AMERICAN REVIEW OF POLITICAL ECONOMY

Constructing Jural Relations in the Software Industry: Implications for Competing Capitalist Models

Sarah Klammer
Michigan State University
klammers@msu.edu

Eric Scorsone
University of Virgina
eric.scorsone@virginia.edu

Abstract

In 2021, the United States Supreme Court heard the case of Google vs Oracle. This case dealt with the issue of the fair use doctrine in copyright right law and how it applied in the case of software code. The distribution of rights and duties will play a critical role in the battle over the massive economic rents that exist in this sector similar to the case of intangible property as discussed by John R. Commons and Thorstein Veblen in the early 20th century. We explore institutional alternatives and their underlying justifications as present in the case using the new Legal-Economic Performance framework introduced in Klammer and Scorsone (2022). We come to the unsatisfying conclusion that both alternatives feed into models of rentierism, indicating the need for new alternatives. A key point is that analysts will need to move beyond the disputants in the case under investigation and examine other institutional alternatives that are not being considered by the court to ensure a full and comprehensive analysis.

Keywords: software, jural relations, rentierism, intangible goods, impact analysis

I. Introduction

In April 5, 2021, the United States Supreme Court decided the case of *Google, LLC v. Oracle America, Inc.* The case pits two massive tech companies in a copyright infringement battle over the use of certain lines of code. Oracle argued that Google's use of around 11,500 lines of code copied from Java API's (owned by Oracle) to build Google's Android mobile system were not fair use. Google lawyers made two clear counter arguments to present their case. These arguments were that: 1) Oracle cannot assert copyright protection over the software interface and 2) in the case that Oracle can assert copyright, fair use doctrine protects Google. The court gave Google a partial victory, allowing Google to assert fair use for the lines of Java code used by Google in development of their Android system. The court did not offer a decision regarding Oracle's ability to assert copyright protection.

Both the court's decision to abstain from the first question regarding copyright protection of software and their subsequent decision to reaffirm Google's unauthorized use of another firm's code represent changes to the legal structure as it currently stands. Laws (and legal precedent as represented by court decisions) shape what is owned or traded: legal enablement's and disablements rather than physical goods or items (Klammer, 2022; Klammer & Scorsone, 2022). The shifting of legal relations is a key element in understanding the distribution of wealth and value in the economy. *Google. v. Oracle* presents an interesting case study for understanding how various companies are competing to gain control of the digital economy. The Legal-Economic Performance framework will be used to assess the implications of the Supreme Court decision in this case and for the broader digital economy.

To properly understand this case, the nature of the dispute needs to be articulated. At its heart is a battle between two competing business models over the use of intangible assets to generate economic rent. Intangible property represents a massive proportion of economic output globally, including much of what major tech companies produce such as patents, trademarks, copyrights, and various other intellectual property. Software code is one such form of intangible, intellectual property, representing almost $2 trillion in U.S. economic output or 10 percent of the

national economy (software.org, 2021). It is also the primary output of software giants such as Microsoft, Alphabet (Google), and Oracle Corp, ranked 3rd, 4th, and 39th respectively in terms of largest companies in the world by market capitalization (as of October 24th, 2022) (Companies Market Cap, 2022). Like any producer, these entities rely on some notion of ownership (or rights) over their product to drive value. When these notions collide with what is written (or not) in law, legal rights and duties—also known as jural relations-- must be sorted out. As these jural relations are worked out, many parts of society will gain or loss depending on the outcome of these conflicts.

Related to any form of property, tangible or intangible, the right to exclusion has been maintained as a consistent issue for owners to drive value. Like in the case of Napster in the early 2000s and use of music, Oracle clearly views Google's use, or in their view misuse, of Java as infringing on their exclusion rights. By not reaffirming Oracle's ability to assert copyright protection over their software, and by allowing Google to claim fair use, the bounds of exclusion rights for software have now been redefined. Prior to the court's decision, Oracle was asserting a right to Java code and in turn further arguing that Google had a duty to not use or interfere with the same code. The corollary to this is that Google would have to try and purchase those rights from Oracle under this alternative legal regime. The implications of either legal regime has implications for not only the coding sector ($600 billion and 4.5 million jobs) but has and will have a magnified impact on the rest of the economy.

This is not the first time this type of battle has played out in the U.S. Economy. In the late 19th and early 20th century, the industrial titans battled with each other, local communities and government over a new form of economic production. Those companies tried to argue that their wealth was confined to tangible property and they should only be taxed over such property. Further, these companies argued that government can only regulate tangible property and not decisions that are intangible such a pricing power or working hours for labor. Institutional economists like John R. Commons and Thorstein Veblen joined these battles writing for a more expansive understanding of how wealth was being created in the new industrial economy. Although they did not always agree with one another, the points of agreement were that companies were creating new wealth and economic rent via capturing of intangible assets such as customer goodwill, patents and ideas, protected market spaces and control of suppliers. The government and the community had the right to interrogate these new forms of economic wealth and value and contest them in some cases.

Google v. Oracle is a 21st manifestation of a much older battler over the justification and legal protection for wealth creation and economic rent. In this case, it is really a battle between competing forms of the digital economy and the generation of economic rent. In subsequent pages, the Legal-Economic Performance framework (Klammer & Scorsone, 2022) is utilzed to explore the implications of the structure of jural relations on the distribution of power and economic rent. Veblen and Commons views, and those of more recent institutional economists, will be used to understand and interpret the potential performance implications of *Google v. Oracle*.

i. Intangible Property and Economic Rent-seeking

As we will observe, the outcome in *Google v. Oracle* is about which form of economic rentierism based on intangible property will prevail in the codified legal system of the 21st century. Institutional economists of the late 19th and early 20th century understood the growing power of intangible property and economic rent in their time and contemporary institutional economists understand and assess that same problem with even greater magnitude today.

John R. Commons was one of the first economists to recognize that the value of companies and even assets more generally were based on more than their physical makeup. Corporate value was very much based on the ability to generate streams of income and these streams of income were based in both tangible and intangible goods alike. Commons wrote in 1925 that intangible property "has come to be distinguished, especially in the public utility and labor law cases, as the "exchange-value," or "purchasing power" of any and all property upon the markets, such as the exchange of the intangible good-will of a business as well as the exchange value of plant and inventory, or the exchange value of labor or the purchasing power of credit on the money chasing powers constitute the business man's assets and the labors wages which are their intangible property" (Commons, 1924, pg. 373). Commons recognizes that there are many forms of intangible property. This exchange value, in all of these cases, is based on the going concern's ability to engage in a transaction as a willing buyer or seller with another party.

Though using different language, Thorstein Veblen similarly predicted the burgeoning importance of intangible property rights. In a 1908 article titled "On the Nature of Capital", Veblen redefines capital from the possession of physical goods to the possession of knowledge and understanding of how to address the material needs of human beings. He writes that this kind of capital is, "possession of something in the way of technological knowledge,-

Volume. 18, Number. 2
DOI: 10.38024/arpe.319

knowledge serviceable requisite to the quest of a livelihood" (Veblen, 1908, pg. 518). But this is only the first part, a second key characteristic is the community or joint nature of this immaterial equipment. As Veblen writes, "this information and proficiency in the means of life vests in the group at large; and, accretions borrowed from other groups, it is the of the given group, tho not produced by any single generation" (Veblen, 1908, pg. 519). Capital, in Veblen's terms, is not money or physical stuff, it is the ideas or intangible assets of life that people jointly create and possess to address the material needs of the community. From this starting point, Veblen then addresses the issue of how capital is used in the economy and community. In his book, *Theory of the Business Enterprise,* (1904) we learn business is about capturing some of this immaterial equipment or capital from the joint stock of knowledge and making individual or going concern profit from it. The modern application of this would be called economic rent, or rentierism. Thus, Commons and Veblen both identified that the capturing of economic rent or unearned income from intangible property (immaterial equipment) would become a growing portion of the economy in the future.

The literature surrounding the idea of economic rent has evolved since the time of Commons and Veblen. Today, economic rent is often understood as being derived from ownership or control over a limited asset or resource. Brett Christophers in a 2020 book entitled *Rentier Capitalism* initially defines rent as "payment to an economic actor (the rentier) who receives that rent purely by virtue of controlling something valuable. The something, whatever it happens to be, is referred to generically as an asset: an item of value owned that is valuable precisely in view of the fact that control over it endows the owner with the capacity to generate future income." (Christophers, 2020, pg. xvi). Christophers tells us that part of the heterodox definition of rent is focused on the ownership and exclusion aspects. His definition above then adds in an aspect from a more orthodox approach to rent which is the focus on market value and market power where he specifically uses the word "valuable". Combined then, Christophers ends with his final definition of economic rent being, "income derived from the ownership, possession or control of scarce assets under conditions of limited or no competition" (Christophers, 2020, pg. xxv)[1]. Christophers acknowledges that one can argue that all capitalists profit and income is rent from this definition. He makes the distinction or qualifier that "if the income could be earned without proprietary assets, then there would be no rent and no rentier" (Christophers, 2020, pg. xxvi)[2].

Marianna Mazzucato is a well-known author who has also tackled the issue of economic rent as part of understanding the overall economy. In her book, *The Value of Everything* (2018), she discusses the concepts of unearned income and rent which she equates as being the same thing. Unearned income is that source of value being derived from outside the production boundary. The production boundary is that point whereby some economic activities are productive (earned) and others are unproductive (unearned). Mazucatto argues that it is possible to distinguish between earned and unearned increment. She takes a position similar to Commons in that economic rent can be justified--but only to a point in a capitalist system.

In a practical application, the source of the rent can be related to a fixed factor of production or a special source of market access or technology by a company. Jack Mintz and Duanjie Chen explore this in a paper about the taxation of fossil fuels by the Canadian government. They write,

"Economic rent arises from non-reproducible (or fixed) factors of production such as entrepreneurship, land and natural resources. It can also arise due to the presence of natural or artificial barriers to entry that generate market power, and special advantages that firms may possess (such as location, patents, etc.). More generally, rent is the surplus value of a resource after all costs, including opportunity costs, are subtracted from revenues arising from the sale of goods and services. Rent is thus measured as the difference between the price at which a resource can be sold and its discovery, extraction, and production costs, including a rate of return on capital that can be obtained by investing in projects with similar risk and scale." (Mintz and Chen, 2012, pg. 3).

Unstated here, in either case, the law must provide a foundation for the ability of the company or going concern to capture those rents and exclude others from the assets in question. The second element of note here is that rent is defined and measured as above the total opportunity cost of obtaining the resource including potential returns from other asset options. The Christophers and Mazucatto definitions don't seem to embody this question of total opportunity cost or return on capital from other options. For Minzt and Chen, the elements of economic rent must include a protected resource and excess returns above total opportunity cost. This raises the question of who and how those alternative returns and costs are measured. The key question Mintz and Chen are trying to measure is the issue of only taxing rent and not regular profit. They claim that government, through a review of production costs, can tax only rent and not profit. Taxing rent will not "distort" investment or other economic decisions.

[1] It is an interesting question not pursued here why the addition of three different words – ownership, possession, or control – add to or clarify Christophers definition

[2] He does not point to the opportunity cost as an element of rent unlike many other authors

It remains unclear how they measure these opportunity costs versus simply what is being reported in financial statements. The point being, however, that costs enter their calculus where it is missing from other definitions.

Economic rent can thus be considered a form of excess returns or unearned increment above and beyond what is needed for an investor to engage in that particular sector or activity. In a practical sense, profit being made by any going concern could be broken down into that which is earned or productive or that which is unearned or unproductive. Since 2010, Google (Alphabet) has generated $1.5 billion in revenue and an operating profit of $680 billion[3]. In that same time period, Oracle generated approximately $500 billion in revenue and an operating profit of $151 billion. Google's primary driver of revenue and profit is ad sales. Oracle's primary driver of revenue and profit is based on subscriptions and licensing of software. These are two very contrasting business models in the digital industry. The question of how much of this profit is rent is not a straightforward one.

Recent economic literature is replete with discussions of technological advancement and its effects on rent-seeking behavior especially as related to the growth of digital and other intangible property. Birch et al. (2020) and Birch and Cochrane (2022) observed that innovation is increasingly driven by rent-seeking behavior in the realm of personal data collection, a result of techno-scientific capitalism. They link this change to the assetization of different things, specifically data, that transform them into productive (or owned) resources. Namely,

> "First, assets are legal constructions. The ownership and control of an asset like personal data rest specifically on the state enforcement of intellectual property (IP) rights and contract law; moreover, ownership and control rights can be separated from each other, and from the "thing" under consideration (e.g. personal data), and then sold as distinct rights (cf. physical commodity which is tied to the right) (Dreyfuss and Frankel 2015; Pistor 2019). Second, assets entail specific forms of rights, distinct from a commodity, such as flowthrough rights (i.e. control rights) that limit the ability of buyers to reproduce or copy anything controlled by the asset-holder (Frase 2016). Third, assets are often highly specific and tend towards monopoly (Teece 1986), in that they cannot be reproduced easily or cheaply by others; for example, personal data collected by one business are unique and not accessible by other firms (Birch 2017a)."
>
> (Birch, Chiapetta, and Artyushina, 2020, pages 473-474).

This assetization as described above clearly drives the makeup of incentives for whether to engage in innovation as rentiership over innovation that delivers new products and services. Glode and Ordonez (2020) observed that when technological improvement increases the size of the economic surplus created by firms through higher industry-wide productivity, the incentives each firm faces to engage in rent-seeking behavior increase simply due to higher potential appropriations. If the advancement further improves the firm's ability to appropriate a larger share of the surplus, incentives to appropriate increase disproportionately compared to incentives to attempt to create new surplus. In the tech world, this could be thought of as the incentive of Microsoft to acquire smaller entities (with existing rent-generating product) over the incentive to produce new tech (thereby avoiding high fixed costs of innovation or idea generation), or using new advances in artificial intelligence to imitate the product of a competing firm rather than innovate.

Firms are keenly aware of such incentives and tradeoffs and in many cases, have substantial power to influence and shape them via institutional avenues like litigation and lobbying. In the interest of maximizing rents, business entities have the incentive to monetize as many elements of their property as possible (for as long as possible). In the case of certain goods, like those with high exclusion (and enforcement) costs, this can be especially difficult (expensive) to achieve. Corporations are lobbying for rulings and laws that will protect their ideas from free use by others, thereby foisting the costs of policing onto society via the courts. On the side of the judicial system, this creates a unique tension between the desire to protect incentives for innovation and the desire to maximize societal benefit from such ideas. In cases such as *Google v. Oracle*, the back-and-forth litigating up and down the judiciary makes this tension much more distinct.

Oracle and Google both rely on intangible assets. Oracle's balance sheet has a total of $109 billion in assets of which $45 billion is intangible assets and specifically goodwill value[4]. This contrasts with $13 billion in net plant and equipment asset value. Google's balance sheet has total assets of $365 billion[5]. Of this amount, $31 billion is

[3]Based on data from https://www.globaldata.com/data-insights/internet-services-technology-media-and-telecom/googles-revenue/

[4]https://www.wsj.com/market-data/quotes/ORCL/financials/annual/balance-sheet

[5]https://www.wsj.com/market-data/quotes/GOOG/financials/annual/balance-sheet

Volume. 18, Number. 2
DOI: 10.38024/arpe.319

intangible assets. Contrast this to a more traditional company like General Motors which has $264 billion in total assets of which only $4 billion is intangible assets[6]. Although the numbers vary, intangible assets represent a much bigger portion of the balance sheets of today's corporations and going concerns versus more industrial companies and this intersects with it also being the most important source of economic rent.

Google v. Oracle fundamentally centers around a potential shift in institutional and legal structure. Each company applies a specific business model around a unique combination of intangible assets that generates economic rent via some form of legal protections. Google's business model is to provide generally free software to gain consumer buy-in and usage and then generate data from that usage which is commercialized for profit (Srnicek, 2017). The access to data and data algorithms are intangible assets and a source of economic rent. Oracle's business model is based on a more traditional software approach of developing proprietary code and systems and then licensing and selling that to customers. In this case, software and code is an intangible asset protected by patents and copyright laws to generate profits and some level of economic rent. These competing business models clash in this case because Google's use of Java represented a direct conflict with the model that Oracle has and continues to exert to generate steady profits via economic rent.

Though Veblen and Commons wrote before the onset of the information age, the attention paid to intangibles and the role of institutions in economic performance throughout their work was especially prescient. Veblen took the view that the business world operated in a predatory mode and would exploit the community's stock of knowledge to make money. Commons, while recognizing that Veblen was one of the first to grasp the importance of intangible assets in business, took the view that the courts and society needed to balance a certain amount of rent created and captured by business interests in order to foster and drive innovation in a capitalist system. These two world views on the role of intangible assets and economic rent can still be seen in the battles over the role of tech companies in the 21st economy. Modern authors have advanced our understanding of economic rent, especially as related to intangible assets, such as Mazucatto. The tech economy of the modern age drives much of economic growth and the battle over economic rent is fought just as bitterly as those over oil, rubber, or other natural resources in the past and present (Ciuriak, 2020). In the implications section assessing the Google v. Oracle case, the view of these two things will be reexamined in light of the case outcome.

ii. Applying The Legal-Economic Performance Framework to Google v Oracle

The Legal Economic Performance (LEP) Framework (Klammer 2022; Klammer & Scorsone 2022), centers on the analysis of human interdependence and the background legal components at work to consider the impacts of proposed or past changes to institutions. LEP starts with a detailed survey of the Situation, or in this case, the details of the court case. A language of legal relations—Hohfeldian analysis—is used to break down and describe the situation. Through this process, the key issue or issues of interdependence are identified, enabling the analyst to identify the structural options available to address it. Finally, the structural components of the institution, the distributional outcomes they give rise to, and assumptions about human conduct or behavior are considered. Figure 1 provides a visual representation of the framework, as developed in Klammer & Scorsone (2022).

Computer languages are clearly a unique type of economic good with unique "physical characteristics". They are a zero marginal cost good, once created and compiled, and are a high exclusion cost good. The use of computer language by one user does not reduce its availability or value to another user and it is difficult to exclude others from the reading and using the code itself. These characteristics of the good in question (Java), raise unique challenges in the realm of legal/jural relations. Most obviously, there is the question of who can exclude, and in what context (the institutional alternatives).

The case of *Google v. Oracle* represents an attempt by one company, Oracle, to obtain recognition (coding of capital) by the courts to a legal right (copyright protection) to all aspects of the use of Java code. This proposed legal right to Java code would simultaneously impose as duty on all others to license or not use this code. If this was the decision, Google would also likely be found in breach of copyright protection and therefore liable to pay fines to Oracle. This would result in a transfer of value and wealth from Google to Oracle and would impact the viability of the two business models going forward. Besides the impact on Google, other parties argued on behalf of Google that other software companies, both current and future, would be negatively impacted. In essence, Oracle would have a judicially recognized protection that serves as an economic rent.

Ultimately, the U.S. Supreme Court ruled 6-2 that Google's use of 11,500 lines of code copied from Java APIs to build its Android mobile system was fair use. This raises questions around how we think of innovation and

[6] https://www.wsj.com/market-data/quotes/GM/financials/annual/balance-sheet

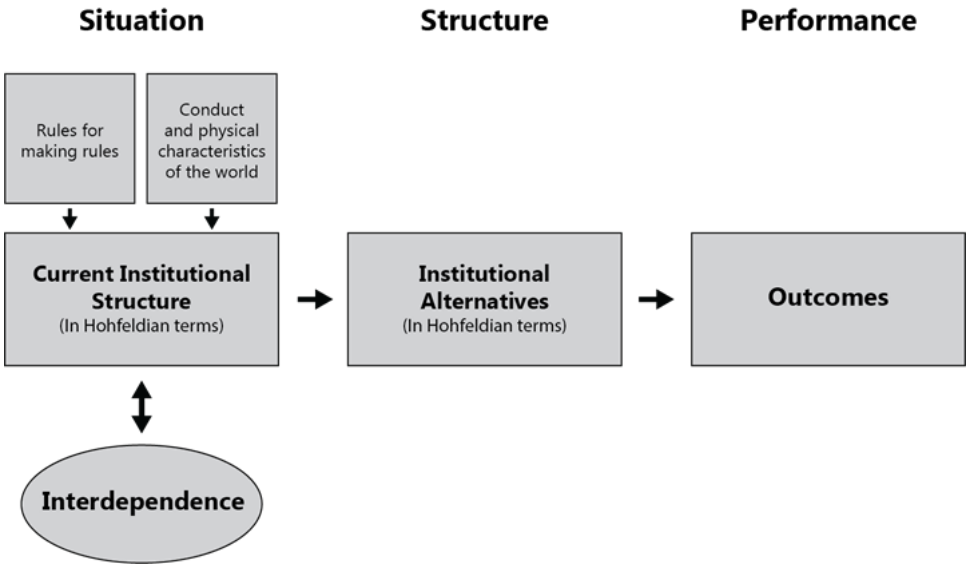

Figure 1: The Legal-Economic Performance Framework

rent-seeking behavior, and how the legal system shapes incentives for each. This paper explores the underlying arguments used by both sides to justify their position. The briefs filed before the Supreme Court will serve as material for this study and analysis. Data and information from the briefs will be examined using the LEP framework, starting with the institutional situation, or instance of interdependence, followed by an in-depth analysis of the structure of the conflict and potential alternatives, before finally considering behavioral variables and their associated performance outcomes. Specifically, we focus on two key structural elements: the role of the courts' decisions regarding copyright in the potential outcomes and the possible expansion of fair use. Key to the framework is the implementation of the Hohfeldian matrix of jural relations, which we use to describe interdependence throughout the model.

II. Case Analysis

This section focuses on using the Legal-Economic Performance framework to understand and assess the Supreme Court case of *Google v. Oracle*. The focus will be on understanding the potential performance implications for various agents in the economy based on the Court's decision.

i. Situational awareness

Some history can be useful in contextualizing the case. Narratively, the case has been portrayed in the media as one of a modern "open-source philosophy" (Google) versus an old school closed system mentality (Oracle). In some instances, it has been portrayed as the case of an industry giant taking advantage of a smaller entity. As frequently observed by lawyers and institutionalists alike, a brief dive into the history or context of the situation provides a more nuanced picture. In the case of *Google vs Oracle*, the product in question– java code– served as an incredibly functional and widely used programming language. This functionality makes it attractive to other developers who are looking for time and cost efficiencies.

The Java language project was initiated at Sun Microsystems in 1991, becoming one of the most popular programming languages in use and ultimately offered as free and open-source software under the terms of the GPL-2.0-only license in 2006. Even prior to this, most of Java's implementations were available without charge (though they retained proprietary software status), while Sun relied on revenue from licensing of specialized products such as the Java Enterprise System. Around this time, Google purchased the Android operating system (2005) in order to move into mobile systems and subsequently failed to secure a licensing deal from Sun to incorporate Java SE libraries into Android. Both organizations cited concerns about the other party having too much control over Java's use in the development process. Instead, Google proceeded to develop a "cleanroom"

Volume. 18, Number. 2
DOI: 10.38024/arpe.319

(essentially the process of reverse engineering code) version of Java Standard Edition libraries, culminating in an integral part of Android utilizing 37 API calls or around 11,500 lines of code deemed central to Java (*Google v. Oracle*, 2021a, pg1-3). These API calls were present in the open-source cleanroom Java implementation that Google was using at the time. Google has since transitioned Android to a copyright-unburdened engine without the source code.

Java was acquired in Oracle's purchase of Sun Microsystems in 2010.[7] Oracle gained Sun's software and hardware product lines in the merger. Following the 2010 acquisition, Oracle filed a patent infringement lawsuit against Google over lost licensing fees associated with the lines of code used for $8.8 billion. As described by Oyez,

"Oracle sued Google for copyright infringement, but the federal district judge held that APIs are not subject to copyright because permitting a private entity to own the copyright to a programming language would stifle innovation and collaboration, contrary to the goals of copyright. The U.S. Court of Appeals for the Federal Circuit reversed the lower court, finding that the Java APIs are copyrightable but leaving open the possibility of a fair use defense. The U.S. Supreme Court denied Google's petition for certiorari.

Upon remand to the district court, a jury found that Google's use of the Java API was fair use. Oracle appealed, and the Federal Circuit again reversed the lower court. The Federal Circuit held that Google's use was not fair as a matter of law." (Oyez, n.d.).

Google successfully petitioned to the Supreme Court to hear the case in the 2019 term (delayed to 2020 due to the pandemic), and in April 2021, the Supreme Court ruled in a 6–2 decision that Google's use of the Java APIs fell within the 'four factors of fair use' (which we explore below), bypassing the question on the copyrightability of the APIs. This decision has many implications for producers and users of software alike.

ii. Institutional Structural Alternatives

The process of assetization as described in the introduction highlights the benefits of utilizing a language for breaking down legal relations such as Hohfeldian legal analysis. Legal rights around an asset such as code or data include both ownership and control rights– the latter of which plays key in the case of *Google v. Oracle*. Oracle clearly owns the code in question, but to what point? As explained by legal Scholar Peter Menell, structuring jural relations when in comes to code is uniquely difficult.

"By its very nature as written work intended to serve utilitarian purposes, computer software defies easy categorization within the intellectual property system. Copyright law has traditionally served to protect expressive works, while utility patent law protects technological processes and machines. As Judge Michael Boudin observed more than two decades ago, "applying copyright law to computer programs is like assembling a jigsaw puzzle whose pieces do not quite fit." (Menell, 2021).

The complicated nature of distributing rights in relation to code resulted in the case progressing to the highest court in the land. On April 5, 2021, the United States Supreme Court decided the case in favor of Google. Google lawyers made two clear arguments to present their case. These arguments were that: 1) Oracle cannot assert copyright protection over the software interface and 2) Even if Oracle can assert copyright, fair use doctrine protects Google. Google clearly wanted to prevail on question one, but if they did not their backstop was to assert a defense of fair use doctrine.

As with many cases, it is not always a clear-cut victory for either side. The court's decision was to not decide on question one (but rather assume copyrightability "for arguments sake") and to allow Google to assert a fair use defense and so prevail on question two. Justice Breyer explains their reasoning in the majority opinion. He writes, "In a word, we have understood the provision to set forth general principles, the application of which requires judicial balancing, depending upon relevant circumstances, including "significant changes in technology." (*Google v. Oracle*, 2021a, pg. 18). This means that courts and judges must look at many competing factors and that a simple analysis is not possible of copyright protection beforehand. In fact, the Hohfeldian breakdown of jural relations may not be known beforehand as each case will be adjudicated on specific circumstances. Instead, to conduct our Hohfeldian analysis, we can look at the alternative structures offered by either side.

In Table 1 below, we consider the competing structures argued by each side, as well as the structure of the final court decision.

[7]Other competitors such as IBM and potentially Hewlett Packard were also reported to have been interested in acquiring Sun. Notably, all of these potential partners raised antitrust concerns and generated opposition from open source advocates.

Structure			Performance
A. Oracle API Copyrightable: Users have a duty to only use Java code in specific contexts (e.g. as licensed by owner), Oracle has right to all other uses. Fair Use: Oracle has limited exposure to 'fair use' of code by others. Users have a limited privilege.	B. Google API Not Copyrightable: Users have much less strict duty to only use Java code in specific contexts (e.g. can now proceed w/o a license), owners have weakened right to all other uses. Fair Use: Users have less limited privilege to use code for innovative purposes, (limited by duty not to exceed fair use). Owners exposed.	C. Google, LLC v. Oracle America, Inc. Assumption that API is Copyrightable: Unclear duty/right relationship when it comes to the use of Java API in contexts not already clearly labeled fair use. Almost empty right. Fair Use: Users have less limited privilege to use code for innovative purposes, (limited by duty not to exceed fair use). Owners exposed.	- A: Recaptured value for Oracle as owner of Java. Greater control by IP owners of their assets and assurance of ability to collect rent. Greater incentives to innovate new APIs or software like it. - B: Lost value for Oracle. Increased costs for IP Innovators. Greater strategic management of IP assets necessary. Increased incentive for trade secrets, less transparency, and avoidance of up-front investment in ventures (like Java) that could be harnessed by other companies before value is extracted. - Increased interoperability of systems across the industry (with associated benefits to coders, existing firms, startups, etc). Potential benefits to consumers of more efficient systems if not negatively impacted by movement toward monopoly. - C: Largely the same as B, with some potential for future adjudication over copyrightability of APIs.

Table 1: The Legal-Economic Performance of Greater Control Rights Over Code

The pre-court decision represented a conflictual situation between the two companies. Google asserted a Hohfeldian privilege to use the Java code to develop the Android operating system. Google's claim left Oracle subject to a Hohfeldian exposure. This exposure means the economic agent (Oracle) cannot protect itself and is subject to economic damages without recourse. Given that this is a conflictual situation, Oracle was asserting a Hohfeldian right to Java under copyright law protection, claiming that Google was subject to a Hohfeldian duty to not interfere with Oracle's copyright protection. Oracle further asserted that Google did not have a privilege to utilize the code for their innovation purposes in Android.

By assuming that software code is subject to copyright to decide the case of fair use, Oracle's right to copyright of the Java APIs could seemingly be assumed to be affirmed per the lower court's decision. However, in not explicitly offering an opinion, the larger issue of the extent to which APIs can be copyrighted remains unclear. What is clear is that the Supreme Court's interpretation of fair use in *Google v. Oracle* broadens the realm of fair use in the software industry. This necessarily adjusts Oracle's right to only allow use of Java as they see fit as something akin to an empty right in this situation.

As mentioned above, in general, copyright applies to instances of creative expression, rather than functions or methods of operation. Oracle argued not only that the Java APIs copied by Google are "original" as organized, written work meant to be read by humans (and that it could have been written in countless other ways), but also that its copyright covers the "structure, sequence, and organization" (SSO) of the code. This was key to their argument-- that the SSO itself reflects unique creative choices that were critical to Java's widespread adoption and are independently copyright eligible (Baldinger, 2021). But as Samuelson (2015) recognizes, case-law from numerous past decisions recognizes via merger doctrine in computer program copyright cases that "when the design choices of subsequent programmers are constrained by the interface designs embodied in earlier programs,

Volume. 18, Number. 2
DOI: 10.38024/arpe.319

the merger doctrine applies so that programmers can reuse elements necessary to achieve interoperability. All that subsequent programmers must do is to re-implement interface elements in independently created code." The district court in *Oracle* acknowledged that Google had done just that, while the Court of Appeals of the Federal Circuit (CAFC) reversed this decision.

Despite bypassing the copyright question, the Court's decision centered around the 4 metrics of fair use that nonetheless undermine the Hohfeldian right as asserted by Oracle. In particular, the decision highlights the importance of the nature of the work (the second factor) in assessing fair use of software and other functional works. It also expands the fourth fair use factor — the "effect" of the copying in the "market for or value of the copyrighted work" — to include consideration of the benefits to the public of such use (Menell, 2021). Regarding whether Google's use was fair, these were the findings:

"First, Google's use of the Java APIs is transformative. Google copied only what was necessary to allow programmers to work in a different computing environment but with a familiar programming language. Second, the copied lines are "inherently bound together with uncopyrightable ideas," suggesting that the application of fair use to this context is unlikely to undermine the general copyright protection that Congress provided for computer programs. Third, Google copied only .4% of the entire API, weighing in favor of fair use. Finally, the record shows that Google's new smartphone platform is not a market substitute for Java SE. Because all four factors support a finding of fair use, Google's limited copying constituted fair use." (Oyez, n.d.).

This decision goes a long way toward affirming that "functional" specifications of computer software can be re-implemented without violating copyright law (Menell, 2021). The legal brief offered by Google highlights their position that the code copied falls into the category of a functional tool to be utilized by the public. They further link the accessibility of such tools to innovation—in this case the entire internet. The brief states,

"New entrants into a software market therefore "reimplement" existing tools. They write the extensive computer code that performs the relevant *functions* from the legacy product. But they reuse the more limited code that is required—because it cannot be written any other way—to allow users to use commands they already know from the legacy product. The code that recognizes the users' commands is part of the interface. As the most distinguished technology companies and computer scientists in the world have explained, the decades-long understanding in the software industry has been that software functions may be freely re-implemented—and that such re-implementation "unleashed the personal computer revolution, created popular operating systems and programming languages, and established the foundation upon which the Internet and cloud computing depend." (*Google v. Oracle*, 2021b, pg. 26-27).

Another software giant, Microsoft, filed an amicus brief in support of Google that reiterated these stakes. It reads, "Developers rely on sharing, modifying, and enhancing previously developed code to create new products and develop new functionality. Both a cause and effect of this collaborative development is the increased demand for seamless interoperability and compatibility—i.e., the ability of different products, devices, and applications to communicate and work together without effort from the consumer." (*Google v. Oracle,* 2021c, pg. 3-4). This argument was echoed by numerous computer scientists and other members of the industry who rely on longstanding practices that involve reusing declaring code without a license. Without the ability to do so, the process of coding programs would be less efficient, impacting innovation and harming consumers.

iii. Institutional Impact and Performance: U.S. Supreme Court Decision

There are multiple levels of performance in this case. There are the impacts to both firms explicitly named in the case, but also to all the other firms and industries impacted by copyright and fair use law with regards to intangibles such as code. There are also impacts to consumers who benefit (or not) to varying degrees from innovation. Finally, there are issues to consider as to whether the legal case can be viewed as merely a precursor to the wider set of options of how the 21st century digital economy should be organized.

The core of the case centers on the issue of copyright and its limits via fair use. Each structural alternative can be seen as limiting copyright to varying degrees. As stated in the case, "Copyright encourages the production of works that others might cheaply reproduce by granting the author an exclusive right to produce the work for a period of time." But the court must also balance this with the public interest, "Because such exclusivity may trigger negative consequences, Congress and the courts have limited the scope of copyright protection to ensure that a copyright holder's monopoly does not harm the public interest." (*Google v. Oracle*, 2021a, pg. 2).

Protecting innovation while also safeguarding the public from the impacts of monopoly of a product are valuable goals. But what the majority fails to do in this decision is consider the potential negative impacts on competition,

existing market power, and how it might be reaffirmed by such a definition. If smaller firms are limited in their rights to their ideas and other production, those with more capacity may use them, and perhaps innovate, but leave less value behind for the originator. Smaller firms could do the same, of course, but the realities of our current institutional structure make it much riskier to do so. To this point, Judge Thomas writes, "if companies may now freely copy libraries of declaring code whenever it is more convenient than writing their own, others will likely hesitate to spend the resources Oracle did to create intuitive, well-organized libraries that attract programmers and could compete with Android."

Indeed, this is often the goal of a firm's lobbying activities—to raise costs for rivals (another form of rent-seeking behavior). In this case, costs to create something like Java or better are increasing. He further argued that the court could only reach their decision by bypassing the key issue of whether software code is copyrightable. As explained in his dissent,

"The majority purports to save for another day the question whether declaring code is copyrightable. The only apparent reason for doing so is because the majority cannot square its fundamentally flawed fair-use analysis with a finding that declaring code is copyrightable. By copying Oracle's work, Google decimated Oracle's market and created a mobile operating system now in over 2.5 billion actively used devices. If these effects on Oracle's potential market favor Google, something is very wrong with our fair use analysis."

Indeed, in response to the ruling Dorian Daley, the executive vice president and general counsel of Oracle, said in a statement that the "Google platform just got bigger and market power greater—the barriers to entry higher and the ability to compete lower. They stole Java and spent a decade litigating as only a monopolist can. This behavior is exactly why regulatory authorities around the world and in the United States are examining Google's business practices." (Oracle, 2021).

With other tech giants like Microsoft writing in their support, it is difficult to overlook market power concerns. As of 2022, Android occupies 71% market share of operating systems and over 3 billion users. While Android may now operate largely without Java, it is hard to separate the massive success and economic impact of the system from the existence and use of the Java APIs. How this success is viewed depends on the goals of those making decisions.

Others clearly perceive great benefits to society of expanded fair use for functional code. As the Civil Liberties Organization wrote for instance, "In a win for innovation, the U.S. Supreme Court has held that Google's use of certain Java Application Programming Interfaces (APIs) is a lawful fair use". This mindset of prioritizing interoperability in the digital age, especially retroactive to the massive success of Android, is nothing new. Google, in both court documents and public relations appeals, pushes a narrative of being a future-forward friend and champion of innovation and technological freedom. The truth of course is much murkier. It is true that Google does not make money off the traditional licensing that software companies have used in the past. Google makes money by transforming consumers into pieces of walking data. This data is sold to many other companies for advertising and other marketing and business purposes. This is the core of "surveillance capitalism" as explained by Shosanna Zuboff in her book of the same name. Through Android (and even prior to that, their search engine), Google has created a rent-generating vehicle largely unlimited by competition. For this Google model to work, they want and need to minimize costs such as licensing Java. This is why this case was such an important factor in the survival of Google's business model.

In positioning Oracle as holding back innovation, supporters of Google touch on Oracle's rent-seeking motives. Despite Judge Thomas's defense of the competitive spirit that created Java, it is hard to ignore that Java was in fact created by Sun Microsystems under an open-source spirit and corporate mission. The acquisition of Sun by Oracle was undoubtedly driven by desire to secure monopoly over Java to the greatest extent possible—securing rent for years to come. Exclusivity of the APIs may not have kept Sun from allowing Google to use them to speed creation of their Android vision, but certainly in the hands of Oracle, use would be much less open, requiring negotiations and licensing with unknown costs for those hoping to use it.

The implications for consumers of the world Oracle is trying to create are vast. Oracle as a company exists off of economic rent. Strong copyright protection of functional tools of software like Java strengthens incentives of agents to capture the innovative product of others without further improving or innovating upon it. This has consequences for consumers and society at large. As discussed in a brief by the Center for Democracy and Technology, the world Oracle is trying to create where software interfaces are copyrightable would arguably be one where many important innovations in the immaterial equipment are simply unavailable due to copyright protection. In this world according to this brief, every device a consumer uses from home medical equipment to a universal TV remote would have to be licensed or cause a copyright infringement. This would raise costs and eliminate much of

Volume. 18, Number. 2
DOI: 10.38024/arpe.319

the current innovation in their view. In essence, this would be a major expansion of rights for certain software companies like Oracle and a large increase in duties for consumers and those companies that re-implement software interfaces for consumer and business devices.

iii.1 Broader Scope Analysis

In the introduction, we acknowledged that institutional economists John R. Commons and Thorstein Veblen both recognized the importance of intangible capital to the emerging economic value of the 20th century. Intangible property or capital is widely recognized, and was by both Veblen and Commons, as the right to an income stream from a copyright, patent, trademark, supplier relationship or other such concept. This would include an item such as computer code which is an intangible asset in almost all cases. This is contrasted to a tangible asset or capital item where the owner has the right to a stream of income from a machine or piece of land. Both Commons and Veblen noted the growing importance of these intangible assets or capital items to corporations in particular (Baranes, 2020). Given this background, it is clear that if Oracle's assertions of copyright protection for Java were weakened by the court that would lead to a reduced future income stream and in turn reduced intangible asset value.

In this case of *Google v. Oracle*, the decision involves two competing world views or business models. Both models rely on leveraging intangible assets to generate enormous amounts of profit and economic rent. A Commons/Mazucatto approach would seek to find a balance whereby some degree of economic rent or unearned increment may be legal and allowable and there is recognition that there are some social benefits that go along with the allowance of the generation of economic rent. This view would likely tend to favor a victory by Google, such as what happened, because Google's generation of economic rent corresponds to a large degree of economic value in the form of the cheap and accessible Android operating systems and increased ubiquity of low-cost smart phones. This is based on a comparative analysis comparing the two options and choosing which one is better from a retrospective consumer perspective.

A separate analysis, not undertaken here, may consider whether Google acts for example as a monopolist and generates too much economic rent regardless of its battle with Oracle. Google does generate economic rent, probably much greater than Oracle, as it has an important set of advances in the data algorithm, ad space and search space markets. Google in this case was seeking to keep its control of Android to ensure widespread adoption of smart technologies from which it can generate data for commercialization. This analysis would have to consider Google's monopolization of data algorithms related to Internet searches and other factors.

A Veblenian view would see both companies as perpetuators of economic rent on a large scale with little justification or need. Veblen's view would be that an institutional structure is needed that protects and promotes the community's joint stock of knowledge and that no degree or minimal economic rent could be justified. Veblen argued throughout his work that ideas about how to manipulate technology and tools (the immaterial equipment of the community as he termed it) were owned by the community as a whole and not any one economic agent. He took the argument further and stated that any attempt, especially by business owners, to expropriate the immaterial equipment was in essence "getting something for nothing". As a corollary to this point, Veblen would further argue that innovation in the immaterial equipment would occur without the need for a profit motive. People would act to advance the immaterial equipment out of the instinct of workmanship and concern for the well-being of the community. In the language of Hohfeld, the community as a going concern had a right to the immaterial equipment of ideas and technology. Veblen was also arguing that the community owned the right to the ideas and technology and that others (business owners for example) had a duty to use only under the conditions as provided for by the community.

According to Malcolm Rutherford, "the main thrust of the Veblenian analysis is that under business institutions industry is operated with a view to maximizing monopoly profits to the advantage of the owners of invested wealth and to the disadvantage of the common man." (Rutherford, 1996, pg. 50). Given this view, Veblen would want us to consider some radically different institutional alternatives as opposed to just looking between Google or Oracle. This Veblenian institutional structure might be similar to that of the original free software movement. The Free Software Movement, as organized by Richard Stallman in the 1980's via the Free Software society, had the following organizational principles: "1) freedom to run any program, for any use, 2) freedom to study how a program works, 3) freedom to redistribute copies so you can help your neighbor, 4) freedom to improve the program and release your improvements to the public" (Stallman, 2002).

This is quite different from how Google positions their support of open-source software. This alternative was not presented before the Supreme Court; the choice before the court was between two competing models that

DOI: 10.38024/arpe.319

involve a degree of exclusion and control, albeit of different parts of the digital value chain. Veblen would likely support a Stallman approach whereby the community was harnessed to do what is in its own interest as opposed to corporate vested interests. Stallman in the same book writes, "when a program has an owner the users lose freedom to control all parts of their lives. And above all society needs to encourage the spirit of voluntary cooperation in its citizens. When software owners tell us that helping our neighbors is piracy, they pollute our society's civic spirit." (Stallman, 2002). As William Dugger wrote in the Journal of Economic Issues about Veblen's views of the early 20th century, "the production engineers were not necessarily the formally trained graduates of engineering schools. But if their influence grew sufficiently, and if they gathered themselves together to pursue their common industrial purpose, they might just be able to throw out the predatory institutions of business and replace them with the community service institutions of some kind of syndicalism/socialism." (Dugger, 2006, pg. 101). This sounds similar to the free software movement ideas.

III. Conclusion

The 21st century economy has taken the form of one driven by control and access of intangible assets. These intangible assets, including copyright protection, patent laws and other intellectual property laws, are the tools through which corporations are able to generate substantial amounts of profit and economic rent. As it was in the industrial economy, various stakeholders battled over the control and existence of these economic rents. Different views can be had regarding the justification of economic rents whereby some see them as a necessary evil for innovation and others believe that they are simply "getting something for nothing" and unneeded.

Google v Oracle represent one important manifestation of this new rent battle between corporate giants. The Supreme Court's decision in *Google v. Oracle* goes a long way toward affirming that the functional specifications of computer software can be re-implemented without violating copyright law. This significantly reduces the value of the potential rent that Oracle can extract, as observed by Judge Thomas. It may also encourage efficiency and innovation for those familiar with certain coding language and format while simultaneously reducing the incentives to create such innovative languages as Java for future agents. This may have the effect of reaffirming market power for those with more resources by reducing the threat of potential competition from such inventions. It may also considerably encourage interoperability with all its associated benefits for coders and consumers alike.

There are some important lessons for the use of the Legal-Economic Performance framework as presented in this paper. A key part of the framework is the analysis hinges on properly presenting a set of institutional alternatives to the status quo. Often, especially when using court cases, there are two clear cut alternatives being presented in the conflict. However, as observed in *Google v. Oracle*, those two alternatives may not present much of a real choice from the standpoint of true transformative change to distributional systems like capitalism. The analyst may need to seek out alternatives outside of the case itself to understand third our fourth options for structuring the inherent interdependence that is revealed in the initial conflict. Sometimes the most important institutional alternatives to consider are those that are not part of the court or legal system's agenda. The system that is specifically designed to monitor, assess and alter the collective influence in a democracy often has its agenda controlled by very powerful vested interests.

References

[??goo2021a] (2021a). Google llc v. oracle america inc. 593 u. s. https://www.supremecourt.gov/opinions/20pdf/18956_d18f.pdf.

[??goo2021b] (2021b). Google llc v. oracle america inc. no. 18-956. brief for the petitioner. https://www.supremecourt.gov/DocketPDF/18/18-956/127663/20200106172508533_18-956%20ts.pdf.

[??goo2021c] (2021c). Google llc v. oracle america inc. no. 18-956. brief of microsoft corporation as amicus curiae in support of petitioner. https://www.supremecourt.gov/DocketPDF/18/18-956/128381/20200113143602407_Microsoft%20%20Google%20v%20Oracle%20Amicus%20Brief_Efile.pdf.

[??ora2021] (2021). Oracle statement regarding oracle v. google. https://www.prnewswire.com/news-releases/oracle-statement-regarding-oracle-v-google-301262157.html.

[??com2022] (2022). Largest companies by market cap. https://companiesmarketcap.com/. Accessed October 24th, 2022.

Volume. 18, Number. 2
DOI: 10.38024/arpe.319

[??oye2023] (2023). Google llc v. oracle america inc. https://www.oyez.org/cases/2020/18-956. Retrieved February 23, 2023.

[BaldingerBaldinger2021] Baldinger, J. (2021). Google v. oracle: The supreme court copyright battle between google and oracle will confront "fair use" of software. Subscript Law.

[BaranesBaranes2020] Baranes, A. I. (2020). Intangible assets and the financialized business enterprise: A veblen-commons approach. Journal of Economic Issues 54(3), 692–709.

[Birch, Chiappetta, and ArtyushinaBirch et al.2020] Birch, K., M. Chiappetta, and A. Artyushina (2020). The problem of innovation in technoscientific capitalism: Data rentiership and the policy implications of turning personal digital data into a private asset. Policy Studies 41(5), 468–487.

[Birch and CochraneBirch and Cochrane2022] Birch, K. and D. T. Cochrane (2022). Big tech: Four emerging forms of digital rentiership. Science as Culture 31(1), 44–58.

[ChristophersChristophers2020] Christophers, B. (2020). Rentier Capitalism: Who Owns the Economy, and Who Pays For It? Verso Books.

[CiuriakCiuriak2020] Ciuriak, D. (2020). Economic rents and the contours of conflict in the data-driven economy. Technical report, Policy Brief, Centre for International Governance Innovation, June.

[CommonsCommons1924] Commons, J. R. (1924). Law and economics. Yale Law Journal 34, 371.

[DuggerDugger2006] Dugger, W. M. (2006). Veblen's radical theory of social evolution. Journal of Economic Issues 40(3), 651–672.

[Glode and OrdoñezGlode and Ordoñez2022] Glode, V. and G. Ordoñez (2022). Technological progress and rent seeking. Available at SSRN 3753042.

[KlammerKlammer2022] Klammer, S. (2022). The legal-economic performance framework as a new approach to institutional impact analysis and critical thinking in economics. Journal of Law and Political Economy 3(2), 304–325.

[Klammer and ScorsoneKlammer and Scorsone2022] Klammer, S. S. and E. A. Scorsone (2022). The Legal Foundations of Micro-Institutional Performance: A Heterodox Law & Economics Approach. Edward Elgar Publishing.

[MazzucatoMazzucato2018] Mazzucato, M. (2018). The Value of Everything: Making and Taking in the Global Economy. Hachette UK.

[MenellMenell2021] Menell, P. S. (2021). Google v. oracle and the grateful (api) dead: What a long strange trip its been. Daily Journal (Forthcoming), http://dx.doi.org/10.2139/ssrn.3824442.

[Mintz and ChenMintz and Chen2012] Mintz, J. and D. Chen (2012). Capturing economic rents from resources through royalties and taxes. Technical report, SPP Research Paper, 12-30.

[PistorPistor2019] Pistor, K. (2019). The Code of Capital. Princeton University Press.

[RutherfordRutherford1996] Rutherford, M. (1996). Institutions in Economics: The Old and the New Institutionalism. Cambridge University Press.

[SamuelsonSamuelson2015] Samuelson, P. (2015, October). Three fundamental flaws in cafc's oracle v. google decision. European Intellectual Property Review.

[SrnicekSrnicek2017] Srnicek, N. (2017). The challenges of platform capitalism: Understanding the logic of a new business model. Juncture 23(4), 254–257.

[StallmanStallman2002] Stallman, R. (2002). Free Software, Free Society: Selected Essays by Richard M. Stallman. GNU Press.

[VeblenVeblen1904] Veblen, T. (1904). The Theory of the Business Enterprise. New Brunswick, New Jersey: Transaction Books.

[VeblenVeblen1908] Veblen, T. (1908). On the nature of capital. The Quarterly Journal of Economics 22(4), 517–542.

[ZuboffZuboff2018] Zuboff, S. (2018). The Age of Surveillance Capitalism. Public Affairs.

Volume. 18, Number. 2
DOI: 10.38024/arpe.319