

# ON THE RATIONALITY OF FOR-PROFIT CORPORATIONS PARTICIPATING IN OPEN SOURCE SOFTWARE COMMUNITIES

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## ABSTRACT

This paper attempts to answer the question of why for-profit corporations participate in open source software development where their source code can be redistributed, used, and modified by other corporations or individuals. We can understand this more clearly by examining a little-known, game theory related problem called the trielling game. While the trielling game has negative implications, we turn it around to explore the positive aspects of corporate participation with open source communities.

## INTRODUCTION

The Internet is changing. Once, the Internet was a system of small to medium sized nodes, now it is becoming a number of servers owned by a few corporations. Rackspace, Google, and Amazon are moving organizations and people to the cloud, first through data, then by software as a service. In each, the company's servers are powered by open source software.

In the last millennium it was difficult to distinguish between free software and open source software. Today, as Kelty [4] points out free software is the domain of hacktivists or anti-capitalists. Open source software, on the other hand, is increasingly being adopted by for-profit organizations.

While it may seem paradoxical, we make the case that corporate participation can be in the best interests of both the corporations and communities involved. We find, when facing similar problems, members of corporations and communities develop shared understanding that helps them to survive and thrive in this environment. Germonprez, Kendall, Kendall, and Young [2] state, "By engaging with the open source community, corporations can improve their capacity for design and do so rapidly. On the other side, open source communities can enhance their ability to enter markets, expand the distribution of their code, and eventually grow their market share. So, we can turn a proclivity toward competition to one of collaboration (and competition) in certain situations where it makes business sense. Everyone who participates can win."

## THE CLASSIC TRIELLING GAME

In a classic example of the trielling game (an extension of the dueling game) described by Boot [1, p. 93], three players, rather than two, stand equidistant from one another. Each has a pistol. They can

take turns trying to eliminate one another, but as the outcome depends on chance, even the player with the 100 percent chance of eliminating an opponent must think twice before shooting.

So let's examine a situation where this may actually occur in software development. Consider three operating systems developers - Apple, Google, and Microsoft - developing systems for smartphones. Can one developer directly and aggressively take on the other competitor and eliminate them? Perhaps, but the final outcome may not be what the aggressor intended. As the aggressor is recovering from shifting every resource to destroy its competitor, it becomes vulnerable to the third company who would be a threat to the existence of the victorious, but war weary developer. This is the nature of the trielling game – but, as we shall soon see, it can be detrimental for this to happen in the context of open source.

In open source, if Company A is aggressive and actually eliminates company B, then company C may turn its aggression directly on company A. According to Boot [1, p. 93], “The argument is essentially that the one who does kill first will in all probability be the next one to die.” In Boot's trielling game, everyone shoots into the air. In the world of open source development, companies A, B, and C often form a cartel and agree that none will eliminate the other, maintaining the capacity of a community.

## **POSITIVE CONTRUBUTIONS TO OPEN SOURCE COMMUNITIES**

While the above argument suggests that an industry with a few companies would come together to avoid mutual destruction, this is still a pessimistic view of the world. We feel that there are lessons to be learned for the positive nature of shared design of software, commonplace in open source engagements [3]. In this paper, we turn the trielling game around to examine what positive benefits there are for corporations to cooperate in the open source community. We examine the potential contributions through both a quantitative and a qualitative lens.

First we'll take the trielling game and show how positive outcomes can affect the nature of the industry. Next, we will reveal what professionals in the open source community say about cooperating and sharing. We conclude by suggesting that for-profit participation in open source communities is rational and beneficial to the corporations who are an integral part of open source communities.

## **REFERENCES**

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