

# 12 TYPOLOGICAL RESEARCH

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Architectural typology pre-supposes design research, but not all design research pre-supposes typology. What appears to be a legend unit in a specific structure, (for example ‘split-level houses’) can be a type in a smaller structure. Typological research searches for object constancy in a variable context.

An architectural type is a summary (concept) of architectural designs with common characteristics, conveyed in a ‘schema’.<sup>a</sup> It may possibly be a forerunner of a model, a design. A type is, therefore, not yet a model which can be imitated actually in reality (Argan, 1991) in order to interpret the effects in a specific context. For example, a design, a realisable proposal with a scale factor, is actually a model whereas a type is not. Conversely, a model is more concrete with regard to specific selected components, more clear-cut than a type, and, therefore, not a type.

An ideal-type<sup>b</sup> for example, may have more characteristics than all the examples. The ideal type complements its examples in specific aspects, whereby they become more conceivable. A model or representation may be made of such an ideal type, which can serve as an ideal model in education for example, but it will always lack characteristics because they can never be simultaneously realised. The other (realised, therefore, incomplete) representations of the ideal type have characteristics (for example details which are neglected in the type) that in a specific context can make it usable and possibly unique.

If one historical original example, (possibly irrevocable) is available from one type, then a model can be made based on this. Such a model has, in order to be able to reproduce it in other aspects, also more (practical) characteristics than the type (for example a material specification and a form). Even if it can be made using this, it does not necessarily have to be useable<sup>c</sup> in a specific context.

A system also pre-supposes analysing components (elements) and well-defined system boundaries in which system and context are clearly independent. The boundaries remain intentionally vague regarding type and sometimes with the model (if parts of the context herein have, or have not, been suggestively incorporated). For example a study can make use of types and models, but they do not necessarily have to form a system with removable elements. An archetype<sup>d</sup>, for example the Trinity is a type that precedes the form and is filled with old connotations and form associations. The labyrinth for example is an archetype based upon the myth of Theseus and Ariadne’s thread, which originates from King Minos of Knossos’ palace in Crete.

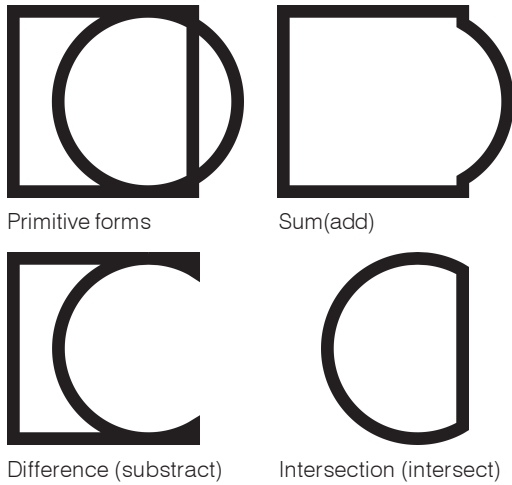
Every example of a type is a variant with other incidental characteristics (for example the location), as in music; the variations are categorised according to theme. A type can be a stereotype if it can secure itself in an unquestioning repetitious application without variants. Typological criticism (Argan, Tafuri) is the removal and addition of characteristics in well-known types. According to Levaivre and Tzonis, Van Eyck used classic types, (see page 89) in this way and exchanged a few characteristics with those from De Stijl.

Some design students consider it an honour to create a design, which complies with no individual type and therefore represents a ‘new type’, to be used by others. Types like these are prototypes. Very often such a type turns out to be a variant of an already existing type. Sometimes a variant is so diverse, that it is regarded as an individual type and remembered this way. The number of types is so immense, that nobody can imagine each and every plausible type. Typological research compares and classifies types and determines their variants in various contexts. When the classification adopts a structure of inter-related types in the form of a genealogical tree, it is known as ‘taxonomy’.

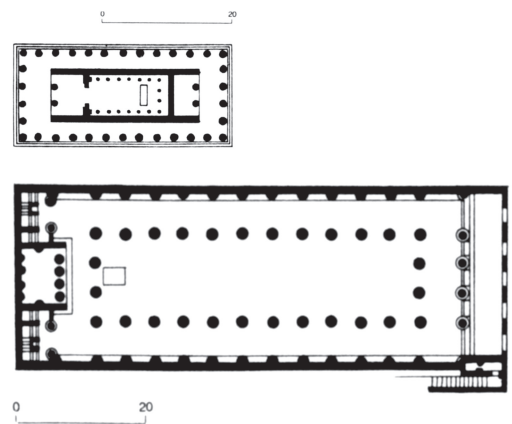
12.1	Form, structure and function types	104
12.2	A functional taxonomy	104
12.3	Form and structure pre-supposed in functions	105
12.4	Scale sensitivity of type characteristics	105
12.5	Image types	106

		OBJECT	
		<i>Determined</i>	<i>Variable</i>
CONTEXT	<i>Determined</i>	Design research	Design study
	<i>Variable</i>	Typological research	Study by design

- a The word ‘*schema*’ is Ancient Greek for posture, gesture, external appearance, as well as condition, viewpoint, place relating to something. This can be summed up with the word ‘pose’. With ‘*schema*’ the English word ‘shape’ is also related to the suffix ‘-scape’ in landscape.
- b The German term *Idealtyp* was introduced by the sociologist Weber. The platonic notion of idea is the foundation for a reality conception in which every true object looks upon this as a reflection of an idea from a supreme reality.
- c When considering the word ‘use’ the term ‘experience’ is also included.
- d The term ‘archetype’ was introduced by the psychiatrist Jung, who claimed to recognise inherited images from dreams, which were inexplicable from the individual’s experience.



63 Primitive forms and their combinations



64 Hephaiston-temple 440 BC Athene agora (above) and Basilica, ca. 80 BC Pompei<sup>c</sup>

## 12.1 FORM, STRUCTURE AND FUNCTION TYPES

If the characteristics of a type are only related to the form (the layout distribution or the contour of this), it is known as a 'form type'. There are organic types (tree, stem, flower, umbel) and geometric types. A pyramid for example is a geometric form type. Round (spherical, dome shaped), square (cubic) or triangular (tetrahedral or pyramidal) construction elements, constructions, urban ensembles, neighbourhoods etc. are therefore form types. Geometric differences like these can be elaborated upon using their sum, difference or intersection. Computer drawing programs provide such primary form processes (add, subtract, intersect). Such combinatoric transformations can yield taxonomy.

If one includes a collection of separations and connections (structure) such as typified openings, dividing and bearing constructions in the characteristics of the type then this is known as a structure type. The peripteros and the basilica are structure types because the columns and dividing wall structures are indispensable in their constellation. The function does not need to be considered at this stage.

If the external working (function) is included in the characteristics of the type, then this is known as a function type. In this way a railway station is a function type. The function concept always pre-supposes, albeit mostly implicitly, an elaborate external structure wherein the function concerned is a specialism. In this way a railway station is inconceivable without railway tracks and usually directly next to it an entrance and an exit (unless this is the 'terminus' type for commuters with an origin (a home for example) and a destination (work for example)).

This material or social structure, pre-supposed with the function type, is, not as yet, a well-defined context. This type of context must be discussed when carrying out design research and design study. An external structure is variable in typological research, however it is decisive for a structural distinction such as 'front', 'back', and 'side' in the constellation of the type. Since a type is less restrictive than a system, external structure characteristics can also form part of a structure type. The entrance in particular is an important characteristic of the structure type. The direct surroundings of the entrance or the other openings leading outside can be involved in the structure type. For example, the archetype, the Villa Rotonda (Palladio) is inconceivable without the lines this type draws in the surrounding landscape, whichever landscape this may be. This elementary context-sensitivity takes you to the brink of the concept of type.

## 12.2 A FUNCTIONAL TAXONOMY

The function concept is most suitable in typological research for the classification in taxa, families and types. The function of the developed or undeveloped surroundings consists of different values like short-term sensation value, medium-term utilisation value, long-term prospective value and extremely long-term sustainability value. The 'form' is sufficient for the sensation value; structure other than the sensory connection with the observer is not necessary.

For other values a notion of structure is a pre-condition in increasing measures. Utility values can be sub-divided into economy, culture and management.<sup>a</sup> Values less directly related to human utilisation or human sensation, like technical, ecological and environmental functions are not taken into consideration here. In the medieval town (see the market square in Delft) this trias is recognisable as a type.

Pierre George's categorisation could be denoted as trias urbanica. Further sub-division as a result of social differentiation and function divisions is known as a *trias politica*<sup>b</sup>, a *trias cultura* and a *trias economica*, using the systematics of Jakubowski and Parsons.

Of course, function entails more than the above stated taxonomy based upon social differentiation at an urban level. Besides this top-down approach, the bottom-up approach is also possible, whereby pre-suppositions regarding individual activities (wherein the individual sensation is understood) play a rôle. This leads to another function typology more difficult to capture in a taxonomy.

a This line of reasoning is derived from the French geographer George, P. (1964) *Précis de géographie urbaine* (Dutch translation: (1966) *Geografie van de grootstad, het probleem van de moderne urbanisatie*). This can be found in the theoretical form with the American sociologist Parsons, T. (1966) *Societies: evolutionary and comparative perspectives*; Parsons, T. and J. Toby (1977) *The evolution of societies*, and by the Marxist orientated, with the Frankfurter Schule associated Jakubowski, F. (1936, 1974) *Der ideologische Ueberbau in der materialistischen Geschichtsauffassung* (English translation: (1990) *Ideology and superstructure in historical materialism*, Dutch translation: (1975) *Basis en bovenbouw*).

b Montesquieu, C. de (1748) *De l'esprit des lois*. English translation: Montesquieu, C. de, Anne M. Cohler et al. (1989) *The spirit of the laws*.

c Source: Koch (1988) *De Europese bouwstijlen*.

### 12.3 FORM AND STRUCTURE PRE-SUPPOSED IN FUNCTIONS

Urban functions can be spatially concentrated or de-concentrated. This leads to various types. In this way institutions of higher, secondary and primary schools can be concentrated in one building or scattered over many buildings of different types. Deconcentration normally means implicit inter-weaving with other forms of land utilisation. Dispersed living often means inter-weaving with agrarian functions in a radius of one kilometre. Concentration means segregation.

Relatively unrelated to this, functions can also be centralised or de-centralised in a hierarchic organisational classification. Spatial concentration must not, therefore, be confused with the *organisational* notion of centralisation. In this way local shops can be an organisational element of a national chain, of which the distribution points are spatially spread. Implicit pre-suppositions regarding the layout form of one social function may have bearing upon the typology at varying scale levels (in a different frame).

Inter-weaving, for example, leaves intact the fact that juxtapositioned functions can have no connection due to local physical factors, economic, cultural or governmental barriers, (segregation). Examples of divisions like these are watercourses, unaffordable factors or due to unfamiliarity for specific population groups in the area or differing management responsibilities. For example, an office of a specific size in the vicinity of a restaurant, may have its own canteen. This in turn gives rise to a different type of office or restaurant.

On the other hand, segregation leaves the fact intact that functions are, in spite of distance, connected with each other by means of infrastructure, (function binding). This is the reason why long-term parking provisions, situated at a reasonable distance from the airport, are often linked to the airport using a system of shuttle bus services. Such possibilities have bearing upon the type of airport. Taxonomy therefore does not only have implicit form pre-suppositions but also implicit structure pre-suppositions, related to the analogy and divisions between functions.

### 12.4 SCALE SENSITIVITY OF TYPE CHARACTERISTICS

The type characteristics, distinguished in the schedule below, are scale sensitive. Something considered segregation in one specified framework can be considered inter-weaving within a larger framework (scale paradox, compare the apparently contradictory concept of 'heterogeneous mixture' from materials science).

These concepts, therefore, cannot be used during a scale switch in an argument. Similarities at different scale levels between drawings, which are in themselves fixed-scale drawings, or arguments which can contain these scale sensitive concepts without a change in interpretation, can be compared once more at a higher level of abstraction than comparing the argument itself once again.

Based upon these comparisons a type may be chosen which is recognisable at different scale levels. For example Lefavre and Tzonis (see page 89) recognised the same type of form in a building, a painting and an urban construction design. When designing with a scale-free type, one again comes across the scale dependency of its characteristics. An office building situated adjacent to a restaurant, able to have its own canteen, is within the framework of the urban ensemble an example of segregation<sub>100m</sub>, however within the building it is a form of integration<sub>30m</sub>.<sup>a</sup>

This reversal of conclusions due to scale change also takes place at other scale levels and can be typified at higher abstraction levels. Function separation is used in the trade jargon in the case of both separation and segregation. The well-known CIAM-doctrine argues separation at urban level of housing, working, recreation and traffic on functional and environmental protection grounds. The question is, however, whether this must also lead to segregation. Structural means like sound barriers for example, separate the traffic from the housing, in order that they can continue to co-exist spatially (function segregation<sub>30m</sub>). If segregation should be required in that framework, (for example by zoning surrounding hazardous companies), the question is: on what scale: within the area (between neighbourhoods) or within the town (between the areas). These are different types of function separations: function separation<sub>1km</sub> is a different principle than function separation<sub>3km</sub>.

SOCIAL - DIFFERENTIATION	URBAN - DIFFERENTIATION
Ruling body (nobility)	castle, palace
Culture (clergy)	church, monastery
Economic basis (townspeople, serfs)	market, shops, housing, traditional businesses

65 Spatial expressions of social differentiation

TRIAS POLITICA	
Legislative power	City hall
Judicial / administrative	Court house Civil services
Executive power	Police station, prison barracks
TRIAS CULTURA	
Religion / ideology	Churches, monuments, memorials
Art & sciences	Muse, institutes, libraries
Upbringing / education	Social-cultural provisions, schools

TRIAS ECONOMICA	
Production	Companies, banks, offices
Trade	Distribution points infra-structure
Consumption	Homes, health-care, recreation

66 Spatial forms of political, cultural and economical differentiation

	Form characteristics	
Structure characteristics	<i>Isolation</i>	<i>Inter-weaving</i>
<i>Separation</i>	Function separation	Segregation
<i>Connection</i>	Function binding	Integration, function combination

67 Implicit function characteristics

a The dimension index must be seen as 'within 100m' and 'within 30m' Function segregation within 100m (ensembles) can therefore go hand in hand with function integration within 30m (buildings). As soon as this is externally considered, the same situation must be named at one scale lower: Function segregation between buildings (30m), related to function integration between building segments. In order to avoid systematically concept confusion, an internal consideration is used.

b CIAM, 1933, earlier formulated by Hercher, 1904.

The distinction between function separation and function combination (integration) is, severed from the function itself, on each scale level a structural design dilemma allowing solution by structural types. The Swiss Army pocket-knife is by way of an example a type with a function integration<sub>10cm</sub>. However, if one is accompanied on a holiday by a knife, cork-screw, bottle opener, screw-driver etc., then a function segregation<sub>10cm</sub><sup>a</sup> applies. At the same level of functionality this yields very different types of tools. Who wants to develop photographic film in a living-room is working at a function integration<sub>3m</sub>; when working in a separate dark-room it implies a function-segregation<sub>3m</sub>. Kinds of traffic (pedestrians, cyclists and motor-cars) may be combined and segregated as well. It is striking, in all examples, that function integration costs time, but saves space. Function segregation, on the contrary, often has time saving as a motive, but costs space. However, this applies only if it is possible to continue reasoning in the same order of magnitude. For, if in the case of function segregation the partial functions resulting are spread out to such an extent that, for instance, finding, walking or travelling time start to play a rôle, one should allow in a wider context for loss of time. In principle characteristics like that do not depend on function. They are related to usage of time and space; but there is no need to be specific about which kind of use is applying. Structural types restrict themselves to characteristics like that.

## 12.5 IMAGE TYPES

In architecture an image type – like a gate, mountain or grotto – is a scale-less image of the archetype (nature, God’s ordination) preceding the form. The image knows no scale. However, in landscape architecture the term is also used as a function type recognising just one function: the visual and / or tactile, moving impression that an artefact leaves in many people collectively.<sup>b</sup> A Dutch ‘*polder*’ – together with its agricultural and recreational function throughout the ages – is a function or an image type.

This impression is a condition for effective use of the artefact. An impression is containing more and less than the spread of material (technical, operational, real ‘form’), of which only the outer appearance (‘*vorm*’ in the leading Dutch dictionary) is landing through the senses in the remembrance of people. If the collective impression would cover a spread like that, it would be a form type. In this vein the characteristic pattern of Dutch waterways, dikes, sluices, ditches and many other things just passing translation into English establishes within a polder is a form type. When their technical (water) separating and connecting operation is also taken into account, a structure type is discussed. An impression seldom contains the actual three-dimensional form below and above the topsoil as it may be reconstructed from blue-prints and cross-sections, or from constructional surveys, with the co-ordinates recorded in the computers of design agencies. In this sense an image type is a more restricted notion than a form type. However, to this restricted impression collective historical (cultural) connotations are added that have found access to collective memory through different media than the individual’s perceptual senses. Through this, the objects of that type are getting collective meaning and value (imagination).

Visual types correspond in a more direct way to active imagination of designing than the analytical types described earlier. This imagination is comprising more than what is termed imagination in development psychology. It also comprises imagination techniques to be learned as a creative capability (see page 389 and 399). This includes analysis of the image (for instance in the historical, partially overlapping ‘layers’), their supplement and restriction in a renewed synthesis (transformation), mounting the images in a different context (transfer) and analysing the effects on that context.

Because of the lack of words indicating concepts in images often images from a very different context – such as ‘paper-clip’ or ‘satellite’ are used in designing. Such metaphors can be regarded as types of transference.

a In order to avoid change in significance and scale, the order of magnitude of the function-combination is adhered to while comparing functional separation and combination. Even if the same function-separation is presented on a much greater distance, such as a knife in the picnic basket and a screwdriver in the luggage boot, keeping together within one container is already function-separation, in order of magnitude comparable to the integration in a pocket-knife.

b Aben, R., P. van der Ree et al. (1994) *Metamorfosen, beeldtypen van architectuur en landschap*; Conijn, E. (1999) *Wonen op een buiten, spanning tussen het oneindige en de geborgenheid*; Kooij, E. van der (2000) *Het buiten voorbij*.