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Diversifying the compact city: A renewed agenda for geographical research

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Abstract

The compact city has become part of the policy orthodoxy in dealing with climate change and other sustainability challenges, and scholars from a diverse set of disciplines have informed this policy through empirical research. In this paper, we argue that attuning research in this field to key perspectives and concepts in human geography and critical urban studies can help 'diversify' understandings of compact urbanism in ways that advance social and ecological justice. We show that the compact city has been conceived primarily through the lens of territorially bounded physical urban form, and thereby many of its social, political, and ecological implications are overlooked. Based on this critique, we propose a renewed agenda for compact urbanism that rearticulates it as a strategy for sustainable transformation by bridging socio-material and relational approaches and engaging the human geographical toolbox. Three entry points for this agenda are highlighted: (1) *commoning* the compact city; (2) *metabolism of* compact cities; and (3) *antagonism in* the compact city.

Keywords

compact city, commoning, justice, sustainability, urbanism

Introduction

The compact city ideal has become part of the policy orthodoxy in dealing with climate change and other sustainability challenges. As urbanization unfolds at a massive pace, the goals of curbing

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sprawl, stimulating transit-oriented development, and preserving agricultural lands from urban encroachment have become central policy ideals. These are operationalized in different ways in the UN Sustainable Development Goals, the UN Habitat, and the Global Commission on the Economy and the Climate, as well as in the reports by the Intergovernmental Panel on Climate Change (IPCC). In policy circles, this discourse is broad and multifaceted, involving a range of policies, many of which make sense from a standpoint of advancing a sustainable shift in and around cities across the world.

This paper problematizes dominant understandings of the compact city and its relationship to sustainability. In academic research, the compact city ideal has played a growing and significant role in urban planning and environmental studies over the last three decades (i.e. Breheny, 1992; Burton, 2000; Jenks et al., 1996; Næss, 2006). The core idea of compact urbanism gained significant momentum following research on the correlations between energy use and urban physical density, for which Newman and Kenworthy (1989) are renowned. Since then, compact urbanism has come to mean the development of a particular urban form based on density, proximity, and co-location of housing, workplaces, services, and public transit, which are shown to reduce energy use and transport demand (VandeWeghe & Kennedy, 2007). Much of this research and the accompanying debates have been focused on urban form. In policy debates and planning discourse, the compact city is typically represented as modern high-rise buildings and high-tech mobility infrastructure. This has certainly been the subject of recent critique, such as its facilitation of gentrification (Anguelovski et al., 2019) and its affinities with neoliberal urbanism (Andersen & Røe, 2017; Sager, 2015).

However, human geographers have, by and large, been less directly involved with the debates on compact urbanism. Yet insights from human geography have the potential to open up and diversify understandings of the compact city, and reveal the contradictions between the hegemonic agenda and its focus on urban form on the one hand and the concrete politics of implementation on the other. As cities across the world expand and extend vertically, we argue that human geography employs a set of theoretical and methodological tools particularly relevant for scrutinizing, critiquing, and engaging with the ideals of the compact city and its relation to sustainability, in ways that are often overlooked.

Our aim is to show how key insights from human geography and critical urban studies may unpack and diversify understandings of the compact city. We deconstruct the epistemological underpinnings of the compact city in academic research, and then draw on recent scholarship in human geography and critical urban studies to provide entry points for ways of thinking that will advance a more ecologically and socially informed compact urbanism.

This 'diversified' agenda is important because compact urbanism has several sustainability implications that the established perspective fails to recognize. Geographical insights may, among other things, be used to question the bounded concept of the city and reveal how the compact city is situated in trans-urban and global flows of materials and people. They may also help unpack the social constructions and imaginations of the compact city and reveal the rationalities embedded in the planned instrumentality of the compact city. The implication of this is to make it clearer how urban sustainability is about more than physical form. It is also about managing the wider relations and flows of which cities and their inhabitants are part. For human geographers, this agenda provides an opportunity to engage in an important policy debate on our own terms, making the most of the theoretical and methodological tools our discipline offers.

In short, our contribution in this article is developed in the following way: After explaining our critique of the compact city as an urban form (the section 'The compact city as a sustainable urban form'), we identify three distinct contributions from human geography and urban studies enabling a critique and unpacking of the social, political, and ecological implications of compact urbanism (the section 'Identifying insights from human geography for diversifying the compact city'). We argue

that the following key insights are useful to unpack the compact city: First, compact city strategies can be seen as part of an ideological agenda of urban growth and renewal with intended or unintended consequences, such as green gentrification and displacement of people. Second, we argue that key insights from human geography and urban studies can shed light on the implications of compact urbanism for social justice, by making visible the trans-urban relations and flows that make compact cities possible. Third, we argue that a key insight is to expose compact city projects as contextualized, lived, and resisted.

On the basis of these key insights, we propose three related entry points for a renewed agenda for scholarship aiming to 'diversify' compact urbanism (the section 'Entry points for a renewed compact urbanism research agenda'). First, we propose *commoning the compact city*, as a way to shift the ideological underpinnings towards shared and public interests. Second, we suggest a research focus on the *metabolism of compact cities,* as a way to better address the social justice implications identified in the previous section. Finally, we point towards *antagonisms in the compact city* as a critical entry point to address the lived and resisted realities of compact cities.

The compact city as a sustainable urban form

The origins of compact city thinking can be traced back to 20th-century planning reformers like Le Corbusier and Jane Jacobs, who presented different models for the dense city (Hall, 2002). Early compact city theorizing and studies shared the objective of identifying the extent to which the urban compact form is more sustainable compared with sprawl (Breheny, 1992; Jenks et al., 1996; Newman & Kenworthy, 1989, 1999). The sustainability focus characterized the methodology, empirical data and, consequently, the knowledge produced by this work – evident in the comparative nature of many analyses. The environmental, social, and economic dimensions of different urban forms (i.e. density vs. sprawl) are typically measured by either case comparisons or correlational and multivariate statistical models.

The most well-known research is Newman and Kenworthy's (1989, 1999) work on the relation between transport and density, which has spurred both advanced statistical investigations and in-depth case studies of city districts. Automobile dependency (operationalized as gasoline consumption per capita) was in their work correlated with population density in medium and large cities in North America, Western Europe, Asia, and Australia. Newman and Kenworthy's figure illustrating that car use drops off exponentially with rising population density (Figure 1) has been labelled 'one of the iconic images of the urban planning field' (Ewing et al., 2018: 167).

Another prevalent example circulating the policy debate is Bertaud and Richardson's (2004) comparison between Barcelona, a dense city saturated by public transport, and Atlanta, a sprawling and heavily car-dependent city, which was reproduced in the 2014 New Climate Economy report (Global Commission on the Economy and the Climate, 2014). The take-home messages from these illustrations, which have been taken to heart by urban planners globally, are that low-density sprawl results in car dependence and high CO_2 emissions.

There has been critique against Newman and Kenworthy for not taking other factors into account, such as the relative spatial distribution of homes, employment, and amenities (Bertaud, 2004; Lefèvre, 2009). But a more fundamental critique of this earlier perspective is that it limits its view of compact urbanism to seeing it as a particular territorial and physical urban form (Kjærås, 2020; Neuman, 2005). Even questions of social sustainability tend to be addressed via questions about the social qualities of particular urban forms, as described by Jacobs (1961). Although Jacobs forcefully revealed the inhumane fallacies of modernist city building projects, her own urbanist visions also advanced unduly idyllic descriptions of centre urbanism based on neighbourhood types, at large disregarding social implications like gentrification. Jan Gehl's (1987) highly influential work can be read similarly; that the right urban culture and social practices can be achieved by designing and

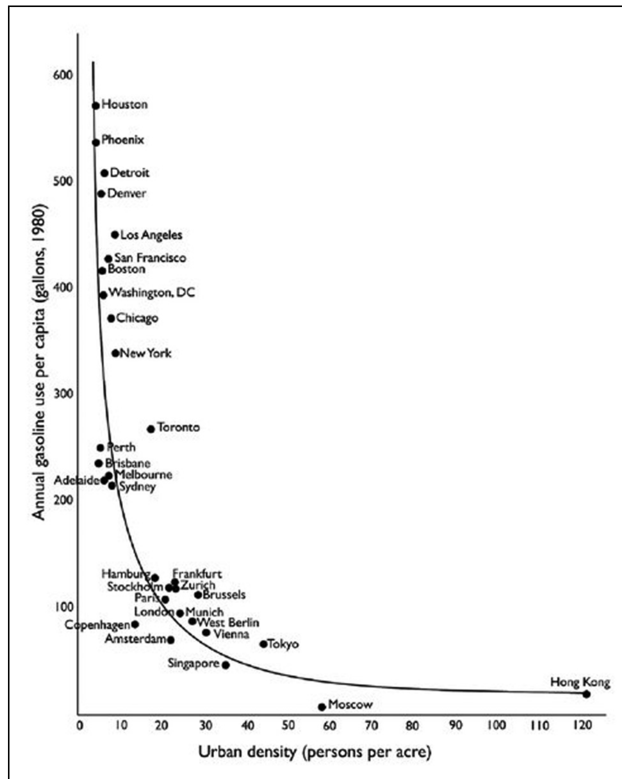

Figure 1. Iconic image in urban planning – Newman and Kenworthy's (1989: 128) gasoline use per capita versus population density.

building the right urban form. Although some scholars have challenged such ideal-typical assumptions (e.g. Burton, 2002; Gordon & Richardson, 1997; Smythe, 1996), they are typically still committed to a locally bound conceptualization in which empirical attention focuses on what occurs *inside* the formal (yet relatively arbitrary) city boundaries (Keil, 2018; Keil et al., 2017).

We believe it is time to illuminate the limitations and possibilities of the established compact city idea. There is a need to direct critical scrutiny of compact cities' social, political, and ecological impacts and implications beyond urban form, as there are several limitations in the epistemological foundations of this perspective. The established idea of the compact city is problematically territorial, in the sense that its theoretical and methodological foundations rest on the topographical density of the built environment, functions, and people (albeit in divergent ways; see Burton, 2002) as confined spatial patterns of proximity bounded by a non-dense outside. While such a territorial logic is constitutive of the ideal-typical compact city (Westerink et al., 2013: 474), it has certain assumptions of spatial boundedness in which trans-local, multiscalar, and metabolic dynamics (e.g. energy consumption, political economy, governance, socio-spatial exclusion, and marginalization) are weakly integrated and accounted for.

This weakness includes the lacking acknowledgement of the role of the suburb within the urban region and metabolism, and as part of 'extended urbanism', as coined by Lefebvre (2003). Keil (2018: 178–179) suggests that the 'political ecology of the Anthropocene might have to be

re-imagined in those global suburbs that now house the majority of us and from where the capitalocene derives its metabolic dynamism’. The current compact city ideal-type largely omits this perspective, leading to the social and symbolic construction of compact and sustainable cities as if city regions do not exist.

Specific unintended consequences of compact urbanism have already been pointed at by others. Mainstream densification policies in tandem with a neoliberal urban regime have, for instance, undermined public housing (Graham, 2015), spurred ‘green gentrification’ (Anguelovski et al., 2019), displaced marginalized groups (Rao, 2007), and led to unintended urban sprawl outside city boundaries (Miller and Mössner, 2020). Similar tendencies have been identified in the Global South. Horn (2020), for example, has argued that private sector-driven urban development favouring middle-class values is part of what has created peri-urban, informal, and slum-like settlements at the urban periphery.

Our purpose here is not to dispute the valuable knowledge from empirical contributions based on form-oriented city perspectives on the compact city. The form-oriented perspectives have been important for shifting urbanism from car-centric and inhumane modernist paradigms towards human-scale urbanisms. Lessons and insights from Jane Jacobs, Jan Gehl, Newman and Kenworthy, and others have been used widely, in a wide range of contexts, to rethink and redevelop cities in directions that are arguably more sustainable. The policy efforts to curb urban sprawl and to accommodate urbanizing populations in compact and liveable ways within cities remains valid. Planning scholars and geographers have at times advanced nuanced conceptions of compactness and sprawl (Dovey & Pafka, 2020; Galster et al., 2001; Phelps, 2021).

Our point is rather that in an intensifying networked world, our understanding of the compact city and its implications must be opened up and diversified. Driven by processes of capital accumulation, urbanization unfolds in varied and contradictory ways (Brenner, 1998; Harvey, 1989). For example, when compact city strategies in tandem with capital-intensive inner-city regeneration are tied to (‘green’ or ‘ecological’) gentrification and the accompanying indirect and direct displacement of vulnerable, low income, and increasingly middle-income populations (Butler, 2007b; Lees & Ley, 2008; Lees et al. 2008). This produces new territorial configurations and uneven development at the urban regional scale, including both densification as well as trends of vast peri-urban, suburban, and post-suburban growth and restructuring around the globe (Angel et al., 2016; Chen et al., 2020; Keil, 2018; Phelps et al., 2010).

Therefore, the intensity, complexity, and contextual variations of extended urbanization calls compact urbanism, as it has previously been understood, into question. In other words, we need to bridge perspectives on the *city as a form* and perspectives on *urbanization as multi-scalar and relational process*es, and conceptually develop the latter. This can help us better understand the wider implications of compact urbanism and the processes that guide its intricate relation to urban sustainability.

Here human geography can here play a critical role. In the following section, we will identify and discuss key perspectives in human geography and urban studies that can help diversify our understanding of compact urbanism and its implications. We will draw on these literatures for a renewed conception of the compact city and its relation to sustainability.

Identifying insights from human geography for diversifying the compact city

In order to situate a diversified understanding of compact urbanism and its implications, we have identified insights from recent critical literature on sustainability in human geography and urban studies that are particularly helpful. The recent growth in the critical literature on cities and urbanism, including its trans-urban and global manifestations, can help to unpack the compact city and provide fruitful ways forward in redeveloping the conceptualization of urban and suburban compactness. Although this literature does not typically discuss the compact urbanism agenda directly, we have here mobilized the insights they offer for our

diversification of the agenda. In turn, they underscore the distinct potential contribution of human geography to a diversified understanding of compact urbanism.

Here we highlight three particularly important insights. First, we show how contributions from human geography can help understand the embeddedness of compact city strategies in ideological agendas of urban growth, renewal, and capital investment. Second, we use insights from the literature to shed light on the contradictory implications of compact urbanism for justice. Third, we use these insights to discuss how compact city projects are contextualized, lived, and resisted by urban residents in sites of densification.

Compact city strategies as an ideological agenda

Strategies for urban renewal, growth, and entrepreneurialism have long been critiqued for embodying ideological underpinnings (Harvey, 1989). Scholars have levelled similar critiques against the urban sustainability agenda, in ways that also implicate the compact city. It has been suggested that the urban sustainability agenda has been accommodated with existing hegemonic growth-oriented urban governance regimes (Castán Broto, 2017; Hodson & Marvin, 2017; Jonas et al., 2011; Long & Rice, 2019; Peck et al., 2009; Rice, 2014; Swyngedouw, 2009; While et al., 2004). In this account 'urban sustainability', within which density ideals are integral, is promoted by powerful public and private actors and institutions. This discourse has evolved to flow through global intercity networks, architectural competitions, city branding, and 'best practices' (Bouzarovski & Haarstad, 2019; Bulkeley, 2006; Haarstad, 2016).

According to Wachsmuth and Angelo (2018: 1042) representations of sustainability have ideological effects on urban planning and transformation by establishing undisputed, seemingly commonsense notions of 'urban sustainability'. In this sense, urban sustainability reflects contemporary power relations, deciding which 'lifestyles and bodies count as environmental concerns and what kinds of environmental interventions they merit' (Wachsmuth & Angelo, 2018: 1042). The implication is that the perceived sustainable urban form is often that which corresponds to lifestyle aesthetics – as applying to middle- and upper-class urbanites. In other words, we can understand the discursive construction of the compact city as part of the hegemonic model for 'sustainable urban development'.

We can further understand compact urbanism in this light through the work on the cultural political economy of architecture and planning (e.g. Andersen & Røe, 2017; Dovey, 2005; Grubbauer, 2014; Jones, 2009). Such work demonstrates how architectural practices can be understood as structured by the political-economic and societal conditions under which architects operate. Chen et al. (2020), in a recent special issue on the topic, termed this 'the ideological operations of density'. Or as McFarlane (2020: 318) argues, 'densification involves direct and indirect displacement, the valorisation (…) of some urban spaces and forms over others (…), and the disinvestment or abandonment of particular sites'. Similarly, Kern (2010b) held that densification has manifestations of patriarchy, in the sense that gendered ideas permeate real estate developers' notions of security needs and privatization.

For the purpose of diversifying understandings of the compact city, there are insights here that can serve to highlight the possible political underpinnings of the compact city agenda. This demonstrates how urban sustainability agendas constitute a hegemonic set of ideas assembled and spreading through trans-urban policy networks, and have effects on the political-economic arrangements of urban governance and planning. As we turn to below, in our discussion of entry points for a renewed agenda, this means that any such agenda must reconsider the political and ideological effects of the various forms of compactness. There we argue for commoning as one lens for opening compactness to a more democratic and public interest-oriented practice.

Compact urbanism as driver of social injustice

Another key insight that can be identified from the wider literature is that compact urbanism can be expected to have significant implications for social justice. Judging from this scholarship, we can assume

that the compact city can adversely impact livelihoods, distribution of opportunities and housing access in ways that any rethinking of the compact city must consider. This may sound obvious, but as some have argued, social justice issues are now often recast under a moral imperative that potentially trivializes them in comparison to the threat of planetary environmental collapse (Hodson & Marvin, 2017; Long & Rice, 2019; Swyngedouw, 2009).

More concretely, research has revealed the adverse justice implications of urban renewal. For instance, this was shown by Rao (2007) in the project of making Mumbai a ‘global’ and ‘world-class’ city in which informal slums become ‘speculative densities’ for real estate capital. Therein, displacement of the urban poor through attempts at ‘engineering formality’ (Harris, 2018) infuse how de/re-densification unfolds in the lives of Mumbai’s slum dwellers (Rao, 2007; see also Pérez (2020) regarding Bogotá). Thus, the socio-spatial unevenness of how urban policies impact people’s everyday lives necessitates an inquiry into classed, racialized, and/or gendered implications.

This point is made abundantly clear in the work on green gentrification, which is widely assumed to be a common implication of densification. Green gentrification (also referred to as environmental or ecological gentrification) involves processes in which lower-class (and often non-White) residents are symbolically or physically displaced from the inner-city neighbourhoods that are subject to urban greening and densification (e.g. Anguelovski, 2016; Anguelovski et al., 2019; Checker, 2011; Curran & Hamilton, 2012; Dooling, 2009; Gould & Lewis, 2016; Immergluck & Balan, 2018; Quastel, 2009; Quastel et al., 2012; Rice et al., 2020). These processes may involve a parallel exclusion by increasing housing prices because dense, multifunctional, and ‘green’ urban cores and amenities are attractive to ‘eco-conscious’ upper- and middle-class tastes and lifestyles. In Freiburg (often used as a showcase for sustainable urbanism), increased housing prices due to urban greening and densification have led many who work in the city to rely on distant, affordable housing, and consequently to increased emission-intensive commuting from peri-urban and suburban homes (Miller & Mössner, 2020).

Finally, justice-related implications of compact urbanism follow from the indirect climate effects of dense lifestyles. Given green gentrification, the carbon footprint of affluent cities is often markedly larger than appearances (and most official statistics) suggest, complicating the deterministic assumptions that compact forms of living are inherently more sustainable than sprawl (Czepkiewicz et al., 2018; Heinonen et al., 2013; Holgersen & Hult, 2020; Minx et al., 2013; Moran et al., 2018; Ummel, 2014). A ‘sustainable’ urban renewal project facilitating ostensibly low-carbon lifestyles in a particular neighbourhood may displace marginalized groups with initially lower carbon footprints (Heinonen et al., 2013). Densification strategies in particular places are always implicated in sociocultural, material, historical, and spatial processes at larger scales, and the broader implications of compact urbanism must be understood in connection with these. In our discussion of entry points for a renewed agenda, we argue that these broader implications can be approached by looking at the *metabolism of the compact city*. By examining the physical and social flows into and through the city, we may promote an agenda of improving the justice implications of compact urbanism.

Compact city projects as contextualized, lived, and resisted

Finally, we hold that recent literatures in human geography and urban studies can make us more attentive to how compact urbanism is contextualized, lived, and resisted. As relevant work makes clear, urban agendas are shaped not only by the macro-level, top-down ideology of ‘urban sustainability’, it also realized through micro-level issues pertaining to places’ pre-existing social, cultural, historical, ecological, material, and infrastructural features. Urban change involves physical transformation and potential deterioration of places’ existing architectural, material, historical, and natural features, which are deeply imbued with experiential and cultural meanings. These features contribute to an affective sense of place, belonging, and community for those who relate to them, which is potentially disrupted by urban change processes such as densification and

gentrification (Dovey et al., 2009; Khoshkar et al., 2018; Lillevold & Haarstad, 2019; Nolin, 2020; Røe, 2014; Short, 2019; Skrede & Berg, 2019; Swensen, 2020; Tappert et al., 2018).

Therefore, a key literature-driven insight applicable to compact urbanism is that we must attend to the lived experiences of urban change, understanding that these lived experiences differ significantly between social groups and across various spatial contexts and place-based settings. As examples of this diversity of experience with compactness, some scholars have scrutinized the gendered dimensions of living densely; these have included the patriarchal ideas shaping the development of vertical urban forms and their impacts on the daily lives of women who live in these high-rise spaces (Fincher, 2004; Kern, 2010a, 2010b). Others have taken inspiration from more-than/non-representational theories to explore the socio-spatial experiences, affects, and atmospheres of high-rise living (e.g. Nethercote & Horne, 2016; Reid et al., 2017; Shilon and Eizenberg, 2020).

Further, the literature reveals that physical and social densification transformations can also generate local antagonisms, including the so-called 'not in my back yard' (NIMBY) reactions and resistance to densification in single-family residential neighbourhoods (e.g. Charmes & Keil, 2015; Dovey et al., 2009; Skrede & Berg, 2019). This transformation has potential implications for various affective and emotional geographies (Duff, 2010; Pile, 2010; Wright, 2015) which the compact city agenda must face. These assumptions and political practices are shaped by places' socialities and materialities, and by their actors' social, cultural, and economic dispositions, which inform their political abilities to successfully resist place-specific changes. As the cases of Oslo (Andersen & Skrede, 2017) and Lyon (Rousseau, 2015) indicate, the degree to which such opposition is successful likely depends on residents' class dispositions and their political capacities to influence planning processes.

Unsurprisingly, homeowners often object to densification in their neighbourhoods. Poppe and Young (2015) showed this in Toronto, where single-family homeowners rejected encroachment of 'the urban' – higher densities and the consequent, potential increase in minority residents. Issues of class and ethnicity play into *where* and *how* compact city strategies materialize and *who* benefits. Although some may deduce that these are classic instances of NIMBYism, contributing to the reproduction of socio-spatial segregation, this way of politicizing urban densification also highlights a 'politics of the aesthetic' (Duncan & Duncan, 2001) – or the ways in which aesthetic tastes and lifestyles are bound to mutual formation and maintenance of place and class identities. The affective and emotional connections between people and places often make compact city policies highly contested and, in turn, geographically uneven.

One may criticize NIMBYism and the ethnic prejudice reflected by such sentiments. But the key point for us here is to emphasize how compact city strategies are entangled with perceptions of personal spaces and intimate attachments to neighbourhoods and local communities, which occasionally generate conflict and resistance. In our discussion of entry points for a renewed agenda in the next section, we suggest that this can be approached by addressing the *antagonisms of the compact city*.

Entry points for a renewed compact urbanism research agenda

Building on these critical insights identified above, we will now articulate a forward-looking scholarship agenda that emphasizes the potential for a more socially and ecologically just form of compact urbanism. Our purpose is not simply to critique compact urbanism, but rather to contribute to the rearticulating of it as a progressive strategy for sustainable transformation of cities. Compact urban planning remains an important agenda and will be so for the foreseeable future. As urbanization unfolds with increasing intensity, cities will have to accommodate growing urban populations while becoming more ecologically sustainable, providing affordable housing, counteracting inequality, among other challenges. The question seems to be less whether cities will become more compact, but rather what form this densification will take. Here, a critical scholarship can bring to the fore 'ways to make other worlds possible' (Gibson-Graham, 2008: 623), by contributing to rethink

compact urbanism in ways that open for its progressive social, political, and ecological potentials. We propose three entry points for this agenda: (1) commoning the compact city; (2) the metabolism of compact cities; and (3) antagonism in the compact city.

Commoning the compact city

As we identified in the section 'Identifying insights from human geography for diversifying the compact city', a key insight that human geography and critical urban studies offer is to shed light on the ideological underpinnings of the compact city agenda – promoting entrepreneurial urban renewal and valorizing particular middle-class and upper-class lifestyles. A shift in this agenda must, in our view, reclaim values of public interest, equality, and social justice. Therefore, our first entry point of a new agenda is *commoning the compact city*.

There have been nuanced debates on what 'commoning' means (Nikolaeva et al., 2019), also in an urban context (Dellenbaugh et al., 2015; Huron, 2015). We adopt a broad view of the concept, understanding it as a modal shift in politics from individual to collective terms, as the countermovement to privatization and enclosure. Ostrom's work (1990) has shown that when managed well and cared for by a community, commoning can preserve ecological balance and equality of access, as opposed to the collapse projected by the widespread 'tragedy of the commons' thesis.

We side with Gibson-Graham and co-authors (2016), however, in warning against seeing commoning as simply the opposite of capitalist privatization, or to limit commoning to a particular set of governance norms. Rather, it is a relational process of 'negotiating access, use, benefit, care, and responsibility' (Gibson-Graham et al., 2016: 195). Writing about commoning of urban space, Bresnihan and Byrne (2015: 36) suggested that 'those who piece together collective forms of creating and exchanging do so in order to meet concrete needs, and in doing so they confront concrete dynamics of power as they encounter both private (market) and public forces'. Simply put, the commoning of various types of resources is both about creating community as well as meeting needs in potentially sustainable ways. Arguably, this provides a potent political framing for compact cities, and a clear contrast to the enclosure of urban space typically operated through urban politics of gentrification, segregation, and privatization, most extremely developed through gated communities and securitized urbanism.

Commoning as a frame for rethinking compact cities and densification can achieve several things. In terms of its critical edge, it can motivate a critical political practice against the enclosure of urban space, and direct attention to practices that challenge existing relations of ownership, spatial practices, and resource use. A compact city agenda based on commoning, then, attempts to encourage, facilitate, and improve sustainable practices and simultaneously avoid the rules and practices typified by neoliberal urbanism where access to facilities, services, and resources are privatized and organized through market regulations.

As a constructive political project, commoning can develop spaces for collective production of urban livelihoods, collective ownership, and housing, improve public access to resources, and alter relations of reproduction in the compact city. It can reinforce projects of developing public amenities such as public transportation and public parks by local and urban authorities. But where these projects are often organized through clear authoritative hierarchies and implemented by the top-down process of planning and design and operated by private developers, commoning emphasize social infrastructures and organize a more diversified typology of collective relations at a broader variety of urban scales (from the building to the city). Where compact urbanism today operates within a public–private division of interests, roles, and responsibilities, *commoning the compact city* points to the need for urban social infrastructures to be planned and organized across urban districts and neighbourhoods, as well as beyond state and market relations, in order to achieve distributional justice. Commoning reinforces shared interests and shared resources of urban life, and opens a different way of thinking through how compact urbanism influences the way we live and interact with one another.

This is not as utopian as it may seem. Shared social practices have in fact played a significant role within arguments for compact city form historically. For example, public transportation, libraries, pools, and

parks represent collectively organized common-pool resources that have allowed compact cities to prosper as places to live and work. Equally, shared and collectively organized spaces, such as drying lofts, communal facilities, workshops, co-ops, and gardens have held a significant role in the scale of the building or city block in recent urban history.

It is not necessarily physical density itself that generates these practices. Arguably, it is the density of networks, collective organizations, and the patchwork of social spaces and institutions, or 'social infrastructure' (Klinenberg 2018), that matters. Research has revealed that people in dense urban settings may live socially separated from their neighbours (Butler 2003, 2007a, 2007b) and that social capital may be high in suburbs (Gans, 1967), so density is no guarantee for social capital. Nevertheless, living compactly provides an infrastructure that opens up for more shared lifestyles and more diverse societies compared with the typically individualized lifestyles within detached, individualized, and privatized urbanisms, that may be prevalent in suburban settings or in gentrification and compact new built developments in central parts of the city (Butler, 2007a).

There are a number of practical projects already existing in cities that are in line with the agenda of commoning the compact city. Many city municipalities and metropolitan governments are of course providing various types of amenities and public infrastructures to its citizens, often with great creativity in situations of significant resource constraints (McLaren & Agyeman, 2015; Montgomery, 2013; Speck, 2013). There are also a host of activist, stakeholder, and neighbourhood-driven activities centred on sharing across sectors of food, energy, governance, and more. As one illustration of the wealth of practical examples available, the crowdsourced anthology *Sharing Cities: Activating the Urban Commons* (Shareable, 2018) provides 137 case studies with a staggering diversity of political projects based on public, shared, and civic values. Food banks, ride sharing, cooperative housing, community energy – there is a vast array of projects in existence across cities today and some of these initiatives have long histories. Our point is not that all of these are necessarily transformative, or possible or desirable on a larger scale, but that there is a wealth of practices and ideas out there that help stimulate a project of commoning the compact city, by showing the possibilities for compacting differently.

We should also note the possibilities for commoning opened up by digitalization, such as car sharing, bike sharing, tool libraries, apps to avoid food waste, and smart carpooling. Numerous cities are experimenting with apps and various digital platforms to provide citizens with better access to public services, and digital connectivity has intensified social interaction and exchange – so-called smart cities (Townsend, 2013). As many have pointed out, there is a need to exercise caution, as the platforms are often private, monetize personal data, and create new forms of enclosure (Sareen & Haarstad, 2021). Although platforms such as Uber and Airbnb rely on optimizing physical infrastructure sharing, they embody problems such as labour rights (Uber) and exclusionary housing (Airbnb). Nevertheless, digitalization offers potential for collective organization at the scale and pace of contemporary cities. From this perspective, commoning the compact city may even provide a collective modernist imaginary, that takes from modernism the technical roots of efficacy and combines them with collective organizational relations.

In contrast to the compact city agenda underpinned by ideologies of entrepreneurial urban renewal, then, we argue that commoning the compact city can help chart a different path. The research agenda ensuing from this is ripe for the human geography tool kit, with the critical sensibilities inherent to its work on local agency, place-based politics, urban experimentation, and community activism. In particular, there is an important role for geographers in empirically and conceptually recognizing the place-based experiments in commoning practices mentioned above and connecting them with larger scales (Bouzarovski and Haarstad, 2019). Academic analyses can help understand the constraints and opportunities for these experiments and projects in commoning the compact city.

Metabolism of the compact city

In the section 'Identifying insights from human geography for diversifying the compact city', we

pointed to the wider implications of the compact city for social justice, and to research insights that shed light on a variety of adverse justice effects. Here we propose that one potent way to rethink compact urbanism in a way that may advance social justice is to examine *the metabolism of the compact city*. Urban metabolism is the perspective that cities are constituted through dense networks of interwoven socioecological processes of different types – material, discursive, cultural, organic, and more (Swyngedouw, 2006a).

This perspective has been employed by geographers, not least of the Marxist orientation, to conceptualize material, social, economic, and political processes of consumption and resource flows in dynamic ways (Newell & Cousins, 2015). Here we hold that urban metabolism provides an opportunity to look beyond the discrete spaces where negotiations over specific densification projects are playing out, in order to situate these negotiations in socioecological wider systems.

Flows of resources that determine the climatic footprint of urban lives are not confined to the territorial and physical limits of the city. Cities are junctions embedded in complex chains of globe-spanning commodities; they are also embedded in social networks, financial flows, and commodity chains of equal scale. Understanding the compact city in terms of its planetary relationships foregrounds the unfolding multiscalar and networked interrelations that its material and discursive assemblage entail. This grounds the compact city in already existing assemblages of human and non-human actors, structures, relations, and materialities, as geographers have already noted (Haarstad, 2016; Kjærås, 2020; McFarlane, 2011). Thinking through metabolism 'illuminates different aspects of the city's sustainability' (Castán Broto et al., 2012: 852). It can do so by highlighting material and immaterial flows that mediate its production and reproduction, in both a biophysical and socio-economic sense.

Such an approach implies to move beyond what Angelo and Wachsmuth (2015) termed 'methodological cityism'; to rescale the idea of a city's sustainability profile from its geographical boundaries to the trans-urban flows and networks in which it takes part. Generally, there is a need to consider how living in compact cities (including lifestyles that appear to be sustainable) drives cross-scalar and production network emissions, environmental degradation, production, and consumption.

For example, the cement used to build new urban densities produce massive CO_2 emissions elsewhere in the world. Electric cars used to bolster the green profile of affluent cities depend on extractive resource use and the mining of rare minerals in locations largely hidden from view. Exotic fruit consumed in a metropolis is transported halfway across the planet. These simple facts should make us reconsider what constitutes a 'green city' (Sareen & Grandin, 2020). As one example of how this broader analysis can generate a critical perspective, Holgersen and Hult (2020) argued in their case study of Malmö that the city's status as 'environmental role model' only holds if one chooses to ignore the fact that the city depends upon emissions being emitted elsewhere and ignore any relation between affluence and emissions. Accounting for these issues in calculations of what it takes to produce (literally speaking) an affluent life in a compact city renders useless any simple analysis of reduced intraurban transport demand.

Research drawing on a metabolic perspective on urban sustainability can push urban governance actors to account more realistically for climate and sustainability footprints. Many cities are now developing tools to achieve this, such as novel forms of climate budgeting, and some are developing policies aimed at the consumption practices of residents (Schrage & Kjærås, in press). In terms of practical impact, metabolic research can help cities ground check these initiatives and make sure they are sufficiently comprehensive.

Metabolic ideas also help us move past thinking of compactness in terms of a binary of city centre versus a sprawling hinterland, with the 'sustainable' urbanites on one hand and the sprawled and car-based suburbanites and rural populations on the other. We have seen recently how this binary can hold politically risky polarizations, where communities and social groups 'left behind' by mainstream politics – including mainstream sustainability agendas – mobilize around populist reactions (Jennings & Stoker, 2018; Wanvik & Haarstad, 2021). The simplification of the relationship

between space and sociopolitical possibilities, criticized already by Gans (1967), has the potential to divide and fracture. Clearly, there are suburban and rural communities that are more socially compact and sustainable than some urban communities (Keil, 2018). Metabolic thinking on compactness can arguably help overcome such urban-rural divides, and instead point attention to the actual flows that make some communities more sustainable than others.

Finally, metabolic thinking can also help us better understand the rifts *within* compact cities (Gandy, 2018). The lifestyles of those enjoying the virtues of affluent urban densities are not only reliant on flows from elsewhere. New urban elites of compact living may have replaced or hindered less fortunate inhabitants in the same city who are displaced to suburban or exurban fringes of the metropolis, lacking high-quality access to social infrastructures, high-quality urban amenities, and effective public transport. Metabolic analysis may uncover the splintered character of urban life, which results in affluent and impoverished lives taking place in close spatial proximity while attached to widely different resource flows. In sum, a metabolic view of compactness opens for better understanding of the lived realities of density, how density disrupts and recreates places, how these lives intersect with others' experiences elsewhere, and how compact living is related to questions of social and environmental justice for the larger city region and scales beyond.

As an agenda for human geographical research, we see ample opportunities for critical and impactful scholarship. Unpacking the celebratory discourses of urban greening and sustainability of compactness, we can follow and trace the networks and flows that make compact cities possible. Geographers have already innovated in methodological approaches of 'following' politics and other artefacts (Peck & Theodore, 2012), and should be well prepared to consider the interwoven character of social, material, and ecological processes (Swyngedouw, 2006b). This can engender insights on what kind of densities are sustainable and just, and which are less so. Critical scholarship here can also be used constructively, attempting to create new metabolic relations within and beyond the city, to foster heterogeneity, justice, and sustainability, and help draw wider metabolic processes into urban governance processes and policymaking.

Antagonisms of the compact city

In the section 'Identifying insights from human geography for diversifying the compact city', we pointed to the lived and resisted realities of the compact city. As a third and final entry point for a renewed agenda on scholarship on compact urbanism, we argue for a research approach to better understand the interests, power relations, and contestations of compact urbanism. Essentially, this is an invitation to take seriously the way densification and compact city strategies are experienced, made sense of, and mobilized around, by those who live in and with them. Compact urbanism is too often made sense of in terms of a planning strategy or a general impetus for improved sustainability. In turn, the resistances and the divergent lived experiences with compactness are often dismissed as selfish NIMBYism. This dismissal has become a common discursive practice among planners and architects in deflecting critiques of compact city development.

In place of such dismissal, we see the emergence of an important research agenda in making visible the lived realities of compact cities, analysing these on their own terms, and to understand the politics and resistances they engender. Protests against market-based compact city projects may be seen as struggles over 'the democratic governance of the future city' (Robinson & Attuyer, 2020: 1294), representing what Massey (2004: 11) described as '[a] local politics with a wider reach; a local politics *on* the global'. Accordingly, the democratic contestation of compact city policies, and the forms of human and non-human densities they facilitate, can encompass a critique of the political economy and urban governance of de/re-densification.

We already know that protests against densification are often rooted in progressive values and solidarity. As Robinson and Attuyer (2020: 1294) demonstrated in their analysis of a contested large-scale development in London, protests by residents were not necessarily motivated by NIMBYism. Instead, resident groups were looking

to ‘protect the quality of the future built environment, to ensure the accessibility of housing to the poorest, and to make a city which is liveable across the generations’. They also documented protests over the lack of quality and inclusion in newly built projects, focusing on architecture and public spaces. This is especially evident in new-built gentrification projects (Andersen & Røe, 2017; Butler, 2007a), where densification transforms the social fabric of city districts and neighbourhoods. Similarly, Kjærås (2020) showed how artists criticized an urban transformation project in Oslo for its lack of attention to long-term issues of housing accessibility and art space, bringing affordability, and housing policy into the compact city discussion.

At the same time, we would argue that even protests that are less progressive should be understood on their own terms. One form of political contestation that has been especially prominent concerning the implementation of compact city policies (particularly in North American and European contexts) emerges from low-density suburbs near inner-city margins. In this form of local opposition, the neighbourhood is ‘defended’ from the negative impacts that densification is believed to have on its social and aesthetic qualities (Poppe & Young, 2015). Nevertheless, protests articulated in terms of self-interest should be understood as grounded in real grievance, which may be rooted in larger socio-political structures. The populism literature illustrates the dangers of failing to recognize the grievances of various socio-economic groups as legitimate (Jennings & Stoker, 2018; Wanvik & Haarstad, 2021).

In this context, we have to be aware of the danger that academic urban scholars subscribe to somewhat narrow set of sociocultural values, and therefore have certain types of blindness to the lived realities and grievances of anti-densification protesters based on different sociocultural values. This demands that we are skilful in negotiating the different interests and positions involved (including our own), and that we are sensitive to the different roles academics can play in knowledge production – from arguing for particular standpoints, to dialoguing, and more distanced data gathering (Haarstad et al., 2018). We can also learn from planning theorists like Pløger (2004, 73), who argues that ‘it is necessary to be able to work with strife’, ongoing disputes about words, visions and ideas of ‘the good life’, if we aim to really empower citizens in politics and planning processes.

Opening the research agenda to the wide variety of experiences of living with compact urbanism is, in our view, a promising starting point for imagining a more socially and geographically inclusive agenda for compact urbanism. This agenda builds on our entry points argued for above – on commoning, which outlined a new ideological basis for compact urbanism, and metabolism, which made visible the material and relational flows characterizing compact city models. We see the contours of a new politics of the compact city, which opens this largely technical policy discourse up to a wide range of concerns. Through contestations over compacting policies, urban density takes on different meanings than those expressed by the compact city as a topography of ‘sustainable’ urban form. Instead, what emerges is a ‘topological politics of urban density’ (McFarlane, 2016: 637), focusing on the relations and practices that make and unmake density. Here issues of urban inclusion and exclusion are seen in light of densities of various types of human and non-human ‘otherness’. What does densification look like and feel like from the ground up? What experiences, in what socio-economic contexts, are people motivated to mobilize for alternative forms of compactness? How does the material or symbolic compactness attractive to some, displace and exclude others, and decrease their accessibility to the attractivity and liveability of compact urbanism and compact living?

Here human geographers and urban scholars can mobilize the long tradition of grounded, ethnographic, and site-based fieldwork, humanistic approaches immersing in the lifeworlds of people involved in or affected by densification. There is a wealth of work that can be used as methodological inspiration and guidance, for example, feminist work on the experiences of everyday life (Meehan & Strauss, 2015), or recent work on experiences of living in austerity in the wake of the 2008 financial crisis (Hall, 2019). Involving a deeper perspective on the lived realities of compact urbanism takes the grounded view, and points to questions around rights to the city, urban development and housing models, sense of place, and the social justice

implications of dense renewal urban projects. Research documenting lived experiences with compact cities can also provide valuable societal impact, and possibly inform policymakers and stakeholders by bringing new perspectives into the public sphere.

This agenda can in turn inform a set of broader questions, such as, who decides which housing models and land-use priorities are developed? Can progressive models be generated within the current paradigm of private developer- and investment-driven development? How do we build cities – politically, economically, and socially – that generate compactness in accordance with ecological and social justice? In other words, it entails not only identifying how compact urbanism becomes imbricated in existing relations of urban marginality and exclusion – it calls attention to the potential it may hold for the creation of more just urban worlds.

Conclusions: Towards another compact urbanism?

As the world faces intensified urbanization, compact city development and density will be critical coping strategies to minimize land use, environmental degradation, and CO_2 emissions. This must be achieved in ways that overcome social inequalities, exclusionary processes, and segregation and make cities inclusive and good places to live. We have argued in this paper that geographers have a lot to contribute to this challenge, and that insights from human geography can help diverse understandings of the compact city. In particular, we can help rethink the compact city in ways that will advance a more ecologically and socially inclusive compact urbanism. We have outlined such an agenda for future research based on three entry points: commoning the compact city, the metabolism of the compact city, and the antagonisms of the compact city. Commoning points to the potential for sharing, collaborating, and fostering collective interests in dense urban spaces. Metabolism draws attention to the biophysical and social flows extending beyond the territorial boundary of the city. Antagonism highlights the ways compactness is lived, experienced, and contested.

This 'diversification' of research on compact urbanism could help reinvigorate knowledge production in human geography and urban studies more broadly. For one thing, it could lead to a closer collaboration between geographers and the field of urban planning – both planning scholars and practitioners. Geographers would benefit from better knowledge of and engagement with the intricate but decisive details of zoning regulations, transit-oriented planning, and spatial localization policies. Planners would benefit from the critical sensibilities and broad scope of socio-spatial analyses as extending to scales and networks beyond the city, among other things. The increased policy focus on social sustainability needs to acknowledge the long-standing research on social implications of urban and regional policies and planning. We second Phelps (2021) who, in discussing the future of grounded urban theory, argues that the dialogues should take place across disciplines of planning, geography, history, sociology, and more. To this, we would add the importance of practitioners in urban planning, many of whom have received university training in these academic fields and therefore might well share epistemologies affinities.

The agenda we have sketched opens several avenues for collaborations beyond the discipline of geography. Our entry point on commoning, for example, suggests closer interaction with community organizers and activists, as well as sociologists on the investigation of formations of social capital. While our entry point on metabolism can imply that we work with more quantitatively oriented sciences and resource specialists focusing on holistic and trans-urban approaches. In other words, the diversification agenda pushes for a more extroverted and interdisciplinary geographical practice.

Such collaborations are certainly not new to a discipline that has interdisciplinarity and societal relevance at its core. Many human geographers are interested in and are currently doing societally relevant research, and we are increasingly asked to account for societal 'impact' when applying for funding. In our own practice and experience, we have benefitted significantly from engaging with planning practitioners in co-production processes and from drawing practitioners into the education

setting. And public and private planning agencies are hiring human geographers to set up interdisciplinary teams (of planners, architects, and geographers). But as a discipline, we have to keep reinventing methods and theoretical approaches to do this type of collaboration properly and systematically, and to make the best possible use of the space of interaction between geographers, planners, and others.

Finally, we hope and believe that this diversification of the compact city agenda represents another way for geographical scholarship to make a positive impact on the world. Compact cities are nodes in networks of resource flows, infrastructure and human interaction, and a key area for policy. As objects for research and research-based engagement, they therefore provide powerful leverage points for mobilizing and practising more sustainable forms of life – not just by living closely together and by driving less, but by finding a variety of ways to be sustainably urban.

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