24

PerlNomic: Rule Making and Enforcement in Digital Shared Spaces

MARK E. PHAIR AND ADAM BLISS

1 Introduction

In *Smith v. United States* (1993), the defendant attempted to sell firearms to undercover officers. He requested to be paid with drugs, and the prosecutors attempted to invoke a statute relating to the 'use' of a firearm in a drug crime. Did the legislation mean 'use' as a weapon, or did it simply mean 'carry'? Ambiguity in statutes is a common occurrence, leading different judges to interpret them in different ways. To mitigate these problems, citizens can exercise influence on statutes (and, in some cases, judges) through the electoral process.

In digital shared spaces, governing is typically performed by one or more administrators of the community. In most online communities, users cannot change certain aspects. Even if they can request that the system administrator change a few rules, very rarely do they have access to the 'laws' of the community. These laws are built into the computer programs that make up the system and controlled only by the system's owners or administrators. Offline governments, by contrast, provide a means of modifying the laws themselves. Article V of the Constitution of the United States exemplifies this.

The system presented here, called PerlNomic, allows its users (players) to modify the core of the system itself by making proposals in the form of

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computer code on which the community can vote; if accepted, the proposal is executed and the rules are changed. All rules are interpreted by a strictly 'letter of the law' judge: the Perl programming language interpreter.

The core ideas of the system are based on the game of Nomic, which was invented by Peter Suber and described in an appendix of his book (Suber 1990). The essence of Nomic is captured in the motto that 'to play the game is to change the rules.' The initial rule set outlines mechanics for play, but these rules are changed by play itself. Initially, players make proposals to change rules which are put to a vote. Points are awarded for successful proposals.

2 System Description and Game Summaries

The authors have implemented a novel game called PerlNomic,[1] begun in 2002. PerlNomic runs on a Web server. Each webpage comprises a Perl script that takes certain actions when requested by players. One script allows players to submit proposals (which are arbitrary pieces of code). A second script allows players to vote on pending proposals. A third allows a player to activate (run) a proposal that has sufficient votes in its favor. PerlNomic is not turn-based, but rather any player can submit a proposal at any time and vote on whatever is pending. When proposals are activated, points are awarded to the player who wrote the proposal and to the players who voted on it. Although they can potentially contain anything, the typical proposal changes the way in which future proposals are interpreted.

The initial code base featured an unrefined user interface. In the first game, the players became dissatisfied with this and proposed changes which would make the system more usable. Any proposal that improved the interface was likely to gain large support among the other players, and proposals that passed rewarded the author with points.

With a mind towards giving the game broader appeal, PerlNomic 2.0 was supplemented with PatchMaker. PatchMaker allows any user to download a local copy of the then-current PerlNomic code base, make changes to that code base in a *sandbox*, create a file summarizing the differences between the sandbox and the live code base, and craft a proposal which would use the patch program to implement these changes on the live code base.

PerlNomic 3.0 was the first game to see transferable points. This created an economy wherein points could be traded for votes or other actions. However, as one player approached a winning score of 100 points, the other

[1] See http://www.nomic.net/~nomicwiki/index.php/PerlNomic (last accessed September 13, 2008).

players passed an 'inflation' proposal which increased the winning condition from 100 points to 1000 points, obstructing his possible win.

One issue raised in PerlNomic 4 was a dispute over the problems caused by the point reward system. The rules were initially set up to allow players to vote against good proposals in order to receive extra points. Out of the discussion came two proposals. The first simply proposed to remove the extra awarded points. The second proposed that an attribute be added to players that tracked their so-called 'ethos,' a measure of how inclined the player is to support law and order that could later be used to punish or reward players. The first proposal became too outdated to function before it received enough votes to pass (an indication that it did not have much support), but the second passed quickly. Many proposals followed with plans to deal with low ethos individuals.

3 Summary and Conclusions

The ambiguity of laws in the 'real' world leads to an uneven and often unpredictable application of those laws. By applying the concept of a consistently enforced legal corpus to the rule making game Nomic, a much more consistent system can be achieved, especially in the context of digital shared spaces. We have introduced PerlNomic, a novel realization of these concepts. Shirky (2004) asked whether or not a game of this nature could be fun. PerlNomic has had international appeal, with over 3000 visitors from at least six continents, and the authors hope that the ongoing interest in the game has answered Shirky's question with a resounding 'Yes'!

References

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United States Constitution. 1787. Article V.