What Do We Mean by "the Commons?" An Examination of Conceptual Blurring Over Time

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Abstract

Over the last 20 years the theoretical concept of *the commons* has come to be used not only in the field of natural resources management, but also as a key notion in domains as diverse as the digital economy and alternative politics. The wide use of the term has, however, led to a loss of specificity in the way it is used. Across several disciplines *the commons* is often used almost interchangeably with terms such as *open access*, *common property*, *public domain*, *public goods*, or *common pool resources*. We examine the reasons for the increasing conflation of these concepts over time. The field emerged as the result of the collaboration of two types of theoretical work: a) the study of common pool resources which focused on the characteristics of the resources in order to predict social behaviour, and b) research on the analysis of common property regimes that focused on the structural characteristics of the institutions devised to manage those resources. This difference in emphasis resulted in the development of two sets of concepts to refer to the same processes but from slightly different perspectives. With increasing interest in research focussed on the commons, these concepts are often used uncritically and their original designations are conflated across a suite of categories.

Keywords Common pool resources · Open access · Public goods · Public property · Common property

Introduction

We present here a critical review of the literature on *the commons*, a field of research that emerged at the intersection of property theory and collective action theory (Crawford and Ostrom 1995) that has expanded exponentially from its initial focus on natural resources management to domains as diverse as the digital and the political commons. The goal was always to study the ensemble of norms and rules used by a social group to distribute the benefits of a good or service as well as the costs derived from their implementation (Ostrom 1995). The literature involved is vast and we do not attempt to summarize the last 50 years of commons theory, but rather focus on the conflation of designations ascribed to concepts that are now used across diverse research fields.

The expansion of commons theory into non-traditional areas of research suggests the need for a critical revision of some of its foundational concepts and traditions as this theoretical diversification has resulted in a relative conceptual blurriness: some key concepts, in different domains, are used in clearly different and often oppositional ways. Attempts to refine the use of commons' concepts outside its limited original context expose some weaknesses and contradictions.

The study of the commons has for a long time been bifurcated into two research strands: one that focused on studying the characteristics of common pool resources themselves, and one focussed on the structural characteristics of the institutions devised to manage the resources, referred to as common property regimes. This theoretical richness is also at the source of the conceptual confusion, since most cases under study in the field require a hybrid approach that deals with both resources and institutions.

First, it is important to scrutinize the concept *common pool resources* (CPRs) as a key notion to the entire field of the commons. It was developed by researchers interested in the characteristics of the resources as predictors of social

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behaviour (collective action theory). The use of the term *common property resource* without clear differentiation from *common pool resource* generated important problems in how the commons are discussed and described. There is no such a thing as a common property resource. Resources, however defined, can be managed in completely different ways in different times and places depending on technologies available or dominant political structures. Even more confounding, these two expressions and a third one, *common property regime*, all of them important to the field, generate the same acronym (CPR). Second, we identify the tendency in the political and digital commons literature to use the concept *commons* as a synonym of *open access*. This usage of these two categories is worrisome and nullifies decades of theoretical debate and discussion to disentangle them. That some disciplines use the term *open access* to describe resources that are not regulated and are accessible to anyone while others favour the use of the term *public domain* for the same purpose, also generates potential confusion. This confusion is further compounded since those that use the expression *open access* regularly use the term *public property* to identify resources managed by the State. Finally, in the political domain, often in the form of NGOs or cooperatives, new communal spaces are regularly being created. Many of the fields of action of these actors, however, require an intricate relationship with public administration, including, for example, issues related to funding, permits, and management. This is not to say new commons will not emerge from these activities, but that each case must be analysed in its own context. One possibility, for example, is the emergence of hybrid spaces where the communal and the public (in the sense of State jurisdiction) might be in close interaction.

This critical review of our field does not intend to negate that property theory and the commons are useful analytical tools, on the contrary. There is, however, a generalized sense that a lack of rigorous specificity in the use of terms and concepts, without critical revision, will limit our ability to develop a fully integrated and consistent theoretical corpus.

The Commons, Collective Action, and the Definition of Common Pool Resources: Resources Versus Ownership

The anthropology of property, the study of ownership as a social relation, a legal framework, or a complex set of rights and obligations, has a long history (Turner 2017). In 2018 we celebrated the fiftieth anniversary of Hardin's seminal paper, "The Tragedy of the Commons," connecting ecology, economics, and politics through the analysis of natural resource management systems. Hardin attributed the characteristics of *open access resources* to the *commons*. His approach to common property emphasized its inefficiencies, and ultimately predicted its inevitable demise as a result of the contradictory pressures that unregulated users put on its resources. According to Hardin, only individual private property (or State management) could curb this "innate" tendency towards overuse and collapse of valuable resources.

It took 30 years of research from several disciplines, culminating in the foundation of the *International Association for the Study of Commons Property* (IASCP) in 1989, the publication of *Governing the Commons* by Elinor Ostrom in 1990, *Making the Commons Work* edited by Daniel Bromley in 1992 (offshoot of a 1985 NAS panel), and the *National Science Foundation* collective piece *The Drama of the Commons* (2002), to institute an alternative explanation of common property as a form of regulated collective private property. Hardin accepted this fact in 1994 by rewriting his piece as "The Tragedy of the Unmanaged Commons," and in 2009 Elinor Ostrom was awarded the Nobel Prize for Economics for her work on collective action. In the process of sorting out the fundamental concepts of this rising new field, a solid theoretical corpus emerged (Feeny *et al.* 1990).

Common property is not based on the absence of exclusionary regulations and use protocols. On the contrary, traditional common property was, in essence, private group property, places and resources regulated by exclusionary and inclusionary criteria (Bromley 1989, 1991). Moreover, it was understood that ownership could not be studied as a static institution, but as a social process, context and time dependent (Galaty 2016; Hall et al. 2011; Hann 2003; Strang and Busse 2011), that identifies rights of ownership and access (Ribot and Peluso 2003), that can define a community itself (Agrawal and Gibson 1999; Li 1996; Verdery 2018), and that is comprised of a complex bundle of rights in terms of attributes and resource use (Commons 1893; Schlager and Ostrom 1992). At the same time, it was recognized that sustainable management was also context dependent and not ensured by any managerial regime (Bauer 2006; Ensminger 1996; Peters 1994). In the context of concepts of common property, institutions cannot be studied as fixed entities, but rather as part of a complex and evolving discursive reality in which, as the proponents of discursive institutionalism emphasize, communication and inter-subjective appropriation matter (Schmidt 2008, 2011).

In contemporary research, concepts associated with 'the commons' are now used not only in natural resources management, but also as a key to describing the drivers of the digital economy and alternative politics. The widening acceptance of the concept has exacerbated the loss of specificity in the way it is used, so that terms such as 'commons,' 'open access,' 'common property,' 'public domain,' 'public goods,' or 'common pool resources' are often used almost interchangeably.

Property theory (Ciriacy-Wantrup and Bishop 1975; Demsetz 1974; Hallowell 1943; Netting 1982) and collective

action theory (Ostrom 1990; Runge 1984, 1986) have acted as an interactive and complementary approach that while it has been applied mostly to socio-ecological systems has worked well (Berkes and Folke 1998).

Post-Hardin property theory situates all forms of property in four ideal and internally diverse groups: open-access (a free-for-all absence of ownership and use regulations), common property (collective private property), individual private property, and public property (owned by abstract, formal institutions such as the State). The emphasis of the analysis is on the certainty provided by the legal and institutional arrangements over the future control of the resource (Merrill and Smith 2001). This focus resulted in the development of the conception of property as a bundle of rights (Coase 1960; Commons 1893). All ownership relations could be subdivided into at least three levels: formal ownership (title), managerial rights (the right to decide what to do with the resources), and usufruct (the actual use of the resources) or in Schlager and Ostrom's (1992) formulation: access, withdrawal, management, exclusion, and alienation (1992). These levels and attributes might reside in the same individual, group of individuals, or institution(−s), or be unevenly distributed across different stakeholders. In addition, the resource might be assessed in terms of its characteristics: excludable (some users are able to exclude others) versus non-excludable, and exhaustible versus non-exhaustible (rivalrous versus non-rivalrous[1]) (Heller 2010). This classificatory scheme defines a very specific typology of goods: private goods (excludable and rivalrous), club goods (excludable and non-rivalrous), common pool resources (non-excludable and rivalrous), and public goods (non-rivalrous and non-excludable) (Ostrom 2005) (Fig. 1).

Ostrom and other scholars identified with what is termed New Institutionalism (Mulé 1999; Nee 1998) identified criteria by which collective action (the practice of functional collective management) was optimally to emerge and successfully manage a resource, facilitating the emergence and implementation of excludability clauses (Ostrom 1990, 2005). These criteria could include (but not be limited to): an easily identifiable group of people with rights to the resource and a clearly defined and delimited resource (inclusion versus exclusion); whether managerial rules have been locally designed; the larger the user group, the harder it will be for collective action to consolidate (Chamberlin 1974); existence of legitimate mechanisms of control and conflict resolution (Agrawal 2001; Edney and Bell 1983). This focus on the capacity to exclude, implicitly, draws our attention to the idea

of boundaries (Fennell 2011; Merrill 1998). Successful collective action articulated through inclusion/exclusion criteria results in the consolidation of common property. This emphasis on prediction however, required maintaining a conceptual duality: any given system before collective action is implemented is a common pool resource (CPR): "a [CPR is a] type of good consisting of a natural or human-made resource system, whose size or characteristics makes it costly, but not impossible, to exclude potential beneficiaries from obtaining benefits from its use" (Ostrom 1990: 30).

This definition assumes that there are unclaimed resources over which social groups might succeed or fail to articulate collective action. Collective action theory thus requires or assumes a moment zero from which to start the analysis of the development of collective agency. In that moment the resource is a common pool resource (CPR). There is not, of course, a moment zero of a natural resource system, a moment x in which a resource is common pool, and a moment x + 1 in which that system has transmuted into either open access or commons. If nobody is using it, and nobody is interested in using it, it is not a resource. If the economic and cultural shift has occurred and something has been redefined as a resource, that implies that someone wants to use it, or is using it, it is already being managed as open access, common property, or in some other way. Thus, CPRs are an intellectual fiction. In addition, what does "costly, but not impossible" mean in this context? Commons as collective property rested on the principle of effective excludability, while commons as a common pool resource is based exactly on the opposite, the theoretical openness of the resource. In other words, common pool resources are systems where a type of resource prior to the articulation of a potential collective action is, in effect, a completely untapped system. Common pool resources can become institutionalized commons (common property) if the organization of collective action is successful, or might be used as open access resources if the organizational effort fails. Common pool resources is a concept that emerged from the theoretical effort of debunking Hardin's tragedy of the commons but, paradoxically, suffers its same contradictions: it conflates open access and common property. We argue that the use of the common pool resource artifice is one of the sources of the conceptual murkiness that is currently apparent in commons research. This confusion, as Ostrom pointed out (2000), is compounded by the fact that, in the literature, CPRs sometimes refer to *common pool resources* and sometimes to *common property resources* (Ashenafi and Leader-Williams 2005; Berkes 1989; Dasgupta 2005; Wade 1987).

Ostrom *et al.* (2002:14) point out "The importance of the distinction between the characteristics of the resource (common pool resource) and the regime that manages the resource (common property regime or some other kind of property regime)." Research on the commons has tended to bifurcate depending if the focus was on the resource itself or on its

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[1] The fact that my use of a resource affects the possibility of others using the resource (rivalrous) does not ensure overuse or restraint, nor presence or absence of regulations (or even which type of regulation). Private goods, club goods, common pool resources, and public goods' categorization defines resources and their physical characteristics, not regulations (which is what the private, common, public property, and open resources categorization does).

Fig. 1 Thematic fields of Property Theory and their relationships

Types of resources	Collective Action	Types of property regimes
• Private goods • Club goods • Common pool resources • Public goods	→	• Open access • Private Property • Common Property • Public Property

governance regime. From a resource management perspective, it is more important to understand the characteristics of the resource: whether it is excludable or non-excludable, or exhaustible or non-exhaustible.

Furthermore, the focus on the resource potentially splits the system between stocks and flows (Gerber and Steppacher 2017; Hoffmann 2013). This focus on the distinction between the patch of land and the crops that are harvested from it is certainly important and allows for a refining of the analysis of the bundle of rights, but still requires the incorporation of institutional analysis and, consequently, of the battery of concepts needed for its accurate implementation (Hartley 2018).

Although from an institutional perspective, the focus is on the ownership regime, the use of the CPR notion presumes the existence and even perhaps the prevalence of the resource over the ownership regime (Gardner et al. 1990). The resources classification system is not problematic from the perspective of exhaustibility: either consumption reduces the amount available for further consumption, or it does not. It is a simple binary approach. Excludability, however, as a characteristic of a resource system is more complicated to grasp as, despite also being presented as binary, it is in fact, a continuous graded quality. At what point does a resource go from easy to difficult to exclude? The same resource might be managed in different ways, in different places by different people. The potential for excludability is not fixed across time and localities. In other words, a resource might be costly to manage in an exclusionary way, but technology, demographics, and politics, to name a few factors, change across time (Anderson and Grewell 1999). The forests of New England, once a vast and unreachable arboreal extension, a CPR, are now a mosaic of property regimes, including a majority of individual and corporate private property (Acheson 2000). Were those forests CPRs if appropriating them was so simple that even the costliest of property regimes – private property - can be implemented over them? This argument can also be applied to, for instance, important parts of the Eastern Africa savannas (Bollig and Lesorogol 2016; Lesorogol 2008), or the Midwest plains, whose excludability costs were changed forever by the introduction of barbwire (Dolan 2014). In some places, coastal and marine resources, often presented as quintessential examples of natural goods that are extremely difficult to defend and subject to exclusionary measures have also been managed using collective institutional arrangements (Acheson 1988; Kurien 1991; McCay 1998). A resource, at

a particular moment in time, might not be managed via exclusionary regulations, and 30 years later it might have become private property. Was this resource, exactly the same piece of land, forest, or river, a common pool or a private resource? The actual biophysical characteristics of the resource have not changed, but the technological capabilities or the socioeconomic priorities of its users might. In other words, the characteristics of the resource are not irrelevant, but they do not irrevocably define the property regime that will be implemented. Can a resource be understood detached from its time and, consequently, from its ownership/managerial regime (Bromley 1992a, b; McCay and Acheson 1987)? Common property resources, as an essential immutable category, to go back to an earlier point, do not exist.

Ostrom herself reflects on the fact that not distinguishing between a resource system and property system is one of the classic sources of confusion in property theory. In a later publication, despite her abovementioned definition of CPRs that highlights their extremely high exclusion costs, she adds: "Common pool resources may be owned by national, regional, or local governments; by communal groups; by private individuals or corporations; or used as open access resources by whomever can gain access. Each of the broad types of property regimes has different sets of advantages and disadvantages" (2000: 338). In other words, the characteristics of the resource do not help us to predict its patterns of use and management, and might change across time. However, this in itself is puzzling. The use of the term "resource" points at use and management, otherwise we would be talking about natural features, landscape, or the environment. If we talk about resources, we are talking about the use and management (property regimes in all their complexity) of components of the world. When we study the commons, even if we focus on the characteristics of the resource, our ultimate goal has been to understand how they have been used and appropriated: the characteristics of their property regimes. This is not to say that the characteristics of the resources do not matter, but that exclusive focus on the physical characteristics of the resource has tended to define a deterministic approach that has obscured the fact that history and politics have as much of an impact on the prevalent ownership structure as, for instance, the seasonality or the size of the resource (Agrawal 2003).

This raises the question of whether CPR is a useful concept, and whether it makes any difference if the starting point of a system is a CPR or either a system that in the absence of

exclusionary regulations is an open access system (or public domain if the resources are inexhaustible – non-rivalrous), or an actual commons, collective private property, if exclusion and regulation are successfully enforced. We claim that CPRs are not in fact needed and that collective action can be studied in systems that we might define as open access or common property depending on the regulations in place without losing any analytical potential and without risking the possible confusion of using the same term, "common," for two different things.

The use of the concept of CPRs does not contribute to the understanding of the changes in the ways a system is managed. On the contrary, as the term includes the word "common," and common property is a potential outcome of collective action (the other being open access), the confusion easily emerges and we encounter cases in which CPR and commons are assumed as synonymous, and cases in which the terms commons and open access are used interchangeably. Hardin (1968) mixed the characteristics of open access and the commons. This confusion was compounded by the fact that he used the same term, *the commons,* to sometimes describe resources and sometimes a managerial regime. In his later work he referred to the *unmanaged commons* (1994). Nevertheless, subsequent literature on the subject is still packed with examples that conflate open access and commons, and very often this is because the differences between the commons as a resource and the commons as a managerial scheme are also overlooked.

The Expansion of the Concept of the Commons

The proliferation of work on the commons in fields beyond natural resource management forces us to rethink the conceptual limits of the framework built by the theory of the commons (Hess 2008). For decades, most property theorists working with natural management of fish, timber, or grass, have felt comfortable associating common pool resources to commons. When the theory of the commons is used for research on software, knowledge, streets, playgrounds, internet, libraries, or social housing, however, it is clear that systems with very different characteristics, in terms of excludability criteria, for instance, are treated as equivalent and conceptual clarity is lost in the process. In these fields the distinction between common pool resources and public goods becomes harder to identify.

For example, Wikipedia is a quintessential public domain resource, a public good in its phase of use or consumption (it presents an open access approach to a non-rivalrous resource). Wikipedia and a large part of open access software, however, in their phase of production, are managed and worked by a closed community with clear behavioural and excludability rules. During its phase of production important examples of

digital commons are indeed a communal endeavour. However, Wikipedia, in its phase of use, strictly speaking, cannot qualify as a form of commons. It is, in a way, a stock versus flow dilemma. Wikipedia's definition of itself, however, merges production and distribution to be able to define itself as commons:

> "The digital commons are a form of commons involving the distribution and communal ownership of informational resources and technology. Resources are typically designed to be used by the community by which they are created. Examples of the digital commons include wikis, open-source software, and open-source licensing. The distinction between digital commons and other digital resources is that the community of people building them can intervene in the governing of their interaction processes and of their shared resources." (Wikipedia, accessed on July 4th, 2017)

The commons as a concept is used in this digital context to describe processes of cooperation and sharing that produces a common field of action (Benkler 2006). We are moving from the fixed social and juridical relationship described by territorial property theory towards a concept that describes a framework of social interaction amidst the information economy (Hess and Ostrom 2007): a framework that allows relations of production to occur outside the commodified sphere of a capitalistic quid pro quo where cooperation and sharing generates free open access resources (software, journals, etc.). The Internet becomes a putative symbol of the public domain, the place where everything, by definition, is public, open access (Bollier and Helfrich 2014; Boyle 2008). It is clear that in these spaces the concepts of open access and common property are often used interchangeably or indistinguishably.

In fact, in order to properly understand the digital commons, they must be conceptualized as a two-step process: the first level is production, and at that level regulated communities, with rules of access and interaction – true institutionalized commons - exist. At a second level, the use or consumption of these digital commons, more often than not we are talking about open access resources, as no excludability clause exists. These are resources that differ from pastures or fisheries because they are inexhaustible and the free rider effect is negligible. The emphasis in the "commons" of the "digital commons" ignores resource use and focuses on production governance (Dulong de Rosnay and Le Crosnier 2012), identifying, de facto, two levels of analysis: the first encompasses the producers of the resource (software, information hubs, etc.) and their governance; the second focuses on the resource itself, which is a non-rivalrous product that it is used as public domain (a form of open access).

This line of reasoning will force an additional conceptual revision. The community, as a concept, must be problematized

(McCay and Jentoft 1998). The commons, by definition, define a community, the communards, who are allowed to interact with a resource (those not excluded). Research must take into consideration that the composition of the community might be the same or different in each phase of the development of any given resource (management, production, and use). The community will remain a fundamental concept, but will take shape differently for the environmental, digital, and political commons, and across the different phases of the resource system development (Fuster 2010; Jeffrey *et al*. 2012).

The fact that the products of the digital economy are knowledge-based, based on the word, or more broadly, narratives (textual, audible, and visual), emphasizes the importance of free access. The free speech notion with the contribution of the libertarian (not liberal) ideological approach conceptualized those narratives as either commons or open access resources (Coleman 2009). The process of digitalization of culture and community building has had consequences on how resources thus generated are constructed: "The social practices of free and open software raise the idea that forms of property can be antithetical to the principles of free speech" (Coleman 2004: 508). This emphasis on the commons as freedom is what connects the digital commons with the alternative political commons (Broumas 2017a; Papadimitropoulos 2017). The idea that the computer world has generated common pool resources obscures two points: 1) the goods were generated by closed or semi-closed communities capable of self-regulating in a regime that could be understood as communal, but 2) that the product is indeed used and shared through non-exclusionary means effectively defines these goods in their consumptive phase as public goods (a form of open access).

However, the digital economy is under a lot of exclusionary pressure to privatize (enclose) in order to sell and, therefore, generate benefit. Paradoxically, in this domain, open access is achieved through privatization and regulation (Kelty 2008). This is the role of the plethora of licensing strategies such as the *Creative Commons* designed to moderate or control the impact of privatization over knowledge circulation (Vercelli 2009). Thus, paradoxically, the digital commons have been created on the Internet to counteract privatization trends, trying to preserve open access through licencing (Coriat 2015; Turner 2010).

The *Budapest Manifesto* provides a narrative and an intellectual framework for this liberalization of knowledge (IUGG GeoRisk 2002). The goal is to produce freely accessible knowledge disseminated using the Internet. At least since its publication in 2001, open access research has been a fundamental part of the academic political agenda. Nowadays all researchers receiving public funding in the EU, the US, or Canada, must publish their findings in open access journals. This emphasis "on access to and preservation of scientific information" is also apparent in the 2016 *Mallorca Declaration on Open Science*. The European Commission,

in its *Europe's future: open innovation, open science, open to the world*, published by the Directorate of Research and Innovation, states: "We propose policy measures to develop openness as an inclusive tool: openness as "commons"" (2017: 16). It purposely and emphatically conflates openness and commons. In this policy document, the commons officially means open access. The fusion of the two concepts is alas complete.

This conceptual blurriness can be identified in the works of digital economy theorists as well as key figures of the alternative political left. A key thinker of the political commons movement, Bollier, starts one of his key books: "[The author's interlocutor said:] 'Oh, I get it! The commons are things that no one owns and are shared by everyone.' [and the author said] Well put" (2014: 13). In an interview, a political commons reference writer (Laval), using a language we have already encountered in some pieces devoted to the digital commons, states: "To talk about the commons is to overcome the logic of appropriation and property" (in Parés 2017: 99). In a similar vein, the radical digital artist Cornelia Sollfrank, in a presentation entitled, *Art and Speculative Commons* at the Reseau Exagram, Concordia University, discussed "(…) what artists can contribute to free culture and, eventually, the commons" (2017 Common lab interview, 7′34″).

In property theory, the discussion about the commons started by claiming precisely the contrary, that the commons were not open access, that they were a social and conceptual category that included rules and excludability clauses different from individual property or governmental jurisdictions. Despite this well known fact, the term *commons* has become, once again, a synonym of *open access* or *public domain*: "The global commons are in danger. This is partly due to the role of intellectual property rights in the commodification of three separate areas: science, culture and healthcare. All three areas used to be regarded as important areas of the public domain or for public access. The first three chapters in this book suggest that we need to rethink whether such sectors perform best under the rules of markets and capitalism" (Andersen 2006: 2).

In leftist collectives across the Western world, where the discussion about the potential of the alternative political commons concentrates, there is the tendency to see the commons as small-scale institutions that generates equal rights, duties, and profitability of non-private resources and deeply linked to environmentalism. This tendency, connects these groups with an old intellectual genealogy with roots as deep as the early utopian socialism and communism (More 1516; Fourier 1808; Owen 1813), or that can be traced back to Proudhon (1876), or even to the Paris Commune's intellectual legacy. It is a social movement that has always been present in many working class urban areas of the Western world (at least for the last 200 years where critical social thinking has, in one way or another, articulated the hopes of those dreaming of social

models that could provide an alternative to absolutism first, and capitalism later). After the 2006 global economic crises and especially since the Occupy movement in New York (2011) and the Indignados in Madrid (2011), the political commons have re-emerged as a mainstream political movement that has managed to escape from the heavy shadow of the inaccurately called socialist regimes (Broumas 2017b). These movements, loosely networked across the world, connect thousands of civil society initiatives that intend to generate economic and political alternatives to neoliberal capitalism (Caffentzis and Federici 2014; Laval and Dardot 2015).

Somewhat perplexingly, some political commons proponents advocate a rejection of the idea of property, de facto advocating for open access resources (Bollier 2014), and at the same time for an approach to the commons focused on the practice of collective regulation of the resource by the local community (Laval and Dardot 2015). Despite their claims otherwise their emphasis on the existence of a community (and networks of communities) redirects us to the excludability/inclusion conundrum, hence property (Eizenberg 2012; Swyngedouw 2005). Scholars such as de Angelis have tackled this issue by discussing 'commoning,' the practice of creating community: the commons as a relational practice (2010; 2017).

Although alternative politics are by no means a homogeneous social movement, the general aim is social and political transformation. As a result, in many instances alternative politics promote conscious efforts to articulate civil society initiatives with public institutions. There are of course cooperatives that operate as authentic commons, as collective private property, but there are hundreds of initiatives that aspire to generate social justice through close interactions with governmental agencies (Borch and Kornberger 2015; Chatterton 2010; Esping-Andersen 1990).

The two "public" key concepts, however, public property and public goods, use the term "public" to mean completely different things. Public property refers to something owned by a public institution (e.g., the State owning land expropriated to declare a national park) and thus has very specific dynamics: it is managed by specialists, representatives of an abstract institutional construct. Public goods, on the other hand, are goods over which it is impossible to impose excludability regulations and that are inexhaustible and non-rivalrous (e.g., air). Public goods are part of the public domain in the sense that they are open access and their use does not diminish their availability (Dulong de Rosnay and De Martin 2012).

"A public good is something to which everyone has access but, unlike a common pool resource, one person' s use of the resource does not necessarily diminish the potential for use by another. Public radio stations, scientific knowledge, and world peace are public goods in that we all enjoy the benefits without reducing the quantity or quality of the good" (Ostrom *et al.* 2002: 4–5). Public goods are not common pool resources

because although they are open access, they are an inexhaustible resource. CPRs main characteristic, according to this definition, is not their potential managerial regimes but the fact then that they comprise a limited resource. However, Ostrom's definition cited earlier emphasizes the fact that the size of the resource makes excludability complicated but not impossible. In other words, common pool and public goods are not defined as completely opposite types of non-excludable resources: common pool resources, in one of its two possible post collective action incarnations, open access, allow for as much excludability as public goods, that is, none.

Conclusion: Theoretical Inconsistencies

The concept of the commons is expanding well beyond its traditional domain, natural resources management, into the digital economy and alternative politics. The analysis of the use of the concepts associated with the theory of the commons in these new fields points at the fact that this popularity has come at the expense of conceptual clarity. This review has provided several examples of such blurriness, as the terms commons and open access are often used interchangeably.

The interdisciplinary approach that has always characterized the work on the commons has had both positive and negative consequences. A significant amount of this interdisciplinary literature uses the 'commons' and 'open access' as synonyms. In some cases, there is also some level of conflation of the commons and public property. This generates a confusion that undermines the analytic capacity of the classic conceptual quartet defined by property theory: open access, and common, private, and public property.

At another level, we observe as well some level of confusion around the use of the category 'public,' as public property is not the same as public goods. The former defines an institutional arrangement that assumes state ownership while the later describes non-excludable, non-rivalrous resources (open access).

The expansion of our analysis of the commons into unfamiliar fields, the digital and the alternative political commons, identified a singular characteristic in collective action theory that might facilitate these confusions. A key conceptual building block of collective action theory is the *common pool resource*. The very definition of CPRs characterizes them as a conceptual fiction as they embody untapped resource systems before management and exploitation. A CPR is a system that, through unsuccessful or successful collective action, can become two different things: open access or common property.

In addition, the fact that some systems of resources that may have been difficult to defend in the past and were thus considered CPRs, may become relatively simple to privatize with changes in technology or politics, adds a further layer of

ambiguity. This implies that the same resource may change its status over time: someone's CPR might become someone else's private good.

In sum, there is much to learn from studying how different fields define and use the very same concept. We started this article convinced that we were going to criticize the digital and political commons literature for its lack of rigor in its confusing usage of key property theory terms. Instead we have identified fundamental flaws or complications on basic property theory. The unresolved theoretical back and forth between resource characteristics analysis and ownership regime research tends to generate tension and ambiguity. The characteristics of the resource are, indeed, key to understanding the systems we study, but cannot be assessed outside time and social context. The resource must be understood as well inside the framework provided by the ownership regime that articulates its management.

It is interesting to realize that the concept of CPRs, initially conceived as the basis of a theory that could question Hardin's attribution of open access systems' characteristics to common property, has created, by embodying at once the possibility of open access and common property, a very similar problem.

Compliance with Ethical Standards

Conflict of Interest   The authors declare that they have no conflict of interest.

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