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From abstract principles to specific urban order: Applying complexity theory for analyzing Arab-Palestinian towns in Israel☆

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ABSTRACT

This paper uses complexity theory to analyze the urban order and development of Arab Palestinian villages and towns in Israel. It follows the spontaneous emergence of abstract planning codes and principles, influenced by changing social, political and cultural dynamics. Based on a morphological analysis of 77 towns in northern and central Israel, and an in-depth investigation conducted in the city of Sakhnin, in the central Galilee, the paper reveals a repeated three-ring structure, corresponding to three socio-political periods. We offer a detailed examination of the links between social values and spatial conduct, thus enabling us to follow how slight changes in social and economic circumstances affect planning principles. In addition, the paper highlights the power of planning-without-a-plan as a method that facilitates shaping the quality of the built environment while allowing local adaptation and creativity. Finally, we discuss the problematic urban pattern created in the typical third ring, which is a top-to-bottom product of modern planning thought.

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1. Introduction

Complexity sciences are becoming a relevant framework for understanding cities and built environments (Batty, 2005; Batty & Marshall, 2012; Portugali, 1999, 2011; Portugali, Meyer, Stolk, & Tan, 2012; Salingaros, 2000; Ben Hamouche, 2009; Rauws, 2015). Importantly, as de Roo and Rauws (2012) state, scholars build bridges between the worlds of planning theory and practice, and complexity sciences. Since planning approaches "move away from the ambition to achieve predefined outcomes" (Rauws & de Roo, 2016, 1), new viewpoints are needed that might offer less comprehensive and not entirely top-to-bottom planning methods. In line with this tendency, the current paper applies complexity tools to highlight the power of *planning without a plan*; that is, planning subjected to abstract principles, codes and directives that emerge spontaneously to safeguard important socio-cultural values. By analyzing the development of Arab-Palestinian towns in Israel, we look at the evolution of a typical urban order, and follow the way changing circumstances affect the contents of the abstract planning principles. Despite the numerous planning problems these towns face on a daily basis, the quality of the mutual order of Arab towns and cities, emerging without a comprehensive land-use plan, serves here as a manifestation of the power of planning-without-a-

plan and an important lesson regarding the lost foundations of urban planning.

Since the establishment of the state of Israel, Arab-Palestinian towns there have been diverted from the development path of other Mediterranean and Middle Eastern cities to form an exclusive type of built environment. Although Palestinians share the same cultural background, including an explicit set of planning principles and spatial routines as other Arab societies, in the six-and-a-half decades under Israeli rule, Palestinian towns have gone through a gradual change effected by their specific social, economic and political circumstances (Khamaisi, 1995, 2005, 2007; Kipnis, 1996). Most of the spatial conditions that do not exist in Arab countries are linked to the local terms of colonization (Yiftachel, 1997), the trauma of land confiscation (Pappe, 1992, 2006; Paz, 1998; Luz, 2007; Falah, 1989, 2003), the military regime in the early state period (Bäuml, 2007), and a degree of integration in the Israeli society (Khamaisi, 2005). It is our claim that the effect of these bold events is clearly visible in a distinctive time-line expressed in space. Specifically, the mutual terms of socio-environmental change on one hand, and the lack of governmental interest and hence intervention in the inner spatial organization on the other hand, makes these towns and villages a good example for exploring processes of highly-ordered self-organizing built environments.

Based on the approach of complexity science, we presume that the order of the built environment, similarly to other complex systems, emerges from the multifaceted interactions between the numerous inhabitants, landowners, community leaders and other stakeholders that share it and act in it. Considering the bottom-up nature of development in Arab Palestinian towns and the shared cultural and political environment, we sought the components of their typical *urban code*. The

current paper analyses that code, and follows the association between socio-cultural circumstances and the specific principles that comprise the code.

The search for abstract rules and principles that influence the spatiality of Arab towns is not necessarily new. Stavski (1946), Khamaisi (1994, 2005) and Meir-Brodnitz (1986) show that Arab villages and towns in Israel developed according to a rich set of cultural stipulations and religious, mostly Muslim, norms. Moreover, the Palestinian community in Israel is originally part of the Middle East region, the Muslim Ottoman Empire and part of the Arab nation. This community is a traditional patriarchal society that preserves unique cultural and environmental norms, including clear reference to planning principles. Research on Muslim and Middle Eastern urbanism relates to the fact that these cities were not planned in the modern, comprehensive and semi-scientific manner, but developed in a bottom-up fashion subjected to both tacit and articulated stipulations (Hakim, 2001, 2008, 2014; Akbar, 1988). Thus, a leading social value was the strict privacy of family life, particularly of women. Additional qualities were the centrality of community life, traditionally structured in clans (*hamullah*), the close relationships between neighbors, and habits of mutual supervision and the respect of the elderly, who maintained their right to be decision-makers within the entire clan (Bianca, 2000; Costa & Noble, 1986). As an agricultural society, with 75% of the Palestinians living in villages and working on their lands throughout the first half of the 20th century, land ownership used to be of great importance, and it is still an essential resource for a sustainable life (Yazbak, 2004; Khamaisi, 2005; Schnell & Fares, 1996; Goldhaber & Schnell, 2007). The emergent spatial code and the resulting urban order reflected these qualities.

However, the establishment of the State of Israel in 1948 shook the social and economic foundations of the Palestinian society, and had an evident effect on the spatial structure. The loss of most of the elite and middle classes turned the vital Palestinian society to a defeated ethnic minority. Beginning in 1948 and during the military regime that lasted for approximately 15 years thereafter, around 90% of the private lands of Arab citizens were expropriated by the Israeli government, leaving the Palestinian community trapped in narrow confines (Yiftachel, 2000). This resulted in the persistence of Arab-Palestinians on the land, usually termed *sumud*, meaning that immigration from the villages ceased immediately; people had to cling to their property and use it for dwelling, manufacturing and businesses. Privately-owned land turned to a valuable social asset. At the same time, the development of the built environment remained an internal Palestinian issue; for decades, the state maintained an indifferent attitude toward the internal structure of the Arab towns, and the villages grew and developed according to abstract values rather than a clear land-use plan (Khamaisi, 1995, 2004, 2005, 2007).

This method of planning-without-a-plan, that is, building towns and cities subject to abstract principles rather than a comprehensive outline, is related to complexity science and the self-organization of the built environment (Ben Hamouche, 2009; Moroni, 2010, 2015; Alfasi & Portugali, 2004, 2007, 2009; Alfasi, 2014). In this paper we elaborate on this idea and tie the changing order of the built environments to the evolution of planning principles. Moreover, based on Moroni's (2014) explanations to theories of spontaneous orders by Hayek (1948, 1982, 1988), we relate to the relations between the *spontaneous emergence of social orders* and the *spontaneous emergence of social institutions*. The first refers to "patterns of cooperation" and "social order of actions" (Moroni, 2014, 12) that constitute the full complexity of social order; emerging as a response to environmental changes and internal events, the order of actions encompasses a large amount of knowledge that guide individuals' relationships and conducts. Whereas, the second refers to "a variety of practices and rules" (Moroni, 2014, 10), whether tacit or explicit, that comprise the basic social rules of conduct. We therefore present the structure of the Arab-Palestinian town, first, as a reflection of the spontaneous social order resulting from changes in socio-cultural environment under the Israeli rule, and second, as a reflection of social institutions (specifically, planning principles), evolving with respect to the specific social order and external circumstances.

The paper starts with a brief review of the political and social background of the Arab Palestinian society in Israel in the last seven decades, followed by a brief introduction to the theoretical framework of self-organizing built environments. We then present the three-ring spatial order of the Arab-Palestinian towns and villages, as it emerges from a comprehensive analysis of all 77 towns and villages in the central and northern parts of Israel, excluding only the Bedouin villages and towns of the south, and analyze the evolution of central planning principles in detail. We conclude with reference to the self-organizing urban code and the limits of self-organization as a planning method.

2. Theoretical background

2.1. The spatiality of Arab-Palestinian towns

In the early 20th century, Arabs living in Palestinian cities experienced the beginning of urbanization, as people living in villages moved to cities, including Jerusalem, Haifa, Jaffa, Lydia and Acre. This process ceased with the 1948 war and establishment of the Israeli state. The urban hierarchy was abruptly emptied of the deported Arab elite and the main cities were populated by a new and mostly hostile Jewish population (Yiftachel, 1999, 1998; Yazbak, 2004). Most residents of the dozens of Palestinian villages that were destroyed became refugees living outside the borders of Israel, while the balance were sheltered by the remaining Palestinian towns (Pappe, 2006; Khamaisi, 2005). The Palestinian cultural, social and economic infrastructure was truncated and no alternative was created to meet the needs of Palestinian society or to attract rural migrants (Khamaisi, 2005; Schnell & Fares, 1996; Goldhaber & Schnell, 2007).

Israeli national planning policy, aimed at creating a new, modern Jewish sphere at the expense of the Palestinian minority, had a huge effect on the spatial development of Palestinian towns. National and district outline plans designated stone quarries, parks and national infrastructure near Arab towns, thus restricting their development (Nasser, 2012). Discriminatory development plans such as "Judaization of the Galilee" led to the construction of new villages and suburbs for Jewish residents alone (Falah, 1989; Goldhaber & Schnell, 2007; Luz, 2007). Moreover, the Israeli military regime from 1949 to 1966 limited the mobility of the population between towns (Falah, 1991; Paz, 1998). These inequitable and exclusionary acts restricted immigration from Arab towns and ultimately maintained the traditional self-building habits and familial-based land ownership for the following decades (Khamaisi, 1995).

As the years passed, the formerly agricultural Arab society became post-industrial; the proportion of Arabs working in agriculture dropped from about 40% in 1958 to 1.7% in 2010. Participation of Arab women in the labor force rose from 7% in 1970 to about 22% in 2008 (Yashiv & Kaisar, 2012). The creation of new employment in commerce and services and the rising standard of living reduced dependency on clans' aid mechanisms and weakened its role as the main social unit (Khamaisi, 2005). Arab society in Israel still retains traditional social values and strong community life (Al-Haj, 1988, 1995; Abu Odeh, 1993). However, while the clan is significant in terms of the town politics (El-Taji, 2008), its social role has been replaced by the extended and nuclear family.

Under these conditions, the development of Arab-Palestinian towns and villages remained extremely problematic. Although the Palestinian population multiplied 11 times since the establishment of the state, from 156,000 in 1948 to 1,720,000 in 2014 (Central Bureau of Statistics, 2015), the municipal area of Arab towns was reduced 10 fold. The lack of migration from towns caused a heavy demand for housing, which had to be met using familial lands. The method of self-