Designing with Hybridity, Scalar Paradoxes, and Complex Dynamics

How Two Domestic Gardens Challenge the Contemporary Landscape Imagination

Cattoor, B.; Dewaelheyns, Valerie

DOI
10.7480/spool.2020.1.5481

Publication date
2020

Document Version
Final published version

Published in
Spool. Journal of Architecture and the Built Environment

Designing with Hybridity, Scalar Paradoxes, and Complex Dynamics

How Two Domestic Gardens Challenge the Contemporary Landscape Imagination

Bieke Cattoor [1], Valerie Dewaelheyns

[1] *Delft University of Technology*
Faculty of Architecture and the Built Environment
Delft, the Netherlands

Abstract

Belonging to the small-scale and private sphere, gardens are usually omitted from urban and regional landscape plans. Yet, we argue that the assemblage of everyday gardens – the garden complex – is an inherent component of the landscape metropolis that holds the potential to become a powerful landscape agency. This potential is enclosed, among others, within three particular qualities: *hybridity*, *scalar paradoxes*, and *complex dynamics*. Practicing these qualities as concepts for landscape design and analysis helps to expand the imaginaries of everyday gardens to more purposefully reflect and negotiate the condition of the landscape metropolis. By means of two case studies – two domestic gardens – we demonstrate that designing with hybridity entails versatility, simultaneity, and multiplicity, thereby engendering a richness of meaning and experiences. This pluralism is also inherent in the scalar paradoxes we observed. Cross-scalar interactions evoke design implications that transcend the confines of the private plot, surpassing individual, human gain, and making individual gardens enter into dialogue with each other and with their surroundings. Lastly, by working with an enlarged set of complex dynamics, the two case studies prove that a garden can be a driver of change and innovation, and thereby a valuable source of resilience.

Keywords

landscape architecture, landscape imagination, landscape metropolis, garden complex, garden design, domestic gardens, everyday gardens, hybridity, scalar paradox, complex dynamics, Flanders

DOI

https://doi.org/10.7480/spool.2020.1.5481

Introduction

Mind the gap: the absence of the garden complex in the landscape imagination

Belonging to the small-scale and private sphere, gardens are usually omitted from urban and regional landscape plans. At their best, exceptional gardens are valued as singularities of historical, cultural, religious, or political significance. On the contrary, the many everyday domestic and institutional gardens scattered all over the landscape metropolis are most often considered as a mere backdrop of urbanisation.

Yet, the assemblage of everyday gardens – further called the garden complex (Dewaelheyns, Rogge, & Gulinck, 2014; Dewaelheyns, Kerselaers, & Rogge, 2016) – occupies between 22% and 36% of the urban ground (Colding, Lundberg, & Folke, 2006; Mathieu, Freeman, & Aryal, 2007). Research in the social and environmental sciences has shown that these everyday gardens can make a marked contribution to the social and environmental collective. They positively impact the sustainability and liveability of cities and urban regions by mitigating climate change and urban biodiversity loss, by easing urban water stress and urban heat island effects (Tratalos, Fuller, Warren, Davies, & Gaston 2007), and by alleviating the ecological impact of urbanisation (Tzoulas et al., 2007). Moreover, gardens are beneficial to human health, well-being (Cameron et al., 2012), and urban resilience (Moulaert & Van Dyck, 2011). They act as transitions between urban and rural (Phillips, Page, Saratsi, Tansey, & Moore, 2008), private and public (Gehl, 1987). Notwithstanding these convincing arguments, research and design in the field of landscape architecture has largely overlooked the significance of the garden complex (Jakobsson & Dewaelheyns, 2018) as a vital landscape component.

We argue that the garden complex is an inherent component of the landscape metropolis that holds the potential to become a powerful landscape agency. Furthermore, we argue that the general neglect of the garden complex in landscape architecture research and design indicates an important gap in the contemporary landscape imagination, which in turn has resulted in a flawed design literacy. After all, the landscape imagination – or the way we look at, think about, represent and project landscapes – plays a crucial role in rethinking and reshaping our environments (Cattoor & Perkins, 2014) in general, and the landscape metropolis in particular.

Sources of landscape agency for an (a)typical landscape component

With thousands of individual and privately owned gardens being mostly hidden, dispersed, and individually managed, the garden complex lacks obvious formal, scenic, and structural coherence (Cameron et al., 2012). In this sense, the garden complex is an atypical landscape component: it has no distinct spatial form, nor does it produce a well-defined spatial pattern. Its inherent scalar paradox implies the lack of any obvious structural nor structuring qualities: contrary to urban green infrastructure in the classic sense, the garden complex lacks hierarchy and its relational behaviour seems limited to minor interactions between neighbouring plots. Moreover, the garden complex's hybrid nature, mediating, among others, between nature and culture, private and public, makes it slip easily through the nets of the agendas of thematic research and sectorial planning policies. Furthermore, the unstable nature of gardens - adapted ad hoc to new residents, new life phases, and new lifestyles - and ceaselessly affected by nature's whims, creates an elusive timescape that is hardly compliant with traditional planning procedures.

To summarise, we identified three qualities distinctive to the garden complex: *hybridity*, *scalar paradoxes*, and *complex dynamics*. These qualities make it difficult to experience and conceptualise the garden complex

as an urban landscape component in its own right (Van Delm & Gullinck, 2011), let alone as a valuable agency in the contemporary landscape metropolis.

1 **Scalar paradoxes:** Gardens are mostly associated with a small-scale context, often left to the private sphere, and omitted from large-scale maps and plans (Gill et al., 2008; Van Delm & Gulinck, 2011). Nevertheless, a myriad of small decisions taken in many small gardens aggregate into the larger-scale context, with considerable impact (Dewaelheyns, 2016).

2 **Hybrid qualities:** Gardens resist clear-cut thematic associations, instead mediating between apparent dichotomies such as nature–culture (Miller, 1993; Francis & Hester, 1990), urban–rural (Phillips et al., 2008; Qviström, 2007), private–public (Gehl, 1987).

3 **Complex dynamics:** Despite the relative fixity of its legal boundaries, there is little permanence in the garden complex's spatiality, creating a complex timescape. The biospheres of gardens, overlapping the human and non-human, negotiate ongoing and often conflicting processes of occupation and negotiation.

We change the perspective. The above properties not only pose difficulties, but can also become potential sources of resilience and landscape agency: gardens are omnipresent; not every garden has the same sensitivity to a certain shock; and a multiplicity of values, actors, means and processes can be mobilised to obtain small changes with a significant aggregated outcome. Everyday gardens can become resources by small actions (Dewaelheyns et. al, 2016).

Moreover, are these seemingly distinctive properties not the common spatial good of the contemporary landscape metropolis? We would definitely argue yes. In a condition characterised by widespread urbanisation - in which spatial centrality and central authority make room for dispersion, fragmentation, and bottom-up agency - traditional scalar schemata do not hold. Any clear-cut categorisation is subject to contestation in an environment that we no longer can, nor choose to, classify in terms of traditional dichotomies such as urban–rural or private–public. In our increasingly empowered pluralist society, hybridity and heterogeneity have become the new normal. In a context that is continuously challenged by the combination of small-scale incremental change and large-scale calamities – environmental, economic, or other –, diverse, dynamic and adaptive environments have proven much more resilient.

As a consequence, the qualities of the garden complex that we highlighted (*scalar paradoxes*, *hybrid qualities*, and *complex dynamics*), are relevant design concepts for harnessing its potential with(in) the landscape metropolis. Indeed, Brenner and Schmidt (2011), Tschumi (2012) and Cattoor (2015) have also argued that contemporary territories need to be rethought precisely in terms of *trans-scalarity*, *hybridity*, and *complex dynamics* for humanity to be able to negotiate and address increasingly complex spatial problematics.

Material and Methods

We demonstrate that *scalar paradoxes*, *hybrid qualities*, and *complex dynamics* are fruitful concepts for analysing and designing everyday gardens within the framework of the contemporary landscape metropolis, and from a landscape architectural perspective, by means of two case studies.

We discuss how both gardens (implicitly) deploy *scalar paradoxes*, *hybrid qualities*, and *complex dynamics* to (re)conceptualise the garden's meaning within its landscape context as well as to leverage change in its surroundings. We furthermore illustrate how these three concepts can enrich our ways of looking at, and thinking about, the many seemingly insignificant gardens that together make up the garden

complex. So, we explore how *scalar paradoxes*, *hybrid qualities*, and *complex dynamics*, simultaneously act as concepts of landscape design and analysis. In addition, we discover how these concepts can help us to reframe, reimagine, and reshape gardens, to ultimately mobilise some of the powerful capacities of the garden complex.

As such, our analysis focuses on the bottom-level of the individual garden – its re-imagination through design and analysis – to reflect upon on its contributions to the higher scale level. Based on the results, we discuss the agency of the garden complex, as the accumulation of these many individual gardens, in the context of the landscape metropolis.

We analysed both the design and current state of two domestic gardens of the estimated total of 2,039,603 gardens (Pisman, Page, Saratsi, Tansey, & Moore, 2018) in Flanders. The two gardens occupy a different position within the Flemish landscape metropolis and cover a variety of contexts. The first case focuses on the most urbanised part of the landscape metropolis (Case 1: Finstraat, Brussels Capital Region) and was designed by a garden architect, whereas the second case involves the design of an interior architect for a suburban plot situated away from the urban core and relating to the countryside (Case 2: G-Lab, outskirts of Bruges).

Mixed method analysis of the two gardens and their sites entailed morphological, compositional, and phenomenological investigations and focused on understanding how the two projects work with or provoke *scalar paradoxes*, *hybrid qualities*, and *complex dynamics*. These analyses were complemented by open interviews with the designers (Geert Meysmans, personal communication, July 10, 2020; Tom Callebaut, personal communication, July 10, 2020), providing us with insights into the processual aspects of the landscape design projects and the interaction between stakeholders.

Since this is an explorative study, the aim is not to present a fully-fledged analysis of each of the three concepts, nor to be representative by delivering a thorough overview of all changes that individual gardens could generate in their surroundings.

FIGURE 1 Location of case study garden, Finstraat (white polygon), within the urban tissue of Brussels. The Finstraat garden is an urban garden situated within a densely built neighbourhood of Sint-Jans-Molenbeek, a municipality in the Brussels Capital Region. Molenbeek is a long-existing agricultural community, rapidly industrialised in the 19th century, with industrial activities mainly concentrated along the canal and railroads. To date, the municipality is de-industrialised and is being assimilated into the urban tissue of Brussels, with ongoing urban renewal projects and brownfield redevelopments. (Image by Google Earth, retrieved 14-07-2018.)

Case Study 1. Renaturalisation and rehabitation of an inner-city parking lot

Finstraat garden promotes the renaturalisation and rehabitation of an inner-city parking lot in Sint-Jans-Molenbeek (Brussels Capital Region) (Fig. 1). As a rather deprived neighbourhood, Sint-Jans-Molenbeek has long been the city of arrival for many immigrants. To date, the municipality is slowly being assimilated into the urban tissue of Brussels, with ongoing urban renewal and brownfield redevelopments. Finstraat garden is part of such a private urban renewal project initiative and accompanies the design of a three-storey apartment building on an inner-city court (Fig. 2), designed by Els Claessens and Tania Vandenbussche. This inner-city court, reminiscent of Molenbeek's industrial past, alternately hosted small warehouses or functioned as a car park. When embarking on the project in 2009, landscape architect Geert Meysmans found the site covered by concrete slabs, between which Buddleja davidii, a pioneer plant, spontaneously grew.

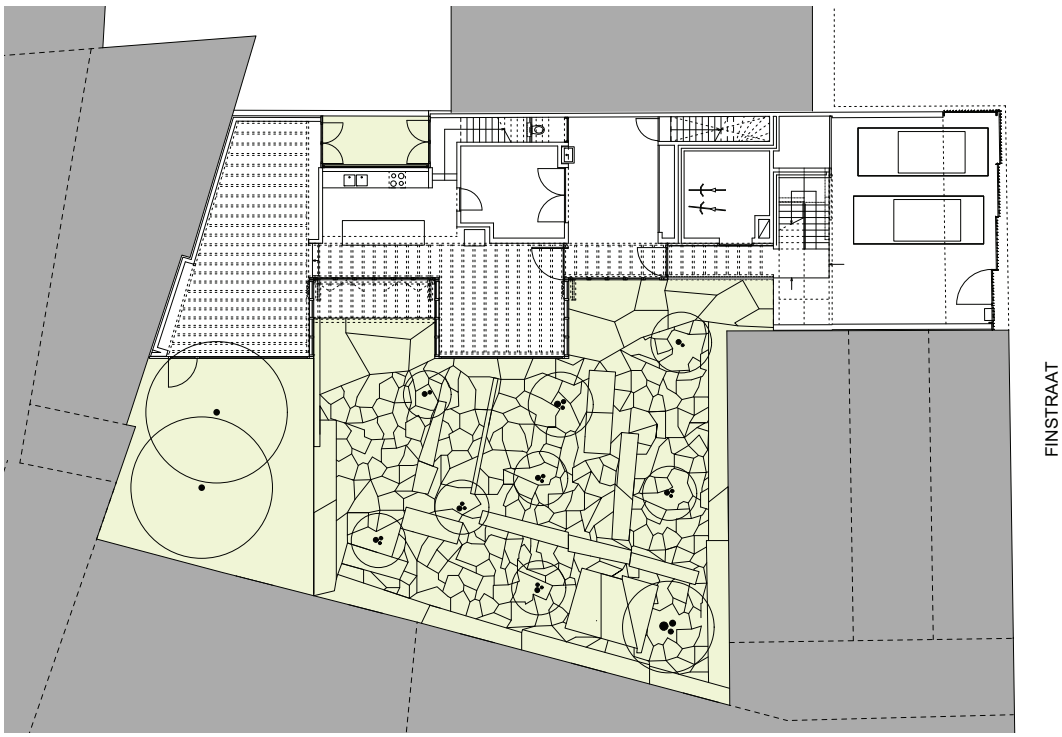


FIGURE 2 Plan of the Finstraat garden design. The site of the Finstraat project is characterised by a small façade (right hand of the plan) opening up to a large inner city block (central part of the plan). Surrounding building blocks are coloured grey. On the garden plan (green colour), the concrete strips and the planting of the Amalancier ovalis (small circles) and Celtis occidentalis (large circles) are indicated. (Drawing by ectv. Reprinted with permission).

Hybridity: The garden as a framework for hybrid recolonisation

Gardens often represent an amalgam of different interests and 'themes', that mediate or negotiate between nature and culture, among others. In Finstraat, the ideas of *garden-as-nature* and *garden-as-experience* are simultaneously elaborated; the garden is as much about creating opportunities for renaturalisation as it is about providing its inhabitants with a place to enjoy and experience. To mediate both ends, Geert Meysmans set up a hybrid framework for human and floral rehabitation.

The hard-surfaced materiality Meysmans found on the site - a concrete slab reminiscent of the parking lot - provided the base material for establishing this framework. By implementing different strategies of dealing with this concrete slab – altering it, reusing it, removing it, adding another layer on top of it – Meysmans shaped a set of distinct conditions for the hybrid recolonisation of the site (human and floral) (Figs. 2–6). Each of these different site conditions implicitly steers natural plant dynamics and promotes or inhibits human activity. At the same time, high costs for complete removal of the concrete slab and supply of new topsoil to the site were prevented.

FIGURE 3 Construction of a framework for the different garden zones through differentiated soil treatments. The design of the central garden (bottom half of the picture) literally breaks through the sealed character of the site by scattering the concrete slab into the plant substrate. Several strips of concrete are left unscattered to be used as pathways. The plantings of Amalanchier ovalis ensured the client of the direct presence of structuring green. In the upper garden (top half of the picture), reachable by a concrete step, the concrete slab was fully removed and grass with two Celtis occidentalis was provided. This approach enabled different modalities of floral and human recolonisation and in doing so stimulated a variety of garden experiences. (Photograph by Geert Meysmans, 2013. Reprinted with permission).

In the central garden zone, the concrete slab – a plant barrier – was shattered to transform it into plant substrate for spontaneous vegetation (Figs. 2, 3). This intervention cleverly unites the client's desire for a green oasis inside the city with the designer's ecological conviction that appropriate vegetation can and will grow spontaneously on any site when the opportunity is provided. The shattered concrete provides the necessary conditions for the soil to retain its moisture, resulting in a cool urban microclimate for the client to enjoy as well as providing a fertile condition for pioneer vegetation to spontaneously seed and grow from surrounding seed banks (Fig. 5). The spontaneous vegetation was supplemented with several multi-stemmed *Amelanchier ovalis* trees planted on a loose grid, casually structuring the garden and providing a few higher shrubs from the start to look out to, as desired by the client (Fig. 2). After the first growing season, the outdoor space was fully greened, and a few years later the Amelanchier grid was completely overgrown by *Salix caprea*. *Tussilago farfara* also popped up and ferns arrived on the site, along with *Dryopteris* and a few *Polystichum*. The speed at which the spontaneous vegetation started to grow without fertiliser was surprising. These shifting outdoor scenes provided by natural succession, turned out to be an experiential treat for the client.

In this central garden, the reused slab facilitated human movement, within the confines of the pathways, composed out of remaining strips of concrete left unshattered (Figs. 2, 3, 5). These pathways were deliberately configured as a loose collection of strips leading everywhere and nowhere, to provoke an explorative garden experience instead of providing a straightforward walk from A to B. Over time, this loose composition inspired the client to diversify the management of the planting in between the concrete paths; through minor weeding, variation was achieved in the development of spontaneous vegetation, as well as in the garden experience.

FIGURE 4 The central garden as an urban green enclave. The experience of the central garden is built up around the exploration and observation of urban nature. Remaining concrete strips provide access to the central garden's wilderness. (Photograph by Geert Meysmans, 2018. Reprinted with permission).

FIGURE 5 The upper garden welcomes human activity and hosts the more traditional garden functions, such as sitting outside (alone or with friends and family), in chairs or a hammock. Natural plant growth is limited here. The central garden shows a reverse pattern (bottom). Here natural plant growth is facilitated to a large extent, and human use is rather limited to observing flora and fauna and minor garden management actions. (Photograph by Geert Meysmans, 2018. Reprinted with permission).

An extended step – also made of concrete – marks the transition from the central garden to the upper garden (Fig. 4). This raised part of the garden was previously occupied by a storage building. Here, all concrete was removed to make room for a lawn that is freely and easily accessible for human activity. This elevated zone is drier. Here, plant species including grasses and *Celtis occidentalis* trees were selected by the designer as they resist drought, warmth, and need a stony soil.

a

b

c

FIGURE 6 The green roof. On an intimate scale and enclosed within the semi-private interior of the building block, the green roof brings the garden experience to the immediate neighbours who live on the first and second floor. For the green roof, the garden designer did not follow a traditional design layout. The green roof was installed in two levels, with 40 to 60 cm of substrate at the edges going to 5 cm of substrate in the middle. This set up allowed the planting of vegetation, like Jasminum nudiflorum to grow over the roof's edge, contributing to the experience of the garden as an urban jungle. The low substrate in the middle is covered not only by sedum but also by Thymus praecox, Saponaria officinalis, and different grass species. (Photograph by Geert Meysmans, 2018. Reprinted with permission).

Lastly, where the new apartment building now covers the ground previously sealed by the concrete slab, an elevated natural layer was added in the form of a green roof (Figs. 6 a,b). The installation of a green roof in two levels, with 40 to 60 cm of substrate at the edges, going down to 5cm of substrate in the middle,

allowed the planting of vegetation like *Jasminum nudiflorum* to grow over the roof's edge, contributing to the experience of the garden as an urban jungle (Figs. 6 a, 8 b). Here, restricted human access and a thickness gradient ensure an enriched species palette. Taken together, the landscape design strategy deployed in Finstraat, *creating a hybrid framework through differentiating soil treatments*, enabled different modalities of floral and human recolonisation and by doing so stimulated a variety of garden experiences.

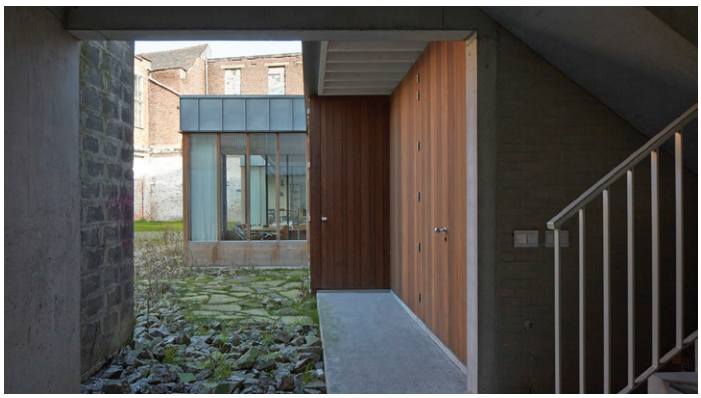
Scalar Paradoxes: Autonomous multiplication of urban green enclaves

As a source of landscape agency, scalar paradoxes comprise tweaked cross-scalar relations and interactions. Finstraat obviously facilitates cross-scalar mobility of local (fauna and) flora. The resulting propagation of plants, though of a relatively small scale, provides a range of ecosystem services to the neighbourhood, while on the other hand also works to further gentrify the area in hand.

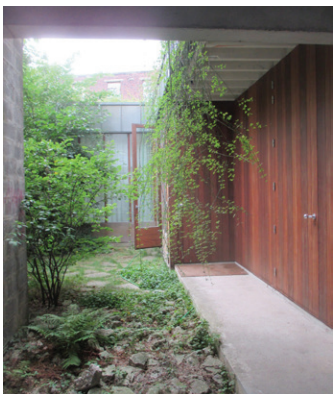
a

b

FIGURE 7 Front gate and passage with diagonal vista between street and garden. Finstraat is a private garden. As such, access to the garden is limited; a gate closes the site from the street, allowing only a peep towards the greenery behind from the street. The designers opted not to extend the greenery up to the street, through the passage, or by means of façade greenery. The reasons for this were the difficult conditions for plant growth within the passage, and the unsafe character of the neighbourhood, as well as the highly controlled detailing of the architecture on the street. (Photograph by Hilde D'haeyere. Reprinted with permission).



a



b

FIGURE 8 The garden entrance from the stairwell just after landscaping (left) and six years later (right). Natural plant growth and succession not only provides shifting outdoor scenes but also wilderness experiences for the client. Cross-scalar interactions between the ground level and green roof even enhances this. The Jasminum nudiflorum growing over the edge of the roof, on the thick rooftop substrate at the outer edges, strengthens the experience of an urban wilderness. (Photograph by Geert Meysmans, 2013 – 2018. Reprinted with permission).

While the Finstraat garden allows surrounding ecologies to partly take over, the garden itself does not succeed in returning its full potential to the neighbourhood. Literally, the garden is a germ of urban greening, as it collects seeds from neighbouring flora through airborne spread, and provides a habitat for local fauna. Figuratively, the green oasis is shared with the public domain of the street to a limited extent, with a diagonal vista through an iron gate allowing passers-by just a peek into the garden (Figs. 7 a,b, 8 a). However small, this is a welcome green break through the closed façade of the urban block. Because of the unsafe character of the neighbourhood, and because of the highly controlled detailing of the architecture, the designers did not opt for extending the greenery, through the passage, up to the street. On a more intimate scale enclosed within the semi-private interior of the building block, the green roof brings the garden experience to the immediate neighbours (Figs. 6 a,b,c).

In recent years, more urban green pockets popped up in the surroundings (Fig. 1) as a consequence of the gradual gentrification of the deprived neighbourhood. This process of urban greening is mainly driven by individual needs. Although these initiatives are often private, self-centred, and autonomous, the assemblage of these individual green pockets altogether does contribute to the liveability of the neighbourhood, providing micro-climate regulation, opportunities to experience nature, infiltration of water, provision of pollination, and sequestration and storage of carbon by vegetation, among others. From a more critical perspective, the ongoing process of urban greening in which Finstraat takes part most likely stimulates further gentrification, dislodging less-fortunate inhabitants as the area becomes more liveable and sustainable, and hence more attractive to the more affluent urbanites.

Complex Dynamics: The garden as a deliberately provoked and hybrid palimpsest

In Finstraat, major shocks and incremental change caused by human and non-human agents interact as equally important drivers of change. The major shock that set in motion the site's transformation was the shattering of the concrete slab, a human intervention in the landscape. Being an excellent plant substrate, the broken-down concrete was rapidly colonised by spontaneous plant growth, a creeping evolution of non-human natural dynamics, facilitated by the absence of human intervention (Figs. 5, 8 a,b). As such, a single action like shattering the concrete slab for plant substrate drastically changed the site's habitat conditions for human and non-human life. Natural succession has now reached the stage in which ferns are emerging on the site. And although this intervention reduced the physical accessibility for humans compared to the pre-existing parking surface, the opportunities to experience the site are largely increased, through a wealth of gradients, vegetation, and fauna (insects, birds etc.).

As such, the garden can be conceptualised as a deliberately provoked, co-evolutionary palimpsest (Corboz, 1983). Both human and non-human substances of the site's past are maintained, recuperated, altered, or erased in an explicit way, like the reintroduction of plant species from the dormant seedbank and the differentiated reuse of the concrete slab – (Fig. 3). In this sense, Finstraat garden can be considered a local history project, narrating the site's hybrid history (industrial and ecological) as well as that of its wider surroundings.

Case Study 2. Experiments in opening up a suburban house, plot, and street

The second case study, G-lab in the outskirts of Bruges, is an ongoing experiment with opening up a suburban house and plot to create a more generous space. Its context is typical for the Flemish metropolitan landscape: a suburban allotment with few public amenities, where privacy and quietness rule. The residential street where G-Lab is situated links to the natural reserve Ryckevelde, consisting of forest patches and grasslands under botanical management (Fig. 9). Here, in 2005, the client/designer Tom Callebaut purchased a 1970s-style bungalow in which to live with his newly composed family. The traditional garden had a front and back lawn, closed off by perimeter hedges.

FIGURE 9 Location of case study garden G-lab (white polygon) within the suburban fringe of Bruges. The G-lab garden is situated within a typical context for the Flemish metropolitan landscape, a suburban allotment with few public amenities, where privacy and quietness rule. The site links directly to the natural reserve Ryckevelde, consisting of forest patches and grasslands under botanical management. On the other side of the street, a remnant forest patch refers to the forested history of the neighbourhood. (Image by Google Earth, retrieved 14-07-2018.)

Complex Dynamics: The garden as a catalyst for social change

While the interplay between culture and nature is often the focus of attention in garden discussions, gardens can also be the locus of complex social dynamics. G-lab illustrates this social capacity of individual gardens very well. Within the confines of his suburban plot – long considered the pinnacle of self-centeredness – Tom Callebaut and tc-plus set up a series of ongoing interventions (starting in 2006 and ongoing) to stimulate human interactions, and thereby enhance neighbourhood dynamics. An initial set of experiments aimed at provoking dialogue between neighbouring plot owners, by breaking the divisive power of the in-between hedges. Removing the rear hedge instigated communication with the owner of the pasture at the back of the plot, resulting in an agreement of mutual benefits: the client/designer gained a view of the nature reserve in return for cleaning up the pasture, used for years as a neighbourhood dump. The surplus value that was created inspired some neighbours to also open up their back garden, and many others followed. Over the years, the pasture acquired the status of an unofficial neighbourhood space, nurtured by shared responsibilities and shared pleasure.

FIGURE 10 Design of the house (renovation) and garden as a continuum. The garden is designed from the inside out as part of a continuum with the house. The house and plot, in turn, are 'unfolded' to the outside by a succession of outdoor and indoor spaces that are made publicly accessible in agreement with the household. In the front and back, two ripple zones are installed by the use of white curtains as flexible borders between private and public in the front garden and between inside and outside in the back garden. (Drawing by tc-plus. Reprinted with permission).

The side hedges were treated more subtly; they were lowered and undulated to promote interaction with the neighbours while maintaining a certain privacy. The reversibility of this intervention convinced the neighbouring plot owners to join this experiment; after all, it is easy to stop pruning the hedge and thereby reclose the gaps in case the increased interaction is no longer desirable. The front hedge was subject to a more daring experiment. Rather than deploying the more conventional strategies of hedge removal or hedge pruning, the client/designer hacked the neighbourhood by installing a freely accessible neighbourhood pavilion on his grounds, replacing the closing gesture of the front hedge. The neighbourhood pavilion was modular and subject to various experimental transformations (Figs. 11 a-d).

All of these experimental transformations culminated in a major intervention aimed at drastically re-configuring the family's way of life. The experiences of the client/designer in Congo, Oeganda, Groenland, and Nepal, combined with a socially-oriented parenting mission, triggered the family's motivation to fundamentally reshape the boundaries of their living environment and to redevelop the site as a generous space opened up to the neighbours. The entire front and back gardens, as well as large parts of the house, were made publicly accessible (Figs. 10, 13, 14 a,b). Although the initial experimental neighbourhood pavilion was not visited much during its six years presence, it gained overall symbolic meaning, building trust among neighbours and setting an example of generosity. Whereas neighbours at first felt embarrassed entering the pavilion in the family's (private) garden, they now feel comfortable even with the open house. As such, G-lab succeeds in breaking the physical boundaries within the neighbourhood, as well as the mental confines of suburban life.

a The initial, experimental pavilion started as a rather abstract, empty space. In the search for a meeting place that suited the neighbourhood, the pavilion was reconfigured every six months to a year, for example into a field of mint used to offer mint tea to the neighbours. (Photograph by Tom Callebaut. Reprinted with permission).

b The most successful transformation was the conversion of the pavilion into a large table that was frequently used by the family and the neighbours. This last configuration of the pavilion already contains the main elements of the current design: the walls, the table, and their spatial location on the site. (Photograph by Tom Callebaut. Reprinted with permission).

c The front garden after the realisation of the final phase of the design in 2018. In front of the house is a petanque court, a fully public neighbourhood square. An eight metre long white curtain functions as a front door and can be opened or closed at any time. The opened curtain invites the neighbours into the shared outdoor and indoor spaces (Fig. 11-c), while a closed curtain functions as a front door (Fig. 11-d). (Photograph by Luc Roymans, 2018. Reprinted with permission)

d

FIGURE 11 Sequence of experimental neighbourhood pavilions in the front garden, leading to the current layout.

FIGURE 12 Hybrid inside-outside. Through the displacement and redefinition of typical elements, inside sometimes seems outside and outside sometimes seems inside. Access to the front outdoor rooms is provided by a white curtain, functioning as the front door when closed, and as an invitation to come in when opened. A doorbell is integrated in the green concrete wall of the outdoor room. The materiality of the walls refers to the original hedges: green coloured and with a wood print. In addition, other elements are used to reimagine the outdoor rooms as indoor, like a table with vase and flowers, carpet, frame on the wall, plants in pots. In summertime, the family practically lives outside. (Photograph by Luc Roymans, 2018. Reprinted with permission).

Hybridity: Malleable expressions of inside and outside, private and public

While in Flanders suburban houses are (stereo-)typically conceived as islands of privacy within an equally private green setting, G-lab promotes a more hybrid living environment where inside and outside are partly interchangeable, staging both private as well as public activity. To this end, the design explores the idea of spatial fluidity and flexibility.

Conceived by an interior architect, the garden is designed from the inside out as part of a continuum with the house. The house and plot, in turn, are 'unfolded' to the outside by a succession of outdoor and indoor spaces that are made publicly accessible in agreement with the household. To make this work, each of these spaces has a malleable expression and can accommodate many functions (open/intimate/enclosed, public/private). This flexibility is provided for by a careful combination of fixed and flexible architectural elements such as walls, curtains, and rearrangeable furniture (Figs. 12 a-d). The house unfolds into the front garden and further up to the street by means of two such malleable rooms, intimate and enclosed or fully open and inviting, depending on the inhabitant's intention (Figs. 12 a,b,d).

FIGURE 13 Hybrid private-public. The outdoor room in the front garden functions as an intimate outdoor living and meeting room, centred around one Amelanchier lamarckii. The Amelanchier was chosen because of its fragile silhouette and its seasonal richness: white blossoms, purple fruits, orange leaves, representing the change of seasons. The use of a terrace and pebbles is typical for Flemish front gardens, and gives this unconventional space a familiar touch. (Photograph by Luc Roymans, 2018. Reprinted with permission).

A freely accessible micro plaza with petanque court situated at the very front of the garden further overrides the traditional boundaries between private and public, between plot and street (Fig. 10). Additionally, at the back of the dwelling, three covered outdoor rooms make the transition from inside to outside (Fig. 12 c); the additional re-naturalisation of the back garden and the removal of its rear edge subsequently blur the transition between the private plot and the adjacent natural reserve.

At the smallest scale level, fluidity and flexibility are achieved by the displacement and redefinition of stereotypical elements belonging to either sphere, public or private, inside or outside (Figs. 12 a,b, d). The most striking example of such object displacement is the use of white curtains – usually an interior element – to flexibly demarcate a ripple zone between private and public in the front garden (Figs. 11 c,d), and between inside and outside in the back garden (Fig. 12 c). The permanent reconfiguration (opening and closing) of this adaptable border destabilises conventional boundary conditions. Furthermore, by using the same architectural element -the white curtain- to separate different outdoor spaces as well as outdoor and indoor spaces, the effect of a spatial continuum is achieved. An example of the redefinition of typical objects includes the construction of green concrete walls with wood print - reminiscent of a hedge, but with frames –referring to the inside- to define the outdoor rooms in the front, providing stability and security in contrast to the openness of the front door curtain (Figs. 12 a,b).

Scalar Paradoxes: Interplays of small-scale physical transformation and neighbourhood innovation

Whereas cross-scalar interactions in Finstraat mainly apply to the ecosystem (fauna and flora), G-lab strongly influences interhuman relations. The intention of the client/designer and his family to mean something for the neighbourhood includes the implicit wish to generate change. Inspired by the small actions of the client-designer, many neighbours removed their back hedges and fences to regain a view on

the nature reserve, and the owner of the pasture has shared access to his land. Recently, a neighbourhood picnic table and shared neighbourhood terrace have been installed there. Though mainly driven by personal gain (a better view), the accumulation of these many small actions (the removal of all these rear hedges) has transformed the pasture into a more generous place with a meaning and functioning for the neighbourhood (Fig. 15). The same logic applies to G-lab's front garden. As such, this design illustrates how a private initiative in a suburban fringe garden can become a motor of social change in a neighbourhood (Figs. 14 a,b).

a

b

FIGURE 14 Layout of invitiations for a neighbourhood gathering (left) and neighboorhoud cinema (right) at G-Lab. Due to the hybrid inside-outside character, the intended use of the garden as a community place is strongly steered by daily and seasonal rhythms. The first year about 1000 people made use of the site at an average of four activities per month, including a wide range of bottom-up and top-down-initiatives, initiated by the owners as well as others. (Drawings by tc-plus. Reprinted with permission).

This project is all about initiating interactions between neighbours by means of sharing private property. Besides evolving neighbourhood dynamics, changing patterns of human activity also continuously challenge this intention. Thanks to its many adaptable elements, the garden fosters a low threshold to keep on initiating new social experiments. Dynamic and informal agreements with the neighbourhood consolidate this flexibility, lowered the threshold for discussion, and created an openness and willingness amongst the family, the neighbours, building contractors, and even the photographer involved. But working with fluid borders revealed thresholds relating to clear limits and regulations in formal procedures for receiving a loan, insurance, or building permit. These procedures tend towards capturing every detail in advance to prevent eventual unforeseen costs, which again was relieved by careful negotiations with the governmental and financial partners involved –once more levelling up the scope of G-lab's small actions.

FIGURE 15 Block party in the back garden, close to the adjacent pasture. A private initiative in a single garden can become a catalyst of social change in its neighbourhood. The accumulation of many small actions (the removal of rear hedges and fences, granting access to the land, helping out with the pasture management) transformed the pasture into a more generous place with a meaning and functioning for the neighbourhood. The back garden and pasture are gratefully used to host block parties. (Photograph by Tom Callebaut. Reprinted with permission).

Discussion and conclusion

The aim of our case study research was to gain insights into how *scalar paradoxes*, *hybrid qualities*, and *complex dynamics* simultaneously act as concepts of landscape design and analysis, and how that can help us to reframe, reimagine, and reshape gardens, to ultimately mobilise some of the powerful capacities of the garden complex.

Sources of landscape agency as fruitful concepts for landscape analysis and design

Both cases, Finstraat and G-Lab, are very different in terms of context and stakeholders, design concepts and strategies. As such, they illustrate well the heterogeneity enclosed within the garden complex and shed a different light on the aspects that make up the three sources of landscape agency. *Hybridity* was highlighted as a first source of landscape agency inherent to the garden complex. In Finstraat, the designer set up an open-ended framework for hybrid recolonisation of the site, thereby breaking the nature-culture dichotomy. In G-lab, the client/designer/researcher hybridised the binaries of private and public, inside and outside, by challenging their borders as well as their typical definition through architectural elements. The cases demonstrate how hybridity engenders both simultaneity and versatility. *Scalar paradoxes* were highlighted as a second source of landscape agency. Here, both cases also offer complementary insights: Finstraat brings in spontaneous vegetation from the surroundings as part of the autonomous multiplication of urban green pockets in the neighbourhood. A reversed gesture is present in G-lab, with a generous movement from inside the house to outside in the garden, as well as from the outside neighbourhood, into the private plot. The third source, *complex dynamics*, centralises the ongoing interactions between human and non-human agents, elements, and processes that continuously reshape our environments. In Finstraat, the co-evolution of natural vegetation dynamics and human occupation patterns is framed spatially and temporarily, whereas G-lab provides an experimental framework for social change shaped by a negotiable and adaptable architecture. Although solely considering two gardens, our explorative research already exposes a broad spectrum of design strategies to work with hybridity, scalar paradoxes, and complex dynamics: the development of an open-ended or experimental, spatiotemporal framework, near mannerist point-wise interventions, as well as explorations of accessibility through the continuous negotiation and redefinition of border conditions. The two cases also illustrate how interplays of minor incremental changes and major shocks continuously redefine a garden's condition and therefore also the context in which hybridity, scalar paradoxes, and complex dynamics thrive.

The power within: a plea for reframing, reimaging and reshaping individual gardens

However small-scale and singular their character, both case-study gardens currently contribute to the social, cultural, and/or ecological characteristics of their surroundings, including habitat provision for spontaneous vegetation and micro-climate regulation in Finstraat, and the creation of semi-public space and neighbourhood innovation in G-lab.

This surplus creation has not always been present. Finstraat used to be a concrete parking lot where the sparse spontaneous vegetation was basically a sign of human neglect, whereas the layout of G-lab with a lawn and surrounding hedges made it a typical suburban garden, private and inwardly oriented. Through design, experiment and intervention, both gardens were reframed, reimagined, and reshaped – from parking lot to urban nature; from domestic garden to neighbourhood space. Nowadays, both gardens can be considered exceptional places in terms of how they contribute to their surroundings, but also in terms of how they update our way of looking at, and designing with, domestic gardens in our contemporary condition

– that of the landscape metropolis. Moreover, in doing so, these gardens actualise the very substance of the landscape metropolis, further re-arraying city and landscape into a complex and hybrid urban-landscape system (de Wit & Dekker, 2020); Finstraat does so by importing natural features into its inner city, while G-lab facilitates a more communal/urban lifestyle into its suburban street.

Unlock landscape agency by re-imagination

Arguing that we studied only two of the more than two million domestic gardens present in Flanders, we wonder what the full potential of reimagining the garden complex could mean for the landscape metropolis. If designing with hybridity, scalar paradoxes and complex dynamics can leverage the impact of a single garden to contribute to the wider society, culture, as well as the ecosystem, what would it mean if we were to deploy these sources of landscape agency in garden and landscape design in five percent or even a quarter of all gardens? The power of the garden complex as a landscape agency lies in its emergent properties. After all, the accumulation of many small actions, performed in many single gardens, over time accrues to a significant effect on the wider landscape metropolis. Objections often refer to private ownership and almost full freedom in design, layout, and management of gardens as an ideal context for the tyranny of small decisions (Goddard, Dougill, & Benton, 2013; Dewaelheyns et al., 2016). But the resulting heterogeneity and fragmentation within the garden complex also put its plurality, multiplicity, diversity, adaptability, and diffusion to the fore.

Incremental changes as the result of spontaneous, autonomous (Antrop, 1998) or unplanned processes (Anstey, 2009) – even if they appear solely at the scale of a single parcel (Primdahl, 2010) – reshape places. So does the landscape imagination. By placing our emphasis on the garden complex, we have already started to change your imagination of the landscape metropolis. We illustrated how gardens – small singularities of private property that are considered meaningless from a top down perspective – do contribute to their wider surroundings, besides being valued highly from the household perspective.

We believe that each of the sources for landscape agency – *hybridity*, *scalar paradoxes*, and *complex dynamics* - offers added value for the individual garden itself, for the garden complex as well as for the landscape metropolis. The two cases demonstrate that hybridity entails versatility, simultaneity, and multiplicity, thereby engendering a richness of meaning and experiences. Clear-cut spatial definition and categorisation is replaced by a multitude of voices, values, and attitudes. This pluralism is also inherent in the scalar paradoxes we observed. The large degree of freedom we enjoy in planning and managing our own garden, inevitably results in many different garden visions and many different garden agencies. However, their cross-scalar interactions evoke design implications that transcend the confines of the private plot, surpassing individual, human gain and the willy-nilly, making individual gardens enter into negotiation with each other and with their surroundings. Finally, thanks to their adaptability and flexibility, continuously renegotiating the complex dynamics at play, the two case studies prove that a garden can be a driver of change and innovation and thereby a valuable source of resilience.

To conclude, our case study exploration offered the proof of need for the landscape imagination to focus on the garden complex. Reimagining the garden complex as a way to start addressing its vital capacities is especially urgent. Urban challenges are skyrocketing and garden complexes risk disappearing or face critical change due to densification, environmental stress, and shifting lifestyles. To begin with, we need a wider and deeper understanding of the sources of landscape agency inherent within the garden complex, as well as a more constructive imagination of the productive forces and operational modes that enable their interplay. A further exploration of landscape design strategies that enable these forces to gain momentum is needed for the garden complex to become a powerful ecological, cultural, and social agency within the contemporary landscape metropolis.

Acknowledgments

The authors would like to thank SPOOL and its theme issue editors Saskia de Wit and Andre Dekker for providing a platform to explore and discuss the role of gardens in the landscape metropolis. We are very grateful to two anonymous reviewers who challenged us in improving and focusing our contribution. We especially want to thank designers Geert Meysmans and Tom Callebaut for generously sharing their design experiences as well as their enthusiasm for collaborating. Finally, we thank the architectural office ectv and tc-plus, and the photographers Luc Roymans and Hilde D'haeyere for granting the use of their pictures.

References

Anstey, G. (2009). Unplanned rural living and its policy implications: Some findings from Bundaberg, Australia. *Land Use Policy* 26, 401-413.

Antrop, M. (1998). Landscape change: Plan or chaos? *Landscape and urban planning* 41, 155-161.

Brenner, N., & Schmidt, C. (2011). Planetary urbanization. In M. Gandy (Ed.), *Urban Constellations.* Berlin: Jovis.

Cameron, R. W. F., Blanuša, T., Taylor, J. E., Salisbury, A., Halstead, A. J., Henricot, B., & Thompson, K. (2012). The domestic garden: Its contribution to urban green infrastructure. *Urban Forestry & Urban Greening,* 11, 129-137.

Cattoor, B. (2015). Designerly mapping practices at the crossroads of cartography and urbanism: A processual account of three re-cartographies of southwest Flanders. *Environment and Planning A*, 47(6), 1283–1297.

Cattoor, B., & Perkins, C. (2014). Re-cartographies of landscape: New narratives in architectural atlases. *The Cartographic Journal,* 51(2), 166–178.

Colding, J., Lundberg, J., & Folke, C. (2006). Incorporating green-area user groups in urban ecosystem management. *AMBIO: A Journal of the Human Environment,* 35, 237-244.

Corboz, A. (1983) Le territoire comme palimpseste [The territory as palimpsest]. *Diogène*, 121, 14–35.

Corijn, E., Loeckx, A., & Persyn, F. (2015). Metropolitan landscapes: 9 + 1 maal anders kijken. In J. Mabilde, E.Vanempten, S. Devoldere & C. Oosterlynck (Eds.), *Metropolitan Landscapes*. Brussels.

de Wit, S. I. & Dekker, A. (2020). Land of Chabot: A Highway Landscape as a Monument to a Painter. *SPOOL*, 7(1), 95-110.

Dewaelheyns, V., Kerselaers, E., & Rogge, E. (2016). A toolbox for garden governance. *Land Use Policy,* 51, 191-205.

Dewaelheyns, V., Rogge, E., & Gulinck, H. (2014). Putting domestic gardens on the agenda using empirical spatial data: The case of Flanders. *Applied Geography,* 50, 132-143.

Francis, M., & Hester, R.T. Jr. (1990). *The Meaning of Gardens: Idea, Place, and Action.* Cambridge: MIT Press.

Jakobsson, A., & Dewaelheyns, V. (2018). Contemporary interpretation of the meaning and heritage of early 20th century private gardens: From an historical reflection to a future outlook in planning. *Urban Forestry & Urban Greening*, 30, 210-219.

Gehl, J. (1987). *Life Between Buildings.* New York: Van Nostrand Reinhold Company.

Gill, S. E., Handley, J. F., Ennos, A. R., Pauleit, S., Theuray, N., & Lindley, S. J., (2008). Characterising the urban environment of UK cities and towns: A template for landscape planning. *Landscape and urban planning*, 87, 210-222.

Goddard, M. A., Dougill, A. J., & Benton, T. G., 2013. Why garden for wildlife? Social and ecological drivers, motivations and barriers for biodiversity management in residential landscapes. *Ecological Economics* 86, 258-273.

Mathieu, R., Freeman, C., & Aryal, J. (2007). Mapping private gardens in urban areas using object- oriented techniques and very high-resolution satellite imagery. *Landscape and urban planning*, 81, 179-192.

Miller, M. (1993). *The Garden as Art.* Albany, NY: SUNY Press.

Moulaert, F. and Van Dyck, B. (2011). The garden as a metaphor of resilience. In V. Dewaelheyns, K. Bomans and H. Gulinck (Eds), *The Powerful Garden: Emerging Views on the Garden Complex.* Antwerp; Apeldoorn: Garant Uitgevers N V.

Phillips, M., Page, S., Saratsi, E., Tansey, K., & Moore, K. (2008). Diversity, scale and green landscapes in the gentrification process: Traversing ecological and social science perspectives. *Applied Geography*, 28, 54-76.

Pisman, A., Vanacker, S., Willems, P., Engelen, G. & Poelmans, L. (Eds.). (2018). *Ruimterapport Vlaanderen (RURA). Een ruimtelijke analyse van Vlaanderen. (Space report Flanders. A spatial analysis of Flanders)* Brussel: departement Omgeving.

Primdahl, J. (2010). Globalisation and the local agricultural landscape: current change patterns and public policy interventions. In *Globalisation and agricultural landscapes* (pp. 149-167). Cambridge University Press.

Qviström, M. (2007). Landscapes out of order: studying the inner urban fringe beyond the rural-urban divide. *Geografiska Annaler: Series B, Human Geography*, 89, 269-282.

Tratalos, J., Fuller, R.A., Warren, P.H., Davies, R.G. & Gaston, K.J. (2007). Urban form, biodiversity potential and ecosystem services. *Landscape and Urban Planning*, 83(4), 308–317.

Tschumi, B. (2012). Importing the city into architecture: interview by A. Eisenschmidt in New York, 13 July 2011, *Architectural Design*, 82(5), 130–135.

Tzoulas, K., Korpela, K., Venn, S., Yli-Pelkonen, V., KaÐmierczak, A., Niemela, J. and James, P. (2007). Promoting ecosystem and human health in urban areas using green infrastructure: A literature review. *Landscape and Urban Planning*, 81(3), 167–178.

Van Delm, A. & Gulinck, H. (2011). Classification and quantification of green in the expanding urban and semi-urban complex: Application of detailed field data and IKONOS-imagery. *Ecological Indicators*, 11, 52-60.