

The Minciu Sodas laboratory. This talk is in the Public Domain.

The Algebra of Copyright

by Andrius Kulikauskas, ms@ms.lt, Grudu g 6, Vilnius, Lithuania, +370 (5) 2645950

This is a talk that I gave at blogtalk.net on May 23, 2003. Thank you to Joseph Goguen for discussion, references and new angles, and George Christian Jeyaraj for research assistance. Thank you to Thomans N. Burg and the Danube-University Krems, Center for New Media for a travel grant that I might attend.

I welcome your thoughts and would like to work together. Please consider joining our laboratory and our working group Thinking Simply.

Engaging a Work
Asking Permission is Taxing
Copyright and User Interface Design
Conceptual Model for Copyright
Slide: Parsings, Expressions, Mappings
Conceptual Mappings
Model for Copyright Law
Morality of Trade-Offs
Acknowledgements
References

Engaging a Work

My name is Andrius Kulikauskas. My talk is The Algebra of Copyright.

I have only this one slide. I hope to show that copyright issues are all in the mind.

Note the four levels in my slide. I want to tell you the difference between engaging a work as an editor (who works with constructors of constructors), and engaging a work as an author (who works with constructors of constructors of constructors)

This is a conceptual model that you might use as a form of street justice.

I need to say that I had thought that the XpertWeb Trust was making it possible for me to attend blogtalk.net XpertWeb is an economic protocol that gives you the option to not pay for service in exchange for public documentation of your dissatisfaction. In other words, Seller beware. They wanted me to promote XpertWeb at blogtalk.net, organize some technical expertise, and be an all purpose guinea-pig. So I invented a human-centered Semantic Web which I call Spine for the Web. They were not happy. I have yet to receive pay. Their intentions were good, they may surprise me, but... Seller beware! This kind of stuff happens often in the global economy. So I am organizing some good-spirited street justice for that, too. Thank you to God for enabling me to be here.
Asking Permission is Taxing

What is my own motivation for The Algebra of Copyright?

Wealth is relationships. We are all poor to the extent that we are focusing on me. If you have a personal project or question related to copyright, please think about it and it would be cool if we got that out for everybody to hear. So if you do, please just raise your hand at any point just so that I can keep that in mind. That's basically my job.

My laboratory, Minciu Sodas, www.ms.lt, serves independent thinkers. I need to be able to organize them and their projects around shared endeavors that might attract enterprises. I need to be able to promote people by means of the content they produce. I encourage them to work openly, generate material, show their thinking process.

Unfortunately for me, as of 1979, the law states that material is automatically copyrighted by author. I must always assume that I should ask for permission. Asking for permission is very taxing when working with micro-content. Consider Sebastian Paquet, who placed his very cool blog under copyleft. If you want to use any little thing of his, then you must include the eight page GNU Free Documentation License.

I need material to be generated in the public domain. Doc Searls has placed his blog in the Public Domain.

But most material tends to be mixed, using excerpts from others. Therefore I need what I call Primarily Public Domain, which means public domain "except as noted". I set up such a license that could be used with our discussion groups, wikis, blogs, etc.

If you have a thoughtful blog that you would place in the Primarily Public Domain, then I would gladly extend to you free membership at our laboratory. I would like to extend a round of applause to all the kind individuals and groups who have registered their blogs or wikis under our license: Flemming Funch, Denham Grey, Carol Tucker, Danny Ayers, Vladimir Támara Patiño, Aaron Swartz, Minciu Sodas, KM Wiki, NeuroWiki, InfoAnarchy and Blogalization.

Copyright and User Interface Design

But how do we implement such a license? We can link our works to a license. But how do we define the boundaries of a work? Where do we post the rules and the exceptions? This is an issue in user interface design. I want to understand copyright issues in terms of user interface design.

Copyright law leaves a lot of room for interpretation. There is a rich body of particular guidelines, but they are not brought together by any explicit conceptual theory. Therefore I seek to find such a conceptual theory that would help understand copyright issues in terms of user interface design.

Algebraic semiotics is a mathematics of user interface design. I urge you to google and blog that: ALGEBRAIC SEMIOTICS. Therefore look to algebraic semiotics for ideas.

A work resides in a sign system, a genre, and likewise legal decisions reside within a sign system. There is a mapping, known as a semiotic morphism, that maps the work to its legal standing. What I am looking for is a third sign system where we could express our intentions by which we engage a work, by which we use a work. We can then map from a work to our usage, and from our usage to the legal standing in the relevant legal system.

Conceptual Model for Copyright

What is involved, conceptually, in the notion of copyright? A work is considered in several very different ways.

- The work must be fixed. (Such as my notes).
- But the rights do not extend to the fixed work, but rather to the formulated work that they fix. (The formula that gives the words on these pages).
- Also, the work may not be any random material, but must have an author with a purpose.
- Finally, the act of copying, and the idea of ownership, imply that the work exists in the world.

These four levels are familiar from Aristotle, Plato and other philosophers. So these four levels imply that a work exists in the world, but also is structured by the mind in various ways. At each level the mind draws different boundaries for the signs.

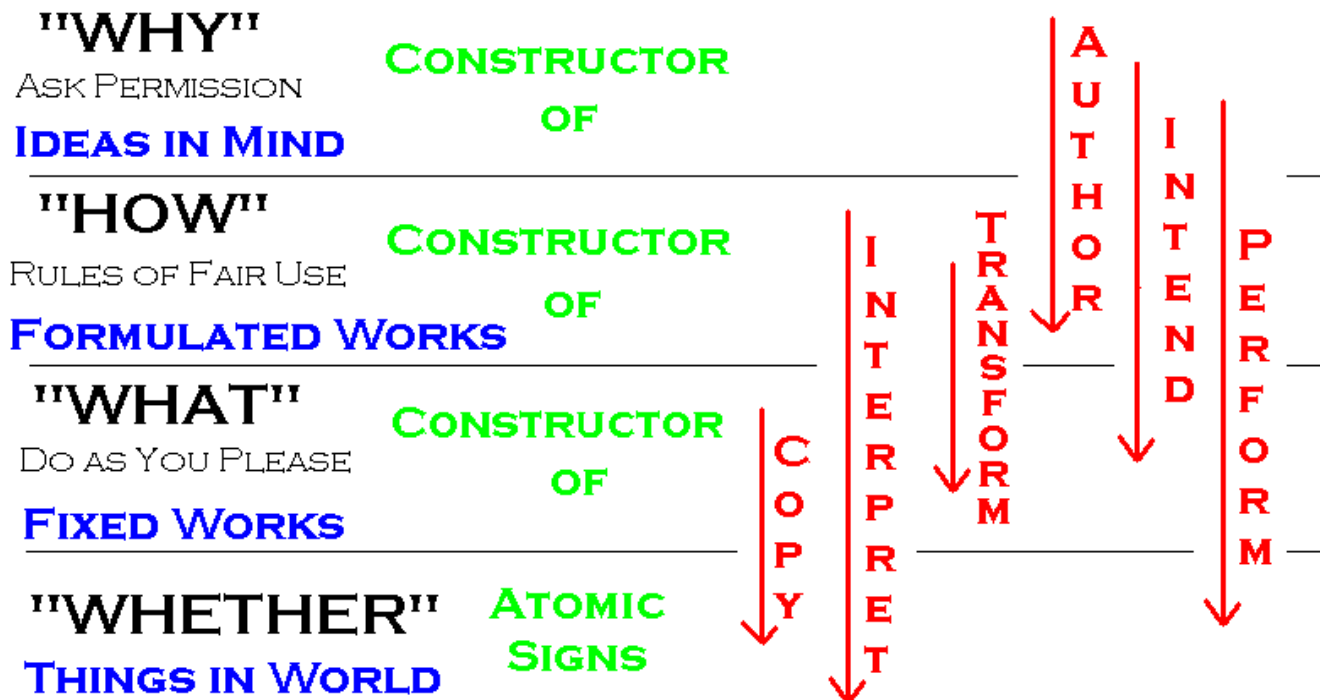
An atomic sign is what you find in the physical world. They are the smallest signs that have physical expression that carry meaning within the sign system. For example, the word "example" is a physical sound wave that I have sent you.

A fixed work is what you find in the eye of a proofreader. It is built from such atomic signs. It is a constructor of atomic signs. There is a parser (in the mind of the proofreader) associated with that constructor. The act of parsing isolates the basic construction that stands by itself. In language, that basic construction is typically the sentence. A work may be parsed in terms of its sentences. We might call that syntactic parsing. I can read my notes like a proofreader, sentence by sentence, without bothering myself about how they connect. For a proofreader, each word is just an icon, an image. The reason for the word is given by the sentence.

A formulated work is what you find in the eye of an editor. It is a constructor of constructors of atomic signs. For example, it may be a paragraph, which for an editor is the smallest unit that stands by itself. I can read my notes like an editor, paragraph by paragraph, without bothering myself about the merit of the work as a whole. We might call that pragmatic parsing. For an editor, each word is an index, an effect that suggests a cause.

An inspired work is what you find in the eye of an author. It is a constructor of constructors of constructors of atomic signs. For example, it may be an article or essay or letter, which for an author is the smallest unit that stands by itself. I can read my notes like an author, the whole work through, where every word becomes a symbol. The reason for the word is given by the entire work. We might call that semantic parsing. This is the highest level of reflection.

PARSINGS EXPRESSIONS MAPPINGS



Conceptual Mappings

These levels help us think about the various ways that we approach a work. Consider my talk.

- I can copy my talk. I can take my notes (a fixed form) and I may use a copy machine, or computer, to make (in the physical world) a reproduction.
- I can interpret my talk. I can read from my notes (the formula of words) and project them into the physical world.
- I can transform my talk. I can read from my notes (the formula of words) and produce a new fixed work by translating, abridging, modifying, extending, and so on.
- I can author my talk. I can express the ideas in my mind as a formula of words.
- I can intend my talk. I can show my intent by expressing the ideas in my mind in a variety of forms, a variety of fixed works.
- I can perform my talk. I can project the ideas in my mind directly into the physical world. I can talk to you directly, without any notes.

Model for Copyright Law

I am not a lawyer. I am simply a person who needs some kind of logic for making reasonable decisions. This is my understanding of copyright law.

Copyright law is not about making a copy. It is about the right to make a copy! As such, it is not about what we do with a fixed work. Instead, it is what we do with a formulated work. It is about interpreting the work and transforming the work. Copyright law is not meant to regulate the proofreader and printer, but rather to regulate the editor and publisher.

We are therefore always free to engage a work as a constructor of atomic signs. The constructors set the boundary of a work. Ultimately, they are always in our mind. Therefore any single constructor is debatable. Who can prove for sure that it is there, not just some wonderful accident?

However, once we have constructors of constructors, then it is reasonable to claim that the work is not arbitrary. In other words, a sentence may be arbitrary, but a paragraph is not. At this point, we enter the realm of fair use, a lovely legal concept that encourages our personal responsibility. However, my understanding is that we can free ourselves of any questions of fair use by simply making substantial modifications, for example, altering the order of the sentences, or changing particular words. Such modifications destroy the style of the work. (And style is the object of copyright).

But once the work or excerpt that we wish to use is a constructor of constructors of constructors, then we are dealing with an author, and we definitely are obliged to ask them for permission to make any modifications or interpretations.

The principle of fair use encourages us to distinguish whether we are engaging the work as an editor or author. Is it a reference work, or a literary work? Are we just using it for nonprofit educational purposes, or for commercial purposes? Are we using (absolutely and/or proportionately) small amounts or large amounts? Are we affecting the potential market positively by promoting, or negatively by substituting?

This a general model for making your own decisions. Here are some examples:

- Consider your blog entry. Is it a sentence, a paragraph, or something longer, like a letter? Whatever your blog entry is, note that your blog is a constructor of blog entries! And if somebody is, over time, using several of your entries, say ten of them, then likewise there is some pattern going on, and a constructor is lurking!
- Note that we are forced to think about the sign system, the genre, that our work resides in. So normally a list of words is not copyrightable. However, if we think of them as typing exercises, then the atoms are the keystrokes, and the words are constructors, the lists are constructors of constructors, and arrangements of those lists are constructors of constructors of constructors.
- You can't copyright an idea or an algorithm. However, you should be able to copyright a software program. The atoms are the instructions that get executed in the physical world. Each line is built from those instructions. Each routine is built from lines. A program is built from routines. You should be able to copyright the style by which you organize the program into lines and routines.
- In art or music you need to look for the constructors. Look for the physical atomic signs, the elemental units of meaning. Consider how a proofreader, editor and author look at a work.

Primarily Public Domain and the "except as noted" clause are meant for the works of authors of large works like blogs and wikis. Small works like blog entries should have pure licenses such as public domain, copyright, Creative Commons and other such.

Morality of Trade-Offs

Joseph Goguen developed semiotic algebra as a way to talk about user interface design. He thinks of a user interface as a semiotic morphism, a mapping from one sign system to another sign system. There are trade-offs that need to be made for the mapping to be good.

When rely on excerpts from many works to create a composite work, like a blog or a wiki, then we may likewise think of ourselves as designing a user interface. We choose what to highlight.

Morally, given the choice between giving credit to an author, and reproducing their work faithfully, it is best to give priority to crediting the author. Morally, it is actually helpful if everybody who passes along an excerpt alters it in some small way, adding value by paraphrasing, reorganizing and so on.

However, it is also very helpful to accumulate first-hand experiences of people in their own words. Morally then it is best to make clarifying the license the first priority, and then preserving the text can be the second priority, and crediting the author can be left as a third priority, especially in the case of public domain material.

Copyright laws offer a great deal of latitude. If we do not restrain ourselves, then publishers can argue that "people are thieves" and insist that controls be legislated into technologies for copying. Such controls complicate publishing and therefore benefit the few large publishers over the many small publishers. They close avenues to self-publishers.

We must therefore be hypermoral, deliberately treating all material with respect for the law.

We are proofreaders, editors and authors. Not pigs or drones or thieves.

May new norms give way for better laws.

Acknowledgements

Thank you to Joseph Goguen for helpful discussions, especially with regard to algebraic semiotics. Thank you to George Christian Jeyaraj for help researching the usage of various Creative Commons licenses.

References

An Introduction to Algebraic Semiotics, with Applications to User Interface Design by Joseph Goguen in *Computation for Metaphor, Analogy and Agents*, edited by Chrystopher Nehaniv, Springer Lecture Notes in Artificial Intelligence, volume 1562, 1999, pages 242-291.

<http://www.cs.ucsd.edu/users/goguen/pps/as.ps>

Algebraic Semiotics Homepage, maintained by Joseph Goguen.

<http://www.cs.ucsd.edu/users/goguen/projs/semio.html>

Can I Copy...? A Practical Guide to Reproduction Rights under the Copyright Law for University and College Faculty and Staff by Howard R. Lurie, Villanova University, 1982.

Copyright & Fair Use: Stanford University Libraries, <http://fairuse.stanford.edu>

US Code Collection. Title 17, Chapter 1, Section 107. Limitations on exclusive rights: Fair use. Maintained by the Legal Information Institute. <http://www4.law.cornell.edu/uscode/17/107.html>

The Turntable by Charles Mudede in CTHEORY, edited by Arthur and Marilouise Kroker, Article A126, April 24, 2003. http://www.ctheory.net/text_file.asp?pick=382

Fluid Content, Fixed Form: Symbolic Representations of Music as Intellectual Property by Eleanor Selfridge-Field, an event in the Symbolic Systems Forum at Stanford University, May 15th, 2003. http://symsys.stanford.edu:8081/ssp-dynamic/servlet/ssp_events/