

Using Lotteries in Logic of *Halakhah* Law. The Meaning of Randomness in Judaism

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Abstract: There are many phenomena in the Bible connected to the idea of the random, generally in a positive light, but sometimes in a negative one. Both in the Talmudic literature and in the *Halakhah* texts, the *ḥazal* (the Sages) also relate to random processes. As we will see here, for them every chance event has a clear meaning, usually even a holy one. In fact, every culture in the world relates to randomness. However, from the Greek philosophers until the rationalism of the 19th century, a process of denuding randomness of its holiness has been taking place. In Judaism, a lottery is not a blind process; moreover the randomness has a clear and profound theological meaning.

Keywords: Random phenomena, Talmud, *halakhah*, lottery.

Today, a lottery is seen as a wholly blind process, totally without meaning. However, in Judaism it has a lot of meanings until now. Let us begin with some examples:

Babylonian Talmud, Sanhedrin 17a

The Rabbis taught: But there remained two men in the camp (*Numbers* 11). Some say: Their names remained in the urn. When the Holy One, blessed be He, said to Moses, Gather seventy of the elders of Israel, Moses said: ‘How shall I do it? If I choose six out of each tribe, there will be two too many; if I select five, ten will then be wanting. If I choose six out of one and five out of another, I shall cause jealousy among the tribes.’ What did he do? – He selected six men from each tribe, and brought seventy-two slips, on seventy of which he wrote ‘Elder’, leaving the other two blank. He mixed them up in an urn, and said: ‘Come draw your slips.’ To each who drew a slip bearing the word ‘Elder’, he said, ‘Heaven has already consecrated you.’ To him who drew a blank, he said: ‘Heaven has rejected you, what can I do?’

Already from this text, we learn that result of the urn depends of ‘Heaven’. The lottery is not blind,

but depends of the God's will.

Our next example deals with the *Yom Kippur* sacrifices:

Babylonian Talmud, Yom'a 39a, 39b

Our Rabbis taught: Throughout the forty years that Simeon the Righteous ministered, the lot would always come up in the right hand; from that time on, it would come up now in the right hand, now in the left...

Our Rabbis taught: During the last forty years before the destruction of the Temple, the lot did not come up in the right hand.

The probability of obtained 40 consecutive times the same result is very low. It is as if as obtaining the same face throwing a coin 40 consecutive times ($1/2$ at the power 40). This example shows not only the Divine intervention in human history, but also delivering messages regarding the behavior of a person or community.

Babylonian Talmud, Bab'a Batr'a 122a

The land was divided by lot, for it is said (*Numbers 26*), "only by lottery". It was only divided by use of the *Urim* and *Tumim*, as it said, "According to the lot." How was this done? Eleazar was wearing the *Urim* and *Tumim*, while Joshua and all Israel stood before him. An urn with the tribes' names and an urn with the boundaries were placed before him. Animated by the Holy Spirit, he exclaimed: 'Zebulun' is coming up and the boundary lines of Acco are coming up. Then he mixed the urn of the tribes well and Zebulun came up in his hand. And he mixed the urn of the boundaries well and the boundary lines of Acco came up in his hand. Animated again by the Holy Spirit, he exclaimed: 'Naphtali' is coming up and the boundary lines of Ginosar are coming up. He mixed the urn of the tribes well and Naphtali came up in his hand. He mixed the urn of the boundaries well, and the boundary lines of Ginosar came up in his hand. And he did this with each tribe.

The *Rašbam* explains:

They needed two lotteries, one for the tribes, and one for the borders. You could not say: what I draw now be for Reuven, because if you do, the division is not being done by lottery, as the text says 'only by lottery.'

The probability is the following:

$$\frac{1}{(12)^2} \cdot \frac{1}{(11)^2} \cdots \frac{1}{(2)^2} = \frac{1}{(12!)^2} = \frac{1}{(479 \cdot 10^{10})^2} \approx \frac{1}{10^{25}}$$

Sharing the land of Israel was very important, and we need the Divine intervention for this.

Babylonian Talmud, Sanhedrin 43a

Our Rabbis taught: ...When the Holy One, Blessed be He, said to Joshua, Israel has sinned, he asked Him, 'Master of the Universe, who has sinned?' 'Am I an informer?' He answered, 'Go and cast lots.' Therefore, he went and cast lots, and the lot fell upon Aḳan. He said to him: 'Joshua, will you convict me based on a lottery? You and Eleazar the Priest are the two greatest men of the generation, yet if I were to cast lots upon you, the lot might fall on one of you. I beseech you, he replied, cast no

aspersions on the lots, for the Land of Israel is to be divided by lots, as it is written (*Numbers 26*), the Land shall be divided by lot.

From these examples, we can understand the different Biblical events, which stand out in the history of the Jewish People, the *ḥazal*'s relation to these events, and their importance in figuring out the purpose of the world. We see that Judaism's special understanding of random occurrences in the world (unlike rationalistic cultures, on the one hand, or Eastern cultures on the other hand) integrates order and randomness. We will explore the meaning of the connection between these two factors.

Despite the variety found across the *ḥazal* different interpretations of the *Torah*, I think that there is universal agreement amongst them about the theological meaning of chance as the hidden workings of God. It must be emphasized that in Judaism chance is always meaningful, in that it reveals to man the desire of God or is intended to reveal to him the path he should follow. Chance is the exact opposite of doubt. Chance takes several different forms: accident, chance, fate, luck, speculation, magic, and more. There is a chasm between the way *ḥazal* and the wise men of Greek looked at chance and fate.

In some cases, the use of lottery is forbidden, because it means using a holy tool for his own interests:

Babylonian Talmud, Sanhedrin, Mišnah 3:24b

These are ineligible; those who gamble with dice... Rabbi Yehuda said: 'When is this true, when they have no other occupation, but if they have another occupation, they are eligible... What is wrong with gamblers?... Rabbi Šešet says... because they are not involved with settling the world.

The reason for this is that since lottery is a holy tool in the hands of God, we cannot use it for our personal interest.

On the other hand, it is lawful for a person to buy a lottery ticket, as explained by an important Rabbi:

Rabbi Ya'qov Ariel, Q&A in the Tent of the Torah

Following the Jewish law, it is permitted to participate in national lotteries. This is because at the time of the lottery, the loser has already paid for their ticket, and the winner takes his prize from a sum that has been prepared for dispersion as prize money. However, it seems that wasting 20% of his income on this is the limit.

Concerning property, the lottery can work as an act of transfer of ownership. In certain cases, the result of utilizing a lottery can replace the process of acquisition:

Babylonian Talmud, Bab'a Batr'a 106b

It was taught: Rabbi Yossi said: 'When brothers divide an inheritance, as soon as the lot for one of them is drawn, all of them acquire possession of their shares. On what grounds? – Rabbi Eleazar said: Just like the possession of the Land of Israel. As that began by lot, so here also it is by lot. However, there the division was made through the ballot box and the *Urim* and *Tummim*; shouldn't the division here also be through the ballot box and the *Urim* and *Tummim*? Rabbi Aši replied: Because of the mutual benefit, the lot suffices here because in return for the benefit of mutual agreement they determine to allow each other to acquire possession by the lot alone.

Šulḥan A‘ruk, ḥoŠen MiŠpat 175:2-3

After deciding to use a lottery for a division, once one lot has been decided, the division will be made for all...

If two brothers divided an inheritance, and then a third brother, who they did not know about, appears, the division is annulled. Even if there were three fields, and each brother took one, and divided the third field between them. When the third brother came and they cast lots, even if the third field goes to him, any of the three brothers can nullify the lottery, and then a new lottery must be held for all of them. Even if the third brother receives part of each of the other fields and is satisfied, either of the other brothers can annul the lottery since it was done in error.

Many *halakhic* decisions are patently dependent upon the *poseq's* (adjudicator's) understanding of what a lottery is. Rabbi Yair Baḳraḳ (18th century) wrote the book *Ḥavat Yair* that is a famous Responsa book:

***Ḥavat Yair*, Section 61**

Once, twelve people held a lottery for a silver goblet. They put 12 slips of paper, each with one of their names on it in one box, and they put in a second box, 11 blank slips and one that said *mazal tov*. An infant drew one slip from each box, and the one that came out together with the *mazal tov* would receive the goblet. As it happened, the *mazal tov* came up on the sixth draw. One of the remaining people checked the box with names, and it turned out that one of the names had been omitted, and there had been only 11 slips in the box. The participants called for annulling the lottery, but the one who won said they had no reason to complaint, this only increased their chances; and to one whose name was omitted he will do a compromise and compensate him.

Nevertheless, the Rabbi answered that it is a false lottery (not holy); then it is invalid.

We see from this story that the lottery must be done in a perfect way in order to be holy and to be accepted by God.

There are different approaches, to using lotteries in the courts or for community decisions. Another example is the following problem concerning elections, written by the previous chief Rabbi of Israel Rabbi Ovadia Yosef in the 80':

Rabbi Ovadiya Yosef

There was a city where a committee of 36 people prepared to choose someone to be rabbi of their city. As they were two wise men candidates for the position, the votes split, so each one received 18 votes. The committee decided, by itself, to cast lots, and one of the men was chosen. The second wise man appealed, saying one could not rely on a lottery, that they must convene again and choose a rabbi, and whomever they chose was the one God wanted appointed. The lottery was cancelled, because the two wise men did not know about it and they did not agree before it was cast.

In some cases, it is possible to casting lots even for capital crimes. Let's begin with Maimonides:

Rambam, *Hilḳhot Yesodei HaTorah*, Chapter 5, Halakḥah 5

If gentiles say to a group of women: Give us one of you and we will defile her, and if

you do not we will defile all of you. They should all be defiled, and not give over a soul of Israel.

If gentiles say: Give us one person and we will kill him, and if you do not we will kill all of you, you should not turn anybody over to them.

Latter Rabbi Yehuda Haḥasid wrote:

***Sefer Haḥasidim*, Section 679**

People traveling on the open seas and a fierce wind arises which seems likely to destroy the ship or to sink it, and other boats are passing safely, so they know that someone on the boat is a transgressor and they are being punished for him. They have the right to cast lots. If the same person was chosen three consecutive times, he is the guilty one, and they have the right to throw him into the sea... Proof is from the story of the prophet Jonah...

***Sefer Haḥasidim*, Section 702**

People traveling on the open seas and a fierce wind arises, they have no right to cast lots, because if they fall on someone, they would be required to cast him into the sea, and it is not right to do as was done to Jonah son of Amitai.

The *poseq* Rabbi Eliezer Waldenberg explains:

***Q&A ziz Eliezer*, Chapter 18, Section 48b**

There is no contradiction, because Section 679 speaks of a case where the other boats are passing safely. This is a proof that someone on the ship is guilty in God's eyes, which is not the case in Section 702, where there is no external proof that there is someone guilty on this one ship...

Moreover, the *poseq* Rabbi Moshe Feinstein gives the following rule:

***Igrot Moše, Hošen Mišpat*, Chapter 2, Section 78**

If two people are sick and need medical care, which one should a doctor treat first, if they both reached him at the same time? Then they should follow the order listed in the *Babylonian Talmud* (*Horayot* 13a), and if the doctor is not familiar with the list, he should use a lottery.

To this day, there is no precise definition of randomness. A random event is thought to be something that happens with no meaning and no clear cause. In the modern world, the holiness of the random is completely absent. There is a branch of mathematics called Probability Theory, which deals with the quantitative aspects of randomness, developing axioms, and investigating concepts such as independent (unconditional) events, stochastic processes, and borderline occurrences. Despite the success of Probability Theory, not a word has been said about the deeper meaning of the accidental. Computer scientists try to develop algorithms, which are able to produce pseudo-random numbers, but the creative powers of man are incapable of creating true randomness. Apparently the creation of randomness demands a higher level of complexity than which is actually known to man.

The special relationship of *hazal* to randomness is not confined merely to the realms of philosophy and thought, but also carries with it fundamental implications for the way man lives his daily life. This can be seen in many laws regarding lotteries. It would appear that due to Judaism's

absorption of Western culture over tens of generations, these laws are not frequently encountered today.

There is a wide range of discussions about lotteries by *hazal*. For example, in *Yalqut Šim'oni* (*midrašic* text) it says:

There are many names for lotteries: *heleš*, luck, fate, trial. The children of Esau suffered from all of them. Amalek was struck with weakness, as it says: 'and Yehoshua weakened...' (*Exodus* 17:13) The fourth kingdom will be struck with trial in the future, as it says: 'birth pangs will come upon him' (*Hosea* 13:13).

In the *Tanaĕ* (Bible), the word lottery appears to have different meanings. It is used first to describe using physical objects to make decisions in times of doubt. It also refers to things, which are determined by one's fate or personal destiny. Fate also implies one's lot in life, or fortune, as in *Daniel* 12:13: 'and you will receive your fate in the end of days.'

Of course, there is a direct connection between the two meanings: just as it is impossible to know the results of a lottery, also the future of a person is neither known nor predictable. While you can debate whether the future of a person is predictable, when one uses the phrase 'fate', one usually means, consciously or unconsciously, that the results of the activity include an unknowable factor.

There are many verbs that are used together with 'lottery' in the *Tanaĕ*: 'cast,' 'threw,' 'shot,' 'hurl,' 'fell,' 'came up,' 'came out,' 'was.' This diversity teaches us the richness of the lottery, and how important and central it is in all manner of fields in the life of humankind. Lottery as a masculine noun reminds us in the *Torah* of the control and indisputable influence of the Creator.

In this work we focused on the first and original meaning in Hebrew of the word, which today is usually referred to as 'lottery,' and in religious language, is frequently called 'holy lottery' or 'righteous lottery.'

As mentioned above, there are practical implications to a discussion on randomness. The flood of gambling lotteries (such as *Lotto*, *Toto*, *Mif'al HaPayis*) which have spread across many countries in the world, and the question of establishing legal casinos arouses ruminations, especially amongst the religiously traditional population. What is the *Torah's* position regarding these games, and towards people who invest considerable amounts of time and money in them?

Another kind of lottery is what is referred to today (erroneously, it would seem), as 'The Gaon of Vilna's Lottery', making personal decisions based on lotteries. For example, Rabbi Yosef David Azoulai (The *Hida*) from the 18th century wrote the following:

***Q&A Haim Ša'al*, II, Section 38, Item 4**

It is permitted to open the *Torah* and look at the verse that comes up (to make a decision). Where it says that one should not open a Bible in the manner of lotteries refers to the case where a person is roving from house to house-offering women and men to cast lots, as some people do (fortunetellers). However, if a person wants to do it for himself or herself, it is permitted.

There are many stories about the Gaon of Vilna's Lotteries:

1. *Rabbi Moshe Feinshtein*: Once a question arose in his family as to whether they should travel to a certain place. He opened a Bible and the verse that appeared was (*Exodus* 10:11) 'And the men went out,' and the answer was clear (Baer Miriam).
2. *Rabbi Lopyan* told that before he travelled from Lithuania to England, he tried the Gaon of Vilna's lottery, as he had learned if from the '*hafetz haim*', asking whether to travel or not. The answer that came up was the verse (*Genesis* 46:4) 'I will go down to Egypt with you,

and I will bring you back up.’

3. Lottery to determine the identities of the slain from the Company 35 in the Israel army: *Rabbi Aryeh Levine* conducted this lottery. See the book *A zadiq in Our Time* written by S. Raz.

Throughout the generations, there were differences of opinion regarding the use of lotteries. There was a disagreement, for example, that was recorded in verse between Rav Ibn Ezra and Rav Yehuda from Modena, regarding the nature of dice games. Rav Ibn Ezra wrote this about them:

Playing with dice/ the hit is fresh/ the end is destruction/ cursed in the gates.
He will disperse his money/ and increase his sin/ revolt against his creator/ in vows
and lies.
He thinks he will profit/ he will never succeed/ and if he deceives his brother/ his
days will be bitter.

Rav Yehuda from Modena responded in kind:

Playing with dice/ his occupation is clean/ his cup overflowing/ his fate is weighed
in the gates.
If his Maker chooses/ he will lose his capital/ if this is his sin/ speaking lies.
He will lose or win/ like a successful businessperson/ and will become accustomed /
to sweetening the bitter.

But lotteries don't deal only with games, and there is an opening to introduce lotteries into judicial proceedings and legal decisions, by way of a law that forbids a judge from leaving a decision as a '*din ḥaluq*', which is to say, a partial decision, as a result of his inability to decide because he lacks sufficient proof. For example, the *Roš* (*Rabenu HaŠer*), the great adjudicator of all of Western Europe in the 14th century, in one of the most difficult matters brought to him for adjudication by the Queen of Spain:

I have explained all this at length in order to show that it is not within my purview nor is it legitimate to leave a decision as a *din ḥaluq* (*ḥaluq* means partial, incomplete). A judge must complete the decision in order to create peace in the world. Therefore, the Sages gave permission to the judges to decide as they see fit in a place where the facts and evidence do not lead to a clear decision. Sometimes this will be a judge decision without reason, proof, nor evaluation, and sometimes as a compromise.

Rabbi Joseph Karo, (in the *Šulḥan 'Aruk, Hošen Mišpat*) also rules in the same manner:

A judge has the power to decide by compromise, in a place where he is unable to come to a clear decision.

Today we are used to thinking that we, the human race, are subject to not only chance or fate, but that we ourselves actually create our own fate. This does not mean that we have no control over our own lives. We always have free choice to do what we wish. This outlook means to say that the existentialist view of freedom sees our lives as having a certain direction or chosen tendency. Looking backwards, a person does not see his own life as wholly random.

The intention of this research was to demonstrate that from a traditional Jewish point of view, randomness has a deeper meaning. This fact become clear, by analyzing the way that *ḥazal* relates to randomness, and their understanding of events in which uncertainty is included. The importance of the meaning of randomness appears into both philosophy and deed. In Judaism,

there is a deep connection between thought and deed, and they cannot be disconnected one from the other. Nonetheless, and their study help us to develop a deeper understanding of these concepts and their purpose.

With all the above examples, we come to a better understanding of the nature of the world, its development, and the meaning of miracles and randomness. These concepts lead to the concept of blessing and the use of statistics, which are not examined here in. It is clear that these concepts affect our understanding of free will, and the accompanying apparatuses, such as *Purim*, *Amaleq*, luck, and the *Urim* and *Tumim* (the Cohen's breastplate).

Practical considerations in casting a lottery following Jewish law:

A. A perfect lottery: The lottery must be conducted on all the involved items. Usually there is one group of items, so a single lottery is sufficient. However, if there are more than one group of items involved, then you must use more than one lottery, one for each group.

B. A fair lottery: A lottery must be fair. There must be equal chances for each side in the dispute, or in scientific language, the distribution of the results should be a uniform distribution.

C. The appearance of the lottery: The lottery must appear to be fair and not a trick conducted by the participants. Everyone is present at any of the stages of the lottery: preparation of the slips, mixing, etc. It turns out that the appearance of fairness is extremely important, and one cannot use a lottery in a place where the community present does not sense that it is a fair lottery.

Purposes of the Lottery:

1. Divine intervention in human history.
2. Delivering messages regarding the behavior of a person or community.
3. Leaving free will in Man's hands.
4. Variations in the process of renewal and continuity of life.
5. Prevention of prediction of natural phenomena in the long term.

Conclusions

A person cannot refuse to follow the results of a lottery, because the results come from the Heaven... One who refuses to obey a lottery is as one who violates one of the Ten Commandments. 'We see that in the *Torah* and the *Prophets* and in the *Writings* that they relied on lotteries when they were conducted without man's calculations or intervention', as it is said: 'One should cast the lottery discreetly, for the decision is from Go' (*Proverbs* 16:33). '...Since it is obvious that a fair lottery will reflect God's will, while it will not be not the case if a dishonest lottery is performed' (*Hošen Mišpat* 175).

Hebrew law uses a lottery for decisions only when it is conducted perfectly. The lottery joins in the search for the truth, and every casting of lots must be to further God's will.

'The lot brings an end to strife, and separates the contentious' (*Proverbs* 18:18). The commentators explain: 'The lottery will terminate the contention over the separation of property, because the lottery will determine each one's portion.'

Let us conclude by the following: Art's purpose is to transform the unexpected into the necessary. A lottery's purpose is to transform the necessary into the unexpected.

References

1. *Babylonian Talmud*.
2. Yaakov Ariel, *Q&A in the Tent of Torah*, Jerusalem.
3. Yosef David Azoulai (The *ḥida*), *Q&A ḥaim Ša'al*, Jerusalem.

4. Yair Barkak, *havat yair (Responsa book)*, Jerusalem.
5. Moshe Feinstein, *Igrot Moše*, New York.
6. Yehuda Haḥasid, *Sefer ḥasidim*, Jerusalem.
7. Joseph Karo, *Shulhan 'Aruk, hoŠen MiŠpat*, Jerusalem.
8. Simha Raz, *A Tzadik in Our Time*, Lina ed. 1974, Jerusalem.
9. Eliezer Waldenberg, *Q&A ziz Eliezer*, Jerusalem.
10. *Yalqut Šim'oni*, Jerusalem.