Comments

Do Liability Rules Facilitate Bargaining?
A Reply to Ayres and Talley

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In a recent article, Ian Ayres and Eric Talley revisit the question of the relative superiority of property versus liability rules,[1] a topic that was introduced to legal academia in its economically oriented form by Calabresi and Melamed two decades ago.[2] Ayres and Talley focus on the context in which bargaining is feasible, such as when one neighbor disturbs another (in contrast to situations in which bargaining is infeasible, such as when industrial pollution harms many disorganized victims). In this case, the Coase Theorem[3] informs us that when bargaining functions perfectly, the efficient result will be achieved regardless of the legal rule. When bargaining is imperfect due to the possibility of strategic behavior, however, it is understood that the efficient result might not be reached under either property or liability rules.[4]

The primary argument advanced in Ayres and Talley's article is that, when bargaining is imperfect, "liability rules possess an 'information-forcing' quality" that "may induce both more contracting and more efficient contracting

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1. Ian Ayres & Eric Talley, *Solomonic Bargaining: Dividing a Legal Entitlement To Facilitate Coasean Trade*, 104 YALE L.J. 1027 (1995).

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

3. *See* Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

4. *See, e.g.*, A. Mitchell Polinsky, *Controlling Externalities and Protecting Entitlements: Property Right, Liability Rule, and Tax-Subsidy Approaches*, 8 J. LEGAL STUD. 1, 43–47 (1979) [hereinafter Polinsky, *Controlling Externalities*]; A. Mitchell Polinsky, *Resolving Nuisance Disputes: The Simple Economics of Injunctive and Damage Remedies*, 32 STAN. L. REV. 1075, 1103–06 (1980) [hereinafter Polinsky, *Resolving Nuisance Disputes*].

than property rules."[5] We question their analysis on the following grounds:

- The information-forcing argument they offer in support of their thesis is incomplete and may be upset by countervailing factors.
- A priori reasoning suggests that the opposite of their thesis is likely to be true in the context that they examine.
- Their numerical example turns out to illustrate the opposite of their thesis.
- Variations of their numerical example also illustrate the opposite of their thesis.

We begin by outlining the theory concerning the choice between property and liability rules and how it depends upon bargaining. We next state Ayres and Talley's thesis and the argument they offer to support it. Then we explain each of the four points listed above. Finally, we note that Ayres and Talley's response to this Comment advances a new argument that has little to do with the argument in their article. We conclude by commenting on how bargaining bears on the choice between property and liability rules in the context Ayres and Talley examine.

I. BARGAINING AND THE CHOICE BETWEEN PROPERTY AND LIABILITY RULES FOR THE CONTROL OF HARMFUL EXTERNALITIES

Ayres and Talley consider the familiar context in which an injurer (say, a factory) may cause harm to a victim (say, a neighbor who would be bothered by noise from the factory). It is efficient for the injurer to harm the victim if and only if the benefit from the harm-causing activity exceeds the harm to the victim.

Adopting the now familiar framework of Calabresi and Melamed,[6] Ayres and Talley compare a liability rule—in which the injurer is free to harm the victim, upon payment of damages—to property rules—for example, a property rule allowing victims to enjoin any harm-causing activity. (To focus on their main argument, they assume that there are no complications such as victims' incentives, risk aversion, litigation costs, and so on. We will adhere to the same assumptions here.[7])

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5. Ayres & Talley, *supra* note 1, at 1032-33 (emphasis omitted). The bulk of Part II of their article, *see id.* at 1036-65, and of their appendix, *see id.* at 1104-13, is devoted to the thesis we address in this reply. Ayres and Talley discuss two other substantial points: (1) a liability rule with damages equal to victims' actual harm may undermine bargaining when injurers do not know victims' actual harm, *see id.* at 1065-72, 1114-15; and (2) "fractional" property entitlements may facilitate trade, *see id.* at 1072-82, 1116-17. We do not consider either of these points here. We note, though, that these points are correct. *See* Louis Kaplow & Steven Shavell, Property Rules Versus Liability Rules 30 n.58, 33 n.63 (Harvard Law School Program in Law and Economics, Discussion Paper No. 156, Mar. 1995) (forthcoming 109 HARV. L. REV., 1996) (discussing prior work on these points and assessing their importance).
6. *See* Calabresi & Melamed, *supra* note 2.
7. In our own paper, we show that relaxing some of these assumptions may change the analysis. *See* Kaplow & Shavell, *supra* note 5, at 35-51.

Because Ayres and Talley's thesis concerns bargaining under legal rules, it is useful to distinguish the following three cases.

A. *Bargaining Is Impossible*

When bargaining is impossible, a liability rule will result in efficient behavior if the damages injurers must pay equal the harm their acts produce, for injurers will then take action if and only if the value of their activity exceeds the harm it causes. By contrast, a property rule protecting victims will prevent some efficient activity, while a property rule freely permitting injurers to cause harm will allow some inefficient activity to occur. As a consequence, the liability rule is superior to the use of property rules.

The preceding argument assumes that damages equal harm, which is known to the parties and the court. Often, however, courts will not be able to assess harm accurately.[8] In this situation, it can be demonstrated that a liability rule with damages set equal to average harm remains superior to property rules.[9]

B. *Bargaining Is Perfect*

When bargaining is perfect, we know from the Coase Theorem that efficient behavior will result regardless of the legal rule. For example, under a property rule protecting victims, injurers will bribe victims to permit harm whenever that is efficient. Under a liability rule where damages are mistakenly set below actual harm, victims will bribe injurers to desist whenever that is efficient. Because perfect bargaining results in efficiency, the level of social welfare under property rules is the same as under liability rules.

C. *Bargaining Is Imperfect Due to Asymmetric Information*

When each party's own valuation is not known by the other, each party will have incentives to misrepresent its valuation in bargaining, hoping to extract more of the bargaining surplus from the other party. Parties may therefore demand too much or offer too little, with the result that efficient bargains may not be reached. In this case, one cannot say unambiguously

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8. This is the situation relevant to Ayres and Talley's argument.

9. We demonstrate this claim in Kaplow & Shavell, *supra* note 5, at 18–21, 98–99. When damages equal average harm, injurers will cause harm when their benefits exceed the average harm that they will cause, and they will refrain when their benefits are less than the average harm. Under a property rule, by contrast, a court would have to either permit or forbid *all* harmful actions of injurers (for the court cannot observe injurers' actual benefits); this would be a less efficient result than under the liability rule (even though the liability rule no longer always results in efficient behavior).

whether property rules or liability rules will be superior.[10] We offer, however, two related conjectures for the simple world that Ayres and Talley examine:

(1) When bargaining is imperfect, the liability rule will tend to produce greater total welfare than property rules (but the advantage of the liability rule will be less than when bargaining is impossible).

(2) When bargaining is imperfect, the use of property rules will lead to *greater* bargaining-related welfare gains than does the liability rule.

Why do we suspect these claims to be true? Consider the "race" between property rules and liability rules. If the race is run without bargaining, the liability rule will win, as we explained in Section I.A. If the race is run with perfect bargaining, there will be a tie, as we explained in Section I.B. Hence, under perfect bargaining, property rules *necessarily* lead to greater bargaining-related welfare gains than does the liability rule. Under imperfect bargaining, our a priori guess (but it is only a guess) is therefore that property rules lead to greater bargaining-related welfare gains; that is, we suspect that under imperfect bargaining, some but not all of the initial efficiency disadvantage that exists under property rules is nullified through bargaining.

To illustrate, suppose that, in the absence of bargaining, welfare is $90 under the liability rule but is only $70 under a property rule. Under perfect bargaining, assume that welfare under both types of rule is $100. Then, the liability rule gains only $10 due to bargaining, whereas the property rule gains $30. Under imperfect bargaining—in which, say, half of all efficient agreements are consummated—the liability rule's bargaining-related gains are $5, whereas the property rule's bargaining-related gains are $15.

II. AYRES AND TALLEY'S THESIS:
LIABILITY RULES FACILITATE BARGAINING

We now turn to Ayres and Talley's argument, that liability rules have an information-forcing effect that facilitates bargaining. We take their thesis to be that, as a result of the information-forcing effect, bargaining tends .to raise social welfare by a greater amount under liability rules than under property rules: The combination of the number of agreements made as a consequence of bargaining, and the improvement that each of these agreements brings about, raises social welfare more when a liability rule is in place than when a property rule is in place.

To avoid possible confusion below, we note that Ayres and Talley's thesis is *not* that welfare is higher under liability rules without regard to how much welfare rises as a consequence of bargaining—that is, without regard to either

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10. *See id.* at 30–34, 109–13. In the examples explored in our paper and in the variations of Ayres and Talley's example discussed in Parts IV and V of this Comment, the liability rule is not always superior, but in each instance the property rule leads to greater bargaining-related welfare gains than does the liability rule.

the number of agreements or how much each agreement raises welfare. The subject of Ayres and Talley's thesis is whether liability rules "[f]acilitate Coasean [t]rade,"[11] not whether liability rules might be better than property rules for reasons having nothing to do with bargaining.[12] One would not say, for example, that liability rules facilitate bargaining in a case such as the following: Welfare is $60 under a liability rule both with and without bargaining—that is, all bargains fail, so welfare is not at all increased by bargaining—and welfare is $59 under a property rule with bargaining but $50 without bargaining—so welfare is increased, by $9, as a result of bargaining.

As a final observation, we note that, although Ayres and Talley do not assert that liability rules always facilitate bargaining (they regularly use the qualifier "may"), their article leaves the reader with the strong impression that there exists an important tendency for liability rules to facilitate bargaining.[13] Moreover, it would be uninteresting to consider the very limited claim that there is a *mere possibility* that liability rules facilitate bargaining in some conceivable instance.[14]

III. DOES THEORY SUPPORT AYRES AND TALLEY'S THESIS?

Ayres and Talley advance a two-step argument for their thesis that liability rules facilitate bargaining:

    (1) Under liability rules, victims voluntarily separate into two groups. Ayres and Talley refer to the separation of victims as the

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11. Ayres & Talley, *supra* note 1, at 1027 (title); *id.* at 1058 (section heading); *see, e.g., id.* at 1038 ("This Part . . . argu[es] that liability rules may actually *facilitate* trade by reducing the effective amount of private information.").

12. Ayres and Talley expressly distinguish their argument from that in our paper, Kaplow & Shavell, *supra* note 5, which is concerned with total welfare and emphasizes that the plausible advantage of the liability rule when there is imperfect bargaining is due to the "head start" it has in the absence of bargaining, *see supra* Section I.C. Ayres and Talley state that "the information-forcing property of liability rules may provide an independent reason that liability rules can dominate property rules when bargaining is possible." Ayres & Talley, *supra* note 1, at 1059 n.101; *see also id.* at 1099 n.225 (liability rules may both lubricate trade and mitigate inefficiency in the absence of trade).

13. For example, they state that their information-forcing argument "challenges various common wisdoms in law and economics," Ayres & Talley, *supra* note 1, at 1032, exposing a "fundamental flaw" in traditional thinking, *id.* at 1061; that they are the "first" to show that liability rules may induce better contracting, *id.* at 1033; that the information-forcing effect of liability rules "dramatically" affects incentives and outcomes, *id.* at 1044, 1059; that the "practical importance" of their "robust" conclusion about information forcing "can" be mitigated by other factors, *id.* at 1047; that the information-forcing effect is "much stronger" than a contrary consideration, *id.* at 1053; and that prior failure to recognize their "remarkably robust" result about information forcing has led the academy to "misprescribe" when liability rules are appropriate, *id.* at 1100.

14. This limited claim would be uninteresting in two senses. First, it would lack practical importance (in contradiction to Ayres and Talley's statements cited *supra* note 13). Second, the limited claim lacks conceptual importance. No one to our knowledge has suggested that bargaining could *never* be better under liability rules. Indeed, a central theme of the leading prior work on property and liability rules that addresses imperfect bargaining is that which rule is best on this dimension is generally indeterminate. *See* Polinsky, *Controlling Externalities, supra* note 4, at 43–47; Polinsky, *Resolving Nuisance Disputes, supra* note 4, at 1105–06.

"information-forcing" effect of liability rules.[15]

(2) As a *consequence* of this information-forcing effect, bargaining will
    be facilitated under liability rules to a greater extent than under
    property rules, under which there is no information-forcing effect.

As we will now explain, the first step—that victims will separate—is correct.
However, the second step—that the information-forcing effect will facilitate
bargaining—is not demonstrated by Ayres and Talley, and the a priori
reasoning presented in Section I.C implies that the second step is likely to be
false in the simple world that they examine.

A. *First Step: Do Victims Separate Under a Liability Rule?*

Ayres and Talley argue that victims separate into two groups: Those whose
harm is above the level of damages that a court would award and those whose
harm is below this level of damages.[16] To illustrate, suppose that damages are
$50. A victim whose actual harm would be $80 might then offer a bribe to the
injurer in exchange for a promise to desist from causing harm. Conversely, a
victim whose true harm would be $20 might accept a payment less than $50
(but more than $20) in return for permitting the injurer to cause harm. (If the
injurer's benefit were $40, the injurer would be deterred by the liability rule
but would gain by acting if the payment to the victim were only, say, $30.)
Ayres and Talley's information-forcing argument is correct as far as it goes,[17]
raising the question whether this characteristic of bargaining under liability
rules facilitates bargaining.

B. *Second Step: Is Bargaining Better Under Liability Rules*
     Because of Separation?

To demonstrate that the information-forcing effect of liability rules means
that such rules facilitate bargaining, Ayres and Talley rely principally on an
extended numerical example (discussed in Part IV below) rather than a direct
argument. In commenting on the example, however, they at times suggest that
the separation of victims into two groups reduces the degree of asymmetric
information, and that this should facilitate bargaining.[18] But the import of
their suggestion is limited: Separation is only one aspect of the effect of

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15. *See, e.g.,* Ayres & Talley, *supra* note 1, at 1032, 1036.

16. *See id.* at 1039–46. This separation does not occur under property rules. *See id.* at 1032.

17. Prior writing on bargaining when damages under a liability rule do not equal each victim's actual
harm takes for granted that separation occurs—that each type of victim is only interested in one of the two
types of bargain; but prior writing does not attribute special significance to the phenomenon. *See* Steven
Shavell, Property Rights and the Rule of Liability in a Simple Bargaining Model 10–11 & n.13 (1988)
(unpublished manuscript, on file with authors).

18. *See, e.g.,* Ayres & Talley, *supra* note 1, at 1055, 1059–61.

liability rules on bargaining, which is, after all, a subtle and complex process about which seemingly plausible predictions may not hold true.

Indeed, Ayres and Talley acknowledge an effect of liability rules apart from separation: Injurers may have strategic incentives to misrepresent their valuations under a liability rule that are not present under a property rule.[19] But they do not explain why this countervailing factor is not controlling.[20]

Additionally, as we emphasized in Section I.C, a priori reasoning indicates that, in the simple world that Ayres and Talley examine, welfare gains due to imperfect bargaining will tend to be greater under property rules than under liability rules (because property rules necessarily gain more as a consequence of perfect bargaining). Indeed, this *must* be the case when the problem of asymmetric information is relatively small.[21] Thus, in the absence of factors not in their model, the opposite of their thesis seems likely to be true.

IV. DOES AYRES AND TALLEY'S EXAMPLE SUPPORT THEIR THESIS?

As we noted, Ayres and Talley use a single numerical example to support their thesis,[22] but it turns out that the example illustrates the opposite of their thesis.

In their example, victims differ in the harm they suffer if they are injured; harm varies over the range from $0 to $100. Damages under a liability rule are assumed to be $50 (regardless of the particular victim's actual harm, which

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19. *See id.* at 1043–44, 1047, 1053, 1055–56.

20. Ayres and Talley do refer to both injurers' and victims' incentives when claiming that "liability rules are most likely to mitigate informational inefficiencies when the plaintiff's [victim's] private information [rather than the injurers'] is the primary impediment to efficient trade." *Id.* at 1047. We have doubts about this assertion. First, if there were no informational asymmetry with regard to victims (which their analysis suggests is the worst case for the liability rule), the liability rule actually would produce a first-best (maximum possible) level of welfare with no bargaining. (When victims are identical, damages equal to average harm equal each victim's actual harm, so injurers cause harm if and only if their benefits exceed the harm caused.) Second, as the amount of asymmetry with regard to injurers increases (which they suggest disfavors the liability rule), the relative advantage of the liability rule rises in Ayres and Talley's model. *See infra* note 35. The example they subsequently present is designed to capture the case in which informational asymmetries are greatest for victims, *see* Ayres & Talley, *supra* note 1, at 1048 & n.67, 1049 n.74, but their analysis of the example shows that injurers strategically misrepresent themselves to victims, *see id.* at 1055–56. As we explain in Part IV, the net effect of injurers' and victims' representations (and other factors) is such that Ayres and Talley's conclusion is contradicted.

21. As the amount of asymmetric information becomes small (for example, as the range of victim and injurer types becomes very narrow), the level of welfare under any rule will become close to the first-best, so the levels of welfare under any two rules will become very close to each other.

22. *See* Ayres & Talley, *supra* note 1, at 1047–58. They present the solution of their model only for a particular set of numbers. (We consider variations in Part V.) We do not believe that additional support for Ayres and Talley's thesis can be found in a working paper by Eric Talley. *See* Eric L. Talley, Property Rights, Liability Rules, and Coasean Bargaining Under Incomplete Information (John M. Olin Program in Law and Economics, Stanford Law School, Working Paper No. 114, Aug. 1994). In this paper, Talley shows that, under certain assumptions, "it is possible to find a liability rule that will outperform any type of property rule." Ayres & Talley, *supra* note 1, at 1032 n.14 (citing Talley, *supra*). As we have emphasized throughout, however, a conclusion about overall performance (total welfare) has no clear implication for the increase in welfare due to bargaining and thus for their thesis. For further reservations about the applicability of Talley's paper, see Kaplow & Shavell, *supra* note 5, at 34 n.64, 115–16.

both courts and injurers are presumed to be unable to observe). Injurers are of two types, those who would gain $40 from being permitted to injure a victim, and those who would gain $60. Ayres and Talley assume that bargaining takes a particular form,[23] and then they determine what offers would be made, which ones would be accepted, and what actions would result. We now discuss how the example actually bears on their thesis.

A. *Bargaining Raises Welfare More Under Property Rules than Under the Liability Rule*

The results in the following table concerning welfare when there is no bargaining (the first column) and when there is bargaining (the second column) appear in Ayres and Talley's article;[24] we added the third column, stating the increase in welfare due to bargaining.

	WELFARE: NO BARGAINING	WELFARE: BARGAINING	INCREASE IN WELFARE DUE TO BARGAINING
PROPERTY RULE	$50	$59.75	$9.75
LIABILITY RULE	$55	$59.875	$4.875

TABLE 1.

As is apparent from the table, *bargaining raises welfare twice as much under a property rule as under the liability rule. This result directly contradicts Ayres and Talley's thesis that liability rules facilitate bargaining.*[25]

Ayres and Talley do not discuss the fact that bargaining raises welfare by $9.75 under a property rule and by only $4.875 under a liability rule. Instead, they make the comparison that we criticized in Part II because it concerns total welfare under the two legal rules rather than the increase in welfare due to bargaining: "The net impact of these effects is that under a liability rule, the expected joint payoffs ($59.8[75]) are higher than those produced by bargaining under a property rule ($59.75). Liability rules are more efficient

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23. In particular, they assume that injurers make take-it-or-leave-it offers to victims. Under the liability rule, victims first announce whether they are interested in paying injurers to desist or in allowing themselves to be injured for an amount less than the stated damages. When offers are rejected, injurers then decide whether or not to cause harm (and pay damages). *See* Ayres & Talley, *supra* note 1, at 1049–50.

24. *See id.* at 1050–51, 1058 (tbl. 4), 1060 n.102 (tbl. 5).

25. One might also make a comparison in percentage terms of the extent to which welfare increases under imperfect bargaining relative to the improvement that would occur under perfect bargaining. The first-best level of welfare achieved with perfect bargaining is $63. *See id.* at 1050. Thus, under the property rule, 75% of the gap ($9.75 out of $13) is closed, whereas under the liability rule just under 61% of the gap ($4.875 out of $8) is closed. In any event, this comparison is not directly relevant for policy, because, by definition, it is absolute levels of welfare that are relevant if one is maximizing social welfare.

because they induce more trade."[26] As we just emphasized, it is the property rule, not the liability rule, that induces more gains from trade (twice as much) in their example. The reason that the liability rule results in slightly more total welfare ($0.125) when there is bargaining is that it produced much more welfare ($5.00 more) in the absence of bargaining. The advantage of the liability rule is dramatically less when there is bargaining than when there is not; the liability rule loses most of its initial advantage precisely because the property rule leads to significantly greater gains from bargaining.[27]

B. *There Are More, Not Fewer, Value-Increasing Trades Under Property Rules than Under the Liability Rule*

Ayres and Talley further state that the liability rule results in more value-increasing trades and greater benefits from such trades than does the property rule.[28] With regard to the first point, they report: "Table 4 shows how liability rules facilitate Coasean trade. Under a property rule only 25% of the bargainers reach Coasean agreement, but under a liability rule this figure rises to 30%."[29] What they do not state, however, is that *fully half of the agreements concluded under liability rules produce no increase in welfare because these agreements do not alter outcomes; rather, these agreements involve mere transfers.* This fact can be derived from their Table 3, which portrays offers made and accepted. That table shows, for example, that half of the injurers who receive payments from victims in return for promises to desist are injurers who would not have caused harm in any event.[30]

Thus, it turns out that, under the liability rule, *only 15%* of parties make agreements that increase welfare, whereas the figure is 25% under property rules. In summary, the liability rule facilitates a particular type of trade

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26. *Id.* at 1059 (footnotes omitted).

27. Ayres and Talley acknowledge the view expressed in our paper, *see* Kaplow & Shavell, *supra* note 5, that the liability rule may result in more welfare than the property rule with bargaining due to the "head start" of the liability rule in the absence of bargaining. *See* Ayres & Talley, *supra* note 1, at 1059 n.101. They assert, however, that "the information-forcing property of liability rules may provide an independent reason that liability rules can dominate property rules when bargaining is possible." *Id.* Specifically, they offer two previously unmentioned arguments (neither of which relates to the example under discussion in the text) in support of the claim that the information-forcing aspect of liability rules facilitates bargaining.

First, they state that a different version of the liability rule involving "tailored" damages, which they discuss later in their article, *see id.* at 1066–69, may *undermine* bargaining. *Id.* at 1059 n.101. But this fact does not support their thesis that bargaining is *facilitated* by a liability rule involving "untailored" damages, the form of liability rule with which their thesis is concerned.

Second, they state that introducing litigation costs into their model might result in improved bargaining under the liability rule. *Id.* at 1059–60 n.101 (citing Talley, *supra* note 22, at 29–33). This argument also has nothing to do with the information-forcing argument, as we explain in Part VI.

28. We note that at least one of these points must be false: The amount by which welfare rises due to bargaining under the property rule is greater than under the liability rule, so it cannot be true that both the amount of trade and the gains per trade are higher under the liability rule.

29. Ayres & Talley, *supra* note 1, at 1058.

30. *See id.* at 1054 (tbl. 3). We note that all of the trade under a property rule results in an increase in welfare.

involving mere transfers, but there is less trade that increases welfare under the liability rule than under property rules.

C. *There Is More, Not Less, Increase in Welfare per Trade Under Property Rules than Under the Liability Rule*

Ayres and Talley further state: "The table also shows that expected payoffs for those reaching a Coasean agreement are significantly higher under a liability rule ($71.25) than under a property rule ($52.00)."[31] But these are the wrong figures to use. For example, $71.25 is the average level of welfare of parties who trade under a liability rule; it is not the *increase* in the parties' welfare *on account of trade*. We have computed the relevant figures for the increase in welfare due to trade. It turns out that *the per-trade increase in welfare due to bargaining is more than twice as high under the property rule ($39) than under the liability rule ($16.25).*[32]

V. VARIATIONS OF AYRES AND TALLEY'S EXAMPLE

Ayres and Talley mention two variations of their example, which we have solved. In one variation, mentioned in a footnote, Ayres and Talley refer to the case in which injurers' benefits are $80 and $20, rather than $60 and $40, as in their example.[33] Under this alternative assumption, it can be shown that the advantage of the liability rule in terms of total welfare is much larger than in their example ($2.25 rather than $0.125),[34] yet there are no successful bargains under the liability rule. Obviously, the (now greater) advantage of the liability rule cannot be attributed to the facilitation of bargaining, for there is none. Additionally, we observe that the juxtaposition of this variation with their original example is troubling for Ayres and Talley's thesis: When

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31. *Id.* at 1058–59.

32. To compute these figures for the per-trade increase in welfare, divide the average gain due to bargaining by the fraction of parties who enter into agreements. For example, with the property rule, divide $9.75 by .25, to obtain $39. (We note that, if one were to ignore the trades under the liability rule that are mere transfers, for which the gain is $0, the average gain for the remaining trades would be $32.50, which is still less than the average gain under the property rule.)

33. *See* Ayres & Talley, *supra* note 1, at 1059 n.100.

34. Our computation uses damages of $50, the level Ayres and Talley use in the body of their article; this level still equals victims' average harm because victims are unchanged in this modification. Ayres and Talley calculate a total welfare advantage of $3.00 for the liability rule, *see id.*, rather than $2.25 because they instead use an optimal level of damages, which in this case is near $20 or $80. With regard to different damage levels in this example, we note two relevant features: (1) throughout the range of possible levels of damages for which a liability rule differs materially from a property rule, there are significantly fewer trades under the liability rule; and (2) welfare and trade increase as the level of damages moves from the middle of the range towards $20 or $80. That is, the level of welfare and the amount of trade *increase* as the extent by which victims are separated *decreases*, the opposite of what one would expect from Ayres and Talley's argument that greater separation facilitates bargaining.

injurers' valuations are changed in a manner that *increases* the advantage of the liability rule, the amount of successful trade under the liability rule *falls*.[35]

The other variation we note is the one Ayres and Talley use in their initial demonstration that victims separate into two groups. There, instead of assuming that injurers' benefits were either $60 or $40, they assume that injurers' benefits could take on any value between $0 and $100, just as they assume throughout their article to be true for victims.[36] The results for this variation (which do not appear in their article) are as follows: (1) there is no successful bargaining under the liability rule; and (2) welfare increases by so much as a result of bargaining under the property rule that the initial advantage of the liability rule is eliminated. Thus, in the original variation of Ayres and Talley's example, their thesis is starkly contradicted.

VI. AYRES AND TALLEY'S RESPONSE

In their response to this Comment, Ayres and Talley begin by accepting most of our analysis and then proceed to alter their model for the purpose of developing what turns out to be a different argument from that in their article.[37] The change they make in their model is that they assume that litigation costs are incurred under liability rules (but not under property rules).[38] It is obvious that, if litigation costs are sufficiently high, liability rules may yield less total welfare than property rules in the absence of bargaining. As a consequence, welfare gains from bargaining may be greater under liability rules than under property rules because, using the logic of our conjecture, there is more room for improvement under liability rules. But plainly this conclusion has nothing to do with the two-step information-forcing argument that occupied the entirety of Ayres and Talley's original exposition[39] and is the subject of our reply. (Indeed, the conclusion that

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35. This is not only true when comparing Ayres and Talley's $60/$40 example with the $80/$20 modification. As one moves from $50/$50 to greater extremes, two results hold: (1) the advantage of the liability rule increases; and (2) the amount of trade falls steadily, until the split reaches $75/$25, at which point (and beyond) there is no trade at all.

36. *See* Ayres & Talley, *supra* note 1, at 1040 (referring to this case as a "canonical example of negotiation under asymmetric information"). As in the example they solve, in this variation they assume uniform distributions, *see id.* at 1040 n.47, and damages of $50 under the liability rule, *see id.* at 1041, assumptions that we maintain.

37. Ian Ayres & Eric Talley, Distinguishing Between Consensual and Nonconsensual Advantages of Liability Rules (May 1, 1995, preliminary draft) (unpublished manuscript, on file with *The Yale Law Journal*). The editors of this journal have informed us that the substance of the published version of Ayres and Talley's response to our Comment is similar to that of the draft upon which this part of our Comment is based.

38. They also make the implicit assumption that settlement of litigation is impossible. If they instead had assumed that settlement bargaining were governed by the same model they stipulate for bargaining before injurers act, all cases would settle and their results would no longer obtain.

39. *See, e.g.,* Ayres & Talley, *supra* note 1, at 1032 ("We show that liability rules possess an 'information-forcing' quality that property rules do not."); *id.* at 1036 (titling Part II of article: "The Information-Forcing Effect of Untailored Liability Rules"); *id.* at 1038 ("This Part . . . argu[es] that liability rules may actually *facilitate* trade *by reducing the effective amount of private information*.") (second

welfare gains are higher under liability rules would hold if parties had perfect information, in which case information forcing would be moot.)

Ayres and Talley also invoke the familiar argument that litigation costs themselves may improve bargaining (because they raise the cost of failing to reach agreement).[40] This too implies that welfare may rise more under a liability rule, but again the conclusion has nothing to do with an information-forcing effect.[41]

Although litigation costs are essentially irrelevant to Ayres and Talley's original information-forcing argument, we are hardly suggesting that litigation costs are unimportant. In our paper on property and liability rules,[42] we indicate that litigation costs are one of a number of factors that may alter the outcome suggested by our a priori reasoning about simpler cases.

VII. CONCLUDING COMMENTS

In this Comment, we have shown that Ayres and Talley's central thesis that liability rules facilitate bargaining is not adequately supported by the information-forcing argument in their article, and we have explained why a priori reasoning suggests that the opposite of their thesis is likely to be true in the context they examined. Additionally, we have reported that their numerical example and variations on it contradict their thesis. Finally, we have noted that the litigation-cost argument advanced in their response to this Comment has no bearing on their original information-forcing argument.

In closing, we state briefly our views (which we present more fully elsewhere) on the question whether property or liability rules result in more efficient outcomes:[43]

(1) When bargaining is impossible, the liability rule tends to be superior

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emphasis added); *id.* (describing information-forcing phenomenon as "[t]he fundamental insight of this Part"); *id.* at 1047 ("[W]e now show in an explicit model how the information-forcing effect of liability rules can produce more efficient Coasean trade than a property rule regime."); *see also supra* note 13 (discussing other similar claims made by Ayres and Talley about their information-forcing argument).

40. *See, e.g.,* Lucian A. Bebchuk, *Litigation and Settlement Under Imperfect Information,* 15 RAND J. ECON. 404, 409–10 (1984); Robert Cooter et al., *Bargaining in the Shadow of the Law: A Testable Model of Strategic Behavior,* 11 J. LEGAL STUD. 225, 238 (1982).

41. When commenting on the subject in passing, Ayres and Talley themselves offered litigation avoidance, rather than information forcing, as the explanation for the effect of litigation costs. *See* Ayres & Talley, *supra* note 1, at 1069 n.123 ("The intuition behind this argument [that litigation costs can produce more negotiations] is that when litigation costs are a 'credible threat,' they can act as an effective 'tax' on strategic behavior. The prospect of bearing this tax reduces each party's marginal incentive to misrepresent her valuation."); *see also* Talley, *supra* note 22, at 31 (providing same intuition). To reinforce the idea that the effect of litigation costs does not depend on their original information-forcing argument, we note that the welfare gain would be greater under the liability rule even if one modified their new example to have victims rather than injurers make the offers, thereby rendering information forcing irrelevant (because injurers cannot make strategic use of anything they learn).

42. *See* Kaplow & Shavell, *supra* note 5, at 35–51.

43. *See id.* at 15–34 (presenting these views and noting qualifications); *see also id.* at 35–51 (discussing other factors that bear on appropriate legal regime in context of harmful externalities); *id.* at 66–93 (showing that different analysis is applicable in context of protecting possessory interests).

to property rules, even when damages reflect only average harm rather than each victim's actual harm. We believe that this conclusion is significant because such important phenomena as industrial pollution and automobile accidents arise in contexts in which bargaining between injurers and victims is infeasible.

(2) When bargaining is possible, the choice between the two types of rules will be less important. When bargaining is perfect, the choice is irrelevant (the Coase Theorem). When bargaining works tolerably well, although imperfectly, factors other than those addressed here (such as victims' incentives, the judgment-proof problem, and administrative costs) often will be more important in determining the optimal rule.

(3) Nonetheless, when bargaining is imperfect our conjecture is that, in the absence of other factors, liability rules will tend to perform better than property rules. The essential reason is that inefficiency will arise only when bargaining fails, and it is the liability rule that leads to a higher level of welfare in the absence of bargaining.