented spaces of his chivalric romances and the peculiarity of cosmic locations, that Calvino explores from the mid 1960s by setting many of his stories outside Earth's known reality.

Faced by these complex premises, an initial part of the project resolved itself in the attempt to find the best way to collect all the data that would be needed to create such a map. This was possible through two types of operations: the necessary translation of concepts and elements pertaining to a textual, literary domain into a graphic, computational one; and an essential process of negotiation, because it became apparent from the very start that by transforming words into data, some elements would have to be modified, and others would be lost.

In this phase it was essential to refer to the main literary studies that in the early 2000s focused on the relationship between literary locations and reality. Above all are those conducted by the Institute of Cartography in Zurich and led by Barbara Piatti, in the context of the project *A literary Atlas of Europe*, which redefined the guidelines to the visual representation of literary geography (Piatti *et al* 2009, Reuschel-Hurni 2011). The setting locations of Calvino's body of work were then classified into five categories², after assigning a series of characteristics to each place based on their adherence to reality: 1. unspecified cosmic locations (e.g. *space* or *galaxies*); 2. specific cosmic locations (e.g. the *Moon* or planet *Earth*); 3. specific terrestrial locations (e.g. *Rome*, *Paris*); 4. unspecified terrestrial locations (e.g. a *city*, a *house*); 5. invented terrestrial locations (e.g. the town of *Ombrosa* or the fifty-five *Invisible cities*).

The process of data collecting required careful consideration. Indeed, the automated data mining tools that use natural language processing, text mining or named entity

² These categories were created by re-elaborating the four categories devised by Frank Zipfel in 2001 and subsequently conceptualized by Barbara Piatti in 2008, based on the dependency of the fictional locations on the geospatial ones: *imported*, *transformed*, *invented* and *imagined spaces*.

recognition algorithms, were too inaccurate to recognize all the types of locations that we needed to identify³. At the same time manual collection, although possible due to the limited scope of the corpus, was deemed unsatisfactory. In the end we opted for a non-automated approach supported by an annotation tool created specifically for this research, which made the process quicker⁴. This choice allowed us more freedom in modelling the data, but it inevitably exposed the work to more subjective interpretations.

After setting the criteria and methods for data collection, the second phase of the work concerned the definition of the characteristics of the map itself and its creation: the idea was to present an overall view of all setting locations, divided vertically in categories and distributed horizontally through space in chronological order of publication, to also tell the story of their evolution. This clearly meant creating something different from a traditional geographical map, which does not include the temporal dimension. Moreover, it was our aim to show the locations belonging to the same text or the dependency relationships between two places when, for example, one setting is contained inside another setting. These connections allowed us to emphasise the bonds between different categories, underlining the peculiar “transformation” mechanisms that regulate them.

The end result (*fig. 1*), which is then linked to aesthetic and functional principles, requires the user to actively interact with the visualization, uncovering potential relationships between two or more settings and using a broad variety of filters that allow them to select the elements based on multiple criteria⁵. On a critical level, this method allowed us to observe the author’s work from a new perspective: first and foremost, an overarching view that is able to contain all the spaces in the body of work, but also to isolate a specific spatial tendency. Secondly, by contemplating the possibility to follow a diachronic direction – for example, by analyzing the evolution through time of a certain type of location (with specific attention to some literary *topoi* and to the different meanings they have taken over time: e.g. all Calvino’s cities, all the woods in his stories, all of his seas) or of a certain category – or to focus on

³ Note that, for the purposes of this research, the freely accessible tools needed specific characteristics: they had to work well with the Italian language, and could not require external servers to work on the digitized material, in order to respect the non-disclosure agreement with the publishing house that owns the copyright to the author’s body of work.

⁴ This tool, named *Explorer* (available here: <https://densitydesign.github.io/atlante-calvino/explorer/>), allows the upload of a text in *.txt* format and of a data structure (data schema) in *.tsv* format. Both are easily created and provided by researchers and, as such, can be completely controlled and personalized. The tool works as a web application but, being completely client-side, it does not risk unauthorized circulation of the texts.

⁵ Specifically, the filters allow the user to select elements according to *type of publication*, *year of publication*, *spatial context*, or to research through *location name*, *title* of the text, name of the *volume* or *magazine* in which the text was published.

synchronic phenomena, creating unexpected connections between territories that appeared to be far apart.

Achieved results are numerous and in some cases significant. These include, for example, being able to re-evaluate the influence of biographical locations on the literary geography of the work, highlighting three very different *corpora* depending on the type of publication (novels, collections, texts published only in periodical magazines), or emphasising the transition from stories characterised by an almost obsessive movement of characters to a progressive immobility – not coincidentally reflecting the kind of "dislocated" movement mentioned by Michel Foucault in the late 1960s (Foucault, 2019).

Once we have achieved our goal, it will be worth asking ourselves if this model can be exported, which aspects of this method could be applied to a different author or body of work, which parts of the process worked, and which will, instead, require additional consideration.

Bibliography:

Bachtin 1979: M. Bachtin, *The Aesthetics of verbal art*, Moscow, Iskusstvo.

Foucault 2019: M. Foucault, *Folie, langage, littérature*, Paris, Vrin.

Moretti 1997: F. Moretti, *Atlante del romanzo europeo. 1800-1900*, Torino, Einaudi.

Piatti *et al.* 2009: B. Piatti, H. R. Bär, A. Reuschel, L. Hurni. W. Cartwright, *Mapping Literature: Towards A Geography of Fiction* in W. Cartwright, G. Gartner, A. Lehn, *Cartography and Art*, Berlin, Springer, pp. 177-192.

Reuschel-Hurni 2011: A. Reuschel, L. Hurni, *Mapping Literature: Visualisation of Spatial Uncertainty in Fiction*, in «The Cartographic Journal», vol. 48, n. 4, pp. 293-308.

Author Bio:

Virginia Giustetto is a PhD Candidate at the Department of Romance Languages and Literature of the University of Geneva, where she worked for the project *Atlante Calvino. Literature and Visualization* (2017-2020). Her dissertation is about the relationship between space and reality in Calvino's narrative works. She is specialized in Italian Literature, Philology and Linguistics. Her interests include Italian modern and contemporary literature and Digital Humanities.