THEMATIC VISUALISATION STUDIES: 
THE AA VARIATIONS

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Introduction

If we wish to reach a deeper, more objective understanding of the phenomena of architectural and environmental design, we need to identify the kinds of conditions that are characteristic of architectural form-giving and to develop and apply working methods that allow us to imaginatively analyse, elucidate and visually demonstrate the workings of the compositional issues which are at interplay.

In order to systematically consider and study architectural artefacts, it is essential for academics to reach a level of clarity – and potentially even consensus – concerning the domains of architectural design that may be considered relevant and to question - often implicitly – shared conceptions.

This paper on Thematic Visualization Studies intends to communicate the results and findings of an in-depth case-based exploration on the basis of ten design artefacts, using a specially developed conceptual framework.

The Research Initiative

In the course of this research project, focusing on historic as well as contemporary precedents, 3D digital modelling methods were developed and applied, with the aim of evolving insights concerning spatial, structural and formal composition.

The idea: that modelling initiatives of this sort may offer pedagogical potentials in the context of design education as well as towards imaginative, design-based (and potentially: design-driven) academic contributing research. The AA Variations project involved the designerly interpretation – via an iterative cycle of model construction and de-construction – of a collection of representative dwellings, all located within one municipality and built over a period of roughly a century.

The design-based research methods and instruments developed in the AA Variations project may be of benefit when attempting to interpret built artefacts, which can then be described and analysed on the basis of physical ‘evidence’ or by considering data concerning specific design processes. Thereby insights might be generated concerning what a design has become and why or indeed: might have become.
The underlying thesis is that imaginative, model-based explorations may help us better understand iconic architectural artefacts, such as cultural heritage projects. These may or may not have been actually built, they may have been altered to such an extent that the original qualities have been lost, or indeed may have disappeared altogether.

An example of an earlier thematic analysis study focusing upon heritage issues was the so-called Umgebinde Variations study: a comparative visual analysis on the basis of an historical, vernacular building type, which is specific to the borderland regions of eastern Germany, Poland and the Czech republic.

The Research Method

Case-based research needs to be structured methodically, introducing an underlying order, for example by identifying certain binding themes and conceptual definitions, which should facilitate the systematic description, comparison and evaluation of results and findings. In such a ‘designerly’ process, concerned with envisioning various aspects of design in combination, modelling may play a meaningful role.

Creating models, digital as well as physical, conceptual as well as tangible, is a way of focusing one’s mental capacities by doing, by becoming actively engaged and creating and communicating visual information that may ‘speak to the imagination’. By working out different attributes of the overall composition in separate layers, thematic representations can be generated which demonstrate the workings of a design on different, identifiable levels. For this study, an interactive 3D modelling approach was developed.

In order to carry out such model-based explorations, with the aim of unravelling the expressive qualities of the architectural object as an integral ‘whole’, it is necessary to identify recurring themes on the level of design composition and perception. In this context, traditional typologies tend to have serious drawbacks, as they essentially stress those qualities that are the same, rather than offering insights into the kinds of patterns and variations that contribute to shaping a building’s unique identity. In order to reach a more objective understanding of architectural form it might then be necessary to develop a kind of typology of variety...

For the benefit of this study, a thematic framework of architectural Domains was developed, intended to distinguish relevant formal issues within the overall composition as variables rather than as ‘fixed’ items. This involved a process of thematic, formal Categorization through Analogy, rather than Classification, which tends to lead to the perception of ‘things fixed into rigid mental boxes’ as Hofstaedter and Sander stress.

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Perceptions and Conceptions

It may be clear that the kinds of spatial and material compositions that are characteristic of architecture are hardly ever simple. For designers it is seldom a matter of making ‘hard’ choices, but rather of determining the right combination (mix, dosage, balance, tension) of attributes, which exist by the grace of ‘linked’ themes within the project as an orchestrated whole. Similarly, there are aesthetic considerations at play, whereby it is frequently a matter of determining the relationship between less ‘concrete’ compositional aspects. In the context of design, such ‘opposites that attract’ may be considered as coupled conceptions. In the words of architect and humanist thinker Aldo van Eyck: Twin Phenomena³. Considered in such a way, designing involves finding the appropriate balance between phenomena such as Openness and Closure, Lightness and Darkness, Mass and Space, Inside and Outside, etc. etc..

Inspired by van Eyck’s phenomenological approach and the visual model of designing as an iterative, cyclic process, presented in John Zeisel’s influential book ‘Inquiry by Design’⁴, an attempt was made to construct a thematic cycle of design concepts, with the intention of creating a framework for the systematic evaluation and comparison of design artefacts. In the extensive development search, various configurations were considered, evaluated, discarded or subsequently developed further and fine-tuned. Gradually, a concise scheme was drawn up, which forms the basis for a thematic framework of design ‘Perceptions’.

The elementary thematic model proposal, as it stands, tries to combine a number of characteristic aspects, considered as ‘segments’ of design cycles, following the iterative principle of design as a process. The model identifies four essential categories, which are more or less indicative of the ‘rough to fine’ sequences of designing processes.

The four core ‘Perceptions’:
A. Formation;
B. Organisation;
C. Articulation;
D. Expression.

Each of these four main categories is ‘connected’ with three sub-categories, with a domain title plus indicative ‘twinned’ design conceptions, which as it were interact within the integral composition as a whole.

The twelve sub-categories have subsequently been used as structuring devices for the study of ten selected projects in the AA Variations initiative. Each of these projects has been studied and modelled systematically and evocatively, using the layered 3D modelling techniques, which were developed in the course of the study.

PART 3. Communication of Heritage

The conceptual structure brings together thematic Perceptions and Conceptions that have been under development for some time, whereby intermediate arrangements of compositional Domains have been tested in the context of the evolving AA Variations project and more recently, in an academic experiment in an educational environment.

The opportunity came about through the participation as a kind of ‘researcher in residence’ in a third year Bachelor phase Academic Study initiative (Module AC3), in which students were asked to monitor and document the development of their final BSc design project in a Thematic Image Dossier, making use of the same conceptual framework.

The AA Case Study Collection

Over a number of years, data was gathered concerning projects, which might serve as the subject matter for a comparative study initiative. Eventually, a collection of paradigmatic artefacts was formed, spanning roughly a century and all located within the confines of the Dutch municipality of Aalsmeer.

Fig. 1. The ten projects of the AA Variations case study project: top row: AA1-3; middle row: AA4-7; bottom row: AA8-10
Source: Jack Breen, The AA Variations Project.

The ten AA case study projects in a historical context:

1. Traditional Vernacular (1825)
2. Regional Eclecticism (1903)

3. Early Rationalism (1912)
4. Expressionism (1923)
5. Early Modernism (1924)
6. Early Neo-vernacular (1926)
7. Pre-war Modernism (1930)
8. Late Neo-vernacular (1957)

The first three projects may be considered as being emblematic of the period of development before the First World War. The central group of four projects is particularly interesting because they mark a number of aesthetic paradigm shifts in the dynamic period of the interbellum. The last group of three gives an indication of post-war developments, up to the present day.

The AA Case Study

The AA Variations project was set up - and has steadily evolved - as a testing ground for the identification of compositional themes in architectural composition and the demonstration of their effects in perception. The testing and fine-tuning of the conceptual framework is one of the study’s primary fields of interest. The other, intrinsically linked, issue has been the development of instruments for the imaginative exploration and visualisation of research information.

Central to the development of the working method has been the advancement of - layered - 3D modelling applications, whereby the same project model can be used to show different thematic aspects in combinations, generating schematic interpretations in 3D and 2D. The methods and outcomes have been developed in close collaboration with ir. Bram van Borselen.

Fig. 2. Documentation drawings of case study project AA1 on the basis of observations and photographs of the existing artefact

Source: Jack Breen, The AA Variations Project.
In the coming sections, an indication will be given of study’s approach and the kinds of results it has brought about so far.

**Project AA1: Traditional Vernacular**

The first project in the series may be considered as a precursor for the nine projects that follow. It represents an articulate modulation of a traditional Dutch farmhouse type, which was typical in this area in the nineteenth century, and of which a number still remain within the municipality.

Essentially, this vernacular type consists of an integral, rectilinear volume encapsulating both farmhouse and stables, which was well suited for the long and relatively narrow, island plots. This particular exemplar is somewhat special because it consists of two joined volumes. The vernacular type formed a reference point for later projects, notably AA4 and AA6.

![Fig. 3. Eyelevel perspective rendering of the AA1 historic farmhouse, on the basis of a 3D SketchUp model](source: Jack Breen, The AA Variations Project.)

**Project AA4: Expressionism**

The fourth project to be considered is a market gardeners’ home with integrated flower shed, built in 1923 after a design by Michel de Klerk. The project is a late exemplar of the expressionist Amsterdam School, which was highly influential in the Netherlands from around 1910 to 1930, particularly in and around Amsterdam.

The architecture of the Amsterdam School movement was informed by Art Nouveau and Gothic Revival architecture as well as by the work of H.P. Berlage and Frank Lloyd Wright. Recurring formal themes are sculptural massing, rhythmic

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6 In several publications on de Klerk and the Amsterdam School the project in Aalsmeer is overlooked. It is however documented concisely in the monograph of his life and work: Manfred Bock (ed.), *Michel de Klerk; architect and artist of the Amsterdam School 1884-1923*, Rotterdam: NAi Publishers, 1997.
sequencing, plastic modulation, expressive detailing and the use of exotic, decorative motifs. From early 1923, de Klerk drew up a series of preliminary designs, after which façade elevations were worked out in detail. The house was completed, on the basis of these drawings, after his death.

Considering its relatively modest size, the ensemble is surprisingly complex, demonstrating a variety of compositional components, which can be experienced on different perceptual levels. As such, the project has been of particular interest in the context of the AA Variations initiative and has served as a ‘laboratory’ on conceptual as well as instrumental levels.

The explorative study has been carried out on the basis of historical drawings and documents, as well as photographs made during repeated visits. Making use of this data, layered 3D models have been created, intended to give insights into the workings of different architectonic and architectural themes. To highlight features on a textural level, detailed ‘segment’ models have been worked out, which can be viewed from outside as well as inside.

Fig. 4. Detailed side elevation drawing scale 1 : 20 on the basis of which the AA4 project was actually built in 1923
Source: Jack Breen, The AA Variations Project.

Fig. 5. Combination of two, overlaid, explorative analytical hand-sketches on transparent paper, simultaneously showing the front and side facade of the AA4 project
Source: Jack Breen, The AA Variations Project.
Fig. 6. Combination of sectional 3D models, showing critical details and features of the AA4 project's expressive front and side facades

Source: Jack Breen, The AA Variations Project.

Fig. 7. Four facades of the AA10 project, generated on the basis of a 3D model

Source: Jack Breen, The AA Variations Project.
Project AA10: Rational Neo-modernism

The last project to have been included in the collection of projects is of a relatively recent date. It was designed by Engel architects, Amsterdam and realised in 2012. The building can be considered as an exemplar of the ‘financial crisis’ era of the early twenty-first century. To be able to realise the dwelling within the required, strict financial framework, a choice was made to use a rational prefabricated concrete building system, usually applied in larger scale utilitarian projects, with standardised building products.

The realised project is eye-catchingly stark and rationally neo-modernist in expression, contrasting considerably with the surrounding, more neo-traditional dwellings, characterised by pitched roofs and a diversity of surface materials and colours. The basic house volume consists of a ‘perfect’ cube of 9 x 9 x 9 meters, which is compositionally manipulated on the levels of massing and plasticity, closure and transparency, colour and texture…

On the basis of the conceptual framework, twelve ‘essential’ images have been developed, each accompanied by a brief exploratory text. These thematic variations have been generated within the 3D SketchUp model, whereby particular layers were either activated or deactivated. The resulting 2D images were then worked out further using Illustrator software. On the basis of this experiment, a format has been developed that is also used in the study of the other AA projects.

Fig. 8. Six of twelve thematic models identifying the elementary formal ‘Patterns’ developed for case-study project AA10, AA Variations, 2015

AA Variations Findings and Perspectives

This Paper was intended to offer insights into the explorative case study’s working methods, the application of the conceptual framework of formal domains and the resulting collection of thematic modelling results on the basis of the AA Variations experiment. Furthermore, the aim was to draw conclusions concerning the benefits and potentials of this approach in the context of heritage-based architectural research in an academic environment.

Essentially, the as yet on-going study can be considered as an explorative research project involving iterative study procedures of inquisitive search, methodical scrutiny, thematic analysis and creative visualisation. The material that is included in this Paper should be considered as a sample of the overall content and as an indication of the outcomes.

An important aspect of the approach is the systematic examination of thematic domains within an integral project. An approach that may be of benefit in the designerly exploration of existing architectural artefacts, such as cultural heritage projects, but that may potentially also contribute to furthering understandings in design-driven, education-based study initiatives.