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Max I. Raskin

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ABSTRACT

Bitcoin is a private currency issued and governed by a global network of computers. Thus far, the majority of legal cases involving bitcoin have been criminal prosecutions or disputes between bitcoin companies. If bitcoin or some iteration continues to grow, courts will need to craft rules of civil jurisdiction. This paper is the first attempt to apply existing rules of civil procedure to bitcoin.

Bitcoins ought be treated as tangible property for the purposes of jurisdiction. Although they have an incorporeal form, as a practical matter, courts are able to site bitcoins to a single location and thus should do so. This allows courts to apply existing due process and comity jurisprudence.

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INTRODUCTION

It is a peculiar feature of our legal system that judges are often asked to rule on subjects they have little or no direct knowledge of – that a judge who balances his checkbook by hand will be asked to rule on bitcoin. Yet these may be the judges best positioned to apply enduring legal principles to cases that are "new in the instance," like jurisdictional disputes involving bitcoin.[1] It is a judicial virtue to be able to rule correctly on a complex phenomenon without having to learn its detailed workings.[2] Although some basic understanding is necessary, a judge does not need to know the intricacies of bitcoin to understand how to apply the rules of civil procedure to this new innovation.[3]

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1.   Pasley v. Freeman, 100 E.R. 450, 456 (1789) (Ashhurst, J.) (". . .where the case is only new in the instance, and the only question is upon the application of a principle recognized in the law to such new case, it will be just as competent to Courts of Justice to apply the principle to any case which may arise two centuries hence as it was two centuries ago; if it were not, we ought to blot out of our law books one fourth part of the cases that are to be found in them.").

2.   *Compare* Lubavitch-Chabad of Il., Inc. v. Nw. Univ., No. 14-1055, 2014 WL 5762937 (7th Cir. Nov. 6, 2014) (Judge Posner explicating "the background and the various nuances" of Hasidic Judaism), *with* Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 133 S. Ct. 2107, 2120 (2013) (Scalia, J., concurring) ("I join the judgment of the Court, and all of its opinion except Part I–A and some portions of the rest of the opinion going into fine details of molecular biology. I am unable to affirm those details on my own knowledge or even my own belief"), *and* Transcript of Oral Argument at 37-8, Pearson v. Callahan, 555 U.S. 223 (2009) (Justice Alito stating, "Judge Posner . . . he's the smartest man in the world. He knows everything there is to know about law and economics and jurisprudence and literature and many other subjects.").

3.   *Cf.* Frank H. Easterbrook, *Cyberspace and the Law of the Horse*, 1996 U. CHI. LEGAL F. 207 (1996) (arguing that the best way to learn and craft the law of a particular

Bitcoin is a technology that was first proposed in 2008 in a whitepaper written by Satoshi Nakamoto.[4] The term "bitcoin" refers both to a private currency and the network of computers that runs the currency.[5] Much like dollars or euros, there are a certain number of bitcoins in existence[6] and consumers may buy, sell, and trade bitcoins for various goods and services.[7] Bitcoins are like dollars and euros in that some bitcoins exist in physical forms such as tangible coins and some bitcoins exist as numeric conventions, much like a bank's account at a Federal Reserve Bank.[8]

Unlike dollars and euros, however, governments do not issue bitcoins, but instead a decentralized network of computers does so.[9] To belong to this network, a computer must abide by a certain set of governing rules, known as protocols.[10] One of the central protocols is that no more than 21 million bitcoins will ever be created and this creation will occur on a predetermined schedule.[11]

Consumers and investors have put hundreds of millions of dollars into bitcoin and bitcoin companies.[12] Bitcoin's success *vel non*

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field is to study general rules); RICHARD A. EPSTEIN, SIMPLE RULES FOR A COMPLEX WORLD (Harvard Univ. Press 1995) (arguing that basic legal principles can and should govern a complex, industrial society).

4.   Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, BITCOIN PROJECT, http://bitcoin.org/bitcoin.pdf.

5.   SEC v. Shavers, No. 4:13-CV-416, 2014 WL 4652121, at *1 (E.D. Tex. Sept. 18, 2014) (stating "[b]itcoin is a decentralized digital currency . . . "); Reuben Grinberg, *Bitcoin: An Innovative Alternative Digital Currency*, 4 HASTINGS SCI. & TECH. L.J. 159, 207 n.71 (2012) (referring to the Bitcoin Protocol and its genesis).

6.   As of publication there are 13.8 million bitcoins in existence. *Total Bitcoins*, BLOCKCHAIN (Oct.-Nov. 2014), https://blockchain.info/charts/total-bitcoins.

7.   United States v. Ulbricht, 31 F. Supp. 3d 540, 546-47 (S.D.N.Y. July 9, 2014) (demonstrating that bitcoins can be used to purchase illegal narcotics).

8.   R. Joseph Cook, *Bitcoins: Technological Innovation or Emerging Threat?*, 30 J. INFO. TECH. & PRIVACY L. 535, 549 (2014) (stating " . . . bitcoins are being produced in physical manifestations . . .").

9.   Nakamoto, *supra* note 4, at 2-4.

10.   *Id.*

11.   Grinberg, *supra* note 5, at 163.

12.   Sydney Ember, *Blockchain is Latest Bitcoin Start Up to Lure Big Investment*, N.Y. TIMES (Oct. 6, 2014), http://dealbook.nytimes.com/2014/10/06/blockchain-is-latest-bitcoin-start-up-to-lure-big-investment/?_r=0.

notwithstanding, the ideas and concepts that it represents are now a part of the world and are being addressed from a legal perspective.[13]

In contrast to the great amount of interest bitcoin has generated from investors, computer programmers, and regulators, there are relatively few judicial opinions on the subject.[14] And while law review articles abound,[15] nothing has been written exclusively on bitcoin and civil procedure. This Note seeks to remedy that paucity. Before a jurisprudence can develop surrounding bitcoin, there must both be courts that have jurisdiction over bitcoin and cases and controversies presented to those courts.[16] This Note addresses the subject of civil jurisdiction and bitcoin.

There is a wide range of possible civil actions involving bitcoin. Suppose a plaintiff discovers that a defendant stores bitcoins in the jurisdiction where the plaintiff brings the action; can he attach those bitcoins to the proceedings?[17] What does it mean to say that the bitcoins are "in" a jurisdiction?[18]

This Note's basic approach is that novel problems do not require novel solutions.[19] Instead of crafting a new scheme with a complex set of rules to govern this new technology, this Note contends that bitcoin should receive the same treatment as all other forms of property for the

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13.   *See, e.g.*, Grinberg, *supra* note 5; Isaac Pflaum & Emmeline Hateley, *A Bit of A Problem: National and Extraterritorial Regulation of Virtual Currency in the Age of Financial Disintermediation*, 45 GEO. J. INT'L L. 1169 (2014); Derek A. Dion, *I'll Gladly Trade You Two Bits on Tuesday for A Byte Today: Bitcoin, Regulating Fraud in the E-Conomy of Hacker-Cash*, U. ILL. J.L. TECH. & POL'Y, Spring 2013, at 165; Vesna Harasic, *It's Not Just About the Money: A Comparative Analysis of the Regulatory Status of Bitcoin Under Various Domestic Securities Laws*, 3 AM. U. BUS. L. REV. 487 (2014); Matthew Kien-Meng Ly, *Coining Bitcoin's "Legal-Bits": Examining the Regulatory Framework for Bitcoin and Virtual Currencies*, 27 HARV. J.L. & TECH. 587, 605 (2014).

14.   *See infra* note 74.

15.   *See, e.g.*, Grinberg, *supra* note 5; Pflaum & Hateley, *supra* note 13; Dion, *supra* note 13, at 165; Harasic, *supra* note 13; Kien-Meng Ly, *supra* note 13, at 605.

16.   *Cf.* Zippo Mfg. Co. v. Zippo Dot Com, Inc., 952 F. Supp. 1119, 1123-24 (W.D. Pa. 1997) (the court not ruling on substantive trademark dilution claim involving a website until it found it had personal jurisdiction over the defendant).

17.   *Cf.* Shaffer v. Heitner, 433 U.S. 186, 189 (1977) (defendant owning stock that was sited by statute in Delaware).

18.   *See infra* Part II.C.

19.   *Cf.* Easterbrook, *supra* note 3, *contra* Lawrence Lessig, *The Law of the Horse: What Cyberlaw Might Teach*, 113 HARV. L. REV. 501 (1999) (arguing that the nature of cyberspace is unique and can reveal general principles of law).

purposes of civil jurisdiction.[20] Thus, the basic thesis of this Note is that bitcoins are property that should be sited as tangibles with the same constraints placed on a court's *in rem* or *quasi in rem* jurisdiction.[21] As a practical matter, this means that in whichever court a plaintiff is capable of attaching bitcoins through seizure is the court that should be presumed to have jurisdiction.[22]

This Note will begin with a technical explanation of bitcoin. The purpose of this explanation is not to give the reader a comprehensive understanding of bitcoin's underlying plumbing, but rather tease out the salient facts for legal purposes. Judges need not prove the Einsteinian contention that all energy is mass to be able to pass judgment on whether a trespass of a certain particle has occurred.[23]

The next section of the Note will discuss the current bitcoin jurisprudence. The most cited cases thus far have been criminal prosecutions.[24] This makes sense, as a robust set of transactions involving bitcoin is not likely until there is more legal certainty—criminal prosecutions limn the scope of that certainty.[25] As of yet, there have been no significant civil actions involving bitcoin as such.[26] Most of what has been adjudicated thus far have been simple contract disputes between companies in the cryptocurrency industry; any mention of bitcoin is incidental.[27]

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20.   *See infra* Part III.

21.   *See infra* Part III.

22.   *See infra* Parts II.C.1-2.

23.   Martin v. Reynolds Metals Co., 221 Or. 86, 93-94 (Or. 1959) ("In fact, the now famous equation $E=mc^2$ has taught us that mass and energy are equivalents and that our concept of 'things' must be reframed. If these observations on science in relation to the law of trespass [sic] should appear theoretical and unreal in the abstract, they become very practical and real to the possessor of land when the unseen force cracks the foundation of his house. The force is just as real if it is chemical in nature and must be awakened by the intervention of another agency before it does harm.").

24.   United States v. Ulbricht, 31 F. Supp. 3d 540 (S.D.N.Y. July 9, 2014); United States v. Faiella, 39 F.Supp.3d 544 (S.D.N.Y. Aug. 19, 2014).

25.   Max Raskin, *U.S. Agencies to Say Bitcoins Offer Legitimate Benefits*, BLOOMBERG NEWS (Nov. 18, 2013), http://www.bloomberg.com/news/articles/2013-11-18/u-s-agencies-to-say-bitcoins-offer-legitimate-benefits (noting that bitcoin's prospects for wider accepted were boosted after the Department of Justice and other agencies said that bitcoins were not illegal and offered benefits).

26.   *See infra* note 74.

27.   *See, e.g.*, Meissner v. BF Labs Inc., No. 13-2617-RDR, 2014 WL 2558203, at *1 (D. Kan. June 6, 2014) (breach of contract claim over bitcoin mining equipment).

Following the analysis of the existing jurisprudence will begin the discussion of civil procedure. This first section will explain why bitcoins should be treated as tangibles and where they should be sited.

The next section will sketch the limits of a court's exercise of jurisdiction over bitcoins. It will include both the Supreme Court's constitutional concerns over jurisdiction, as well as policy concerns involving comity between both domestic courts in the United States and between domestic and foreign courts. The basic conclusion is that courts should apply the same due process analysis to bitcoin that is applied to other *in rem* and *quasi in rem* actions; this is the due process analysis that finds its fountainhead in *International Shoe Co v. State of Washington*.[28]

I. BACKGROUND

A. BITCOIN OVERVIEW

Whatever they are, bitcoins are something; while precise definitions may be needed for certain purposes, for the purposes of this Note, bitcoin is money.[29] The defining feature of this money is that it is the most successful currency to be issued by private actors.[30]

The genesis of bitcoin is a whitepaper published under the name Satoshi Nakamoto.[31] This paper proposed a network that would enable individuals to exchange value without the need of a third party. As articulated by Nakamoto, when one customer of a bank transfers money to another customer of the same bank, the transaction relies on a third party, i.e. the bank, for verification.[32] What prevents an individual

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28.   Int'l Shoe Co. v. Washington, 326 U.S. 310 (1945).

29.   *Compare Faiella*, 39 F. Supp. 3d at 545 (Bitcoin clearly qualifies as "money" or "funds" under these plain meaning definitions), *and* SEC v. Shavers, No. 4:13-CV-416, 2013 WL 4028182, at *2 (E.D. Tex. Aug. 6, 2013) ("It is clear that Bitcoin can be used as money."), *with* I.R.S. Notice 2014-21*Notice 2014-21: IRS Virtual Currency Guidelines*, INTERNAL REVENUE SERVICE, *available at* http://www.irs.gov/irb/2014-16_IRB/ar12.html (treating bitcoin as property for tax purposes).

30.   Kevin Dowd, *New Private Monies*, INSTITUTE OF ECONOMIC AFFAIRS, 38 (2014), *available at* http://www.iea.org.uk/sites/default/files/publications/files/New%20Private%20Monies%20-%20Kevin%20Dowd.pdf.

31.   Nakamoto, *supra* note 4. As of publication, the identity of Nakamoto is unknown.

32.   Dowd, *supra* note 30, at 40.

customer from promising more than he has to multiple counterparties[33] is that third party bank, which has verified the balance of his account on their own ledger.[34]

Bitcoin does not rely on a third party, such as a bank, to verify transactions.[35] Instead the ledger, known as the blockchain, is distributed throughout a network of computers so that the verification of transactions is decentralized.[36]

One of the central components to the operation of bitcoin is the use of public addresses and private keys.[37] Just as a person's bank account number is identified as a series of numbers, a person's bitcoin account number is identified as a series of numbers and letters.[38] This alphanumeric string is known as the public address. It is called public because anyone with access to the blockchain (the distributed ledger) can view the balance of the address, as well as any transactions that go in and out of the address.[39] What allows an individual to own a certain public address is his ownership of a private key[40] associated with that address.[41] If an individual has the private key then he can spend the bitcoins in the associated address.[42] This public-key cryptography scheme is much like a safety deposit box made of glass for anyone in the world to see, but only those with the private key can open the glass box to spend those bitcoins.[43] Each of the transactions to and from public

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33.   A problem known as double-spending.

34.   Dowd, *supra* note 30, at 41.

35.   Nakamoto, *supra* note 4, at 1 ("What is needed is an electronic payment system based on cryptographic proof instead of trust . . . .").

36.   *Id.* at 3.

37.   *Id.* at 2.

38.   The following is my public address: 1CM42X649uesFqqH8rbMC1s7nTP jmrMb1g.

39.   Nakamoto, *supra* note 4, at 6.

40.   Essentially a string of numbers and letters.

41.   Nakamoto, *supra* note 4, at 6.

42.   This occurs through a process of sending a message that is broadcast to the bitcoin network. If Polonius wanted to send 100 bitcoins to Laertes, he would send a message to the bitcoin network that states "Polonius sends 100 bitcoins to Laertes." In order to ensure that this is an authentic request, the network requires that this message be signed with the private key. *See generally* Dion, *supra* note 13, at 165, 168 (explaining the mechanics of a bitcoin transaction).

43.   For a more in-depth understanding of public-key cryptography, *see* R.C. Merkle, Symposium *Protocols for Public Key Cryptosystems*, 122 INST. OF ELEC. AND ELEC. ENG'RS, 125-26 (Apr. 1980); for a more circumspect understanding of public-key

addresses is contained on the distributed ledger, which establishes how many bitcoins each public address has.[44] Users send bitcoins to other users in exchange for goods and services.[45]

This recordation of transactions between users, however, does not account for the origin of initial bitcoins.[46] Much like gold, bitcoins are brought into existence through a process known as "mining."[47] Mining is essentially the process by which a computer can lend its computing power to the bitcoin network in exchange for a predetermined set of bitcoins.[48] The network rewards computers that support the network through newly minted bitcoins.[49]

Unlike state-run central banks, the bitcoin money-creation schedule is predetermined and does not vary based on the vicissitudes of central bank policy.[50] Specifically, bitcoin is a deflationary currency and the number of bitcoins will never exceed 21 million.[51] The number of bitcoins created every ten minutes is set to be reduced by half approximately every four years such that the number of bitcoins will asymptotically approach 21 million in the year 2140.[52] These 21 million bitcoins are currently capable of being divided out to eight decimal places,[53] allowing users to send fractions of bitcoins.[54]

For the purposes of this Note, the public address-private key aspect of bitcoin is the most important because that is what will determine the

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cryptography, *see also* PETER KENT, THE COMPLETE IDIOT'S GUIDE TO THE INTERNET 120 (7th ed. 2000).

44.   Nakamoto, *supra* note 4, at 2; *see generally* Jerry Brito & Andrea Castillo, *Bitcoin: A Primer for Policymakers*, MERCATUS CTR. AT GEORGE MASON UNIV. 4 (2013) (explaining the mechanics of bitcoin for policymakers).

45.   *Application of FinCEN's Regulations to Virtual Currency Mining Operations*, DEP'T OF THE TREASURY FIN. CRIMES ENFORCEMENT NETWORK, FIN-2014-R001 (Jan. 30, 2014) (clarifying the disclosure obligations of bitcoin "users").

46.   For a discussion of the genesis of money, *see generally* LUDWIG VON MISES, THE THEORY OF MONEY AND CREDIT (Yale Univ. Press, 4th ed. 1953) (using a regression theory to explain the present value of money).

47.   *See generally* Brito & Castillo, *supra* note 44, at 3-7.

48.   *See id.* at 5-6.

49.   *See* Nakamoto, *supra* note 4, at 4.

50.   Grinberg, *supra* note 5, at 168.

51.   *Id.* at 178.

52.   Brito & Castillo, *supra* note 44, at 7.

53.   0.00000001 bitcoins = 1 satoshi.

54.   Brito & Castillo, *supra* note 44, at 7.

locus of ownership.[55] To restate the analogy, a public address is like a transparent glass safety deposit box where anyone can see the amount of bitcoins in that box.[56] To extend the analogy, the private key is what allows an individual to open the safety deposit box and transfer the bitcoins held within.[57] This is the transaction that gets recorded on the blockchain; the accounting notation that debits bitcoins from one public address and credits them to another is the transfer of bitcoins.[58] Private keys can exist in many forms and it is these many forms that give rise to the jurisdictional problems discussed below.[59]

Private keys can be printed on pieces of paper, they can be memorized and exist solely in an individual's head, they can be stored on servers and hard-drives, and they can even be subdivided into constitutive keys.[60] Whatever their form, once an individual has access to this private key and connects it to the bitcoin network, he is authorized by the network spend the bitcoins in the associated public address.[61] Preventing others from accessing one's private key establishes exclusive ownership of bitcoins.[62] This protection can be as simple as printing the private key on a piece of paper, known as a "paper wallet", and storing it in a physical safety deposit box in a bank.[63] The reason to keep the private key private is because when someone has access to it, they have access to the bitcoins "within" the public address and thus are able to spend them.[64]

The reason "within" is so punctuated is because there is, strictly speaking, no such thing as a bitcoin and therefore there can be no bitcoins "in" an address.[65] Instead, bitcoins are an accounting convention.[66] Bitcoins are a notation on a distributed ledger that says a

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55.   Nakamoto, *supra* note 4, at 2 (defining an "owner" as someone who is capable of using a private key to digitally sign a transaction).

56.   *See supra* note 43.

57.   *Id.*

58.   Nakamoto, *supra* note 4, at 2.

59.   *See generally* Meissner v. BF Labs Inc., No. 13-2617-RDR, 2014 WL 2558203 (D. Kan. June 6, 2014).

60.   *See generally* Vitalik Buterin, *Multisig: The Future of Bitcoin*, BITCOIN MAG. (Mar. 12, 2014) (explaining multisignature technology).

61.   Nakamoto, *supra* note 4, at 2.

62.   *Id.*

63.   *See generally* Buterin, *supra* note 60.

64.   Nakamoto, *supra* note 4, at 2.

65.   *Id.* (defining a coin as "a chain of digital signatures").

66.   *Id.*

certain public address has a certain number associated with it that it is allowed to transfer to other public addresses.[67] This may make them seem like they do not exist in a discrete location, but they do; they exist wherever the private key exists.[68] The accounting convention essentially says that anyone who has access to X private key associated with X public key can spend the bitcoins that are credited to that address in the accounting ledger.[69] In other words, any entity that knows the private key controls the bitcoins.[70]

B. EXISTING BITCOIN JURISPRUDENCE

All bitcoin case law is divided into two parts: criminal and civil.[71] The following section of the paper will give an account of the existing bitcoin jurisprudence, wary of the fact that this section could have a short shelf life. As will be shown, the most novel questions of law have been presented in the criminal sphere, as bitcoin is not established enough to warrant large-scale commercial litigation.[72] While the criminal cases present complex questions, the civil cases, as least thus far, have been confined to simple commercial and contract disputes that are not about bitcoin *per se*, but rather involve parties who are somehow connected to the bitcoin universe.[73]

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67. *Id.*

68. In the same way a house exists wherever a person can enter and use that house. This is not to say that there are not other features of bitcoins or houses, but merely that the ability to engage with these things is a sufficient condition to locating them. *See infra* note 265 and accompanying text.

69. Although this makes bitcoin different from a single party accounting convention that does not have any tangible manifestation such as a company's recordation of its shareholders. One may be tempted to say that the recordation is the site of the shareholders shares, but this is not the case for the shareholder's shares are a legal relationship that exists irrespective of the recordation. This is to say that if a company unilaterally changes its book, that does not change who owns how many shares.

70. Nakamoto, *supra* note 4, at 2.

71. *Compare* Meissner v. BF Labs Inc., No. 13-2617-RDR, 2014 WL 2558203 (D. Kan. June 6, 2014), *with* United States v. Ulbricht, 31 F.Supp.3d 540, 569 (S.D.N.Y. July 9, 2014) (noting that the former is a civil case, while the latter is a criminal case).

72. *See infra* note 74 (demonstrating that all previous cases have been commercial disputes and not bitcoin disputes as such).

73. *See infra* note 74 (demonstrating that all previous cases have been commercial disputes and not bitcoin disputes as such).

1. Civil

The majority of civil cases involving bitcoin have been commercial disputes between small parties.[74] Of those civil cases, a large number relate to the sale of bitcoin mining equipment and a failure to deliver in a timely manner, rendering the equipment substantially less valuable.[75] The more computers that are mining for bitcoin, the more difficult the mining becomes and thus each day of delay decreases the amount of bitcoins a contracted piece of mining equipment can produce.[76]

The notable exception to these contract disputes is an enforcement action by the Securities and Exchange Commission ("SEC") against Trendon Shavers, who ran a Ponzi scheme denominated in bitcoins.[77] The SEC ordered Shavers to disgorge $40.4 million and pay $150,000 in civil penalties for violating the Securities Exchange Acts.[78]

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74.   *See, e.g.*, *Meissner*, 2014 WL 2558203, at *1 (breach of contract claim over bitcoin mining equipment); Morici v. Hashfast Technologies LLC, No. 5:14-CV-00087-EJD, 2015 WL 906005, at *1 (N.D. Cal. Feb. 27, 2015) (breach of contract and fraud claim over bitcoin mining equipment); Hussein v. Coinabul, LLC, No. 14 C 5735, 2014 WL 7261240, at *1 (N.D. Ill. Dec. 19, 2014) (class action alleging fraud, breach of contract, and unjust enrichment for failure to deliver bullion in exchange for bitcoin); F.T.C. v. BF Labs Inc., No. 4:14-CV-00815-BCW, 2014 WL 7238080, at *1 (W.D. Mo. Dec. 12, 2014) (alleged violation of Federal Trade Commission Act over material misrepresentation of bitcoin mining machines); Lenell v. Advanced Min. Tech., Inc., No. 14-CV-01924, 2014 WL 7008609, at *1 (E.D. Pa. Dec. 11, 2014) (class action involving failure to deliver and material misrepresentation of bitcoin mining equipment); TradeHill, Inc. v. Dwolla, Inc., No. C-12-1082 MMC, 2012 WL 1622668, (N.D. Cal. May 9, 2012) (contract dispute between bitcoin exchange and financial service provider); Alexander v. BF Labs Inc., No. 14-2159-KHV, 2014 WL 5406890 (D. Kan. Oct. 22, 2014) (class action claim of unjust enrichment over the sale of bitcoin mining equipment).

75.   *See, e.g.*, *Meissner*, 2014 WL 2558203, at *1 (" . . . plaintiff claims that if he had received the Bitcoin Miners earlier, he would have "mined" approximately 5,000 to 7,500 Bitcoins.").

76.   *Cf.* Hadley v. Baxendale, 9 Exch. 341 (1854) (resulting damages from failure to deliver a crankshaft on time were limited by reasonable foreseeability).

77.   SEC v. Shavers, No. 4:13-CV-416, 2013 WL 4028182 (E.D. Tex. Aug. 6, 2013).

78.   SEC v. Shavers, No. 4:13-CV-416, 2014 WL 4652121, at *13 (E.D. Tex. Sept. 18, 2014).

As an initial matter, Shavers argued that because bitcoin was not money, he was not in violation of 15 U.S.C. § 77b.[79] The court rejected this argument:

> It is clear that Bitcoin can be used as money. It can be used to purchase goods or services, and as Shavers stated, used to pay for individual living expenses. The only limitation of Bitcoin is that it is limited to those places that accept it as currency. However, it can also be exchanged for conventional currencies, such as the U.S. dollar, Euro, Yen, and Yuan. Therefore, Bitcoin is a currency or form of money, and investors wishing to invest in BTCST provided an investment of money.[80]

An important takeaway from this ruling is that courts are not going to allow technical definitions supplant their commonsense understandings.[81]

2. Criminal

While civil litigation is sparse, there have been two significant criminal prosecutions that directly address new legal problems posed by bitcoin.[82] The following section will not be an exhaustive account of those criminal prosecutions, but rather briefly explain them with an eye towards gleaning lessons for the civil sphere.

The two most important criminal cases relating to bitcoin are were prosecuted in federal court in the Southern District of New York.[83] Both cases are related to the website Silk Road, an online marketplace for illegal goods and services that the Federal Bureau of Investigations shut

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79.   *Shavers*, 2013 WL 4028182, at *1.

80.   *Id.* at *2.

81.   There is a debate among economists about whether bitcoin is money based on its fulfillment of certain criteria. *See* David Yermack, *Is Bitcoin a Real Currency? An Economic Appraisal*, NBER Working Paper No. 19747 (Dec. 2013). This discussion is separate from judges' decisions on disputes involving bitcoin. As the *Shavers* decision shows, when courts see an object that walks, talks, and acts like money, they will conclude that it is, in fact, money, even if it does not fulfill certain criteria in economic theory. It is worth noting that the blockchain has uses beyond money and has been proposed as a medium for recording deeds and establishing title.

82.   United States v. Ulbricht, 31 F. Supp. 3d 540, 569 (S.D.N.Y. 2014); United States v. Faiella, 39 F. Supp. 3d 544 (S.D.N.Y. 2014).

83.   *Ulbricht*, 31 F. Supp. 3d 540; *Faiella*, 39 F. Supp. 3d 544.

down in October of 2013.[84] The first of these cases is the prosecution of Ross William Ulbricht, who the government alleged, "designed, created, operated, and owned Silk Road, the most sophisticated and extensive criminal marketplace on the Internet."[85] Ulbricht was convicted on all seven counts charged.[86] The second case was the prosecution of Charles Shrem[87] and Robert Faiella who were indicted on multiple counts, including operating an unlicensed money transmission business and conspiracy to commit money laundering.[88]

Both judges have issued opinions that relate directly to how bitcoin ought be classified, which will have implications for civil cases.[89] Faiella and Shrem claimed that they were not engaged in unlicensed money transmission because, *inter alia*, bitcoin is not money.[90] Judge Jed Rakoff ruled against this contention, citing to the *Shavers* decision mentioned above, "Bitcoin clearly qualifies as 'money' or 'funds' under these plain meaning definitions. Bitcoin can be easily purchased in exchange for ordinary currency, acts as a denominator of value, and is used to conduct financial transactions."[91]

Ulbricht, too, argued that bitcoin is not a monetary instrument, citing to the Internal Revenue Service's rule that treated bitcoins as property for tax purposes.[92] Like Judge Rakoff, Judge Katherine Forrest did not find these arguments compelling: "neither the IRS nor FinCEN purport to amend the money laundering statute (nor could they)."[93] Instead, she looked to the state statute and case law to conclude that

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84.   Emily Flitter, *FBI Shuts Alleged Online Drug Marketplace, Silk Road*, REUTERS (Oct. 2, 2013), http://www.reuters.com/article/2013/10/02/us-crime-silkroad-raid-idUSBRE9910TR20131002.

85.   *Ulbricht*, 31 F. Supp. 3d at 549.

86.   Benjamin Weiser, *Man Behind Silk Road Website Is Convicted on All Counts*, N.Y. TIMES (Feb. 4, 2015), http://www.nytimes.com/2015/02/05/nyregion/man-behind-silk-road-website-is-convicted-on-all-counts.html.

87.   Max Raskin, *Meet the Bitcoin Millionaires*, BUSINESSWEEK (Apr. 10, 2013), http://www.businessweek.com/articles/2013-04-10/meet-the-bitcoin-millionaires [hereinafter *Meet the Bitcoin Millionaires*].

88.   *Faiella*, 39 F. Supp. 3d at 545.

89.   *Ulbricht*, 31 F. Supp. 3d at 569; *Faiella*, 39 F. Supp. 3d at 545.

90.   *Faiella*, 39 F. Supp. 3d at 545.

91.   *Id.*

92.   *Ulbricht*, 31 F. Supp. 3d at 569 (quoting I.R.S. Notice 2014–21).

93.   *Id.*

bitcoin could be used as a monetary instrument for the purpose of laundering.[94]

While Judge Forrest's opinion correctly classifies bitcoin as money, she makes an error in saying bitcoin "cannot be put on a shelf and looked at or collected in a nice display case. Its form is digital—bits and bytes that together constitute something of value."[95] As was shown above and will be shown below, bitcoins can be, and often are, put on a shelf and looked at.[96] By creating a physical manifestation of the private key, such as by printing it out on a piece of paper, one has instantiated the bitcoins.[97] Furthermore, while "bits and bytes" may be binary collections of information, the very existence of computers is a testament to the fact that these bits and bytes can be reified onto physical hardware.[98] Computer memory is a physical phenomenon. If one destroys a hard drive with a private key on it, then the information and bitcoins themselves are destroyed.[99]

While quibbling with Judge Forrest on this physical representation point may seem pedantic, it has serious implications; the government's own case contradicts her assertion.[100] In the seizure order against Ulbricht, the district court listed as "defendants-in-rem" "any and all assets of silk road, including but not limited to the silk road hidden website and any and all bitcoins contained in wallet files residing on silk road servers . . . "[101]

This language is telling; the bitcoins are "contained" and "residing" much like one would say a Krugerrand is contained in a safety deposit box residing at a certain bank.[102] The Federal Bureau of Investigation (FBI) was able to seize the bitcoins from physical servers and then

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94.   *Id.*

95.   *Id.* at 570.

96.   Dowd, *supra* note 30, at 49; *see supra* note 8.

97.   *Id.*

98.   Yates v. United States, No. 13-7451, 2015 WL 773330, at *12 (U.S. Feb. 25, 2015) ("A hard drive, however, is . . . .").

99.   *Meet the Bitcoin Millionaires*, *supra* note 87 (noting how bitcoins can be permanently lost when private keys are destroyed or inaccessible).

100. In the order to seize the Silk Road bitcoins, the court labeled the bitcoin as "defendants-in-rem." Second Post-Complaint Protective Order, *Ulbricht*, No. 13 Civ. 6919 (JPO), ECF (2013).

101. *Id.* at *1.

102. *Id.*

transfer them to their own wallet.[103] Because this process must necessarily have taken place on the blockchain, all the transactions are transparent and it is possible to see the FBI's own wallet.[104] Thus, much like the FBI's ability to seize and auction off Krugerrands, the FBI auctioned off bitcoins seized from the operation of Silk Road.[105] Judge Forrest mentioned the analogy to gold. [106] Bitcoin is not as incorporeal as Judge Forrest claimed in *dictum;* criminal *in rem* attachments are likely to continue to prove this claim if they follow.[107]

Courts have begun sketching out the contours of jurisdiction over bitcoin and there are some important principles that can be gleaned from a reading of these cases.[108] The use of bitcoin does not allow one to skirt existing laws because courts have fit bitcoin into existing jurisprudence.[109] Instead of waiting for legislation or regulation, courts will apply their own understandings of bitcoin.[110] Both the criminal and civil cases thus far lead to the conclusion that bitcoin is tangible property for the purposes of civil jurisdiction.[111] This note will expound this theory below.

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103.   Sydney Ember, *U.S. Announces Third Bitcoin Auction*, N.Y. TIMES (February 18, 2015), http://dealbook.nytimes.com/2015/02/18/u-s-announces-third-bitcoin-auction/.

104.   1FfmbHfnpaZjKFvyi1okTjJJusN455paPH is the FBI's public address for the Silk Road seizure. *DPR Seized Coins*, BLOCKCHAIN, *accessible at* https://blockchain.info/address/1FfmbHfnpaZjKFvyi1okTjJJusN455paPH.

105.   Ember, *supra* note 103.

106.   *Ulbricht*, 31 F. Supp. 3d 540, 569 (S.D.N.Y. 2014).

107.   Second Post-Complaint Protective Order, *Ulbricht*, No. 13 Civ. 6919 (JPO), ECF (2013); *cf.* Anti-Cybersquatting Consumer Protection Act, 15 U.S.C. § 1125 (d)(2)(A) (2012) (statutorily guaranteeing *in rem* jurisdiction against specific domain names).

108.   *See supra* note 93 (detailing those principles).

109.   *See supra* note 91.

110.   *Faiella*, 39 F. Supp. 3d 545 (S.D.N.Y. 2014).

111.   *See infra* Part II.B.1.

II. BITCOIN AND CIVIL PROCEDURE

A. CIVIL PROCEDURE OVERVIEW

1. In Personam, In Rem, and Quasi In Rem Jurisdiction

Before applying existing principles of civil procedure to bitcoin, it is worth briefly sketching those principles. To begin, there are different kinds of jurisdiction that courts can have over entities.[112] The first is called *in personam* or personal jurisdiction, which arises from the original English writ of *capias ad respondendum*.[113] This form of jurisdiction exists when a court seeks to enact a judgment on a legal person.[114] The second form is called *in rem* jurisdiction.[115] This form of jurisdiction exists when a court seeks to enact a judgment on a *res*[116], or thing, found within the territorial borders of the state, where the thing is related to the suit.[117] These things can be varied and comical.[118] Finally there exists what is known as *quasi in rem* jurisdiction.[119] This form of

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112.   *See infra* notes 113-17 and accompanying text.

113.   Int'l Shoe Co. v. Washington, 326 U.S. 310, 316 (1945) (" . . . the *capias ad respondendum* has given way to personal service of summons or other form of notice . . . .").

114.   RESTATEMENT (SECOND) OF JUDGMENTS § 5 (1982) ("A state may exercise jurisdiction over a person who has a relationship to the state such that the exercise of jurisdiction is reasonable.").

115.   RESTATEMENT (SECOND) OF JUDGMENTS § 6 (1982) ("In this type of proceeding, the court undertakes to determine all claims that anyone has to the thing in question."); RESTATEMENT (SECOND) OF CONFLICT OF LAWS § 3.2 (1971) ("When a thing is subject to the judicial jurisdiction of a state, an action may be brought to affect the interests in the thing of all persons in the world. Such an action is commonly referred to as a proceeding in rem.").

116.   Latin for "a particular thing [or] matter." *Res*, MERRIAM-WEBSTER, *available at* http://www.merriam-webster.com/dictionary/res.

117.   RESTATEMENT (SECOND) OF JUDGMENTS § 6 (1982).

118.   *See, e.g.*, United States v. 422 Casks of Wine, 26 U.S. 547 (1828); United States v. One Book Entitled Ulysses by James Joyce, 72 F.2d 705 (2d Cir. 1934); United States v. 11 1/4 Dozen Packages of Article Labeled in Part Mrs. Moffat's Shoo Fly Powders for Drunkenness, 40 F. Supp. 208 (W.D.N.Y. 1941); United States v. $124,700 in U.S. Currency, 458 F.3d 822 (8th Cir. 2006); United States v. Approximately 64,695 Pounds of Shark Fins, 520 F.3d 976 (9th Cir. 2008).

119.   There are two forms of *quasi in rem* jurisdiction, but for the purposes of this Note we will merely refer to the second type. RESTATEMENT (SECOND) OF JUDGMENTS § 6 (1982) (" . . . in this type of proceeding, a thing owned by a specified person is seized

jurisdiction exists where a court seeks to enact judgment on a thing, where the cause of action is unrelated to the thing.[120] An example of *quasi in rem* jurisdiction would be attachment of securities to satisfy a tort judgment in a foreign state.[121]

Originally, the above forms of jurisdiction were based on the practical considerations of where a court could physically exercise jurisdiction.[122] In the case of *Pennoyer v. Neff*, the Supreme Court held that an Oregon court's exercise of *in personam* jurisdiction over Neff, a non-resident who was not served process while in the state, was unconstitutional.[123] The physical presence of either the defendant or his property in the territorial borders of the state was central to the Court's calculus.[124] This theory of jurisdiction based on physical presence gave way to a theory of jurisdiction based on principles laid out in *International Shoe v. Washington*.[125] There, a Washington court was held to have personal jurisdiction over a non-resident corporate defendant who had a staff of around a dozen employees in the state.[126] The Court expanded the test beyond territorial jurisdiction and held "due process requires only that in order to subject a defendant to a judgment *in personam*, if he be not present within the territory of the forum, he have certain minimum contacts with it such that the maintenance of the suit does not offend 'traditional notions of fair play and substantial justice.'"[127]

Until the Supreme Court's ruling in *Shaffer v. Heitner*, the new jurisdictional test of *International Shoe* only applied to a court's exercise of *in personam* jurisdiction.[128] *Shaffer* changed this by applying the "minimum contacts" test to *quasi in rem* actions.[129] In *Shaffer*, a Delaware statute sited corporate shares of a Delaware corporation in the

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as a basis for exercising jurisdiction to decide a claim against the owner. The claim does not concern interests in the thing; it concerns some other transaction.").

120.   *Id.*

121.   Shaffer v. Heitner, 433 U.S. 186 (1977) (plaintiff sought to sequester shares of Greyhound stock owned by defendants).

122.   Int'l Shoe Co. v. Washington, 326 U.S. 310, 316 (1945).

123.   Pennoyer v. Neff, 95 U.S. 714 (1877).

124.   *Int'l Shoe Co.*, 326 U.S. at 316.

125.   *Id.*

126.   *Id.* at 313.

127.   *Id.* at 316.

128.   Shaffer v. Heitner, 433 U.S. 186 (1977).

129.   *Id.* at 207.

state, giving its courts jurisdiction over those shares.[130] The Delaware Court of Chancery sequestered shares of Greyhound stock belonging to 28 non-resident defendants as an exercise of *quasi in rem* jurisdiction.[131] The Supreme Court held that this was unconstitutional because the 28 non-resident defendants did not have sufficient contacts with the state.[132] After *Shaffer*, the "mere existence" of a *res* in its territory is not enough to give the court jurisdiction over the *res*.[133] Now, the exercise of any type of jurisdiction must comport with the Fourteenth Amendment's Due Process Clause.[134]

For basic *in rem* jurisdiction where the conflict arises over a *res* within the territorial borders of a state, it is unusual that a court would not be able to exercise jurisdiction.[135] The existence of a thing in a state creates a strong presumption in favor of a court's exercise of jurisdiction over that thing.[136] As the Court held in *Shaffer*,

> . . . when claims to the property itself are the source of the underlying controversy between the plaintiff and the defendant, it would be unusual for the State where the property is located not to have jurisdiction. In such cases, the defendant's claim to property located in the State would normally indicate that he expected to benefit from the State's protection of his interest.[137]

It is important to note that the Supreme Court has held that due process concerns are primarily implicated before judgments are rendered.[138]

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130. DEL.CODE ANN., tit. 8, § 169 (2014).

131. *Shaffer*, 433 U.S. at 194.

132. *Id.* at 216-17.

133. *See* RICHARD C. RUSKELL, DAVIS & SHULMAN'S GEORGIA PRACTICE & PROCEDURE § 6:3 (2014-15 ed. 2014).

134. "No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws." U.S. CONST. amend. XIV.

135. *See id.*

136. *See Shaffer*, 433 U.S. at 207-08.

137. *Id.*

138. *Id.* at 228 n.36 ("Once it has been determined by a court of competent jurisdiction that the defendant is a debtor of the plaintiff, there would seem to be no unfairness in allowing an action to realize on that debt in a State where the defendant has property, whether or not that State would have jurisdiction to determine the existence of the debt as an original matter.").

How the minimum contacts test has changed since *International Shoe* and the wisdom of that change is beyond the scope of this paper. It is simply necessary to note that whenever a court seeks to exercise power over a *res* it is bounded by the Fourteenth Amendment.[139]

2. Tangibles and Intangibles

Before classifying bitcoins for the purposes of civil jurisdiction, it is useful to note the difference between tangible and intangible property. Tangibles are physical objects, like houses or automobiles, and they have physical a situs,[140] while intangibles, like stock options or business goodwill only have a situs as a legal fiction.[141] In *Yates v. United States*, a plurality of the Supreme Court held that an undersized red grouper was not "tangible" for the purposes of the Sarbanes-Oxley Act.[142] The Court did not, however, deny that the plain meaning of the term tangible refers to a discrete thing that possesses physical form.[143]

One helpful test for determining whether an object is tangible or intangible is whether it has "intrinsic value."[144] Resorting to legal fictions has come under criticism; some have advocated scrapping the invocation of intangibles entirely and instead, propose looking to the party in control of the intangible and his relation to the relevant court.[145] Tangibles have never posed the same kind of problems because they have a physical location, making them conceptually easy to site without invoking legal fictions.[146] This distinction between tangibles and intangibles is important because, as will be shown below, a bitcoin is a tangible, even though it has digital aspects.[147]

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139.   *Id.* at 216-17.
140.   "Property that has physical form and characteristics." *Property*, BLACK'S LAW DICTIONARY 1335-38 (9th ed. 2009).
141.   "Property that lacks a physical existence." *Property*, BLACK'S LAW DICTIONARY 1335-38 (10th ed. 2014); Aaron Simowitz, *Siting Intangibles*, 46 N.Y.U. J. INT'L L. & POL. 12 (forthcoming 2015).
142.   Yates v. United States, 135 S. Ct. 1074, 1081 (2015).
143.   *Id.*
144.   R & L Zook, Inc. v. Pac. Indem. Co., No. CIV.A. 07-03774, 2008 WL 1931006, at *4 (E.D. Pa. May 1, 2008) (holding "a check is not 'tangible property' because it does not have intrinsic value").
145.   *See* Simowitz, *supra* note 141.
146.   Lee, *infra* note 302, at 126.
147.   *See infra* Part II.B.1.

B. BITCOIN AND JURISDICTION

1. Bitcoin Qua Tangible Res

With the above in mind, we can begin to analyze how courts ought treat bitcoin and other cryptocurrencies for the purposes of jurisdiction.

The first question that must be asked is what bitcoin *is* for the purposes of jurisdiction. This Note contends bitcoin is a legal thing with an actual situs and thus should be treated as tangible property without having to invoke various legal fictions. The major benefit of this approach is that it allows courts to escape the mire of intangibility jurisprudence.[148]

At English common law, a *res* did not have to have a corporeal form.[149] What makes bitcoin a tangible is that it has intrinsic value wherever it exists.[150] Courts are capable of discharging debts and thus

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148.   Hanson v. Denckla, 357 U.S. 235, 246 (1958) ("Founded on physical power . . . the in rem jurisdiction of a state court is limited by the extent of its power and by the coordinate authority of sister States. The basis of jurisdiction is the presence of the subject property within the territorial jurisdiction of the forum State. Tangible property poses no problem for the application of this rule, but the situs of intangibles is often a matter of controversy."); Fletcher R. Andrews, *Situs of Intangibles in Suits Against Nonresident Claimants*, 49 YALE L.J. 241 (1939) (italics in original) ("Exercise by a court of jurisdiction in rem or quasi in rem 1 is valid only if the property or res involved be within the territorial boundaries over which the court holds sway. If the subject matter of the action is real property or tangible personal property, it is comparatively simple to determine whether the res is within those boundaries. But when intangible property is involved, the problem becomes far more complex.").

149.   "The word 'things' has a general signification, which comprehends corporeal and incorporeal objects, of whatever nature, sort or specie." 3 CO. INST. 482; 1 BOUV. INST. n.415.

150.   Nakamoto stipulates that bitcoin are transferred through the process of private key signatures. Nakamoto, *supra* note 4, at 2. This means that someone who is able to sign a transfer with a private key is possess the bitcoins because he can do as he choses with them. This ownership is not necessarily a legal ownership, just as possessing a wad of cash does not mean the individual is the legal owner. What this means is that, like cash, there is something intrinsically valuable to the private key, even if there is no extrinsic confirmation of legal title. The holder of the private key does not need to go to a court to declare that his private key can transfer bitcoins anymore than someone who finds cash needs to go to a court to declare that the cash will be accepted at a store. We can contrast this with R & L Zook, Inc. v. Pac. Indem. Co., No. CIV.A. 07-03774, 2008 WL 1931006, at *4 (E.D. Pa. May 1, 2008) (holding "a check is not 'tangible property' because it does not have intrinsic value"). A check, on the other hand, only has value if another individual or institution is willing to accept it. While it is true that a store can

the nature of debt is that it is dependent on some legal regime of enforcement.[151] As a technical matter, bitcoin does not depend on any legal regime to function; an individual who possesses a private key has possession of the value of the number of bitcoins associated with that key, irrespective of whether he is the rightful owner.[152]

What also makes bitcoin distinguishable from intangibles is that bitcoins can be located in a place separate from its owner, whereas debts represent legal relationships and "follow" a person wherever he goes.[153] With bitcoin, however, if a thief steals the physical manifestation of a bitcoin, he can steal the bitcoins and can deprive the previous owner of control.[154]

In one sense, they are like bearer instruments, which can be stolen because courts give independent legal significance to the document itself.[155] In order to transform a financial instrument representing debt or

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refuse to accept cash if it believes it is stolen, that does not change the fact that the cash is fungible and there are no practical barriers to acceptance. Similarly with bitcoin, a private key associated with the bitcoin network will functionally be able to transfer bitcoins without a third-party giving legal title of the key to the key's possessor. By intrinsic here, we merely mean having value without a third-party needing to verify legal title.

151. 11 U.S.C. § 1328 (2012) (" . . . the court shall grant the debtor a discharge of all debts provided for by the plan . . . .").

152. What the market values those bitcoins—potentially without legal title—is a separate question. But a court cannot say that an object that the market assigns value to does not have value. Blood diamonds may be legally tainted, but they are diamonds nonetheless. Diamonds, gold, or bitcoins may be legally tainted and unassignable, but they can still have value. *Buying, Selling, & Redeeming*, DEP'T OF THE TREASURY, *available at* http://www.treasury.gov/resource-center/faqs/Currency/Pages/edu_faq_currency_sales.aspx (admitting that while "[t]he redemption [of gold certificates] . . . will be at the face value on the note[, t]hese notes may, however, have a "premium" value to coin and currency collectors or dealers[,]" showing the distinction between the legal value assigned by the state and the intrinsic value to others is not changed by the redemption value received from the Treasury).

153. GRANT GILMORE, SECURITY INTERESTS IN PERSONAL PROPERTY 600 § 22.3 (1965).

154. Jack Smith IV, *Bitcoin Crime Wave Breaks Out in NYC*, NEW YORK OBSERVER (February 20, 2015); *Meet the Bitcoin Millionaires*, *supra* note 87 ("Shrem wears a ring engraved with a code that gives him access to the electronic wallet on his computer. Friends tease him that a thief could cut off his finger to get the ring. 'They started calling me four-finger Charlie,' he says.").

155. W. H. Bates, *Conflict of Laws: Negotiable Instruments: Situs of Bearer Bonds under the Trading with the Enemy Act*, MICH. L. REV. 1057, 1058 (1952) ("Both courts

equity into a bearer instrument, the legal relationship must be instantiated.[156]

In another sense, they are not like bearer instruments and there is no need to invoke the specter of intangibility.[157] While courts of equity in England could grant relief that eased the link between the instrument and obligation, no such relief can be granted with bitcoin for the simple fact that a bitcoin does not represent a legal relationship, but a physical one.[158] A court can "say" that a person is allowed to spend bitcoins that he has lost the private key to, but as a practical mater, once a private key is lost, the bitcoins are lost.[159] A court's intangibility jurisprudence here will sound like King Canute, declaring a bitcoin to exist where none does.[160]

A court cannot invoke intangibility because bitcoins are information that must be instantiated in some form into the corporeal world to be used.[161] In order to transfer bitcoins, the private key must interact with the bitcoin network from some location.[162] This reification happens on computers connected to the bitcoin network and a computer's hard drive is a thing with a situs, making a network a composition of physical computers with physical locations.[163]

These physical locations are possible to pinpoint.[164] In the simplest case, a private key can be printed out on a piece of paper and then stored

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[law and equity] preferred to think of the instrument as the obligation itself and not merely evidence thereof.").

156.   *See, e.g.*, UCC § 3-204.

157.   Bates, *supra* note 155, at 1058. ("The difficulty of determining the situs of intangibles has long plagued the courts.").

158.   Bates, *supra* note 155.

159.   *See infra* note 166.

160.   Unlike the instantiation of debt or equity, the instantiation of bitcoins from an intangible to a tangible is a purely private act that needs no sanction by a legal regime. Debt and equity only exist as relationships in some kind of legal framework; bitcoin, much like gold, exists as technological and natural phenomenon prior to the state or legal relationships—much like the tides. *See also* Robinson v. Wirts, 127 A.2d 706, 715 (1956) (" . . . a declaration which opposes demonstrated phenomena can no more influence the tide of modern scientific law than King Canute's edict could shut out the waves of the Atlantic Ocean.").

161.   The protocol requires that an owner use his private key to sign a transaction; this cannot take place in the ether. Nakamoto, *supra* note 4, at 2.

162.   Nakamoto, *supra* note 4, at 2.

163.   Yates v. United States, 135 S. Ct. 1074, 1088-89 (2015).

164.   Internet protocol addresses are a series of numbers that are assigned to a particular device capable of connection to a network. *DARPA Internet Program*

in a safety deposit box.[165] So long as there are no other copies of that private key, the situs of the private key is in the safety deposit box.[166] Anyone who has physical access to that safety deposit box has access to those bitcoins because he has access to the private key capable of signing transactions.[167] A private key stored on "the cloud" is actually stored on a physical server somewhere; there is no such thing as "the cloud," but rather a system of physical servers owned by data storage companies in large centers throughout the country.[168] Computer hard-drives exist and the purpose of an Internet Protocol (IP) address is to locate them when they are attached to a network.[169]

An instructive analogue to the siting of bitcoins is the judicial and legislative siting of domain names. In response to claims of trademark infringement made against "cyber-squatters" Congress passed the Anti-Cybersquatting Consumer Protection Act (hereinafter the ACPA).[170] The relevant provision allows the owner of a mark to file "an in rem civil action against a domain name in the judicial district in which the domain name registrar, domain name registry, or other domain name authority that registered or assigned the domain name is located" provided the owner was unable to obtain *in personam* jurisdiction through due diligence and notice or did not know who the owner of the domain was.[171] As a practical matter, this "beset" the Eastern District of Virginia with cybersquatting cases after the passage of the ACPA in 1999.[172] The

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Protocol Specification, INTERNET CONTROL MESSAGE PROTOCOL § 2.3 (Sept. 1981), *available at* http://tools.ietf.org/html/rfc791 ("A name indicates what we seek. An address indicates where it is. A route indicates how to get there. The internet protocol deals primarily with addresses.").

165.   Tyler Evans, *The Ledger Wallet Nano: Cutting-Edge Hardware Security*, BITCOIN MAG. (February 16, 2015).

166.   When a single copy of a private key is lost, the bitcoins themselves are forever lost. *Meet the Bitcoin Millionaires*, *supra* note 87 (reporting on early bitcoin adopters whose bitcoins were permanently lost when hard drives were reformatted or destroyed).

167.   Nakamoto, *supra* note 4, at 2.

168.   Paul T. Jaeger et al., *Where Is the Cloud? Geography, Economics, Environment, and Jurisdiction in Cloud Computing*, FIRST MONDAY (Apr. 2009), *available at* http://firstmonday.org/ojs/index.php/fm/article/view/2456/2171 (last accessed Mar. 5, 2015).

169.   *See supra* note 164.

170.   15 U.S.C. § 1125(d) (2012).

171.   15 U.S.C. § 1125 (d)(2)(A).

172.   Andrew J. Grotto, *Due Process and in Rem Jurisdiction Under the Anti-Cybersquatting Consumer Protection Act*, 2 COLUM. SCI. & TECH. L. REV. 1, 5 (2001).

reason is that the Eastern District of Virginia is home to Network Solutions.[173] Network Solutions has both the practical ability and legal responsibility to transfer a domain name if so ordered by the court.[174]

Since the passage of the ACPA, courts have grappled with the definition of minimum contacts in the digital age.[175] What they have not grappled with, however, is the situs of the domain name, and the reasons for this are not merely statutory.[176] Much like bitcoins, which are capable of being spent wherever an individual has access to a private key, a domain name is capable of being assigned to a different individual wherever someone is capable of changing the domain name registry to which other computers in the Internet network are connected.[177] A domain name registrar, much like bitcoins, does not

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173. *Id.*

174. *But see* Stern v. Iran (D.D.C. 2014) ("[T]he country code Top Level Domain names at issue may not be attached in satisfaction of plaintiff's judgments because they are not property subject to attachment under District of Columbia law."); Network Solutions, Inc. v. Umbro Int'l, Inc., 529 S.E.2d 80, 86 (Va. 2000) (" . . . whatever contractual rights the judgment debtor has in the domain names at issue in this appeal, those rights do not exist separate and apart from NSI's services that make the domain names operational Internet addresses. Therefore, we conclude that 'a domain name registration is the product of a contract for services between the registrar and registrant.'"). There is a fundamental distinction between these courts analyses and the res analysis of bitcoin. A domain name company, like ICANN, is contractually bound to point an Internet Service Provider to the server associated with the owned domain. With bitcoin, there is no intermediary step required because simply connecting to the network with the appropriate key establishes the existence of the property. There is no need for a third-party to verify for other third-parties, thus there is no concept of bitcoin as a "service" like these courts applied to domain names. Nakamoto, *supra* note 4, at 1 ("What is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other *without the need for a trusted third party*.") (emphasis added).

175. *Compare* Zippo Mfg. Co. v. Zippo Dot Com, Inc., 952 F. Supp. 1119, 1124 (W.D. Pa. 1997) (finding jurisdiction based on a sliding scale test applied to the nature of a website's contact with the forum state), *with* Inset Sys., Inc. v. Instruction Set, 937 F. Supp. 161, 165 (D. Conn. 1996) (finding the existence of an online advertisement in a state enough to establish personal jurisdiction).

176. Grotto, *supra* note 172, at 14; 15 U.S.C. § 1125 (d)(2)(A) (2012) (The ACPA siting the res in the company's jurisdiction, precisely because that's where the company is capable of exercising control).

177. Grotto, *supra* note 172, at 15 (demonstrating that plaintiffs have a remedy against registrars, which are capable of redirecting traffic so as to comply with trademark protections).

exist in the ether, but is instantiated on servers throughout the country.[178] Thus there was technical logic behind the ACPA's invocation of *in rem* action, much like there is technical logic behind current legal proceedings' invocation of *in rem* action with respect to bitcoin.[179]

2. Complications to Bitcoin as Tangible Property

There are, however, some potential arguments and complications with treating bitcoin as tangibles under *in rem* jurisdiction. The first argument is that bitcoins are analogous to debts and contractual relationships to pay and thus should be sited as intangibles are sited, not as tangibles.[180] A bank account is an example of an intangible whose "actual situs" does not prevent courts from exercising personal jurisdiction over the banking corporation to freeze assets.[181] This is because banks are not simply storing customers' segregated money in the equivalent of individual safety deposit boxes; they use accounting mechanisms to credit and debit customers in their ledger.[182] Thus, it makes sense for courts to exercise power over bank accounts by exercising personal jurisdiction over the banking corporation because there is only a ledger book to adjust.[183] New York, for instance, is able

178.   Network Solutions, Inc. v. Umbro Int'l, Inc., 529 S.E.2d 80, 84 n.8 (Va. 2000).

179.   Grotto, *supra* note 172, at 14.

180.   There is however, a distinction between bank accounts and bank transfers. *See, e.g.*, United States v. Banco Cafetero Panama, 797 F.2d 1154, 1158 (2d Cir.1986) (stating bank credit is "clearly 'traceable proceeds' under the forfeiture statute"); United States v. Daccarett, 6 F.3d 37, 54-55 (2d Cir. 1993) (relying on *Banco Cafetero Panama* to hold that electronic fund transfer are a seizable res); Arizona v. W. Union Fin. Servs., Inc., 208 P.3d 218, 226 (Ariz. 2009) (holding that a bank wire is not located within the state and therefore cannot be seized even though the corporation that processed the wire is subject to jurisdiction).

181.   United States v. First Nat. City Bank, 379 U.S. 378, 384 (1965) ("Once personal jurisdiction of a party is obtained, the District Court has authority to order it to 'freeze' property under its control, whether the property be within or without the United States.").

182.   Banks really only hold a portion of their clients money; through reserve requirements, i.e. legal impunity to issue receipts in excess of chattels, and the legal permission to comingle funds, they are able to expand credit. *Reserve Requirements*, FED. RESERVE, *available at* http://www.federalreserve.gov/monetarypolicy/ reservereq.htm.

183.   *Cf.* Cameco Indus., Inc. v. Mayatrac, S.A., 789 F. Supp. 200, 203 (D. Md. 1992) (holding that in the absence of personal jurisdiction over a banking corporation, a court can still exercise *quasi in rem* jurisdiction over a bank account).

to exercise jurisdiction over bank accounts because so many banks are domiciled in the state.[184]

The reason why bitcoins should not be treated like bank accounts is that bitcoins do not require a counterparty to own and possess, whereas bank accounts do.[185] When a person deposits his cash in a bank, he has ceded his actual, exclusive control over that money; a bank can freeze his account and put limits on the amounts that he can withdraw.[186] One may argue that an online password or PIN number gives control over money in an account, but this is not the case.[187] A bank, for a number of reasons, including to satisfy a judgment, can refuse to give money to a person who holds a legitimate password; they can lock a customer out of his account.[188] This is not analogous to a bitcoin private key.[189] If one possesses a bitcoin private key, then one possesses those bitcoins.[190] If a customer were to give a "bank" a copy of his private key, but retained his own copy, then so long as the bitcoin bank did not transfer the key into its own wallet, the customer would be able to transfer the bitcoins, without the bitcoin bank's approval, wherever the customer has the private key.[191]

Because approving the transfer of funds, and therefore control over those funds, can occur in any place, a bank account is not *actually*

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184.   Hotel 71 Mezz Lender LLC v. Falor, 926 N.E.2d 1202, 1207-08 (N.Y. 2010) (" . . . where a court acquires jurisdiction over the person of one who owns or controls property, it is equally well settled that the court can compel observance of its decrees by proceedings *in personam* against the owner within the jurisdiction."); *cf.* Lok Prakashan Ltd. v. India Abroad Publ'ns, Inc., No. 00 CIV. 5852 (LAP), 2002 WL 1585820, at *2 (S.D.N.Y. July 16, 2002) ("It is well established that a New York court cannot attach property that is outside of its jurisdiction.").

185.   This difference was one of the motivations behind the creation of bitcoin. *See* Dowd, *supra* note 30, at 40.

186.   A bank may be legally required to freeze an account. N.Y. C.P.L.R. § 5222 (McKinney 2014).

187.   *Id.*

188.   *See, e.g.*, Mazzuka v. Bank of N. Am., 280 N.Y.S.2d 495, 496 (N.Y. Civ. Ct. 1967) (an example of a restraining notice preventing a bank from honoring checks drawn against an individual's account).

189.   Nakamoto, *supra* note 4, at 2 (explaining that ownership of a coin derives from the ability to sign transactions and therefore from knowledge of a private key; no intermediary is needed to sign a transaction and thus no intermediary can prevent actual possession of bitcoins).

190.   *Id.*

191.   This is because, so long as an individual still retains the ability to sign a transaction, he or she can transfer bitcoins. *Id.*

capable of being sited unless by invoking a legal fiction.[192] This is why bank accounts are intangibles—because banks are no longer physical warehouses for money, but rather warehouses for counterparty accounting.[193] The function of a bank is to tabulate who owes whom how much.[194] Those relationships are legal and financial and accordingly have no physical situs.[195] The concept of "Polonius owing Laertes $100" does not exist anywhere, which is why referring to a situs of an intangible is a legal fiction.[196] Bitcoins, however, are *actually* capable of being sited because they exist wherever a person is able to control a private key and sign a transaction.[197]

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192.   Although this is not necessarily the case, as the account could be sited wherever the banker makes the change to a single, centralized ledger book. Statutes and courts, however, site bank accounts in locations not on the basis of where the actual change occurs, which, with the advent of computers, can occur simultaneously in multiple locations. These communications making changes to ledger books and interbank credits and debits are not localized. *See* Joseph H. Sommer, *Where Is A Bank Account?,* 57 MD. L. REV. 1, 7 (1998) (arguing that modern financial transactions are communications).

193.   Modern fractional reserve banking originated when goldsmiths who issued receipts for stored gold, began issuing more receipted than stored gold. MURRAY ROTHBARD, A HISTORY OF MONEY AND BANKING IN THE UNITED STATES: THE COLONIAL ERA TO WORLD WAR II 36 (2002); *see also* Gordon Tullock, *Paper Money: A Cycle in Cathay*, 9 ECON. HIST.REV., 393-96 (1957).

194.   Sommer, *supra* note 192, at 6.

195.   *Id.* at 7.

196.   *Cf.* Harris v. Balk, 198 U.S. 215 (1905) (holding that a court can exercise *quasi in rem* jurisdiction over a debt); Blodgett v. Silberman, 277 U.S. 1, 16 (1928) (holding that the doctrine of *mobilia sequunter personam*—"chattels follow the person"—applies for tax liability despite its questionable philosophic underpinning: "[a]t common law the maxim 'mobilia sequunter personam' applied. There has been discussion and criticism of the application and enforcement of that maxim, but it is so fixed in the common law of this country and of England, in so far as it relates to intangible property, including choses in action, without regard to whether they are evidenced in writing or otherwise and whether the papers evidencing the same are found in the state of the domicile or elsewhere, and is so fully sustained by cases in this and other courts, that it must be treated as settled in this jurisdiction whether it approve itself to legal philosophic test or not.").

197.   Nakamoto, *supra* note 4, at 2 ("Each owner transfers the coin to the next by digitally signing a hash of the previous transaction and the public key of the next owner and adding these to the end of the coin.").

An instructive example here is provided by two companies Coinbase, Inc. and Blockchain.info.[198] Coinbase does not currently allow users to control their own private keys,[199] while Blockchain.info does not hold any private keys themselves, but rather provides software and infrastructure to allow customers to possess their own private keys.[200] Much like a traditional bank customer, a Coinbase customer cannot transfer his bitcoins without some approval by Coinbase because the company reserves the right to block any bitcoin transaction.[201] As a practical matter, the company communicates with the bitcoin network on behalf of their customer.[202] This is a typical bailment where the bailee has physical control over the underlying chattel.[203] Blockchain.info, however, does not control a person's private key.[204] There is no bailment here, but rather the company is merely providing software. Blockchain.info is much closer to a wallet manufacturer or a vault manufacturer than to a bank.[205]

One implication of these two different arrangements, which will be addressed below, is that customers have latitude in determining who can

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198.   It is entirely possible that both companies will change their business models by the time of publication.

199.   Although as of publication, the company has developed a service called Vault, which enables a customer to use multisignature technology where he owns a majority of the keys needed to make a transfer, with Coinbase still retaining some safety measure in case keys get lost. This is not the core of Coinbase's business, which is reflected in Section 3.1 of their Terms of Service. *Terms of Service*, COINBASE § 3.1, https://www.coinbase.com/legal/user_agreement (last updated Jan. 26, 2015) [hereinafter *Terms of Service*].

200.   *Terms of Service*, BLOCKCHAIN § 4.1–4.4, *available at* http://blockchain.com/ assets/pdf/Blockchain_TermsOfService.pdf (last updated May, 6, 2014).

201.   *Terms of Service*, *supra* note 199, at § 3.1.

202.   *Id.*

203.   Richard A. Epstein, *The Many Faces of Fault in Contract Law: Or How to Do Economics Right, Without Really Trying*, 107 MICH. L. REV. 1461, 1468 n.31 (2009) ("[F]or a general discussion of the rules of bailment, see W.W. BUCKLAND, A TEXT-BOOK OF ROMAN LAW: FROM AUGUSTUS TO JUSTINIAN (Peter Stein ed., 3d ed. 1963) 459-62 (discussing mutuum), 464-67 (discussing depositum), 467-70 (discussing commodatum), 470-78 (discussing pignus, or pledge), 494- 504 (discussing locatio, or lease), and 512-18 (discussing mandatum)."). For the Talmud's approach to bailments, *see* TALMUD BAVLI, BAVA METZIA, PEREK HAMAFKID.

204.   *Terms of Service*, BLOCKCHAIN, § 4.1–4.4, *available at* http://blockchain.com/ assets/pdf/Blockchain_TermsOfService.pdf.

205.   *Id.*

control their bitcoins and where.[206] For some, handing over their private keys to a company like Coinbase may prove advantageous for security reasons[207], as well as for economic reasons,[208] while for others, holding onto one's own bitcoins is more important. Whatever the case, individual choice will lead to storage of bitcoins in places that satisfy consumer demand; Coinbase's addition of their Vault service, which is more akin to a Blockchain.info service, is an example of how a company will respond to market preferences.[209]

The owner's choice of storage, as will be seen below, will also lead to jurisdiction. If courts continue to treat bitcoin as a tangible with a physical situs, individuals will be able to decide in which places they want their bitcoins to be the subject of jurisdiction.[210] This may seem like forum shopping and inequitable, but it is an endemic feature of federalism—individuals choose where they want to own property and regimes that respect property rights end up with more property.[211]

While certain arrangements that individuals have with institutions may resemble bank accounts, bitcoins themselves are not intangibles.[212] In a bailment, it is still possible to site the chattel.[213]

The second argument against treating bitcoins as tangibles is that bitcoins are incorporeal and capable of existing entirely as information within the mind of an individual person—an example of these kinds of

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206. Vitalik Buterin, *Bitcoin Wallet Reviews—Ease Of Use And Security*, BITCOIN MAGAZINE (Mar. 5, 2012).

207. One wants to have backups for one's private keys.

208. Coinbase has stated that it holds insurance against the loss or theft of bitcoins. *Coinbase is Insured*, COINBASE BLOG (Aug. 27, 2014), http://blog.coinbase.com/post/95927658922/coinbase-is-insured.

209. Kim-Mai Cutler, *Coinbase's Vault Goes Multi-Signature For Added Security*, TECHCRUNCH (Oct 29, 2014), http://techcrunch.com/2014/10/29/coinbases-vault-goes-multi-signature-for-added-security/.

210. *Cf.* Richard A. Epstein, *Consent, Not Power, As the Basis of Jurisdiction*, 2001 U. CHI. LEGAL F. 1, 16 (2001) (arguing that sovereigns will compete to craft legal regimes that satisfy preferences).

211. *Cf.* Max Raskin, *Shop 'Til You Drop: Forums and Federalism in New York's Class Action Procedure*, 2014 N.Y.U. J. LEGIS. PUB. POL'Y QUORUM 121 (2014) (arguing that states should not abdicate their responsibility to craft individual legal regimes that redound to the good of the citizens of the state).

212. *See supra* note 150 and accompanying text.

213. JOSEPH STORY, BAILMENTS § 2 (9th ed. 1878) (defining bailment as "a delivery of a thing in trust for some special object or purpose, and upon a contract express or implied, to conform to the object or purpose of the trust").

bitcoin is the "brain wallet."[214] Using an algorithm, it is possible for an individual to create a private key generated from a password or passphrase that he can keep solely in his head.[215] He can transfer his bitcoins by merely vocalizing to the transferee the password, which would then give the transferee access to the bitcoins.[216] This has lead to situations where bitcoins are physically stolen when a thief compels an individual, under threat of physical violence, to divulge the private key.[217] Similarly, in order for a court to control bitcoins to transfer them, it would be necessary to exercise some kind of power over the owner and the knowledge he has in his head, *i.e.* a court order backed by sanction.[218]

The problem with this argument is that the mere need to exercise power over an individual or corporation does not necessitate *in personam* jurisdiction.[219] A recent opinion by the Supreme Court of Nevada illustrates how the mere invocation of personal obligations does not make an action *in personam*.[220] In that case, the court had to determine the nature of an action to quiet title so that it could resolve a jurisdictional question.[221]

A fanciful example illustrating that mere personal obligations does not imply *in personam* jurisdiction would be a man who swallows Krugerrands; if those Krugerrands would satisfy a judgment, a court could order the individual to digest in the jurisdiction, or, in the case of bitcoins, unencrypt access to the bitcoins, allowing a court to take

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214.   *See, e.g.*, BRIANWALLET GENERATOR, https://brainwallet.github.io/ (last visited Apr. 6, 2015).

215.   BRIANWALLET, https://en.bitcoin.it/wiki/Brainwallet.

216.   Because "[e]ach owner transfers the coin to the next by digitally signing a hash . . ." and that digital signature *is* the passphrase generating the brain wallet. Nakamoto, *supra* note 4, at 2.

217.   Jack Smith IV, *supra* note 154.

218.   *Cf. In re* Boucher, No. 2:06-MJ-91, 2009 WL 424718, at *4 (D. Vt. Feb. 19, 2009) (denying defendant's motion to quash a subpoena compelling him "to provide an unencrypted version" of a drive on his computer by unlocking it with a password).

219.   Cameco Indus., Inc. v. Mayatrac, S.A., 789 F. Supp. 200, 203 (D. Md. 1992) (holding that in the absence of personal jurisdiction, a court can still issue attachment orders against a party).

220.   Chapman v. Deutsche Bank Nat'l Trust Co., 302 P.3d 1103, 1106 (Nev. 2013) ("[E]ven though a judgment quieting title vests title in a particular claimant, and to that extent affects the interests of persons, see RESTATEMENT (SECOND) OF JUDGMENTS § 6 cmt. a (1982), its essential purpose is to establish superiority of title in property.").

221.   *Id.* at 1105.

control of them.[222] If a person refused to reveal the key, he could be held in contempt of court.[223] That a person can be held in contempt does not mean that there is no *res* in question, *i.e.* the Krugerrands or the bitcoins, but rather there are additional due process concerns.[224]

The third argument against treating bitcoins as a thing for the purposes of jurisdiction is that bitcoins only exist in the context of a network of computers that recognize the validity of those bitcoins.[225] In other words, it may appear that when you adjudicate claims over bitcoins, what you are really adjudicating is claims over interpersonal or internetwork relationships.[226] As the Restatement (Second) of Conflict of Laws says "'judicial jurisdiction over a thing,' is a customary elliptical way of referring to jurisdiction over the interests of persons in a thing."[227] Gold may only have value in relation to the global market, but because a person is capable of having interest in that thing, courts are able to render judgment on those interests, irrespective of their value.[228] Bitcoin may only have value as it relates to the network, but this is true in the same way that gold may only have value as it relates to the subjective beliefs in a system of global finance.[229]

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222.   Federal courts have found no inherent Fifth Amendment self-incrimination violations with ordering an individual to unencrypt a hard-drive. *See, e.g.*, United States v. Fricosu, 841 F. Supp. 2d 1232, 1236 (D. Colo. 2012) (recapitulating the "[t]he small universe of decisions dealing with the Fifth Amendment issues implicated by compelling a witness or defendant to provide a password to an encrypted computer or otherwise permit access to its unencrypted contents"); United States v. Kirschner, 823 F. Supp. 2d 665, 669 (E.D. Mich. 2010) (finding a Fifth Amendment violation because defendant's divulging his password was a testimonial communication); *In re Boucher*, 2009 WL 424718, at *4 (finding no Fifth Amendment violation because defendant's decryption of a hard-drive was not incriminating testimonial evidence).

223.   "The court for the district where compliance is required . . . may hold in contempt a person who, having been served, fails without adequate excuse to obey the subpoena or an order related to it." FED. R. CIV. P. 45(g).

224.   *See Cameco*, 789 F. Supp. at 204-05 (separating the constitutionality of Maryland's specific *quasi in rem* procedure with the constitutionality of *quasi in rem* jurisdiction generally).

225.   Nakamoto, *supra* note 4, at 5.

226.   RESTATEMENT (SECOND) OF CONFLICT OF LAWS § 56 (1971).

227.   *Id.*

228.   Chapman v. Deutsche Bank Nat'l Trust Co., 302 P.3d 1103, 1106 (Nev. 2013) (holding that an action to quiet title, *i.e.* settle an interpersonal ownership dispute, was an *in rem* action).

229.   CARL MENGER, PRINCIPLES OF ECONOMICS 137 (1871), *available at* https://mises.org/sites/default/files/Principles%20of%20Economics_5.pdf.

The final complication is that unlike a house or Krugerrands, bitcoins are capable of being sited in multiple locations at once because it is possible to have multiple copies of the same private key.[230] While it is possible to pinpoint a private key to a particular hard-drive, copies of that hard-drive can be dispersed throughout the world, just as copies of a particular song can be.[231]

This does not mean, however, that it is inappropriate to have a presumption of bitcoins as physically sited property. Firstly, there is an incentive for individuals to keep their bitcoins in either a limited number of locations or in locations to which only they have access; the more locations where bitcoins can be found, the more likely it is that they can be taken by another person.[232] Secondly, as will be shown below, a court is capable of immediately siting bitcoins to one location. Even though the bitcoins can exist in multiple places at once, once a court comes into possession of the bitcoin through attachment, it sites them to one location.[233] This is what the FBI did when it came into possession of the seized Silk Road bitcoins—it transferred them into its own wallet, which deprived all other owners of access.[234] It then auctioned those bitcoin off, which shows that subsequent owners can be certain that the owners prior to the FBI no longer have access.[235] By depriving other jurisdictions of seizure, the court would effectively single-site the property, exactly as the FBI did.[236] As will be shown, for the purposes of the judicial system, it does not matter where bitcoins have been in the

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230.   Nakamoto, *supra* note 4, at 2 (an owner of a private key can make copies of that private key in multiple locations).

231.   *Cf.* A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004, 1019 (9th Cir. 2001) (" . . . it is obvious that once a user lists a copy of music he already owns on the Napster system in order to access the music from another location, the song becomes 'available to millions of other individuals,' not just the original CD owner.").

232.   This is why the Bitcoin Foundation recommends encrypting backups and using many "secure" locations. *Secure Your Wallet*, Bitcoin, *available at* https://bitcoin.org/en/secure-your-wallet.

233.   *See* notes 234-238 and accompanying text.

234.   *See* Ember, *supra* note 103 (demonstrating that it is possible to site bitcoin in a single location, inaccessible to former owners. The FBI was able to create its own exclusive wallet with the following public address: 1FfmbHfnpaZjKFvyi1okTjJJusN 455paPH).

235.   *Id.*

236.   *Id.*

past, but rather where they are when they become a part of a case.[237] It is at this point, when the bitcoins are transferred into the court's possession, that they only have one situs.[238]

3. Multisignature Technology

The final, most difficult problem to deal with is the existence of multi-signature technology for transferring bitcoins. This technology essentially allows an individual to split a private key into constitutive parts and require that a certain number of those sub-keys be needed to verify a transaction.[239] This new requirement is known as an m-of-n transaction.[240] For example, key ABC, can be split into sub-key A, B, and C; in order to transfer the bitcoins associated with key ABC, a user can program it such that two-of-three sub-keys are needed to send bitcoin, such as B and C.[241] The implications of this technology are vast for escrow services, self-enforcing smart contracts, banking,[242] and secured transactions.[243] Multi-signature technology also poses the biggest challenge to the theory of private keys as objects capable of being sited to discrete, physical locations. The closest analogue in the macro world would be to a safety deposit box that needs two out of three keys to open. Unlike this safety deposit box, wherever two-of-three sub-keys are put together, that is where the bitcoins are physically sited.

At first look, this method does not change the above calculus of determining the situs of the bitcoin: it makes the job of a plaintiff more difficult in finding a way to assemble the private keys, but it does not change the fact that only *a* combined private key is able to spend the

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237.   The deprivation of jurisdiction from other courts is an important concern that will be address below, but what is important to note is that such deprivation makes the case for bitcoin as a tangible—because there *is* a single site from which access from other sites can be denied means that this is not like an intangible relationship. *See infra* notes 239-52 and accompanying text.

238.   *Cf.* Ember, *supra* note 103 (the FBI transferred bitcoins into its own wallet).

239.   Sandy Ressler, *I Sign, You Sign, We All Sign: Explanation of Multi-signature Transactions*, BITCOIN MAGAZINE (Apr. 2, 2014).

240.   *Id.*

241.   *Id.*

242.   Coinbase has adopted this technology. *See supra* note 209.

243.   Nick Szabo, *The Idea of Smart Contracts*, NICK SZABO'S PAPERS AND CONCISE TUTORIALS, http://szabo.best.vwh.net/smart_contracts_idea.html (last visited Apr. 6, 2015).

bitcoins.[244] Instead of having to track down one private key, the plaintiff or the court may now have to track down *m* private sub-keys.[245] This has an analogue in bankruptcy law where the assets of an estate are anywhere in the world, making the job of creditors a worldwide endeavor.[246] The main difference is that in bankruptcy, any marginal contribution to the estate is to be welcomed, whereas in assembling the requisite sub-keys, *m*-1 is worthless.[247]

A solution to this problem will be discussed below, but for the purposes of determining the tangibility *vel non* of bitcoins subject to multi-signature demands, it is clear that while the job of the assembler may be more difficult, because only one final, fully constituted private key is what is used to spend the bitcoins, the location of that final, assembled private key is the situs of the multisignature bitcoin.[248]

C. THE *RES* LOCATES ITSELF

Now that we have determined that bitcoin should be treated as a *res* for the purposes of jurisdiction, the central question a court must answer is: where is the thing?

As was shown above, the central feature that defines ownership of bitcoin is ownership of the private key.[249] If a person controls the private key, he controls the bitcoin and is able to transfer those bitcoins and assert dominion over them.[250] A person controls a private key whenever he is able to connect that private key to the bitcoin network and use the key to spend or transfer the bitcoins.[251] When determining where a bitcoin exists for judicial purposes, we will begin with this starting point. A court in which a plaintiff can attach bitcoins to litigation by

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244.   The two combined keys then functionally become one key if they are both possessed by the same party because they are unusable until combined. Buterin, *supra* note 60 ("With multisignature addresses, you can have a Bitcoin address with three associated private keys, such that *you* need any two of them to spend the funds.") (emphasis added).

245.   *Id.*

246.   11 U.S.C. § 541(a) (2012).

247.   Ressler, *supra* note 239 (explaining how bitcoins cannot be transferred without the requisite number of constituent signatures).

248.   *See infra* note 274.

249.   Nakamoto, *supra* note 4, at 2.

250*.   See id.*

251.   *Id.*

having the court transfer those bitcoins into its wallet owns the bitcoins is the court that can site and establish exclusive control.[252]

To determine where a bitcoin is, it is instructive to determine where more-easily sited property is by asking: how does a court know for certain that a particular house is within its judicial power? The court may look at a map and its recordation system to evaluate whether the address of the house falls within the borders of the jurisdiction.[253] There is good reason to believe that the map and recordation system itself will be sufficient to determine the situs of the house.[254] Suppose, however, there was a typographical error and when the sheriff came to seize the property, he found it was out of the jurisdiction—he would not be able to seize the property.[255] The sheriff's ability to physically seize the property is both a necessary and sufficient condition for determining a physical situs.[256] Thus, the *sine qua non* of determining the situs of a thing for judicial purposes is the court's actual exercise power over that thing.[257] For bitcoins, a sheriff's physical seizure of them through transfer into the court's wallet sites them to the location where the court's wallet exists.[258] Bitcoins are therefore sited wherever a court can exercise power over a private key by transferring the bitcoins into the court's wallet.[259]

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252.   *Id.*

253.   Richard A. Epstein, *Notice and Freedom of Contract in the Law of Servitudes*, 55 S. CAL. L. REV. 1353, 1354 (1982) (defending the power of recordation statutes and their ability facilitate transactions and markets, *i.e.* to allow parties to know where real property is located).

254.   *Id.*

255.   *Cf.* Murdock v. Chatham Cnty., 679 S.E.2d 850, 856 (N.C. 2009) (holding that a planning director cannot unilaterally amend a zoning map to correct an error, demonstrating that parties must respect preexisting maps).

256.   *Id.*

257.   A court can practically only exercise power over things within its jurisdiction, *i.e.* power. Shaffer v. Heitner, 433 U.S. 186, 199-200 (1977) (" . . . since the State in which property was located was considered to have exclusive sovereignty over that property, *in rem* actions could proceed regardless of the owner's location.").

258.   *See supra* note 234.

259.   *Cf.* Ember, *supra* note 103 (demonstrating that the FBI was able to alienate bitcoins transferred into the FBI's wallet with certainty that no previous owner is able to exercise control).

1. A Court's Power Jurisdiction

A court's exercise of control over bitcoins makes it different from the exercise of control over intangibles such as shares of stocks or debt.[260] In *Shaffer*, a statute declared all stock in Delaware corporations was sited in Delaware, which allowed the court to seize the stock.[261] This is a legal fiction because, in reality, shares of a corporation cannot exist anywhere; rather, they represent a legal relationship between persons.[262]

In contrast, there is no statute needed to say that bitcoins are in a particular place because bitcoins are electronic cash and "chain[s] of digital signatures" that exist prior to statutory recognition.[263] Siting bitcoin, therefore, becomes a much easier task than siting intangibles because when a court comes into possession of the bitcoin, they can ensure there is a single situs by transferring the bitcoins into the court's wallet.[264] If there is a private key sitting in a safety deposit box in a court's jurisdiction, the court can simply send a sheriff into the bank with an order to seize the private key, just as the FBI did by seizing the Silk Road bitcoins.[265] The sheriff would then transfer those bitcoins into a wallet owned by the court.[266] This transfer would immediately prevent any other court from seizing the bitcoins, making it as if the bitcoins only existed in that one location.[267] Because bitcoins are capable of being transferred into a court's possession and that possession would be exclusive, bitcoins are much like houses.[268]

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260. *See supra* note 150.

261. *Shaffer*, 433 U.S. at 192 ("The stock was considered to be in Delaware, and so subject to seizure, by virtue of DEL. CODE ANN., Tit. 8, §169 (1975), which makes Delaware the situs of ownership of all stock in Delaware corporations.").

262. As the court in *Shaffer* noted, none of the stock certificates were actually located in Delaware. Instead the seizure seizures were accomplished by placing "stop transfer" orders or their equivalents on the books of the Greyhound Corp. *Id.* at 192.

263. Nakamoto, *supra* note 2, at 2.

264. *See supra* note 150.

265. Just as the FBI did in United States v. Ulbricht, 31 F. Supp. 3d 540 (S.D.N.Y. 2014).

266. Again, as the FBI transferred bitcoins into a wallet that it controlled. Had the court ruled the seizure illegal, the FBI would have had to transfer the bitcoins to a different address. *Id.*

267. Nakamoto, *supra* note 4, at 2.

268. *See supra* note 150.

2. A Court's Constraints: Due Process and Comity

On the other hand, a bitcoin is not like a house for the simple reason that a house cannot "exist" in multiple locations simultaneously; this fact raises comity concerns.[269] The following paragraphs describe a spectrum of difficulty in dealing with such conflicts of courts.

On one end of the spectrum is the private key printed out on a sheet of paper and stored in a bank vault in a given state where that private key is the only one in existence.[270] This makes the bitcoin virtually identical to a house in that no other jurisdictions are implicated and it is possible to both site the bitcoin and eliminate other potential sites in a meaningful way.[271] Once a plaintiff attaches the bitcoins and the court seizes the private key and transfers the bitcoins into its own wallet the court can be certain that no other court is capable of exercising power over the bitcoins.[272] The analogue would be that no other court would be able to send alien sheriffs in to seize a house that had been seized by the forum court's own sheriffs, nor would any other court be able to claim that the bitcoins were ever in their territory if they were solely in the forum's bank vault.[273]

On the other end of the spectrum of difficulty is a bitcoin private key that is both controlled by multiple parties and exists on servers or computers in multiple transnational jurisdictions—an example of such difficultly would be a third-party wallet service, like Coinbase, which has servers in multiple states and countries and enables multisignature technology.[274]

269.	*Comity*, BLACK'S LAW DICTIONARY (10th ed. 2014).

270.	This is commonly known as "cold storage." *How to Store Your Bitcoins*, COINDESK (Dec. 22, 2014), *available at* http://www.coindesk.com/information/how-to-store-your-bitcoins/.

271.	*See supra* note 234.

272.	*Id.*

273.	*Cf.* Arizona v. W. Union Fin. Servs., Inc., 208 P.3d 218, 223-24 (Ariz. 2009) (holding that the state of Arizona could not exercise *in rem* jurisdiction over a bank wire that was originated in an alien state and was thus not present in the state).

274.	The solution to the problem of multisignature technology should be that the first court that seizes one of the private keys should be the presumptive jurisdiction where the bitcoins are sited. That court would then go about seizing the other necessary sub-keys to complete the transaction. This is no different from courts seizing assets in other jurisdictions, although in the case of bitcoin, it is an all-or-nothing proposition. Alternatively, if it is clear that this court is incapable of putting together the necessary two out of three keys, the court that does should get jurisdiction.

The above spectrum poses two distinct problems, which are the two central problems to simply allowing courts to exercise jurisdiction over bitcoin wherever they can, much like the original territorial basis for jurisdiction articulated in *Pennoyer*.[275] The first set of these problems are those that arise with respect to the due process rights of individual parties[276] and the second are concerns that arise out of conflicts with other courts.[277] The first problem is both an easier and more difficult problem to solve than the second because a rich jurisprudence has developed with respect to the due process limitations of *quasi in rem* jurisdiction; it is easier because courts routinely ask whether jurisdiction is appropriate, on the other hand, the fact that courts routinely ask these questions shows that these are difficult problems.[278] The second problem is made easier in the domestic setting because of the Constitution's Full Faith and Credit Clause.[279]

III. DUE PROCESS OBSERVATIONS

Since *Shaffer*, the Supreme Court's constitutional demands on the exercise of *in personam* jurisdiction were applied to *quasi in rem* jurisdiction.[280] This jurisprudence has been revisited since initially stated in its modern form in *International Shoe*.[281]

Multisignature technology is similar to an indenture, which was a deed written out twice on a single sheet of sheepskin and signed at the end by both parties. The sheepskin was cut in half with sawtooth, indented edges. The two would be fitted together to show their authenticity. This draws a nice analogue to multisignature technology, which cannot be deemed authentic until two (or more) of the pieces are put together. JESSE DURKENMINIER, PROPERTY 618-19 (8th Ed. 2014). The key difference is that a court can seize physical property even without the two pieces of the indenture, while a court cannot seize the bitcoins. The existence of the two pieces of parchment, however, means that courts would actually try to examine to see whether the deed is authentic.

275.   Pennoyer v. Neff, 95 U.S. 714, 733-36 (1877) (holding that a court's power over a party alone is sufficient to satisfy constitutional demands).

276.   *See infra* note 280.

277.   *See infra* note 317.

278.   *See infra* note 289.

279.   U.S. CONST. art. IV, § 1. International problems here are beyond the scope of this paper.

280.   Karen Nelson Moore, *Procedural Due Process in Quasi in Rem Actions After Shaffer v. Heitner*, 20 WM. & MARY L. REV. 157, 157 (1978).

281.   *Compare* Int'l Shoe Co. v. Washington, 326 U.S. 310, 316 (1945), *with* J. McIntyre Mach., Ltd. v. Nicastro, 131 S. Ct. 2780, 2783 (2011).

As an initial matter, a court's exercise of jurisdiction must comply with two demands: the statute that grants the court power and the Constitution.[282] In state courts, the extent of jurisdiction over nonresidents is delineated in a state's long-arm statute.[283] In federal courts, jurisdiction is determined by Rule 4 of the Federal Rules of Civil Procedure, which grants jurisdiction wherever a defendant "is subject to the jurisdiction of a court of general jurisdiction in the state where the district court is located."[284]

Constitutional constraints on jurisdiction are based on the Fourteenth Amendment's Due Process Clause.[285] These constraints have been articulated by the Supreme Court and set a ceiling of jurisdiction above which no state can exceed.[286] Some states, like California, have long arm statutes that go right to this ceiling set by the Constitution as interpreted by the Supreme Court.[287] Other states, like New York, do not go to the ceiling and self-limit the power that they are constitutionally permitted to exert over parties.[288]

A. *QUASI IN REM* JURISDICTION

The existence of bitcoin in a jurisdiction poses two initial questions. The first is whether the court has power over the bitcoins and the second is whether the court has power over the person who owns those bitcoins.[289]

With respect to the first question, courts that can seize bitcoins will have to do so in compliance with the constitutional demands of *Shaffer*; this is a *quasi in rem* or *in rem* demand.[290] The reason for this is that if

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282. *See, e.g.*, Helicopteros Nacionales de Colombia, S.A. v. Hall, 466 U.S. 408, 413 (1984) (noting the Texas long-arm statute reaches "as far as" the Due Process Clause allows).

283. *See, e.g.*, *id.*

284. FED. R. CIV. P. 4(k)(1)(a).

285. *Hall*, 466 U.S. at 413-14.

286. *Id.*

287. CAL. CIV. PROC. CODE § 410.10 (West 2004) ("A court of this state may exercise jurisdiction on any basis not inconsistent with the Constitution of this state or of the United States.").

288. N.Y. C.P.L.R. 302 (McKinney 2009).

289. *Cf.* Shaffer v. Heitner, 433 U.S. 186, 216-17 (1977) (holding that the court had neither the power over the individual defendant nor their property that was located by statute in the state).

290. *Id.* at 216.

bitcoins are treated as property, their mere presence is not enough to satisfy the Constitution's due process concerns; minimum contacts must be met.[291] With respect to the second question, the *in personam* exercise, courts will apply their minimum contacts analyses to determine whether storing bitcoins in a jurisdiction is sufficient to give the court jurisdiction over the owner.

In answering this question, it may be tempting to assert broad personal jurisdiction over the owner by analogizing to a line of cases involving specific jurisdiction over Internet companies.[292] This line of cases seeks to determine when an alien website has sufficient contacts with the forum state to render the exercise of specific personal jurisdiction constitutional.[293] The analogy to bitcoin would be that the existence of bitcoin in a state will allow the court to obtain jurisdiction over the owner of the bitcoin through personal jurisdiction.[294]

In *Zippo Manufacturing. Co. v. Zippo Dot Com*, a Pennsylvania district court set out a "sliding scale" where "the likelihood that personal jurisdiction can be constitutionally exercised is directly proportionate to the nature and quality of commercial activity that an entity conducts over the Internet."[295] The court contrasted mere informational websites that are passive[296] with websites where actual business takes place.[297] Numerous federal circuit courts have adopted the "sliding scale" test of *Zippo*.[298] What is important to note is that the inquiry here is into the interaction between the forum state and the alien website, but not the physical situs of the servers or connecting links.[299]

291.	*Id.*

292.	*See, e.g.*, Zippo Mfg. Co. v. Zippo Dot Com, Inc., 952 F. Supp. 1119, 1124 (W.D. Pa. 1997).

293.	*See, e.g.*, *id.*

294.	*Cf.* Cameco Indus., Inc. v. Mayatrac, S.A., 789 F. Supp. 200, 203 (D. Md. 1992) (exercising jurisdiction over the bank account and not the owner).

295.	*Zippo Mfg. Co.*, 952 F. Supp. at 1124.

296.	In a sense, no website is passive because requests for information require active interaction between computers.

297.	*Zippo Mfg. Co.*, 952 F. Supp. at 1124.

298.	*See e.g.*, Toys "R" Us, Inc. v. Step Two, S.A., 318 F.3d 446, 453-54 (3rd Cir. 2003); Soma Med. Int'l v. Standard Chartered Bank, 196 F.3d 1292, 1297 (10th Cir. 1999); Cybersell, Inc. v. Cybersell, Inc., 130 F.3d 414, 418-19 (9th Cir. 1997).

299.	The courts in *Toys "R" Us*, *Cybersell*, and *Soma* did not find the location of packets of data or the location of tubes to be relevant in their holdings. *Cybersell*, 130 F.3d at 418-19; *Soma*, 196 F.3d at 1297.

Note the diversity between these cases and bitcoin.[300] With bitcoin, the situs is actually in the jurisdiction,[301] but when accessing a website or sending information to the website, the situs is wherever the website's servers are and the access of data comes through the intercontinental, global cable system that forms the backbone of the Internet.[302] Thus, in the case of bitcoin, there is no need to invoke the fiction of presence.[303] With bitcoin, there is physical presence of the *res* in the forum, but no presence of the owner.[304] This makes the kind of fact-specific inquiry of minimum contacts more suited for the Internet question and the bright-line property rule more appropriate for bitcoin.[305]

Returning to the first question of whether a court has power over bitcoins in its jurisdiction, in *Shaffer*, the Supreme Court effectively limited the exercise of prejudgment *quasi in rem* jurisdiction.[306] For the purposes of bitcoin, this means that unless the bitcoins in question are related to the underlying suit, they cannot be attached to the litigation until after a judgment has been rendered.[307] Just as in *Shaffer* where the mere existence of stock shares in a state did not give a Delaware Court jurisdiction over those shares, the mere existence of bitcoins in a state does not give a court jurisdiction over those bitcoins if they are unrelated to the suit.[308]

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300.   *Compare Zippo Mfg. Co.*, 952 F. Supp. at 1127 (finding personal jurisdiction based on website's intercontinental contacts with the forum state based on nature of an Internet connection), *with* Arizona v. W. Union Fin. Servs., 208 P.3d 218, 223 (Ariz. 2009) (denying *in rem* jurisdiction because the bank wire was not initiated in the forum state and therefore not present in it).

301.   *See supra* note at 234.

302.   Thomas R. Lee, *In Rem Jurisdiction in Cyberspace*, 75 Wash. L. Rev. 97, 101-02 (2000) (detailing the history and technical characteristics of domain names).

303.   28 U.S.C. § 1655 (2012) (explaining that federal district courts can enforce claims to "real or personal property within the district"); Lee, *supra* note 302, at 126 (finding no "analytical difficulty where the *res* is real estate or tangible personal property").

304.   *See supra* note 234.

305.   *Id.*

306.   4A Charles Alan Wright et al., Federal Practice and Procedure § 1070 (3d ed. 2014).

307.   Shaffer v. Heitner, 433 U.S. 186, 210 n.36 (1977) ("Once it has been determined by a court of competent jurisdiction that the defendant is a debtor of the plaintiff, there would seem to be no unfairness in allowing an action to realize on that debt in a State where the defendant has property, whether or not that State would have jurisdiction to determine the existence of the debt as an original matter.").

308.   *Id.*

Finally, it is worth briefly noting that bitcoin users are conscious of where they hold their bitcoins, which opens up the possibility of explicit contracting about jurisdiction.[309] The Supreme Court has ruled numerous times that forum-selection clauses and explicit designation of agents to receive process are constitutional and valid terms of a contract.[310] Contractual arrangements between bitcoin companies and their customers, like most contracts, are governed by explicit forum-selection clauses.[311] What these explicit clauses do is incentivize sovereigns to craft legal regimes under which parties choose to litigate.[312] As Professor Richard Epstein puts it, " . . . there is a competition between sovereigns to see which one offers services that most fit the needs of the parties."[313]

B. FULL FAITH AND CREDIT

The Full Faith and Credit Clause provides "[f]ull faith and credit shall be given in each state to the public acts, records, and judicial proceedings of every other state."[314] At the outset it is worth mentioning, however, that the problem of competing jurisdictional claims only arise in the prejudgment context.[315] Once a judgment has been rendered in one state, seizing bitcoins to satisfy that judgment is not subject to the same due process or comity concerns by virtue of the fact that the Constitution demands states recognize the judicial proceedings of other states.[316] In *Durfee v. Duke*, the Supreme Court articulated the principle that "a judgment is entitled to full faith and credit—even as to questions of jurisdiction—when the second court's inquiry discloses that those questions have been fully and fairly litigated and finally decided in the

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309.   *How to Store Your Bitcoins*, COINDESK (Dec. 22, 2014), *available at* http://www.coindesk.com/information/how-to-store-your-bitcoins/.

310.   *See, e.g.*, Carnival Cruise Lines, Inc. v. Shute, 499 U.S. 585, 589 (1991); *M*/S Bremen v. Zapata Off-Shore Co., 407 U.S. 1, 16 (1972); Nat'l Equip. Rental, Ltd. v. Szukhent, 375 U.S. 311, 316 (1964).

311.   *See, e.g.*, *Terms of Service*, *supra* note 199, at § 9.12 ("This Agreement will be governed by the law of the State of California except to the extent governed by federal law.").

312.   Epstein, *supra* note 210, at 16.

313.   *Id.*

314.   U.S. CONST. art. IV, § 1.

315.   Shaffer v. Heitner, 433 U.S. 186, 210 n.36 (1977).

316.   U.S. CONST. art. IV, § 1.

court which rendered the original judgment."[317] While this does not
escape the problem of prejudgment seizures, that problem is an endemic
feature of a multijurisdictional world, and the problems here are not
unique to bitcoin; because bitcoins are treated as tangibles, there is an
"intuitive basis" to exclude other jurisdictions.[318]

CONCLUSION

It may seem strange to site bitcoins as property. Given that
cryptocurrencies rely on computers for their issuance, it may be
tempting to write them off as inscrutable digitals that are in need of
similarly complex rules written by technology experts. Yet the deeper
one digs into the inscrutable, the more one finds simple building blocks
capable of traditional judicial analysis. Although their genesis relies on
computers, bitcoins are alienable and capable of being both isolated and
instantiated. This makes them functionally no different from
automobiles or Krugerrands. For these reasons, courts should treat
bitcoins just as they treat other forms of tangible property. Innovative
technology does not have to mean innovative jurisprudence.

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317.   Durfee v. Duke, 375 U.S. 106, 111 (1963).
318.   *See* Simowitz, *supra* note 141, at 39-40 (laying out the problems that arise from
exercising jurisdiction over intangibles in a multijurisdictional world).