

What's wrong with software patents?

The simple question “what’s wrong with software patents?” stirs up controversy and divides the IT industry into two camps like no other. Every group has their own ideology about software patents.

I know that many people come to the [EFF](#)—as I did—because they feel a deep sense of injustice at how the smaller players in IT are consistently squashed by special interests and monopolists. But I’m going to look at our core concern—software patents—from a different angle, one based more on economics and less on emotions.

The simple question “what’s wrong with software patents?” stirs up controversy and divides the IT industry into two camps like no other. Every group has their own ideology about software patents. Those who don’t like them claim that they are anti-competitive, that they are tools used by industry giants to crush free and open software, that they are bad for innovation, that they are monopolies, etc. Those who like them claim that they are simply units of intellectual property, to be traded like any other commodity.

What is property?

All property is a monopoly. All property can be traded, bought and sold, and can make money for its owners. The state can declare any resource it likes to be “property”. We are, as citizens, property of the state, and in some countries we can still be traded, bought, and sold, and make money for our owners.

But these are useless truisms. I can make tenuous comparisons between patents and slavery, and stir up all kinds of emotions. I’m not going to do that. Instead, I’m going to look at the very meaning of property, and explore the dynamics that drive the basic notions of “private property”.

Property, of any kind, consists of a **definition** and a **system of enforcement**. All the rest is subjective. There is no intrinsic reason that land or potatoes should be different from ideas, time, or air. Anyone who argues that it is “right” or “wrong” to define and enforce certain types of property must prove this using more than just rhetoric and dogma.

The case for private property

Let’s look at a well-understood form of property: land rights. Most countries are divided up into plots large and small. The very concept of “country” is property, but a thousand years ago, only a small part of the world’s surface, in and around human habitations, was considered property. The rest was common lands, belonging to all and none. The process of turning common lands into shared property, and then into private domains (the “tragedy of the commons”) was driven by discussions very similar to the ones we hear today. The process was driven by greed to some extent, but also by real needs of evolving economies driven by new technologies in agriculture and industry.

A farmer who owns his land is far more likely to look after it than a farmer working on a collective. Similarly, it is clear that private home ownership is a healthier model in a modern money-based economy than state-ownership of homes. Private ownership of some things works very well.

The case for common property

However, this is not the whole story. Private ownership is not a panacea, and for every example where private ownership is “right”, I can find one where it is “wrong”. The roads and streets that connect those farms and houses are owned and managed collectively. The rain, air, and sun is owned by no-one. The wild animals and insects that form an important part of the ecology are collectively owned.

The five principles of property

There are actually good economic reasons for choosing a private property model for some resources, and not for others. There are five key rules to consider (there may be more, these are the most obvious ones to me):

1. **Is the resource mobile, or fixed?** This criteria defines whether it is possible to accurately define the resource, or not. A mobile resource—such as migrating birds or fish—does not fit the private property model. Fixed resources, such as lobsters, do.
2. **Does the resource have clear boundaries, or not?** This criteria defines whether it is possible to accurately enforce the monopoly, or not. Land can be well-defined. Art cannot be well-defined.
3. **What generates more wealth—exclusive ownership or sharing?** This criteria defines whether it is useful to consider this resource as property at all. Exclusive ownership of a house generates wealth, but exclusive ownership of roads does not (which is why we removed toll bridges on our roads).
4. **Is the property system economical?** In other words, is the definition and enforcement of the property cheap? If so, it is accessible to all. If not, it becomes a privilege of the rich, and the system itself stops being economically neutral.
5. **Is the property system well-bounded?** In other words, is the definition of the property clear and unnegotiable? If the definition can be manipulated and changed, then the system that manages it will grow in an unsafe manner.

All forms of property can be tested against these five rules. The rules are, ultimately, self-enforcing because any society that ignores them will find itself paying the cost, and competition between societies punishes those that choose inefficient economic models.

The dangers of bad property systems

A well-defined property system can be incredibly powerful, and badly-defined property systems can be very damaging. I'd argue that what brought down the Soviet Union was not the political system, nor military spending, but simply the fact that private ownership of farms and houses was impossible. There is a direct relationship between house prices (which mainly depend on availability of land) and economic growth, in many countries. Home ownership creates a middle class, which is the main driver of modern economies.

Let's see what happens when we break the rules. If we try to create monopolies on mobile resources, we over-exploit those resources. If we try to enforce monopolies that don't have clear boundaries, we spend a lot on lawyers. If we create monopolies on resources that should be shared, we lose competitive advantage. If we create expensive property systems, we unleash special interests. And if we create unbounded property systems, those special interests will grow out of control.

Property systems for the software business

So I've defined five economic rules that we can apply to any form of property to measure whether it is a good, or bad, concept. Let's now apply these to the main forms of property that are used in the IT sector, and see what we get. The four main property forms are: copyright, trademark, patent, and trade secret (which though not defined as IPR, is a real and useful form of property):

- Copyright: it applies to a fixed resource: a self-defining written expression. It has clear boundaries (the document or work). Exclusive ownership does produce wealth, but sharing seems to be a stronger driver, and models such as the GPL that encourage both appear to be the most efficient at producing value. The copyright system is cheap and well-bounded, except when it comes to lifespans, and we've seen copyright terms extended to life+70, which is extraordinary in today's digital era.
- Trademark: it applies to a fixed resource: a name, logo, or phrase. It has clear boundaries (the mark). Exclusive ownership produces the most value—sharing of marks just weakens them. The trademark system is very well-bounded, though it could be cheaper.
- Software patent: it applies to mobile resources: new ways of doing things, or methods. It has unclear boundaries (methods are difficult to define absolutely, and they overlap in horribly complex ways). It uses exclusive ownership for resources (new ideas) that produce much more value when shared. It is poorly bounded (it depends on a set of negotiable definitions such as "technical effect"), and it is very expensive.
- Trade secret: it is fixed (in your firm). It has clear boundaries (individuals may not pass secrets outside the defined group). It depends on exclusive ownership. It is a well-defined system that is easy to apply, and cheap (based on simple contract).

The conclusions are clear: copyright, trademark, and trade secret are good forms of property for the software

business, though copyright terms are a problem. Patents are a bad form of property for the software business, because they amplify the general weaknesses of the patent system:

- Patents claim to own ideas, which are highly mobile resources, and in software, more mobile than most other industries.
- Patents have unclear boundaries, and in software these boundaries are even less clear than in other industries.
- Patents reduce the sharing of new ideas, and software depends on a higher volume of sharing of ideas than other industries.
- Patents are an expensive property system, and most software innovation is driven by unfunded grass-roots work.
- Patents are not a well-bounded property system, and in software a boundary between “good” and “bad” patents cannot be drawn.

It is significant, in my opinion, that patent industry has focussed almost exclusively on weakening the definition of software patents, and on strengthening their enforcement. There has been little or no discussion about the basic justification for creating this form of property, apart from the uselessly broad claim that “ownership of [certain classes of] ideas promotes investment in innovation [in certain sectors]”. This claim, which has always underpinned the patent system has been used to justify a gold rush, a land-grab of ideas in sectors where innovation actually depends on sharing, not exclusion.

Software patents are a new toll barrier

Many industries find that poor quality patents are a problem. But no other industry that has relied extensively on copyright has been subjected to patenting. The use of patents in software looks a lot more like the erection of a massive new system of private tolls and taxes, than the enablement of a new properties class.

Software patents were enabled in the USA in 1982 by a Supreme Court decision. After almost twenty-five years, we would expect to see this new form of property either proven, or disproven. The bulk of the software sector should, by now, be using patents as their primary tool for justifying new investments. There should be software patent success stories, to match the many success stories that were and are driven by other forms of intellectual property.

These success stories are just not there. Instead, we see a sorry parade of lawsuits. IBM—who has the largest software portfolio, and who has claimed that it is against business method patents—has just sued Amazon for infringing on several business process patents.

Conclusion

In this article I've examined software patents from the fundamentalist view point of how well a property system functions. This is not art, but science. We can document and measure, and we can prove or disprove property systems.

No sane person can claim that all private property is good, or that all private property is bad. Would it make sense to sell off all our streets to private owners? Would it make sense to allow individuals to collect tolls on bridges, borders, crossings, and rivers? All these property systems have been tried. There is no firmer believer in private property and punitive enforcement than a warlord.

No honest person can claim that it's a choice between “privatising everything” and “an anti-property communist state”. The choices are between models that work, and models that do not. History is filled with examples and experiences, and we must recognise and learn from those models, or we will make stupid and avoidable mistakes. There is, behind our iMatix building in Brussels, a street that was privatised some decades ago. I've no idea what the intention was, but today we [can see the results via Google Maps](#). The privatised street has become a wasted area, a car park, filled with weeds.

This is what's wrong with software patents.

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