FAIR REPUTATIONS:
A GAME-THEORETIC MECHANISM FOR E-COMMERCE DISPUTES*

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Abstract

This paper provides an overview of an online, game-theoretic bargaining mechanism that can be used to (a) resolve e-commerce disputes and (b) provide relief to parties that have been subjected to negative online feedback, adversely affecting their online reputation. The mechanism is grounded in mathematical theories of fair division and of games, combining aspects of a sealed-bid mechanism with a commitment mechanism to facilitate convergence of the parties on a settlement that is focal and that they consider fair. It includes an option for final-offer arbitration in the event that the parties fail to achieve a settlement prior to a fixed deadline.

Unlike mediation and traditional sealed-bid mechanisms, the structure of the system gives the initiating party a strong incentive to make a fair and reasonable proposal at the outset of the process. In addition, it deprives the other party of any incentive or excuse for failing to do this prior to the deadline. The initiation of the system by the party that was subjected to negative feedback allows that party to demonstrate that it has provided the party that submitted the feedback with an opportunity to seek and obtain a fair and binding resolution in a highly efficient and equitable manner. As a result, a party's initiation of the system serves to justify a discount of that negative feedback, regardless of whether or not the party that submitted the feedback takes advantage of the opportunity to seek and obtain a fair outcome.

** A fully operational online version of the system described within this paper can currently be accessed at https://www.fairoutcomes.com/run_fr/home.pl*

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I. Introduction

A party that is unhappy with an online transaction is frequently unable to obtain relief from a court, or extract a fair settlement from the other party, because cost and distance make a lawsuit impractical. Allowing such a party to submit negative feedback that adversely affects the online reputation of the other party – undermining that party's ability to engage in other e-commerce transactions within the online community – facilitates the resolution of disputes by creating an incentive to settle that would otherwise not exist.

Companies that administer e-commerce sites typically (a) allow such negative feedback to be posted on their sites and/or factored into public online reputation-rating systems and (b) will not remove or discount it without the consent of the party that submitted the negative feedback. This, in turn, often facilitates a resolution of the underlying dispute, but at a cost because these kinds of feedback systems can be misused.

For example, a party may submit negative feedback, or refuse to withdraw it in the face of a fair settlement offer, in an effort to extract unwarranted concessions or accommodations from the other side. Administrators of e-commerce sites are understandably reluctant to get involved in examining or passing judgment on the merits of feedback. Moreover, commencing a court action for libel or commercial defamation is rarely a viable option in such contexts. Thus, a party seeking relief from negative feedback has historically been left with no option other than to try to bargain with its adversary – either directly or through the use of an alternative dispute resolution service – in an effort to secure a withdrawal of the negative feedback. Yet, in many cases, this simply provides the party that submitted the negative feedback with a platform for demanding concessions and outcomes that are self-serving, delaying and in many cases precluding a fair settlement.

This paper provides an overview of an online bargaining mechanism that can be used to resolve e-commerce disputes and provide relief to parties that have been subjected to negative feedback, adversely affecting their online reputation. The mechanism is one of several patented and patent-pending bargaining mechanisms that are currently being offered and administered by a private company, Fair Outcomes, Inc. (www.fairoutcomes.com). Applying principles that have been extensively studied by game theorists, it combines aspects of a sealed-bid mechanism with a commitment mechanism to facilitate convergence by the parties on a settlement, with an option for final-offer arbitration in the event that the parties fail to achieve a settlement prior to a fixed deadline.

Working from the practical back to the theoretical, I describe specific aspects of the mechanism and then briefly review some of the game-theoretic principles that underlie them. I begin with a summary of the basic structure of the mechanism.

II. Summary of the System

The mechanism that is subject of this paper is a variant of the asymmetrical escrow system introduced in an earlier paper (Ring, 2007). The particular variant that is the subject of this paper may be described as follows (the rationale for these rules is described in subsequent sections of the paper).

The party that is subjected to the negative feedback (the "First Party," assumed to be female) unilaterally initiates the use of the system by entering a proposed resolution into the system. The specific terms that she proposes remain confidential and do not become enforceable unless the system determines that those terms are acceptable to the other side (the "Second Party," assumed to be male). The Second Party is then invited to confidentially enter a proposed resolution into the system. If the Second Party does so and the system determines that the terms proposed by the First Party are equal to or more favorable to the Second Party than the terms proposed by the Second Party, then the First Party's proposal becomes the resolution. If not, then the system notifies the Second Party of that fact (without disclosing these communications to the First Party) and invites him to confidentially propose alternative terms. This invitation is repeated on each such occasion up to a fixed deadline.

If the dispute has not been resolved by the deadline, then the system gives the Second Party the option of having an impartial arbitrator review, in confidence, the First Party's proposal and the Second Party's final proposal for the purpose of making a determination as to which party's proposal is fairer using final-offer arbitration. Under this procedure, the arbitrator must choose one or the other of the two proposals – he or she cannot propose a compromise (Brams, Kilgour, and Merrill, 1991).

If the Second Party elects to proceed with final-offer arbitration, he may also elect at that time not to be bound by the arbitrator's determination unless the arbitrator rules in his favor – in which case his offer would be the settlement. In contrast, the First Party must agree in advance to be bound by any resolution arrived at through the use of the system (either prior to the deadline or via the arbitration process).

Each party's proposed resolution remains confidential unless it becomes the resolution. The First Party's proposal will become the resolution where (a) the matter is settled by the deadline or (b) the matter proceeds to an arbitration that the Second Party has elected to be bound by and the First Party then wins. The Second Party's proposal will become the resolution if (a) the matter fails to settle by the deadline and (b) the matter then proceeds to arbitration and the Second Party wins. If the matter proceeds to arbitration and the Second Party loses then, in cases where the Second Party had elected not to be bound by the outcome unless he won, there will be no resolution. In such cases, the arbitrator will simply reveal to both parties that the First Party has won, without revealing the proposals made by the parties. (Note that the Second Party's election on whether or not to be bound by the arbitration in the event that he loses need not be revealed to the arbitrator until after the arbitrator has made the determination as to which proposal is fairer.)

III. Summary of the Four Possible Outcomes

There are four, and only four, possible outcomes that can emerge once the First Party has initiated use of the system:

Outcome No. 1 – The Second Party agrees to a settlement prior to the deadline. In this case, the matter is resolved – the Second Party achieves an outcome that is equal to or more favorable than the outcome that he proposed.

Outcome No. 2 – The Second Party agrees to go to final-offer arbitration, with the outcome being binding upon both parties. In this case, the matter is resolved; each side will get the outcome that an impartial arbitrator deems to be the fairer one.

Outcome No. 3 – The Second Party agrees to go to final-offer arbitration but elects not to be bound by the outcome unless he wins. In this case, either

(a) the Second Party will win the arbitration, in which event the matter will be resolved, with the Second Party getting the outcome that he proposed; or

(b) the Second Party will lose the arbitration, in which event the matter will not be resolved because (i) the Second Party declined to be bound unless he won and (ii) an impartial arbitrator concluded that the Second Party's proposal was less fair than the First Party's proposal.

Outcome No. 4 – The Second Party does not agree to a settlement prior to the deadline and does not agree to go to final-offer arbitration. In this case, the matter is not resolved because the Second Party either failed to respond at all, or responded but failed to settle and then declined to submit the matter to final offer arbitration.

IV. Relevance of the Four Possible Outcomes to the First Party's Reputation

The relevance of each of the four possible outcomes described above to the First Party's reputation becomes evident when one considers the extent to which each is analogous to a bargaining outcome that has historically prompted e-commerce sites to discount negative feedback in calculating a party's reputation rating. For example, eBay historically had policies in place under which it would discount a given piece of negative feedback in calculating a party's reputation rating if (a) the dispute that gave rise to that feedback was resolved in a manner acceptable to both parties, or (b) the party that submitted the feedback failed to respond to an invitation to pursue a resolution through the use of a fair dispute-resolution process, such as the mediation process that was historically provided at www.squaretrade.com. Under such circumstances, eBay typically allowed the negative feedback (i.e., the aggrieved party's negative commentary) to remain on its site (Edwards and Theunissen, 2007), but it provided a process allowing for such feedback to be discounted in calculating a reputation rating (www.squaretrade.com/spl/jsp/eby/ebnf.jsp?vhostid=daffy&stmp=squaretrade&cntid=46gs6e8ut2).

With respect to the relevance of Outcomes 1, 2, and 3(a) to the First Party's reputation, in each of these cases the dispute that gave rise to the negative feedback will have been resolved in a manner acceptable to both parties. Thus, each of those outcomes is, in all material respects, identical to an outcome that has historically prompted e-commerce sites to discount negative feedback in calculating a party's reputation rating. Each of those outcomes thus provides the administrator of an e-commerce site (or of an online reputation-rating system) with a clear justification for discounting the Second Party's negative feedback.

With respect to the relevance of Outcomes 3(b) and 4 to the First Party's reputation, the administrator of the e-commerce site (or of the online reputation-rating system) also has a clear justification for discounting the Second Party's negative feedback under each of those outcomes – a justification that is much stronger than the administrator would have in a case where the Second Party had simply walked away from an opportunity to participate in a fair mediation process. In the case of Outcome 3(b), the Second Party has walked away from an actual resolution that was binding upon the First Party and that an impartial arbitrator had deemed to be fairer than anything proposed by the Second Party. In the case of Outcome 4, the Second Party has walked away from a dispute resolution process that, unlike mediation, guaranteed him a settlement that was either (a) equal to or greater than what he himself considered to be fair, or (b) if he elected to be bound by the arbitration, equal to what an impartial arbitrator determined to be more fair.

In considering the significance of Outcomes 3(b) and 4, it is also important to note that, unlike a party that is invited to participate in, or that participates in, a mediation or traditional sealed-bid process, a party that is invited to utilize the system as a Second Party cannot justify a refusal to use the system – or a failure to put forth a fair proposal within the context of that process – by citing any of the standard excuses or professed concerns that parties typically cite with respect to such a process:

(i) that his participating in the process might send a signal of weakness, i.e., of a willingness to consider compromise or to reconsider his publicly stated position with respect to the dispute;

(ii) that his failure to participate in the process, or to put forth a fair proposal, was justified by a concern that he might wind up with a resolution that was less favorable to him than one that the First Party was ready and willing to grant; and

(iii) that his failure to secure a resolution through the process was attributable to the fact that he made a proposal that he thought would be accepted, but that he simply "guessed wrong" and was then foreclosed from revising his proposal because the process came to an end.

Each of the foregoing points will become further apparent when one considers the various features of the system and the manner in which they interact with one another, as discussed in the following section.

V. Commentary on Specific Features of the System

I now consider how the various features of the system, and the manner in which they interact with one another, work in one of the most common classes of e-commerce disputes: situations wherein the First Party has been subjected to negative feedback to the effect that a payment, credit, or other form of monetary compensation ought to be paid to the Second Party. In such cases, the First Party's proposed resolution would involve the payment of an amount of money in exchange for a standard-form release or settlement of the Second Party's claim. Thus, the data that the First Party enters into the system would consist of a proposed monetary amount to settle the dispute.

The amount that the First Party specifies may be zero or some greater amount. I shall refer to the amount specified by the First Party as *x*. In such cases, the data entered into the system by the Second Party would consist of an agreement to settle the matter in exchange for *x* if, and only if, *x* is greater than or equal to an amount, *y*, specified by the Second Party.

A. On the First Party's Formulation of a Proposal, and on Her Agreement to be Bound by Final-Offer Arbitration

The First Party's formulation of *x* takes place in the shadow of final-offer arbitration, i.e., in formulating *x*, she must take into account the possibility that if the matter is not settled prior to the deadline and the Second Party elects final-offer arbitration, then the arbitrator may enter an award of *y* if the arbitrator concludes that *y* is fairer than *x*. This imposes a level of discipline on the First Party in formulating *x*. Specifically, self-interest requires her to calculate *x* by reference to what she believes an arbitrator would deem to be fair, rather than by reference to what she subjectively considers to be fair. (Importantly, this aspect of the system is known to both parties, and it applies as well to the final proposal made by the Second Party prior to the deadline.) Self-interest requires that the First Party formulate *x* such that it falls within the range of what she believes an arbitrator would consider to be fair.

Although the process that the First Party goes through in formulating *x* touches upon several different bodies of academic work, it may be understood, on the most fundamental level, as involving a process of "focal coordination" as discussed in the work of Schelling (1960). Schelling's work in this area concerned the ability of two parties to independently (i.e., without communication) identify a common solution to a given problem or conflict (i.e., to recognize a "focal point"), notwithstanding the existence of a multiplicity of possible solutions. In formulating *x*, the First Party is engaging in a somewhat less daunting process - she is simply seeking to identify first a "focal range" and then a point within that range. And, in so doing, she is not attempting to coordinate with an adversary (whose rationality and/or ability to recognize significant features of the conflict may be in doubt) but rather with an experienced, independent third party (the arbitrator), whose rationality and ability to identify the relevant features of the conflict can be safely assumed.

The ability of parties involved in a conflict over money, such as a lawsuit for monetary damages, to independently identify a solution that is acceptable to both sides has

been demonstrated in empirical studies. For example, Babcock and Landeo (2004) describe a study wherein test subjects, using a symmetrical sealed-bid mechanism, achieved bargained solutions 69% of the time (as opposed to 49% for test subjects that engaged in traditional, communicative bargaining; also, litigation costs were 37% lower). The focal clues that the parties look to in such contexts consist of community standards and the outcome of similar conflicts, i.e., the common law – the same set of clues that allow almost all litigants (approximately 90%) to settle their cases rather than proceed to trial (Spier, 1992).

B. On the Confidentiality of the First Party's Proposal

The amount specified by the First Party is not disclosed to the Second Party unless the matter either (a) settles prior to the deadline (in which event *x* becomes the settlement amount) or (b) proceeds to an arbitration that is binding upon both parties and at which *x* is determined to be fairer than *y***.** This feature allows the First Party to commit herself to a fair number without having to fear that, if the matter is not resolved, her proposed value will simply become a starting point for demands for further concessions (Schelling, 1960, pp. 34-35). Treating the First Party's proposal as confidential thus enhances her ability to put forth a fair proposal (Gertner and Miller, 1995). By depriving her of an excuse for failing to put forth a fair proposal, confidentiality also serves to enhance the credibility of her proposal. This feature is, accordingly, beneficial to both parties and cannot be credibly cited by the Second Party as a justification for refusing to use the system.

C. On the First Party's Allowing the Second Party to Act in Confidence

By forswearing any right to know about any use that the Second Party may make of the system unless that use produces a settlement or a referral to final-offer arbitration, the First Party deprives the Second Party of the first of the three possible excuses that he might otherwise try to cite for failing to respond to her initiation of the system. One excuse would be that, by agreeing to use such a system, or by being seen to use it, the Second Party might thereby be sending a signal of weakness, i.e., of a willingness to consider compromise or to reconsider his publicly stated position. For example, if a party agrees to use mediation or a traditional sealed-bid system, then "his adversary may infer that [his] case is weak. Therefore, [he will not agree to use such a system] despite the fact that [he] would be better off if [a sealed-bid system was somehow] forced upon [him]" (Gertner and Miller, 1995, p. 112). This feature allows the First Party to deprive the Second Party of such an excuse. In combination with the system's other features and bearing the Second Party's self-interest in mind, this feature effectively allows the system to be "forced upon" him, to the benefit of both parties.

D. On Settling the Matter on the Basis of the First Party's Proposal (*x*) in Cases where $x > y$

Recall that if "the system determines that the terms proposed by the First Party are equal to or more favorable to the Second Party than the terms proposed by the Second Party, then the First Party's proposal becomes the resolution." This is in direct contrast to the arrangement

employed in split-the-difference dispute-resolution systems, under which "[i]f the [system administrator] receives offers which cross – if the defendant offers more to settle than the plaintiff demands – the [administrator] imposes a settlement at the midpoint of the offers" (Gertner and Miller, 1995, p. 88). This contrast is attributable to the fact that a split-the-difference feature provides the Second Party with the second of the three excuses for failing to use a bargaining mechanism to submit a fair proposal – namely, a fear of losing surplus or, in the vernacular of real-world bargaining, "leaving money on the table." This would occur if the Second Party inadvertently proposes an outcome that is less favorable to himself than what the First Party was ready and willing to grant.

The First Party may be fairly presumed not to share the same level of concern as the Second Party over the prospect of losing some portion of any surplus. Her primary goal in using the system would not be to capture a relatively small amount of cash in the event of an overlap between the two values. Instead, it is to fend off the economic harm that may flow from damage to her reputation, which may include a significant loss of earnings from other transactions (Ghose, Ipeirotis, and Sundararajun, 2006, pp. 1-5). What she seeks is an efficient method for preventing such harm, without having to pay more than she, or an impartial arbitrator, would view as fair.

E. On Allowing the Second Party to Revise *y* Upon a Determination that $y > x$

If the Second Party proposes a value of y such that $y > x$, with the result that no settlement is achieved on the basis of his proposal, then "the system notifies the Second Party of that fact… and invites him to confidentially propose alternative terms. This invitation is repeated on each such occasion up to a fixed deadline." This deprives the Second Party of the third and final excuse that he might claim to have for failing to submit a fair proposal in response to the First Party's initiation of the system – namely, he cannot claim ex post that he would have submitted a different proposal had he known that the number that he specified for y would not produce a settlement.

This feature effectively allows the Second Party to engage in a learning process with respect to the value of x**.** In particular, he cannot rule out the possibility that the First Party has proposed an outcome that is greater than or equal to what he himself considers to be fair unless he formulates and proposes a number that he considers to be fair (i.e., y). He can then learn whether x is less than y. If it is, he can then take that information into account and, if he so wishes, revise his offer up to the fixed deadline, bearing in mind the possibility of final-offer arbitration and the fact that, in formulating x, the First Party had a strong incentive to propose a fair settlement (Schelling, 1960, pp. 34-35).

F. On Letting the Second Party Opt Not to be Bound by the Arbitration Unless He Wins

It may be asked why the First Party would agree to an asymmetrical arrangement under which she would be bound by the outcome if she lost in arbitration, whereas the Second Party could elect in advance not to be bound if she won. The answer is that, by so doing, she

deprives him of the ability to refuse to proceed to final-offer arbitration on the basis of a professed fear that he might lose. This feature is uniquely suited to disputes in which a lawsuit is not a practical option for either party, as in many e-commerce disputes. The First Party is not primarily interested in having both parties bound by the outcome of the arbitration if she wins but, rather, in obtaining relief from the harm that the Second Party has, justifiably or unjustifiably, inflicted upon her reputation rating.

So long as the administrator of the involved e-commerce site (or reputation-rating system) considers the arbitration process that was offered to the Second Party to be fair (i.e., to have provided him with adequate due process in light of the size and nature of the underlying dispute), an arbitrator's finding in favor of the First Party should cause that administrator to provide relief with respect to the reputation issue, notwithstanding the fact that the Second Party did not elect to be bound. In such cases, the Second Party is effectively left in a position where he is free to pursue his claim in a court of law. But he can no longer justifiably expect the administrator of the e-commerce site (or reputation-rating system) to take his negative feedback into account in calculating the First Party's reputation rating, because at that point he will have elected to walk away from a settlement that an impartial arbitrator found to be fair or, at the very least, fairer than the final proposal made by the Second Party.

VI. Conclusions

Reputation-rating systems facilitate settlements. The problem is that they can also be used as a device for trying to extract payments or other benefits that are fundamentally unfair. And this, in turn, leads to a further problem – even where negative feedback is submitted for a legitimate purpose, a party whose rating is adversely affected may believe or claim that it was submitted for purposes of extortion. Such claims are often accompanied by retaliatory feedback, by claims that the administrator of the site should take corrective action, and by unjustified criticism of the site and the reputation system as a whole. These sorts of problems can be expected to grow as online markets expand. They can also be expected to increase radically as reputation ratings start to take on added significance, such as by being factored into the fees charged, or to the visibility provided, to a given party on a given e-commerce site.

The mechanism described herein provides a solution to this set of problems. A party that has, justifiably or unjustifiably, been subjected to negative feedback adversely affecting her reputation does not need to submit to extortion, agree to an unfair settlement, or drag an administrator into the dispute in order to restore her reputation. Rather, she can do so by simply initiating use of the mechanism, i.e., by formulating and committing herself to a proposal and to a process that is fair. In this manner, reputation-rating systems will continue to facilitate settlements, but they will generate more accurate ratings, give rise to less criticism, and produce more outcomes that are indisputably fair.

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