RIGA TECHNICAL UNIVERSITY

Faculty of E-Learning Technologies and Humanities

ANALITICAL REPORT ON DATASET
"ARCHITECTURAL ART NOUVEAU IN RIGA"
for Digital Humanities study course

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Riga 2023

I. Introduction

Riga is the city with the largest concentration of architectural Art Nouveau in the world. About 700 buildings in the city center are made in this style — usually they are multi-storey apartment buildings that date back to the period 1904 — 1914.

Riga Art Nouveau is usually divided into four main varieties: "decorative" ("eclectic"), "vertical" ("perpendicular"), "in the style of National Romanticism" and "neoclassical". This division is largely conditional, there are often buildings whose appearance demonstrates the influence of several styles at the same time.

As the focus of our research, we decided to pay special attention to such a trend of Riga Art Nouveau as "National Romanticism". It is characterized by restrained decoration of buildings, folklore motifs in the decor, monumental appearance of buildings and the use of natural building materials.

The appearance of this style in Latvia became part of the national revival that began in the XIX century and led to the formation of a separate Latvian identity — both political and cultural. It was then that the need to create works of art to express the uniqueness of local culture arose in society.

The main questions that we have investigated in the framework of our project:
- What elements distinguishes Latvian National Romanticism?
- How this movement even came into if majority of architects working in Riga up to that time had been either Russians or the so-called Baltic Germans, who had dominated the politics of what today is Latvia since the 12th century?

While our project might not turn out as the be-all-end-all answer to those quandaries, the methods employed could serve as jump-off point for more ideas about applying digital humanities (DH) tools to studying the intersection of art, identity and politics.

Thus, for this investigation we set ourselves a number of goals:
- to find a suitable dataset to wrangle according to our whims;
- to use natural language processing for analyzing expert descriptions of Art Nouveau buildings, to identify what distinguishes Latvian National Romanticism;
- to map these buildings, in order to identify any geospatial relationships worthy of study;

- to compile an overview of the people working in this style, identifying the ethnic Latvians amongst them, as well as their interpersonal networks, to see if there might exist a unified stylistic movement, rather than just individual experiments;
- to look for correlations between their ethnic background, the style they were working in and what they came up with.

In turn, our project team formed a number of hypotheses:

1. First, Latvian National Romanticism is a special stylistic offshoot within the broader Art Nouveau style, formed by ethnic Latvian architects worked on it using uniquely Latvian decorative motifs.
2. Their background (education, professional connections, etc.) as well as the general cultural and historical context in Latvia formed their aesthetics, and made them different from the preoccupations of Russians and Germans.
3. Therefore, their style reflected a developing national identity.

Thus, we assume that the reflection of this identity in architecture became the genesis of Latvian National Romanticism.

Disclaimer:

We would like to note that all the conclusions in this report are made solely on the basis of the selected database, which does not pretend to be complete, since it covers only a little more than 100 Art Nouveau buildings, while the total number of such buildings in Riga exceeds 700. Another important point is that none of the project participants has knowledge in the field of architecture and/or art history, so our conclusions do not claim to be scientific truth.

II. Dataset & Tools

There was no ready-made database on the topic of our research, so we created it ourselves from scratch. It was based on information collected by the Riga Art Nouveau Museum — https://jugendstils.riga.lv/eng/

The museum staff has studied a little more than 100 buildings in Riga, which are classified as Art Nouveau buildings, the year of their construction and the architect have been accurately determined. However, this information is presented on the museum's website in an unstructured form (texts, photographs), so we had to do a lot of work to make this data structured.

In addition, during the compilation of the database, we checked the data (for example, duplicates of addresses with different data on the year of construction and the architect were found), the data were enriched with information from other sources.

Our final database includes data points on buildings, their locations, the architects, their education and ethnicity, mutual connections and specific stylistic descriptions for each building:

- Building address/street (information from https://jugendstils.riga.lv/eng/)
- Building address/house number (information from https://jugendstils.riga.lv/eng/)
- Latitude (information from Google Maps)
- Longitude (information from Google Maps)
- Construction year (information from https://jugendstils.riga.lv/eng/)
- Short description of the building (info from https://jugendstils.riga.lv/eng/)
- National Romanticism: yes/no — does the building belong to this style (information from https://jugendstils.riga.lv/eng/)
- Heritage: yes/no — is the building recognized as an object of cultural heritage of national significance or regional significance or local significance (information from https://mantojums.lv/cultural-objects)
- KVO/Sistēmas ID (information from https://mantojums.lv/cultural-objects)
- Architect (lv) — Latvian spelling of names and surnames (information from https://mantojums.lv/cultural-objects)
- Architect (eng) — English spelling of names and surnames (self-study)
- Date of birth (information from open sources)
- Date of death (information from open sources)
- Place of birth (information from open sources)
- Place of birth/NOW — how this place/country is called in our days (self-study)
- Education (information from open sources)
- Was this architect student or employee of Konstantīns Pēkšēns office (the first architect who started to work in National Romanticism style in Riga) — yes/no (information from open sources)

Our research is not just about the description and study of historic buildings, but also about demonstrating the benefits of DH tools for humanities research through digital humanities means. The DH approach provides us with additional analytical tools and perspectives that allow us to understand better the cultural context and heritage of historic buildings. At the same time, DH

tools provide more ways to present our research findings in a more engaging and inspiring way. Through this webpage, we hope to demonstrate the application of DH technology in the field of cultural heritage, as well as the advantages and limitations of such research.

The main software solutions used during investigation:

1. Voyant Tools: was necessary to analyze architectural descriptions and helped the team in better understanding these textual data.
2. QGIS: was used for geospatial mapping of buildings and their architects; assisted the team to better process and display these geographic data.
3. Microsoft Excel: was used for some graphs building.
4. GitHub: was used to collaboratively develop or manage code, while providing convenient features such as issue tracking and code review.
5. Weebly: was used for website creation and hosting.

III.   Art Nouveau in Riga: Linguistic and Geospatial Analysis

In today's world, the Art Nouveau architectural style has become a cultural heritage and historical legacy. We analyzed the language used to describe these buildings using the Voyant tool to explore this style from the linguistic point of view.

First, we used the Cirrus function to analyze words and phrases related to the architecture of Art Nouveau in Riga, Latvia. The Cirrus function generates a word cloud, an image that shows the words that occur more frequently. According to the Cirrus visualization of word cloud, we can see that the words "facade", "decorative", "corbels" and "windows" are the most frequent words. This is not surprising, as these terms are often used when describing architectural style and design. Additionally, the words "ornamental," "floral," and "plant" also appear several times, indicating that the Riga Art Nouveau architectural style is known for its ornate decoration, naturalistic forms, and distinctive artistic style.

Moreover, Voyant tool provides other features such "document terms visualization" and "loom visualization". In the "Document Terms" section of Voyant Tools, we can find a list of the words that appear most frequently in the text. By analyzing these words, we can gain some information and insight into the Art Nouveau buildings. We can see the word "Art Nouveau" in the center, surrounded by other words such as "ornamental", "facade" and "decorative". These words are closely related to Art Nouveau buildings, as they are the main characteristics of this style of architecture. It is worth noting that in the list of words there are also specific architectural elements associated with Art Nouveau architecture, such as 'curves', 'floral motifs' and 'glass'. These elements are typical of the Art Nouveau architectural style and show that the architects used them extensively in their buildings to create a distinctive artistic style.

DocIndex	Term	RawFrequency	RelativeFrequency	ZScore	ZScoreRatio	TF-IDF	Distributions
0	façade	45	8485.763	1.9861904	-13.833082	0.0	0.0013200075, 3.77145E-4, 0.001131435, 7.5429E-4, 0.00150858, 0.001131435, 3.77145E-4, 3.77145E-4, 7.5429E-4, 7.5429E-4
0	decorative	39	7354.328	1.6957669	-11.8103895	0.0	0.0016971525, 1.885725E-4, 3.77145E-4, 7.5429E-4, 7.5429E-4, 1.885725E-4, 5.657175E-4, 0.00150858, 5.657175E-4, 7.5429E-4
0	house	33	6222.8926	1.4053433	-9.787696	0.0	0.00150858, 0.0, 3.77145E-4, 7.5429E-4, 5.657175E-4, 0.0013200075, 3.77145E-4, 3.77145E-4, 1.885725E-4, 7.5429E-4
0	reliefs	30	5657.1753	1.2601315	-8.77635	0.0	7.5429E-4, 0.0, 5.657175E-4, 3.77145E-4, 0.0013200075, 3.77145E-4, 3.77145E-4, 4.9, 4286253E-4, 3.77145E-4, 5.657175E-4
0	ornamental	28	5280.03	1.1633236	-8.1021185	0.0	3.77145E-4, 0.0, 0.001131435, 1.885725E-4, 9.4286253E-4, 7.5429E-4, 3.77145E-4, 7.5429E-4, 1.885725E-4, 5.657175E-4
0	motifs	24	4525.74	0.96970785	-6.7536564	0.0	0.0, 3.77145E-4, 3.77145E-4, 5.657175E-4, 3.77145E-4, 5.657175E-4, 3.77145E-4, 0.001131435, 5.657175E-4, 3.77145E-4
0	finish	24	4525.74	0.96970785	-6.7536564	0.0	0.0, 0.0, 0.0, 0.0013200075, 5.657175E-4, 1.885725E-4, 5.657175E-4, 1.885725E-4, 7.5429E-4, 7.5429E-4, 1.885725E-4
0	facade	23	4337.168	0.9213039	-6.416541	0.0	1.885725E-4, 5.657175E-4, 1.885725E-4, 0.0, 1.885725E-4, 7.5429E-4, 9.4286253E-4, 7.5429E-4, 0.0, 7.5429E-4
0	windows	21	3960.0227	0.82449603	-5.74231	0.0	1.885725E-4, 3.77145E-4, 3.77145E-4, 3.77145E-4, 3.77145E-4, 0.0, 9.4286253E-4, 5.657175E-4, 3.77145E-4, 3.77145E-4
0	window	21	3960.0227	0.82449603	-5.74231	0.0	1.885725E-4, 7.5429E-4, 1.885725E-4, 0.0, 5.657175E-4, 9.4286253E-4, 7.5429E-4, 3.77145E-4, 3.77145E-4, 1.885725E-4
0	decorated	20	3771.4502	0.7760921	-5.4051948	0.0	1.885725E-4, 0.0, 0.5, 657175E-4, 0.0, 3.77145E-4, 0.0, 0.001131435, 3.77145E-4, 0.0, 0.0
0	manner	19	3582.8777	0.7276882	-5.068079	0.0	3.77145E-4, 0.0, 0.9, 4286253E-4, 3.77145E-4, 1.885725E-4, 5.657175E-4, 3.77145E-4, 3.77145E-4
0	iela	19	3582.8777	0.7276882	-5.068079	0.0	5.657175E-4, 0.0, 0.001131435, 5.657175E-4, 1.885725E-4, 0.0, 1.885725E-4, 0.0, 1.885725E-4, 5.657175E-4
0	elements	19	3582.8777	0.7276882	-5.068079	0.0	3.77145E-4, 3.77145E-4, 3.77145E-4, 7.5429E-4, 1.885725E-4, 0.0, 3.77145E-4, 3.77145E-4, 1.885725E-4, 5.657175E-4
0	composition	19	3582.8777	0.7276882	-5.068079	0.0	1.885725E-4, 0.0, 7.5429E-4, 7.5429E-4, 1.885725E-4, 5.657175E-4, 3.77145E-4, 1.885725E-4, 7.5429E-4
0	bay	19	3582.8777	0.7276882	-5.068079	0.0	0.0, 7.5429E-4, 3.77145E-4, 1.885725E-4, 3.77145E-4, 9.4286253E-4, 3.77145E-4, 3.77145E-4, 0.0, 1.885725E-4
0	floor	18	3394.305	0.6792842	-4.730963	0.0	7.5429E-4, 3.77145E-4, 0.0, 3.77145E-4, 1.885725E-4, 0.0, 3.77145E-4, 5.657175E-4, 3.77145E-4
0	ed	17	3205.7327	0.6308803	-4.393848	0.0	5.657175E-4, 0.0, 5.657175E-4, 5.657175E-4, 1.885725E-4, 1.885725E-4, 3.77145E-4, 0.0, 3.77145E-4, 3.77145E-4
0	built	17	3205.7327	0.6308803	-4.393848	0.0	1.885725E-4, 3.77145E-4, 9.4286253E-4, 1.885725E-4, 1.885725E-4, 0.0, 5.657175E-4, 3.77145E-4, 1.885725E-4
0	entrance	16	3017.1602	0.5824764	-4.0567327	0.0	3.77145E-4, 1.885725E-4, 5.657175E-4, 3.77145E-4, 0.0, 3.77145E-4, 3.77145E-4, 0.0, 0.0, 0.0, 7.5429E-4
0	architecture	16	3017.1602	0.5824764	-4.0567327	0.0	0.0, 1.885725E-4, 7.5429E-4, 0.0, 3.77145E-4, 1.885725E-4, 3.77145E-4, 0.0, 0.0, 3.77145E-4
0	architectural	16	3017.1602	0.5824764	-4.0567327	0.0	0.0, 3.77145E-4, 5.657175E-4, 3.77145E-4, 0.0, 0.1, 1.885725E-4, 9.4286253E-4, 1.885725E-4, 1.885725E-4
0	apartment	16	3017.1602	0.5824764	-4.0567327	0.0	1.885725E-4, 3.77145E-4, 3.77145E-4, 1.885725E-4, 3.77145E-4, 4.0, 7.5429E-4
4							
0	sculptural	15	2828.5876	0.5340724	-3.7196167	0.0	1.885725E-4, 1.885725E-4, 0.001131435, 1.885725E-4, 0.0, 0.0, 1.885725E-4, 3.77145E-4, 1.885725E-4, 7.5429E-4
0	eclectic	15	2828.5876	0.5340724	-3.7196167	0.0	1.885725E-4, 5.657175E-4, 7.5429E-4, 3.77145E-4, 1.885725E-4, 0.0, 1.885725E-4, 5.657175E-4, 3.77145E-4
0	central	15	2828.5876	0.5340724	-3.7196167	0.0	9.4286253E-4, 1.885725E-4, 0.0, 1.885725E-4, 3.77145E-4, 7.5429E-4, 1.885725E-4, 0.0, 0.0, 1.885725E-4
0	style	14	2640.015	0.48566848	-3.3825014	0.0	1.885725E-4, 7.5429E-4, 3.77145E-4, 1.885725E-4, 0.0, 0.0, 0.0, 3.77145E-4
0	perpendicular	14	2640.015	0.48566848	-3.3825014	0.0	0.0, 0.0, 0.3, 77145E-4, 5.657175E-4, 1.885725E-4, 1.885725E-4, 1.885725E-4, 1.885725E-4, 7.5429E-4
0	corner	13	2451.4426	0.43726456	-3.0453858	0.0	0.0, 1.885725E-4, 3.77145E-4, 3.77145E-4, 7.5429E-4, 0.0, 0.0, 5.657175E-4, 1.885725E-4
0	architect	13	2451.4426	0.43726456	-3.0453858	0.0	0.0, 0.0, 7.5429E-4, 3.77145E-4, 7.5429E-4, 0.0, 0.0, 3.77145E-4, 1.885725E-4, 0.0
0	forms	12	2262.87	0.3888606	-2.7082703	0.0	7.5429E-4, 5.657175E-4, 3.77145E-4, 0.0, 1.885725E-4, 1.885725E-4, 3.77145E-4, 0.0, 7.5429E-4
0	example	12	2262.87	0.3888606	-2.7082703	0.0	1.885725E-4, 0.0, 0.0, 0.0, 0.0, 0.0, 3.77145E-4, 0.001131435, 1.885725E-4, 3.77145E-4
0	construction	12	2262.87	0.3888606	-2.7082703	0.0	0.0, 0.0, 5.657175E-4, 5.657175E-4, 1.885725E-4, 0.0, 0.0, 1.885725E-4, 1.885725E-4, 5.657175E-4

The Loom visualization provides a graphical view of the different words, their relative frequency, and position in the text, in different colors. This visualization provides a clearer picture of the distribution and importance of words in the text. These words and phrases may include the names of architectural styles, as well as specific architectural elements associated with Art Nouveau architecture (e.g. curves, floral patterns, etc.). We may find that certain words and phrases appear more frequently in specific paragraphs, which may relate to the history, features or location of the Art Nouveau building, for example. In addition, by comparing the use of words in different passages or sentences, we can further analyze the usage and context of words related to the Art Nouveau building in the text.
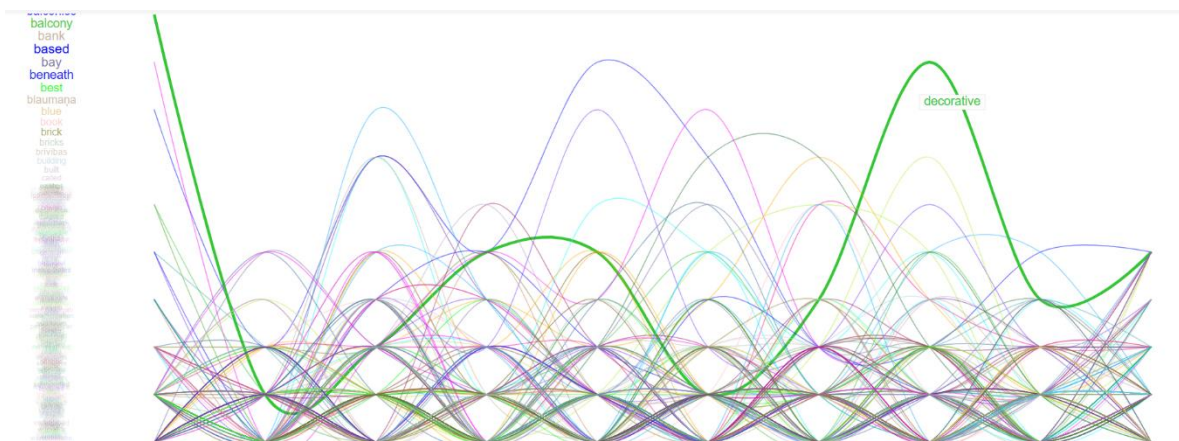

The results of the word cloud analysis provide us with key terms and information about Art Nouveau architecture that can help us understand it better. Overall, the analysis of the language used to describe Art Nouveau buildings using the Voyant tool reveals that the main concerns for these buildings are design, artistry, style, and decoration. The results of this analysis provide insight and appreciation of these Art Nouveau buildings.

Also in the course of the study, we analyzed the location of Art Nouveau buildings in Riga — we separately identified a group of buildings belonging to the style of National Romanticism.
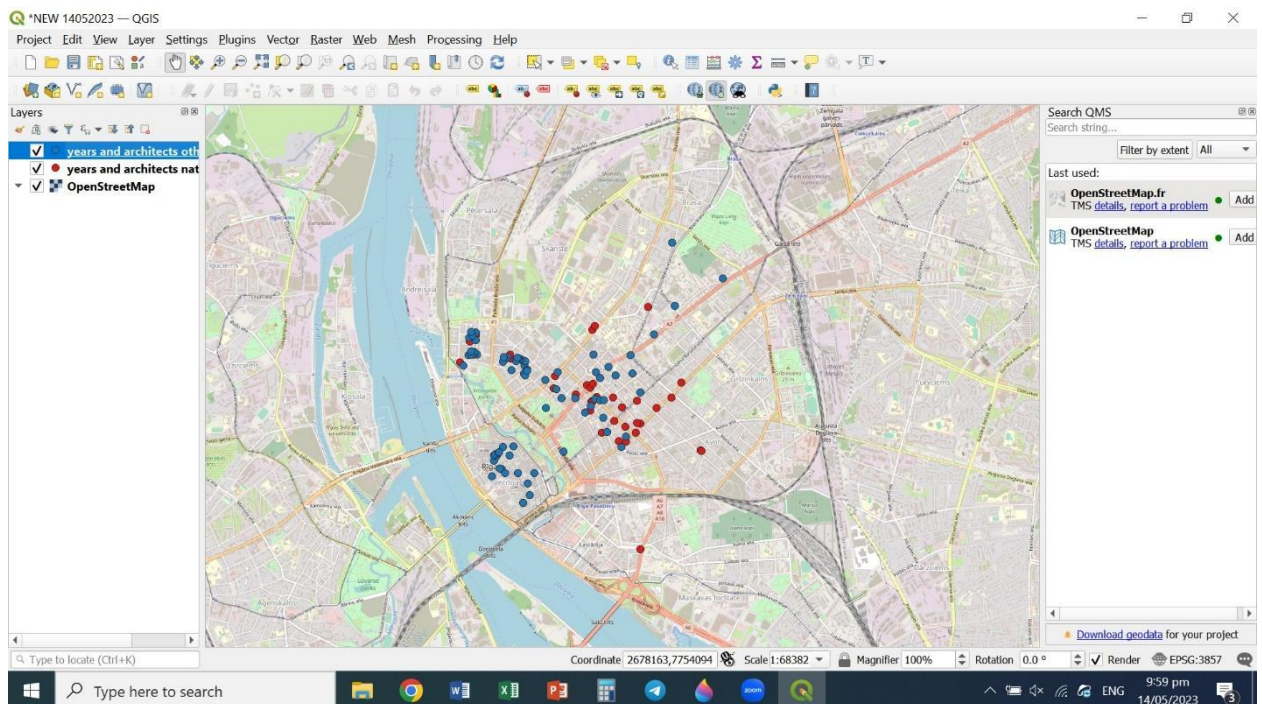
To visualize geographical data, we will use the QGIS program, a free cross-platform geoinformation system. The user-friendly graphical interface of the program allows you to create maps and explore spatial data.

Consider the following maps:
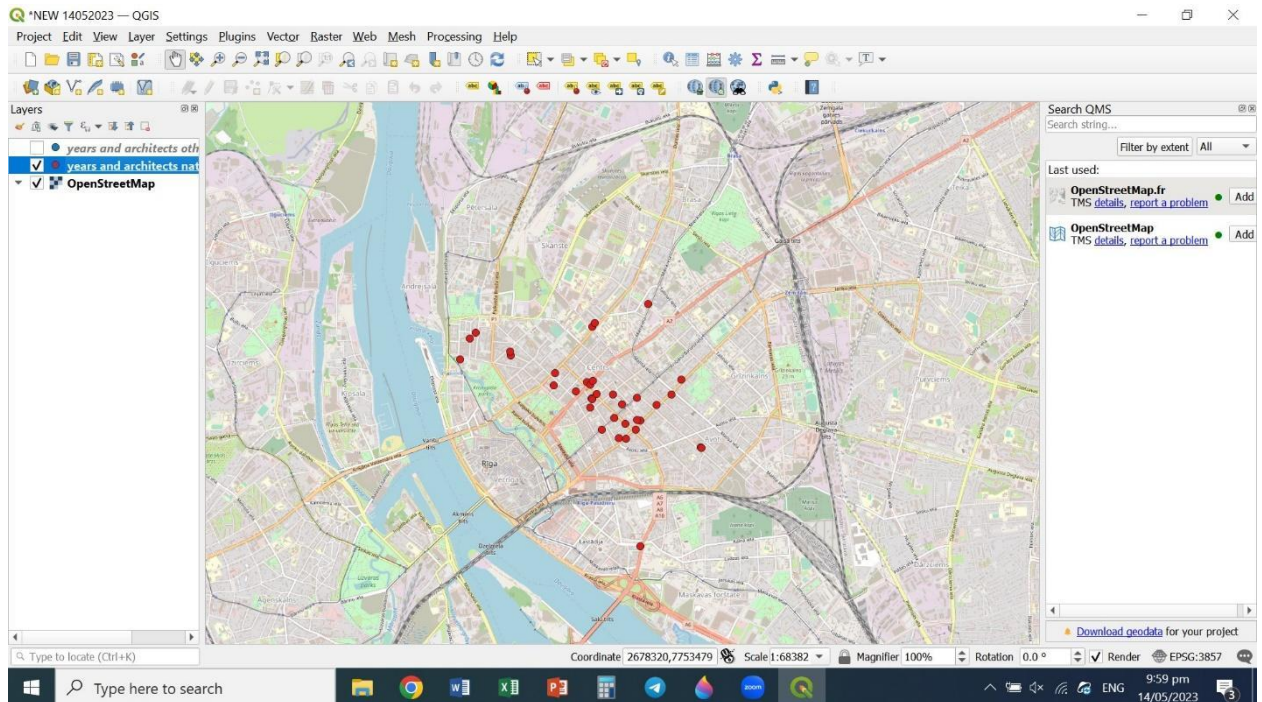
Red points — National Romanticism buildings.

Blue points — Art Nouveau buildings, except National Romanticism.

Thanks to visualization, we see that the geography of the distribution of buildings in the style of National Romanticism is significantly narrower than the geography of buildings in the Art Nouveau style. The main most notable buildings in the style of Latvian National Romanticism are located in the central part of Riga on the streets: Aleksandra Čaka iela, Brīvības iela, Krišjāņa Barona iela.

In addition, the QGIS tool allows us to map some metadata — labels with metadata are visible when the scale is from 1000 to 8000. Labels show architects names or dates of construction.
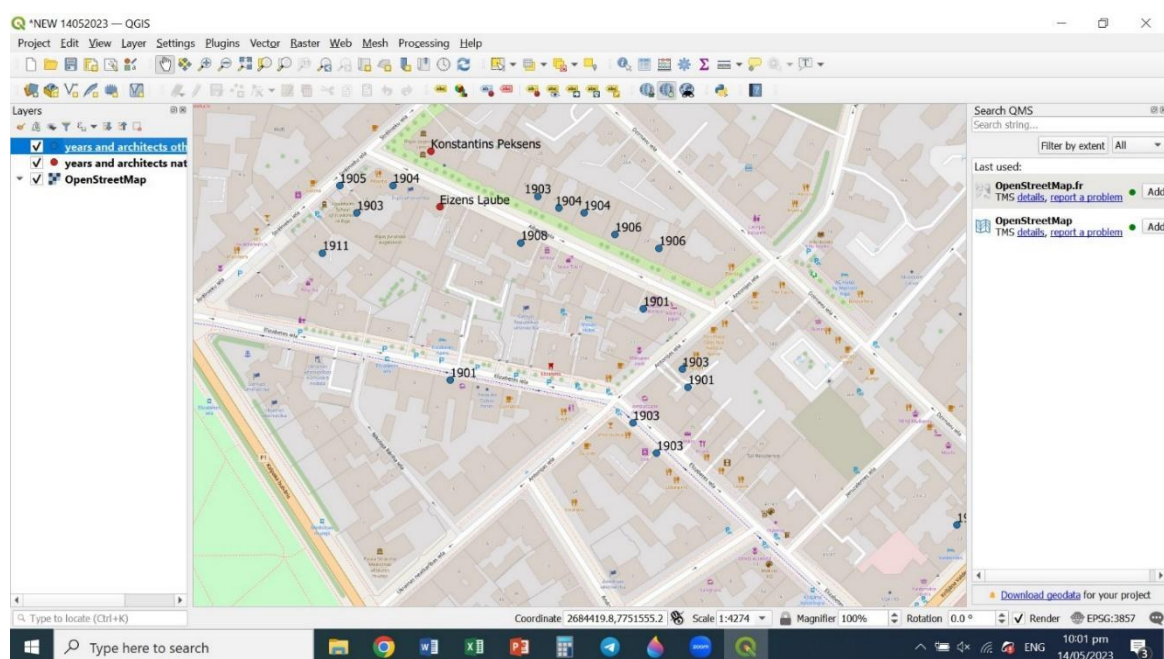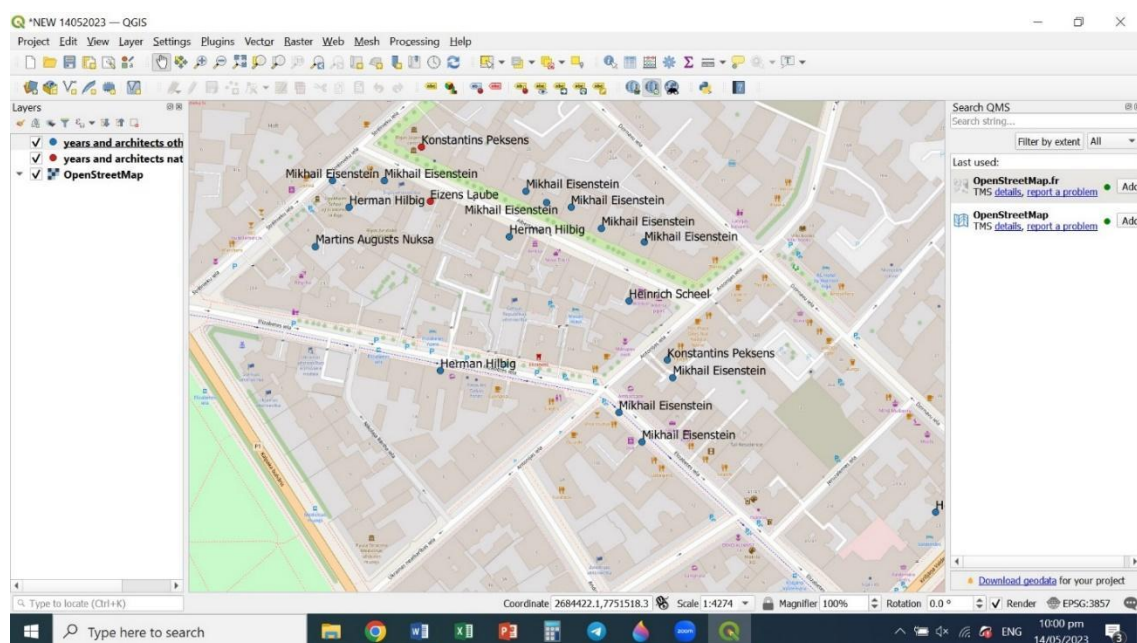
IV. Latvian National Romanticism as a reflection on national identity

National Romanticism is a traditionalist trend in the art of the late XIX — early XX century, whose representatives consistently focused on the historical tradition and opposed the international version of Art Nouveau.

National Romanticism is most often associated with the northern National Romanticism of the turn of the century, which arose in Northern Germany as a national unifying style. The architectural style established national traditions in art and became widespread in Sweden, Norway, Finland, Lithuania, Estonia and Latvia.

Latvian National Romanticism is an architectural and stylistic trend of Art Nouveau, which became widespread in the pre-war period and replaced the early decorative trends. This is an attempt to create an independent, national-distinctive architecture, closely connected with the general rise of Latvian culture and the flourishing of the economy.

Prerequisites of National Romanticism in architecture: the rise of the Latvian language and literature

The period of Latvia's history from 1850 to 1880 is commonly called the First Latvian National Awakening. It is connected with the activities of intellectuals, called New Latvians, or Young Latvians (Latvian: jaunlatvieši): they had no political program until the 1860s, so they can be seen as part of a primarily cultural and literary movement.

The date of the beginning of the Young Latvians movement is 1856, when Juris Alunāns' book "Dziesmiņas latviešu valodai pārtulkotas" ("Little Songs Translated for the Latvian Language") was published in the newspaper Das Inland. The book became the first major translation of classical foreign poetry into Latvian and showed that deep and noble feelings can also be expressed in Latvian, which the Baltic-German barons considered exclusively a peasant language. It is on the occasion of the publication of this book that Gustav Wilhelm Sigmund Brasche, the pastor of Nīca, first uses the term "Young Latvia" (German: "ein junges Lettland") — and in a derogatory way. The pastor asked a sarcastic question "who could appreciate such literature in the Latvian language" and said that those who dare to dream of "Young Latvia" will suffer the tragic fate of the boatman from Heine's poem "Die Lorelei".

In the same year, the first major Latvian-language newspaper, Mājas Viesis, was founded.

Another significant event of this period was the public declaration of his nationality by the leader of Young Latvians, Krišjānis Valdemārs, who was a student at the University of Tartu in those years. He attached a card to his door with the inscription "C. Woldemar stud. cam. Latvietis". Valdemārs' act is often compared to Martin Luther hanging 95 theses on the doors of the castle church in Wittenberg. In those years, it was impossible in Latvia for an educated person to call himself Latvian: education meant Germanization.

One of the main activities of the Young Latvians was the study of folklore and the development of newspapers and literature in the Latvian language. Thus, one of the participants of the movement, Krišjānis Barons, began to collect dainas, a traditional form of music and poetry in Latvia, thanks to which folk traditions were transmitted before the written Latvian language appeared.

In 1862, Krišjānis Valdemārs, Krišjānis Barons and Juris Alunans began publishing a Latvian-language newspaper, Pēterburgas Avīzes, which was closed down by the authorities three years later. From 1867 to 1873, another member of the Young Latvians movement, Atis Kronvalds, renewed the "Latvian evening" newspaper begun by Valdemārs at Tartu.

In 1888, the Young Latvian Andrejs Pumpurs creates and publishes, after 15 years of work, the national heroic epic Lāčplēsis (translated as "tearing the bear"), written by him on the basis of folk legends. The image of the main hero of the epic, Lāčplēsis, personifies the greatness and heroism of the people, symbolizes the courage of a man who is fighting the invaders.

The political aspect in the national Latvian literature first appears in the works of the poet, playwright and translator Rainis (real name Janis Plieksans). His classic plays "Fire and Night" (Latvian: Uguns un nakts, 1905) and "Indulis and Ārija" (Latvian: Indulis un Ārija, 1911) made a huge contribution to the formation of the literary Latvian language. Rainis was the first to publicly voice the idea that Latvia could not be part of the Russian Empire, but a sovereign state.

Prerequisites of National Romanticism in architecture: economic factors

The heyday of stone architecture in Riga in the period from 1905 to 1911 is largely due to the rapid growth of the city as the biggest industrial center of the Russian Empire during the Second Industrial Revolution. In the period 1860-1910, the population growth in the Baltic provinces amounted to 192.6% (while the rural population — only 10.6%). By 1914, the population of Riga reached 558 thousand people, and in terms of size and industrial potential, it was second only to

St. Petersburg, Moscow and Warsaw. Such urbanization was expected to stimulate demand for construction.

The demand for public buildings in Riga (railway stations, banks, department stores) was satisfied by 1905. Therefore, the most active component of Riga's development at the turn of the XIX and XX centuries, especially in the city center, was an apartment building, architectural historian Jānis Krastiņš notes. It was in the apartment house that the tastes of customers were embodied, among which the Latvian bourgeoisie took a prominent place. In 1901, the share of Riga Latvian homeowners was 44.7% of the total number of property owners in the city.

The correlation between the heyday of the Latvian bourgeoisie and the development of architecture in the style of National Romanticism can be clearly seen in the graph built on the basis of our database. If the Art Nouveau buildings cover the period from 1899 to 1913, then the buildings in the national style were built in a narrower period from 1905 to 1911 (the heyday falls on 1909).
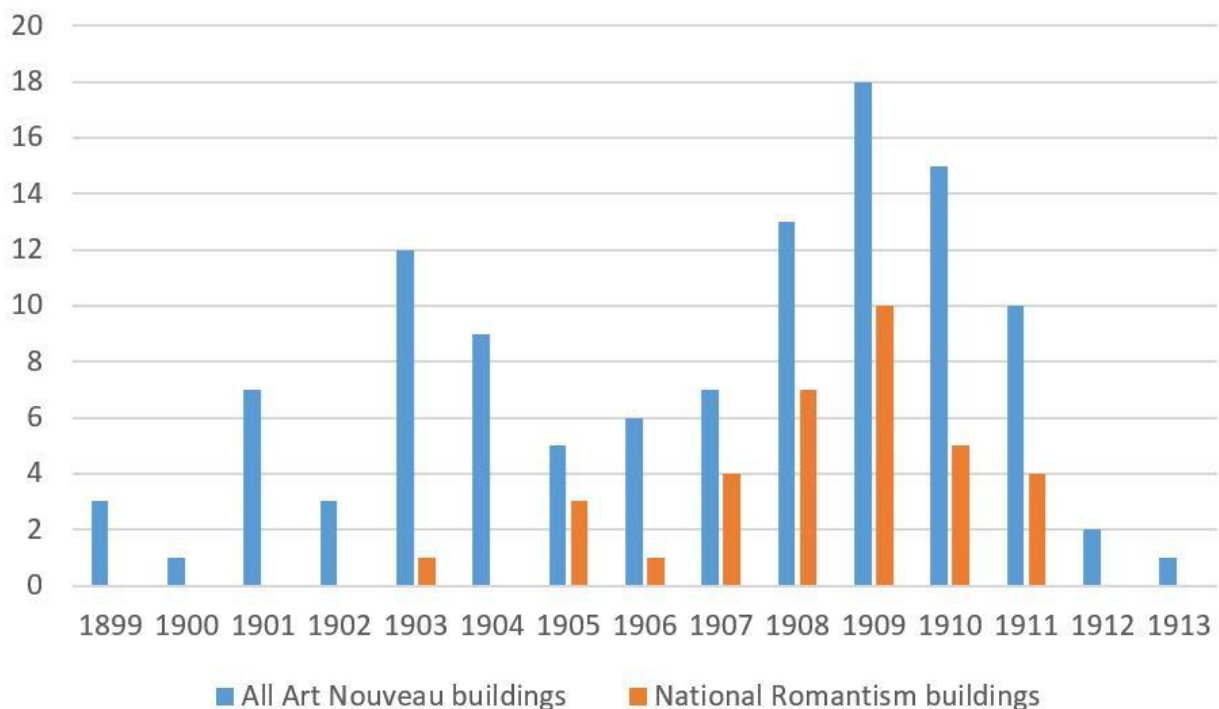
In other words, multi-storey stone apartment buildings have become a kind of indicator of the financial prosperity of the nascent Latvian bourgeoisie. On the one hand, this style developed on a national ethnographic basis, on the other hand, it was a reflection of the stable economic situation of Latvian homeowners and entrepreneurs and served their commercial interests.

The architect's place of birth, education and professional associations as factors that influenced the formation of the National Romanticism in architecture

In this section we will consider what other factors, besides linguistic (the formation of the Latvian language and literature) and economic, could have influenced the formation of the national style in Latvian architecture.

First, let's turn to the geographical data contained in our database.

As the birthplace of architects who worked in Art Nouveau, we see: German Confederation, Kingdom Of Poland, Kingdom of Prussia, Russian Empire (the names of the states are indicated according to their names at the turn of the XIX and XX centuries). However, if we look at the modern political map of the world after the collapse of empires in the 20th century, we will find that in our time we would say that these architects were born on the territory of the following states: Germany, Latvia, Lithuania, Poland, Russia and Ukraine.

Our hypothesis is that only (or mostly) architects born in the territory of modern Latvia worked in the style of National Romanticism. Their maturation and formation as individuals took place just during the years of the first Latvian national revival.

Let's build the following graph based on the data we collected:


Place of birth
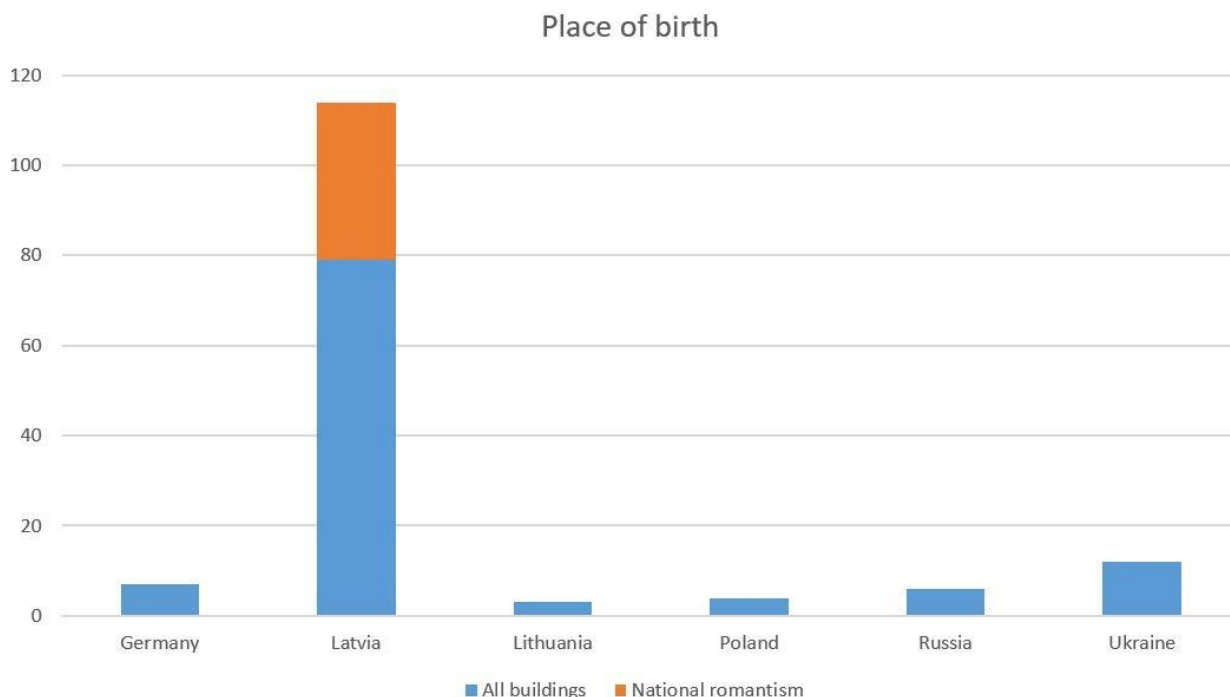
Thanks to visualization, we see that only architects born in the territory of modern Latvia worked in the style of National Romanticism, which confirms our hypothesis.

The second factor that we will consider on the example of our database is education.

According to our database, architects who worked in the Art Nouveau style were educated at the following universities: Konigsberg construction school, Riga Polytechnical Institute (today Riga Technical University), Saint Petersburg Imperial Academy of Arts, Saint-Petersburg University of Civil Engineering.

Our hypothesis is that only (or mostly) architects educated at Riga Polytechnic Institute worked in the style of National Romanticism.

Let's build the following graph based on the data we collected:
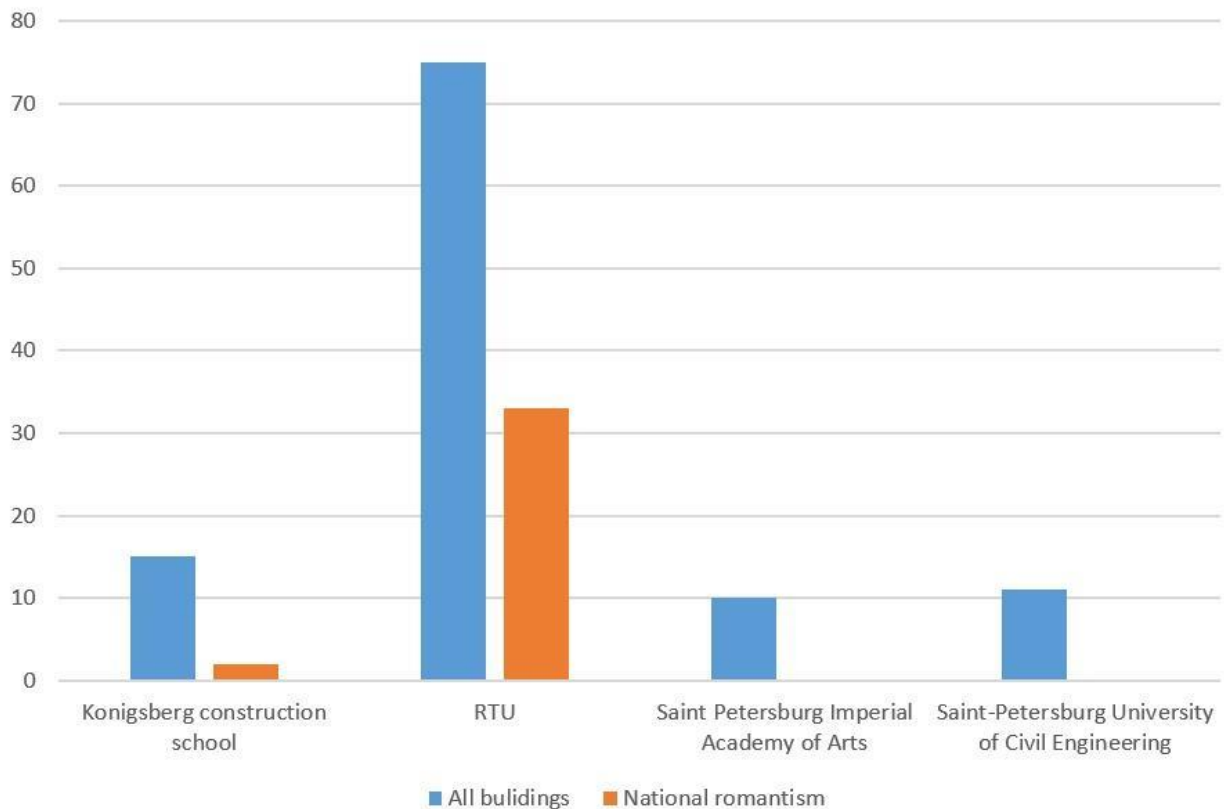
Thanks to visualization, we see that architects who were educated at Riga Polytechnical Institute worked mainly in the style of national romanticism, which confirms our hypothesis.

It is worth noting that back in the middle of the XIX century, professional architects came to Riga mainly from abroad or St. Petersburg. However, since the end of the XIX century, exclusively local architects have been practicing here. Riga Polytechnic Institute was founded in 1862 and became one of the first technical institutes of the Russian Empire, and the Faculty of

Architecture, opened in 1869, turned Riga into a center of architectural education — its graduates set the tone in architectural fashion not only in Latvia, but throughout the Russian Empire.

The third factor that we will consider on the example of our database is professional associations.

The first works in the style of national romanticism were created in the workshop of Konstantin Pekshens — he became the second architect of Latvian origin (after Janis Baumanis) who received a higher professional education. Since 1886, he began an independent practice, organizing his own architectural bureau. Such recognized masters as Eižens Laube, Aleksandrs Vanags, Augusts Malvess, Artūrs Mēdlingers, Ernests Pole worked in it. Due to the fact that construction projects are mostly signed by Pekshens himself, architecture researchers often find it difficult to say which buildings were created by the master himself, and which by his young colleagues.

Based on our database, we want to trace the correlation between the professional association formed around the bureau of Konstantin Pekshens and the commitment of architects to the style of National Romanticism.

All National Romantism buildings

- Built by student or employee of Konstantīns Pēkšēns office
- Built by any other architects
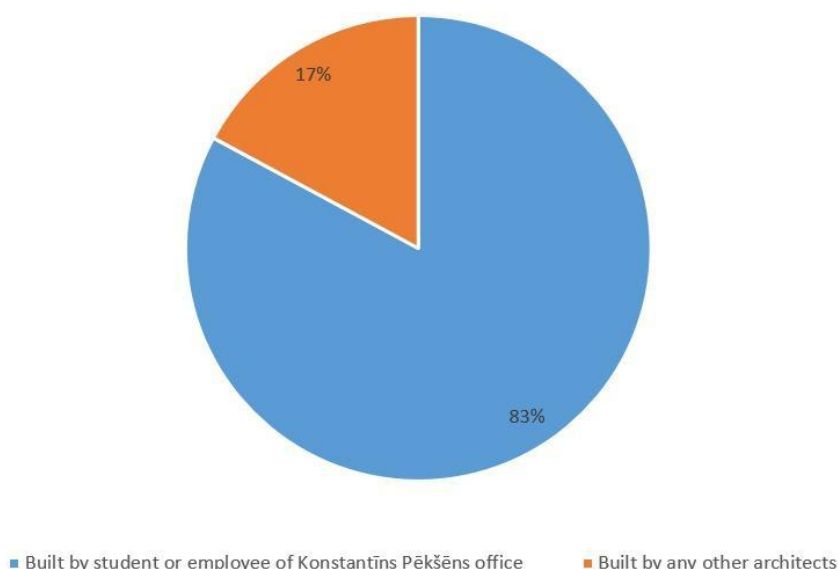
Thanks to visualization, we see that 83% of the buildings from our database built in the style of national Romanticism were built by architects who worked in the office of Konstantin

Pekshens. This confirms our hypothesis about the important role of professional associations in the formation of national identity.

Features of Latvian national Romanticism in architecture

The buildings, built in the style of Latvian national Romanticism, are distinguished by an expressively heavy architectural image and a colorful ethnographic shade. It is achieved through the use of a large number of organically combined materials, often natural: bricks, ceramics, stone and wood.

Another distinctive feature of the style was the active use of open metal consoles in building structures. They were ledges in the walls and were intended to perceive the load from the facade elements (for example, beams or cornices). Lintels and crossbars, stone protruding parts of the main facades were also widely used, which were often elegantly framed with ethnographic ornaments with folk motifs.
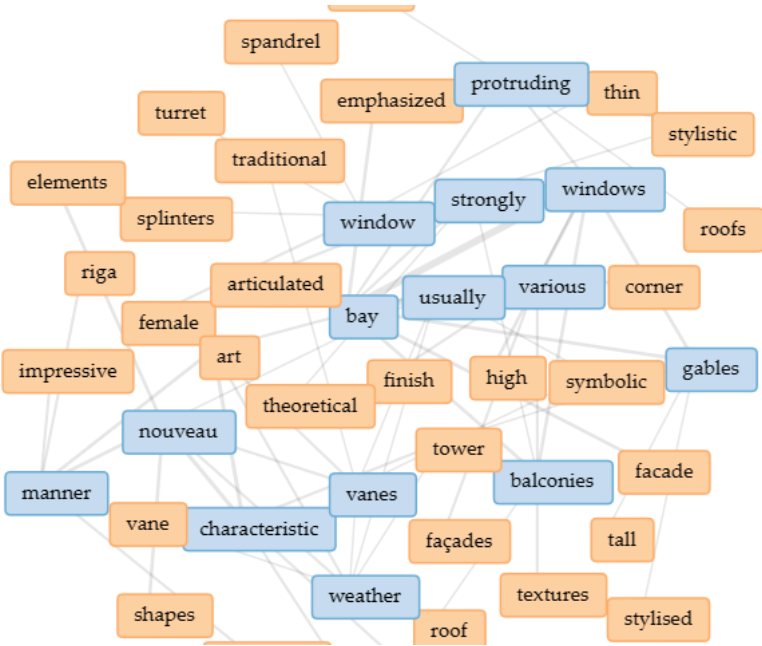
In addition, the style direction differs in features characteristic of the building canons of rustic wooden architecture. For example, the emphasized steepness of the roofs of structures, the beveled upper parts of window openings, the frequent use of stylized ornaments and clear ethnographic relief images. Now we see not abstract zoo- or anthropomorphic images, as in the early decorative Art Nouveau, oversaturated with symbols and emblems, but deliberately simple images. It can be a girl in national clothes, a Latvian peasant with tools for plowing, a bee, a bort, lush ears of rye or wheat, a fern, dancing around the campfire on the pagan holiday of Ligo, and so on.

One of the most common ornaments, which actually determines whether the building belongs to the style of national Romanticism, is an artfully imitated timber framing. Pine and spruce branches, oak and lime wreaths are quite common among plant ornaments; squirrels, mites and bees are among the samples of zoological ornament.

From a functional point of view, the arrival of national romanticism meant the rejection of the methods of architecture of the XIX century, focused on building apartments along the facade with enfilades of light rooms and dark utility rooms. The new style is refocused on comfortable living and convenience.

During the research, we used word cloud analysis (the Voyant tool) of the language that describes national romanticism buildings in order to explore how they are perceived.

Firstly, using the word cloud map, we can see that in the case of Riga's National Romantic architecture, the most prominent words are "ethnographic", "natural", "symbolic" and "expressive". These words suggest a focus on the visual and aesthetic aspects of architecture, in line with the National Romantic movement's emphasis on celebrating national identity and culture through art.

Secondly, the Voyant tools also offer other features such as "Links visualization" and "TextualArc visualization". The text can be analysed using Voyant Tools' "Links" visualization tool, which is a network diagram visualization tool that shows the relationships between words in a text. It can help us gain a better understanding of the cultural context and characteristics of National Romanticism buildings. For example, we can utilize the "Links" function to explore the connections among different words and their positions within the text. By analyzing these links, we can gain insights into the characteristics and design philosophy of National Romanticism buildings, including concepts like "national identity," "folklore," "mythology," and "natural materials." These phrases and terms reflect the cultural context and design philosophy of National Romanticism buildings. The use of natural materials, for instance, is a significant feature of National Romanticism architecture, indicating the architects' intention to embody the natural character of the land through the building's appearance.

The TextualArc tool in Voyant Tools presents a circular diagram that illustrates the order and relationship between words in a text, with each segment represented by a distinct color. It treats the text as a circle, assigning each word a specific position on the circle. This tool reveals the words in the text and their relationships, assisting users in comprehending the structure and theme of the text. In the case of Riga's National Romantic architecture, the diagram is predominantly colored in blue, indicating a focus on descriptive language. The most prominent words in the blue section include "ethnographic," "windows," "natural," and "symbolic," which correspond to the words highlighted in the Cirrus visualization.

A motif of the sun adorning the
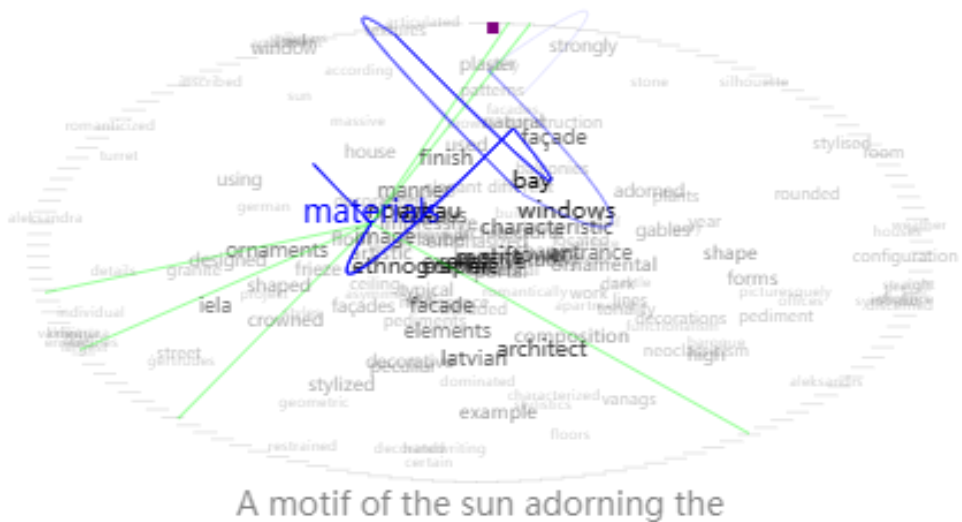
Using the Voyant tool for textual analysis, we can gain a deeper understanding of the language used to describe National Romantic architecture. The word cloud and textual analysis reveals that the main features of the building are style, design, decoration and historical value. The tool highlights the connections between buildings and other words and their importance in the text. The TextualArc visualisation provides a unique perspective on the language used to describe these buildings, showing the connections and relationships between the different terms.

Overall, the Voyant tool proves to be an effective method, providing a valuable resource for researchers and enthusiasts of this architectural style. The analysis of language regarding Riga's National Romanticism architecture highlights the importance of ethnographic representation, the architectural significance of windows, the integration with nature, and the presence of symbolic elements. These characteristics collectively contribute to the distinctiveness and artistic richness of Riga's National Romanticism architectural landscape. By analyzing and understanding the language used to describe these buildings, we can gain a better understanding of their cultural and historical significance.

V.   Conclusion

During the project, our team explored Art Nouveau as the dominant architectural style in Riga with the special focus on National Romanticism style which became part of the national revival in Latvia. By collating and analysing data, we have gained insight into the cultural and social context of this architectural style, revealing hidden patterns and trends in the data. We used DH tools, including language processing and geographical mapping, to study Riga's Art Nouveau and National Romanticism architecture and concluded that these tools offer many benefits for humanities research.

Our research has shown that DH tools fill gaps in existing databases because we can create and organize the data ourselves from scratch. Additionally, DH tools provide important analytical tools and perspectives that allow us to better understand the cultural context and heritage of historic buildings.

With the help of the DH software our team identified the main elements which distinguishes Latvian National Romanticism from more general Art Nouveau architectural style and highlighted some correlations between the architecture's place of birth, education,

professional associations as well as some major processis in Latvial cultural, economic and politic life at the begining of the 20-th century. Thanks to the DH tools, we were able to confirm our hypotheses that there is a correlation between ethnic identity and the architectural style chosen by the masters of that time. Thus, our hypothesis that the reflection of their identity in combination with the external factors became the genesis of Latvian National Romanticism in architecture was correct (at least for our dataset).

Overall, our research highlights the importance of using DH tools in humanities research and how they can provide new insights and perspectives for understanding our cultural heritage.

VI.   Bibliography

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