2011

Cutting the Baby in Half: An Economic Critique of Indivisible Resource Partition

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AN ECONOMIC CRITIQUE OF INDIVISIBLE RESOURCE PARTITION

INTRODUCTION

The laws of partition[1] are inadequate to solve most modern co-ownership disputes fairly and efficiently because there are only two generally recognized judicial methods of partition: partition in kind and partition by sale.[2] With partition in kind, the resource at issue is physically divided;[3] with partition by sale, the resource is sold and the proceeds are distributed to the parties.[4] Partition thus presumes that all property can either be physically divided or sold to effectuate a fair distribution.

However, one vexing partition problem courts and scholars have struggled to solve, though have generally avoided, is how to partition property that can neither be sold nor divided physically.[5] Take for instance a situation where two

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[1] 59A AM. JUR. 2D *Partition* § 1 (2003) (defining partition as "the dividing of lands held by joint tenants, coparceners, or tenants in common, into distinct portions, so that they may hold them in severalty" or "any division of real or personal property between co-owners, resulting in individual ownership").

[2] *See id.* § 2 ("Partition takes two forms: (1) partition in kind . . . and (2) a partition by sale . . . ."); 68 C.J.S. *Partition* § 1 (2009) ("'Partition' is a division . . . of . . . property . . . effected by the setting apart of [joint] interests so that [the owners] can enjoy and possess it in severalty or by a sale of the whole and the awarding to each of his or her share of the proceeds."); WILLIAM B. STOEBUCK & DALE A. WHITMAN, THE LAW OF PROPERTY § 5.13 (3d ed. 2000) (recognizing "physical division or sale and division of proceeds" as the two available methods); Abraham Bell & Gideon Parchomovsky, *A Theory of Property*, 90 CORNELL L. REV. 531, 600 (2005) [hereinafter Bell & Parchomovsky, *Theory of Property*] ("Co-tenancies may be partitioned in two ways: either by sale or in kind."). An overwhelming majority of sources limits the two available methods of partition to partition in kind and partition by sale. Among the main aims of this article is to show that courts in many jurisdictions also engage in a third method of partition: partition by allotment.

[3] *See* 59A AM. JUR. 2D *Partition* § 2 (2003) (noting that partition in kind is sometimes known as "actual partition").

[4] *See id.* (noting that partition by sale is known as "partition by licitation" in Louisiana).

[5] *See* DUKEMINIER ET AL., PROPERTY 300 (6th ed. 2006) (posing the question and citing *In re* McDowell, 345 N.Y.S.2d 828 (Sur. Ct. 1973)); *see also* Pugh v. NPC Servs., Inc., 721 So. 2d 1056, 1058 (La. Ct. App. 1998) (where, because of hazardous waste contamination, the property either had "no value or a negative value," the court

siblings are fighting over ownership of their late grandfather's old rocking chair.[6] Using only partition in kind and partition by sale, a court cannot adequately resolve the matter.[7] This struggle to partition indivisible resources underscores one manifest limitation of partition. More importantly, however, it reveals a fundamental problem with the general approach of partition law: the disregard of subjective value.

In property law, courts generally apply the so-called "property rule": an entitlement can only be removed if the holder of the entitlement voluntarily sells it (for a price determined by the holder).[8] A property rule thereby protects the value that an owner subjectively attaches to his property. Conversely in partition, owners of concurrent interests are often forced to relinquish their entitlement in exchange for the entitlement's objective value.[9] In using this "liability rule" courts assume that (as in eminent domain) owners cannot set the price they will be paid when they are forced to sell their property.[10]

By using economic principles of game theory, allocations in partition can be fairly and efficiently determined from the owners' subjective values, rather than from the objective view of the market. This note argues that when fair and efficient to do so, courts in partition should protect each co-owner's entitlement by using neither a property rule nor a liability rule, but rather a hybrid rule,[11] whereby the court would *require* a co-owner to sell his interest at a price determined *subjectively* by the co-owners themselves. So, in two-party indivisible resource partitions,

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asked "[h]ow can property that is susceptible to neither division in kind nor judicial sale be partitioned?").

    [6]   *See generally In re McDowell*, 345 N.Y.S.2d 828 (presenting substantially similar facts).

    [7]   *See id.* at 830; *see also Pugh*, 721 So. 2d at 1058.

    [8]   *See* Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1092 (1972).

    [9]   *See id.* at 1092. For a discussion of Calabresi and Melamed's property and liability rules in the context of game-theoretic bargaining, see generally Daphna Lewinsohn-Zamir, *The Choice Between Property Rules and Liability Rules Revisited: Critical Observations from Behavioral Studies*, 80 TEX. L. REV. 219 (2001).

    [10]   *See* Calabresi & Melamed, *supra* note 8, at 1108.

    [11]   *See* Lucas J. Asper, *The Fair Market Value Method of Property Valuation in Eminent Domain: "Just Compensation" or Just Barely Compensating?*, 58 S.C. L. REV. 489 (2007). In this article, Asper suggests that owners' subjective evaluation of their property should be considered in determining "just compensation" in eminent domain cases, instead of simply paying owners the fair market value of their property. To do so, Asper suggests "courts should utilize a hybrid rule that makes use of the characteristics of both property rules and liability rules." *Id*. at 502. However, this "hybrid rule" requires courts to balance "all of the factors affecting the property value, including subjective values such as sentimental attachment," rather than have the owners themselves set the value of their entitlement. *Id*.

courts should eschew both partition in kind and partition by sale, and instead allot the entire property to the co-owner who values it the most, paying to the other co-owner an amount determined by the parties' subjective evaluation of the property.

This note analyzes established modes of partition and criticizes them for failing to conform to normative economic criteria. Following the introduction, Part I will track the development of the modern rules of partition in a historical context. Part II will outline the normative criteria and economic theories necessary to analyze different partition methods. Part III will apply these criteria to various methods of partition, including popular methods such as chance and rotation, as well as the judicial methods of in kind, sale, and allotment. Part IV suggests a new method for partitioning indivisible resources, referred to here as equitable allotment. Finally, this note concludes by discussing unresolved problems and encouraging further debate.

I.   HISTORY AND DEVELOPMENT OF PARTITION LAW

Partition is a classic[12] problem appearing in many contexts[13]—from disputes as mundane as two children fighting over how to divide a cupcake,[14] to divorces,[15] to corporate bankruptcies.[16]

Perhaps the most celebrated story of partition is the biblical tale of King Solomon[17] decreeing that a baby—claimed

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[12]   *See* Abraham Bell & Gideon Parchomovsky, *Reconfiguring Property in Three Dimensions*, 75 U. CHI. L. REV. 1015, 1021 (2008) [hereinafter Bell & Parchomovsky, *Reconfiguring Property*] (noting that "one of the most basic problems of property law" is "what to do when owners of property in common decide to part ways").

[13]   *See* HERVÉ MOULIN, FAIR DIVISION AND COLLECTIVE WELFARE 235 (2003) (describing the applicability of fair division to cake-cutting, bankruptcy, divorce, inheritance, and dividing disputed territory between countries); *see also* Michael J. Meurer, *Fair Division*, 47 BUFF. L. REV. 937, 937 & nn.1-6 (1999) (book review) (describing the importance of fair division to remedies, probate, family law, partnership law, bankruptcy, and other fields).

[14]   The cake-cutting problem may seem trivial, but it has occupied mathematicians and economists for well over half a century. *See, e.g.*, Lee Anne Fennell, *Revealing Options*, 118 HARV. L. REV. 1399, 1401-02 (2005); Hugo Steinhaus, *The Problem of Fair Division*, 16 ECONOMETRICA 101 (1948).

[15]   *See, e.g.*, Jeremy A. Matz, Note, *We're All Winners: Game Theory, the Adjusted Winner Procedure and Property Division at Divorce*, 66 BROOK. L. REV. 1339 (2001) (criticizing the applicability of a game-theoretic property division method to divorce cases).

[16]   *See* MOULIN, *supra* note 13, at 235.

[17]   *See* 1 *Kings* 3:19-3:28. For a discussion of Solomon's wisdom in relation to fair division see STEVEN J. BRAMS & ALAN D. TAYLOR, THE WIN-WIN SOLUTION 7-8 (1999) [hereinafter BRAMS & TAYLOR, WIN-WIN SOLUTION]; STEVEN J. BRAMS & ALAN D. TAYLOR, FAIR DIVISION 6-7 (1996) [hereinafter BRAMS & TAYLOR, FAIR DIVISION];

by two women each as her son—be cut in half.[18] Solomon, of
course, did not actually cut the baby in half but instead gave
him to the woman who had protested the partitioning,
declaring that she was the boy's true mother, rather than the
other woman who seemed satisfied that physically dividing the
baby was a just method.[19] Solomon's judgment, however, is not
truly a partitioning scheme[20] because Solomon did not intend to
divide the baby, but sought instead to discern the parties'
subjective evaluation of the resource at issue[21] and allocate the
resource to the party that valued it the most.[22]

Ancient history contains several other treatments of
partition. The Greek myth of Zeus and Prometheus sharing meat
describes perhaps the oldest allusion to the divide-and-choose
method. In that story, Prometheus separated the meat into two
portions, and Zeus selected his share.[23] The Talmud (the
paramount text of Jewish rabbinic law) discusses a few
partitioning cases,[24] beginning with the famous garment
problem.[25] In this case, where two men grab on to a garment that
each claims as exclusively his, the Talmud decrees that each be
given half.[26] Roman law allowed for physical division and payment

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Daniel Friedman, *From the Trial of Adam and Eve to the Judgments of Solomon and Daniel*, 5 RUTGERS J.L. & RELIGION 3 (2003) (discussing the wisdom of Solomon among other biblical judgments).

[18]   *See* 1 *Kings* 3:25.

[19]   *See* 1 *Kings* 3:27.

[20]   *See* BRAMS & TAYLOR, WIN-WIN SOLUTION, *supra* note 17, at 8.

[21]   *See* BRAMS & TAYLOR, FAIR DIVISION, *supra* note 17, at 6 (explaining that Solomon's solution was really a game to discern the women's preferences and strategies).

[22]   Thus achieving a more efficient distribution. *See infra* notes 100-01 and accompanying text.

[23]   *See* BRAMS & TAYLOR, FAIR DIVISION, *supra* note 17, at 10.

[24]   *See* BABYLONIAN TALMUD, BABA MEZIA 2a (I. Epstein ed., Salis Daiches & H. Freedman trans., 1986). Besides the garment problem, the Talmud goes on to discuss a similar situation: where "one rides [on an animal] and the other leads it" both claiming it as all theirs, each will get half. In a variation, one person holding the garment claims "it is all mine" but the other claims "half of it is mine." Here the Talmud decrees the first gets three-quarters, and the other one quarter, on the theory that only half of the garment was in dispute, and so only that portion was divided. *See* H. PEYTON YOUNG, EQUITY IN THEORY AND PRACTICE 65 (1994) (discussing this Talmudic rule in the context of equality and proportionality). For other Jewish laws of partition, see 5 EMANUEL QUINT, A RESTATEMENT OF RABBINIC CIVIL LAW, Part IV (Laws of Partition of Realty) (1994).

[25]   *See* BABA MEZIA, *supra* note 24, at 2a ("Two hold a garment. One of them says, 'I found it,' and the other says, 'I found it'; one of them says, 'it is all mine,' and the other says, 'it is all mine.'").

[26]   *See id*.; *see also In re* Lehal Realty Assoc., 112 B.R. 601, 605 (Bankr. S.D.N.Y. 1990) (referencing the Talmudic garment case); Benjamin Taibleson, *Forgiving Breach: Understanding the Preference for Damages Over Specific Performance*, 27 QUINNIPIAC L. REV. 541, 570-71 (2009) (discussing the garment problem in terms of split-the-difference compromise solutions in hard cases).

of an owelty.[27] But, if the property was not capable of division, the Corpus Juris Civilis of Emperor Justinian allowed allotment of the entire property to one of the parties.[28] English laws of partition can be traced at least as far back as Roman law.[29]

Under the early common law, physical partition was greatly limited,[30] and partition by "sale was out of [the] question."[31] In medieval England, laws of primogeniture left inheritance to the eldest son, and thus made the need for partition infrequent.[32] However, the common law limitation had one major exception: where all of a decedent's heirs were female, the law required partition.[33] The law referred to these heiresses as coparceners, precisely because partition was required of them.[34]

Blackstone briefly discusses partition among coparceners and notes that partition occurred either by consent or by compulsion.[35] Consensual partition included partition in kind, where sisters chose parcels in order of seniority, or by random chance.[36] Blackstone also makes an early reference to the divide-and-choose method, allowing the eldest sister to divide the land and choose the last parcel.[37] Compulsory partition, notes Blackstone, was had under a writ of partition, whereby the sheriff would make a partition of the land on the verdict of a jury and assign the parcels to the respective parties.[38]

Blackstone acknowledges that "there are some things which are in their nature impartible," and so, in situations involving a "mansion-house" for instance, Blackstone forbids physical partition.[39] As an alternative to physical partition, Blackstone writes that in these situations "the eldest sister, if she pleases, shall have [the property], and make the others a reasonable satisfaction."[40] However, if that is not possible, Blackstone holds

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[27]   *See* William H. Loyd, *Partition*, 67 U. PA. L. REV. 162, 163 (1919).

[28]   *See* DIG. 10.2.55 (Ulpian, Ad Edictum 2) (S.P. Scott trans., 1932); *see also* Loyd, *supra* note 27, at 163 (referencing the same).

[29]   *See* Loyd, *supra* note 27, at 163.

[30]   *See id.* at 166.

[31]   *Id.* at 167.

[32]   *See id.* at 164.

[33]   *See id.*

[34]   *See id.*

[35]   *See* 2 WILLIAM BLACKSTONE, COMMENTARIES *189.

[36]   *See id.*

[37]   *See id.* ("[W]here the eldest divides, and then she shall chose last; for the rule of law is, *cujus est divisio, alterius est election.* [She who makes the division has the last choice.]" (English translation in original)).

[38]   *See id.*; *see also* Loyd, *supra* note 27, at 167 ("[T]he sheriff with a jury of twelve went upon the land, made a division of it and allotted the shares.").

[39]   2 WILLIAM BLACKSTONE, COMMENTARIES *189-90.

[40]   *Id.*

that the sisters "shall have the profits of the thing by turns."[41] This taking turns—or rotation—was also noted by Sir Edward Coke, who wrote that if a mill were to be partitioned, coparceners would use it for alternating periods of time.[42]

With the statute of Henry VIII,[43] the right to physical partition was greatly expanded. First, partition became available to tenants in common and joint tenants, rather than just coparceners.[44] Second, the right to partition became considered absolute,[45] and thus, a "court could not refuse it or order a sale, although the result might be inconvenient or even absurd."[46] For instance, in *Turner v. Morgan*, the English Court of Chancery held that, in a partition of a house, it was not error to "allot[] to the Plaintiff the whole stack of chimneys, all the fire-places, the only staircase in the house, and all the conveniences in the yard."[47]

In response to increased urbanization and the occasionally ridiculous results of compulsory physical partition[48] (as in *Turner v. Morgan*), American states enacted legislation allowing courts to sell the property and divide the proceeds among the parties.[49] Every state now governs partition by statute.[50] However, under these schemes, statutes in almost[51]

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[41]   *Id.*

[42]   *See* Loyd, *supra* note 27, at 167.

[43]   *See id.* at 168-69; 2 AMERICAN LAW OF PROPERTY § 6.21 (1952); STOEBUCK & WHITMAN, *supra* note 2, § 5.11.

[44]   *See* 2 AMERICAN LAW OF PROPERTY, *supra* note 43, § 6.21. Apparently, castles "necessary for defence of the realm" were exempted on policy grounds. Turner v. Morgan, (1803) 32 Eng. Rep. 307 (Ch.) 308; 8 Ves. Jun. 143, 144; *see also* Loyd, *supra* note 27, at 167 (noting that unlike halls, which were sometimes physically divided, castles used for defense were to remain with the oldest son, his brothers receiving payment for their shares).

[45]   *See Turner*, 32 Eng. Rep. at 308; Crocker v. Cotting, 48 N.E. 1023, 1024 (Mass. 1898) (Holmes, J.) (citing *Turner*, 32 Eng. Rep. 307); Heldt v. Heldt, 193 N.E.2d 7, 9 (Ill. 1963) ("[M]otive for partition is immaterial . . . and . . . the absolute right to partition yields to no consideration of hardship, inconvenience or difficulty."); *cf.* ARK. CODE ANN. § 18-60-404 (2003) (providing that minority shareholder party not related to other co-owners by four degrees of consanguinity cannot petition for partition within three years of the purchase of that interest).

[46]   Loyd, *supra* note 27, at 173.

[47]   32 Eng. Rep. at 308; *see also* Scovil v. Kennedy, 14 Conn. 349, 360-61 (1841) (exhibiting the difficulty in partitioning a stream of water).

[48]   *See* Frank v. Frank, No. 094162, 1992 WL 83533, at *5 (Conn. Super. Ct. Apr. 22, 1992) (opining that the Connecticut legislature may have enacted the state's partition statute in response to *Scovil*, 14 Conn. 349 (partitioning a stream)).

[49]   *See* Wilk v. Wilk, 795 A.2d 1191, 1193 (Vt. 2002).

[50]   Plus the District of Columbia, Guam, and the Virgin Islands. *See, e.g.*, CAL. CIV. PROC. CODE § 874.010 (Deering 2011); CONN. GEN. STAT. ANN. § 52-495 (West 2005); MISS. CODE ANN. § 11-21-1 (LexisNexis 2010); N.J. STAT. ANN. § 2A:56-2. (West 2000); N.Y. REAL PROP. ACTS. § 901 (McKinney 2010); S.C. CODE ANN. § 15-61-10 (West 2005); VA. CODE ANN. § 8.01-81 (2007).

every jurisdiction still anachronistically[52] favor partition in kind,[53] and allow sale only if physical partition would result in "great prejudice"[54] or "manifest injury"[55] to a party in interest.[56] Nevertheless, evidence shows that courts' loyalty to the statutes is only nominal,[57] and judges are now more likely to order partition by sale despite the stated preference.[58] Aside from partition in kind and by sale, courts in at least fifteen states also participate in a third generally unacknowledged[59] method of judicial partition called partition by allotment,[60]

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[51] *See* IOWA CODE ANN. § 1.1201(2) (LexisNexis 2010) ("Property shall be partitioned by sale . . . unless a party prays for partition in kind . . . ."); Fannin v. Fannin, 75 S.W.2d 1042, 1043 (Ky. 1934) ("[T]he court will presume . . . that a town lot is not susceptible of advantageous division."). Maine statutes do not provide for partition by sale. *See* 14 ME. REV. STAT. ANN. tit. 14, §§ 6501-6525 (2003). However, Maine courts will allow partition by sale under the court's equity jurisdiction. *See* Libby v. Lorrain, 430 A.2d 37, 39 (Me. 1981).

[52] As early as 1919, William H. Loyd wrote, "American statutes permitting a sale when great prejudice would result from a division were passed at a time when interests were mainly agricultural and neither legislator nor judge would willingly disturb the traditional attitude toward ownership." Loyd, *supra* note 27, at 189; *see also* Manel Baucells & Steven A. Lippman, *Justice Delayed Is Justice Denied: A Cooperative Game Theoretic Analysis of Hold-Up in Co-Ownership*, 22 CARDOZO L. REV. 1191, 1195 (2001) ("The law ostensibly favors partition in kind for historical reasons . . . .").

[53] *See* Loyd, *supra* note 27, at 188; Delfino v. Vealencis, 436 A.2d 27, 30 (Conn. 1980); Thomas J. Miceli and C. F. Sirmans, *Partition of Real Estate; Or, Breaking Up is (Not) Hard to Do*, 29 J. LEGAL STUD. 183, 787 (2000).

[54] 4 THOMPSON ON REAL PROPERTY § 38.04 (David A. Thomas ed., 2d Thomas ed., 2004).

[55] 2 AMERICAN LAW OF PROPERTY, *supra* note 43, § 6.26.

[56] The statutory standard varies by jurisdiction. *See* 4 THOMPSON ON REAL PROPERTY, *supra* note 53, § 38.04 & nn.108-09; *see also* John G. Casagrande Jr., Note, *Acquiring Property Through Forced Partition Sales: Abuses and Remedies*, 27 B.C. L. REV. 755, 760 n.47 (1986) (listing each state's statutory conditions for allowing sale).

[57] *See* 4 THOMPSON ON REAL PROPERTY, *supra* note 5453, § 38.04; UNIF. PARTITION OF HEIRS PROP. ACT prefatory note (2010), *available at* http://www.law.upenn.edu/bll/archives/ulc/utcpa/2010_final.htm [hereinafter UPHPA] ("Despite the overwhelming statutory preference for partition in kind, courts in a large number of states typically resolve partition actions by ordering partition by sale . . . ."); *see also* Bell & Parchomovsky, *Theory of Property*, *supra* note 2, at 601 (noting that despite the "[r]hetorical[] . . . preference for partition in kind . . . courts have often favored tilting the balance toward partition by sale"); Candice Reid, Note, *Partitions in Kind: A Preference Without Favor*, 7 CARDOZO L. REV. 855, 856, 864 (1986).

[58] *See* 2 AMERICAN LAW OF PROPERTY, *supra* note 43, § 6.26 (writing in 1952 that "[a]s a practical matter the modern practice is to decree a sale in partition actions in the great majority of cases, which usually involve single parcels of improved property"); Phyliss Craig-Taylor, *Through a Colored Looking Glass: A View of Judicial Partition, Family Land Loss, and Rule Setting*, 78 WASH. U. L.Q. 737, 753-55 (2000) ("[I]n practice . . . partition sales are the rule rather than the exception.").

[59] *See infra* notes 205-07 and accompanying text.

[60] *See infra* Part III.E.

where the entire property is allotted to one party who pays the others an objective amount for their shares.[61]

Courts still maintain that concurrent owners have an "absolute right to partition."[62] Therefore, as with eminent domain, the law may force an owner to unwillingly sell his property. Indeed, the right is so strong that courts will rarely deny partition even when partition would be unduly oppressive to a party[63] or would displace a family with minor children.[64] One author noted that

> although partition actions are brought in equity, the courts have been strangely reluctant to deny partition on the basis of [equitable] defenses. Attempts to defeat partition by claims of hardship have almost always been unsuccessful and frequently have elicited statements by the court that the right to partition is absolute.[65]

In 2010, the National Conference of Commissioners of State Laws promulgated the Uniform Partition of Heirs Property Act (UPHPA)[66] in order to address many of the problems associated with forced sale under partition statutes. Under the UPHPA, the cotenants who did not request partition by sale have the opportunity to buy the shares of those cotenants who did request partition[67] at a price based on an initial appraisal value of the property.[68] If the shares of the co-owners who requested partition by sale are not all bought-out, the UPHPA directs the court to order partition in kind, unless doing so would prejudice the cotenants.[69] If the court orders partition by sale, the UPHPA requires that a real estate broker (paid a "reasonable commission") conduct an open-market sale for a

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[61] *See generally infra* Part III.E. Variations on partition by allotment may avoid its characterization as something separate from partition by sale or in kind. For instance, in an in kind division with an owelty payment, it is conceivable that the property be physically divided into one part containing the entire property and the other containing nothing. Furthermore, the winning bidder at a partition sale may be one of the co-owners. The sale may also be conducted privately.

[62] Heldt v. Heldt, 193 N.E.2d 7, 9 (Ill. 1963) (explaining that "motive for partition is immaterial and that the absolute right to partition yields to no consideration of hardship, inconvenience or difficulty" (citations omitted)).

[63] *See* 4 THOMPSON ON REAL PROPERTY, *supra* note 54, § 38.03(a)(2)(iii) (citing Hassel v. Workman, 260 P.2d 1081 (Okla. 1953) and Condrey v. Condrey, 92 So. 2d 423 (Fla. 1957) as rare examples of the exception).

[64] *See Heldt*, 193 N.E.2d at 9; *see also* 4 THOMPSON ON REAL PROPERTY, *supra* note 54, § 38.03(a)(1) (citing *Heldt*).

[65] Leonard A. Girard, *Equitable and Contractual Defenses to Partition*, 18 STAN. L. REV. 1428, 1433 (1966).

[66] UPHPA, *supra* note 57.

[67] *See id.* § 7 & accompanying cmts.

[68] *See id.* § 6.

[69] *See id.* § 8.

value not less than the original appraisal value.[70] The UPHPA also allows the property to be sold at auction or by sealed bids[71] and allows one of the cotenants to be the winning purchaser.[72] The UPHPA is limited only to certain types of tenancy in common property,[73] and has only been adopted by one state.[74]

Courts have occasionally transferred principles of partition to other situations. For instance, in 2001, a dispute arose between two baseball fans over Barry Bonds's record-setting homerun ball,[75] when, after Bonds hit the ball into the stands, each litigant claimed he was the ball's true owner.[76] In *Popov v. Hayashi*, the court decided that both parties had "an equal and undivided interest in the ball."[77] By recognizing each litigant's concurrent property interest, the court, in effect, deemed the two litigants co-owners[78] of the ball, before ordering the ball sold and the proceeds divided evenly between them.[79]

II. NORMATIVE CRITERIA FOR AN ECONOMIC ANALYSIS OF PARTITION[80]

This section establishes the tools necessary for an economic analysis of partition. However, it is difficult—if not impossible—for any popular or judicial scheme to conform to all

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[70] *See id.* § 10(a)-(b).

[71] *See id.* § 10(a).

[72] *See id.* § 10(f). Statutes in Utah and Washington expressly contemplate one of the co-owners purchasing the property. *See* UTAH CODE ANN. § 78B-6-1235 (LexisNexis 2008); WASH. REV. CODE ANN. § 7.52.390 (West 2007).

[73] *See* UPHPA, *supra* note 57, § 2.

[74] As this note goes to press, only Nevada has adopted the UPHPA. *See Acts: Partition of Heirs Property Act*, UNIF. LAW COMM'N, http://www.nccusl.org/Act.aspx?title=Partition%20of%20Heirs%20Property%20Act (last visited Nov. 22, 2011).

[75] *See* Popov v. Hayashi, No. 400545, 2002 WL 31833731, at *1-2 (Cal. Super. Ct. Dec. 18, 2002). For a discussion of *Popov v. Hayashi*, as well as the Talmudic garment division principle in the context of split-the-difference remedies, see Gideon Parchomovsky, Peter Siegelman & Steve Thel, *Of Equal Wrongs and Half Rights*, 82 N.Y.U. L. REV. 738 (2007).

[76] *See Popov*, 2002 WL 31833731, at *2-3.

[77] *Id.* at *8 ("[W]here more than one party has a valid claim to a single piece of property, the court will recognize an undivided interest in the property in proportion to the strength of the claim.").

[78] Under this formulation the co-owners would be tenants in common. *See* DUKEMINIER ET AL., *supra* note 5, at 275.

[79] *See Popov*, 2002 WL 31833731, at *8.

[80] For a critique of the use of mathematical criteria of fairness in real-world bargaining problems, see Robert J. Condlin, *Every Day and in Every Way We Are All Becoming Meta and Meta, or How Communitarian Bargaining Theory Conquered the World (of Bargaining Theory)*, 23 OHIO ST. J. ON DISP. RESOL. 231, 267-69 (2008), which argues that bargaining algorithms using mathematical notions of equity and fairness have inherent limitations in incorporating complex notions of cultural and moral norms.

of these principles, and sometimes the presence of one may preclude the presence of another. When scrutinizing a particular method of partition, it is not enough that the scheme sometimes results in a fair or efficient allocation. Rather, the application of these criteria questions whether the mechanism guarantees a particular result. Moreover, the qualities outlined in this checklist may carry different persuasive weight among concurrent owners, courts, economists, and society at large. As a whole, the focus should be both on the fairness of the outcome as well as the method itself.

A.   *Proportionality*

Proportionality embodies the essence of fair division. An allocation is proportional for *n* parties with equal interests if each party feels it received at least 1/*n* of the resource.[81] Therefore, dividing a pie between two children is proportional if each child feels she received one-half of the pie. However, if Alice contributes $10 and Ben contributes $5 towards the purchase of a $15 pie, fairness dictates that Alice receive at least twice as much pie as Ben.[82] This conforms to the Aristotelian doctrine that "[e]quals should be treated equally, and unequals unequally, in proportion to relevant similarities and differences."[83] This seems intuitive, but when faced with difficult cases, resorting to arbitrary factors—such as age or gender—may be easier, but less fair, than proportional division.

B.   *Envy-Freeness*

Envy-freeness conceptualizes the emotional underpinnings of unfairness into a rational[84] and compelling test.[85] According to one author, "A distribution is said to be envy-free if no one prefers another's portion to his own."[86] After

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[81]   *See* BRAMS & TAYLOR, FAIR DIVISION, *supra* note 17, at 9 & n.8.

[82]   Presuming that twice as much pie is worth twice as much.

[83]   MOULIN, *supra* note 13, at 1 (citing Aristotle's NICOMACHEAN ETHICS).

[84]   The underlying assumption is that the parties each rationally want to gain as much value as possible from the allocation. *See* Lewinsohn-Zamir, *supra* note 9, at 228 ("The standard economic game-theoretic prediction is that both players will behave rationally, that is to say, strive to maximize their monetary payoffs.").

[85]   *See* MOULIN, *supra* note 13, at 235 ("With heterogeneous individual preferences . . . [t]he test of no envy . . . offers an extremely appealing answer.").

[86]   YOUNG, *supra* note 24, at 11 (emphasis omitted); *accord* MOULIN, *supra* note 13, at 236 ("A distribution of resources is nonenvious, or it passes the no-envy test, if every agent prefers (weakly) his or her share to that of any other agent: I cannot complain about my share because no one else has a share that I would exchange for

an envy-free distribution, each party feels he received the most valuable portion,[87] or a portion at least as valuable as anyone else's portion. On the other hand, if after partitioning the resource, one party values another's share more highly than his own, the partition fails the envy-free test.[88] Thus, the envy-free test requires consideration of each party's subjective valuation.

C.   *Efficiency*

Concurrent ownership generally encourages inefficient use of property.[89] If too many people hold the right to use the property, each user may not be able to internalize the consequences (externalities) of his use, which produces inefficient consumption—a situation called the "tragedy of the commons."[90] On the other hand, when there are too many owners, each with the ability to block the others' use, the result is likewise inefficient because by threatening a block, each owner may extract a premium[91] from the other owners—a

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mine."). The philosophical origins of the no-envy test are uncertain, but can be traced to the work of Ronald Dworkin and earlier. *See* Ronald Dworkin, *What Is Equality? Part 2: Equality of Resources*, 10 PHIL. & PUB. AFF. 283, 285 (1981); Carol Necole Brown, *Casting Lots: The Illusion of Justice and Accountability in Property Allocation*, 53 BUFF. L. REV. 65, 104-05 (2005) (noting that "Harrington's Law is that no division is just if, after the division, any one participant would prefer the portion allocated to another participant" and citing THE POLITICAL WORKS OF JAMES HARRINGTON (J.G.A. Pocock ed., 1977)).

   [87]   *See* BRAMS & TAYLOR, FAIR DIVISION, *supra* note 17, at 2.
   [88]   *See* EDWARD E. ZAJAC, POLITICAL ECONOMY OF FAIRNESS 97 (1995).
   [89]   *See* DUKEMINIER ET AL., *supra* note 5, at 291; *see also* Ian Ayres & Eric Talley, *Solomonic Bargaining: Dividing Legal Entitlements to Facilitate Cosean Trade*, 104 YALE L.J. 1027, 1096-98 (1995); Bell & Parchomovsky, *Reconfiguring Property*, *supra* note 12, at 1021. Bell and Parchomovsky argue that

> [W]here the owner is unable to extract the full social value inherent in property ownership and is therefore likely to maintain the asset in a suboptimal configuration . . . [forced aggregation and disaggregation doctrines, including partition by sale] seek to force the property into the optimal asset configuration without compromising the drive toward a single owner, while minimizing the negative impact on owner dominion.

Id. at 1049.
   [90]   *See* Hanoch Dagan & Michael A. Heller, *The Liberal Commons*, 110 YALE L.J. 549, 551 (2001); *see also* Ayres & Talley, *supra* note 89, at 1029.
   [91]   *See* Ward Farnsworth, *Do Parties to Nuisance Cases Bargain After Judgment? A Glimpse Inside the Cathedral*, 66 U. CHI. L. REV. 373 (1999). After examining several nuisance suits, Farnsworth concludes that despite what Coase or Calabresi and Melamed may suggest, parties do not continue to negotiate after judgment. *Id.* at 373-74. Instead, winners will not sell their rights unless paid an astronomical amount—dubbed an "acrimony" or "commensurability premium." *Id.* at 392. This illustrates how protecting an unwilling seller with a property rule can result in an anticommons block to efficient use.

situation known as the "tragedy of the anticommons."[92] By ending co-ownership, partition encourages efficiency; however, the methods of partition themselves are often inefficient.

Efficiency has various definitions,[93] but this discussion will use "efficient" to mean "Pareto-optimal." According to one leading economist, "Pareto optimality is the single most important tool of normative economic analysis. Its desirability is undisputed. In the endstate version of distributive justice, it is the one requirement that cannot be dispensed with."[94] An allocation is Pareto-optimal if there exists no other feasible allocation that can make one party better-off while keeping all other parties at least as well-off.[95] In other words, a situation is inefficient if it is possible to make a party better without making anyone else worse.[96] So if Harry has three gloves but Lloyd only has one glove, the distribution is inefficient because taking away Harry's extra glove and giving it to Lloyd keeps Lloyd warm without making Harry cold. On the other hand, if Harry has two gloves and Lloyd has only one, the distribution is efficient because the only way to make Lloyd better is to make Harry worse.

After an envy-free distribution, simply because each party is unwilling to switch shares with anyone else does not mean that everyone received the largest share possible.[97] In other words, an envy-free allocation is not necessarily efficient.[98] However, as one economist wrote, "A nonenvious distribution that is also efficient is one coherent answer to the fair division puzzle."[99]

Fitness is an aspect of efficiency that mandates giving "the resources to whomever makes the best use of it: the flute

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[92]   *See* Bell & Parchomovsky, *Theory of Property*, *supra* note 2, at 564; *see also* Miceli & Sirmans, *supra* note 53, at 783, 787 (but noting, also, that "[c]ommon ownership can promote efficient use of land").

[93]   *See* ZAJAC, *supra* note 88, at 11-12.

[94]   MOULIN, *supra* note 13, at 8. *But see* ZAJAC, *supra* note 88, at 69 ("[E]conomic efficiency is a necessary but far from sufficient condition for an economically just or fair economy.").

[95]   *See* B. Lockwood, *Pareto Efficiency*, *in* 3 THE NEW PALGRAVE DICTIONARY OF ECONOMICS 811, 811 (Eatwell et al. eds., 1987). Note that in considering a Pareto-superior position we look only at the allocation to the parties involved. So, an allocation that leaves all parties better off, but dispenses with the need for attorneys, is considered more efficient even though the lawyer counting on a big paycheck is now unhappy. *See infra* Part II.D.

[96]   *See* BRAMS & TAYLOR, FAIR DIVISION, *supra* note 17, at 44.

[97]   *See id.* at 2.

[98]   *See id.* at 2 n.2.

[99]   MOULIN, *supra* note 13, at 236.

to the flutist, [and] the books to the avid reader."[100] The utility a party derives from an allocation is discernable from how much that party values the allocation. Therefore, a child who likes pie will value a slice of pie more than he will value a torts casebook, because he can derive greater utility from the pie than from the casebook. Therefore, efficiency dictates allocating a resource to whichever party values it most.[101]

D.   *Administrability*

While not conceptually distinct from Pareto-superiority,[102] administrability emphasizes efficiency in method as well as result. It is incontrovertible that partition schemes should be easy to administer, costing the courts and the parties as little time and effort as possible. Ideally, the parties themselves should be able to achieve the partition cheaply and easily without the need of a third-party mediator (such as the courts).[103] However, in every jurisdiction,[104] partition requires peripheral entities—such as auctioneers,[105] appraisers,[106] panels of commissioners or referees,[107]

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[100]   *Id.* at 2. Gauging utility often involves social judgments. Do farmers make "better use" of a field than do football players? Is it better to give the flute to the flutist if no one likes hearing her play? This note will ignore externalities and assume that the party who values the resource the most derives the greatest utility from it. Eschewing social judgment may prove unworkable if society prefers one use over another more profitable use, as in a situation where a young girl's cherished pet horse may be another's prizewinner. In this note, utility will be purely subjective.

[101]   *See* Fennell, *supra* note 14, at 1403 ("From an efficiency perspective, we would want the entitlement to end up in the hands of the party who values it the most—whether or not the entitlement was originally assigned to that party."); James E. Krier & Stewart J. Schwab, *Property Rules and Liability Rules: The Cathedral in Another Light*, 70 N.Y.U. L. REV. 440, 446 (1995) ("From the standpoint of efficiency, a judge should . . . assign the entitlement . . . such that it *ends up* in the hands of that party . . . who values it most (or can do without it at least cost). From the standpoint of justice, the judge should assign the entitlement such that it *starts out* in the hands of the party who is most deserving in light of the applicable justice norm . . . .").

[102]   *See* Calabresi & Melamed, *supra* note 8, at 1093-95 ("[A]dministrative efficiency is just one aspect of the broader concept of economic efficiency."). Pareto-superior means more efficient, or closer to Pareto-optimal.

[103]   This discussion only contemplates the benefits to the parties, so any loss in revenue for auctioneers, appraisers, commissioners, and lawyers is not considered.

[104]   *See, e.g.*, CAL. CIV. PROC. CODE § 874.010 (West 1980) ("The costs of partition include [inter alia]: . . . attorney's fees . . . fee and expenses of the referee . . . compensation . . . for services of a surveyor or other person employed by the referee . . . [and] costs of a title report . . . .").

[105]   *See* Miller v. Burke, 68 N.Y. 615, 615 (1877) (auctioneer recovering auction fees from partition sale); Anderson v. Anderson, No. A-01-418, 2002 Neb. App. LEXIS 180 (Neb. Ct. App. July 2, 2002) (reasonableness of auction fees as a percentage of sale price in partition sale).

[106]   *See* Geib v. McKinney, 617 A.2d 1377 (Conn. 1992).

[107]   *See* Girard, *supra* note 65, at 1429-30.

surveyors, and of course, attorneys[108]—whose costs all eat away at the parties' final allocations.[109] A method of partition that eliminates these costs will result in Pareto-superiority because each party will receive a greater allocation without the deduction of these extra expenses.[110]

E.   Equitability

Even in situations where all the parties feel they received more than their fair share, the amount by which they feel they received more than their fair share may differ. Equitability ensures that each party's surplus (the value exceeding the proportional share) is equal. So if Alice feels she got 51 percent of the pie, but Ben feels he got 91 percent of the pie, the allocation is not equitable. For a more concrete example, imagine that Alice loves boats but hates airplanes, and Ben loves airplanes but hates boats. If Alice is given a toy boat, but Ben is given an actual Harrier jet, the allocation will be envy-free because neither party will want to switch places with the other.[111] However, although Alice is happy with her boat, Ben is much happier with his jet, and therefore the allocation is not equitable. A fair method of partition ensures equitability.

F.   Strategy-Proofness

Any method susceptible to gamesmanship does not guarantee fair results.[112] Therefore, a fair partition method must ensure that it is not in any player's best interest to lie.[113] If an allocation method is strategy-proof then "truthful report is a dominant strategy."[114] This occurs if the party making the

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[108]   *See* Clement v. Ferguson, 287 P.2d 207, 213-14 (Okla. 1955).

[109]   *See id.*

[110]   *See* discussion under "Efficiency," *supra* Part II.C.

[111]   Presuming the jet cannot be sold to buy many toy boats.

[112]   *See* MOULIN, *supra* note 13, at 237 (noting the importance of "strategyproofness" in nonenvious assignments); *see also* Fennell, *supra* note 14, at 1401-02 (noting in a game-theoretic discussion of Calabresi-Melamed entitlements that the "challenge, then, is to structure legal entitlements in a way that induces people to truthfully reveal their valuations"); Ayres & Talley, *supra* note 89, at 1030 (noting that "self-interested bargainers have a strong incentive to misrepresent their private valuations so as to capture a larger share of the bargaining 'pie'" and developing a scheme to facilitate trade by eliminating this incentive).

[113]   *See* MOULIN, *supra* note 13, at 237 (noting that when honesty was the dominant strategy, the assignment was strategy-proof).

[114]   Vito Fragnelli & Maria Erminia Marina, *Strategic Manipulations and Collusions in Knaster Procedure*, 3 AUCO CZECH ECON. REV. 143, 144 (2009).

evaluation either knows that lying will be disadvantageous[115] or does not know whether fixing a high or low evaluation will be to her advantage.[116] Therefore, a strategy-proof method disincentivizes both high and low valuations.[117] Consonant with the criterion of strategy-proofness is the requirement that the method be impervious to collusion. In other words, it should also not be possible for two or more players to better their positions by furtively agreeing to collaborate.[118] Much of game theory fair division is devoted to concocting strategy-proofing mechanisms.

III. TESTING PARTITION SCHEMES FOR FAIRNESS AND EFFICIENCY

This section analyzes several methods of partition using the criteria established in Part II. Although these are not nearly the only modes of partition, they represent an array of schemes most likely to impact the rights of co-owners.[119]

A. *Partition in Kind*

It is axiomatic that one cannot physically divide an indivisible resource. Although most modern partition actions involve indivisible property, statutes in nearly[120] every jurisdiction prefer partition in kind.[121] In practice however, courts are likely to allow sale "where the . . . fragmentation [resulting from physical division] would materially reduce the

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[115] Consider a rule that allows homeowners to set the value of their property for tax purposes and for eminent domain purposes. Clearly, for property tax purposes, owners would gain by setting a price much lower than their true valuation of the property. Similarly, if homeowners were allowed to set the "just compensation" value of their home after it was taken through eminent domain, owners would quote a price much higher than their true valuation of the property. If strategy-proof, it would be in the owner's best interest to tell the truth about the property's value.

[116] *See* Fennell, *supra* note 14, at 1411, 1418-19 (citing John Rawls's "veil of ignorance" as an antidote to self-interest bargaining).

[117] *See id.* at 1411.

[118] *See* Fragnelli & Marina, *supra* note 114, at 144 (quoting Moulin's definition of coalition-strategy-proof as "when 'if a joint misreport by a coalition strictly benefits one member of the coalition, it must strictly hurt at least one (other) member'").

[119] The several modes of partition discussed primarily by economists, which have gained little if any attention by the courts or legal academics, are best handled in a separate treatment. *See* Matz, *supra* note 15.

[120] *See* IOWA CODE ANN. § 1.1201(2) (West 2002) ("Property shall be partitioned by sale . . . unless a party prays for partition in kind . . . ."); Fannin v. Fannin, 75 S.W.2d 1042, 1043 (Ky. 1934) ("[T]he court will presume . . . that a town lot is not susceptible of advantageous division.").

[121] *See* Loyd, *supra* note 27, at 188; Delfino v. Vealencis, 436 A.2d 27 (Conn. 1980); Miceli & Sirmans, *supra* note 53, at 784.

aggregate value of the [property]."[122] Thus, "indivisible" does not mean "incapable of division," but rather that partition in kind would reduce the total value of the resource.[123] A six-karat diamond that can be cut into two three-karat diamonds is therefore considered indivisible because as the karat of a single diamond increases its price per karat also increases.[124] Moreover, because of removal and disposal costs, physically partitioning a boat, for example, may leave the parties even worse off than if they had received nothing at all.[125] Even if the aggregate value of the divided parcels were not reduced, but remained exactly equal to the value of the undivided property, the high transaction costs associated with partition[126] means that a partition in kind scheme would result in a Pareto-inferior distribution.

Despite the imprudence of physical division, courts presented with an indivisible resource may order partition in kind to encourage an out-of-court settlement. For instance, the court in *Turner v. Morgan* sanctioned physically partitioning a house hoping the parties would "agree to buy and sell" each other's shares.[127] Yet such a ruling results in an anticommons situation where each party may block the other's use and extract hold-up costs in excess of their fair share.[128] Thus in a world with transaction costs, courts that use a property rule by ordering partition in kind encourage inefficiency.[129]

On the other hand, "where there are no scale economies [meaning that] the aggregate market value of the [property] when subdivided . . . is no less than the value of the undivided parcel . . . partition in kind is always the efficient remedy."[130] So

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[122]   Miceli & Sirmans, *supra* note 53, at 796. Here the authors provide a balancing test for determining when courts should order sale and when they should partition in kind, considering the goals of maximizing the aggregate value of the land and protecting subjective value. *Id.* at 783; *see also* Bell & Parchomovsky, *Theory of Property*, *supra* note 2, at 601 ("[C]ourts have often favored tilting the balance toward partition by sale . . . by collapsing the two-part test for partition in kind into a one-step inquiry into whether value would be lost by opting for partition in kind.").

[123]   *See* Bell & Parchomovsky, *Theory of Property*, *supra* note 2, at 601-02.

[124]   In other words, a six-karat diamond is worth more than twice as much as a three-karat diamond. Similarly, the value of a living baby is worth much more than twice the value of half a baby.

[125]   *See* Arthur L. Stinchcombe, *The Economic Analysis of Law: Game Theory, Procedure, and Consent: Focusing on Fair Division*, 22 LAW & SOC. INQUIRY 1087, 1092 (1997).

[126]   *See* "Administrability," *supra* Part II.D.

[127]   Turner v. Morgan, (1803) 32 Eng. Rep. 307 (Ch.) 308; 8 Ves. Jun. 143, 145.

[128]   *See* Baucells & Lippman, *supra* note 52, at 1195.

[129]   *See* Miceli & Sirmans, *supra* note 53, at 787-88.

[130]   *Id.* at 788-89. Except when transaction costs are high. *See supra* Part II.D.

for instance, a giant bluefin tuna (which can top $300,000[131]) may be physically partitioned. Because such resources are easy to divide, this note will focus exclusively on indivisible property.

B.   *Chance*

Chance has a long history in fair division.[132] Some courts have accepted randomness in resource allocation,[133] while others have no tolerance for arbitrariness.[134] In the context of partition, after real property has been divided into parcels pursuant to a partition in kind, assignment of the parcels by lottery is acceptable[135] and may even be provided for by statute.[136]

Although the use of chance has many appealing qualities, it is not a fair method of partition. At first blush, a coin flip seems to provide a simple, impartial,[137] and strategy-proof[138] method for allocating disputed resources: it requires no mediator, and the only cost is acquiring the coin. The winner-take-all outcome of coin flipping is also efficient[139] because making the loser happier requires taking value away from the winner.

Chance appears fair only when the parties view the value of the resource at issue as equivalent to the probability of obtaining the disputed property. If the undivided chance of

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[131]   *See* Akiko Fujita, *A Real Fish Story: Bluefin Tuna Is Auctioned for Record $396,000*, ABC NEWS (Jan. 5, 2011), http://abcnews.go.com/International/bluefin-tuna-fetches-record-396000-japanese-fish-market/story?id=12544594 (describing a tuna bought jointly by two restaurant owners from different cities).

[132]   *See Jonah* 1:7 ("So they cast lots, and the lot fell upon Jonah.").

[133]   *See* Brown, *supra* note 86, at 65, 66-74 (discussing the history, legality, and efficacy of distribution and allocation of resources by chance); *see also* Adam H. Samaha, *Randomization in Adjudication*, 51 WM. & MARY L. REV. 1 (2009) (finding a proper place for random decision making in American jurisprudence).

[134]   *See* Wilk v. Wilk, 795 A.2d 1192, 1195 (Vt. 2002) (in dicta, explaining that where there is no basis for allotting property to one party over another, a court should resort to sale rather than abuse its discretion by making an arbitrary decision); *see also* Ayres & Talley, *supra* note 89, at 1078 (explaining that "the legal system's use of analogy and precedent is inconsistent with a decision-making process that ultimately resembles a flip of a coin").

[135]   *See* Townbridge v. Donner, 40 N.W.2d 655, 657 (Neb. 1950) (referee may allot partitioned portions, or parties may draw lots); Gray v. Von Crotts, 293 S.E.2d 626, 629 (N.C. Ct. App. 1982); 2 WILLIAM BLACKSTONE, COMMENTARIES *189 (coparceners distribute parcels by lots); *see also* Jay M. Zitter, *Judicial Partition of Land by Lot or Chance*, 32 A.L.R. 4th 909, 909-15 (West 1984) (collecting cases requiring or allowing parcels to be distributed by chance pursuant to a partition in kind).

[136]   *See, e.g.*, MISS. CODE ANN. § 11-21-21 (West 2008).

[137]   *See* Brown, *supra* note 86, at 113.

[138]   That is, presuming the coin is fair, and both parties can see the coin being flipped and landing.

[139]   *See* Brown, *supra* note 86, at 113.

obtaining the resource is 1, and there are *n* parties with equal interests, then a decision that gives each party an equal 1/*n* chance of winning at first seems proportional. However, the resource at issue is not a probability, but the actual underlying property. Thus, the allocation of the property after the coin-flip is not proportional, envy-free, or equitable, because the winner of the toss gets the entire allocation, whereas the loser receives nothing.

C.   *Rotation*

Rotation describes the concept of taking turns,[140] examples of which are ubiquitous.[141] Roommates take turns doing the dishes and divorced spouses take turns with custody of children.[142] When two motorists converge at an intersection and both have the right to use the road (although they cannot both safely do so at the same time), the traffic light divides the resource temporally by giving one party the use of the road now and the other party the use of the road later.

As a judicial method of partition, rotation has gained intermittent support. Blackstone[143] and Coke[144] wrote that in circumstances where property, such as a house or mill, cannot be partitioned physically, the co-owners could take turns using and profiting from the resource. A Minnesota statute similarly provides: "When the premises consist of a mill or other tenement which cannot be divided . . . the referees may assign the exclusive occupancy and enjoyment . . . to each of the parties alternately for specified times, in proportion to their respective interests."[145]

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[140]   *See* YOUNG, *supra* note 24, at 21 (using the term "rotation" to describe alternating time-sharing).

[141]   For a fictional and humorous example of rotation, see *The Simpsons*: *Three Men and a Comic Book* (FOX television broadcast May 9, 1991) (Bart, Millhouse, and Martin contribute to buy an expensive comic book and agree that Bart will have possession Mondays and Thursdays, Millhouse Tuesdays and Fridays, and Martin Wednesdays and Saturdays, while Sunday's possession will be determined by a random number generator.).

[142]   *See* YOUNG, *supra* note 24, at 21, 34.

[143]   *See* 2 WILLIAM BLACKSTONE, COMMENTARIES *189-90 ("[T]hey shall have the profits of the thing by turns . . . .").

[144]   *See* Loyd, *supra* note 27, at 167 (alternating use of a mill).

[145]   MINN. STAT. ANN. § 558.12 (West 2010). Maine has a similar statute. 14 ME. REV. STAT. ANN. § 6506 (West 2003) ("Tenants in common of a sawmill may have a division of the time during which each may occupy according to his interest . . . .").

One notable case of partition by rotation is *In re McDowell*.[146] In this probate case, a brother and sister claimed rights to their late grandfather's rocking chair, which had great sentimental value to the parties but "only nominal" value otherwise.[147] While admitting that his ruling "may sound strange,"[148] the judge ordered that each sibling have possession of the chair for alternating six-month intervals, with the survivor to take exclusive ownership.[149]

The court's solution in this case is analogous to a partition in kind, except here the court divided the chair temporally instead of physically. Likewise, just as if the chair had been sawed in two, the division of the chair in time substantially decreases the aggregate value of the chair.[150] Just as twice the value of a physical half of a chair is worth less than the value of the whole chair intact, twice the value of each sibling's temporal allotment is worth less than the value of the undivided chair.[151] In other words, the decision to divide the ownership of the chair in time leaves each sibling with much less than half the actual value of the chair. This allocation is not Pareto-optimal because other allocations exist that can leave both parties happier.

In a *McDowell* scenario, rotation adds additional inefficiency because the expense incurred in transporting the chair back and forth between the siblings' houses wastes resources that could otherwise be used more effectively. While in and out of possession, the chair cannot be put to its maximal productive use—which may include something as simple as tying a room together, or as significant as its utility as a cherished heirloom. Furthermore, the party out of possession will have to buy another chair to take the rocking chair's place

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[146] 345 N.Y.S.2d 828 (Sur. Ct. 1973).

[147] *Id.* at 830.

[148] *Id.* One author wrote of the *McDowell* decision: "The court could, I suppose, have adopted the judgment of Solomon and required the chair be cut in two. Instead the judge . . . ordered that the two children should be permitted to take the chair for six month turns . . . ." Robert Pearce, *What Kind of Castle?*, 7 DENNING L.J. 153, 164 (1992).

[149] *See In re McDowell*, 345 N.Y.S.2d at 830. According to Abraham Bell and Gideon Parchomovsky, by recognizing that the siblings co-owned the chair and ordering rotation, "the court rejected the traditional owner-oriented [partition in kind] and asset oriented [partition by sale] resolutions of partition problems and instead invented one oriented toward dominion through forced time-sharing." Bell & Parchomovsky, *Reconfiguring Property*, *supra* note 12, at 1021 (analyzing property in the dimensions of "owner," "asset," and "dominion").

[150] *See supra* notes 123-26 and accompanying text.

[151] Consider how much you would pay to rent an apartment for a year, and compare it to how much you would pay to rent the same apartment every other day for two years.

in its absence, and incur the expense of storing the superfluous chair while back in possession. A Pareto-superior distribution would eliminate these added costs, giving each party a greater allocation. Because of these costs, the siblings will have an incentive to resolve their dispute out of court,[152] since the sibling with less resources will either simply give up transporting the chair after a few turns, or will settle for an unfairly small amount.

For resources susceptible to waste, rotation leads to inefficiency by encouraging earlier users to maximize their own utility early lest there be nothing left when their time comes again.[153] If two mining companies take turns with a parcel of mineral-rich land, each company will want to mine as much ore as possible—even more ore than they need—before their tenure ends. Of course, rotation does not apply to resources that are destroyed when used, such as a single piece of candy.

A central problem arises when adjudicators must decide who starts first—or more specifically—which time period to allot to which party. In the *McDowell* decree, the sister took the chair every July through December. If the brother preferred using the chair during autumn, he feels unhappy that he may only have the chair from January to June. If the sister dreamed of rocking on her porch in spring, she will likewise be upset at her allotment.[154]

Even if the time allotments are substantially similar, the problem becomes who goes first and who goes second. Scholarship suggests that people overwhelmingly value obtaining a resource now more than they value obtaining the same resource at some point in the future.[155] A person's intertemporal choice may, in part, be psychologically

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[152] The *McDowell* Court contemplated the parties ending the arrangement voluntarily. 345 N.Y.S.2d at 830. Although not saying so, the judge may even have intended this outcome.

[153] *See infra* notes 89-90 and accompanying text.

[154] If the parties' preferences are exactly opposite of their allotment then the distribution is clearly inefficient. However, it would be a simple matter of switching the dates to effectuate a Pareto-superior allocation. Ronald Coase argues that regardless of the initial allocation of entitlements, in the absence of transaction costs, parties will themselves bargain for an efficient distribution. *See generally* Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960). Though, in a family feud, acrimony may prevent frictionless bargaining. *See* Farnsworth, *supra* note 91.

[155] *See* Dilip Soman et al., *The Psychology of Intertemporal Discounting: Why Are Distant Events Valued Differently from Proximal Ones?*, 16 MARKETING LETTERS 347 (2005), *available at* http://www.som.yale.edu/faculty/shanefrederick/Marketing%20Letters.pdf (last visited July 27, 2011). Money is of course more valuable today than it is in a year, so future money must first be discounted before it is compared to present money. *See* Arden Rowell, *The Cost of Time: Haphazard Discounting and the Undervaluation of Regulatory Benefits*, 85 NOTRE DAME L. REV. 1505, 1512 (2010).

motivated,[156] or it may be a rational economic decision.[157] Economists agree that temporal discounting plays a fundamental role in evaluating outcomes, even with nonmonetary resources.[158] Abe will therefore prefer to be the first to try the new game, but will want to hold off cleaning the dishes, and it will be economically rational for him to do so. Thus under either an objective or a subjective test of evaluation, the first taker in rotation gains a larger share of the allocation than do subsequent players. So without adjusting[159] the shares by discounting the allocation to subsequent parties[160] the rotation method fails envy-freeness and proportionality.

D.   *Partition by Sale*

Because most partition actions today involve houses and other developed land, courts in practice usually order partition by sale,[161] despite the stated preference for partition in kind.[162] In some jurisdictions sale is now the preferred method,[163] and many scholars have praised the de facto shift to a preference in

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[156]   *See* Soman et al., *supra* note 155, at 351-52 (accounting for factors such as self-control and delayed gratification).

[157]   *See id.* at 356.

[158]   That is, even for resources that cannot be invested, and do not succumb to inflation or depreciation (such as eating candy now versus being overweight later, getting a massage now versus getting a massage later). *See* Shane Frederick, George Loewenstein & Ted O'Donoghue, *Time Discounting and Time Preference: A Critical Review*, 40 J. ECON. LITERATURE 351 (2002), *available at* http://www.jstor.org/stable/2698382.

[159]   *See* BRAMS & TAYLOR, WIN-WIN SOLUTION, *supra* note 17, at 38-39. The authors contrast strict alternation, where players take turns choosing one of many items to be distributed, to balanced alternation, compensating subsequent choosers for not choosing earlier. Strict and balanced alternation work when many distinct resources must be divided, as when basketball teams take turns drafting players. *See id.* at 27. If one or few items are at issue, strict and balanced alternation are inapplicable.

[160]   *See* Ayres & Talley, *supra* note 89, at 1080-81. Here, authors Ayres and Talley temporally divide ownership of real property into an initial term of years to one party, with the remainder to the other party in fee simple. Using a discount rate of 10 percent, they calculate that the parties "should be indifferent between receiving a claim to the first 6.93 years or receiving a claim to all subsequent years (in perpetuity)." *Id*.

[161]   *See* 2 AMERICAN LAW OF PROPERTY, *supra* note 43, § 6.26 (writing in 1952 that "[a]s a practical matter the modern practice is to decree a sale . . . in the great majority of cases, which usually involve single parcels of improved property").

[162]   *See* Loyd, *supra* note 27, at 188; Delfino v. Vealencis, 436 A.2d 27, 30 (Conn. 1980); Miceli & Sirmans, *supra* note 53, at 787.

[163]   *See, e.g.*, IOWA CODE ANN. § 1.1201(2) (West 2002) ("Property shall be partitioned by sale . . . unless a party prays for partition in kind . . . ."); Fannin v. Fannin, 75 S.W.2d 1042, 1043 (Ky. 1934) ("[T]he court will presume . . . that a town lot is not susceptible of advantageous division . . . .").

favor of sale.[164] Most of this academic praise, however, is warranted only as a preference for sale as the better alternative to physical division. However, when partition by sale is examined independently, rather than as the better alternative to partition in kind, several problems emerge. First, forced sale does not adequately compensate owners for the subjective value of their property. This is particularly problematic if the property has purely sentimental value. Second, forced sale may work hardship by dispossessing people of their homes or ancestral land. Finally, the many shortcomings of auctions and other methods of judicial sale result in unfair allocations.

1. Protecting Subjective Value

Generally, people cannot be forced to sell their property, but rather may decide whether to sell their property and how much they must get in return for doing so.[165] Yet in partition by sale, owners are forced to sell their property interests, and do not get to decide their compensation for doing so. Instead, partition by sale protects concurrent owners' interests with a liability rule[166]: the owner is forced to relinquish the entitlement in exchange for the entitlement's objective value.[167] In partition actions, an appraiser, panel of commissioners, or the will of the free market by sale at public auction determines the property's objective, or "market," value. However, owners are often unwilling[168] to part with their property at market value, and instead will subjectively evaluate their property at a price

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[164] *See, e.g.*, Miceli & Sirmans, *supra* note 53 (indicating the courts' preference for sale conforms to their standard); Bell & Parchomovsky, *Theory of Property*, *supra* note 2, at 601 (noting that in consonance with the article's value theory of property, by favoring partition by sale "courts have reached precisely the right result"); *see also* Reid, *supra* note 57, at 856 (suggesting that "courts promote economic efficiency when they favor judicial sales").

[165] *See generally* Calabresi & Melamed, *supra* note 8 (discussing the protection of such entitlements with a property rule).

[166] *See* Miceli & Sirmans, *supra* note 53, at 784, 789-90.

[167] *See* Calabresi & Melamed, *supra* note 8. In eminent domain cases, it is generally held that "the condemnee is entitled to market value based on what the appraiser determines to be the highest or best use of the property . . . not merely the market value based on the condition of the property at that time." Asper, *supra* note 11, at 498.

[168] That is, if their entitlement is protected with a property rule, giving them the option of retaining the entitlement or voluntarily relinquishing the entitlement for whatever compensation they feel adequate. If protected by a liability rule, the unwilling owner may be forced to part with his property for an objective price. *See* Calabresi & Melamed, *supra* note 8, at 1108 ("Taney may be sentimentally attached to his land. As a result, eminent domain [using a liability rule] may grossly undervalue what Taney would actually sell for.").

much higher than market value. In fact, a substantial gap often exists between a unique object's market and reserve prices.[169] Thus, a liability rule undercompensates owners by the amount that the owner's subjective valuation of the entitlement exceeds its objective value.[170]

The *McDowell* rocking chair scenario confounded the court because the court believed it could not sell a chair with no market value.[171] The true problem, however, was not the chair's lack of market value, but rather that the chair's sentimental value outweighed its market value. Because an owner's subjective valuation will often exceed the property's fair market value, courts should analyze most partition actions—even of a multimillion-dollar home—the same way as that of an old rocking chair.

There are several reasons why subjective value will be greater than objective value. First, sentimental value creates "emotional utility" for the owner that is not accounted for in the market price.[172] Whereas an old clock only holds intrinsic utility to the market (as just an old clock), to an owner with sentimental attachment to the property the clock has both the utility of an old clock plus its additional value as a family heirloom. Second, a quality known as delight in ownership describes the utility derived from the ownership rather than from the value of the item. In other words, this additional value results not from the worth of an object, but simply from the satisfaction in owning it.[173]

Delight in ownership is related to, but distinct from, another concept called the endowment effect, which describes an irrational[174] notion people have that items they own are more

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[169] *See* Bell & Parchomovsky, *Theory of Property*, *supra* note 2, at 567-68 (elaborating on the personhood perspective of property established in Margaret Jane Radin, *Property and Personhood*, 34 STAN. L. REV. 957 (1982)).

[170] *See* Miceli & Sirmans, *supra* note 53, at 783-84.

[171] *See In re* McDowell, 345 N.Y.S.2d 828, 830 (N.Y. Surr. Ct. 1973).

[172] *See* Bell & Parchomovsky, *Theory of Property*, *supra* note 2, at 567-68.

[173] *See id.* at 558 (referencing Meir Dan-Cohen, *The Value of Ownership*, GLOBAL JURIST FRONTIERS, at 1 (2001)). Consider the additional value in being a homeowner, rather than a renter with otherwise comparable rights to the property. *See* Asper, *supra* note 11, at 491 ("Subjective value in the home results from the personal dignity and social status that accompany homeownership, as well as the sentimental value an individual places on the home and surrounding land.").

[174] *See* Owen D. Jones & Sarah F. Brosnan, *Law, Biology, and Property: A New Theory of the Endowment Effect*, 49 WM. & MARY L. REV. 1935, 1942-44 (2008) (connecting the effect to transaction costs). Because it is based on irrationality, the endowment effect may be omitted from fairness analyses. *But cf.* Cass R. Sunstein, *Legal Interference with Private Preferences*, 53 U. CHI. L. REV. 1129, 1150-53 (1986) (placing the endowment effect in a larger scheme of subjective economic preferences);

valuable than identical items they do not own.[175] Essentially, whereas a person would not be willing to spend more than $100 for a clock at a store, if a houseguest offered to buy the homeowner's clock, the lowest price the homeowner would be willing to sell it for would be much higher than $100.[176]

A fourth reason an owner's value of property would be higher than market price is that the owner may have a unique skill or ability that allows him to derive utility from the property others cannot.[177] If Ben is one of the only people who knows how to play the paixiao[178] (a type of Chinese panpipe last popular during the Song Dynasty),[179] he can gain usefulness from it that others cannot. He will therefore value the paixiao more highly than the market would, since it cannot extract similar utility.[180] For the same reason, a company holding the only license to mine uranium will be, by virtue of the state-sanctioned monopoly, the only entity allowed to generate the greatest use out of uranium-rich land, and will therefore value the land more highly than would the market.

Finally, a person may have invested a great deal of time and effort learning how to use a particular irreplaceable object to its greatest effectiveness; if the object were lost or destroyed, he would have to reinvest the same amount of time and effort to learn how to use a replacement object just as well.[181] For instance, Adam may have spent years getting used to the nuances of his baseball glove, which now conforms and responds perfectly to his hand. If he had to use a new glove, he would have to spend just as long readjusting both the glove and

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see also Robert Hockett, *Whose Ownership? Which Society?*, 27 CARDOZO L. REV. 1, 67 (2005). Hockett here provides a nuanced discussion of the endowment effect in a broader analysis of property entitlements, finding the endowment effect, and similar notions of ownership, to be consonant with, and even deeply entrenched in, the American vision of property rights. *Id.* at 57-74.

[175] *See* Bell & Parchomovsky, *Theory of Property*, *supra* note 2, at 568-69. For a game-theoretic discussion of the endowment effect in the context of Calabresi-Melamed property and liability rules, see Lewinsohn-Zamir, *supra* note 9, at 250-57.

[176] *See* Lewinsohn-Zamir, *supra* note 9, at 250-51.

[177] *See* Bell & Parchomovsky, *Theory of Property*, *supra* note 2, at 568.

[178] Abraham Bell and Gideon Parchomovsky use the example of the harpsichord. *See id.* at 568. Though the skills necessary to extract utility from the harpsichord seem too transferable to be rhetorically effective here.

[179] *See Paixiao*, BRITANICA.COM, http://www.britannica.com/EBchecked/topic/1233465/paixiao (last visited Nov. 2, 2010).

[180] *See* Bell & Parchomovsky, *Theory of Property*, *supra* note 2, at 568.

[181] *See id.* at 569 (citing RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 95-96 (5th ed. 1998)).

himself to use it as well as he had used his old glove.[182] Thus, Adam factors in the time and effort invested in learning how to use his glove into his valuation of it[183] and will discount that investment in the cost of continuing to use the glove.[184] The market has not made the same investment, and will therefore value his glove at a lower price.[185]

By compensating owners with mere market value, forced sale harms those who have subjective ties to the property.[186] Some courts in partition actions have taken sentimental attachment into consideration,[187] although often only as one factor among many rather than as dispositive.[188] Because partition is an equitable remedy,[189] courts should consider these types of equitable circumstances, though they are curiously unwilling to do so.[190] Still, fair division allocation must consider subjective value,[191] at least because it is a necessary component of the no-envy test.[192]

2. Dispossession Through Forced Sale

Although courts are generally unwilling to entertain subjective concerns in partition actions, where forced sale would work hardship, some courts have been willing to reject sale in favor of partition in kind.[193] Courts appear most willing to consider the particular hardships resulting from

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[182] *See id.* at 568. For a more substantial example, consider a company that after decades of production has learned to operate a nuanced factory to utmost efficiency.

[183] *See id.*

[184] *See id.* at 569 n.205 ("Where there are only close, but not identical substitutes, substantial costs may be involved in learning how to enjoy a substitute item's full value, whereas all such costs in the currently possessed item have already been sunk. Consequently, the marginal cost of continuing to use the possessed item will no longer include the cost of learning how to use it, while such costs will continue to be reflected in market prices.").

[185] *See id.* at 568.

[186] *See* Ark Land Co. v. Harper, 599 S.E.2d 754, 761 (W. Va. 2004).

[187] *See id.* at 760-61 (citing Schnell v. Schnell, 364 N.W.2d 713, 721 (N.D. 1984); Fike v. Sharer, 571 P.2d 1252, 1254 (Or. 1977)).

[188] *See* Zimmerman v. Marsh, 618 S.E.2d 898, 901 (S.C. 2005); *see also* Campbell v. Jordan, 675 S.E.2d 801, 804 (S.C. 2009) (citing *Zimmerman*, 618 S.E.2d 898).

[189] *See* Reitmeier v. Kalinoski, 631 F. Supp. 565, 575 (D.N.J. 1986).

[190] *See* 4 THOMPSON ON REAL PROPERTY, *supra* note 54, § 38.03(a)(2)(iii); Girard, *supra* note 65, at 1433.

[191] *See* Asper, *supra* note 11, at 501 ("Subjective values that can be monetized must be part of any compensation that is just.").

[192] *See supra* Part II.B.

[193] *See* Wilk v. Wilk, 795 A.2d 1191, 1192 (Vt. 2002) ("Forced sale is disfavored because the Legislature, and the common law . . . sought to minimize the forced divestiture of family property where avoidable.").

dispossession of a family in residence,[194] and so, where a family will be dispossessed, a court may deny partition altogether.[195] Furthermore, courts and scholars have criticized partition by sale for exacerbating the loss of ancestral lands (generally family farms) to opportunistic developers.[196] In many particularly egregious cases, properties that had been in black families for generations were taken over by developers through forced partition, an act which scholarship suggests has been a major reason for the precipitous decline in black landownership over the last century.[197] The recently published UPHPA attempts, in part, to prevent "unscrupulous real estate speculators [from] purchas[ing] a very small interest in family-owned tenancy-in-common property with the sole purpose of seeking a court-ordered partition by sale," thereby winning the property at auction for a price below market-value.[198] At least one jurisdiction has enacted corrective legislation to keep property within families.[199]

3. Problems with Auctions

Concededly, where the resource to be partitioned is fungible and extremely liquid, no real problems exist with selling the property and dividing the proceeds among the co-owners. However, when faced with the facts of *McDowell*, partition by sale does not result in a fair solution. Because the rocking chair has purely sentimental value, it will fetch a paltry sum at auction; each litigant will get half of this small sum, and so both will leave as losers. If the siblings could bid on the chair at this auction, one of them would end up as the

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[194] *See id.* at 1195 ("Forcing partition by sale when more than one co-tenant is willing to take assignment of the property could result in the unnecessary forced divestment of numerous family farms.").

[195] *See* Reitmeier v. Kalinoski, 631 F. Supp. 565, 575 (1986) ("[Where] a family will be put out of its home by the sale in partition, a bill for partition will be denied."). *But see* Heldt v. Heldt, 193 N.E.2d 7, 64-65 (Ill. 1963); *see also* 4 THOMPSON ON REAL PROPERTY, *supra* note 54, § 38.03(a)(1) (citing *Heldt*, 193 N.E.2d 7).

[196] *See generally* Anna Stolley Persky, *In the Cross-Heirs: A Loophole in Real Estate Law Pits Families Against Developers and Each Other. Some Say There's More Than Money at Stake*, 95 A.B.A. J. 44 (2009) (discussing how "land owned for generations is suddenly lost" to developers and land speculators through partition sales).

[197] *See generally* Casagrande, *supra* note 56; *see also* UPHPA, *supra* note 57, preface & cmts.; Persky, *supra* note 196 (discussing how particularly African-Americans are displaced from "heir's property" and how the UPHPA serves to abate the problem).

[198] UPHPA, *supra* note 57, prefatory notes.

[199] *See* ARK. CODE ANN. § 18-60-404 (2010) (providing that a minority shareholder party not related to other co-owners by four degrees of consanguinity cannot petition for partition within three years of the purchase of that interest).

higher bidder (because no member of the public would be willing to pay extra for a rocking chair that only has sentimental value). If x is the price the winning sibling, A, pays at auction, x is divided between the two, so at the end of the day, A will leave with the rocking chair minus $x/2$, and the other sibling, B, will leave with $x/2$. Here both parties leave with ostensibly the same net value: B with $x/2$, and A with the chair (valued at x) minus x/2. However, because of the nature of bidding at an auction, x does not accurately reflect winning bidder A's subjective valuation of the chair; rather it simply reflects the price higher than which B was unwilling to spend. Suppose A valued the chair at $10,000 (meaning he subjectively valued his interest at $5000) and B valued the chair at $6000 (meaning she subjectively valued her interest at $3000). If A places a bid for $6000, B will be unwilling to go higher and will not bid; therefore A will win the chair and pay half this amount ($3000) to B. Because A values the chair at $10,000, he values his final allocation at $7000 (the value of the chair minus the $3000 he paid to B). A therefore gains a $2000 surplus (the $7000 he received over the $5000 he thought his interest was worth) while B gains no surplus at all (since the $3000 she received was equal to her initial valuation). Thus, although the allocation satisfies the envy-free criterion, it violates equitability, because the surpluses are unequal.

In a sealed-bid auction, parties submit one bid each, with the chair going to whomever submitted the highest amount (here, A's $10,000 bid). The result in a sealed-bid auction is the reverse of the result in the normal auction: A leaves with the $5000 he expected and thus with no surplus, but B gains a $2000 surplus over the $3000 she expected.

The transaction costs associated with holding an auction[200] also make this solution inefficient. When it orders a judicial sale, the court will normally appoint a panel of commissioners or a referee to conduct a public or private sale of the property.[201] The proceeds of the sale go toward paying attorneys' fees, fees for the commissioner's appraisal, expenses of the auction, and other costs,[202] with the remainder paid to the

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[200]   *See generally* Miller v. Burke, 68 N.Y. 615 (1877) (auctioneer recovering auction fees from partition sale); Anderson v. Anderson, No. A-01-418, 2002 Neb. App. LEXIS 180 (Neb. Ct. App. July 2, 2002) (reasonableness of auction fees as a percentage of sale price in partition sale).

[201]   *See* Girard, *supra* note 65, at 1429-30.

[202]   *See* CAL. CIV. PROC. CODE § 874.010 (Deering 2010) ("The costs of partition include [inter alia]: . . . attorney's fees . . . fee and expenses of the

parties based on their respective shares.[203] With these costs eliminated, both parties would leave with larger shares, resulting in a Pareto-superior allocation. Finally, judicial sales notoriously yield submarket prices. For instance, following the *Popov v. Hayashi* decision, the Barry Bonds ball did not fetch nearly as much at auction as had been originally estimated (an amount, as it turns out, which was several thousand dollars less than Popov's legal bill).[204]

E.   *Partition by Allotment*

The two recognized judicial methods of partition are partition in kind and partition by sale. However, in 30 percent of the states, courts have occasionally engaged in a third,[205] generally unacknowledged[206] method of partition known as partition by allotment.[207] The Supreme Court of South Carolina defines "partition by allotment" as a mode of partition "whereby one joint owner is allotted the entire property" and pays the others for their respective interests.[208] Many

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referee . . . compensation . . . for services of a surveyor or other person employed by the referee . . . costs of a title report . . . ."); *see also* Riley v. Turpin, 349 P.2d 63 (Cal. 1960).

[203]   *See* Clement v. Ferguson, 287 P.2d 207, 213-14 (Okla. 1955).

[204]   *See* DUKEMINIER ET AL., *supra* note 5, at 111.

[205]   Variations on partition by allotment may avoid its characterization as something separate from partition by sale or in kind. For instance, in an in kind division with an owelty payment, it is conceivable that the property be physically divided into one part containing the entire property and the other containing nothing. Furthermore, the winning bidder at a partition sale may be one of the co-owners.

[206]   The term "partition by allotment" has no entry in *American Jurisprudence*, *American Law Reports*, *Corpus Juris Secundum*, *Black's Law Dictionary*, *Ballentine's Law Dictionary*, or *Words and Phrases*, and is not mentioned in the *Restatement (First) of Property*. Confusingly, the term is sometimes used to refer to partition in kind. *See, e.g.*, Wilk v. Wilk, 795 A.2d 1191, 1193 (Vt. 2002).

[207]   In Maine it is referred to as "partition by buy-out," *see* Libby v. Lorrain, 430 A.2d 37, 39-40 (Me. 1981), and in Vermont it is referred to as "assignment," *see* *Wilk*, 795 A.2d at 1193 ("When . . . the real estate . . . cannot be divided without great inconvenience . . . the court may order it assigned to one of the parties, provided he pays to the other . . . such sum . . . as the commissioners judge equitable." (quoting VT. STAT. ANN. tit. 12, § 5174)).

[208]   Zimmerman v. Marsh, 618 S.E.2d 898, 901 (S.C. 2005); *see also id*. at 902 (Peleicones, J., dissenting); Pruitt v. Pruitt, 380 S.E.2d 862, 864 (S.C. Ct. App. 1989) ("Partition by allotment to one of the parties"); *see also* Austin v. Dobbins, 252 S.E.2d 588, 590-91 (Va. 1979) (Virginia's statute "expressly authorizes partition by allotment of the whole property to one or more coparceners . . . or to a tenant in common"); Faith Rivers, *Inequity in Equity: The Tragedy of Tenancy in Common for Heirs' Property Owners Facing Partition in Equity*, 17 TEMP. POL. & CIV. RTS. L. REV. 1, 59, 72-73 (2007) ("Where one cotenant seeks to maintain the real property, a court may utilize partition by allotment to allow one cotenant to buy out other cotenants through payment of the appraised value." (citing *Zimmerman*, 618 S.E.2d at 900)).

jurisdictions do not permit this mode of partition.[209] Thirteen states, however, recognize partition by allotment under statute.[210] Courts in two states allow partition by allotment

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[209] *See, e.g.*, Thompson v. Celestain, 936 So.2d 219, 222 (La. Ct. App. 2006) (holding the property must be sold publicly, and that assigning the property to one of the parties was in error); Onderdonk v. Onderdonk, 307 A.2d 710, 712 (Md. 1973) (holding partition with owelty does not allow dispossessing but reimbursing some co-owners); *see also Zimmerman*, 618 S.E.2d at 902 (Peleicones, J., dissenting); *see also* Soriano v. Soriano, 643 P.2d 450, 452 (Wash. Ct. App. 1982) (in a divorce proceeding, court violated statutory duty by providing for a private auction where "the husband and wife [were] the only persons permitted to bid and that each item subject to auction be awarded to the person submitting the highest bid on that item"). *But see* Dougherty v. Dougherty, 210 N.W.2d 151, 153 (Mich. Ct. App. 1973) (divorce court's use of sealed bids in lieu of partition was not abuse of discretion).

[210] *See* Alabama: ALA. CODE § 35-6-100 (LexisNexis 2010); Prince v. Hunter, 388 So. 2d 546, 547 (Ala. 1980) (sale reversed because statute mandates joint owners be given opportunity to purchase other owners' shares). *But see* Jolly v. Knopf, 463 So. 2d 150 (Ala. 1985) (challenging the statute's constitutionality). Georgia: GA. CODE ANN. § 44-6-166.1 (2010) (allowing parties to buy out others' shares at appraised price); Lassiter Props. v. Gresham, 371 S.E.2d 650, 651 (Ga. 1988) (holding that statute allows party to purchase others' shares to avoid sale); Clements v. Seaboard Air Line Ry. Co., 124 S.E. 516, 517 (Ga. 1924) (where three railroads owned depot as tenants in common, court ordered value of the property be set and defendants be given opportunity to buy plaintiff's share). Maine: ME. REV. STAT. ANN. tit. 14, § 6515 (2010) ("When any parcel . . . is of greater value than either party's share and cannot be divided without great inconvenience, it may be assigned to one party by his paying the sum of money awarded to the parties who have less than their shares."); Libby v. Lorrain, 430 A.2d 37, 39-40 (Me. 1981) (holding "partition by buy-out" is permitted, but inappropriate where the party requesting the allotment failed to show she had the financial ability to pay); Dyer v. Lowell, 30 Me. 217, 219 (1849) ("[I]f the estate was incapable of division, [the court] should have set off the whole to one of the co-tenants" under the statute.). Maryland: Catlin v. Catlin, 60 Md. 573 (1883) (under statute, eldest heir of intestate descendant may elect to take entire estate and pay to the other heirs their proportionate shares). *But see Onderdonk*, 307 A.2d at 712 (concept of owelty does not allow partition dispossessing but reimbursing co-owners). Minnesota: MINN. STAT. ANN. § 558.12 (West 2010) (With a "tenement which cannot be divided . . . the whole premises . . . may be set off to any party who will accept it . . . paying to . . . the others such sums . . . as the referees award."); Cozzi v. Cozzi, 391 N.W.2d 25, 28 (Minn. Ct. App. 1986). Ohio: OHIO REV. CODE ANN. § 5307.09 (LexisNexis 2004) ("[I]f one or more of the parties elects to take the estate at the [commissioners'] appraised value, it shall be adjudged to them, upon their paying to the other parties their proportion of its appraised value."); Sword v. Sword, 620 N.E.2d 199, 204 (Ohio Ct. App. 1993) (a party may elect to take estate at appraised value). Oklahoma: OKLA. STAT. ANN. tit. 12, § 1512 (West 2010) ("If partition cannot be made, and the property shall have been . . . appraised, any one . . . of the parties may elect to take . . . at the appraisement . . . on payment . . . of their proportion of the appraised value."); Sun Inv. & Loan Corp. v. McIntyre, 537 P.2d 341, 344 (Okla. 1975); Herron Trust v. Swarts, 361 P.2d 280 (Okla. 1961). Pennsylvania: 42 PA. CONS. STAT. ANN. § 1563 (West 2002) (party objecting to sale may be awarded the property and pay parties requesting partition and sale the amounts of their interests based upon the court's valuation); Beall v. Hare, 174 A.2d 847, 849 (Pa. 1961); *cf*. Harbin v. Harde, 14 A.2d 866, 867 (Pa. 1940) (deciding under an older statute). South Carolina: S.C. CODE ANN. § 15-61-25 (2009); *Zimmerman*, 618 S.E.2d at 901; Cox v. Frierson, 451 S.E.2d 392, 393 (S.C. 1994) (per curium) (reversing sale because referee ordered sale without first considering partition by allotment). Vermont: VT. STAT. ANN. tit. 12, § 5174 (2002) ("When . . . the real estate . . . cannot be divided . . . the court may order it assigned to one of the parties, provided he pays to the other party such sum . . . as the

even in the absence of statutory authority.[211] Five states
explicitly prefer partition by allotment to partition by sale, and
thus courts may hold sale improper if allotment is not first
considered.[212] The Uniform Probate Code section 3-911,[213]
adopted by seventeen states,[214] allows a court to sell estate
"property which cannot be partitioned without prejudice to the

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commissioners judge equitable."); *Wilk*, 795 A.2d at 1194 (holding under statute,
partition in kind is preferred over partition by allotment, and allotment preferred over
partition by sale). Virginia: VA. CODE ANN. § 8.01-83 (2010) ("When partition cannot be
conveniently made, the entire subject may be allotted to any one or more of the
parties."); Quillen v. Tull, 312 S.E.2d 278, 281 (Va. 1984); *Austin*, 252 S.E.2d at 590-91
(statute "expressly authorizes partition by allotment of the whole property to one or
more coparceners . . . or to a tenant in common"); Price v. Simpson, 29 S.E.2d 394, 396
(Va. 1944); Roberts v. Hagan, 93 S.E. 619, 621 (Va. 1917) (under statute "it would have
been entirely within the power of the court . . . to have assigned to [Plaintiff] the entire
estate to be partitioned, upon his payment to [Defendant] of the amount to which she
would be entitled for her interest"). West Virginia: W. VA. CODE ANN. § 37-4-3
(LexisNexis 2005) ("When partition cannot be conveniently made, the entire subject
may be allotted to any party."); State *ex rel*. Bowser v. Hill, 550 S.E.2d 62, 65-66 (W.
Va. 2001) (discussing Corrothers v. Jolliffe, 9 S.E. 889 (W. Va. 1899)); Smith v. Smith,
376 S.E.2d 97, 102 (W. Va. 1988) (allowing the allotment of the entire property, with
payment based on appraised value of a panel of "three disinterested and qualified
persons"); *Corrothers*, 9 S.E. at 890 (by statute, "when partition in kind cannot be
conveniently made, the court may . . . allot the entire subject to a party . . . . who offers
the largest proportional price for it"). Wyoming: WYO. STAT. ANN. § 1-32-109 (2011)
("When . . . the estate cannot be divided . . . without manifest injury . . . and one . . . of
the parties elects to take the estate at [the commissioners'] appraised value, it shall be
adjudged to him upon his paying to the other parties their proportion of the appraised
value."); Hutchins v. Payless Auto Sales, Inc., 85 P.3d 1010, 1013 (Wyo. 2004); *In re*
Estate of Sorenson, 9 P.3d 259, 262 (Wyo. 2000).
    [211]   *See* Morris v. Tracy, 48 P. 571, 572-73 (Kan. 1897) (where commissioners
report that partition in kind cannot be made without manifest injury, it was error to
direct a sale of the property without first allowing one or more of the parties to take the
land at the appraised value); Reitmeier v. Kalinoski, 631 F. Supp. 565, 578 (D.N.J.
1986) (predicting that New Jersey "would permit a partition in which one party took
the entire property and compensated the other with an owelty"); Baker v. Drabik, 541
A.2d 229, 232-33 (N.J. Super. Ct. App. Div. 1988) (analyzing *Reitmeier*, 631 F. Supp.
565, and holding party may purchase the other's interest at its fair market value).
    [212]   *See Prince*, 388 So. 2d at 547 (order of sale reversed because Alabama
statute mandates joint owners be given opportunity to purchase other owners' shares);
Dyer, 30 Me. at 219 ("If the estate was incapable of division, they should have set off
the whole to one of the co-tenants" according to Maine statute); *Morris*, 48 P. at 573
(holding it was error to direct a sale of the property without first allowing one or more
of the parties to take the land at the appraised value); *Cox*, 451 S.E.2d at 393 (per
curium) (reversing order for judicial sale because referee ordered the sale without first
considering partition by allotment); *Wilk*, 795 A.2d at 1194 (under statute, partition in
kind is preferred over partition by allotment, and partition by allotment is preferred
over partition by sale).
    [213]   UNIF. PROBATE CODE § 3-911 (2010).
    [214]   *See Acts: Probate Code*, UNIFORM LAW COMM'N, http://www.nccusl.org/
Act.aspx?title=Probate%20Code (last visited Nov. 23, 2011) (legislative tracking and
enactment status map). The Virgin Islands has also adopted the UPC. *See id*. Although
Florida and the District of Columbia have not officially adopted the UPC, they have
substantially similar statutes. *Compare* UNIF. PROBATE CODE § 3-911 (2010), *with* FLA.
STAT. ANN. § 733.814 (West 2010), *and* D.C. CODE § 20-1105 (LexisNexis 2001).

owners and which cannot conveniently be *allotted to any one party*."[215] Additionally, the UPHPA requires that courts allow the co-owners who did not request partition by sale to buy the interests of those cotenants who did request sale at a price based on the initial appraisal valuation of the property.[216]

Under most, if not all, such allotment schemes, the price for which a party may purchase the other owners' interests is set objectively ex ante, usually by a panel of three commissioners charged with appraising the property.[217] Because of commissioners' and surveyors' appraisal fees, the resulting allocation cannot be Pareto-optimal. Also, if the appraised value is too low (that is, lower than the parties' subjective value), then more than one party will be willing to take the property.[218] A Pennsylvania court ruled that where both parties were willing to take the property at valuation, it was proper to have the parties submit sealed bids and allot the property to the highest bidder.[219] Vermont "allows for assignment even when more than one co-tenant is willing to accept it, and gives the trial court discretion over whether to order an assignment and the choice of assignee."[220]

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[215]   UNIF. PROBATE CODE § 3-911 (2010) (emphasis added).

[216]   *See* UPHPA, *supra* note 57, § 7 & accompanying cmts.

[217]   *See, e.g.*, GA. CODE ANN. § 44-6-166.1 (2010) (at appraised price); Clements v. Seaboard Air Line Ry. Co., 124 S.E. 516, 517 (Ga. 1924) (at a value set by the court); MINN. STAT. ANN. § 558.12 (West 2010) ("such sums of money as the referees award"); OHIO REV. CODE ANN. § 5307.09 (LexisNexis 2004) ("paying . . . their proportion of [the commissioners'] appraised value"); Sword v. Sword, 620 N.E.2d 199, 204 (Ohio Ct. App. 1993) (at appraised value); OKLA. STAT. ANN. tit. 12, § 1512 (West 2010) ("payment . . . of their proportion of the appraised value"); 42 PA. CONS. STAT. ANN. § 1563 (West 2002) (amounts based upon the court's valuation); VT. STAT. ANN. tit. 12, § 5174 (2002) ("pays . . . such sum of money . . . as the commissioners judge equitable"); Smith v. Smith, 376 S.E.2d 97, 102 (W. Va. 1988) (payment based on the appraised value by a panel of "three disinterested and qualified persons"); WYO. STAT. ANN. § 1-32-109 (2011) ("paying . . . their proportion of the [commissioners'] appraised value according to their respective rights"); Morris v. Tracy, 48 P. 571 (Kan. 1897) (take at the appraised value); Baker v. Drabik, 541 A.2d 229 (N.J. Super Ct. App. Div. 1988) (purchase the other's interest at fair market value). *But see* Corrothers v. Jolliffe, 9 S.E. 889, 890 (W. Va. 1899) ("[T]he court may . . . allot the entire subject to a party . . . . who offers the largest proportional price for it . . . .").

[218]   Clearly valuation was set too low in these instances.

[219]   *See* Harbin v. Harde, 14 A.2d 866, 867 (Pa. Super. Ct. 1940) (so holding, even though the party with the losing bid inherited his share and the winner bought her interest from other heirs).

[220]   *See* Wilk v. Wilk, 795 A.2d 1191, 1196 (Vt. 2002) (holding no abuse of discretion where court ordered 1/8 owning brother with adjacent junkyard to transfer his share to 7/8 owning brother operating a paving business on the property, where both brothers were willing to take the property at valuation).

Table 1: Partition by Allotment

	Subjective value	Interest subjective value	Objective value	Interest objective value (owelty)	Allocation	Allocation subjective value	Envy value	Surplus
Buyer	V_y	$\dfrac{V_y}{2}$	M	$\dfrac{M}{2}$	$p - \dfrac{M}{2}$	$V_y - \dfrac{M}{2}$	$\dfrac{M}{2}$	$\dfrac{V_y}{2} - \dfrac{M}{2}$
Seller	V_x	$\dfrac{V_x}{2}$			$\dfrac{M}{2}$	$\dfrac{M}{2}$	$V_x - \dfrac{M}{2}$	$\dfrac{M}{2} - \dfrac{V_x}{2}$

The allocation resulting from partition by allotment is not necessarily proportional, equitable, or envy-free. Say Amy and Bruce are partitioning a painting, p, created by Amy's grandfather, a famous artist. The market value (M) of the painting is $70,000. Because of its sentimental value, Amy's valuation (V_A) of the painting is $100,000. Bruce, on the other hand, because of the delight in owning a genuine masterpiece and the endowment effect, values the painting at V_B, $80,000. Thus, Amy values her half interest at $50,000 and Bruce values his half interest at $40,000. However, because the market value is $70,000, the objective value of each of their interests is only $35,000, and so the owelty is set at that amount. Under their state's allotment statute, Amy buys Bruce's interest in the painting for $35,000 and gets full ownership of it.

Table 2: Amy and Bruce

	Subjective value of p	Interest subjective value	Objective value of p	Interest objective value	Allocation	Allocation subjective value	Envy value	Surplus
Amy	$100,000	$50,000	$70,000	$35,000	p - $35,000	$65,000	$35,000	+$15,000
Bruce	$80,000	$40,000			$35,000	$35,000	$45,000	- $5000

The allocation fails the no-envy test because Bruce sees Amy's allocation as more valuable than his own. Since he values the painting at $80,000, to him Amy's allocation is worth $45,000, (which of course is greater than the $35,000 he received in cash), and so Bruce would rather have her allocation. Additionally, the allocation is not proportional because Bruce expected to get at least $40,000 (the subjective value of his interest) but left with $35,000. Finally, the allocation is not equitable because Amy's surplus is not equal to Bruce's surplus. Partition by allotment may sometimes meet

many of the normative criteria of fair division, but it cannot guarantee fulfilling most or all of them.

A slightly different scenario demonstrates that in partition by allotment the surplus values will always be different unless the owelty is equal to the average of the initial subjective evaluations. Say Cody and Daron buy a house, Blackacre, expecting to move in together. Things fall apart; Daron moves to the next town, but Cody continues to occupy the house, both living and operating a profitable orthodontics practice there. A year later, Daron is in need of cash and brings an action for partition of Blackacre, now valued at $90,000. Daron is only interested in the money and would be happy to get half of whatever Blackacre is worth on the open market. Cody, on the other hand, having an established reputation in the community, does not want to move and so values retaining Blackacre at $120,000.

Table 3: Cody and Daron

	Subjective value of *BA*	Interest subjective value	Objective value of *BA*	Interest objective value	Allocation	Allocation subjective value	Envy value	Surplus
Cody	$120,000	$60,000	$90,000	$45,000	*BA*-$45,000	$75,000	$45,000	+$15,000
Daron	$90,000	$45,000			$45,000	$45,000	$45,000	$0

Here the allocation is nonenvious, because neither party prefers the other's allocation, and it is proportional, because each party receives at least half of their value of the property. However, it is not equitable, because Cody's surplus is larger than Daron's. Also, because of court costs, both parties actually leave with a little less, thereby making the distribution inefficient.

IV.   EQUITABLE ALLOTMENT

The main problem with partition by allotment is that it uses market value to set the payment price. If market value were eliminated from the equation and replaced with an owelty determined from the parties' subjective valuations of the resource, the method can be reformulated[221] to assure a proportional, envy-

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[221] As a variation of partition by allotment, equitable allotment may be allowable under a state's partition statutes or rules without necessity of further legislation. *See supra* notes 205-11 and accompanying text.

free, efficient, and equitable allocation. This reformulated method will be referred to here as equitable allotment.

A.   *The Method: Overview*

Equitable allotment is a fair and efficient partition method for two-party disputes over a single indivisible resource (r). Under this method, the parties submit sealed bids with their subjective valuations of the resource. The buyout price, (w), is half the average of these two amounts. The party submitting the highest bid will be allotted the entire resource and will pay to the other the predetermined owelty (the buyout price).[222]

Equitable allotment is a simplified version of Knaster's procedure of sealed bids,[223] which, when dividing multiple indivisible goods among several parties, guarantees proportionality but not envy-freeness. However, with only two parties, the result is always envy-free.[224] When Knaster's procedure is performed for two parties and one item, it is exactly the same as equitable allotment.[225]

Table 4: Equitable Allotment

	Subjective value of r	Interest subjective value	Owelty (w)	Allocation	Allocation subjective value	Envy value	Surplus
Buyer	V_a	$\dfrac{V_a}{2}$	$\dfrac{V_a + V_b}{4}$	$r - w$	$V_a - w$	w	$\dfrac{V_a}{2} - w$
Seller	V_b	$\dfrac{V_b}{2}$		w	w	$V_b - w$	$w - \dfrac{V_b}{2}$

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[222]   To demonstrate that the allocation is truly envy-free, the court may give one of the parties the choice between either taking the resource or taking the payment. But regardless of who chooses, the party submitting the higher bid will end up with r, paying w to the party submitting the lower bid. This is because, to the party submitting the lower bid, the cash is the more valuable of the two choices. On the other hand, to the party submitting the higher bid, r-w is more valuable than w, and so he will gladly pay the buyout price to have the resource. The prospect of not knowing who the chooser will be may, however, give even greater incentive for honest initial evaluation. This, of course, assumes that both parties will act rationally, and strive to maximize their own wealth. *See* Lewinsohn-Zamir, *supra* note 9, at 228 ("The standard economic game-theoretic prediction is that both players will behave rationally, that is to say, strive to maximize their monetary payoffs.").

[223]   *See* BRAMS & TAYLOR, FAIR DIVISION, *supra* note 17, at 52-56; *see also* Steinhaus, *supra* note 14 (first describing Knaster's procedure).

[224]   *See* BRAMS & TAYLOR, FAIR DIVISION, *supra* note 17, at 55.

[225]   *See id.*

Table 5: Equitable Allotment Showing Inherent Values for *r* and *w*

	Subjective value of *r*	Interest subjective value	Owelty (*w*)	Allocation	Allocation subjective value	Envy value	Surplus
Buyer	V_b	$\dfrac{V_b}{2}$	$\dfrac{V_b + V_s}{4}$	$\dfrac{V_b + V_s}{2}$ $- \dfrac{V_b + V_s}{4}$ $= \dfrac{V_b + V_s}{4}$	V_b $- \dfrac{V_b + V_s}{4}$ $= \dfrac{3V_b - V_s}{4}$	$\dfrac{V_b + V_s}{4}$	$\dfrac{3V_b - V_s}{4}$ $- \dfrac{V_b}{2}$ $= \dfrac{V_b - V_s}{4}$
Seller	V_s	$\dfrac{V_s}{2}$		$\dfrac{V_b + V_s}{4}$	$\dfrac{V_b + V_s}{4}$	V_s $- \dfrac{V_b + V_s}{4}$ $= \dfrac{3V_s - V_b}{4}$	$\dfrac{V_b + V_s}{4}$ $- \dfrac{V_s}{2}$ $= \dfrac{V_b - V_s}{4}$

Table 5 shows that the allocations and surplus values are identical for both the buyer and seller.

B.   *Setting the Owelty*

Equitable allotment finds the proper value for *r* by averaging the two parties' subjective values (V_b and V_s). If the parties have equal half-interests then the value of each interest (and hence the owelty value) is half of this average. If the parties have unequal interests in the property, the owelty can simply be adjusted for each party to reflect the ratio of their interests.

Whether the parties value *r* equally or differently, the owelty value arrived at will reflect the proper value of *r*. Unless the litigants are not reasonable people, their bid amounts will very closely approximate the proper value they attach to the resource. Neither will want to pay more than he has to, and neither will want to give up the item for a lower sum than necessary. Because neither knows the other's bid, both will have great incentive to arrive at a figure they perceive as the proper value of the property. In that case, one party leaves with the property, and the other leaves with the fair value of his interest.

Equitable allotment is "equitable" because it assures that each party's surplus is the same. Unlike in an auction, where only one party (at most) determines the price, or in

partition by allotment, where neither party determines the price, in equitable allotment, the subjective values of both parties determine the buy-out price. By basing the owelty payment on the average of the parties' subjective values, equitable allotment guarantees that the difference between each party's final allotment and their proportional share is equal, even if the parties value r differently. Thus, in equitable allotment, the amount by which each party feels her allocation exceeds the value of her interest will always be the same.

C.   *Efficiency*

By keeping the resource intact, both physically and temporally, equitable allotment maximizes the overall allocation. However, it need not be used solely for indivisible resources. The equitable allotment method works just as well for property that could also have been divided physically and for resources that are liquid or fungible. More significantly, without the need for an objective appraisal of the property, both parties save on court costs, yielding a Pareto-superior outcome. In fact, the parties can bypass the judicial procedure altogether, because all equitable allotment requires is both parties together in a room with two pieces of paper and a pen. Furthermore, because this method always gives the resource to the party that values it the most, it satisfies the requirement of fitness.

D.   *Application*

Consider how equitable allotment would be applied in a *McDowell*-like situation. In this scenario, Ethel and Frank both want their grandfather's old rocking chair (c), which would sell on eBay for at most $150. Ethel has very fond memories of her grandfather reading to her in the chair and would pay up to $8000 to have it and be able to pass it on to her children. Frank also has sentimental attachment to the chair, but finds it somewhat uncomfortable to sit in, so he would pay up to $6000 to keep it.

Table 6: Ethel and Frank

	Subjective value of c	Interest subjective value	Objective value of c	Owelty	Allocation	Allocation subjective value	Envy value	Surplus
Ethel	$8000	$4000	$150	$3500	c-$3500	$4500	$3500	+$500
Frank	$6000	$3000			$3500	$3500	$2500	+$500

If Ethel submits a bid of $8000 and Frank submits a bid of $6000, the average of the bids is $7000, so the owelty will be set at $3500. Because Ethel submitted the highest bid, she will be allotted the chair and be ordered to pay Frank $3500. Ethel views the total value of her allocation at $4500 and so is not envious of Frank's $3500 award. And from Frank's perspective Ethel's allocation is only worth $2500, so he is happier with his payment and is not envious of her allocation.

The facts of *Pugh v. NPC Services, Inc.*[226] present a unique circumstance where equitable allotment would have helped the court reach a more efficient and fair outcome. In that case, the court was confounded[227] when, because of hazardous waste contamination, the indivisible subject property had either "no value or a negative value."[228] What the court did not realize was that the value to the parties—and the apparent reason for the partition action—was to divest themselves of the contaminated land. Therefore, equitable allotment should apportion this divestiture.

Using equitable allotment in this situation, the question each party should be asked is, "What is it worth to you to step away from this mess?" The answer to this will be based on what each party estimates it will cost them to clean up the waste, as well as what the underlying property would be worth to them if the waste were cleaned up. The party submitting the higher bid would be allotted the right to step away, while the party submitting the lower bid would be awarded the owelty but would remain with the property.

E.   Bidding Strategy

There are several limitations to equitable allotment, one of which is its susceptibility to gamesmanship. However, in the

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[226] Pugh v. NPC Servs., Inc., 721 So. 2d 1056 (La. Ct. App. 1998).
[227] After asking, "How can property that is susceptible to neither division in kind nor judicial sale be partitioned?," the court simply denied partition altogether. *See id.* at 1058.
[228] *Id.*

overwhelming majority of situations, this flaw is not fatal since gamesmanship is prohibitively risky. Recall Ethel and Frank's partition of their rocking chair. Ethel knows that in equitable allotment, the chair goes to the person who submits the highest bid, so her initial strategy is to bid high. But then she remembers that the higher she bids, the more she will have to pay. Frank reflects on his reserve price and suspects his sister will probably be willing to pay somewhat more than he would, considering he knows how fond she is of the chair. His initial strategy then is to raise his bid just enough that Ethel will get the chair and pay him more than she would have otherwise for his interest. However, this strategy is very risky; he does not know exactly what Ethel's subjective valuation is, so if he raises his bid too much, he will get the chair and overpay for it. The opposite is going through Ethel's head: she suspects her bid is greater than her brother's, so if she lowers her valuation just enough, she can still end up with the chair but pay less for it than she would otherwise. Again, this too is risky because if she lowers her bid too much, she will lose the chair and get a paltry sum in compensation.

This shows how equitable allotment is not strategy-proof, but if the parties' valuations are greater than the market price, gamesmanship is very risky.[229] If the players reveal their strategy, the entire method falls apart. This will most likely happen if one of the parties makes known he is only interested in the market value.

Another problem with equitable allotment is that it is unavailable if at least one of the parties cannot pay the owelty. Unlike with chance, rotation, partition in kind and by sale, the parties must have enough money to cover the owelty in order to participate in equitable allotment (or partition by allotment).[230] If a party's only asset is the resource being partitioned, equitable allotment is not possible.

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[229]   *See* BRAMS & TAYLOR, FAIR DIVISION, *supra* note 17, at 56. Discussing strategic misrepresentation in Knaster's procedure, the authors conclude that while the procedure is not strategy-proof, because of the high risk of misrepresentation "honest evaluations, in many situations . . . may be the pragmatic thing to do." *Id.* (quoting HOWARD RAIFFA, THE ART AND SCIENCE OF NEGOTIATION 296 (1982)). *Cf.* Fragnelli & Marina, *supra* note 114.

[230]   *See* BRAMS & TAYLOR, FAIR DIVISION, *supra* note 17, at 56.

CONCLUSION

Although centuries old, American partition law has not developed the subtleties of contract or tort law. Instead, the laws of partition have developed haphazardly and bluntly, and so co-owners are left with only a few narrow options. The problem with the available methods is that the courts are so focused on the fairest solution that they fail to use a solution that is both fair and efficient.[231] On the other hand, economists often focus solely on efficiency, and leave fairness considerations to other disciplines.[232] Instead of being beholden to the old rules of partition, courts should use economic theories to fairly and efficiently allocate resources. Of course, reality is more complex than theory, and in the real world, there are often factors in family disputes or divorces that defy simplistic mathematics. There are no easy solutions.[233] The goal of this note, therefore, is to spark debate about judicial partition schemes, and encourage an economic approach to partition that takes subjective value into consideration.

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[231] *See* Blonquist v. Frandsen, 694 P.2d 595, 596 (Utah 1984) (noting "the fundamental objective in a partition action is to divide the property so as to be fair and equitable and confer no unfair advantage on any of the cotenants"); *see also* ZAJAC, *supra* note 88, at 69 (explaining that "at best, economic efficiency is a necessary but far from sufficient condition for an economically just or fair economy").

[232] *See* ZAJAC, *supra* note 88, at 76.

[233] *See* Meurer, *supra* note 13, at 940 (writing that economists insist "there is no single fair method of division").

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