Architectural transformations on the Market Square in Krakow

A systematic visual catalogue

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Introduction

Knowledge of past events – *history* – is most often conveyed though language, and, because of the evanescence of speech, recorded through writings. Passing on knowledge as it is, *i.e.* altogether with nuances concerning the credibility of the information it is based on, is a difficult task. What we view as a *state of knowledge* includes both what we know, with different shades of certainty, what we guess through the cross-examination of clues, and what we do not know. Thus, communicating such a complex structure cannot be a simple task: it implies for instance qualifying the trustworthiness of sources and of interpretations.

What is more, a text, *i.e.* the record of a speech, has a linear structure, developing in time, marked with bigger or smaller semantic polymorphism (multi-interpretability). It can therefore be interpreted differently, with various deviations, with diversified precision.

By contrast, visual presentations allow a simultaneous presentation of large data and information sets, and the cross-examination of numerous parameters. They help gaining a global understanding of a problem and its context in one go – overview - as well as they support local analyses of a user-chosen subset of parameters – zoom [1]. While analysing successive events, a visual chronology helping to structure the data increases our proficiency with interpretation. Visual presentations can therefore act as a fruitful complement of written language.

But when looking at the mainstream literature about history, graphics most often *illustrate* facts, people, places (*etc.*) mentioned in the text. **Visualisations***, in the proper sense of the word [2] are more rarely used – although some classic solutions such as maps and timelines are often in charge of complementing texts with simplified overviews of spatial and temporal aspects.

This book sums up pieces of information about the evolution of the architectural objects that used to be located on Krakow's Main Market Square [3]. It combines texts and visualisations – and accordingly aims simultaneously at verbal and non-verbal ways of thinking.

Note 1. Good examples are maps, which, while providing an overview of a whole territory (e.g. the Żywiec Beskids) – at the same time allow a local analysis (e.g. choice of length and degree of difficulty of an itinerary).
If, not knowing the area, we wish to hike there, it is easier for us to estimate our position and the difficulties ahead, with the use of a map than through a text - even an extremely precise one - concerning the Żywiec Beskids.

* Visualisation:
R. Spence defines visualisation as a *cognitive activity*, and its potential value as *gaining insight and understanding*. The purpose of a visualisation is to assist the human expert in the analysis of data, and in particular complex and abstract data sets.
The specific aim of a visualization is to reveal so far unknown relations within the data set (*reveal unknown – analysis purposes*), whereas a more general representation basically shows what we already know. (*show known – communication purposes*).
cf. R. Spence, *Information visualization*, Addison Wesley ACM Press, 2001
JK. Rod, *The third choice,* [on-line] *http://193.55.107.3/semiogra/rod/rod.htm*

Note 2. In a number of applications of computer graphics to the fields of archaeology and history of architecture, the term *visualisation* is often used while referring to 3D virtual models showing reconstruction hypotheses. Surprisingly enough, freehand drawings are not necessarily described as such (visualisations) althought they imply the same intellectual effort. In terms of purpose, method and final result, both are in this publication considered as representations (*graphic representations*).

Note 3. Obviously the information presented in this book should be considered *by essence* as incomplete. A state of knowledge constantly changes, and, as Stanisław Lem pointed out a long time ago: *…the information technologies have created a situation of paradise in which apparently anyone who would like to, can get to know everything, but it is a complete fiction …* (transl. by the authors)
cf. S. Lem, *Głos Pana*, (*His Master's Voice*) Wydawnictwo Literackie, Kraków 1968

Content of this publication

Only three architectural objects stand today on Krakow's Main Market Square: St Adalbert church, the Cloth Hall and the Town Hall's tower. Yet remains of a number of objects formerly standing on the Market Square are still accessible underneath its actual surface: part of the cellars of the granary and of the Town Hall, fragments of the Grand Scales, of the Rich Stalls and of Boleslaus' Stalls - to a lesser or greater extent transformed to fulfil new functions.

There used to be many more architectural objects in various areas of the Market Square (at least forty-one mentioned in this book), most of them built mainly of wood. Accordingly, if they were not built over brick/stone cellars, not much has remained of them. We have little information about wooden objects, usually not enough to try and recreate, basing on facts, their form. Nevertheless, it does not mean that we know nothing. This book is an attempt to trace, structure and present visually what is known about the architectural transformations of the objects that stand or once stood on Krakow's Main Market Square [4]. One of the aspects that we wish to emphasise are *differences* inside the collection of objects – differences in the amount, precision and credibility of the data, differences in how we interpret this data. Another one is *kinship* - similarities in function, size, construction type, temporal or spatial patterns, that shed light on the way objects may share properties, or impact one another.

This book is divided into four main sections. Each of these sections can be read (almost) independently.

Section one presents a method of analysis developed over the years in order to model and visualise the evolution of architectural objects. The method combines a systematic description of transformations, qualification and classification of references, and visualisation tools that support reasoning tasks inside an object's lifeline, and across the whole collection of objects.

In this section some fundamental epistemological issues will be discussed (diachronic bias, intersubjectivity, historical criticism, *etc.*). Details will be given on the choices we made in order to describe architectural transformations and to cope with classic uncertainty problems (trustworthiness, precision, credibility, *etc.*) . Section one is concluded by a chapter presenting the set of time-oriented data visualisations designed for section two - catalogue, and by an overview of that catalogue's general layout.

Section two sums up what we know of each object's evolution (localisation, lifeline and transformations, sources, illustrations, visualisations, *etc.*). The presentation we have adopted is this of a *catalogue*, with for each object the following content:

- Each object is identified by means of a *leading name*. When possible, we have tried to list the main alternative names, used at one time in history to identify the object.

- The object's relative localisation inside the Market Square is presented on a schematic map (*cf.* Chapter 4.1). For some objects, the localisation is approximate : it is represented as a "probability cloud" [5].

- The information (facts and hypotheses) concerning the object's evolution over time is described in a twofold way. Short paragraphs

Note 5. It should be pointed out that we do not mean here a numerical (statistical) probability – which can be expressed in numbers – we barely use a glyph (various densities of dots) to indicate where the object is supposed to have stood.

mention the historical context (function and role of the object, details about guilds, crafts, *etc.*). *Chronological charts* then list historical sources backing up each transformation in a condensed way. (*cf.* Chapter 5.2 - Content and layout of the chronological chart),

- Three different visualisations are used to summarise and distribute in time various doubts concerning the dating of events, the occurrence of a given event, or possible consequences of a given event (multi-hypothesis chronology diagram, graph of potential interactions, visual measure of complexity, *cf.* Chapters 3.3, 3.4 and 3.5),

- In the majority of cases we have also inserted illustrations showing how the objects may have looked like at each step of their evolution [6].

Note 6. When showing a hypothetical appearance for an object, representations will be called *reconstruction hypotheses* or *restitutions* in this text ('*restituer*' is French for: to reconstruct using remaining fragments, deduction or historical sources).

Section three – entitled *Different faces of one 'idea'* presents a selection of analogous examples (European medieval public-use and commercial buildings) so as to help the reader weigh to which extent the layout of Krakow's marketplace, as well as its architectures, can be related to other sites.

Among these examples readers should observe a number of unexpected similarities, as well as sharp contrasts in terms of form, usage and layout of buildings. At the end of the day, one may spot, behind layers of political, cultural and climatic differences, one 'idea' (a common practical need) with different faces. Whatever initial role many of these buildings had, they end up today as different faces of yet another idea : identity, or remembrance.

Section four – entitled *Visual analysis of the collection* introduces a selection of visualisations, designed as tools for cross-examination and questioning.

The section is organised as a sort of *vis à vis* dialogue between a common sense question or assertion (eg. "recent transformations are better understood than old ones") and a visual answer. The whole section should be understood as illustrative of a method, rather than as conclusive on this or that theory, hypothesis or scientific position.

The publication is concluded by a thorough list of the references quoted (bibliography, iconography and cartography), by a table of illustrations, and by an index.