

## Artistic Visualizations and Beyond: A Study of Materializations of a Digital Database

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### Abstract

The paper discusses a case study of the integration of artistic practice in the digital humanities research. The methodology of coding meaning in visual form is explained for four different sculptures and an artist book. The approach is tied to the allegoric thinking in building emblems and miniatures in the history of art (16<sup>th</sup> century and later). The use of diagrams is integrated in the experimental projections of a future archeology. The data of digital humanities research can achieve greater visibility and address a wider cultural context when presented in collaboration with art institutions.

### Introduction

The virtual research environment (VRE) of the NEWW WomenWriters Database (<http://resources.huygens.knaw.nl/womenwriters>) has been developed in 2016 (on the basis of the first version, [http://www.womenwriters.nl/index.php/Database\\_WomenWriters](http://www.womenwriters.nl/index.php/Database_WomenWriters)) in the frameworks of a European HERA *Travelling Texts* project. The VRE gathers data about European women writers, focusing on the long 19<sup>th</sup> century. There are three main entry points into the database: by women authors, by their publications and by receptions. The network graph shows the connections in the literary field by linking each author with all her written works and their receptions by other authors. The principal researcher and coordinator of the project in Slovenia is Katja Mihurko Poniž (2017) from the University of Nova Gorica.

Before (i. e. already for the first version of the database) and alongside the development of this tool (the NEWW VRE) the authors of this paper have been exploring the visualization of humanist data and the methodology of integrating the research process in the curricula of undergraduate study, promoting interdisciplinary collaboration (2017).

However, the field of visualization is vast and extends beyond the graphs built with standard computer visualization techniques, which are based in statistics. Johanna Drucker argues for graphesis (2014), an idea that encompasses the whole of the visually produced knowledge, throughout the history and in different civilizations. The authors of this paper further their research of visualization in this direction, borrowing certain historic image meaning-making techniques and appropriating them for the contemporary and future needs and sensibilities of human communication.

### Similar projects

The artistic exploration of the representational, and sculptural in particular, technical of course, possibilities of computer-controlled 3D printing and fabrication is already a well established practice. The extensive exhibition by

Damien Hirst in Venice *Treasures from the Wreck of the Unbelievable* (Palazzo Grassi, Punta della Dogana, 9 Apr. – 3 Dec. 2017) has realized a comprehensive mystification about a lost ancient treasure, a mass of objects recovered from the shipwreck of *Apistos* – including »museum copies [...] which imagine the works in their original, undamaged forms« – in different sizes, jewellery too. Here, the scale and the high technical standards of production are astonishing. The visitor of this museum-like exhibition is faced with a reading of history, in the same way as in any museum of e.g. ancient Mediterranean artefacts, and has to read the historical narrative, which is the art-piece. The narrative is condensed into the objects that perplex and stimulate interpretation.

Nataša Skušek has also created a jewellery like cast *Yajdess* (2014), using traditional sculptural techniques, of the Jaydess intrauterine delivery system. Here the sculptural aspect of the shape in silver clashes with the function of this object in the female productive system and in the female body. In the *Art + Science Now* monograph by Stephen Wilson (2010) which is an overview of the intersecting domain between the two »cultures« from the famous C. P. Snow lecture form 1959, the 3D printing is an information visualization technique; the pendent *Future Skeleton in the Closet* (sterling silver, patina, 2006) by Karin Beaumont, who is a researcher working on plankton in Antarctica and also a silversmith, moves visual features from the scientific research into the artistic realm, in this case the shape of marine algae *Asteromphalus*, but also »how they move, how they interact, helps« the author to create the artwork (Wilson, 2010). As in the case of *A Lake* sculpture presented later in this paper, Beaumont has put a literary fragment, a haiku, on the back of the pendant. Carlos Garaicoa approaches the 3D printing techniques more literally. A valuable 3D print is made in gold, therefore it has to be in a safe box: *Saving the Safe – HSBC Building* (21 Kt, safe box, rotating base, LED light, 2017). The HSBC bank is on the list of 50 world's safest banks, which is an ironic emphasis pointing to the use of valuable materials and their potential malleability (gold) of their 3D shape in

conceptual art. The computer based prints do not have to be small or »clean«, i.e. polished and without noise: Garaicoa's project at the *documenta 14* (the EMST collection) was a *Photo-Topography* (nine digital inkjet prints on acrylic, nine black-and-white photographs, and pigment and gesso on wood mounted on aluminum, 2011), in essence a translation of grey values from photographs into a 2D area using elevation – dark is a high, bright is a low surface area.

Narvika Bovcon and Aleš Vaupotič have used computer-aided 3D prototyping a number of times. In 2003 at the 50<sup>th</sup> *International Art Exhibition Venice Biennale* together with Gašper Jemec the *Friedhof Laguna Racing Team* was realized; the installation consisted of two boat-like casts produced by Seaway Yachts company, that had inside them a view into an interactive 3D virtual space. The professional execution of the shapes from the design to production established a dialogue with real yachts on the Venetian waterfront. In 2007 the *Dragonfly* 3D print was included (as a digital mesh) in the *Data Dune* virtual space in the project *If you look back, it won't be there anymore* (with Barak Reiser) and in the real gallery space (Bovcon and Vaupotič, 2009). In the 3D print *Atlas Air Tagging* (2011) the miniature silver cast held emblematic objects representing all the works from a group exhibition (Bovcon et al., 2013). In this case, the silver jewellery-like object was additionally remediated in the augmented reality dimension of the video installations at the exhibition.

## Transposition of data into artistic form

The paper will present the case study of designing digital sculptures and an artist book. For the invited artists (Narvika Bovcon, Vanja Mervič, Aleš Vaupotič) the initial idea was simply: make a visualization of the NEWW Women Writers database as an art object. The confirmations of a successful translation of the digital humanities database into artistic form were the exhibitions of the products in art galleries (Layerjeva hiša in Kranj, Grad Kromberk in Nova Gorica) and in the National Museum of Slovenia, Metelkova in Ljubljana at which occasion the sculptures were awarded the jury prize of the *Salon ZDSLU 2017*. In the following subsections the production of the art pieces will be discussed.

## Data sculptures

The data in the digital form, no matter how much effort and funding is invested into building these complex platforms of digital archives (e. g. at the Huygens institute in Hague, where also Europeana resides), appear vulnerable and unstable. The software and hardware for data storage are prone to obsolescence. In the archeological perspective, only the hardest materials endured the extinguishment of civilizations and deterioration in time. The idea emerged to build sculptures that will encode the meaning from the NEWW database and become artifacts for the future archeologists. This is the same motivation, why today digitization is going on as an effort to preserve the artifacts from our cultural heritage. The artists are at the same time worried that the digital archives, so painstakingly filled with data, have no alternative copy in another material and are therefore

present only in the virtual world and absent in the real world.

We decided to use the technology for building 3D digital models (Maya software) and printing them with 3D printers and finally using the prints for casting silver. These steps were realized in collaboration with Matic Močnik from the goldsmiths Zlatarstvo Močnik in Ljubljana.

The main dilemma about the humanities data stems from their complex existence. What humanities are dealing with are not data or measurable objects but phenomena that resist any kind of simplification and are therefore only imperfectly transformed into data. Interpretation is already a part of all phenomena. Furthermore, they are multidimensional in their meaning and function in inter-human exchange, variable in time, part of any individual's perception. All of these characteristics speak against the principle of reduction that is necessary for data analysis.

The basic question was, how to make meaningful visualization of the NEWW database? The material that is organized in the database underwent the reduction phase of meaning prior to our visualization, converting the phenomena into distinct units of categories, however, the visualization has to reverse this process. This can be done by individual narrativizations of the archive proposed by the artists.

## Slovene women writers

First we checked the categories that the NEWW database employs to describe the personal data about the authors from the history of literature. These refer to social class, education, financial aspects, marital status, whether they had children, date and place of birth and death. Although very basic, even these categories remain unknown for many women authors. The first sculpture was conceptualized to contain the available data in the categories of personal life of Slovene literary authors.

There are 16 Slovene literary authors in the database: Fanny Hausmann, Lavoslava Kersnik, Luiza Pesjak, Josipina Urbančič Toman, Leopoldina Rott Kersnik, Pavlina Pajk, Marica Nadlišek Bartol, Elvira Dolinar, Ljudmila Poljanec, Minka Govekar, Vida Jeraj, Ivanka Anžič Klemenčič, Ljudmila Prunk, Zofka Kveder, Manica Koman, Lili Novy. Each of them is represented on the timeline (horizontal) with a straight line connecting the years of her birth and death. The writers are organized chronologically along the vertical axes, together with their timelines a surface of a particular shape is formed.

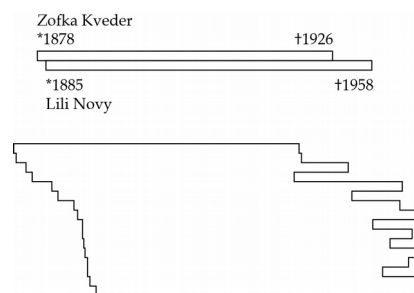


Image 1: Chronological diagram of the lives of Slovene women writers.

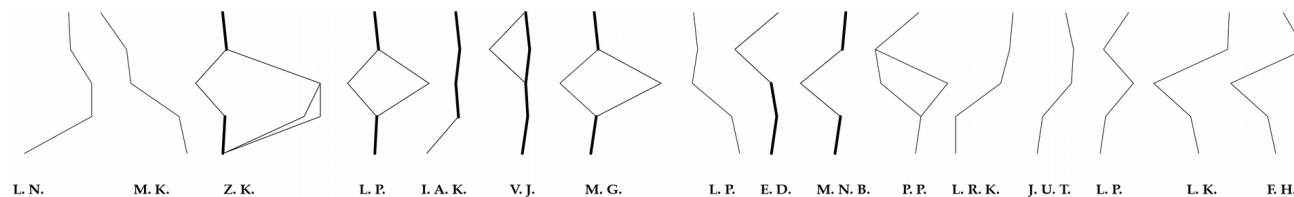


Image 4: Lifelines of Slovene women writers.

The categories are arranged horizontally as columns of different characteristics for each. The characteristics that are most common among the authors are represented with a proportionally bigger circle. The predominant characteristics in each category are arranged in a horizontal line. Thus, if an author shares these common characteristics, the line that connects them is straight and the lifeline of that author is straight. On the other hand, an author with less common characteristics has a more zig-zag lifeline, which is a reflection of her more uncommon lifestyle. Most common characteristics for Slovene women writers are: middle class, school education, unknown financial situation, married, has children.

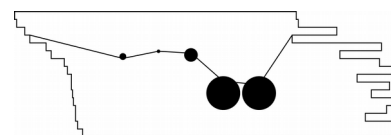


Image 2: Representation of one author:  
a line connects her characteristics in each category.

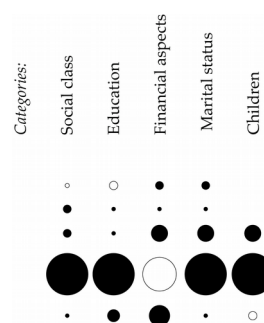


Image 3: Categories of personal and professional situation of the women writers. Circle  $\emptyset$  represents the number of Slovene women writers with that characteristic. White circle represents unknown data for that category.

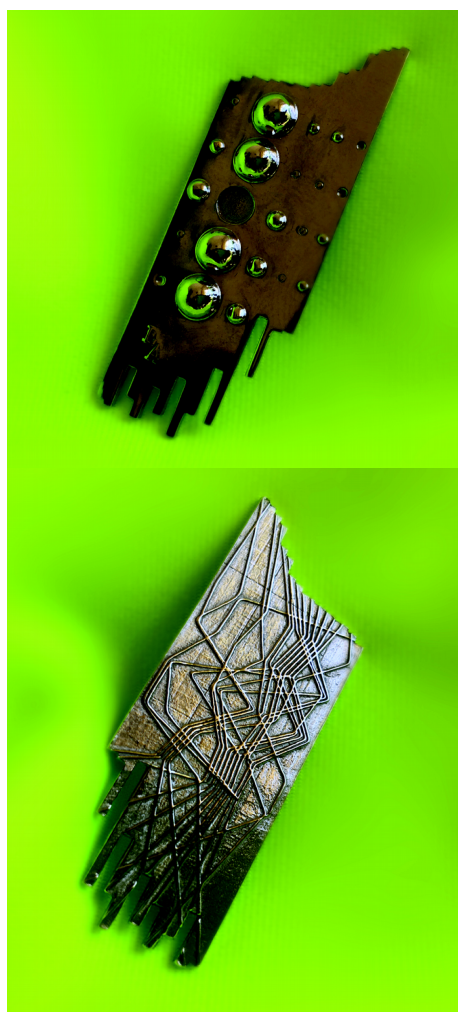


Image 5: *Slovene women writers*. The diagrams are arranged on both sides of the sculpture.  
Size: 6 x 2 x 0,3 cm.

### Cloth

The second sculpture is shaped according to the data about personal and professional situation of Spanish women writers. The categories are the same as presented in the previous section for Slovene women writers, however there are some characteristics that in the categories of Slovene authors don't appear, such as royal rank, or are less common, such as home education.

This time the sculpture is designed by arranging the categories of the characteristics in a square grid with the number of authors for every characteristic arranged vertically. For the 3D model of the sculpture first an appropriate 3D bar chart was made. Then, a cloth simulation was virtually dropped over it. To fit well, the cloth was tailored to roughly match the shape of the bar chart, otherwise it wasn't visible enough under the cloth. The simulation was tweaked by changing the cloth material and its deformation properties.

Here a new element enters the narration about the data on personal lives of Spanish women writers. A cloth is added by the artists as an attribute that defines women culturally and socially: it represents the fashions, the restrictions, the covering of women's bodies and faces, their domestic life and their work as housewives.





Image 6: *Cloth*. The sculpture is shaped according to the personal data about Spanish women writers.

### Quotation

Another aspect of the database about women writers are their works. The artists have chosen a quotation from one of the most representative and renown novels, *Middlemarch*, written by George Eliot in 1874. The quotation summarizes the status of women at the time, their access to knowledge and emancipation: "I cannot image myself living without some opinions, but should wish to have good reasons for them, and a wise man could help me to see, which opinions had the best foundation, and would help me to live according to them."



Image 7: *The Quotation*. A quote from *Middlemarch* on education for women in the Victorian time.

The text is designed (in Adobe Illustrator and Maya) as a lace merely by using typography. All the letters have to be connected to each other in order to be physically possible to 3D print this complex and very fine texture and later to cast it in silver. The final shape is curved in space to evoke a shape of a flower petal. The embroideries, the calligraphy, the lace and flowers are all symbols of women and their occupation at the time, when Dorothea from *Middlemarch* planned her marriage to get education and become able/informed how to do good in the world, as she tells us in the quotation.

### A Lake

A more contemporary representative author was chosen to speak in the fourth sculpture: Sylvia Plath. Her poems and her life describe the attitude of women who are overshadowed by their unfaithful husbands. The sculpture is designed as a two-sided mirror: on the front the reflective surface is in the form of a woman's face, distorted as if reflected on water, whereas on the back the surface is a perfect mirror, in which the viewer sees her/his own portrait while reading the inscription of the Plath's verses from the poem *Mirror*. In the poem, a woman looks at her reflection in a lake and contemplates the passing of time and the changes.

Thus the four sculptures narrate the women writers database in two perspectives: from the point of view of statistical data on their lives, and from the points of view they described in their works.



Image 8: *A Lake*. Inspired by the poem *Mirror* by Sylvia Plath.



## Augmented artist book *À mon seul désir*

Vanja Merviĉ conceptualized an artist book inspired by the women writers from the NEWW database. As already the title suggests, he elaborated on the idea encoded in the images of the six tapestries titled *The Lady and the Unicorn* (cca. 1500). Five of the tapestries from the series depict the five senses: sight, touch, taste, smell and hearing, while the sixth carries the inscription “À mon seul désir”. George Sand wrote on the medieval series of tapestries in her novel *Jeanne*, and helped preserve them, now they are in the Cluny Museum, National museum of middle ages in Paris.



Image 9: *The Lady and the Unicorn* (cca. 1500).

Likewise, the artist book contains pages dedicated to the five senses: some pages carry images, others are apparently white. The images stimulate the sight with vivid colours, however the content of the images suggests also other senses, e. g. the photograph of a merry-go-round evokes the sound that usually accompanies it. The photograph of a chewing gum evokes the taste. Even the most colourful images are photographs of frozen pigments and the viewer looking at them senses the ice and the heat melting the ice cylinders. The images taken with the Kirlian camera make visible the aura of the artist.



Image 10: Excerpt from an image in the artist book *À mon seul désir* (by Vanja Merviĉ).

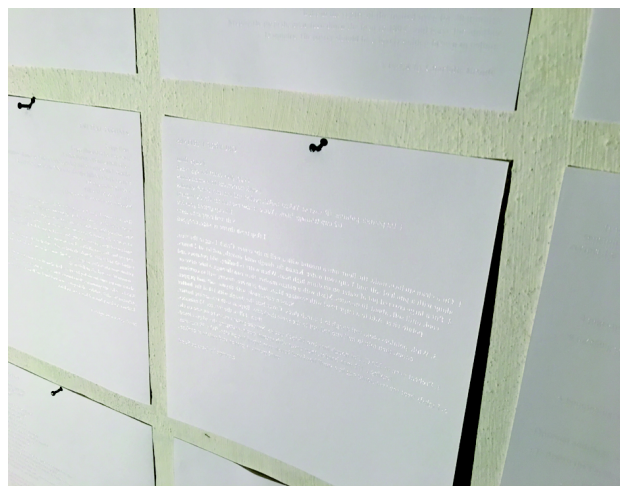


Image 11: Tactile pages from the artist book *À mon seul désir* (by Vanja Merviĉ).

One page is perfumed.

On the white pages the reader can touch the thick layers of transparent spot UV print insinuating the braille script, which is in fact present on one page. Looking at the UV printed pages under a certain angle of the incident ray of light, the text becomes more or less visible: cooking recipes for different dishes written by the famous women writers are printed, such as Omelette Aurore and Gruyère Tartines by George Sand, Cottage Loaf by Virginia Woolf, Chicken Pie by Charlotte Brontë, Pigeon Pie by Jane Austen, Pasta Bolognese by Anaïs Nin, Classic Tomato Soup Cake with Cream Cheese Frosting by Sylvia Plath, Ninon De L'Enclos recipe for a cream for youthful skin.

The sound is represented with a notation of the *Circus Polka: for a Young Elephant* (1942) by Igor Stravinsky, it is printed on the page adjacent to the photograph of the merry-go-round.

The artist book is carefully executed, with tactile layers of spot UV print and compiled of a variety of papers, smooth and textured, light and heavy, that feel different when the reader touches and turns the pages.

However, the pages in the book are also augmented with the augmented reality technology. If the reader scans the pages with her/his smart phone or tablet using the Layar application, on the screen of the smart handheld device additional videos, sounds and web pages appear and can be examined or browsed further. The videos were shot by the author during his artist in residence stay at the Cite internationale des arts in Paris.

The artist book with virtual reality augmented pages can contain moving media and sound, which in traditional print is not possible. New technologies can thus further extend the idea of engaging all five senses and its actual realization. Especially important for the artists is the possibility to enclose videos in a book.

Every art work has its presentation at an exhibition, which is at the same time a setting and a performance. The *À mon seul désir* artist book and the four silver 3D printed sculptures were accompanied with a culinary performance when a menu of the dishes by the famous women writers that are printed in the artist book was served. In the Mahlerca Gallery at the Layer House in Kranj *The Supper*

of *This-Time Reality* was cooked by Sara Hostnik, a painter, cook and confectioner. At the Kromberk castle the catering was contributed by Domačija Lisjak.



Image 12: Exhibition at the Kromberk castle.  
Artist book and skin cream from the recipe of  
Ninon De L'Enclos.



Image 13: Classic Tomato Soup Cake with Cream  
Cheese Frosting by Sylvia Plath served at the Mahlerca  
Gallery at the Layer House in Kranj at *The Supper of  
This-Time Reality* cooked by Sara Hostnik.

## Conclusion

The case study of the visualization of the NEWW database shows, how artists can contribute innovative visualizations and additional extensions of a digital humanities research. Data that exist in a digital form in a digital archive can be brought back into the real world in a variety of materializations. However, this is not a straightforward procedure. Not anyone, but an artist is needed who has the adequate training and skills to envision the materializations of ideas in such a way that these are not banal or boring, but carry a network of encoded meanings in elaborate artistic forms.

This is a method how to build outreach of scientific results to a wider audience and to other disciplines and fields of research or creativity. Our case study proved this method to be effective, since the visualizations of the NEWW Women Writers database have successfully

entered the gallery system and even won the jury prize at the *Salon ZDSLU 2017*, which is the annual curated show of the Association of Slovene Fine Artists Societies. Consequently the artists won also the title for the person of the week at the Val 202 programme of the Slovene national radio, which has the widest possible reach and thus really many people learned about the database.

The visitors to the galleries and the listeners to the Val 202 learned about the women writers and the research on them, which otherwise would remain restricted to the literary scientists specializing on the topic and actually working with the database. At this point it is necessary to mention that the history of literature is predominantly focusing on male authors and it is an important and difficult quest in itself to establish the recognition of the women writers and their in many cases forgotten or unrecognized works. With help of the artistic objects the contents of the database were presented in a more communicative, fascinating and engaging manner and people reacted with interest both, about the artworks and about the women writers.

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