

# How to define urban plot?

## Examples from developing the UrbanOnto ontology

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### Introduction

One of the aims of the Historical Ontology of Urban Space (further: HOUSe) project is to develop a domain ontology of urban space (also referred to as "UrbanOnto"). The model is ought to be useful for the Historic Towns Atlas (further: HTA) series and fitted to the needs related to the digital turn. Amongst the works on the project ontology, one of the basic needs was to compile, compare, and – if there was such a need – develop new definitions of well-known notions connected with urban space. One of such notions is the urban plot, as plots are often the point of reference in comparative urban studies. The work on the definition comprised of three stages: analysis of methods of presenting plot boundaries (1) on the plan of Warsaw from years 1897–1901 and (2) HTA plans (both in scale 1:2,500), and (3) comparison of definitions found in the literature on the subject. These aspects of work at defining the *urban plot* are described in more detail in paper by Słomska-Przech and Słomski (2022).

### Stages of definition development

The plan of Warsaw from years 1897–1901, prepared under the examination of William H. Lindley, was a main cartographic source for the HOUSe project (Fig. 1). This plan was chosen because it was planned to be used for the preparation of the HTA volume for Warsaw. This plan is the first such mathematically precise representation of Warsaw and was created in connection with the work on the water supply and sewage system (Żelichowski and Weszpiński, 2016). The work on vectorization of the plan forced focus on many aspects of urban plots. It turned out that the task that at first seemed to be purely technical, required rethinking the relationship of plots to other objects such as streets or buildings from the Conzenian approach. The challenge was to decide which of the areas constitute one plot of land, whether they may be different parts of the same plot with different functions, or if the area has been divided into separate plots. Sometimes the border mark was missing on the city map, or the symbols differed graphically.



Fig. 1. Urban plot with park traversed by alleys (State Archive in Warsaw. sign. 72/1001/0/1.9/785, sheet 11, ©Archiwum Państwowe w Warszawie).

Conclusions from the work on Warsaw's plan were confronted with selected volumes of the Historic Towns Atlas. During the research, several volumes of national teams of HTA from Poland, Ireland, Austria, Germany, also Hungary, and Romania, were used. The main goal of examination of HTA volumes was to compare base maps, i.e. redrawn at the scale of 1:2,500 oldest surviving (mainly from the nineteenth century, rarely from the twentieth century) cadastral plans of every city or town. This oldest cadastral plan was to reflect the undisturbed shape of the city or town prior to rapid changes in urban tissue triggered by nineteenth-century industrialization. The results of such comparative studies show the variety of ways of representing plots on the base maps. It was also necessary to compare urban plot visualization from large and important cities (like Dublin in Ireland; Clarke, 2002) through medium-sized towns (like Świdnica in Poland) to small towns (like Marchegg in Austria; Opll, 1985). In some cases, it was impossible to distinguish different parts of a particular urban plot. For example, in Irish HTA the main cartographic source, i.e. Ordnance Survey did not enable differentiation between one plot or another or between the spheres of usage of a particular parcel. But the cadastral plans from German lands made it possible to distinct inner land use divisions at particular urban plots, like in the volumes of Braunschweig or Dortmund in the Deutscher Historischer Städteatlas series. There were some similarities in many base maps observed: visualization of parcels, or more precisely, divisions between buildings, areas, and greeneries are drawn in a similar ways both for Dublin and Marchegg. In HTA volumes borders of plots are visible, and they created also the spatial organization with street blocks, whole districts, and – in general – the whole city or town.

The third step was to compare definitions of an *urban plot* from the literature. These definitions focused mainly on aspects such as boundaries, ownership, and the use of space (buildings or land use). They also often indicated that the plot was the basic element of urban space. Less frequently

mentioned issues were the connection with the tax system, governance, economic functions of plots, or the influence of plots on the formation of urban mentality.

## Conclusion

In conclusion, taking into account the practice resulting from the work on the old plan of Warsaw and practice from the several volumes of the HTA series, as well as the experiences of other researchers described in the literature, enabled authors to reflect on the physical and morphological part of definition developed in works of HOUSE project. One of the assumptions of the Urbanonto ontology was that the definition of a natural language should resemble the so-called classic definitions. It was decided to refer to the Aristotelian pattern of a classic definition (Granger, 1984), which consists of two parts: the closest genus, and the difference which gives its species (*per genus et differentiam*). The final version of the developed definition states, that an *urban plot* is “the basic unit of urban space organization delimited by borders, on which a building can be built, assigned to an owner” (Słomska-Przech and Słomski, 2022).

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## Conflict of Interests Disclosure

The authors declare no potential conflicts of interest.

## Author Contributions

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