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The Tragedy of the Anticommons and Intellectual Property in the Context of Contemporary Transformations in the Institution of Property

long abstract

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Contemporary business projects are exceptionally complex. They require the control of a vast array of property (both tangible and intellectual). For instance, compare what was required to make economic use of the steam engine (a pivotal innovation of the 18th century) with the numerous elements of property needed today to deliver critical systems such as operating systems or electronic devices. Michael Heller highlighted the problem of fragmented ownership in his work (*Heller, M. (1998). The Tragedy of the Anticommons: Property in the Transition from Marx to Markets. Harvard Law Review, 111(3), 621–688.*). He termed this phenomenon the Tragedy of the Anticommons. However, this issue gains particular significance in the context of the dispersion of intellectual property, an aspect Heller essentially did not address.

Moreover, the contemporary evolving nature of property institutions means that the broadly understood institution of property increasingly exhibits characteristics of intellectual property (as summarized in the table below). Therefore, it is imperative to consider the implications of the Tragedy of the Anticommons in today's economy, which is dominated by intellectual property.

Table. Comparison of Property Institutions in Classical and Contemporary Forms.

Aspect	Institution of Property in Classical Form	Institution of Property in Contemporary Form
Goods that can be owned	Exclusively material	Tangible and intangible
General possibility of control	Very high	Moderate
Right of possession	In full scope	In limited scope
Right to use	In full scope	In full scope
Right to consume	In full scope	In full scope (if the good can be consumed)
Right to derive benefits	In full scope	In limited scope
Right to dispose of	In full scope	In full scope
Scope of ownership duties	Small	Significant
Accumulation of ownership	Usually in the hands of a stronger entity	Often the stronger entity relinquishes ownership
Types of transactions	Usually a sales contract (or inheritance or donation)	Replacing definitive transfer with an obligation contract (granting access rights)
Basis for generating benefits	Exclusivity (exclusiveness) and strict control over the good	Scope built on low marginal costs
Position of the consumer	Stronger (acquires ownership)	Weaker (the good is only made available)
Compliance with sustainable development	Low (weak coordination mechanisms)	Strong (consideration of social context)

Source: own research.

This text addresses the danger of suboptimal use of intangible resources in situations where intellectual property is fragmented, and economic viability is only achievable when actions are undertaken in relation to a larger bundle. In other words, it analyzes the effects of intellectual property fragmentation, which grants many entities (owners) exclusive rights to use a resource (or parts of a resource) but simultaneously prevents all from utilizing the larger whole, which is the only economically viable option.

This analysis also considers the contemporary weakening of the institution of property (as described in the table above). On one hand, this weakening represents a reduction in one of the owner's rights (the ability to exclude others from using a good), which can contribute to mitigating the scale of the Tragedy of the Anticommons. On the other hand, a weaker institution of property hinders achieving a sufficiently high level of resource control, which also complicates the economic utilization of property, albeit for different reasons than those described in the Tragedy of the Anticommons.

The Contemporary Scale of the Tragedy of the Anticommons

The problem of the Anticommons has never manifested with such intensity as it does today. In past centuries, it was significantly easier to control key resources. This was primarily because ownership was concentrated within relatively narrow circles (e.g., the aristocracy). Additionally, the complete cycle of product preparation could be managed with a relatively small number of resources—for instance, having a forest and a sawmill (and possibly a workshop) allowed for the control of product creation and processing. Even in the realm of intellectual property, crucial inventions were often based on just a few solutions—such as the steam engine, the loom, or the light bulb. In today's economy, however, such situations are increasingly rare. It is exceedingly difficult to build a business with just one patent or even a few patents.

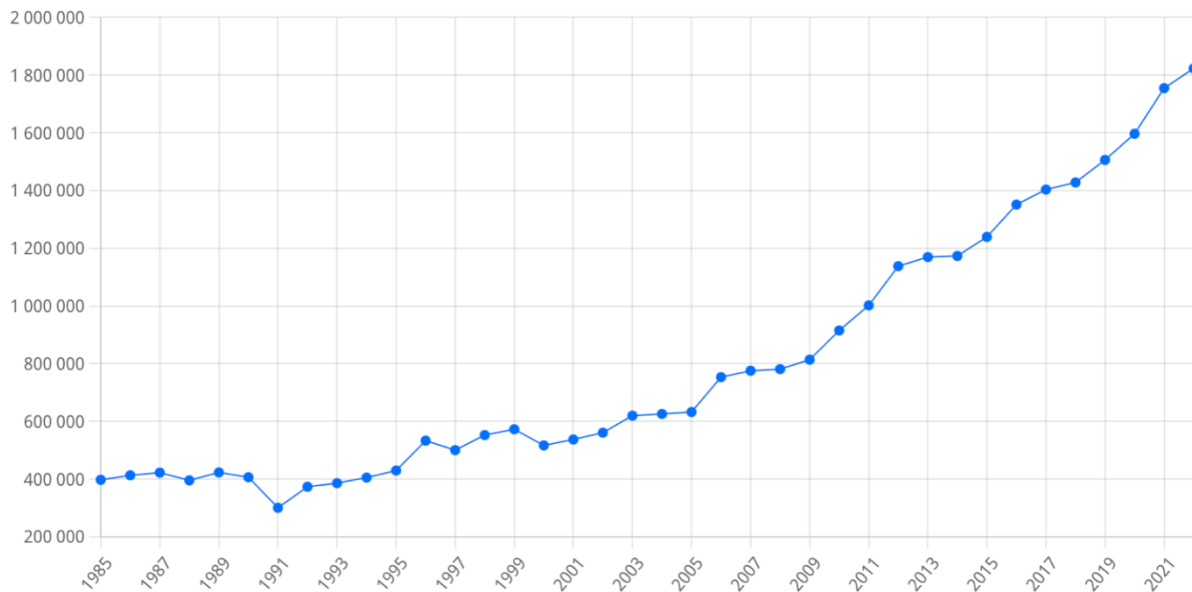
It may therefore be the case that the institution of property in its traditional form can fully function only up to certain limits of social complexity and product intricacy. Beyond this level, it becomes impossible to simultaneously achieve exclusivity (excluding others) and economically utilize the property. The inability to further coexist these two aspects must therefore lead to prioritizing one over the other.

The Tragedy of the Anticommons and Intellectual Property

M. Heller, while analyzing the Tragedy of the Anticommons, based his observations on the case of Moscow apartments shared by several families. However, in the context of the modern economy, it is worthwhile to extrapolate these considerations to intellectual property. In this instance, similar issues arise—ownership is dispersed to the extent that no single entity can control the whole, but many entities can exclude others from using critical resources.

M. Heller argues that in many cases, the fragmentation of ownership is irreversible. In this context, it is necessary to determine whether the Tragedy of the Anticommons in intellectual property is indeed irreversible. On one hand, one category can relatively quickly undergo fragmentation. This happens due to the patent flood (granting hundreds of thousands of patents annually) and because copyright protection of intellectual property is automatic and can cover a very broad spectrum of activities without stringent criteria. On the other hand, intellectual property protection is limited in time. Moreover, patents typically expire earlier due to the non-payment of annual maintenance fees. Therefore, unlike real estate, which Heller used as an example, the dispersion in intellectual property might also decrease to some extent.

Graph. Number of patents granted annually worldwide.



Source: WIPO IP Statistics Data Center.

Moreover, in the examples cited by Heller, the rights holders are various entities, primarily individuals, who are less inclined to engage in negotiations or undertake other complex actions, from their perspective, aimed at maximizing profits. In contrast, the realm of intellectual property is dominated by entirely different categories of entities. Particularly in the case of patents, these are typically corporations that are far more adept at conducting complex transactions and undertaking other legal actions. Although the field of copyright does not exhibit the same level of professionalization, there are certain contextual measures that address the fragmentation of ownership (e.g., libraries used in programming, image banks under Creative Commons Zero licenses, etc.).

Addressing the Tragedy of the Anticommons in the Contemporary Economy

Among the structured initiatives aimed at mitigating the Tragedy of the Anticommons in the realm of intellectual property, patent pools are particularly noteworthy. These are agreements between two or more parties for cross-licensing their patents related to a specific technology. In other words, each member of such a consortium automatically acquires the right to use the patents held by other members.

The Tragedy of the Anticommons, however, can be most problematic in broadly defined communication technologies. Key roles in this context are played by standard-setting organizations, which oversee the provision of convenient access to essential patents related to a particular technology. It is generally accepted that holders of such essential patents must grant licenses to all interested parties on FRAND (fair, reasonable, and non-discriminatory) terms. Collaboration with standard-setting organizations is beneficial for both parties. The holder of a crucial patent not only benefits from licensing agreements but can also leverage network effects to enhance benefits for its clients. For other stakeholders, standard-setting

organizations act as a safeguard against the abuse of a dominant position by patent holders. Such measures effectively counteract the emergence of the Tragedy of the Anticommons. When a solution is established as a standard, with convenient access available to all interested parties, the motivation to invent around the patent (by seeking similar, patentable solutions) diminishes. As a result, rights are not fragmented, thus avoiding a situation where numerous entities could exclude others from using certain resources.

Conclusions

In summary, in the contemporary economy dominated by intellectual property, the Tragedy of the Anticommons is stronger than ever, particularly as today's key projects are significantly more complex. However, there are solutions that help mitigate the negative effects of this phenomenon—particularly patent pools and standard-setting organizations. Furthermore, contemporary transformations in the institution of property have weakened the rights of owners, including their ability to exclude others from using certain resources. This also significantly alleviates the scale of the issues discussed. As a result, even with the increasing complexity of key business projects, it does not necessarily lead to paralysis resulting from the Tragedy of the Anticommons.