

JEWISH ESTATE LAW AS A VEHICLE FOR SOCIETAL KINDNESS

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The paper studies the *halachah* governing division of insufficient assets among creditors when a persons dies. The traditional secular method is to pay each creditor an amount *proportional* to what is due to him. The accepted *halachah* suggests a different method in which the smaller loans (i.e. debts) are all paid off first, with equal amounts to the larger lenders, and then, if money still remains, the next smallest amount is paid off. We continue till exhaustion of the estate.

The paper first sights secular sources where proportional allocation leads to serious problems. It next quotes a secular source where the *halachic* method seems to be the natural solution. The problem is then analyzed using tools from the mathematical theories governing divisions of money, power, and votes in coalitions. Axiomatic motifs are given for each method of allocation.

The paper concludes by defending the *halachic* method using principles of Jewish psychology governing acquisition of personality traits: personality traits are more easily acquired by many small acts in contrast to a few large acts (*frequency vs. intensity*). With the goal of creation of an Abrahamic society---a society where the constituent members are intrinsically kind---the *frequency versus intensity* principle justifies selecting the allocation system whose axiomatic motifs are rooted in encouraging societal kindness. This defends the *halachic* method of allocation. It is also suggested that the method of analysis used in this article can become a model for general analysis of difficult *halachas*.

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SECTION I: THE PROBLEM

Consider the following problem:

Yaakov dies leaving behind an estate worth \$900,000 dollars. There are 5 lenders with outstanding amounts of 1,1,2,3, and 3 hundred thousand. The lenders all have equal "rights" to the estate. How should the one million dollars of debt be allocated?¹

<i>Method</i>	DEBTOR #1	DEBTOR #2	DEBTOR #3	DEBTOR#4	DEBTOR#5
LOAN AMOUNT	100 thousand	100 thousand	200 thousand	300 thousand	300 thousand
PROPORTIONAL METHOD	90 thousand 90%	90 thousand 90%	180 thousand 90%	270 thousand 90%	270 thousand 90%
HALACHIC METHOD	100 thousand 100%	100 thousand 100%	200 thousand 100%	250 thousand 83%	250 thousand 83%

TABLE 1: 5 lenders, the loan amounts, and the amounts allocated under 2 division schemes.

Two allocation schemes exist--they are summarized in table 1: *Proportional allocation* pays each lender an amount proportional to his loan. Since all loans total to 1 million and the estate is worth \$900,000 it is reasonable to give every person 90% of his loan. An alternative method suggested by the accepted *halachah* can be described as follows:

1. Rambam. Hilcoth ISHUTH 17:8; Hilcoth Malveh VeLoveh 20:4; See Magid Mishnah

(For expositional convenience we speak about "estates"(vs. divorce settlements) and lenders(vs. Kethuvahs). It is understood that there are no "priorities" among the lenders. The more general case with creditors, priorities and liens is not studied here since we are concerned only with the allocation method).

First, take the smallest loan amount. Give each lender that amount (they all are claiming at least that much) or, if there are insufficient funds for this, divide the money equally among the lenders. After receipt of these funds the outstanding loan amounts are recalculated and this procedure is continued on succeeding steps (for those lenders still not paid off) till all funds are exhausted. For lack of a better term we will refer to this method as the *halachic* method. Its application to our problem is presented in table 2.

	DEBTOR #1	DEBTOR #2	DEBTOR #3	DEBTOR #4	DEBTOR #5
AMOUNT	100 thousand	100 thousand	200 thousand	300 thousand	300 thousand
Step1: Amount Paid	100 paid	100	100	100	100
Step 1: Remaining debt	0	0	100	200	200
Step2: Amount Paid	NA	NA	100 paid	100	100
Step 2: Remaining debt	0	0	0	50 paid	50
Step 3: Amount Paid	NA	NA	NA	0	
Total Paid On Loan	100	100	200	250	250

TABLE 2: The steps for dividing \$900,000 among the five debtors using the halachic method.

The goal of this paper is to give a "satisfying" rational argument for preference of the *halachic* method over the proportional method.

Another area where proportional allocation would seem reasonable occurs in allocation of voting power. Nassau county of New York in 1958 had 6 subdivisions. It therefore seemed reasonable to allocate the 30 seats in the Board of Supervisors to these counties in amounts proportional to their population. This resulted in 9,9,7,3,1, and 1 seats respectively. However, a successful lawsuit argued that the counties with 3,1, and 1 seats really had no voting power. If simple majorities were required for a voting decision then their votes were irrelevant.²

2. Banzhaf, J. F., III. "Weighted Voting Doesn't Work: A Mathematical Analysis." *Rutgers Law Review*. 19 (1965): 317-343

Rather than regard this as an exceptional case, mathematicians studying voting allocations have roughly shown that no reasonable democratic voting method, satisfying several obvious requirements, exists that does not have shortcomings (The Arrow impossibility theorem)³. As a result of this negative result various schools have arisen some emphasizing the relationship between specific voting schemes and their consequences while others emphasize how to mathematically maximize benefits using the system. In this article we shall develop axioms, or fundamental descriptions, of the two allocation methods mentioned and then study their consequences.

The halachic method appears "complicated" in contrast to the proportional method. It may therefore come as a surprise that the halachic method naturally arose from secular sources in the following case:⁴

A single runway serviced 4 aircraft carriers. The smallest carrier only needed an 8 million dollar runway while the largest carrier needed a 19 million dollar runway. Two other carriers needed 11 and 17 million dollar runways. Obviously if a 19 million dollar runway was built it would solve the needs of the other three carriers as well. What is a "fair" method of allocation of cost.

Using the halachic method---constructing a table similar to table 2 above---shows that the four carriers should pay 2,3,6, and 8 million dollars each. This is in fact what was proposed.

Three comments may help elucidate this decision:

(i) The halachic method would argue that all 4 want at least an 8 million dollar runway so that at the very least all parties should pay $8/4 = 2$ million dollars. But then the smallest carrier does not want anything else and

3. Arrow, K. J. *Social Choice and Individual Values*. Cowles Commission Monograph 12. New York: John Wiley and Sons, Inc., 1951.

4. Littlechild, S.C., and Owen, Guillerno. "A Simple Expression for the Shapley Value in a Special Case." *Management Science* 20 (1973): 370-372

should not have to contribute. The remaining amounts needed for runways are 3, 9, and 11. Each of the remaining three demands at least 3 million dollar more so we ask 1 million from each. This argument continues and results in the cost allocations of the *halachic* method.

(ii) Proportional allocation (based on a total of $8+11+17+19=55$ Million) would certainly be out of place here for the simple reason that 55 million is not spent! Therefore there is no reason to divide based on that figure. Conceptually the agreement by the 4 carriers to form one "airline coalition" saves them wealth---the coalition only has to pay 19 million while the 4 of them separately would have to pay 55 million.⁵

(iii) One mathematical theory governing division of wealth in coalitions⁶ gives us insights into the types of "objections & counterobjections" that take place between the coalition members:

EIGHT MILLION DOLLAR RUNWAY CARRIER to NINETEEN MILLION DOLLAR CARRIER: You need a 19 Million dollar runway anyway. So you pay everything and we will pay nothing.

NINETEEN MILLION DOLLAR CARRIER: If I pay everything then I will not share. I can break up the coalition and cause the rest of you to pay large amounts. I want you to share.

EIGHT & ELEVEN MILLION RUNWAY CARRIERS: The two of us together can each pay 5 1/2 million, build an eleven dollar runway, break off the coalition from the other two carriers and cause you to pay a large amount. We will stay in one coalition but we don't think we should pay equally.

These "objections" and "counterobjections" are typical in the mathematical analysis of the Aumann-Maschler theory.

One of the goals of mathematicians is to give a small set of underlying unifying concepts from which a whole method follows. These axioms, as they are called, shed light on what makes the method tick. To maintain the

5. The saving of wealth by forming a group is called *Bircath Habayith*. Rambam:

Hilcoth Malveh VeLoveh 18:4

6. Aumann, R. J. and Maschler, Michael. "The Bargaining Set for Cooperative Games."

In *Advances in Game Theory*, Annals of Mathematics Study 52, edited by M Dresher,

L. S. Shapley, and A. W. Tucker, pp. 443-476. Princeton: Princeton University Press, 1964.

semi technical pace of this article we have included mathematical details in the appendix.

PROPORTIONAL ALLOCATION: The axioms of allocation are the following:

EQUAL TREATMENT: Lenders with the same loan amounts should receive equal allocations.

NON PENALTY/PROFIT: All lenders receive at least nothing and not more than they loaned.

EXHAUSTION: The entire estate is used (exhausted) in payments if total loan amounts exceeds estate amount.

TRANSFERABILITY: If Reuven "buys" the loans of Shimeon and Levi then the amount Reuven receives should equal the sum of amounts received by Shimeon and Levi. Similarly if Shimeon and Levi buy Reuven's loan and split it equally among themselves then they each receive an amount that is half what Reuven would receive.

It can be proven that any allocation scheme satisfying these three axioms satisfies proportional allocation.

HALACHIC ALLOCATION is satisfied by the following axiom scheme:

EQUAL TREATMENT, EXHAUSTION, and NON PENALTY/PROFIT are the same as before.

CONSISTENCY: A larger loan amount is not allocated less than a smaller loan amount.

SMALL PREJUDICE: Other things being equal (i.e. if the other axioms are satisfied) it is preferred to pay off small loans (vs. larger loans).

In passing we note a second axiom scheme for halachic allocation:

The axioms of *NON-PENALTY/PROFIT* and *EXHAUSTION* are the same.

MAXIMAL AVERAGE RETURN RATE: Choose an allocation scheme with the highest average rate of return.

Some salient points should be noted. The *halachic* method is concerned with the overall effect on the group of lenders while the proportional method is concerned with equal treatment of loan dollars---every loan dollar gets a fixed percentage independent of who did the loan and how much it was. Most important however is the glaring point made by the axioms that the *halachic* method is "prejudiced". Our goal, the defense of this law must address this prejudice.

V: JEWISH PSYCHOLOGY

The Rambam⁷ considers the following situation:

A person with a \$1000 can give \$1000 once to charity vs. giving \$1 every day for 1000 days. Which method is preferable.

The Rambam explains that *frequency*, not *intensity*, is the determining factor in acquiring a personality attribute.

If a person's goals are to acquire the personality attribute of "giving", "charitable", etc. then it is preferred to do many (small) acts of giving vs. one big act.

For our purposes this Rambam is sufficient. However there are a variety of other situations where the *frequency vs. intensity* principle is operative: e.g. it is better to eat 3 small meals a day than 1 big meal; the Vilna Gaon achieved his learning by taking a variety of small naps vs. one big sleep a night; students study better for exams by doing small amounts each night the week before an exam rather than one night of cramming; it is preferable to strengthen a marriage by many small acts of thoughtfulness than by say one big romantic trip. If the reader agrees with any or several of these examples it will strengthen their acceptance of the *frequency vs. intensity* principle mentioned by the Rambam.

7. Rambam. Mishnayoth. Avoth 3:18.

We emphasize that this is a behavioral approach. However, many Jewish and learning theorists would argue that the focal point of psychology is not behavioral. For example, some non-behavioral Jewish thinkers emphasize acquisition of "personal borders"(Friedman)⁸, or self-esteem(Twerski)⁹; similarly some non-behavioral learning theorists emphasize the importance of role models, the attribution of causation, or the evolutionary development from within of conceptual structures(Piaget)¹⁰.

Be that as it may our concern is not the development of a *holistic* psychological approach but rather a discussion of the preferred method of acquiring *specific* habit patterns when that is of interest. In other words, independent of ones *ultimate* psychological *goals* the preferred method of a *subgoal* involving habit acquisition will emphasize *frequency* vs. *intensity*.

VI: GOD: *THE* PSYCHOLOGIST

We are now in a position to rationally explain the halachic method.

- God wishes to make the Jewish people an Abrahamic community.
- The Abrahamic community is characterized by its members being charitable.¹¹
- Frequency vs. intensity says that to become charitable we do many acts of charity
- Loans are considered a form of charity.¹²
- The profit and repayment motif are considered strong incentives ("reward and punishment" in behavioral terminology) for economic behavior.¹³

 8. Rabbi Friedman. *Doesn't Anyone Blush Anymore*. Harper-Collins. 1990

9. A Twersky. *I am I am*. 1994

10. Gredler, M.E. *Learning and Instruction. Theory Into Practice*. 2nd Edition.
 New York: Macmillan Publishing Company, 1992

11. Gen 18:18-19

12. Rambam, Hilcoth Matnoth Evyonim, 10:7

13. Deut. 15:9

- Therefore to create the Abrahamic community of charitable beings we select that allocation system whose axioms "reward" the most lenders. Such a system must prefer rewarding many small lending acts over one big lending act.
- We conclude that the *halachic* method is the one needed to increase kindness in the world.

To put it another way in a society with the *halachic* method of allocation small loans are encouraged since the lenders are "certain" they will get their money back. This in turn encourages many small business ventures since they rely on good loans for initial capital formation. By contrast a society with the proportional method of allocation discourages small loans since they are certain to lose out when allocation takes place. Since small loans are discouraged small businesses are also discouraged. The economy becomes depersonalized with banks the principle lenders of large amounts of money.

VII: CONCLUSION

In conclusion we advocate the above analysis as a model for *halachic* defense.

- Mathematicians and secularists frequently have rational defenses for laws which we initially find strange.
- The axiomatic method can help shed light on the unifying themes behind some *halachahs*.
- Even after presenting the axiomatic defense, *halachahs* may require clarification.
- But then a careful consideration of Jewish goals and Jewish psychological methodology sheds light on why there are certain halachic preferences.

Some final thoughts on the proportional method should be mentioned. It is not the case in say American society that small businesses don't exist. While proportional allocation does not encourage one's next-door neighbor to make small loans, America has developed certain structures to help small businesses. Banks, which can give small loans without fear of loss is one example. Insurance companies and policies which protect small businesses from collapses is another example. We must emphasize however that banks and insurance companies are highly impersonal: to take a simple example, if I couldn't meet a payment I might ask my neighbor for an extension but banks would not be as "kind". Thus the Jewish method really does encourage the development of the target personality traits of kindness mentioned above.