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On Type Creation and Ownership

Abstract:
The subject matter of intellectual property rights is an intangible entity. It is identified as an immaterial type which may be embodied in multiple material tokens. A prominent acquisition principle postulates that creators are entitled to a property right in their creation. Combined with a widespread belief that innovators and artists bring to existence not only tokens, but also types, this leads to the acceptance of property rights in these types. In order to avoid conflicts of claims and deadlocks under propertarian framework, the acquisition of equivalent types must be restricted. This may be achieved by assuming that types are unique. However, when the uniqueness property holds, the belief in type creation is untenable. If unique immaterial types exist at all, then they do so regardless of any human activities and may eventually be identified or recognized, but not created. Hence the creationist principle cannot justify owning them.

Key words: patent; copyright; property; type; creation; relativity

1. Introduction

Peter Drahos classifies intellectual property (IP) justifications into two groups: propertarian and instrumentalist.[1] Propertarian arguments hold that IP rights are pre-legal moral constraints, sharing ethical foundations with the property in material objects. Instrumentalist arguments place IP in service of other social goals, such as encouragement of technical progress, disclosure of innovations or maximization of utility. This investigation focuses on the validity of one particular propertarian justification which regards the act of creation as a rationale for appropriation. It also affects some other IP theories that depend on creation in different ways. The discussion concerns philosophical and moral principles rather than existing legal regulations and their statutory interpretations. The paper is structured as follows. Firstly, entities that constitute the subject matter of IP rights are identified as types and their essential attributes are ascertained. It is shown that immateriality is indispensable for the propertarian IP justification and that in order

[1] Drahos (1996: 210-219).

to avoid conflicts of claims under propertarian framework, the acquisition of equivalent types must be restricted. It is shown that the assumption of type uniqueness prevents such conflicts. Then the creationist argument for IP is briefly discussed. Against its central assumption of type creation it is objected that unique immaterial entities cannot be created. They either preexist any human intellectual effort or do not exist at all. The objection is supported by a relativistic argument. It is demonstrated that the creationist assumption leads to a self-contradiction when the relativity of simultaneity and chronological order is accounted for. The consequences of this finding are then explored.

Labels stating "patent pending" and "all rights reserved" may be placed on a material thing. However, the scope of IP is not perceived as being limited to physical boundaries of that thing.[2] To the contrary, it is postulated that IP primarily refers to a non-tangible "intellectual" entity, as stated by Ayn Rand:

> what the patent or copyright protects is not the physical object as such, but the *idea* which it embodies.[3]

The word "idea" is employed by several authors,[4] but the diversity of its meanings hinders theoretical discussions. In particular, "mere" ideas are often explicitly distinguished from "expressions of ideas" regulated by copyright and from "applications of ideas" associated with patents. Hence a need arises for a general term incorporating the subject matter of IP in all its various branches, such as copyright, patents, trade marks and industrial designs. While the range of designations appearing in the literature is rather wide, as shown in table 1, the choice of a convenient term is facilitated by an important circumstance. Ultimately, each IP violation involves a *material structure*, that is a gathering of matter arranged in some way[5]. In order to define IP rights, the class of prohibited material structures must be identified. A condition distinguishing its members must be explicitly or implicitly stated. It must specify the choice of material components and all the relevant relations among them: spatial ordering, connections, compositions, states and possibly also their evolution in time. Without such a statement IP violations would be impossible to identify in advance and hence unavoidable. Conveniently, it is implied in the term "type", that is employed by several authors.[6] The type may be embodied in gatherings of matter satisfying a prescribed condition, such as gears, springs and levers in a clock, transistors in a microchip, ingredients in a chemical compound, DNA molecules in a living organism, paper and ink in a book, automatons in an industrial pro-

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[2] Bouckaert (1990); Drahos (1996: 17).

[3] Rand (1986: 141).

[4] See: Hughes (1988); Hettinger (1989); Bouckaert (1990); Moore (1997); Stercx (2006); Attas (2008); Breakey (2009); Cwik (2014).

[5] Hughes (1988)

[6] See: Dodd (2000); Moore (1997, 2003); Schiffrin (2007); Biron (2010); Wilson (2010).

cess and dancers' bodies in a ballet. These gatherings of matter are called *tokens*. James Wilson argues that the type-token distinction properly reflects the ontology of intellectual property.[7] Adopting this convention one may state that propertarian justifications of IP postulate unilateral appropriation of types, which entails the right to control their physical manifestations enforceable against anybody in the absence of any prior contract binding parties; and in particular the right to prohibit unauthorized production, sales or use of tokens.[8] This propertarian meaning of IP will be assumed in further discussion.[9]

2. Type properties

In order to support IP on propertarian grounds, types must be *immaterial*.[10] Otherwise, they would have recognizable physical borders, not violated by independent production, sales and use of copies.[11] There would be no propertarian rationale for prohibition.[12] By assuming immateriality this difficulty is avoided. It becomes possible to claim that an unauthorized arrangement of matter into a configuration satisfying type's condition anywhere in the universe is a trespass. In the absence of physical borders, such claims may sound convincing. The existence of immaterial entities is disputed by some philosophers,[13] but it is indispensable to the propertarian justification of IP because the ownership of nonexistent objects is pointless. Hence in what follows immateriality will be assumed to hold.

Further discussion is supported by an analogy. There is a class of entities which are similar to types. These are laws of nature. They are abstract and immaterial. They also possess another property. Two apples falling from trees are treated as manifestations of *the same* law of gravity. Also, when someone notices that the electric current flowing

[7] Wilson (2010).

[8] Moore (2003).

[9] This study concerns pre-legal moral principles rather than existing regulations. Hence we may disregard differences between particular IP regimes and various legal exemptions from the prohibition, such as fair use, right to quote, permissions for scientific experiments and limited duration. These are not integral parts of the propertarian justification.

[10] See: Sandefur (2007); Bouillon (2009), Biron (2010: 386).

[11] If these borders somehow automatically extended to newly assembled tokens, then choreographers and tattoo makers would acquire bodies of dancers and tattooed individuals. Poets and lyricists would acquire brains of people who memorized poems and songs. Filmmakers would demand restitution from those who blow up TV sets displaying their films. Property claims to objects that simultaneously embody many types - say a picture made using patented paints - would contradict each other.

[12] While the production of new tokens by competitors may reduce the demand for the original one and lower perceptions of its exchange value, this is not sufficient to prohibit it. Firstly, the exchange value is subjective (Wiśniewski 2020). Its perceptions vary among individuals and may grow instead of falling when new tokens appear (Attas 2008). Any aggregation of perceptions and their changes is arbitrary. Secondly, a consistently enforced protection of value leads to an absurd prohibition of any productive activity because the assemblage of a substitute for anything might lessen the value of someone's existing stock of that thing (cf. Dominiak 2014).

[13] Bouillon (2009); Gordon (2003).

through a conductor is proportional to the voltage and describes this relation, the event is interpreted as a restatement of Ohm's law, rather than origination of a new one. More generally, identical relations among physical objects observed in identical circumstances or described by various individuals are believed to manifest the same *single* law of nature. It is tacitly assumed that two identical-but-distinct laws do not exist. We shall call this property *uniqueness*. An alternative would be to imagine non-unique natural sciences where the fall of apples from trees owned by different individuals might be governed by separate laws of gravity or where independent statements of equivalent formulas might represent different laws. This would hinder the generalization of observations into laws. Entities would be multiplied needlessly, violating the law of parsimony, also known as the Occam's razor principle. Hence the uniqueness is preferred: it enables precise description of nature without unneeded complication.

Are types unique ? If someone synthesizes an antibiotic particle which corresponds exactly to the one obtained by Fleming in 1928, then it is intuitive to think of it as *the same* chemical substance, namely penicillin. If someone writes a poem that perfectly corresponds to Frost's "The road not taken", then it is intuitive to conclude that *the same* poem has been written. Types are so similar to the laws of nature that some of them are considered a special kind thereof.[14] Both classes of entities describe relations among physical objects and may guide expectations on their beneficial effects. This close affinity suggests that uniqueness is shared by both. Besides, unique types precisely describe any material structure without redundancies and unnecessary complications. Hence the principle of parsimony may be invoked in favor of type uniqueness.

Moreover, advocates of propertarian IP justifications need to deal with an important problem. After the type - say *T* - is taken into ownership, further appropriations of any conceivable types with equivalent defining conditions must be restricted. Otherwise, the IP in *T* might be challenged by anyone who has independently produced its tokens, anyone who has imitated *T*, and even anyone who is barely able to precisely describe *T*. These individuals might respond to claims of *T* 's owner by declaring ownership of equivalent types *U*, *V*, *W*, ..., which are distinct from *T* and hence open to appropriation regardless of it being owned.[15] Each newcomer could counter the IP right of *T*'s owner with an opposite IP right in *U*, *V* or *W*. Beneficial gatherings of matter would be subject to a growing number of newcomers' claims resulting in a deadlock and forcing the society to abolish IP. The uniqueness assumption solves this problem. It enables a dismissal

[14] Rothbard (1962: 748); Long (1995), Kinsella (2008: 24).

[15] Let Crusoe appropriate a wild goat and let Friday learn about it. If another unowned identical wild goat exists, Friday is at liberty to subsequently appropriate it, regardless of the amount of knowledge he possesses on Crusoe's goat, and regardless of his competences in goat-catching. His liberty is not affected by the fact that he might catch it by pure luck, rather than arduous effort. Crusoe's property rights are not violated until Friday happens to appropriate Crusoe's goat, that is until the two goats are the same. Newcomers may support their claims by this analogy.

of *U*, *V*, *W*,..., as lacking "novelty" or "originality", which simply means that they are *T*, they are already owned, and hence cannot be appropriated by anyone else. Hence, in what follows the uniqueness property will be assumed to hold[16].

3. Creationism

Propertarian arguments for IP frequently refer to creation as a source of moral right to property. Such a *creationist principle* is expressed by Edwin Hettinger:

> Perhaps the most powerful intuition supporting property rights is that people are entitled to the fruits of their labor. What a person produces with her own intelligence, effort and perseverance ought to belong to her and to no one else. "Why is it mine ? Well, it's mine because I made it, that's why. It wouldn't have existed but for me."[17]

But the production of tokens is not sufficient to justify IP through the principle. This would only vindicate the right to matter that constitutes them. Hence it must be assumed that the immaterial entity (whether it is called a type, a design, or an idea) is itself also produced. And so it is claimed that innovators and artists create immaterial entities and are therefore entitled to property rights in them. Such a justification of IP will be shortly called a *creationist argument*.[18] It is endorsed among others by Lysander Spooner[19], George Reisman[20] and Ayn Rand who states:

> Patents and copyrights are the legal implementation of the base of all property rights: a man's right to the product of his mind.[21]

These words demonstrate a characteristic insistence on creation as a single condition that is both necessary and sufficient for legitimizing IP rights. However, the creationist assumption also plays less emphasized, but nevertheless important role in some other propertarian IP theories. Alfred Yen advances a labor-based argument, but refers to creation as a circumstance which determines what could be appropriated.[22] He postulates that authors are entitled only to the intangible "material" they themselves created, as opposed to creation of a broader society. Hence the creation is a necessary condition for appropriation. Similarly, in a more recent formulation of labor-desert justification, Richard Spinello states:

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[16] This does not apply to tokens, which are always distinct, even if identical.

[17] Hettinger (1989).

[18] Depending on regulation details, the creationist principle supports existing IP regimes to a varying degree. For example the "first to file" rule which dominates patent legislation nowadays (as opposed to "first to invent") may grant possession of types to other individuals than the innovator, violating the principle.

[19] Spooner (1855: 20).

[20] Reisman (1996: 388).

[21] Rand (1986: 141).

[22] Yen (1990: 558).

> [...] a person has a legitimate claim to ownership in works to the extent that they have been created by that person's labor. If it is the case that people deserve a property right in tangible objects through their labor, then why shouldn't they deserve property in intellectual objects which they have created?[23]

Again, without type creation, this statement only refers to tokens and only implies property in matter.

The belief that humans create immaterial entities is rarely contested. It is expressed in numerous IP-related contexts.[24] Contemporary disputes tend to concentrate on the distinction between creation *ex nihilo* and creation carried out by combining known ideas.[25] Even authors who criticize or oppose IP occasionally refer to *producers of ideas*,[26] *creators of ideas*,[27] *pattern-creators*[28] and *creation of abstractions*.[29] Despite that, several scholars have undermined the creationist argument with respect to some or all kinds of types. They emphasize the social character of intellectual labor and point to difficulties in ascertaining author's contribution in the creative process.[30] Others assert that technological progress is usually achieved by cumulative small-scale improvements rather than major breakthroughs, hardly justifying patenting,[31] and notice that the labor may not be involved at all in a sudden inception of an idea.[32] It is argued that a creation of literary work is partly realized in the mind of a reader entitling him to a share in the property.[33] Difficulties in individuation of the intellectual product[34] and arbitrariness of prohibition scope[35] are emphasized. Notwithstanding the above, in the next section, the central assumption of creationist argument is challenged.

4. The objection

The creation is an act that brings a new entity into existence: a transition from non-being into being.[36] It might be disproved by revealing that the entity in question existed before the act. In this context the distinction between types and tokens is crucial. The construction of a token is easily observed and documented. It is not contradicted by the fact that

[23] Spinello (2003).
[24] See: Baird (1983); Schulman (1990); Lemley (2005).
[25] Chappell (1994: 26-55); Zemer (2006); Hull (2008).
[26] LeFevre (1971: 68); Hayek (1988: 36); Boldrin, Levine (2004); Wilson (2010).
[27] Boldrin, Levine (2008: 158); Attas (2008); Wilson (2009).
[28] Kinsella (2008: 36).
[29] Sandefur (2007).
[30] Hettinger (1989); Craig (2002); Sterckx (2006); Radder (2013).
[31] Desrochers (2000).
[32] Hughes (1988); Tavani (2005).
[33] Sandefur (2007).
[34] Sterckx (2006); Attas (2008).
[35] Kinsella (2008: 23-24).
[36] Kvanvig, Vander Laan (2014).

another set of items might be identically assembled earlier, resulting in a separate token. However, types are different. While the existence of a type before the alleged creation may perhaps be claimed by pointing to antecedent tokens or descriptions, its earlier non-existence cannot be demonstrated empirically and is never certain.[37]

The ownership of types may only come at the expense of property rights in material items.[38] These are inevitably restricted when the production of tokens is prohibited. Therefore, it is reasonable to carefully examine the validity of claims raised by innovators and artists, and require credible evidence of type creation before granting priority to them. The burden of proof rests on their shoulders. But the nature of types prevents reliable tracing of their origins, so the proof cannot be provided. More importantly, types may exist before anyone thinks about them and only be subject to eventual apprehension, recognition or identification, leaving no grounds for appropriation through the creationist principle. Counter-arguments that proceed along similar lines referring to some or all types were raised by numerous authors.[39] In the following sections the relativity theory is applied to demonstrate that they are valid with respect to all unique immaterial types.

5. Relativity

Prior to the relativity theory the concepts of space and time were believed to be separate and independent. This was expressed by Sir Isaac Newton's words:

> Absolute, true and mathematical time, of itself, and from its own nature flows equably without regard to anything external [...] Absolute space, in its own nature, without regard to anything external, remains always similar and immovable.[40]

The simultaneity and chronological order of events were considered absolute. Later, it was realized that light speed is finite. This was demonstrated by the discovery of time shift between Jupiter moon eclipses and confirmed by the discovery of stellar aberration.[41] Several increasingly accurate experiments resulted in the light speed measurement close to $3 \cdot 10^8$ m/s. Meanwhile the light has been integrated into a general theory of electromagnetism.[42] Subsequent experiments indicated that the speed of light does not change with the direction in which it travels and does not depend on the relative motion

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[37] Błaszczyk (2018: 418).

[38] Bell (2007); Bouillon (2009); Błaszczyk (2018: 305).

[39] See: Tucker (1926: 286-288); George (1929: 411); Long (1995); Luper (1999); Morawski (2011: 203). Creation is also questioned by Dodd (2000; 2007: 53), while Biron (2010) points to its incompatibility with the abstract nature of intellectual property objects.

[40] Newton (1687).

[41] These are respectively attributed to Ole Rømer and James Bradley.

[42] Maxwell (1873: 431-449).

of light source and observer.[43] This undermined Newtonian mechanics and the notion of absolute time. The difficulty has been overcome due to works of numerous authors culminating in Albert Einstein's formulation of Special Relativity Theory (SRT),[44] that was later generalized by incorporating gravitation in his General Relativity Theory (GRT).[45] For our purposes it is sufficient to focus on SRT which accurately approximates GRT far from large masses, like black holes, and is supported by rich empirical evidence, emphasized by the words of Bernard Schutz:

> In fact it is probably fair to say, that special relativity theory has firmer experimental basis than any other of our laws of physics, since it is tested every day in all the giant particle accelerators, which send particles nearly to the speed of light.[46]

Locations in space may be identified using a Cartesian coordinate system attached to a material reference object and represented by a vector $\boldsymbol{r} = (x, y, z)$. A *reference frame* is formed by associating a clock with it. Any event may be described by a space-time coordinate vector $(\boldsymbol{r}, t) = (x, y, z, t)$ including the time measurement t. Let respective axes of two reference frames F and F' point in the same directions. Coordinates of any event in both frames are respectively denoted by $(\boldsymbol{r}, t)$ and $(\boldsymbol{r}', t')$. Let F' move with respect to F with a constant subluminal velocity represented by a vector $\boldsymbol{v}$ of magnitude $v = ||\boldsymbol{v}||$ and let their origins be the same for $t = t' = 0$. Under SRT the relation between coordinates in both frames is expressed by the famous Lorentz transformation:[47]

$$\boldsymbol{r}' = \boldsymbol{r} + (\gamma - 1)(\boldsymbol{r} \cdot \boldsymbol{n})\, \boldsymbol{n} - \gamma t \boldsymbol{v}$$

$$t' = \gamma(t - c^{-2}\boldsymbol{v} \cdot \boldsymbol{r})$$

where $\cdot$ represents the scalar product of two vectors, c is the light speed, $\boldsymbol{n}$ is a unit vector such that $\boldsymbol{v} = v\boldsymbol{n}$ and $\gamma = c/(c^2 - v^2)^{0.5}$ is the *Lorentz factor*. These results imply that it is nonsensical to consider the time of an event without specifying its location, as both are interdependent. Hence any discussion of type origination must take into account its spatial aspects. In the next section the relativity is applied to show that the uniqueness assumption rules out creation.

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[43] Michelson, Morley (1887).
[44] See: Larmor (1897); Lorentz (1899, 1904); Poincaré (1900, 1905); Einstein (1905).
[45] Einstein (1915).
[46] Schutz (2009: 2).
[47] See: Cushing (1967); Ugarov (1979: 60); Steane (2012: 124).

6. Are types created?

The creationist argument relies on the precedence of the alleged creation over later instantiations. Chronological order of these events must be determined. Analyses based on the Newtonian model of absolute time collapse immediately when relativistic effects are accounted for. This is illustrated by the numerical example.

EXAMPLE. Let four individuals A, B, C, D, arrive at an identical type at coordinates $(\boldsymbol{r}, t)=(0, 0, 0, 0)$, $(12, 0, 0, 4)$, $(0, 16, 0, 8)$, $(0, 0, 24, 12)$ with time measured in years and distances in lightyears. Let frames F', F'' and F''' with respective time variables t', t'', t''' have identical orientation of axes as F and coincide with it for $t = t' = t'' = t''' = 0$. Let them move with respect to F with velocities $\boldsymbol{v}' = (0.6c, 0, 0)$, $\boldsymbol{v}'' = (0, 0.6c, 0)$, $\boldsymbol{v}''' = (0, 0, 0.6c)$. Time coordinates of the four events in all frames are:

	t	t'	t''	t'''
A	0	0	0	0
B	4	-4	5	5
C	8	10	-2	10
D	12	15	15	-3

Hence their chronological order is respectively: (A, B, C, D), (B, A, C, D), (C, A, B, D) and (D, A, B, C). Each one precedes all others in a suitably chosen reference frame.

Conflicting temporal orderings of alleged creations lead to a self-contradiction. Due to the uniqueness, they must all involve the same type. Each contender is overtaken by someone else and hence cannot be the creator. This lets us state the following:

Conclusion 1: If each inventor or artist is overtaken by some rival in some reference frame then none of them is the creator. The type exists independently of their efforts (if it exists at all).

Reference frames with opposite chronological orders may be found whenever two events take place outside *event horizons* of each other, so that the time difference between them is too small for the light signal to reach one location from the other and vice versa. In particular, this is true when the two events are distant and simultaneous in any single frame. Similar sufficient conditions may be formulated for more than two events.

Independent arrivals at the same new type, ordered differently in various reference frames, have not been documented yet. However, when humans colonize nearby star systems located at the distance of several lightyears and start substantial intellectual activity there, such occurrences will be frequent. More importantly, there is no reason to believe that anything prevents people - even on Earth - from arriving at types in time-spatial configurations contradicting the creation. These types are not created by humans. Therefore, all other types are not created by them either. Otherwise, some mechanism would have to preassign the initial state of existence or nonexistence to every possible type,

depending on time-spatial configuration of multiple *later* events distributed through the whole time-space. A theory of types defining such a complex mechanism would violate the law of parsimony. For certain configurations of events it would also lead to absurd conclusions that at some time-spatial coordinates a particular complicated type exists while simpler types of which it consists are not created yet. Hence such theories should be rejected. This leads to the following result:

Conclusion 2: All unique immaterial types exist independently of any human efforts (if they exist at all).

The reasoning presented in this section applies to unique immaterial types in all kinds of contexts including, among others, those embodied in machines, chemical compounds, industrial processes, integrated circuit topologies, computer programs, databases, books, poems and melodies. Its applicability is safeguarded by the undeniable fact that these types may be independently identified by multiple individuals. Such an occurrence may be extremely unlikely, depending on circumstances and type's degree of complication, but it is always - at least theoretically - possible. Claims to the contrary[48] are shown to be groundless by pointing out that the event deemed impossible has already happened once. There is no reason to believe in any mysterious force preventing more occurrences.

7. Final remarks

The intellectual labor cannot bring unique, immaterial types to existence. It may only result in identification of another, already existing, initially unknown and perhaps more beneficial type; just like the intellectual effort of a scientist cannot create a new law of nature and may only lead to identification of an already existing one.

The creationist principle of acquiring property requires the transition from non-being into being as a necessary precondition to granting the property right. This precondition is blatantly unfulfilled in the case of unique immaterial entities. Hence the principle does not justify owning them, as reflected by the words of Ayn Rand:

> It is important to note, in this connection, that a discovery cannot be patented, only an invention. A scientific or philosophical discovery, which identifies a law of nature, a principle or a fact of reality not previously known, cannot be the exclusive property of the discoverer because: (a) he did not create it, and (b) if he cares to make his discovery public, claiming it to be true, he cannot demand that men continue to pursue or practice falsehoods except by his permission.[49]

[48] Such as those by Himma (2008) or Rand (1986: 142).
[49] See: Rand (1986: 142).

Other IP justifications that rely on creation of these entities as a necessary condition, and in particular as a delimiter of what could be appropriated, are also invalid. The act that does not take place cannot support them.

Finally, presented results facilitate resolution of another related controversy. The Hoppean theory of property derives the need for property rights from the scarcity of resources and from the necessity of preventing interference among their conflicting uses.[50] From that it is usually inferred that types, ideas, patterns or designs cannot be legitimately owned, because they may be beneficially used by an unlimited number of individuals.[51] Against this view it is sometimes argued that intangible objects might be considered scarce – and hence ownable – because they need to be produced.[52] However, humans cannot bring unique immaterial types to existence. Their production does not happen, so it cannot support the scarcity claim. Therefore, propertarian IP justifications for their ownership cannot be based on the Hoppean property theory.

References:

Attas D. (2008), Lockean Justifications of Intellectual Property. In A. Gosseries, A. Strowel & A. Marciano (Eds.) *Intellectual Property and Theories of Justice*: (pp. 29-56). New York: Palgrave-Macmillan.

Baird D.G. (1983), Common Law Intellectual Property and the Legacy of International News Service v. Associated Press. *University of Chicago Law Review*, 50, 411-413.

Becker L.C. (1992), Deserving to Own Intellectual Property. *Chicago-Kent Law Review*, 68, 609-629.

Bell T.W. (2007), Copyright as Intellectual ~~Property~~ Privilege. *Syracuse Law Review*, 58, 523-546.

Biron L. (2010), Two Challenges to the Idea of Intellectual Property. *Monist*, 93(3), 382-394.

Błaszczyk C. (2016), The Critique of Copyright in Hans Hermann Hoppe's Argumentation Ethics. *Studia Iuridica*, 68, 33-54.

Błaszczyk C. (2018), *Propertarianistyczne Teorie Prawa Autorskiego*. Warsaw: C.H. Beck.

Boldrin M., Levine D.K. (2004), IER Lawrence Klein Lecture: The Case Against Intellectual Monopoly. *International Economic Review*, 45: 327-350.

Boldrin M., Levine D.K. (2008), *Against Intellectual Monopoly*. Cambridge: Cambridge University Press.

Bouckaert B. (1990), What is Property ? *Harvard Journal of Law & Public Policy*, 13(3), 775-816.

Bouillon H. (2009), Note on Intellectual Property and Externalities. In J. G. Hulsmann & N.S. Kinsella (Eds.) *Property, Freedom and Society: Essays in Honor of Hans-Hermann Hoppe*: (pp. 149-160). Auburn: Ludwig von Mises Institute.

Breakey H. (2009), Liberalism and Intellectual Property Rights. Politics, *Philosophy and Economics*, 3, 329-349.

[50] See: Hoppe (2010: 18-19).

[51] See: Kinsella (2008); Dominiak (2014); Wysocki (2014). This meaning of scarcity is often called rivalrousness.

[52] In particular, this reasoning is sketched by Gordon (2017: 388). It refers to scarcity understood as lack of superabundance.

Chappel V. (1994), Locke's theory of ideas. In V. Chappel (Ed.) *The Cambridge Companion to Locke*: (pp. 26-55). Cambridge University Press. Cambridge.
Craig C.J. (2002), Locke, Labor and Limiting the Author's Right: A Warning Against A Lockean Approach to Copyright Law. *Queen's Law Journal*, 28(1), 1-60.
Cushing J.T. (1967), Vector Lorentz Transformations. *American Journal of Physics*, 35, 858-862.
Cwik B. (2014), Labor as the Basis for Intellectual Property Rights. *Ethical Theory and Moral Practice*, 17, 681-695.
Desrochers P. (2000), Excludability, creativity an the case against the patent system. *Economic Affairs*, 20(3), 14-16.
Dodd J. (2000), Musical Works as Eternal Types. *British Journal of Aestethics*, 40(4), 424-440.
Dodd J. (2007), *Works of Music: An Essay in Ontology*. Oxford: Ocford University Press.
Dominiak Ł. (2014), Anarcho-Capitalism, Aggression and Copyright. *Political Dialogues*, 16, 37-47.
Drahos P. (1996), *A Philosophy of Intellectual Property*. Dartmouth: Ashgate.
Einstein A. (1905), Zur Elektrodynamik bewegter Körper. *Annalen der Physik*, 17, 891–921.
Einstein A. (1915), Die Feldgleichungen der Gravitation. *Sitzungsberichte der Preussichen Akademie der Wissenschaften zu Berlin*, 844-847.
George H. (1929) *Progress and Poverty*, New York: Modern Library.
Gordon D. (2017) *An Austro-Libertarian View*. Vol II. Auburn: Ludwig von Mises Institute.
Gordon W.J. (1993), A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property. *The Yale Law Journal*, 102, 1533-1609.
Gordon W.J. (2003), Intellectual Property. In P. Cane & M. Tushnet (Eds.) *The Oxford Handbook of Legal Studies*. (pp. 617-646). Oxford: University Press.
Hayek F.A. (1988), *The Fatal Conceit. The Errors of Socialism*. London: Routledge.
Hettinger E.C. (1989), Justifying Intellectual Property. *Philosophy and Public Affairs*, 18(1), 31–52.
Himma K.E. (2008), The justification for intellectual property: Contemporary Philosophical Disputes. *Journal of the American Society for Information Science and Technology*, 59(7), 1143-1161.
Hoppe H.-H. (2010) A Theory of Socialism and Capitalism. Auburn: Ludwig von Mises Institute.
Hughes J. (1988), The Philosophy of Intellectual Property. *Georgetown Law Journal* 77 (287), 330–350.
Hull G. (2008), Clearing the Rubbish: Locke, the Waste Proviso, and the Moral Justification of Intellectual Property. *SSRN Electronic Journal*, DOI: 10.2139/ssrn.1082597.
Kinsella N.S. (2008), *Against Intellectual Property*. Auburn: Ludwig von Mises Institute.
Kvanvig J., Vander Laan D. (2014), Creation and Conservation. In E.N. Zalta (Ed.) *The Stanford Encyclopedia of Philosophy* (Winter 2014 Edition). (Access: 20.06.2018)
URL: https://plato.stanford.edu/archives/win2014/entries/creation-conservation/.
Lambrecht M. (2015), On water drinkers and magical springs: Challenging the Lockean proviso as a justification for copyright. *Ratio Iuris* 28(4), 1-29.
LeFevre R. (1971), *The Philosophy of Ownership*. Auburn: Ludwig von Mises Institute.
Lemley M.A. (2005), Property, Intellectual Property, and Free Riding. *Texas Law Review*, 83, 1031-1089.
Larmor J. (1897), On a Dynamical Theory of the Electric and Luminiferous Medium. *Philosophical Transactions of the Royal Society*, 190, 205-300.
Long R.T. (1995), The Libertarian Case Against Intellectual Property Rights. *Formulations* (3)1, 10-13.

Lorentz H. (1899), Simplified Theory of Electrical and Optical Phenomena in Moving Systems. *KNAW Proceedings*, 1, 427-442.
Lorentz H. (1904), Electromagnetic Phenomena in a System Moving with any Velocity Less than that of Light. *KNAW Proceedings*, 6, 809-831.
Luper S. (1999), Natural Resources, Gadgets and Artificial Life. *Environmental Values*, 8, 27-55. doi: 10.3197/096327199129341707
Maxwell J.C. (1873), *A Treatise on Electricity and Magnetism*. Oxford: Clarendon Press.
Michelson A.A., Morley E.H. (1887), On the relative motion of the Earth and the luminiferous ether. *American Journal of Science*, 34, 333-345.
Moore A. (1997), Lockean Theory of Intellectual Property. *Hamline Law Review*, 21, 65-108.
Moore A. (2003), Intellectual Property, Innovation and Social Progress: the Case Against Incentive Based Arguments. *Hamline Law Review*, 26(3), 602-630.
Moore A. (2012), A Lockean Theory of Intellectual Property Revisited. *San Diego Law Review*, 49, 1069-1103.
Morawski R.Z. (2011), *Etyczne aspekty działalności badawczej w naukach empirycznych*. Warsaw: Warsaw University Publishing.
Newton I. (1687), *Philosophiae Naturalis Principia Mathematica*. London: Joseph Streater.
Palmer T.G. (1989), Intellectual Property: A Non-Posnerian Law and Economics Approach. *Hamline Law Review*. 12. 261-304.
Palmer T.G. (1990), Are Patents and Copyright Morally Justified ? The Philosophy of Property Rights and Ideal Objects. *Harvard Journal of Law and Public Policy*, 13(3), 817-865.
Poincaré H. (1900), La Theorie de Lorentz et le Principe de Reaction. *Archives Neerlandaies*, V, 253-278.
Poincaré H. (1905), Sur la Dynamique de l'Electron. *Comptes Rendues*, 140, 1504-1508.
Reisman G. (1996), *Capitalism. A Treatise on Economics*. Ottawa: Jameson Books.
Radder H. (2013), Exploring Philosophical Issues in the Patenting of Scientific and Technological Inventions. *Philosphy & Technology*, 26, 283-300.
Rand A. (1986), *Capitalism: The Unknown Ideal*. New York: Signet.
Rothbard M.N. (1962) *Man, Economy, and State*. New York: Van Nostrand.
Sandefur T. (2007), A Critique of Ayn Rand's Theory of Intellectual Property Rights. *The Journal of Ayn Rand Studies*, 9(1), 139-161.
Schiffrin S. (2007), Intellectual Property. In: Goodin R, Pettit P, Pogge T (Eds.) *A Companion to Contemporary Political Philosophy*. (pp. 653-668). Oxford: Blackwell:.
Schulman J.N. (1990), Informational property: Logorights. *Journal of Social and Biological Structures*, 13 (2), 93-117.
Schutz B.F. (2009), *A First Course in General Relativity*. Cambridge: Cambridge University Press.
Shaffer B. (2013) *A Libertarian Critique of Intellectual Property*. Auburn: Mises Institute.
Spencer H. (1897), *The Principles of Ethics*. (T.Machan Ed. 1978). Indianapolis: Liberty Fund.
Spinello R.A. (2003), The future of intellectual property. *Ethics and Information Technology*, 5, 1-16.
Spooner L. (1855), *The Law of Intellectual Property; or An essay on the Right of Authors and Inventors to a Perpetual Property in their Ideas*. Boston: Bela Marsh;
Steane A.M. (2012), *Relativity Made Relatively Easy*. Oxford: Oxford University Press.
Stercx S. (2006), The Moral Justifiability of Patents. *Ethical Perspectives*, 13(2), 249-265.
Tavani H.T. (2005), Locke, Intellectual Property Rights, and the Information Commons. *Ethics and Information Technology*, 7, 87-97.

Tucker B.R. (1926), *Individual Liberty*. New York: Vanguard Press.
Ugarov V.A. (1979), *Special Theory of Relativity*. Moscow: Mir Publishers.
Varelius J. (2014), Is the Expiration of Intellectual Property Rights a Problem for Non-consequentialist Theories of Intellectual Property ? *Res Publica*, 20, 345-357.
Wilson J. (2009), Could There Be a Right to Own Intellectual Property? *Law and Philosophy*, 28, 393-427.
Wilson J. (2010), Ontology and the Regulation of Intellectual Property. *Monist*, 93(3), 450-463.
Wiśniewski J.B. (2020), On the Impossibility of Intellectual Property. *The Quarterly Journal of Austrian Economics*. 23(1). 33-45.
Wysocki I. (2014) The rebuttal of pro-IP arguments. *Political Dialogues*. 17. 33-39.
Yen A.C. (1990), Restoring the Natural Law: Copyright as Labor and Possession. *Ohio State Law Journal*, 51, 517-559.
Zemer L. (2006), The Making of a New Copyright Lockean. *Harvard Journal of Law & Public Policy*, 29(3), 891-947.

Table 1: A sample of terms referring to the subject matter of IP

Term	Authors
abstract object	Drahos (1996, 6), Himma (2008), Biron (2010)
ideal good	Palmer (1989)
ideal object	Palmer (1989, 1990), Kinsella (2008, 14)
intangible creation	Gordon (1993)
intangible work	Moore (2003)
intangible good	Hughes (1988), Błaszczyk (2016)
intangible product	Gordon (1993), Gordon (2003)
intellectual object	Hettinger (1989), Spinello (2003), Tavani (2005), Himma (2008)
intellectual entity	Himma (2008), Bouillon (2009), Sandefur (2007)
intellectual content	Himma (2008)
information entity	Himma (2008)
intellectual construct	Wilson (2010)
intellectual good	Hughes (1988), Bouillon (2009), Wilson (2010),
intellectual work	Hettinger (1989), Moore (1997, 2012), Spinello (2003), Lambrecht (2015)
intellectual creation	Hettinger (1989), Varelius (2014), Lambrecht (2015)
intellectual product	Hughes (1988), Becker (1992), Gordon (1993, 2003), Hull (2008),
pattern	Schulman (1990), Moore (2003), Gordon (2003), Kinsella (2008, 25)
thought creation	Shaffer (2013, 31)
mental product	Spencer (1897 vol II, 70), Attas (2008)
type	Moore (1997, 2003), Schiffrin (2007), Wilson (2010), Biron (2010)