

TRACING BASIS THROUGH VIRTUAL SPACES

Adam Chodorow[†]

Whether and to what extent virtual income should be subject to tax has received recent interest from both tax scholars and governments. Options range from a pure cash-out rule, where virtual income is taxed only if it is exchanged for real-world currency or property, to a rule of full taxation, where in-world transactions are taxed to the same extent as similar real-world transactions. To date, the IRS has remained silent on this issue, creating a de facto cash-out rule. The National Taxpayer Advocate has recently called on the IRS to provide guidance regarding the taxation of virtual income, lest taxpayers become inadvertent tax cheats and noncompliance in this area affect compliance more generally.

This Article addresses a question that must be resolved regardless of the approach ultimately chosen, namely, how to account for the tax basis in virtual items. Current law generally takes one of two approaches to basis recovery: The first considers each item of property separately, affording each piece of property its own basis. The second treats property on an aggregate basis and allows for the pooling and averaging of basis. After reviewing the existing approaches, I conclude that the nature of virtual worlds warrants a hybrid approach, where the basis in individual virtual goods is separately tracked, but the basis in fungible currency is pooled and averaged.

INTRODUCTION	284
I. A BRIEF DESCRIPTION OF VIRTUAL WORLDS	287
II. THE TAX ISSUES RAISED BY VIRTUAL WORLDS	290
A. In-World Transactions	290
B. The Basis Problem.....	292
1. <i>A Brief Introduction to Basis and Basis Recovery</i>	292
2. <i>Creating Basis in Virtual Worlds</i>	294
3. <i>Basis Recovery in Virtual Worlds</i>	297
III. EXISTING MODELS FOR BASIS RECOVERY	300
A. Taxable Exchanges	301
1. <i>Taxable Exchanges of Nonfungible Assets</i>	301
2. <i>Taxable Exchanges of Fungible Assets</i>	304
B. Tax-Free Exchanges	311
IV. TRACING BASIS THROUGH VIRTUAL SPACES	313
A. The Tracing Approach	314
B. The Pooling Approach	321

[†] Professor of Law at the Sandra Day O'Connor College of Law at Arizona State University, Tempe, Arizona. I would like to thank Bryan Camp, Marjorie Kornhauser, Leandra Lederman, and John McKnight for comments on earlier drafts.

C. A Hybrid Approach.....	325
CONCLUSION	327

INTRODUCTION

With the rise of virtual worlds, debate has erupted regarding whether or how best to tax wealth generated in such worlds. A consensus exists for the proposition that those who “cash out,” i.e., convert virtual wealth to real-world wealth, should be taxed on their gains.¹ The question of whether, and to what extent, activity that occurs entirely within virtual worlds should be taxed is more difficult. Some argue that all in-world activity should be exempt from tax,² while others have argued for taxation under certain circumstances, using a variety of theories to justify their positions.³

Congress’s Joint Economic Committee has taken up the question, but it has yet to issue a report. However, Representative James Saxton, the Chairman and ranking Republican member of the Committee, has stated that it would be a “mistake” for the IRS to tax income

¹ See, e.g., Bryan T. Camp, *The Play’s the Thing: A Theory of Taxing Virtual Worlds*, 59 HASTINGS L.J. 1, 2, 45 (2007); Leandra Lederman, “*Stranger than Fiction*”: *Taxing Virtual Worlds*, 82 N.Y.U. L. REV. 1620, 1625 (2007).

² See Camp, *supra* note 1, at 2. Camp argues that virtual income should be seen as a form of imputed income and should therefore be exempt from tax under current doctrine and theory until cashed out. *Id.* However, he concedes that at some point the walls between virtual spaces and the real world may deteriorate to the point where nontaxation is no longer appropriate. See *id.* at 70.

³ See, e.g., Adam S. Chodorow, *Ability to Pay and the Taxation of Virtual Income*, 75 TENN. L. REV. 695, 743–52 (2008). I argue that the taxability of virtual income should depend on whether participants are able to cash out their virtual wealth. In worlds that preclude cashing out, no tax should be due until participants do in fact cash out (most likely in violation of the world’s rules). In worlds that permit participants to cash out, tax logic suggests that taxes should be owed on all income. However, I argue for an annual de minimis threshold of \$600, under which no tax should be due. See *id.*; see also Steven Chung, *Real Taxation of Virtual Commerce*, 28 VA. TAX REV. 733, 763 (2009) (arguing that income in commodified worlds such as *Second Life* should be taxed and that one should use the foreign currency rules found in Subpart J of the international tax provisions of the Code to determine gains and losses); Leandra Lederman, *EBay’s Second Life: When Should Virtual Earnings Bear Real Taxes?*, 118 YALE L.J. POCKET PART 136, 140 (2009) (arguing that the government should treat virtual currency in *Second Life* as a cash equivalent and tax sales and purchases for such currency accordingly); Theodore P. Seto, *When Is a Game Only a Game?: The Taxation of Virtual Worlds*, 77 U. CIN. L. REV. 1027 (2009) (arguing that taxation should depend upon whether virtual goods are either convertible or redeemable); William D. Terando et al., *Taxation Policy in Virtual Worlds: Issues Raised by Second Life and Other Unstructured Games*, 6 J. LEGAL TAX RES. 94, 107 (2008) (arguing that exchanges in “commodified” worlds create income, but that participants should be allowed to defer tax until they cash out).

In contrast, Lederman argues for a bifurcated approach based on the type of world involved and the type of transaction. She would exempt from tax all virtual income earned in “game worlds” and tax only sales—but not barter transactions—in worlds such as *Second Life*. Lederman, *supra* note 1.

earned solely within the confines of virtual space.⁴ To date, the IRS has remained silent regarding this issue, creating a de facto cash-out rule.⁵ Nina Olson, the National Taxpayer Advocate, recently noted this lack of guidance and suggested that “[e]conomic activities associated with virtual worlds may present an emerging area of [tax] non-compliance.”⁶ Concerned that noncompliance in this context could lead to noncompliance elsewhere, and concerned with the lack of guidance afforded IRS agents and taxpayers alike, she has urged the IRS to “help taxpayers comply with their tax obligations by quickly issuing guidance addressing how to report economic activities in virtual worlds.”⁷

This Article examines one of the issues the taxing authorities must address, and soon. Regardless of what decision is ultimately made regarding in-world transactions, tax authorities must deal with the question of basis and how to trace it through virtual spaces. Without such a system, someone who sells a virtual item for cash, an act that is undisputedly subject to tax, will not be able to determine gain or loss and therefore will be unable to comply with his tax obligations. If in-world transactions are taxable, the need to determine basis becomes even more important as a substantially larger number of transactions involving virtual items will have real-world tax consequences.

It may be tempting to think that this issue is just a tempest in a teapot and not something on which the Internal Revenue Service (IRS) should spend its limited resources. However, the real-world market for virtual goods is large and growing as existing worlds expand and new virtual worlds come online. By one recent estimate, the gross domestic product of all virtual worlds is somewhere between \$7 and \$12 billion, with annual real-world sales of virtual goods (e.g., taxable sales of virtual goods for real-world currency) estimated to be

⁴ Robert Janelle, *Taxing Virtual Income*, SUITE101.COM, Oct. 24, 2006, http://video.games.suite101.com/article.cfm/taxing_virtual_income.

⁵ See 1 NINA OLSON, NATIONAL TAXPAYER ADVOCATE: 2008 ANNUAL REPORT TO CONGRESS 214 (2008), available at http://www.irs.gov/pub/irs-utl/08_tas_arc_intro_toc_msp.pdf (discussing the lack of guidance by the IRS in this area). In contrast, several countries, including Australia and Sweden, have begun to take steps to tax virtual income. See Posting of Wagner James Au to GigaOM, <http://gigaom.com/2006/11/02/the-virtual-world-taxman-arriveth-in-oz/> (Nov. 2, 2006) (describing the Australian tax authority’s statement that virtual income will be subject to tax under the same principles as other kinds of income); Posting of Dan Miller to Economies of Virtual Worlds, <http://economicsofvirtualworlds.blogspot.com/2008/04/sweden-to-tax-virtual-income.html> (Apr. 21, 2008) (indicating that if virtual currency can be converted to real-world currency, in-world transactions by Swedish citizens may be subject to both the value added tax, if sales exceed approximately \$5000, and the income tax); see also Flora Graham, *Slapping a Tax on Playtime*, BBC NEWS, Nov. 25, 2008, <http://news.bbc.co.uk/2/hi/technology/7746094.stm> (discussing new efforts by China, South Korea, and Sweden to impose tax consequences on virtual transactions).

⁶ OLSON, *supra* note 5, at 215.

⁷ *Id.* at 224.

around \$1.8 billion.⁸ If the past is any guide, it seems likely that more and more real-world activity will take place in these fora, further weakening the boundaries between virtual- and real-world activities and strengthening the case for in-world taxation. As virtual worlds increase in popularity and the boundaries between them and the real world weaken, the need to develop basis rules for virtual worlds will only increase.

Addressing basis in this new context also affords us the opportunity to think broadly about basis, the role it plays in our tax system, and the myriad and often inconsistent ways we account for it in our tax laws. Any basis-recovery system must do two things: First, it must track previously taxed dollars such that any tax gain or loss matches economic gain or loss. Second, it must take into account administrative difficulties, such as determining basis *ab initio*, keeping track of fungible assets with different bases, and accounting for the possibility of numerous tax-free exchanges before tax must be determined. These administrative concerns are heightened in the virtual-world context because of the low values involved and the large number of people who are simply playing for their own entertainment.⁹

The Internal Revenue Code (Code or I.R.C.) and Department of Treasury regulations contain a number of different basis-recovery rules that could be models for the recovery of basis in virtual goods. Generally, these rules follow one of two approaches. The first grants each item its own basis, and gain or loss is determined property by property. In the event of tax-free exchanges, basis is simply transferred from one asset to the next to preserve gain or loss. The key issue under this approach is whether taxpayers may designate which assets are sold or exchanged for other assets or whether some forced-ordering rule applies. Examples of this regime include the rules governing stock sales, tax-free reorganizations, and inventory accounting. The second approach pools basis and allocates it across a class of assets. Examples include partnership interests, mutual fund shares, and the allocation of basis to stock in corporation formations under I.R.C. § 351.

⁸ Julian Dibbell, *The Life of the Chinese Gold Farmer*, N.Y. TIMES MAG., June 17, 2007, available at http://www.nytimes.com/2007/06/17/magazine/17lootfarmers-t.html?_r=1&ex=1184817600&en=53bc942a077f47d6&ei=5070&oref=slogin.

⁹ Under the current default rule, tax liability arises only when someone cashes out. It is not clear how many people playing for entertainment are occasional sellers or whether they would continue to play if in-world transactions were subject to tax. However, the scope, nature, and extent of virtual worlds is constantly changing, and part of this project is to encourage the IRS to create broadly applicable rules now—when it can act deliberately—rather than in the shadow of some controversy or political maelstrom that might affect its reasoning.

A review of these different models and the circumstances in which they apply reveals the incoherent and instrumental nature of the basis rules. That is, these rules are not foreordained by some internal tax logic, but rather they are merely a tool that can be designed in any number of ways to avoid double taxation. Moreover, as seen in the different treatment of stock and mutual fund shares, they are not applied consistently. This inconsistency opens the door to any number of possibilities when designing basis rules for virtual worlds.

Given the nature of virtual worlds and characteristics of those who participate in them, I propose that the IRS adopt a hybrid rule for basis accounting. To reflect the nonfungible nature of virtual goods, their basis should be separately tracked and treated. If in-world exchanges are tax free, basis should transfer from one item to the next to preserve gain or loss.¹⁰ If in-world exchanges are taxed, the basis in any item received should be its fair market value. In contrast, a taxpayer's basis in virtual currency should be pooled and averaged, reflecting the fungible nature of such goods and the administrative difficulties associated with tracing basis from a commingled pool of currency to any item acquired with such currency.

The remainder of this Article proceeds as follows: Part I provides a brief description of virtual reality. Part II provides a brief discussion of the debate regarding the taxability of in-world transactions. It then provides an introduction to basis. Finally, it describes the basis problem that virtual worlds present by exploring how basis in virtual goods is created and then demonstrating the need for a basis accounting rule, regardless of the tax rule adopted for in-world transactions.

Part III describes the possible models for basis recovery currently used in a number of different contexts, including sales of stock, mutual fund shares, partnership interests, and inventories, as well as the tax treatment of basis in tax-free exchanges. Part IV considers how the basis-recovery models found in the existing tax laws might work in the virtual context and explores how the nature of virtual reality might affect the choice of a rule. In the end, it describes a hybrid approach that seeks to incorporate the best elements of the tracing and pooling approaches.

I

A BRIEF DESCRIPTION OF VIRTUAL WORLDS

In this Part, I briefly describe virtual worlds. A basic understanding of such worlds is necessary to understand the tax issues they en-

¹⁰ In some cases, virtual goods may be fungible. Multiple copies of the same item often exist in virtual worlds, and they may even be owned by one person. However, virtual goods are not fungible in the same way as virtual currency in that virtual swords are not fungible with virtual shields.

gender. Each world is different, and, therefore, this description is necessarily general.¹¹

Virtual worlds are online spaces that permit people to interact with one another through characters they create, often called avatars. Unlike video games, virtual worlds do not pause or end when a user exits.¹² Instead, virtual life continues, and a returning player may well discover that things have changed significantly since she last visited the world. Most worlds have a virtual economy, where players can make, find, win, buy, sell, rent, and exchange virtual goods.¹³

Virtual worlds exist on a continuum but can generally be broken into two categories. At one end of the continuum are game worlds,¹⁴ which are highly scripted environments where the game's creator provides a rich environment with scenery, preset roles, plotlines, rules for interaction, etc.¹⁵ Players complete quests and search for treasure, often joining together with other players to do so. As players acquire more virtual currency, property, and experience within a game world, they are able to do more within the context of the game, often rising to a new "level" and undertaking more difficult quests.¹⁶

The main point of most game worlds is to enjoy the game. Accordingly, creators typically oversee player activity to ensure people do not ruin the environment for others or otherwise damage the game's integrity.¹⁷ Developers generally reserve the right to kick out disruptive players, purport to retain all property rights in the virtual goods created, and often restrict players' abilities to exchange virtual items

¹¹ This description is taken in part from Chodorow, *supra* note 3, at 699–704. For a more complete description of the historical developments leading to the creation of virtual worlds, as well as a description of the variety of virtual worlds, see F. Gregory Lastowka & Dan Hunter, *The Laus of the Virtual Worlds*, 92 CAL. L. REV. 1, 4-14 (2004); see also Camp, *supra* note 1, at 3–8; Lederman, *supra* note 1, at 1625–30.

¹² See Lastowka & Hunter, *supra* note 11, at 5–6.

¹³ See Edward Castronova, *Virtual Worlds: A First-Hand Account of Market and Society on the Cyberian Frontier* 26-29 (CESifo Working Papers, Paper No. 618, 2001), available at <http://papers.ssrn.com/abstract=294828> (describing the microeconomic conditions in the virtual world of Norrath); see also Bryn Davies, Sustainable Economics, Price Arbitrage, Information Asymmetry and Elastic & Inelastic Markets in a World of Warcraft Economy, <http://www.progsoc.org/~curious/economics.html> (last visited Nov. 12, 2009) (describing the exchanges that take place in World of Warcraft).

¹⁴ I borrow the terms "game world" and "unscripted world" from Lederman. Lederman, *supra* note 1, at 1628–31. Some use different terminology to describe the different types of worlds. For instance, Camp differentiates between "structured" and "unstructured" worlds, where structured corresponds roughly to "game worlds," while unstructured games correspond to "unscripted" worlds. Camp, *supra* note 1, at 4-8.

¹⁵ Examples of game worlds include World of Warcraft, EverQuest, Lineage, City of Heroes, Dark Age of Camelot, and Ultima Online.

¹⁶ See Camp, *supra* note 1, at 6.

¹⁷ This behavior is not strictly limited to game worlds. See, e.g., Welcome to There, What is There?: Info for Parents, <http://www.there.com/parentInfo.html#5> (last visited Nov. 12, 2009) (describing profanity filters available in the virtual environment There).

outside the context of the world.¹⁸ Despite such restrictions, people can and do buy and sell items on sites such as Itembay.ca¹⁹ and IGE.com.²⁰ Indeed, in a practice known as “gold farming,” some players acquire virtual goods and sell them to others too impatient to work through the game to garner the virtual wealth and experience necessary to play at advanced levels.²¹

At the other end of the continuum are unscripted worlds, which make available spaces for people to interact without providing any set story line or activities.²² As a result, these worlds grow according to the tastes and inclinations of those who participate. Almost all of the goods in unscripted worlds are self-created, i.e., made by those who participate from constituent building blocks made available in the given world.²³ Because unscripted worlds are often designed to facilitate commerce, creators of such worlds tend to grant users significantly greater rights in their creations than is typical in game worlds.²⁴ Indeed, Second Life operates the LindeX, an official exchange that facilitates the purchase and sale of virtual currency.²⁵

Several worlds, such as Everquest, lie somewhere along the continuum, containing features of both game worlds and unscripted worlds.²⁶ Although many people spend time in virtual worlds as an escape from reality, a number of these worlds are beginning to look more and more like alternate forums to conduct real-world activities. For instance, a host of businesses, including Nissan, IBM, and Nike, have established a presence in Second Life.²⁷ Numerous universities

¹⁸ See, e.g., World of Warcraft Harassment Policy, http://us.blizzard.com/support/article.xml?locale=en_US&articleId=20226&parentCategoryId&pageNumber=1&categoryId=2415 (last visited Nov. 12, 2009).

¹⁹ Itembay, <http://www.itembay.ca/> (last visited Nov. 12, 2009).

²⁰ IGE, <http://www.ige.com/> (last visited Nov. 12, 2009).

²¹ See Dibbell, *supra* note 8.

²² Examples of unscripted worlds include Second Life, The Sims Online, and There.

²³ Cory Ondrejka, *Escaping the Gilded Cage: User Created Content and Building the Metaverse*, 49 N.Y.L. SCH. L. REV. 81, 87–88 (2004).

²⁴ See, e.g., Second Life Terms of Service, § 3.02, <http://secondlife.com/corporate/tos.php> (last visited Oct. 22, 2009) (permitting users to retain copyright in any content they create in Second Life).

²⁵ In addition to the LindeX, unofficial exchanges also exist. Linden Labs monitors the exchange rate and maintains a fairly constant rate of around 270 Linden dollars to 1 U.S. dollar. See Camp, *supra* note 1, at 13, for a discussion of the LindeX and other exchanges.

²⁶ Everquest is a highly scripted world, but it permits and even encourages participants to cash out their virtual income.

²⁷ See Allison Enright, *How the Second Half Lives*, MARKETING NEWS, Feb. 15, 2007, us.i1.yimg.com/us.yimg.com/i/adv2/pdf/brainfood/second_life.pdf (describing the in-world marketing efforts of companies such as IBM, Dell, Reebok, and Nike); Rachael Konrad, *IBM to Open Islands in Virtual World*, USA TODAY, Dec. 13, 2006, http://usatoday.com/tech/news/2006-12-13-ibm-second-life_x.htm (describing how IBM established twelve islands in Second Life for users to visit); Games Brands Play, <http://gamesbrandsplay.com/> (last visited Nov. 12, 2009) (describing Nissan’s marketing of the Sentra in Second Life).

have set up virtual sites to promote themselves and to allow students to interact.²⁸ Even politicians have established virtual presences.²⁹ Reports abound of students forgoing real-world summer jobs to earn their spending money online.³⁰

II

THE TAX ISSUES RAISED BY VIRTUAL WORLDS

The rise of virtual worlds presents a number of tax issues. The question that has garnered the most attention and generated the most heat is whether the receipt of virtual income should give rise to real-world tax liability. Less sexy, but no less important, is the question of how one should account for basis. Although this Article focuses primarily on the basis question, this Part begins with a brief overview of the debate over whether in-world transactions should create real-world tax liability, as the resolution of this issue may affect one's thinking on the best way to resolve the basis question. This Part then provides a brief description of basis and the role it plays in our income tax before describing the basis problems raised by virtual worlds.

A. In-World Transactions

Over the past several years, people have begun to amass significant virtual wealth, which has significant real-world value. At least two people have been reported to have virtual wealth valued at over \$1 million in U.S. currency.³¹ Numerous college students have forgone traditional summer jobs to work online earning virtual income, with

²⁸ See, e.g., Andrew Johnson, *Business and Education Test Online Virtual World's Real-World Potential*, WIS. RAPIDS TRIB., Nov. 16, 2007 (predicting that the University of Arizona would have an operational Second Life site by the end of 2007).

²⁹ See Christine Lagorio, *Running for President in a Virtual World*, CBSNEWS.COM, Apr. 3, 2007, <http://www.cbsnews.com/stories/2007/04/02/politics/main2639476.shtml>, and the accompanying photo essay of the virtual headquarters of the different candidates.

³⁰ See Alexandra Alter, *My Virtual Summer Job*, WALL ST. J., May 16, 2008, at W1 (presenting profiles of seven young entrepreneurs who made real cash in virtual worlds); Neha Tiwari, *Teen Pays Siblings' College Fees by Selling Virtual Weapons*, CNET, Oct. 10, 2006, http://news.com.com/8301-10784_3-6124572-7.html (describing how a high school student made \$35,000 by playing Entropia Universe); see also *Champion Gamer NEVERDIE Rakes in \$100,000 USD in Virtual Reality*, MARKET WIRE, Aug. 21, 2006, <http://www.marketwire.com/2.0/release.do?id=696685&sourceType=1> (explaining how a player named NEVERDIE was able to recoup his \$100,000 investment in Entropia Universe within eight months).

³¹ In 2006, *Business Week* reported on Second Life's first millionaire. See Rob Hof, *Second Life's First Millionaire*, BUSINESSWEEK, Nov. 26, 2006, http://www.businessweek.com/the_thread/techbeat/archives/2006/11/second_lifes_fi.html (referring to the value in U.S. currency of the player's virtual wealth); see also David Naylor, *Technology, Media & Telecoms: A Virtual Reality*, LEGAL WEEK, June 7, 2007, <http://www.legalweek.com/legal-week/analysis/1172062/technology-media-telecoms-a-virtual-reality> (reporting that another Second Life participant claimed to have made over \$1 million from an initial \$10 investment).

one student reportedly earning \$35,000 over a four-year period.³² Consensus exists for the proposition that those who cash out their virtual wealth should be subject to tax.³³ Whether to tax the mere receipt of virtual income is more difficult.

This issue has raised a vigorous academic debate. For instance, Bryan Camp argues that virtual income left in-world represents a form of imputed income and therefore should not be subject to tax, regardless of the type of world or activity in which a taxpayer engages.³⁴ In contrast, Leandra Lederman has argued that the taxation of virtual income should depend on the type of world and type of transaction undertaken therein. To avoid a purported double tax on consumption, Lederman would exempt all income earned in game worlds and tax only sales (but not barter transactions) in Second Life.³⁵

Theodore Seto and I have separately argued, but for different reasons, that a taxpayer's ability to cash out should be the determining factor.³⁶ In worlds that permit participants to cash out, such as Second Life, we contend that the receipt of virtual income should be a taxable event, whereas in worlds that preclude their participants from cashing out, taxation is inappropriate.³⁷

Several countries, including Australia and Sweden, have begun to take steps to tax in-world transactions, although the details are somewhat unclear.³⁸ According to a spokesperson for the Australian Tax Office, "Your [virtual] income will not be treated any differently than if you earned it working nine to five in an office."³⁹ Similarly, in Sweden, "in-game transactions may incur liability for both value-added tax as well as income tax under Swedish law."⁴⁰

In contrast, the IRS has not sought to tax in-world transactions, creating a de facto cash-out rule. Despite the National Taxpayer Advocate's recent call for guidance regarding the proper treatment of

³² See Tiwari, *supra* note 30.

³³ See sources cited *supra* note 1.

³⁴ Camp, *supra* note 1, at 2.

³⁵ Lederman, *supra* note 3; Lederman, *supra* note 1.

³⁶ Chodorow, *supra* note 3; Seto, *supra* note 3. This is the approach that the Swedish tax authorities have adopted. See Miller, *supra* note 5.

³⁷ To account for administrative issues associated with taxing virtual income, I have proposed a de minimis rule that would exempt from taxation annual virtual income below \$600. Moreover, I argue that the initial conclusion regarding taxation based on the ability to cash out can and in some cases should be overridden by concerns over tax evasion and administrative costs. Chodorow, *supra* note 3, at 746.

³⁸ Graham, *supra* note 5; Au, *supra* note 5.

³⁹ Nick Miller, *Virtual World: Taxman Cometh*, THE AGE, Oct. 31, 2006, <http://www.theage.com.au/news/biztech/virtual-world-tax-man-cometh/2006/10/30/1162056925483.html>.

⁴⁰ Posting of Vili Lehdonvirta to Virtual Economy Research Network, http://virtual-economy.org/blog/sweden_moves_tax_game_transactions (Apr. 16, 2008) (emphasis omitted).

virtual income, the IRS has resisted, choosing instead to remain silent on the issue.⁴¹ Thus, taxpayers and IRS agents alike are left on their own to decide which transactions lead to taxable income and which do not.

B. The Basis Problem

Regardless of how the in-world transaction issue is ultimately resolved, taxpayers and authorities must contend with the question of basis and how to track it through virtual worlds. If in-world transactions remain tax free, taxpayers will need to be able to determine basis when they cash out so that they may calculate their gains or losses. If some or all in-world transactions are taxable, the need to determine basis will arise regardless of whether virtual-world participants cash out. Tax authorities have a number of different models they could adopt for this purpose.⁴² However, before delving into these models, it may help to begin with a brief review of basis and the role it plays in the income-tax system and then explore a number of scenarios that illustrate the difficulties for determining basis that virtual worlds pose.

1. *A Brief Introduction to Basis and Basis Recovery*

One of the key tenets of any income tax is the notion that income should be taxed once, and only once, in the hands of the same taxpayer.⁴³ It is for this reason that I.R.C. § 61(a)(3) includes only gains derived from dealings in property and not the full amount realized.⁴⁴ The rules regarding basis and basis recovery found throughout the Code and regulations are designed to allow taxpayers to track their previously taxed income, thus allowing them to calculate their gains and losses, precluding the double taxation of income or receipt of a double benefit in relation to property they own.⁴⁵

Basis may be created or acquired in a number of different ways. As it reflects one's after-tax investment in property, generally, basis is an item's cost.⁴⁶ Thus, if a taxpayer purchases a car for \$10,000 with funds that were previously subject to tax, he will have a \$10,000 basis

⁴¹ See OLSON, *supra* note 5.

⁴² See *infra* Part III.

⁴³ Deborah A. Geier, Murphy *and the Evolution of 'Basis'*, 113 TAX NOTES 576, 578 (2006).

⁴⁴ I.R.C. § 61(a)(3) (2006).

⁴⁵ See Geier, *supra* note 43.

⁴⁶ I.R.C. § 1012. Basis only arises if the dollars used to purchase the item have already been subject to tax *and* the taxpayer does not get a deduction for the cost incurred. This is generally referred to as the cost being "capitalized." If some or all of the cost is currently deducted, as opposed to capitalized, the basis is reduced accordingly. See, e.g., *id.* § 179 (permitting a deduction for costs that must normally be capitalized, but also requiring that the basis be adjusted downward accordingly). Receiving a current deduction for the purchase of an item is tantamount to purchasing the item with pre-tax dollars, as it reduces

in the car. Basis may be recovered in a number of different ways, but the most common is by subtracting it from the amount realized upon the sale of the item.⁴⁷ For instance, when the taxpayer sells the car above, say for \$15,000, he subtracts the basis from the amount realized on the sale to calculate the taxable gain, which in this case is \$5,000 (\$15,000 amount realized minus \$10,000 basis). By virtue of the basis rules, the taxpayer has received back, tax free, his initial \$10,000, on which he has already paid tax, and is only taxed on the previously untaxed \$5,000 increase in value. The basis rules become significantly more complicated for tax-free exchanges, where the need arises to track basis in the exchanged items to ensure that the untaxed gains or losses will be appropriately treated when the exchanged items are ultimately disposed of in a taxable exchange.

Where property is subject to wear and tear and used either in a business or profit-seeking activity, the Code permits a taxpayer to recover basis over the “useful” life of the property by taking depreciation deductions.⁴⁸ These deductions, calculated as a percentage of basis, reduce a taxpayer’s current taxable income, effectively allowing taxpayers to receive money tax free. These amounts are seen as a return of the taxpayer’s after-tax investment in the depreciable property, and accordingly basis is reduced by the amount of depreciation allowed.⁴⁹ When the property is ultimately disposed of, the reduction in basis will lead to either an increased gain or decreased loss, reflecting the fact that the taxpayer already received at least part of his initial investment back tax free in the form of depreciation deductions.

Other provisions, although they do not technically fall under the heading of basis or basis recovery, mimic the function of the basis rules, i.e., they are designed to ensure that taxpayers receive their initial after-tax investments back tax free, while subjecting any taxpayer

current taxable income by the amount of the purchase price, allowing taxpayers to receive that money tax free.

Basis may be adjusted upward for, among other things, improvements that are allocable to capital account, i.e., improvements that must be capitalized and may not be currently deducted. Basis may be adjusted downward for certain deductions, such as depreciation or losses, that are treated as a recovery of basis while the taxpayer retains the item, as opposed to at disposition. *See id.* § 165 (allowing loss deductions); *id.* § 167 (allowing depreciation deductions); *id.* § 263 (requiring capitalization of certain expenditures); *id.* § 1016 (permitting adjustments to basis).

Other methods exist for creating or obtaining basis. For instance, someone who has been injured and receives property as damages receives such property tax free under I.R.C. § 104(a)(2). To ensure that the taxes on the damages are excused entirely and not merely deferred, such a person will be given a basis in the property of its fair market value, such that an immediate sale will not generate any tax. In this case, basis is used as a tool to prevent a single, as opposed to double, tax.

⁴⁷ *See id.* § 1001(a).

⁴⁸ *See id.* §§ 167–68.

⁴⁹ *See id.* § 1016(a)(2) (requiring basis adjustment for depreciation allowed under I.R.C. §§ 167, 168).

gains to tax. Thus, the annuity rules are designed to allow taxpayers to exclude from income amounts in periodic payments that correspond to their initial after-tax investment in the annuity, while requiring inclusion of amounts that represent the untaxed return on that investment.⁵⁰

2. *Creating Basis in Virtual Worlds*

When considering basis issues in the context of virtual worlds, the first question is how basis gets created in virtual items. To keep matters simple, at least initially, I will assume the status quo, i.e., that virtual income earned in-world and left in-world is not subject to real-world taxes. Instead, taxes are due if, and only if, a virtual-world participant cashes out, i.e., converts her virtual wealth to real-world wealth by using an approved exchange, such as the LindeX, or by selling the item for cash.⁵¹

In a “cash-out” regime, basis can be created in only two ways. The first is through any monthly subscription fees a taxpayer pays to gain access to the virtual world. The second is by engaging in a taxable exchange, such as using real-world, after-tax dollars to purchase virtual goods or exchanging real-world property or services for virtual goods. I address each way of creating basis in turn.

Lederman addressed the question of whether subscription fees should create basis in virtual goods in her article “*Stranger than Fiction*”: *Taxing Virtual Worlds*.⁵² She concluded that monthly fees purchase the right to play, as opposed to goods, and that such fees are not typically the type of expenditure that must be capitalized, thereby giving rise to basis.⁵³ The monthly fees are expenditures that relate to a period smaller than a typical tax accounting year, thus warranting a current deduction. In addition, similar fees for licenses are not typically allocated to property obtained pursuant to the license. Lederman’s analysis is done in the context of drops;⁵⁴ however, the reasoning applies to all virtual goods regardless of how they are ac-

⁵⁰ *Id.* § 72.

⁵¹ For purposes of this analysis, it does not matter whether the sale is permitted or forbidden by the virtual-world developers.

⁵² Lederman, *supra* note 1, at 1648–50.

⁵³ *Id.*

⁵⁴ Drops are objects that other characters possess but drop upon defeat. Players may pick up the dropped items and use them or, in most cases, trade them to other players. *See id.* at 1643 & n.113.

quired.⁵⁵ I concur with her assessment that user fees do not create basis in virtual goods.⁵⁶

This analysis leaves the acquisition of virtual goods in a taxable exchange as the primary manner in which people might obtain basis in their virtual goods. For instance, assume that Grant converts \$100 into 1000 gold pieces through an exchange or purchases a sword on Itembay for \$100. He should have a \$100 basis in those goods under I.R.C. § 1012.⁵⁷ However, the analysis is a little more complicated than it initially appears. In many game worlds, participants are given only use rights in the goods that they acquire. Thus, even though we may use the term virtual property where use rights are acquired, arguably use rights are services—not property—and capitalization and basis are thus inappropriate. If the expenditures are personal in nature, no deduction is permitted.⁵⁸ In addition, as Lederman has argued, the exchange of services may not be a realization event giving rise to the need to calculate gain or loss.⁵⁹

Despite these concerns, I believe that even where only use rights are acquired, it is appropriate to allow basis. As Camp argued in *The Play's the Thing: A Theory of Taxing Virtual Worlds*, property is generally seen as a bundle of rights, and use rights therefore constitute a form of property.⁶⁰ I concur. However, even if use rights are not considered property, basic tax theory suggests that taxpayers be allowed basis in their virtual goods. Consider Grant, above, who purchased 1000 gold pieces for \$100. If the next day he sells the 1000 gold pieces for \$100, he has no accession to wealth. However, if we deny him basis in

⁵⁵ That said, if someone were to receive virtual property for paying the subscription fee, say a set number of gold pieces, a good argument would exist for allocating some portion of the fee as basis in such property. For instance, Linden Labs offers a premium account in Second Life in which a participant receives a set number of Lindens per month as part of the plan. Taxpayers arguably should have some basis in those Lindens, although it may be difficult to determine how much of the subscription fees should be allocated to the property.

⁵⁶ Indeed, I rely on such reasoning to argue that virtual income cannot be considered part and parcel of what one purchases with one's monthly subscription fees. As a result, taxing the value of virtual income left in-world does not amount to a double tax on consumption, as Lederman argues is the case for game worlds. See Lederman, *supra* note 1, at 1659. Rather, it is an accession to wealth above and beyond what one has purchased. See Chodorow, *supra* note 3, at 716–20.

⁵⁷ See Lederman, *supra* note 3, at 137. Other means of generating basis include being paid in Lindens for real-world work or exchanging real-world goods for virtual ones.

⁵⁸ See I.R.C. § 262 (2006). But see *id.* § 183 (permitting deductions to the extent of income from a non-profit seeking activity).

⁵⁹ See Lederman, *supra* note 1, at 1654.

⁶⁰ Camp, *supra* note 1, at 54–55. Camp's argument went to Lederman's contention that the exchange of use rights would not lead to tax liability because, absent the existence of property, there was no realization event under I.R.C. § 1001. See Lederman, *supra* note 1, at 1654. If use rights are a form of property for realization purposes as Camp contends, they should also be property for basis purposes.

the gold pieces, he would be taxed on \$100—the amount he received for cashing out—thus causing the tax result to deviate from economic reality.⁶¹

To avoid this result, we could allow the taxpayer a deduction for the initial expense, a difficult proposition if the expenditure is personal,⁶² treat the second sale as not a realization event (also contrary to current law), or treat the use rights as property and allow the taxpayer basis in her virtual gold. As I believe that use rights really are a form of property and granting basis in this context would be no different from granting basis in the right to future income,⁶³ I am partial to this third approach.

If we relax the assumption that taxes on virtual income are due only upon cash out, the basis issue gets significantly more complex, as basis might be created in a number of different ways. As noted above, several proposals exist for taxing purely in-world transactions. For instance, Lederman proposes taxing sales for currency—but not exchanges—in *Second Life*, because sales purportedly represent the fruits of profit-oriented activities.⁶⁴ Such transactions would create basis because the money invested in virtual goods or currency acquired in this manner would have already been subjected to tax. I have proposed that transactions in worlds that preclude cashing out would be shielded from taxation, but that transactions in worlds that permit cashing out would be subject to taxation.⁶⁵ However, to account for administrative difficulties and other concerns, I propose a *de minimis* threshold of \$600 per world per year. Thus, identical transactions in “open” worlds by different taxpayers would create basis in some cases, but not in others.

Still others argue that *all* transactions in “commodified” worlds such as *Second Life* should be taxable.⁶⁶ Taxation of all transactions would simplify matters because every in-world transaction would create basis in exactly the same way as would happen in the real world.⁶⁷

⁶¹ Although it is true that someone who pays \$100 for a haircut and then charges \$100 to give someone else a haircut has not had a change in wealth, that person has consumed the first haircut, thus leading to income. In contrast, Grant here is passing along the same 1000 gold pieces and has not consumed them. Any benefit he receives from owning them in the interim is imputed and therefore not subject to tax.

⁶² See I.R.C. § 262.

⁶³ See, e.g., *Estate of Stranahan v. Comm’r*, 472 F.2d 867, 871 (6th Cir. 1973) (holding that a taxpayer had basis in future rights to anticipated stock dividends he received in exchange for cash).

⁶⁴ Lederman, *supra* note 1, at 1666. Presumably, this rule could apply in other unscripted worlds, depending on how those worlds are structured.

⁶⁵ See Chodorow, *supra* note 3, at 697–98.

⁶⁶ See Seto, *supra* note 3.

⁶⁷ For a discussion of the different types of virtual transactions and their appropriate tax treatment, assuming that the normal tax laws would apply to such transactions, see Chodorow, *supra* note 3, at 741–42.

However, full taxation of virtual transactions highlights another problem that plagues all proposals and creates significant difficulties for basis accounting in virtual worlds.

Although virtual currency looks and functions like currency with a given world, for federal tax purposes, virtual currency is property. Thus, in-world “sales” are treated like barter exchanges for tax purposes. As a result, if sales are taxable, the basis in currency received is the fair market value of that currency at the time of the transaction.⁶⁸ Thus, unlike dollars, which have a constant value for tax purposes and therefore a basis equal to face value in virtually all cases, the basis in each batch of virtual currency received in a taxable transaction depends on the market value of such batch at the time of such transaction.⁶⁹ Therefore, if a taxpayer engages in a large number of taxable in-world transactions, he will potentially have an otherwise fungible currency consisting of batches with different bases and different holding periods.⁷⁰

3. *Basis Recovery in Virtual Worlds*

Having identified the various possible ways to create basis in virtual goods, I turn next to consider the difficulties of tracing basis through virtual spaces. As above, I begin the analysis on the assumption that in-world transactions will not be taxed and that tax will be due only when someone cashes out. People can cash out in two ways. First, a player can sell her entire player account to someone else. This method presents little difficulty for the seller, as it is not necessary to allocate basis among whatever virtual property is included in the account. Instead, one simply subtracts the aggregate basis from the amount realized to ascertain gain.⁷¹ Second, taxpayers can sell indi-

⁶⁸ *Phila. Park Amusement Co. v. United States*, 126 F. Supp. 184, 189 (Ct. Cl. 1954) (using fair market value of property received in a barter transaction to determine taxpayer’s basis in such property).

⁶⁹ For information on the exchange rate and value of Lindens, the Second Life currency, see Second Life LindeX™ Market Data, <http://secondlife.com/statistics/economy-market.php> (last visited Nov. 12, 2009).

⁷⁰ This can happen even absent in-world taxation. For example, if I purchase 1000 gold coins for \$100 and a second batch of 1000 gold coins for \$110, under the general principles of I.R.C. § 1012, the two batches will have different bases.

As described more fully below in Part IV.B, one commentator has suggested accounting for these difficulties by treating virtual currencies as foreign currencies and subjecting them to the foreign currency rules of I.R.C. § 987. See Chung, *supra* note 3, at 769–77.

⁷¹ Presumably, if an account contained capital and ordinary assets, the sale of an account would look somewhat like the sale of a business with its component assets. Accordingly, it would be necessary to allocate basis and amount realized to the various items, much as is done under I.R.C. §§ 1060 and 338. Were this to occur, then many of the problems described below would apply also when entire accounts were sold. Also, the purchaser would need to allocate basis among the items purchased in case she should ever sell them separately.

vidual items, at which point it is necessary to determine gain or loss for specific virtual items. I focus here on the latter situation.

The need for basis-tracing rules can best be seen by starting with a simple example and slowly adding complications. For simplicity's sake, I base all my examples on game worlds where the arguments for nontaxation of in-world transactions seem strongest. However, the analysis would work equally well with unscripted worlds. Let's return to the example above of Grant, who purchases 1000 gold pieces for \$100 and then sells those gold pieces the next day for \$100. As there has been no accession to wealth, there should be no tax due. We accomplish this goal by giving Grant a \$100 basis in the gold pieces, such that his taxable gain is \$0 (\$100 amount realized minus \$100 basis). The same holds true if Grant purchases and then resells a virtual sword for \$100.

Next, assume that Grant purchases a sword for \$100, which over time appreciates to \$150.⁷² He then trades the sword to Amy for a shield she acquired by killing a dragon or performing some other feat in-world. Grant has a \$100 basis in his sword, while Amy has no basis in her shield. In the real world, this barter transaction would be considered a realization event. Grant would owe tax on the \$50 gain realized, while Amy would owe tax on a \$150 gain. Their basis in their respective newly acquired items would be \$150. However, under the cash-out rule that we assume is in effect, the exchange would not be taxed.

To preserve Grant's \$50 gain, Grant should take the shield with a basis of \$100, and Amy should have no basis in the sword she acquires. Then, if Grant cashes out and sells his new shield for \$150, he will owe tax on \$50 of gain, not the full \$150 he receives. In other words, in light of the nontaxation of the barter exchange in-world, the basis Grant has in the sword should transfer to the shield to ensure a real-world tax result consistent with his economic gain.

In most regards, the cash-out rule means that in-world transactions function as if they were like-kind exchanges governed by I.R.C.

⁷² In fact, the value of virtual items in game worlds may decline over time. In *Entropy*, virtual items degrade over time, thus becoming less valuable. See Brian Ekberg, *GC '07: Entropia Universe*, GAME SPOT, Aug. 24, 2007, <http://www.gamespot.com/pc/rpg/projectentropia/news.html?sid=6177556&mode=previews>. This feature is similar to real-world wear and tear and suggests that depreciation might be an appropriate basis-recovery model if the player is engaged in a business or profit-seeking activity. As described below, accounting for basis in the absence of depreciation will be difficult enough. Thus, I do not advocate applying the depreciation rules to virtual goods even if they do deteriorate over time.

In other worlds, items often lose value as the number of items available in a world increases. In addition, some virtual items bind to avatars and may not be separately sold, thus losing some of their exchange value. Because this example is meant to illustrate tax principles, it may not precisely match the reality of any particular world.

§ 1031(a).⁷³ Just as nontaxation in this context requires special basis rules to ensure that tax gain matches economic gain upon the disposition of items acquired in this fashion, similarly, the nontaxation of in-world transactions will require basis rules to ensure taxpayers are appropriately taxed should they cash out their virtual loot.

So far, the basis issues seem fairly straightforward and require the simple application in the virtual context of the substituted basis rules found in nonrecognition provisions such as I.R.C. § 1031(d). Where gain or loss is not recognized, a taxpayer's basis in the item given up transfers to the item received. The first difficulty arises when a taxpayer exchanges one or more items for many, as the basis in the original item or items must be allocated among the many items received. The second difficulty arises when a taxpayer commingles fungible items with different bases and then acquires some item using this common pool. In virtual realms, this commingling is most likely to occur with virtual currency.

For example, assume that Grant purchases a sword for \$100 and then sells it in-world for 1000 gold pieces. As the sale is a tax-free exchange because Grant has not cashed out, the logic of I.R.C. § 1031 suggests that he should have a basis of \$100 in the gold pieces, allocated evenly among the pieces (i.e., \$0.10 per gold piece). If he then takes 600 of these gold pieces and purchases a potion, logic suggests that he should have a \$60 basis in the potion and a \$40 basis in the remaining 400 gold pieces. So far, so good.

Now, imagine that Grant purchases 1000 gold pieces for \$100 and earns another 1000 gold pieces in-world for guiding other players on a quest. Under a cash-out regime, he is not taxed on earning the second 1000 gold pieces and therefore receives no basis in them. He now has 2000 gold pieces, 1000 of which have a \$0.10 basis and 1000 of which have no basis. For purposes of this analysis, we assume that he keeps all of his gold coins in the same online account. What happens if Grant now buys a cloak for 800 gold pieces and then sells the cloak for \$80? How much gain should Grant report? If each gold piece has its own basis that gets transferred to the cloak, the answer depends on which gold pieces he used. Clearly, some rule for tracing or allocating basis must be developed.

While this simple example helps illuminate the problem, it is important to note how simple it really is. First, the example assumes only two batches of gold pieces, one with no basis and the other with a \$0.10 per coin basis. It is not hard to imagine a player with several

⁷³ I.R.C. § 1031 might apply in some cases, but it is expressly limited to items held for trade or business or the production of income and applies only to "like-kind" property. I.R.C. § 1031 (2006). It is not clear how the "like-kind" concept would be applied to virtual goods.

batches of gold pieces, each with a different basis. Second, the example assumes only three transactions. Active players may well buy, sell, and trade multiple times before eventually selling one of their virtual items for real-world cash. Basis would need to be traced through each of these transactions. Finally, the assumption that all in-world transactions are free from taxation may not hold. If some in-world transactions become taxable, the ways in which basis can be created will multiply, as will the occasions on which taxpayers will need to know the basis of their virtual goods to determine their tax liability.

III

EXISTING MODELS FOR BASIS RECOVERY

To date, the Code and regulations have employed two different regimes for basis recovery on the sale of property.⁷⁴ The first, which I will call the tracing approach, is property specific. Basis inheres in specific items of property, and gain or loss is determined for each item of property standing alone. Examples of this approach include the rules associated with stock sales and inventory items,⁷⁵ as well as the basis rules that apply to tax-free corporate reorganizations,⁷⁶ which permit taxpayers to designate which items are exchanged for which other items, thereby transferring basis directly from one asset to the next. Under the tracing approach, tax results may vary from overall economic results when investments are viewed as a whole. Taxpayers can sell loss property and hold gain property resulting in a tax loss, when, from an economic perspective, they may still have made money.

The second approach, which I will call the pooling approach, considers property in the aggregate and therefore pools basis, assigning it back out to specific pieces of property based on the pooled assets' relative fair market value. Examples of this approach include the partnership basis rules,⁷⁷ the averaging option available for determining gain or loss from the sale of mutual fund shares,⁷⁸ and the basis rules applicable in transactions that comply with I.R.C. § 351 (governing certain exchanges of property for stock in a corpora-

⁷⁴ The tax laws contain a number of other provisions that affect basis recovery that do not implicate the sale of property. For instance, the income inclusion rules found in § 72 (annuities) address how to recover basis as the taxpayer receives payments over time. Similarly, the depreciation and various amortization rules address how to recover basis while the taxpayer retains property. *See, e.g.*, I.R.C. § 167; *id.* § 195(b). The rules in I.R.C. § 453 regarding installment sales involve the sale of property. *Id.* § 453. However, they affect the timing of gain or loss recognition, whereas the two approaches described in the text above also determine the amount of gain or loss.

⁷⁵ *See, e.g., id.* § 471(a) (inventory); Treas. Reg. § 1.1012-1(c)(1) (1960) (stock sales).

⁷⁶ *See, e.g.*, I.R.C. § 358.

⁷⁷ *See Rev. Rul.* 84-53, 1984-1 C.B. 159.

⁷⁸ *See Treas. Reg.* § 1.1012-1(e).

tion).⁷⁹ Under the pooling approach, the tax gain or loss on the sale of a specific piece of property is the average economic gain or loss associated with the class of assets whose basis is pooled.

This Part considers the different models found in the Code and regulations with an eye toward identifying which might best apply in the virtual context. If we assume that in-world transactions are not subject to tax, it might be tempting to look solely at how the law treats basis in tax-free exchanges. However, the rules governing taxable exchanges present many of the same issues. As it is easier to approach these questions first in a taxable setting, I begin with the treatment of basis in taxable exchanges and move on to the treatment of basis in tax-free exchanges.

A. Taxable Exchanges

The existence of two approaches to basis recovery begs the question: “Why?” One possibility is that, on a theoretical level, differences in the nature of property warrant different tax treatments. Another possibility is that historical contingencies or administrative concerns have shaped the law’s development. The truth lies somewhere in between. It turns out that our intuition regarding the proper basis rules changes depending on whether the goods in question are fungible. The principles that make sense for nonfungible assets—accounting for each asset separately and giving taxpayers the right to decide which assets to sell or hold—lose their salience when applied to fungible assets. Nonetheless, the law does not consistently apply basis rules to assets based on their nature. Instead, as shown below, historical circumstance and administrative concerns have created an incoherent patchwork of laws.

1. *Taxable Exchanges of Nonfungible Assets*

The default rule in taxation is that each piece of property is treated separately, and taxpayers have full discretion to determine which property to sell, and when.⁸⁰ For most taxable transactions, an item’s basis is its cost.⁸¹ As such, basis reflects a taxpayer’s after-tax investment in the property. Normally, the basis in the acquired asset is allocated evenly across the entire asset such that if a taxpayer were to sell half the asset (such as one-half of a one-acre plot of land), he

⁷⁹ I.R.C. § 351; see Rev. Rul. 85-164, 1985-2 C.B. 117.

⁸⁰ See MICHAEL J. GRAETZ & DEBORAH H. SCHENK, FEDERAL INCOME TAXATION: PRINCIPLES AND POLICIES 154 (6th ed. 2009) (explaining that the “ability to accelerate or postpone gains and losses” is “one of the most fundamental aspects of the federal income tax”).

⁸¹ See I.R.C. §§ 1011–12. Adjustments are allowed under I.R.C. § 1016. Special basis rules exist for gifts (I.R.C. § 1015) and inheritances (I.R.C. § 1014). A discussion of these special rules is beyond the scope of this Article.

would subtract half of the basis from his amount realized.⁸² However, if an asset consists of different components with different values, the basis is allocated based on the relative fair market value of those components.⁸³ If the asset is capital or subject to I.R.C. § 1231, the taxpayer's holding period for the asset begins the day after purchase.⁸⁴ Finally, taxpayers have the discretion to sell their property or hold it, thus giving them control over when to realize gains and losses.⁸⁵ As a result, taxpayers' tax gains or losses may not correspond to their aggregate economic gains or losses.

These rules and the issues they raise are best discussed in the context of a concrete example. Imagine a taxpayer who has two investments. The first is one share of Google, which he purchased for \$100 and which is now worth \$400. The second is one share of GM, which he purchased for \$210 but which is now worth only \$10. From an aggregate economic perspective, the taxpayer has a \$100 gain that has yet to be taxed (a \$300 gain in the Google stock and a \$200 loss on the GM stock). These investments are reflected in the following chart:

Stock	Basis	FMV	Gain/(Loss)
Google	\$100	\$400	\$300
GM	\$210	\$10	(\$200)
Totals	\$310	\$410	\$100

The taxpayer has discretion over which of the two shares to sell and when. The separate treatment of the property in question combined with the discretion regarding which stock to sell raises two issues. First, if he chooses to sell the GM share, he can realize and recognize a \$200 loss even though in the aggregate he is \$100 better off than he was before he purchased the two shares. As a result, the tax result will deviate significantly from the taxpayer's overall eco-

⁸² Treas. Reg. § 1.61-6(a), ex. 1 (1960). *But see* Treas. Reg. § 1.1015-4 (as amended in 1972) (applying different rules in the part-sale/part-gift context).

⁸³ Treas. Reg. § 1.61-6(a), ex. 2. For instance, of the one-acre plot consisting of two parts, one worth \$100,000 because of its view or for some other reason, and a second worth only \$50,000, if the taxpayer sold the \$50,000 portion, he would allocate to it only 1/3 of his basis in the plot.

⁸⁴ *See, e.g.*, Rev. Rul. 66-7, 1966-1 C.B. 188; Rev. Rul. 66-97, 1966-1 C.B. 190. Holding periods are relevant for capital assets, because they determine whether the gain or loss on sale will be treated as short- or long-term. Because gains can be recharacterized from ordinary to capital under I.R.C. § 1231, holding periods are relevant for assets covered by that section. *See* I.R.C. § 1231.

⁸⁵ *See* GRAETZ & SCHENK, *supra* note 80.

conomic reality.⁸⁶ Second, keeping the gain and loss for the two shares separate creates inefficiency, as the taxpayer might decide not to sell the Google share to avoid paying tax on the gain even though he would like to do so for non-tax reasons.⁸⁷

One could address these issues in a number of ways. First, one could eliminate the realization requirement.⁸⁸ However, this option creates liquidity problems for taxpayers and is only workable for assets where a functioning market permits easy valuation.⁸⁹ Second, one could try to mandate which of the two assets the taxpayer should sell. For instance, we could require taxpayers seeking to sell stock to sell the stock with inherent gains before the stock with inherent losses.⁹⁰ However, this approach seems in conflict with basic notions of liberty. Taxpayers should be allowed to decide what property to own and what to sell. Moreover, it will not fix the problem, at least in this example, as selling the Google stock will not cause the tax gain (\$300) to equal the economic gain (\$100).

Alternatively, one could address the problem from the other direction by allocating some of the basis from the Google share to the GM share to produce a gain proportional to the value of the asset sold.⁹¹ This approach would require altering the rule described above that the basis of an asset is its cost. The approach also requires determining which assets should be considered together for basis-reallocation purposes. One could argue that shares in different companies represent the broader category of investments, such that pooling is appropriate. However, housing could also be seen as an investment. Should part of the basis of one's home be allocated to one's stock? Defining the appropriate pool for nonfungible assets would be tricky.

In addition, one would need to know the relative fair market value of assets in a pool to allocate basis back out to the assets appropriately. This allocation is easy for fungible assets because they would presumably all have the same market value, and it's cumbersome, but doable, for items such as stock, which are traded on public markets.

⁸⁶ This deviation will ultimately be reconciled when the taxpayer sells his share of Google, but because of the time value of money, the acceleration of the deduction along with the deferral of income recognition will provide a significant benefit to the taxpayer.

⁸⁷ See Alan L. Feld, *When Fungible Portfolio Assets Meet: A Problem of Tax Recognition*, 44 TAX LAW. 409, 413 (1991) (discussing the lock-in effect and tax incentive to realize losses).

⁸⁸ For a discussion of the realization requirement, see generally Deborah H. Schenk, *A Positive Account of the Realization Rule*, 57 TAX L. REV. 355 (2004).

⁸⁹ See *id.* at 360-65.

⁹⁰ As described *infra* note 126, Calvin Johnson has made such a suggestion for fungible goods.

⁹¹ In this hypothetical, the total value of the two shares is \$410. The total basis is \$310. If one were to allocate 2.4% of the basis (\$7.44) to the GM stock and 97.6% of the basis (\$302.56) to the Google stock, the sales would produce \$2.56 and \$97.44 of gain, respectively, for a total of \$100. The gain for each share would be in proportion to its relative value, thus equating tax gain to economic gain.

This allocation would be almost impossible with nonfungible assets for which public markets and therefore reliable pricing information do not exist. In sum, the rules governing basis and sales of nonfungible assets in taxable transactions seem appropriate and are unlikely to change.

2. *Taxable Exchanges of Fungible Assets*

The propriety of the regime described above is questionable for fungible assets because the justification for allowing tax results to deviate from economic results is weak. An investment in fungible assets can readily be seen as an aggregate investment. If a taxpayer invested \$20,000 in a company and her interest, however denominated, now has a fair market value of \$30,000, she has a gain of \$10,000. If she sells half of her interest, she has cashed out of half of her investment, and it seems appropriate, at least from an economic perspective, that she be taxed on half of the gain. It seems irrelevant that the taxpayer might have purchased different lots of stock or partnership interests at different times and for different amounts. Moreover, although it seems wrong to tell a taxpayer which assets he must sell when he owns a car, a house, and one share of stock, it should not matter to the taxpayer which assets he sells if the assets in question are identical. One's ownership interest in a company remains the same regardless of whether one sells ten shares marked 1-10 or 90-100. Thus, liberty interests do not come into play.

As described above, matching the economic and tax gains could be accomplished either by controlling which property a taxpayer is deemed to have sold or by pooling basis. Yet, despite the theoretical justifications for doing so when assets are fungible, the law governing basis recovery for fungible assets differs depending on the type of asset involved. Indeed, there are different rules governing stock in companies, inventories, partnership interests, and mutual fund shares. Each method and the issues they raise are discussed below.

Although one share of stock is indistinguishable from another of the same class in terms of the ownership interest it represents in a company or the rights it gives its owner, shares have historically been represented by physical certificates, each bearing a unique identifier, and therefore distinguishable from one another. Pre-income tax authorities recognized the fungibility of ownership interests despite the ability to distinguish stock certificates;⁹² however, the first court to address the question of basis in shares for tax purposes held that each share is to be treated as separate property and given its own, separate

⁹² *Richardson v. Shaw*, 209 U.S. 365, 378-79 (1908) (allowing brokers to return to customers certificates different than those deposited).

cost basis.⁹³ Moreover, the regulations have consistently permitted taxpayers to designate which items they seek to sell.⁹⁴

As a result, as with nonfungible assets, taxpayers can control the amount of gain or loss they realize and thus must recognize. The separate nature of each share means that gains or losses on stock must be determined for each share separately even where all the stock is sold at once. Thus, if some shares give rise to gains on the sale, and others give rise to losses that are disallowed for tax purposes—for instance, because the stock is sold to a related party⁹⁵—taxpayers are not permitted to net gains and losses before applying the loss-limitation provision.⁹⁶

Absent identification of the specific shares being sold, the regulations require that taxpayers use the formulaic First In/First Out (FIFO) method of accounting, where the shares sold will be deemed to be the first acquired. Such a default rule is necessary because a taxpayer may fail to designate which shares she is selling, or she may not have any intent, at the time of sale, regarding the shares sold.⁹⁷ The use of an ordering rule reduces the ability to manipulate gains and losses. Nonetheless, in most cases it will lead to divergent tax and economic results.

Similar rules apply to inventory items, although taxpayers have greater discretion with regard to the ordering rule. When a taxpayer purchases and sells inventory, some system must exist to match the inventory cost (basis) against the income generated from sales to determine taxable income. The question is, how? The method of inventory accounting for tax purposes must conform as closely as possible to the best accounting practices used for the taxpayer's trade or busi-

⁹³ See *Skinner v. Eaton*, 45 F.2d 568, 570 (2d Cir. 1930) (“The Revenue Act does not permit merging the cost of stock acquired at various prices and over a period of years. Shares of stock are identifiable, and, for income tax purposes, they are regarded as specific properties.”).

⁹⁴ See T.D. 2690, 20 Treas. Dec. Int. Rev. 135 (1918). These rules are now found in Treas. Reg. § 1.1012-1(c) (1960). The regulations provide rules to allow taxpayers to make the appropriate designations. If a taxpayer has physical certificates, the ones she delivers to the buyer or to her broker for sale are the ones deemed sold. If the shares are held in street name, i.e., by the broker on behalf of the taxpayer, the taxpayer must identify the shares she seeks to sell at the time of the sale, and the broker must confirm the identification in writing within a reasonable period. Treas. Reg. § 1.1012-1(c)(3).

⁹⁵ See I.R.C. § 267 (2006).

⁹⁶ See *Lakeside Irr. Co. v. Comm’r*, 128 F.2d 418, 419 (5th Cir. 1942) (“[W]here, as here, four unrelated lots of stock were separately acquired and might readily have been separately sold, the fact that after ascertaining the value of each lot all were transferred together for a lump price will not require or authorize a merger of costs.”).

⁹⁷ Although it would certainly be possible to allow a taxpayer to make such a designation after the fact, such a rule seems at odds with the notion that shares are separate items of property. If someone has actually sold shares A, B, and C, represented by specific, identifiable certificates, it seems bizarre to allow that taxpayer to determine after the fact that he has actually sold shares D, E, and F, represented by other certificates.

ness.⁹⁸ Moreover, that method must clearly reflect income.⁹⁹ This gives taxpayers some discretion regarding how to match their inventory revenues to basis.¹⁰⁰ If the specific inventory items sold cannot be identified, the default is FIFO.¹⁰¹ However, I.R.C. § 472 allows taxpayers to use Last In/First Out (LIFO) under certain circumstances.¹⁰² In addition, the regulations permit taxpayers to elect other methods, including averaging, so long as they accord with best practices for the taxpayer's industry and accurately reflect income.¹⁰³ As a practical matter, the IRS generally opposes averaging,¹⁰⁴ and identifying specific lots is often quite difficult. As a result, inventory accounting for tax purposes most often involves a forced-ordering rule borrowed from a company's financial accounting system.

In contrast to the stock and inventory rules, the rules governing partnership interests take a pooling approach that is more consistent with the unified investment theory described above. Taxpayers must pool the basis of all their partnership interests and allocate it back to those interests based on relative fair market value. Thus, imagine a partnership where interests are segregated into 1% tranches. Next assume that a taxpayer purchases two interests, one for \$100 and the other for \$200. His total aggregate interest in the partnership is 2% and his aggregate basis is \$300. However, unlike in the case of stock, where each interest retains its own separate basis, the aggregate basis is allocated evenly between the two interests, with each having a \$150 basis.¹⁰⁵ Thus, when the taxpayer sells one of the two interests, he

⁹⁸ I.R.C. § 471(a).

⁹⁹ *Id.*

¹⁰⁰ To confuse matters, the regulations eschew the traditional language about basis and basis recovery. Instead, income is determined by determining the revenues generated from the sale of inventory and subtracting from them the "value" of the inventory sold. Value is most often determined as either cost, or the lower of cost or market. Treas. Reg. § 1.471-2(c) (as amended in 1973). However, the rules provide some flexibility, as best accounting practices differ from industry to industry. Moreover, rather than having the taxpayer directly value the inventory sold, the regulations provide that one should value the remaining inventory. *See id.* By valuing the inventory on hand at the end of a given year, it is possible both to derive the value/basis of the inventory sold during the year and to establish the value/basis of inventory on hand for the next year.

¹⁰¹ *Id.* § 1.471-2(d).

¹⁰² I.R.C. § 472(a) (allowing a taxpayer to use LIFO "in accordance with such regulations as the Secretary may prescribe").

¹⁰³ *See id.* § 471(a).

¹⁰⁴ *See, e.g.,* Rev. Rul. 71-234, 1971-1 C.B. 148 (rejecting the application of average value because, in a rising market where cost regularly increases, the method would consistently understate income).

¹⁰⁵ *See* Rev. Rul. 84-53, 1984-1 C.B. 159 (indicating that the unified/aggregate basis rules applicable to property under Treas. Reg. § 1.61-6(a) are applicable to interests in a partnership). This Revenue Ruling actually addresses a situation where a partner has both general-partnership and limited-partnership interests. On the theory that the greater includes the lesser, it seems clear that the holding encompasses situations where the same type of interest (general or limited) is exchanged.

recovers half of his basis, and his tax gain or loss equals half of the overall gain or loss that he has incurred in his investment.¹⁰⁶ Strangely, this pooling applies not only to fungible interests but also across different types of interests, such as general and limited partnership interests, which afford different rights and responsibilities and are therefore not fungible.¹⁰⁷ I have been unable to locate any rationale for this rule.

The rules governing mutual funds provide another example of basis pooling. Taxpayers who purchase and sell mutual fund shares may use the traditional stock rules for determining their gains and losses.¹⁰⁸ However, beginning in 1971, the Treasury Department amended its regulations to permit taxpayers to adopt one of two basis-pooling approaches for determining gain or loss on the sale of mutual-fund shares.¹⁰⁹

Under the single-category method, taxpayers may aggregate the basis in all their shares and then allocate an average amount to each share.¹¹⁰ This basis is then used to determine gain or loss on sale and is subtracted from the remaining basis for purposes of determining the gain or loss on future sales. As a result, the tax gain and economic gain on the sale of shares match. Finally, as with partnership interests, the basis is seen as a unified whole, with the gain or loss determined on a per-share basis. The regulations provide that taxpayers will be deemed to sell the longest-held shares first, such that any gain or loss will be long-term to the extent sufficient shares held long-term are in the account.¹¹¹ If those shares are exhausted, shares held short-term will be deemed sold, and gain or loss associated with those shares will be deemed short-term.¹¹²

Under the double-category averaging method, taxpayers may create two pools of shares, one for shares held for under one year and one for shares held for more than one year.¹¹³ Taxpayers are to determine the average basis per share for each pool and attribute to each

¹⁰⁶ In contrast, when a partner receives a distribution from a partnership, that distribution reduces his basis first and then, if all the basis has been recovered, leads to income. See I.R.C. § 705(a).

¹⁰⁷ See Rev. Rul. 84-53, 1984 C.B. 159; see also Treas. Reg. § 1.1223-3(f), ex. 6 (2000) (explaining how to account for sales of units of interest in a partnership).

¹⁰⁸ See Treas. Reg. § 1.1012-1(c)(1) (1960).

¹⁰⁹ See *id.* § 1.1012-1(e). A taxpayer who adopts a method for one account at a given mutual-fund company must adopt that method for all accounts held at that company. *Id.* § 1.1012-1(e)(2).

¹¹⁰ See *id.* § 1.1012-1(e)(4).

¹¹¹ *Id.* § 1.1012-1(e)(4)(ii). The regulations on this point are somewhat confusing because they were written at a moment of transition in the holding-period rules.

¹¹² Taxpayers may not use this approach if it appears that the purpose for doing so is to convert short-term gains and losses into long-term gains and losses. See *id.* § 1.1012-1(e)(4)(iii).

¹¹³ *Id.* § 1.1012-1(e)(3).

share that basis. A taxpayer can then specify from which pool to sell shares. Thus, the taxpayer has the power to determine whether the gain or loss she realizes will be afforded short- or long-term treatment. Absent specification, it is presumed that the shares sold are from the pool of shares held longer than one year, to the extent available, and then from the pool of shares held for one year or less.¹¹⁴ Within each category, it is assumed that the longest-held shares in the category are sold first.¹¹⁵ Once a taxpayer's shares are held for more than one year, they are moved from one pool to the next.¹¹⁶

Finally, the rules specify that taxpayers may elect different methods for accounts held at different mutual-fund companies, but that they must use the same method for accounts at a given company.¹¹⁷ This rule means that if two companies offer identical S&P 500 index funds, a taxpayer could purchase shares at both companies, electing to average basis in one and designate shares in the other. When the taxpayer decides to purchase or sell shares, he could select which of the funds, and the corresponding method, to use. In this way, he could avoid pooling when disadvantageous and adopt it when advantageous.

The pooling approach raises several issues not present in the tracing approach used for nonfungible assets. The first difficulty is deciding which items should be pooled. As noted above, pooling makes sense for fungible assets because they can readily be understood to be an aggregate investment, and allocating basis back to individual items is relatively easy. If assets are not fungible, the argument for pooling weakens. Nonetheless, Congress and the Treasury have declined to extend pooling to fungible assets, such as stock, while extending it beyond fungible assets, as is the case for partnership interests.¹¹⁸

Assuming Congress were to embrace fungibility as the key factor in determining whether to require basis pooling, some definition of "fungible" must be developed. Companies would likely try to defeat pooling by creating minute differences in different classes of stock. Additionally, taxpayers could seek to avoid the rule by holding their investments in different names. To prevent this, some form of attribution rule would need to be adopted.¹¹⁹

The ability to hold the same security in different locations would also create a problem with basis reporting.¹²⁰ Institutions can only

¹¹⁴ *Id.* § 1.1012-1(e)(3)(ii).

¹¹⁵ *Id.* § 1.1012-1(e)(3)(iii)(b).

¹¹⁶ *Id.* § 1.1012-1(e)(3)(iii)(a).

¹¹⁷ *Id.* § 1.1012-1(e)(2).

¹¹⁸ *See* Rev. Rul. 84-53, 1984-1 C.B. 159; *see also* Treas. Reg. § 1.1223-3(f), ex. 6 (2000).

¹¹⁹ *See, e.g.*, I.R.C. § 267 (2006); *id.* § 318.

¹²⁰ *See* Emergency Economic Stabilization Act of 2008, Pub. L. No. 110-343, § 403, 122 Stat. 3765, 3854-55 (requiring basis reporting beginning in the 2011 tax year).

report the basis of which they are aware. If pooling is required and taxpayers can hold the same or similar assets in different places, reporting will be inaccurate, and compliance costs will rise tremendously. Absent a rule requiring taxpayers to hold similar assets in one account, it is not clear how a pooling regime would work given the current reporting system.

The second issue is whether to pool or fragment basis. For instance, when the basis from different partnership interests is pooled and allocated back to the separate interests, the pooled fragments could either retain their individual identity or be melded into a unified whole. To return to the partnership example above, we could treat the basis of each 1% interest as a unified \$150, where the gain or loss on sale is calculated once with regard to each interest sold. In contrast, if we treat the basis as fragmented, each 1% interest will have a basis of \$150, but half of the interest has a \$50 basis, associated with the first interest acquired, and the other half has a \$100 basis, associated with the second interest acquired. Under this approach, when the interest is sold, the amount realized must be fragmented and matched to the basis fragments. Gain or loss on those fragments must be separately calculated. As a result, some fragments may reflect gains, while others reflect losses.

Under normal circumstances, the unified and fragmented approaches will yield the same amount of gain. For instance, if our taxpayer were to sell an interest for \$180, under a unified approach, there would be a \$30 gain. Under the fragmented approach, there would be a \$40 gain on the first fragment and a \$10 loss on the second for a net gain of \$30. However, this is not always the result. For instance, if the interest were sold to a related party, I.R.C. § 267 would preclude the taxpayer from taking the loss determined using the fragmented approach, leaving him with a \$40 tax gain, even though he had only gained \$30 from an economic perspective.¹²¹ Similarly, if the asset is capital and the loss exceeds the gain, I.R.C. § 1211 would preclude the deduction of losses in excess of gains.¹²²

In contrast, unifying basis may lead to recharacterization of gain or loss as either long-term or short-term, when compared to the fragmented approach, because holding periods cannot be unified.¹²³ If the first interest described above had a long-term holding period, while the second had a short-term holding period, under the unified approach, half of the \$30 gain (\$15) would be long-term and half

¹²¹ See *Lakeside Irr. Co. v. Comm'r*, 128 F.2d 418, 419 (5th Cir. 1942) (prohibiting a taxpayer from treating different groupings of stock as a unified whole to net out gains and losses).

¹²² See I.R.C. § 1211(b).

¹²³ See Treas. Reg. § 1.1223-3(b).

(\$15) would be short-term. Under the fragmented approach to basis, the \$40 gain would be long-term, while the \$10 loss would be short-term. Assuming the gain and loss could net out, the taxpayer would be left with \$30 of long-term gain. Despite these concerns, the regulations appear to take a unified approach to basis and a fragmented approach to holding periods.¹²⁴

What accounts for these different approaches to basis recovery? The answer appears to be historical contingency and administrative convenience rather than some grand or even consistent theoretical approach. The rules for inventory accounting seem deeply rooted in pre-income tax financial-accounting practices, thus explaining why the law developed as it did. As stock and partnership interests both reflect ownership interests, it is not clear why the basis rules for the two developed differently. The reason may well lie in the fact that stock has historically been represented by numbered certificates that could readily be conceived of as individual pieces of property, while partnership interests are typically only spelled out in contractual agreements.

While it would be tempting to ascribe to Congress some intent regarding the fungible nature of mutual-fund shares and the theoretically appropriate basis-recovery tool, instead these rules appear to reflect administrative concerns on the part of mutual-fund companies who were expected to report basis information to fund owners. Given the various distributions that might affect basis, it was believed that it would be easier for mutual-fund companies to provide average information.¹²⁵ In the late 1990s, the Clinton administration proposed requiring all investors to use average basis to calculate gain and loss, not just for mutual funds, but also for all stock, but that proposal was never enacted.¹²⁶ Designing rules for virtual worlds may present another opportunity to revisit the myriad basis rules.

¹²⁴ See Rev. Rul. 84-53, 1984-1 C.B. 159; see also Treas. Reg. § 1.1223-3(f), ex. 6, in which the answer clearly indicates that taxpayers have a unified/aggregated basis in their partnership interests, even in the context of publicly traded partnerships where the interests look strikingly similar to shares of stock in corporations.

¹²⁵ For a description of how the mutual-fund rules developed, see Gordon E. Warnke, *Developments, Theories and Themes in Stock Basis*, in 12 TAX STRATEGIES FOR CORPORATE ACQUISITIONS, DISPOSITIONS, SPIN-OFFS, JOINT VENTURES, FINANCINGS, REORGANIZATIONS & RESTRUCTURINGS 1111, 1126-30 (2008).

¹²⁶ See JOINT COMM. ON TAXATION, 104TH CONG., DESCRIPTION OF REVENUE PROVISIONS CONTAINED IN THE PRESIDENT'S FISCAL YEAR 1997 BUDGET PROPOSAL, JCS-2-96, at 59 (J. Comm. Print 1996). More recently, as part of the Shelf Project series of proposals to help Congress when it needs to raise revenue, Calvin Johnson has proposed a rule that would require taxpayers to sell shares with the lowest basis first, thus maximizing the tax gain on the sale of shares. While this rule would overstate economic gain, given the deferral benefit afforded by a realization requirement and the need to raise revenue, Johnson is not concerned by any early overtaxation (from an economic perspective) that may result from

B. Tax-Free Exchanges

Basis rules take on particular significance in the context of tax-free exchanges because basis must be carried over from one asset or set of assets to the next to preserve gain or loss in the assets exchanged. This context is of particular interest when considering what rule to adopt for virtual worlds because the most significant problems with basis arise when in-world transactions are not taxed. As with the rules for taxable transactions, the law follows two distinct approaches. One permits tracing, while the other requires pooling of basis.

The corporate tax rules permit nonrecognition for exchanges in two circumstances. The first involves corporate formation, where I.R.C. § 351 permits taxpayers to exchange property for stock without incurring any tax liability, so long as the taxpayers contributing property control the corporation at the transaction's conclusion.¹²⁷ The second circumstance involves reorganizations, as described in I.R.C. § 368.¹²⁸ Tax-free exchanges of partnership interests are not allowed, and therefore there is no corresponding body of law. The law does permit tax-free formation of partnerships, and the basis laws for partnerships track those for corporate formations under I.R.C. § 351.

To preserve the gain or loss not recognized in a tax-free exchange, the basis of any assets given up should transfer to the assets acquired.¹²⁹ When one asset is exchanged for another, as often occurs in I.R.C. § 1031 transactions (like-kind exchanges), the issues and rules are fairly straightforward. However, when parties exchange multiple pieces of property, as often occurs in corporate formations and reorganizations, a decision must be made whether to allow designation or require pooling.

For instance, imagine that a taxpayer owns three pieces of property or blocks of stock, each with a fair market value of \$50,000 but with respective bases of \$10,000, \$20,000, and \$30,000, and exchanges them for three different classes of stock in a new corporation, each worth \$50,000. A decision must be made as to whether the taxpayer can designate that the property given up has been exchanged for specific classes of stock, thus allowing the basis to transfer from one to the other. If so, the three new classes of stock will have bases of \$10,000, \$20,000, and \$30,000 respectively, and the taxpayer will be able to de-

the proposal. Calvin H. Johnson, *End Identification of Stock Certificates*, 119 TAX NOTES 1171, 1174-75 (2008).

¹²⁷ Control is defined as 80% of the combined voting power of all classes of stock and 80% of all total number of shares in all classes of stock. I.R.C. § 368(c). This provision is not limited to corporate formation; however, that is the setting where it is most often encountered.

¹²⁸ *Id.* § 368. Certain transactions satisfy the technical requirements of both I.R.C. § 351 and § 368.

¹²⁹ *Id.* § 358.

cide how much gain to realize by selecting the block of shares that she sells. However, if the taxpayer must allocate the aggregate basis of the property given up across the property received, using the relative fair market value of the property received to do so, each class of stock received will have a \$20,000 basis. If pooling is required, the question arises as to whether the pooled basis should be unified or fragmented.

Unfortunately, the statute is silent on these issues, and the law has been left to develop in the courts and by administrative practice. While it might make sense that the rules for incorporations and reorganizations should be the same, in fact, they have diverged. For I.R.C. § 351 transactions, the current rule requires pooling.¹³⁰ It appears that basis is unified, while the holding period is fragmented.¹³¹ As with partnership interests, basis is averaged even though the assets acquired are not fungible.

In contrast, the basis rules for corporate reorganizations permit taxpayers to designate which property is exchanged for which, thus giving them control over when to trigger tax gains or losses, leading to results inconsistent with their economic gains or losses.¹³² In cases in which a shareholder gives up more shares than he receives and the shares given up have different bases and holding periods, the current

¹³⁰ See Treas. Reg. § 1.358-2(b)(2) (as amended in 2006) (indicating that if a taxpayer received several classes of stock in return for property, the basis from the property was to be allocated according to the relative fair market value of the classes of stock received); Rev. Rul. 85-164, 1985-2 C.B. 117 (rejecting a taxpayer's effort to trace basis in specific items given up to specific blocks of stock received); T.D. 9244, 2006-1 C.B. 463 (reaffirming the pooling approach for I.R.C. § 351 transactions but applying a tracing regime to transactions that qualify under both I.R.C. § 351 and § 368).

¹³¹ Rev. Rul. 85-164.

¹³² Initially, it appeared that taxpayers would be required to average basis in corporate reorganizations. See, e.g., *Arrott v. Comm'r*, 136 F.2d 449, 451 (3d Cir. 1943) (noting that the average basis approach is so well established in the tax-free exchange context that it would take the Supreme Court or an act of Congress to change the rule); *Comm'r v. Bolender*, 82 F.2d 591, 592 (7th Cir. 1936) (applying an averaging rule); *Helvering v. Stifel*, 75 F.2d 583, 584 (4th Cir. 1935) (applying an averaging rule). But see *Bloch v. Comm'r*, 148 F.2d 452, 456 (9th Cir. 1945) (rejecting the reasoning set forth in *Arrott* and allowing tracing). In 1955, the IRS issued Revenue Ruling 55-355, in which it noted that pooling was appropriate in the reorganization context absent identification. Rev. Rul. 55-355, 1955-1 C.B. 418. Later that year, the Treasury issued new regulations regarding reorganizations that were somewhat ambiguous. See T.D. 6152, 1955-2 C.B. 61. Despite Revenue Ruling 55-355, at least one commentator believes that the relevant evidence suggests that the Treasury intended pooling of basis in most cases. See Warnke, *supra* note 125, at 1133-37 (providing a more complete description of these regulations and the arguments as to why averaging was likely intended).

In 2006, the IRS issued new regulations governing reorganizations. See T.D. 9244, 2006-1 C.B. 463. These regulations implement a tracing regime for reorganizations. Citing Treasury Regulation § 1.1012-1(c) as support for this approach, they permit taxpayers to designate which shares are exchanged for which in a tax-free reorganization, thus allowing the basis and holding periods to transfer to specific blocks of stock and securities. See *id.* at 464. Taxpayers may also allocate boot to specific lots of shares, thus giving taxpayers more control over gain recognition in reorganizations. See *id.* at 464-65.

regulations adopt a fragmented approach for both basis and holding period of the shares received, such that gain and loss must be separately determined for each fragment on the sale of such shares.¹³³

On the last business day of the Bush administration, the Treasury Department issued new proposed regulations designed to harmonize some of the basis rules applicable to corporate transactions.¹³⁴ These regulations embrace the tracing approach, at least in the corporate context. Among other things, these regulations propose to extend the tracing regime to I.R.C. § 351 transactions where no liabilities are assumed.¹³⁵ They stop there only because they have not figured out how to harmonize a tracing regime with the debt-relief provisions of I.R.C. § 357(c), which take an aggregate approach. These regulations also extend the tracing regime to distributions exceeding earnings and profits under I.R.C. § 301 and to failed redemptions under I.R.C. § 302.¹³⁶ It is not clear what the status of this proposal will be under the Obama administration.

IV

TRACING BASIS THROUGH VIRTUAL SPACES

Having explored the different approaches to allocating basis found throughout the Code, we turn next to consider which model best suits virtual worlds. Recall that we have assumed, at least initially, a cash-out rule, where in-world transactions are tax free. We must know an asset's basis when it is sold for real-world cash so that we can determine the amount of gain or loss the taxpayer has realized. To do that, we may need to track basis through a series of tax-free exchanges, some of which may involve fungible items with different bases that may have been commingled.

In the real world, the issues that affect the choice of approach to basis recovery include baseline assumptions about how basis is created, taxpayers' freedom to arrange their own affairs, the fungibility of assets and nature of an investment, and administrative capacity. These concerns apply equally in the virtual context. However, there may be aspects of virtual worlds that differ from the real world that

¹³³ See Treas. Reg. § 1.358-2(a)(2)(vi) (as amended in 2006). In other contexts, the law appears to take an aggregate approach. For instance, in the partnership context, distributions reduce aggregate basis. See I.R.C. § 705(a). Similarly, under Treasury Regulation § 1.1367-1(c)(3), when a distribution in the S-corporation context reduces the basis of a given share to \$0, further distributions reduce the basis in other shares owned by the same distributee. See Treas. Reg. § 1.1367-1(c)(3) (as amended in 2000).

¹³⁴ Allocation of Consideration and Allocation and Recovery of Basis in Transactions Involving Corporate Stock of Securities, 74 Fed. Reg. 3509 (proposed Jan. 21, 2009) (to be codified at 26 C.F.R. pt. 1).

¹³⁵ See *id.* at 3513.

¹³⁶ See *id.* at 3510.

affect our thinking on these matters. For instance, by not taxing in-world transactions, we have created an environment in which numerous, small-value, tax-free exchanges may take place. In addition, many virtual-world participants are simply playing, thus implicating the rules limiting deductions for personal expenses and losses and affecting how we view the administrative burdens any system would impose. At the same time, virtual goods can be tracked relatively easily, perhaps making otherwise unfeasible approaches to basis tracking possible.

This Part considers first how a tracing approach to virtual basis might work and then considers how a pooling approach might work. In the end, I propose that the IRS adopt a hybrid approach to basis recovery, where some assets retain their basis, while others have their basis pooled and averaged, which would best balance the theoretical and administrative concerns that virtual worlds present.

A. The Tracing Approach

Under the tracing approach, each piece of virtual property or currency would have its own basis and taxpayers would have the ability to decide what to sell and when. This approach makes sense in the simple case. For instance, if Grant purchases a sword for \$100 and then sells it for \$100, he has a \$100 basis in the sword and therefore realizes no gain or loss. It does not matter that he also owns a shield with a \$40 basis and a \$100 fair market value, such that the total economic gain on his virtual items is \$60, and selling the sword closes out 50% of his investment, arguably yielding 50% of the gain, or \$30.

This approach also works well for simple tax-free exchanges. For instance, if Grant were to trade his shield for a cloak and then sell the cloak for \$100, the shield's basis would transfer to the cloak, and Grant would report a \$60 gain. This approach also works for more complicated exchanges, such as where Grant trades the shield for a helmet and a dagger. The shield's basis could be allocated to the helmet and dagger based on their relative fair market values. Nonetheless, if Grant engages in a number of trades before cashing out, keeping track of basis through those trades could be difficult, much as keeping track of basis when stocks split or companies spin off other companies can be. In particular, unlike complicated I.R.C. § 1031 transactions, which are business related, usually involve significant value, and for which tax advice is almost always sought, those at play are not likely to pay significant attention to basis when they trade virtual goods, but they will need to have done so if they cash out any of their goods.

Additional difficulties arise if Grant trades several items for several others. Under a tracing regime, Grant is able to designate which items are traded for which. One can readily imagine that Grant would

use the power to designate to maximize his tax position. In particular, Grant would seek to transfer low basis to items he intended to consume in-world and high basis to items that he planned to sell, regardless of the relative fair market value of the items traded.¹³⁷ Although we allow this power to designate in the corporate reorganization context, it is not clear that consistency requires that we allow it in all contexts, particularly because reorganizations do not involve the personal-consumption element that virtual worlds do.

The tracing regime really begins to show signs of strain if a taxpayer owns virtual currency acquired through different means and then either sells some portion of that currency or uses it to acquire virtual goods, which she then sells. Each batch could have its own basis and holding period, which should transfer to any asset purchased. As described below, tracing in this context raises a host of daunting administrative issues. In addition, currency is fungible, raising questions about the propriety of the tracing approach.

It helps to begin with an example that sets out the basic problem and allows us to explore how different tracing regimes might work. Assume Grant had an account with 3000 gold pieces. He purchased the first 1000 for \$100, such that each coin had a \$0.10 basis. Shortly thereafter, he earned 1000 gold coins in-world, which were not taxed and therefore have no basis. Finally, he purchased another 1000 coins, this time paying \$200, such that each of these coins has a \$0.20 basis. Next, assume that he purchased a cloak for 1200 gold pieces and ultimately sold it for \$120. To determine his gain or loss, we would need to know Grant's basis in the cloak.

Under a designation rule, similar to that allowed for stock sales and corporate reorganizations, Grant could decide which coins he used to purchase the cloak. He could have either a \$100 tax loss, if he chose the coins with the highest basis, or a \$100 gain, if he chose the coins with the lowest basis. He could, of course, pick some other mixture. Although this choice gives Grant the ability to manipulate his tax results, it seems a little less troublesome than allowing designation in the stock-sale context because designation in the latter situation occurs at the time of sale, when the taxpayer knows he is going to engage in a taxable transaction. In contrast, as with corporate reorga-

¹³⁷ Assume Grant had two assets: a cloak worth \$20 with a \$50 basis, and a dagger worth \$50 with no basis. If Grant were to trade them for a \$20 potion and a \$50 spear in a tax-free exchange, the basis from the cloak and dagger would transfer to the potion and spear. If Grant has unfettered discretion to designate which items are exchanged for which, he could designate that he had traded the \$20 cloak for the \$50 spear and the \$50 dagger for the \$20 potion, giving the spear a \$50 basis and the potion no basis. If Grant consumes the potion, he can still recover all his basis by selling the spear. To prevent such results, one could either adopt a rule that designations be economically reasonable, i.e., the exchanged items should have similar value, or adopt a forced-ordering rule.

nizations, taxpayers may not have any idea at the time of acquisition whether they are going to sell the item acquired.

To avoid the possibility of manipulation one could instead employ a forced-ordering rule. In any event, one must have a default-ordering rule to account for those who have no intent regarding the coins they spend. As with designation, the tax result will likely deviate from the economic result, but the deviation is not of the taxpayer's making. The most common ordering rules found in the code are LIFO and FIFO.¹³⁸ However, other models, or perhaps even a hybrid tracing system, would work.

One of the more intriguing examples is the tracing rule created to track loan proceeds. Before 1986, all personal interest was deductible, and there was no need to determine how taxpayers used loan proceeds.¹³⁹ Once deductions for personal interest were disallowed and special limits were placed on investment interest, qualified-residence interest, and student-loan interest, to name a few, it became necessary to trace the use of loan proceeds to identify the nature of interest charged on loans. If funds are spent directly, no problem exists. However, if funds are commingled, determining the use of loan proceeds becomes quite difficult and some system is necessary to determine which funds were used to purchase which goods or services.

In 1987, the Treasury Department issued Treasury Regulation § 1.163-8T, which set forth a complex set of rules designed to trace loan proceeds. The regulation provides that interest expenses are allocated in the same manner as the underlying debt and that the underlying debt will be "allocated by tracing disbursements of the debt proceeds to specific expenditures."¹⁴⁰ Many of the rules contained in this regulation would not be applicable to tracing basis in virtual worlds.¹⁴¹ However, other rules could be quite useful, as they relate to the disbursement of funds from a central account with commingled funds.

The regulation contains a default-ordering rule, which provides that debt proceeds deposited in an account are deemed spent before

¹³⁸ See I.R.C. § 472 (2006) (permitting the LIFO method for inventory accounting); Treas. Reg. § 1.1012-1(c) (1960) (prescribing FIFO as the default rule for stock sales). Under a LIFO rule, Grant would be deemed to use 1000 gold pieces with an aggregate basis of \$100 and 200 gold pieces with no basis. Thus, he would report a \$20 tax gain. Under a FIFO regime, Grant would use 100 gold pieces with an aggregate basis of \$200 and 200 pieces with no basis. Thus, he would report an \$80 loss.

¹³⁹ See GRAETZ & SCHENK, *supra* note 80, at 350 (describing the evolution of the IRS's treatment of personal interest).

¹⁴⁰ Treas. Reg. § 1.163-8T(a)(3) (as amended in 1997).

¹⁴¹ See, e.g., *id.* § 1.163-8T(c)(3)(i) (regulating disbursements to third parties).

any unborrowed funds in the account.¹⁴² If the proceeds of more than one debt are deposited in an account, the ordering rules provide that the earlier-deposited funds are spent first.¹⁴³ In essence, this is a FIFO rule.

The regulation provides supplemental ordering rules that override the defaults under certain circumstances.¹⁴⁴ In particular, a taxpayer may treat an expenditure that occurs within fifteen days after she deposits debt proceeds in an account as made from such deposits.¹⁴⁵ For example, if a taxpayer borrows \$15,000, deposits the proceeds in her account for ten days and then buys a car for \$15,000, she can deem the expenditure to have been made from the recently deposited loan proceeds even if she has proceeds from an earlier loan in the account.¹⁴⁶

Translated into the context of virtual worlds, one could easily envision a rule modeled on Treasury Regulation § 1.163-8T that permitted taxpayers to designate that funds recently contributed to an account had been used to acquire some asset, but that absent designation or after some set period after a deposit, say fifteen days, a default rule such as FIFO applied. Thus, if Grant were to sell a sword with a \$100 basis for 1000 gold pieces and then ten days later purchase a cloak for 700 gold pieces, he could designate that the cloak was purchased with the recently deposited gold pieces, thereby giving it a \$70 basis. Absent designation, the FIFO rule would govern.¹⁴⁷ The particulars of any hybrid rule are limited only by one's imagination.

Any tracing approach for virtual goods presents certain theoretical and administrative difficulties. First, as noted above, whether one allows designation or requires forced ordering, tax gain and loss would likely deviate from economic gain and loss. While we do not consider this deviation problematic if goods are nonfungible, rules

¹⁴² This rule applies both to unborrowed funds in the account before the debt proceeds are deposited and any unborrowed funds deposited thereafter. *Id.* § 1.163-8T(c)(4)(ii).

¹⁴³ *Id.* § 1.163-8T(c)(4)(ii).

¹⁴⁴ For checking or similar accounts, expenditures are deemed made when a check is written, provided that it is delivered to the recipient within a reasonable time. This requirement prevents allocations from depending on the length of time a recipient holds a check. Taxpayers may treat checks written on the same day as being made in any order. *Id.* § 1.163-8T(c)(4)(iii)(A).

¹⁴⁵ *Id.* § 1.163-8T(c)(4)(iii)(B).

¹⁴⁶ In addition, if a taxpayer receives loan proceeds in cash, any cash expenditures she makes over the next fifteen days will be regarded as being from those proceeds, and the taxpayer may relate the expenditure back to the date she received the cash. *Id.* § 1.163-8T(c)(5)(i). If the taxpayer continues to hold cash, the loan will be deemed to be held for personal purposes, and the interest will not be deductible. *See* I.R.C. § 163(h) (2006); Treas. Reg. § 1.163-8T(c)(5)(ii).

¹⁴⁷ Under the hypothetical facts described above, FIFO would also yield a \$70 basis. This result is a function of the assumptions, not the method used.

that permit divergence in the context of fungible goods are suspect, although sometimes allowed.¹⁴⁸ The question here is how one should think about virtual goods. Virtual currency is fungible, while other virtual goods are not. Thus, a pure tracing or pooling rule will likely fit poorly when applied to both.

Second, regardless of whether one traces or pools basis, in a tax-free environment where basis transfers from one set of assets to another, one must decide whether basis should be unified or fragmented. In the example above, if Grant used 1000 coins with \$0.20 basis and 200 coins with no basis to purchase the cloak, his basis in the cloak would be \$200. If the basis is unified, then one simply subtracts the amount realized (\$120) from the total basis for an \$80 tax loss. However, if we are transferring basis from one asset to the next, it seems more appropriate to fragment basis. Following this approach, under the facts assumed above, 10/12 of the cloak has a \$200 basis and 2/12 has a \$0 basis. If Grant sells the cloak for \$120, 10/12 of the sales price (\$100) should be allocated to the part with \$200 basis, leading to a \$100 loss, and 2/12 of the sales price (\$20) should be allocated to the portion with no basis, for a gain of \$20. Normally, the gain and loss will offset to yield the same \$80 loss as with unified basis. However, if Grant were to sell the cloak to a related party, I.R.C. § 267 would disallow the loss, and Grant would have to report a \$20 gain even though he actually lost money.¹⁴⁹ Although the issue whether to unify or fragment basis transcends the decision whether to trace or average basis, the case for fragmentation seems stronger if we are tracing basis directly from one asset to the next.

Third, allowing designation requires taxpayers to keep track of their basis in different batches of currency. In the example above, there are only three batches, and this task does not seem too onerous. However, taxpayers could have many different batches. If the assumption that in-world transactions should be tax free is relaxed and some subset of in-world transactions were in fact taxed, basis would be cre-

¹⁴⁸ See *supra* Part III.A.2.

¹⁴⁹ The same would occur under I.R.C. § 165 if the loss were deemed not to arise in a trade or business and not in a transaction entered into for profit. See I.R.C. § 165.

Even if one adopts a unified approach to basis, one must still address the complications that arise when a taxpayer uses assets with different holding periods to acquire another asset in a tax-free exchange. Under I.R.C. § 1223, taxpayers are allowed to tack the holding periods of the assets given up to the newly acquired asset. I.R.C. § 1223(1). If holding periods differ, the holding period is necessarily fragmented, even if the basis is unified. As a result, gain or loss can be recharacterized from short-term to long-term. In the example above, if the holding period of 10/12 of the cloak were deemed long-term and the holding period of 2/12 were deemed short-term, with a fragmented basis there would be a \$100 long-term loss and a \$20 short-term gain. If the basis were unified, there would be an \$80 loss, of which 83% would be classified as long-term and 17% would be classified as short-term.

ated through significantly more means than simply purchasing virtual items for cash, and tracking basis would become even more difficult.

Fourth, a designation approach requires people actually to designate which currency they are using to acquire their virtual assets. While this is workable in the corporate context, it is far more difficult in the virtual-world context. Corporate reorganizations are business transactions done with the advice of lawyers and accountants, who are aware of the rules and can help ensure they are observed. In contrast, tax-free exchanges in the virtual context will often occur casually, by people at play and not thinking about the tax consequences of their actions. Although keeping records may not be burdensome in a fully taxable business, it is not clear whether it is warranted where only some people will ultimately cash out and trigger tax liability. Nor is it clear that taxpayers would actually comply with the rules, creating the noncompliance issues of which the National Taxpayer Advocate warned.¹⁵⁰

The existence of a default-ordering rule would solve some of these problems, but it still requires knowledge of the bases of the different batches of currency on hand and the order in which those batches were acquired whenever any item is purchased, so that the basis can be determined upon sale. If one adopts a fragmented approach to basis, the task of tracking basis and determining gain or loss on the sale of an asset becomes even more difficult.

Despite these problems, the nature of virtual objects presents an opportunity to effect a tracing regime that does not exist in the real world. Virtual assets are constructed from code, and every transaction is capable of being electronically tracked. These facts present two possibilities that might ameliorate the administrative difficulties associated with tracing basis.

First, Congress could require all virtual-world publishers to track basis for their participants and to report it, say on a Form 1099-V(irtual). Congress has recently passed legislation to require brokerage houses to retain and report basis figures for customers who hold stock or other securities with them.¹⁵¹ Starting in 2011, when customers sell shares, the brokerage house must report to the taxpayer and the government the gain or loss realized.¹⁵² Similar rules could be adopted for publishers of virtual worlds. For instance, if one adopted a FIFO rule for expenditures from a player's common funds, the publishers could track the different batches of currency in the account, their bases and holding periods, and when they were deposited.

¹⁵⁰ See *supra* text accompanying notes 6–7.

¹⁵¹ See Emergency Economic Stabilization Act of 2008, Pub. L. No. 110-343, § 403, 122 Stat. 3765, 3584.

¹⁵² See *id.*

When Grant purchases a sword, the computer could simply apply the ordering rules and determine the sword's basis. When he sells the sword, the developer could issue a Form 1099-V listing Grant's basis.

Such a rule imposes significant burdens on developers, and they will likely oppose any such proposal, as brokers did successfully until last year. And, as with brokers, developers may not know the appropriate basis of a given asset or batch of currency. For instance, developers will not know whether items that are transferred between parties in-world without compensation have been given as gifts or purchased on sites such as IGE.com.¹⁵³ If Grant purchases a sword for \$100 and then gives it to Amy, under the gift basis rules, Amy should get a transferred basis of \$100.¹⁵⁴ In contrast, if Grant gives Amy the sword because she paid him \$80 outside the confines of the virtual world, she should have an \$80 basis in the sword. If in-world transactions were taxable, they would create basis, and the developers would need to know the relative fair market values of the items sold or exchanged.

To remedy this problem, one could ask participants to inform the developers of the basis in the assets they acquire, much as an investor could report his basis in stocks transferred to a new broker.¹⁵⁵ The difficulty is that virtual-world participants may not report basis accurately. Moreover, many developers prohibit the sale of items outside the confines of their worlds and enforce the prohibition by banning those who sell goods from their worlds.¹⁵⁶ Nonetheless, sales do occur, creating basis. In such cases, participants are unlikely to report basis to the publisher, and it seems incongruous to require publishers to create systems to track basis where their rules, if followed, would prohibit the creation of basis in the first place. Obviously, such con-

¹⁵³ See *supra* text accompanying notes 19–20.

¹⁵⁴ I.R.C. § 1015 (providing that the donee holds the same basis in the property as the donor did).

¹⁵⁵ This method could work something like the hedging rules found in I.R.C. § 1221(a)(7) and (b)(2) and the regulations issued to implement these sections. Under Treas. Reg. § 1.1221-2(f), taxpayers must identify whether a futures contract is a hedging transaction or an investment by the close of business on the day it is acquired. Treas. Reg. § 1.1221-2(f) (as amended in 2007). The regulations also contain rules for characterizing transactions where no designation has been made. *Id.* § 1.1221-2(g)(2). Where no identification is made, the transaction is deemed not to be a hedging transaction. However, the regulations contain rules for inadvertent failures to designate, *id.* § 1.1221-2(g)(2)(ii), as well as anti-abuse rules, *id.* § 1.1221-2(g)(2)(iii), to prevent taxpayers from treating legitimate hedging transactions as investments. Admittedly, the determination of basis can be more difficult than the binary decision of whether a futures contract qualifies as a hedging transaction or an investment. However, the basic structure of a designation requirement, default rules absent a designation, and anti-abuse rules is a model that could prove fruitful.

¹⁵⁶ See, e.g., Posting of Edward Castronova to TERRA NOVA blog, http://terranova.blogs.com/terra_nova/2004/12/blizzard_goes_t.html (Dec. 12, 2004) (describing Blizzard's efforts to police its no-cash-out rule).

cerns do not apply to fully commodified worlds that permit participants to cash out.

Second, it may be possible to track basis without imposing a reporting requirement on publishers. Each virtual object is constructed of code, and it would be possible to create each item with a tracking feature that would store that item's basis and holding period. In a tax-free world, whenever items were exchanged, the basis could automatically transfer from one item to the other. Under this system, if Grant were to spend coins from a commingled fund, the coins would have basis information encoded in them that would transfer to whatever item he acquired. Then, if he sold the item in a taxable transaction, he could simply check the item's basis to determine his gain or loss. To make this work, taxpayers would have to be able to identify and select which coins from a commingled fund they were using to purchase items, much as one identifies lots when selling stock. Or, one could adopt a forced-ordering rule where the coins could be selected automatically.

To account for the fact that basis can arise even if in-world transactions are not taxed, one could allow taxpayers to adjust manually the basis of their items to reflect reality. This ability to set the basis counter could also be used if tax authorities were to subject some or all in-world transactions to taxation. Players would simply need to insert the fair market value of the item received into the basis counter. While this would allow people to fabricate basis, fraudulent behavior is possible in virtually any system one creates and is really no different from a taxpayer's opportunity to enter incorrect figures onto their tax returns.

As with the basis reporting idea, this solution would require the participation of both publishers and participants, as publishers would have to structure their universes to require that all assets have basis and holding period markers, allow those markers to be reset when appropriate, and possibly to allow designation of currency from commingled pools. Participants would have to enter basis information when appropriate. Just as with mandatory reporting requirements, it seems likely that developers and virtual-world participants would oppose this approach. Nonetheless, such an approach could make basis tracing possible.

B. The Pooling Approach

The second approach to allocating basis in virtual worlds would be to pool a taxpayer's basis in her virtual goods and allocate that basis back to those goods based on their relative fair market values. Just as an investor's interest in a company can be viewed as a unified whole, a virtual-world participant's investment in a given virtual world

could be seen as a unified whole. Unlike assorted investments in the real world, investments in virtual assets are easily cabined and seen as separate from other types of investments, making pooling attractive. Someone who has a basis of \$2,000 in virtual goods with a \$3,000 value has a \$1,000 unrealized gain. As with fungible assets, it arguably should not matter for tax purposes that the taxpayer purchased some goods at one price and others at another. If the taxpayer cashes out part of that investment, she should realize a proportional amount of gain or loss.

Although this approach works well in the partnership and mutual-fund context, it would likely be unduly difficult in the virtual-world context. The reason that this method works in the mutual-fund context is that all shares in a mutual fund have the same value. Thus, one simply divides the total basis by the shares owned to determine an average basis per share.¹⁵⁷ It works in the partnership context because there are only two types of interests, and both types of interest can easily be understood to be part of a unified interest in a business, despite the differences. In contrast, aside from currency, virtual goods are not fungible and do not have equal value. Thus, it does not work to divide the total basis by the number of virtual assets owned to determine the average basis of each virtual asset. Otherwise, a single gold piece might have the same basis as a sword that costs 100 gold pieces.¹⁵⁸

To make basis pooling work, it would be necessary to determine the relative fair market value of each asset and to assign each asset basis in accordance with such value. This determination is simply not workable, as taxpayers would have to value all their virtual assets anytime they sold one asset to determine how much basis should be allocated to the asset being sold. Although active markets exist for some

¹⁵⁷ For example, if a taxpayer purchased 100 shares of a mutual fund for \$10/share and a second 100 shares for \$20/share, the total basis for all shares would be \$3000, and the average basis/share would be \$15. If the taxpayer sold 50 shares, those shares would each have a basis of \$15 for a total basis of \$750. The remaining 150 shares would have a basis of \$2250, or \$15/share.

¹⁵⁸ Allocating basis in this fashion would open the door to serious manipulation, as it would create losses in some assets and gains in others. For instance, continuing the example in the text above, assume that the taxpayer purchased the gold piece for \$0.10 and the sword for \$100. The total pooled basis would then equal \$100.10. If this basis were divided equally between the gold piece and the sword—the only two assets the taxpayer owned—the gold piece would get \$50.05 in basis, as would the sword. The taxpayer could sell the gold piece to generate a loss, while holding onto the gain property. In this hypothetical, it seems likely that that the loss would not be allowed under I.R.C. § 165(c), which places strict limitations on loss deductions. *See* I.R.C. § 165(c). However, if participating in a virtual world is considered an activity covered under I.R.C. § 183, the loss might be allowed to offset a gain from that activity, so long as it occurred in the same tax year. *See id.* § 183. Also, it is not difficult to imagine someone in Second Life or some other virtual world engaged in a profit-seeking activity, where such a deduction would be allowed under either I.R.C. § 162 or § 212.

assets in some worlds, and it might be possible to derive value indirectly, basis pooling, at least done this way, is not administratively feasible.¹⁵⁹

One could try to remedy the allocation problem by giving taxpayers no basis in virtual goods other than virtual currency and then pooling the basis in such currency.¹⁶⁰ Let us return to Grant to illustrate how this would work. If Grant were to purchase a sword for \$100, the \$100 basis would attach to any currency Grant had. Thus, when Grant sells the sword for \$100, he must report a \$100 gain. If Grant has no currency, the basis would sit in suspense until he acquired some.¹⁶¹ When Grant cashes out his currency, it would be easy to determine the average basis, as currency is fungible. We could simply divide the total basis by the units of currency.

While initially promising, at least from the basis allocation perspective, this approach also has its problems. For instance, if Grant were to purchase a sword for \$100 and then sell it the next day for \$100, he would have no accession to wealth. However, he would have to report a gain of \$100.¹⁶² If we assume that Grant has one gold piece that he found in-world to which his basis flows, Grant will realize a loss of almost \$100 if he sells the gold coin for \$0.10, its fair market value. However, if the loss is deemed personal, it will be disallowed

¹⁵⁹ It should be noted that basis is averaged across nonfungible partnership interests, see *supra* Part III.A.1, and across nonfungible classes of stock received in a transaction covered by I.R.C. § 351, see *supra* Part III.B. However, in the partnership context, there are only two types of interests to be valued, making the allocation relatively easy. Incorporations are normally accomplished with the help of lawyers who should be versed in these matters and capable of advising their clients regarding basis allocations. The same cannot be said of sales of virtual assets.

¹⁶⁰ I'd like to thank Bryan Camp for suggesting this as a possible solution.

¹⁶¹ The issue of disembodied basis arises in the context of corporate redemptions that are treated as dividends, where the corporation has redeemed shares, but shareholders should nonetheless be accorded the basis they have in those shares. If the shareholder has other shares that have not been redeemed, the basis transfers to those shares. See Treas. Reg. § 1.302-2(c), ex. 1 (as amended in 2007). If the shareholder has no additional shares but is treated as having received a dividend because shares owned by others are attributed to him, the basis should shift to those shares. See *id.* § 1.302-2(c), ex. 2. Presumably, one could have free-floating basis, unattached to any object, that could be recovered at some later date or that could attach to later acquired assets. The Treasury Department has suggested something similar to this in Proposed Treasury Regulation § 1.302-5, which permits basis to be recovered on a date other than the redemption date. See Allocation of Consideration and Allocation and Recovery of Basis in Transactions Involving Corporate Stock of Securities, 74 Fed. Reg. 3509 (proposed Jan. 21, 2009) (to be codified at 26 C.F.R. pt. 1).

¹⁶² I have proposed elsewhere that income generated in in-world transactions should not be subject to tax if the world prohibits participants from cashing out. See Chodorow, *supra* note 3. If the nontaxation of such transactions is warranted because of the inability to cash out, stripping a participant of her basis on cashing out may serve as an added deterrent to cashing out, thus further justifying nontaxation of in-world transactions. Indeed, to the extent that taxation is seen as appropriate, but not feasible because of administrative concerns, stripping goods of basis when they are cashed out may serve as a form of rough justice.

under I.R.C. § 165(c), thus causing him to report a \$100 tax gain, even though he is no better off.¹⁶³

If the loss is incurred in an activity covered by I.R.C. § 183, it may be used to offset gain from the activity. Section 183, colloquially known as the hobby-loss provision, applies to any activity that does not qualify as a trade or business under I.R.C. § 162 or a profit-seeking activity under I.R.C. § 212. For such activities, taxpayers may deduct expenses to the extent of gains, thus preventing the double taxation of funds expended on those activities. However, because there are no carryover provisions, if the sale of the sword and the coin were to occur in different tax years, the loss would not be available to offset the gain. Similarly, as discussed above, if Grant sold the gold coin to a related party, the loss would be disallowed.¹⁶⁴ Thus, Grant would be taxed on a phantom \$100 gain.

In addition to the problem of phantom gain, causing all basis to flow to a taxpayer's virtual currency would create some assets with built-in gains and others with built-in losses. Because taxpayers have the ability to hold their gain property and sell their loss property, this could create significant opportunities for taxpayers to cause their tax results to deviate from their economic results, something pooling is supposed to prevent.

Steven Chung has suggested that virtual currencies that function as real-world currencies could be treated as such for tax purposes and that participants in virtual worlds with such currencies could be subjected to the foreign currency rules found in I.R.C. § 987.¹⁶⁵ Businesses covered by § 987 calculate their foreign taxable income in the foreign currency and then translate it into a dollar gain or loss using the weighted average exchange rate over the taxable year.¹⁶⁶ When they transfer money from the foreign unit to the United States, exchanging it into U.S. dollars, they calculate an exchange gain or loss, i.e., the difference between their basis in their foreign currency and the value received, using a pooling method similar in some regards to those discussed above.

Under the proposed regulations, the taxpayer determines an "equity pool" and a "basis pool" for the business, where the equity pool reflects the business's adjusted, undistributed foreign currency earn-

¹⁶³ Under the Haig-Simons income definition, whether someone is deemed better off is determined by looking at the sum his consumption and change in wealth. See GRAETZ & SCHENK, *supra* note 80, at 97. One could argue that Grant is better off because, even though Grant's wealth has not increased, the purchase of the sword can be viewed as an act of consumption. I would argue that the purchase of the sword is merely a change in the form of his wealth.

¹⁶⁴ I.R.C. § 267 (2006).

¹⁶⁵ See Chung, *supra* note 3, at 763.

¹⁶⁶ I.R.C. § 987(1), (2).

ings and profits and the basis pool reflects the previously taxed investment in the business.¹⁶⁷ When a remittance is made, the taxpayer determines what percentage of the equity pool the remittance represents and allocates to it the same percentage of the basis pool. Gain or loss arises if the value of the remittance differs from the basis, and it is treated as ordinary, not capital.

Although this approach would simplify gain or loss calculations for in-world taxable transactions by requiring only one conversion at the end of the year, it amounts to a pure pooling proposal when in-world transactions are tax free. Virtual-world participants are just as likely to cash out property as they are currency. As noted above, allocating pooled basis to nonfungible items is quite problematic. Even absent those concerns, Chung concedes that the administrative difficulties for those participating for entertainment may be onerous.¹⁶⁸

C. A Hybrid Approach

Neither a pure tracing nor a pure pooling approach to virtual basis seems particularly promising. Tracing is simply too administratively burdensome and ignores the fungible nature of currency. Pooling has its own administrative difficulties. In light of these problems, I propose a hybrid approach, where virtual goods retain their own cost basis, while basis is averaged across virtual currency. When an asset is sold in-world for virtual currency, the basis from the asset flows into the currency pool. It is then available to be allocated to items purchased with that currency or to offset the amount realized if the currency is cashed out. Although this approach does not solve all of the difficulties of accounting for basis, it avoids many of the administrative problems pure tracing or pooling regimes present and it properly distinguishes between fungible and nonfungible assets.

This proposal would work as follows. Any tax-free barter exchange of assets in-world would be treated as a tax-free exchange to which the tracing regime applied, i.e., the basis of the item given up would transfer to the item received. Rules would need to be developed to address the exchange of multiple items of different value and bases to prevent taxpayers from manipulating the basis rules by claiming they had exchanged low-value items for high-value items. If Grant were to purchase a sword for \$100 and then sell it the next day for \$100, he would not have to report any gain or loss, as he would retain a \$100 basis in the sword. Similarly, if he traded the sword for a shield, he could sell the shield for \$100 without incurring any tax liability because the basis would transfer to the shield. However, if Grant

¹⁶⁷ Prop. Treas. Reg. § 1.987-2(c).

¹⁶⁸ See Chung, *supra* note 3, at 776–77.

were to sell the sword for virtual currency, the virtual currency would then acquire the \$100 basis. This basis would then be pooled with that of any other currency Grant has.

Any asset purchased with virtual currency would receive a basis equal to the proportional basis inherent in the pool, regardless of which coins were actually used in the purchase. In essence, this rule is the flip side of the basis-pooling rules allowed in the sale of mutual funds.¹⁶⁹ Such a rule would obviate the need to track different batches of currency and trace the basis from specific coins in a pooled fund to different virtual items Grant purchases, while at the same time ensuring that Grant is not taxed absent real economic gain. The rule also avoids the need to value nonfungible property to allocate pooled basis.

An example might help. Imagine that Grant earns 1000 gold coins in-world, which are not taxed and therefore have no basis. Further assume that he purchases a sword for \$100, which he later sells for 1000 gold pieces. Each of these gold pieces has a \$0.10 basis. Next assume that Grant purchases a shield for 700 gold pieces, which he later sells for \$70. Rather than determine which gold pieces Grant used to purchase the shield to determine his basis and therefore his gain or loss, under this approach we would need to determine his average basis for the 2000 gold pieces at the time of the purchase and then allocate the appropriate amount to the shield. Here, the total basis is \$100, and therefore each gold coin has a \$0.05 basis. Because Grant used 700 coins to purchase the shield, the shield gets a basis of \$35. Thus, he must report a \$35 gain on its sale. The remaining 1300 gold pieces have an aggregate basis of \$65, with each coin having a \$0.05 basis.

Still unanswered is the question whether the basis should be unified or fragmented. Given the administrative difficulties of tracing basis fragments and determining gain or loss for them, I propose a unified basis approach. However, as in the mutual-fund context, the holding period for any asset purchased with the pooled coins or for the coins themselves must be addressed. One could follow either the fragmented–holding period approach used for I.R.C. § 351 transactions, or the ordering approach used for mutual-fund sales. Under the fragmented approach, any gain or loss would need to reflect the relative percentage, based on fair market value, of various holding periods of the coins in the common pool used to purchase a virtual asset.¹⁷⁰ This approach could get complicated if there are numerous batches of gold coins with different holding periods, and it would

¹⁶⁹ See *supra* Part III.A.2.

¹⁷⁰ See *supra* Part III.B.

functionally eliminate any benefit gained from unifying basis. Thus, one of the ordering rules used for mutual fund sales seems desirable.

The double-category method allows for long-term and short-term pools so that the holding periods can be maintained separately.¹⁷¹ However, this approach seems unnecessarily complicated for the virtual-world context. Instead, using the single-category mutual-fund approach, FIFO applies, such that the longest held coins are deemed to be spent first.¹⁷² If there are sufficient coins in the pool at the time an item is purchased, all the gain or loss on the taxable sale of that item would be deemed long-term. If the long-term coins are all used up, then we deem the coins with a short-term holding period will be spent, potentially leading to a fragmented holding period. However, this fragmentation cannot be avoided.

Admittedly, this approach could lead to an odd result if a taxpayer were to purchase an item for cash, sell it for gold pieces, repurchase the same item, and then sell it for the same amount of cash he paid for it. For instance, Grant might buy a sword for \$100 on IGE.com, sell it for 1000 gold pieces in a tax-free transaction, then repurchase the sword for 1000 gold pieces, and sell the newly purchased sword for \$100. If the pooled basis of the currency reflects an unrealized loss, the sale of the sword would lead to a tax loss even though the taxpayer is even with regard to that item. If the pooled basis reflects an unrealized gain, the taxpayer will have a gain even though he has not made money on the item. It looks like the tax and economic results will deviate, something the pooling approach is supposed to remedy.

However, on reflection, these results are not problematic. In the loss scenario, when the taxpayer generates a tax loss, he has in fact suffered an economic loss, as reflected in the pooled currency. He could just as easily sell currency to realize the loss, and the fact that he has done so instead through the transaction described above does not present tax problems. In the gain scenario, the rule would force him to recognize part of the gain accruing in other assets. While we generally avoid this when dealing with nonfungible goods, in the context of virtual worlds, the recognition of gain seems less troubling because it is easier to conceive of one's investment in a virtual world as a unified whole, when compared to other types of investments.

CONCLUSION

Virtual worlds present a host of fascinating tax questions that, to date, the IRS has not addressed. So far, those who have considered

¹⁷¹ Treas. Reg. § 1.1012-1(e)(3) (1960).

¹⁷² *Id.* § 1.1012-1(e)(4).

taxation in the context of virtual worlds have focused on the fundamental question of whether the tax laws do or should cover transactions that occur solely in-world. This Article considers how best to account for basis in virtual worlds, an issue that must be resolved regardless of whether one taxes in-world transactions. As the National Taxpayer Advocate noted in her recent report to Congress, a lack of administrative guidance will likely lead to noncompliance in this and other areas.¹⁷³

Consideration of the basis-recovery rules found in the tax laws reveals the instrumental nature of those rules and the role that historical contingency has played in the development of the law. The approaches generally break down into tracing and pooling, each approach having its own advantages and drawbacks. Unfortunately, neither would work particularly well in the virtual context. However, given the instrumental nature of the basis rules, policymakers should feel free to devise new rules applicable to this new context. I propose that the IRS adopt a hybrid approach to basis accounting in virtual worlds, where basis is traced for virtual items and pooled for currency, thus taking the best of both approaches and balancing administrative concerns with the conceptually accurate result for both nonfungible and fungible assets.

¹⁷³ See *supra* text accompanying notes 6–7.