1. Introduction: [Enter Stage]
Information environmentalism

How difficult it is for a people accustomed to live under a prince to preserve their liberty.
Niccolò Machiavelli

1.1 INTRODUCTION

Information environmentalism is a normative discourse that seeks to protect and nurture the information commons. Protecting the information commons is important because within the information age it provides critical raw material for, among other things, creativity and innovation. As James Boyle has insightfully argued, there are strong similarities between the struggles to secure the integrity of the physical environment and efforts to preserve the integrity of the information environment. One similarity is the struggle to protect the commons – both physical and informational. In a seminal article, Boyle points out that the protection of the information commons will require 'a successful political movement'. According to Boyle, this movement is to be founded upon 'a set of (popularizable) analytical tools which reveal common interests around which political coalitions can be built'.

This book concurs with Boyle, but rather than seeking to solely construct a politic, the core focus is to begin the task of constructing an information environmental governance framework. In doing so, the book builds upon four environmental analytical frameworks: (i) welfare economics, (ii) the commons, (iii) ecology, and (iv) public choice theory. Drawing on these analytical frameworks, the book probes whether the principles of environmental governance hold lessons for the construction of a governance framework for the information environment. In the twenty-first century it is Intellectual Property Rights (IPRs) that have become the primary regulator of information. Contemplating IPRs through an environmental governance framework spawns several important questions. For instance, is there something to be learned from the application of the precautionary principle that is missing from the current
evaluations of the use of IPRs? Does ecology, with its focus on managing complexity, help us reach a better understanding of the dangers of IPR intervention?

The objective (and arrangement) of this introductory chapter is three-fold. First, after a brief historiography of IPRs, the chapter outlines the structure of the book using the four environmental analytical frameworks. Explaining the unifying relationship between the respective analytical frameworks and the information commons is important in this regard. Second, the chapter will explain the tensions between IPR maximalism and IPR minimalism with reference to the authorial (inventive) romance that underpins IPR incentivisation discourse. As we will see, IPR maximalism generally supports the expansion of IPRs whereas IPR minimalism argues the opposite. Third, after reinforcing that IPRs are indeed a type of property, the chapter briefly discusses how theories of property validation relate to IPRs. It is argued that property exhibits self-reinforcing characteristics; is often complicit in the concealment of ethical considerations; and is typically built upon a ‘negative community’ conception of the commons. These characteristics of property will be further revealed throughout the course of the book.

1.2 INFORMATION ENVIRONMENTALISM

The contemporary relationship between human beings and the environment is problematised with reference to a plethora of statistics and studies concerning climate change, biodiversity, deforestation, overfishing, pollution, and the list continues. The causes of these environmental detriments are complex and numerous. However, over the last several decades political movements built implicitly on analytical frameworks have emerged in response to underlying environmental concerns. Institutionally, the global rise of the Greens political party symbolises the political currency associated with local, regional and international environmental issues. Naturally, political parties do not emerge in isolation, but rather are built upon relatively broad-based, grassroots consensus within at least discrete aspects of society. In this respect, we could speak of an institutional ecology that has emerged in direct response to contemporary environmental concerns.

At the dawn of the twenty-first century, beside the continuing evolution of contemporary environmentalism, developed Western societies have steadily transitioned into the information age. Accompanying this transition is the global harmonisation of the so-called intellectual property rights system.
emergence of contemporary environmentalism provides an early clue as to the nexus between the physical environment and the information environment. The transition into the information age has been long in the making. As noted by Ruth Okediji, it has co-evolved alongside mercantile and colonial expansionism:

IP law was not merely an incidental part of the colonial legal apparatus, but a central technique in the commercial superiority sought by European powers in their interactions with each other in regions beyond Europe. The early period of European contact through trade with non-European peoples thus was characterized predominantly by the extension of IP laws to the colonies for purposes associated generally with the overarching colonial strategies of assimilation, incorporation and control. It was also characterized by efforts to secure national economic interests against other European countries in colonial territories.5

A brief historiography of IPRs supports Okediji’s perspective. The story begins with the first IPR grant issued during the first half of the 1400s in either Berne or Milan.6 During this era exclusive rights to practise printing were also granted in Venice for a period of five years;7 and in 1507 the Venetian council granted a 20-year patent for a secret process of mirror making.8 Such IPR grants were replicated later in the 1500s in other European countries such as France.9 In support of Okediji’s viewpoint, from the early days of IPR grants there has been a commingling between two ancient tools of state power, being information control and economic monopoly.10 This is partly evidenced by the charter to the Stationer’s Guild, which granted the Stationers a monopoly on ‘the art or mistery [sic] of printing’.11 The rationale for this grant was reflected in the preamble to the charter thus:

Know ye that we, considering and manifestly perceiving that certain seditious and heretical books rhymes and treatises are daily published and printed by divers scandalous malicious schismatical and heretical persons, not only moving our subjects and lieges to sedition and disobedience against us, our crown and dignity, but also to renew and move very great and detestable heresies against the faith and sound doctrine of the Holy Mother Church, and wishing to provide a suitable remedy in this behalf.12

Under this charter, the right to print ‘copy’ was restricted to members of the Stationers’ Company, who were in turn restricted in what they could print by the Stationers’ register.13 ‘The right to ‘copy’, or ‘copy rights’, were owned by the Stationers not the authors of the relevant work.14 This system, which operated between 1557 until the Statute of Anne in 1709, was both ‘closed’ and ‘private’ operating to a large extent outside the
formal legal system.\textsuperscript{15} The rationale underpinning copyright was not so much legal or economic, but rather political.\textsuperscript{16} The political history of IPRs has been alluded to by many scholars, none less than Foucault who spoke of the ‘forensic’ and ‘warranting’ attributes of authorship.\textsuperscript{17} Foucault reminds us that ‘[i]n our culture (and doubtless in many others), discourse was not originally a product, a thing, a kind of goods; it was essentially an act – an act placed in the bipolar field of the sacred and the profane, the licit and the illicit, the religious and the blasphemous’.\textsuperscript{18} One of the primary traditional functions of regulating authorship was identifying who should be punished when literature violated social, legal or moral norms.\textsuperscript{19} This perspective is as relevant now, if not more relevant, than it has been throughout history.\textsuperscript{20} This is because copyright law not only provides financial benefits to its holders, but it also facilitates cultural control and the amassing of political power.\textsuperscript{21} A parallel narrative can be transcribed in relation to patents.\textsuperscript{22}

Many of the themes related to environmental degradation and preservation evident in the nineteenth and twentieth centuries map to the twenty-first-century ‘information environment’.\textsuperscript{23} Given the success (albeit limited) of the environmental movement in raising the profile and political currency of environmental concerns, one response is to reflect on how environmental analytical frameworks might apply to the information environment.

\subsection{1.2.1 Environmental Analytical Frameworks}

James Boyle, in his seminal article \textit{A Politics of IP: Environmentalism for the Net?}, implicitly identifies four environmental analytical frameworks underpinning the environmental movement, being the commons, ecology, welfare economics and public choice theory:

A successful political movement needs a set of (popularizable) analytical tools which reveal common interests around which political coalitions can be built. Just as ‘the environment’ literally disappeared as a concept in the analytical structure of private property claims, simplistic ‘cause and effect’ science, and markets characterized by negative externalities, so too the ‘public domain’ is disappearing, both conceptually and literally, in an intellectual property system built around the interests of the current stakeholders and the notion of the original author. In one very real sense, the environmental movement invented the environment so that farmers, consumers, hunters and birdwatchers could all discover themselves as environmentalists. Perhaps we need to invent the public domain in order to call into being the coalition that might protect it.\textsuperscript{24}
The four environmental analytical frameworks inherent within this passage are implicit rather than explicit. To elaborate, the analytical structure of private property claims relates indirectly to the commons to the extent that the commons can be dichotomised with private property. The discipline of ecology that emerged during the nineteenth century can be thought of as a counter-reaction to the reductionist, Baconian-inspired ‘cause and effect’ science that prevailed prior to the evolution of ecological science. Reference to ‘markets characterized by negative externalities’ relates to the broader discipline of welfare economics, which ultimately seeks to include social and private costs within its analysis when seeking to determine the overall costs and benefits associated with economic activity. And finally, the idea that there is a need to ‘reveal common interests around which political coalitions can be built’, along with the notion that IPRs are ‘built around the interests of the current stakeholder’, infers the applicability of public choice theory. This theory is traditionally concerned with how private interests trump the interests of the public at large and, more contemporaneously, how fragmented interests can respond to this tendency.

In contemplating the four analytical frameworks of environmentalism, it is clear that relevant regulatory and governance structures struggle to fully take into account:

i. the true costs associated with production and consumption (welfare economics);
ii. historically diverse interactions between human beings and land (the commons);
iii. the complex relationship between living ecosystems (ecology); and
iv. the rent-seeking effect of concentrated interests on regulatory frameworks (public choice theory).

A critical function of the environmental movement has been to underscore these failings. Based on this aspect of the environmental movement, the book seeks to determine whether there is any utility in the theoretical application of the four environmental analytical frameworks to IPRs. To this end, the core research question of the book becomes: Is there utility in applying environmental analytical frameworks to Intellectual Property Rights (particularly copyrights and patents)?

We will see throughout the book that there are indeed analytical gains that flow from this application.
1.2.2 Information Commons

The information commons is an important unifying theme when applying the four environmental analytical frameworks to the information environment. Part II will provide a more detailed definition of the information commons. For now, it can simply be noted that there is a complex interrelationship between the ‘public domain’, the ‘intellectual commons’ and the ‘information commons’; but that there is also considerable overlap between each term such that very loosely speaking the terms can be collectively conceptualised as ‘the opposite of private property’. The crux at this stage is that the information commons is a unifying theme when applying the four environmental analytical frameworks. The connection between the information commons and each respective theoretical foundation is as follows.

First, with reference to welfare economics, the information commons linkage stems from the fact that the private property dimensions of IPRs are, to a large extent, the opposite of the information commons. In Part I of the book a welfare economic analysis of IPRs underscores the exclusivity costs associated with the propertisation of information. The exclusivity costs include efficiency costs, administration costs, externality costs and distributional costs. In highlighting the exclusivity costs, we will see that the true costs of property are often concealed behind the ‘veil of property’. A corollary being that the propertisation of information becomes more attractive than allowing that information to reside in the information commons. This is despite the fact that it may well be more efficient and less costly to not propertise information in discrete circumstances. By revealing the exclusivity costs associated with the monopolistic characteristics of IPRs, the welfare economic analysis highlights the opportunity costs that flow from removing information from the information commons.

Second, with respect to the commons analytical framework, the nexus between the information commons and the commons is mostly self-evident. By way of synthesising commons tragedy discourse, we will observe within Part II of the book that the contrast between the ‘tragedy of the commons’ and the ‘tragedy of the anticommons’ gives birth to the ‘tragedy of ignoring the information semicommons’. As the semicommons relates to the dynamic interaction between private property and the commons, it stands to reason that within the information environment there is no semicommons of which to speak unless the information commons exists in the first instance. Contemplating the role of fair use within copyright is useful here because it facilitates dynamic interaction between private and commons usages of information. Naturally an
important aspect of this dynamic interaction is clear demarcation of the information commons. This is a central task of Chapter 4.

Third, the ecology analytical framework relates to the information commons by virtue of the 1970s environmental jurisprudential scholarship that sought to allocate rights to nature. Building upon ecological governance principles, Part III of the book argues that one method of fostering a resilient information environment is to allocate rights and provision standing to the information commons through the creation and maintenance of information commons rights (ICRs). After debunking some of the criticisms that potentially stem from this emergent argument, Part III suggests that the ICR notion is to be built upon the criterion of ‘rational truths’ (i.e. a threshold level of technical expertise), ‘reasonable arguments’ (i.e. sound and credible legal arguments), and ‘rhetorical imagination’ (i.e. innovative rhetorical methods). By way of illustration, the public trust doctrine provides an example of a reasonable argument that can be employed to realise the creation and maintenance of ICRs.

Fourth, in relation to the application of the public choice theory to the information environment, Part IV of the book illustrates that the information commons is an important prerequisite to social production such as Free (Libre) and Open Source Software (FLOSS). Social production arises in the context of public choice theory because it holds the potential to simultaneously counteract regulatory capture and overcome collective action problems. Specifically, Part IV contends that social production inadvertently fosters competitive tension between the productive forces. This in turn serves the ‘constitutional’ function of separating (economic) power. This perspective is founded upon the economic efficiencies of social production, alongside public choice theory and its constitutional economic derivative. As indicated, the information commons is a critical prerequisite of social production.

Hence, while each of the four environmental analytical frameworks proffers a distinct perspective, it is the information commons that unifies their application. This is reflected in Figure 1.1.

1.2.3 Information Environmental Governance Framework

A further explanation of the information commons will appear in Part II of the book. At this stage, a clearer account of the normative phrase ‘information environmentalism’ is necessary. This is particularly because the scholarship of James Boyle and others is often placed under the alternate banner of ‘cultural environmentalism’. Although the book seeks to build upon established cultural environmental discourse, the phrase
‘information environmentalism’ is nevertheless deployed. This is primarily because the 150 formal definitions of ‘culture’ speak to a lack of definitional consensus among sociologists. Fortunately, the word ‘information’ has a more settled definition being ‘facts provided or learned about something or someone; what is conveyed or represented by a particular arrangement or sequence of things’. Building upon the definition of ‘information’, the ‘information environment’ can be thought of as encompassing those systems that relate to the processing, production, consumption, communication, distribution and diffusion of information.

Although the provision of a working definition of ‘information’ and the ‘information environment’ is a useful starting point, information environmentalism is perhaps best understood through description rather than definition. In short, information environmentalism stems from Boyle’s argument that those who seek to protect the information commons are working towards a similar end as environmentalists who seek to protect the physical environment. Like many socio-political movements and discourses, information environmentalism is simultaneously reactive and proactive. It has reacted by exposing the harms caused by a relentlessly maximalist programme of IPR expansion; and it has pro-acted through
the creation and maintenance of private ordering social production initiatives such as FLOSS and Creative Commons (CC).³⁴

At its core, information environmentalism seeks to promote information regulation that simultaneously facilitates efficiency and distributive justice.³⁵ It does this by highlighting that the information commons preserves the health and diversity of the information environment. In this sense, the information commons becomes a rallying point for a diverse range of information environmental interests. As Boyle states:

Right now, it seems to me that, in a number of respects, we are at the stage that the American environmental movement was at in the 1950s or 1960s. At that time, there were people – supporters of the park system, hunters, birdwatchers and so on – who cared about what we would now identify as ‘environmental issues’. In the world of intellectual property we now have start-up software engineers, libraries, appropriationist artists, parodists, biographers, biotech researchers, and others.³⁶

The idea that ‘the environment’ exists has allowed for the establishment of a coalition around a reframed conception of common interest, which allows the duck-hunter and the bird-watcher to recognise their commonality. That is, both the duck-hunter and the bird-watcher rely on the functioning of the wetlands and the accompanying ecosystem services.³⁷ Boyle explains:

The invention of the concept of ‘the environment’ pulls together a string of otherwise disconnected issues, offers analytical insight into the blindness implicit in prior ways of thinking, and leads to perception of common interest where none was seen before. Like the environment, the public domain must be ‘invented’ before it is saved. Like the environment, like ‘nature’, the public domain turns out to be a concept that is considerably more slippery than many of us realize. And, like the environment, the public domain nevertheless turns out to be useful, perhaps even necessary.³⁸

Note that Boyle refers to the ‘public domain’ rather than the ‘information commons’. This will be further explored in Part II. Whereas the environmental movement illuminated the effects that social decisions can have upon ecology, information environmentalists seek to illuminate the effects that IPRs can have upon culture and society. Such illumination requires a set of analytical tools that can be relied upon to advance the profile of the information commons. For this reason, the four environmental analytical frameworks of welfare economics, the commons, ecology, and public choice theory are applied to IPRs. A central aspect of this application is to contribute to the building of an information
environmental governance framework. The ‘invention of the information commons’ is critical to this project.

Despite the rich philosophical and scientific history of environmentalist thought, the ‘invention of the environment’ has been no slight task. The ‘invention of the information commons’ is also likely to be a considerable challenge. Beyond refining the parameters of the information commons in Part II, Part III of the book argues that the protection and nurturance of the information environment generally, and the information commons specifically, will require strategic reliance upon a combination of rational truths, reasonable arguments and rhetorical imagination. This combination is an important aspect of the information environmental governance framework project. We will see throughout the book that the rationale underpinning this framework is to develop a language and geography of experience that can be relied upon to coalesce information environmental interests that might otherwise fall dormant.

1.2.4 Authorial (Inventive) Romance and Incentivisation Discourse

Along with applying the four environmental analytical frameworks to IPRs discussed above, and the general project of building an information environmental governance framework, countering authorial (inventive) romance is also a crucial component of information environmentalism. Such romance underpins many of the incentivisation arguments that pervade IPR maximalist discourse. There is no need to discuss at length, within this book, the natural consequences of IPR maximalism. Whether the subject matter is peanut butter and jelly sandwiches or Mr John Moore’s spleen, the point has been satisfactorily made within IPR scholarship that the propertisation of information can be taken too far.

As implied, authorial romance applies not just to authors but also to inventors. Reflecting upon authorial (inventive) romance and the associated IPR-related incentivisation arguments provides a useful springboard in appreciating the tensions between IPR maximalism and IPR minimalism. This tension is a persistent theme within both IPR discourse and throughout this book. While propertisation of information is sometimes necessary to secure incentivisation, there are also inherent limitations such that, beyond a certain point, more propertisation does not necessarily equate to more incentives. When it comes to IPRs there are instances where less is more. Moreover, the end purpose of providing incentives via IPRs (in order to encourage the production of information) is to provide the public with benefits. As Breyer J states in relation to the intellectual property clause within the US Constitution:
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The Clause exists not to ‘provide a special private benefit’, but to stimulate artistic creativity for the general public good … The ‘reward’ is a means, not an end. And that is why the copyright term is limited. It is limited so that its beneficiaries – the public – ‘will not be permanently deprived of the fruits of an artist’s labors’.47

Within a liberal economic framework it is difficult to rally against the proposition that, economically, society is obliged to reward persons to the extent that they have produced something useful in accordance with the dictum ‘as one sows, so should one reap’; and morally, there are strong arguments which suggest that a person has a natural right to the product of her brain.48 Moreover, some types of innovation patents are likely to induce more innovation, particularly where innovation is independent, or non-cumulative, which is to say that one invention is essentially separate from another.49 And further still, even where innovation is cumulative, if the use of the patent is obvious then it is possible that the original patent holder will be compelled to license a patent to follow-on innovators.50

Yet despite the seductive nature of the theoretical arguments correlating IPRs and incentivisation, IPR minimalists underscore that IPR maximalist incentivisation arguments are usually theoretical rather than empirical.51 On the empirical front, Lerner’s study concerning the economics of innovation is thought provoking. He considered amendments in intellectual property law in 60 countries over a time frame of 150 years, examining nearly 300 intellectual property policy changes.52 His study found that investment in research and development decreases slightly when patent law is strengthened.53 The inference is that when a country strengthens its patent protection, it marginally reduces the level of investment in innovation by local firms.54 As Drahos highlights: ‘the connection between intellectual property, science and economic development is contingent and local rather than necessary and universal’.55

Significantly, IPR minimalist scepticism towards incentivisation arguments is not confined to academe. For instance, Justice Breyer voiced ambivalence in relation to the incentivisation arguments that underpin copyrights when he stated in Eldred v Ashcroft (537 US at 254) that: ‘[n]o potential author can reasonably believe that he has more than a tiny chance of writing a classic that will survive commercially long enough for the copyright extension to matter.’56 This perspective was founded on empirical studies, which suggest that only approximately 2 per cent of copyrighted works maintain commercial value between 55 and 75 years after they are created.57
Empirical evidence referred to by Lerner and Justice Breyer serves to consolidate IPR minimalist propositions, an example being that IPRs operate more as a lottery system than as an incentivisation mechanism.\textsuperscript{58} But regardless of empirical evidence, questioning the incentivisation function of IPRs remains a challenging task.\textsuperscript{59} This is because such arguments are deeply embedded within IPR scholarship, stemming back to the early days of the IPR system. The plea made by Giacop Acontio in 1559 exemplifies what has more contemporaneously become the Lockean rights tradition as it relates to creation and invention: ‘Nothing is more honest that those who by searching have found out things useful to the public should have some fruit of their rights and labors, as meanwhile they abandon all other means of gain, are at much expense in experiments, and often sustain much loss.’\textsuperscript{60}

The following description of IPRs by Francis Bacon in Parliament on 20 November 1601 is also insightful:

If any man out of his own wit, industry, or endeavor, find out anything beneficial for the commonwealth, or bring any new invention, which every subject of this realm may use; yet in regard to his pains, travail, and charge therein, her Majesty is pleased (perhaps) to grant him a privilege to use the same only to himself, or his deputies, for a certain time: this is one kind of monopoly.\textsuperscript{61}

The IPR minimalist response to the assumptions inherent within these historical submissions is that scant homage is paid to the social context in which the inventors reside.\textsuperscript{62} This is significant because notwithstanding the dual objectives of the IPR system – private incentive and public benefit – IPRs are typically granted to individual economic agents rather than communities.\textsuperscript{63} Furthermore, as IPR minimalists are quick to point out, IPRs exhibit strong monopolistic characteristics, which is a theme that pervades the history of IPR minimalist discourse. The following plea in 1735, from an anonymous pamphleteer protesting against the legislative push by booksellers to extend the copyright term, is an early exemplar:

I see no Reason for granting a further Term now, which will not hold as well for granting it again and again, as often as the Old ones Expire; so that should this Bill pass, it will in Effect be establishing a perpetual Monopoly, a Thing deservedly odious in the Eye of the Law; it will be a great Cramp to Trade, a Discouragement to Learning, no Benefit to Authors, but a general Tax on the Publick; and all this only to increase the private Gain of the Booksellers.\textsuperscript{64}
Correspondingly, Benjamin Franklin pronounced patents immoral in his autobiographical account in 1793, and Mertonian norms (although subject to considerable contestation), have lingered in science since time immemorial. Even within the contemporary context, avid supporters of the IPR system have expressed latent scepticism. Bill Gates, for instance, wrote the following memo to Microsoft executives in 1991: ‘If people had understood how patents would be granted when most of today’s ideas were invented and had taken out patents, the industry would be at a complete standstill today.’

Inherent within the IPR minimalist perspective is the view that IPR maximalists discount the debt that present authors (inventors) owe to prior authors (inventors) for their raw material. This is founded upon the truism that all creators and inventors begin as users to the extent that they combine or reform new material with old material drawn from the information commons. When the social dimensions of creativity and innovation are considered, it is no great surprise that IPR minimalists are caustic in their assessment of IPR maximalist incentivisation arguments. For instance, it has been suggested, within the context of copyright, that ‘author-centered IP is a sham promoted by publishers to conceal their economic power behind a façade of moralism’. In this vein, Drahos has intimated that the incentivisation function of IPRs is an ‘ideological fairytale designed to hide the systematic exploitation of creative labour in the capitalist mode of production’. And Waldon has echoed these concerns when he suggests that the tendency to commodify information through the IPR system ‘shatters the connection between author and work, no less effectively than modern capitalism shatters the connection between the individual labourer and the product commodity that emerges from an assembly line’.

Although authorial (inventive) romance (and the accompanying incentivisation arguments) is all pervasive within IPR scholarship, it represents merely one method of fleshing out the tensions between IPR maximalism and IPR minimalism. Another effective method is to contemplate the validating theories of property.

1.3 INTELLECTUAL PROPERTY RIGHTS AND THE VEIL OF PROPERTY

Given that property is a fundamental aspect of IPR characterisation, it is useful within the introductory context to briefly explore the nature of property validation. Although there is some controversy as to whether IPRs are best characterised as property, monopoly or some other alternate
such as a state subsidy, the truth is that these categories are not mutually exclusive. IPRs are a type of property with monopolistic characteristics, which operate in many instances akin to a state subsidy. If the state explicitly allocates private property rights to a given resource then it is difficult to argue outright that the resource is not private property. Of course, from a normative perspective it is possible to argue that a given resource should not be private property. But that is different to the positivist argument that the resource is not private property. As all World Trade Organization (WTO) member states essentially regard IPRs as property, IPRs should be thought of as a property right, albeit different from real property.

When IPRs are perceived through the property lens, a credible theory of validation is imperative. Historically, validating theories of property stem from the foundational narrative of colonial and imperial sovereignty. In adopting this narrative, the first point of call is usually Blackstone’s famous definition of property being ‘that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion to the right of any other individual in the universe’. Inherent within this definition, along with complementary sources such as John Locke’s *Two Treatises of Government* (1689), is a set of value judgments that describe a vision of human nature, meaning, the past and the future. The Blackstonian and Lockean perspectives of property are foundational because, as Blackstone himself suggested, ‘property came first among institutions, and all else followed’. Within this frame, Blackstone surmised:

Necessity begat property; and, in order to ensure that property, recourse was had to civil society, which brought along with it a long train of inseparable concomitants: states, governments, laws, punishments, and the public exercise of religious duties. Thus connected together, it was found that a part only of society was sufficient to provide, by their manual labor, for the necessary subsistence of all and leisure was given to others to cultivate the human mind, to invent useful arts, and to lay the foundation of science.

The social contractarian foundations of Blackstonian narratives are appealing. However, critical realists remind that although property is often construed as a noun, the truth is property is not really a *thing* but rather a ‘verbal announcement that certain traditional powers and privileges of some members of society will be vigorously defended against attack by others’. A corollary of perceiving property in this way is that the self-reinforcing nature of propertisation becomes evident.
1.3.1 Property is Self-reinforcing

According to the Lockean ‘labour theory of value’ tradition, if a person applies their labour to a given piece of land, this in turn gives the person a valid legal claim to that land through the legal protection afforded by real property rights. Once real property rights are allocated, the value of the relevant land is represented not just by the labour inherent within it (among other things), but also the value inherent within the legal protection afforded by the real property rights. Thus, real property rights instil an inherent value which, once applied, becomes self-reinforcing. This self-reinforcing dynamic of property rights is an important aspect of the ‘veil of property’. As we will see in Part I, this dynamic applies just as much to the information environment as it does to the physical environment. Felix Cohen, for example, underscored the self-reinforcing dimension of IPRs by relaying the validation of trademarks in this way:

There was once a theory that the law of trade marks and trade names was an attempt to protect the consumer against the ‘passing off’ of inferior goods under misleading labels. Increasingly the courts have departed from any such theory and have come to view this branch of law as a protection of property rights in divers economically valuable sale devices … The current legal arguments runs: one who by the ingenuity of his advertising or the quality of his product has induced consumer responsiveness to a particular name, symbol, form of packaging, etc, has thereby created a thing of value, a thing of value is property; the creator of property is entitled to protection against third parties who seek to deprive him of his property … The vicious circle inherent in this reasoning is plain. It purports to base legal protection upon economic value, when, as a matter of actual fact, the economic value of a sales device depends upon the extent to which it will be legally protected … The circularity of legal reasoning … is veiled by the ‘thingification’ of property.

Aside from the self-reinforcing nature of the foundational narratives of property, when such narratives are stripped to their essence it also becomes clear that property rights regularly serve to conceal ethical considerations.

1.3.2 Property Conceals Ethical Considerations

The following excerpt from Locke neatly exemplifies the way in which property can foster the concealment of ethics:

God gave the World to Men in Common; but since he gave it them for their benefit, and the greatest Conveniences of Life they were capable to draw from
it, it cannot be supposed he meant it should always remain common and uncultivated. He gave it to the use of the Industrious and Rational (and Labour was to be his Title to it;) not the Fancy or Covetousness of the Quarerelsom and Contentious.83

According to this Lockean perspective, the ‘Quarerelsom and Contentious’ should be left out of the property validation equation with the underlying legitimiser to the title of property being the labour of the ‘industrious and rational’. Once this perspective is adopted, the foundation has been established to argue by extension that for Indigenous peoples to ‘deny Europeans the right to occupy and cultivate land would be a naked denial of another’s natural right to acquisition’.84 That is, the denial of European colonisation by Indigenous peoples would be an attempt to occupy more land than they could make use of and in this respect Indigenous peoples become ‘liable to be punished’ like a man who ‘invaded his Neighbour’s share, for he had no right, farther than his Use called for’.85

Beyond Locke, the concealment of ethical considerations facilitated by property rights was also a critical dimension of Aldo Leopold’s classic *A Sand County Almanac*. In that work, by drawing upon Charles Darwin’s lesser-quoted perspectives in *Descent of Man*, Leopold argued that while the general tendency of humanity is ethical expansionism, private property often serves to mutate and stifle this tendency to the extent that private property relations prioritise expediency over ethics.86 Leopold made this point by recounting the history recorded in the myths of Homer:

> When god-like Odysseus returned from the wars in Troy, he hanged all on one rope a dozen slave-girls of his household whom he suspected of misbehavior during his absence … This hanging involved no question of proprietary. The girls were property. The disposal of property was then, as now, a matter of expediency, not right and wrong.87

In recounting the myths of Homer, Leopold sought to draw a link between private property and ethics, or the lack thereof, by contrasting the treatment of female slaves with the treatment of females with a different social station such as wives. Though the ethical structure of Odysseus’ Greece encompassed wives; it had not yet been extended to human chattels such as slaves. According to Leopold’s analysis, it was the veil of property that led to ethics being trumped by expediency.88 It is within this context that Leopold’s attempt to establish a clear nexus between private property relations and ecological ethics is most noteworthy: ‘There is as yet no ethic dealing with man’s relation to land and
to the animals and plants which grow upon it. Land, like Odysseus’
slave-girls, is still property. The land-relation is still strictly economic,
entailing privileges but not obligations.’89 In arguing that it is necessary
for the ethical structure of humanity to further expand so as to encompass
land as a whole, including animals and plants, Leopold succinctly
articulated his often-quoted land ethic: ‘A thing is right when it tends to
preserve the integrity, stability, and beauty of the biotic community. It is
wrong when it tends otherwise.’90

In advancing his land ethic, Leopold emphasised that the penetration of
private property has fundamental consequences for the physical environ-
ment.91 Leopold’s sentiments were similarly reflected within the views of
religious communities during the Middle Ages, who likewise sought to
highlight the ethical concealment function of property. According to
religious tradition, in a similar vein to usury, ‘to have “property” of
goods (or goods “in proper”) was a sin, and monks in particular found
 guilty of this vice were denounced as “properietaries” or “owners”’.92
Saint Francis of Assisi, for instance, rejected property by proclaiming
that his brothers would not claim ownership over anything and in doing
so would live in ‘true apostolic poverty’.93 The Franciscans made an
important distinction between usage and ownership. As individuals and
as an order the Franciscans claimed to have no property at all, instead
arguing that: ‘all the property of the order was available for them to use,
but that they did not have the right to alienate it or engage in financial
transactions regarding it’.94 The crux of the Franciscan perspective was
the claim that commons use is conceptually and ethically distinct from
appropriation.95

While the ‘sin’ of private property was predominantly linked to
monastic communities, the contentious nature of private property was
definitely not confined to the monastery. Within the history of Western
thought, there are a plethora of non-religious figures that exemplify
historical philosophical struggles that relate intimately to private prop-
erty. Symbolical thinkers include Gerrard Winstanley, Jean-Jacques Rousseau,
and Pierre Proudhon. Each thinker, in their own distinct form, gave
voice to the political contestations of their day concerning private
property rights. Thus, remnants of the Franciscan perspective can be
found in the practical initiatives of Winstanley and his ‘diggers’ in the
mid-1600s, along with the theoretical work of Rousseau and Proudhon.96
For instance, Winstanley’s message to ‘those who call yourselves lords of
manors and lords of the land’ was simple and direct:

The earth was not made purposely for you to be the lords of it, and we to be
your slaves, servants and beggars; but it was made to be a common
livelihood to all, without respect for persons; and that your buying and selling of land and the fruits of it, one to another, is a cursed thing.97

The oft-quoted passage of Rousseau reflects similar sentiments:

The first person who enclosed a piece of land and be-thought himself to say, 'This is mine,' and found people foolish enough to believe him, was the real founder of our social system. What crimes, wars, murders, what miseries and horrors would have been spared to mankind, if somebody had torn down the stakes or filled up the ditch, and had warned his fellows, 'Beware of listening to this impostor; you are lost if you forget that the produce is for all, and the earth for no one'.98

And Proudhon spoke in a corresponding vein:

If I were asked to answer the following question: What is slavery? and I should answer in one word, It is murder!, my meaning would be understood at once. No extended argument would be required … Why, then, to this other question: What is property? may I not likewise answer, It is robbery!, without the certainty of being misunderstood; the second proposition being no other than a transformation of the first.99

Historically, many of the critical issues in relation to property ultimately flow from concerns about the private appropriation of resources from the commons. The most potent examples in this respect fall within the ambit of the colonisation process. The first enclosure movement in England during the 1500s is a case in point.100 The application of the terra nullius doctrine as it purportedly pertained to Australia in 1788 provides a slightly more recent example.101 Within this context, it is useful to refer to the positive community/negative community dichotomy. In doing so we will see that property validation, more often than not, is built upon the notion of ‘negative community’.

1.3.3 Property Validation is Typically Built Upon Negative Community

Theoretical support for the private appropriation of the commons is most often founded upon the simplification of complex historical periods of humanity. This simplification, in turn, generally fosters the negative community view of the commons. To explain, colonial and imperial narratives of property typically reduce the history of humanity into four distinct activities, being hunting, pasturage, farming and commerce.102 According to this ‘four stages of history’ lens, property becomes a somewhat clear-cut construct.103 For hunters property begins and ends
with possession, whereas the shepherd extends the idea of property further, and the agriculturalist further still.\textsuperscript{104} Once cities began to be built, and commercial activities ingrained, property then becomes well instilled within civil society as a practical method of embedding a foundation of sociability, or, perhaps more accurately, a particular brand of social contract.\textsuperscript{105}

Inherent within this four stages of history perspective is a particular view of the commons. Boyle’s discussion of both the first enclosure movement and second enclosure movement reminds that everything ultimately begins in the commons until it becomes subject to (private) propertisation.\textsuperscript{106} This is true for the physical environment and the information environment. Part II of the book will demonstrate that theories of property validation relate intimately to the positive community/negative community dichotomy. Specifically, the tendency of the IPR maximalist perspective is to adhere to a negative community conception of the information commons (i.e. \textit{res nullius}).\textsuperscript{107} This is to say that resources can be perceived as belonging to no one and are therefore unclaimed and for the taking.\textsuperscript{108} In contrast, the tendency of the IPR minimalist perspective is to subscribe to a positive community conception of the information commons (i.e. \textit{res communis}).\textsuperscript{109} This means that resources are considered to belong to everyone and therefore any use of such resources is required to be for the benefit of the public at large. The choice adopted with respect to positive community and negative community is vital. This is because the penetration of private property within any given population has fundamental consequences for individuals and society.\textsuperscript{110} And most importantly, within the context of this book, the choice has fundamental consequences for the information environment and the information commons.

1.4 PRINCIPLES OF INFORMATIONAL ENVIRONMENTAL GOVERNANCE

Before concluding the chapter, it is worth specifying in concise form the key principles that the book derives from its application of environmental analytical frameworks to IPRs. Table 1.1 summarises the relevant principles with reference to the respective analytical frameworks.

Table 1.1 sets out the governance principles that flow from the arguments in the chapters that follow. As is clear, the distilled information environmental governance principles are derived directly from the respective analytical frameworks. The principles within the table form the basis of an integrated approach to the governance of the information
Table 1.1  Principles of information environmental governance

<table>
<thead>
<tr>
<th>Analytical frameworks</th>
<th>Information environmental governance principles</th>
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<tr>
<td>Welfare economics</td>
<td>1. Account for costs of IPRs and benefits of information commons</td>
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<tr>
<td></td>
<td>2. Avoid internalising positive externalities where costs exceed benefits</td>
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<td></td>
<td>3. Support initiatives that foster free flow of information</td>
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<tr>
<td>The commons</td>
<td>4. Apply ‘positive community’ principle to information commons</td>
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<tr>
<td></td>
<td>5. Delineate parameters of information commons</td>
</tr>
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<td></td>
<td>6. Neutralise ‘tragedy of ignoring the information semicomics’</td>
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<tr>
<td>Ecology</td>
<td>7. Build a resilient information environment by facilitating diversity and modularity</td>
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<td></td>
<td>8. Allocate rights and provision standing to information commons</td>
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<td></td>
<td>9. Protect information commons by deploying ‘rational truths’, ‘reasonable arguments’ and ‘rhetorical imagination’</td>
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<tr>
<td>Public choice theory</td>
<td>10. Guarantee equitable access to information commons and critical hardware infrastructure</td>
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<td></td>
<td>11. Deploy social production to foster resilience, diversity and modularity within information environment</td>
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<td></td>
<td>12. Leverage social production to separate economic power</td>
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environment. This approach is supported by the arguments of the book as a whole. The integrated approach takes various forms. For instance, principle 1 is foundational to principle 6; principle 10 is a fundament of principle 12; and principle 4 supports the enactment of principles 7, 10 and 11. Likewise, in order to enact the rhetorical imagination aspect of principle 9 (by establishing informational national parks), principle 5 must be fulfilled. Shared themes deepen the integration of the principles. By way of example, principles 7 and 11 are tied together by the notion of resilience; and principles 4 and 8 are connected through a positive community perspective of the information commons. Throughout the book we will see that a variety of tools will be required in order to operationalise the principles. The social net product analysis conducted
in Part I is exemplary in that it satisfies principles 1 and 2. As the book unfolds, further interrelationships and tools will be revealed.

1.5 CONCLUSION

The core research question of this book is as follows: Is there utility in applying environmental analytical frameworks to Intellectual Property Rights (particularly copyrights and patents)? The book will answer this question in the affirmative by applying the four environmental analytical frameworks of welfare economics, the commons, ecology and public choice theory to IPRs. We will see that the information commons is a crucial unifying theme for information environmentalism. As James Boyle has emphasised, struggles seeking to secure the integrity of the physical environment have relied upon the ‘invention of the environment’. Likewise, securing the integrity of the information environment requires the ‘invention of the information commons’. But the inherent tension between the IPR maximalists and the IPR minimalists poses significant challenges with respect to inventing, protecting and nurturing the information commons. In this regard, the information commons is a ‘site of struggle’. Just as colonial powers throughout history have built empires upon the shaky theoretical foundations of private property validation, so too the IPR system is often built upon questionable propositions that flow from authorial (inventive) romance and incentivisation arguments inherent within IPR maximalist discourse. In applying environmental analytical frameworks to IPRs this book will contribute to the building of an information environmental governance framework. Such a framework will prove useful in fostering a language and geography of experience that can be adopted when seeking to protect and nurture the information environment (generally) and the information commons (specifically).