

## NEW INTERNATIONAL VERSION (NIV) BIBLE

### Joshua 18:1–10

**1** The entire assembly of Israelites gathered at Shiloh and set up the tent of meeting there. The country was brought under their control, **2** but there were still seven Israelite tribes who had not yet received their inheritance. **3** So Joshua said to the Israelites: “How long will you wait before you begin to take possession of the land that the Lord, the God of your ancestors, has given you? **4** Appoint three men from each tribe. I will send them out to make a survey of the land and to write a description of it, according to the inheritance of each. Then they will return to me. **5** You are to divide the land into seven parts. Judah is to remain in its territory on the south and the tribes of Joseph in their territory on the north. **6** After you have written descriptions of the seven parts of the land, bring them here to me and I will cast lots for you in the presence of the Lord our God. **7** The Levites, however, do not get a portion among you, because the priestly service of the Lord is their inheritance. And Gad, Reuben and the half-tribe of Manasseh have already received their inheritance on the east side of the Jordan. Moses the servant of the Lord gave it to them.” **8** As the men started on their way to map out the land, Joshua instructed them, “Go and make a survey of the land and write a description of it. Then return to me, and I will cast lots for you here at Shiloh in the presence of the Lord.” **9** So the men left and went through the land. They wrote its description on a scroll, town by town, in seven parts, and returned to Joshua in the camp at Shiloh. **10** Joshua then cast lots for them in Shiloh in the presence of the Lord, and there he distributed the land to the Israelites according to their tribal divisions.



## COMMENTARY

**Marek Bożykowski**  
**University of Warsaw**

**The Use of Random Methods in the Distribution of Goods  
and Decision-Making**

## INTRODUCTION

Both the issue of a fair distribution of goods itself and certain methods of solving it have been known to mankind since the beginning of time. One of the most popular methods was allocation by lot. The fragment of the Biblical Book of Joshua quoted above constitutes one of numerous examples of a practical application of this approach. The Bible itself contains a whole array of other cases involving distribution by lot, although the description above is among the most comprehensive ones.

The division of the Promised Land between the tribes of Israel took place in several stages. In the first stage (see Num 32), a share of land was allotted to the Reubenites and the Gadites at their request. They had large herds and found the lands of Jazer and Gilead east of the Jordan River to be exceptionally convenient areas for grazing cattle. Moses acceded to their request and gave them the lands they chose on the condition that all fighting men of these tribes join the rest of the Chosen People in crossing the Jordan and fighting for Canaan. Similarly, the half-tribe of Manasseh received their share east of the Jordan for expelling the Amorites from those lands. According to God's will, the land of Canaan was to be distributed by lot (Num 33:54). In the first lot at Gilgal (Jos 14–17), lands were allotted to the tribes of: Caleb, Judah, Ephraim and the remainder of the tribe of Manasseh. In the second lot at Shiloh quoted above, the inheritance was allotted to another seven tribes, namely that of: Benjamin, Simeon, Zebulun, Issachar, Asher, Naphtali, and Dan. The Levites, being a tribe offered to God, did not receive a lot together with the others, but were granted towns situated in the Promised Land along with adjacent pastures. The Levite towns were also selected by lot (Jos 21:1–8; 1 Chr 6:39–66).

It is worth noting that land is a divisible good, which makes its division by lot problematic. While the Biblical description does not allow an accurate reconstruction of the allotment procedure, one may guess that the land was first divided into an appropriate number of parts along natural geographic borders and then randomly distributed between individual tribes. A separate question is to what extent the fact

that the inheritance had earlier been received by the half-tribe of Manasseh on the other side of the Jordan was taken into account, which should translate into lesser entitlements in any subsequent division of land.

### REASONS FOR MAKING DECISIONS BY LOT

In the case of the division of the Promised Land, Joshua cast lots according to God's will. However, random methods were also employed in numerous situations where their use was not legitimised as strongly. Why is it then that people willingly decide to take decisions using a mechanism over which they have no control?

#### Lack of knowledge

The first possible reason is ignorance about the most appropriate course of action in a given situation. The use of a random mechanism lifts the burden of direct responsibility for the result off the decision-maker (who nevertheless remains responsible for the decision to make a decision by lot). In certain cases, the decision-maker's intention is to learn God's will concerning the problem at hand; the random mechanism leaves Him room to guide the random event so as to lead to the right choice.

Sometimes, the desire to learn God's will would take on an institutional form. Biblical examples of this practice include reading answers to dichotomous questions through: the oracle of ephod (e.g. 1 Sm 23:9–12), as well as the lots of the Urim and the Thummim (e.g. Num 27:21). Reading God's will could not be reduced to simply drawing one of two lots as this would exclude cases where no answer is given, which are occasionally mentioned in the Bible (e.g. 1 Sm 28:6)<sup>1</sup>. A draw was also used to appoint a priest to make the incense offering (Lk 1:5–9). On the one hand it was a method of dividing that duty (or rather a privilege), but on the other hand it was an opportunity for God to choose the priest to perform that honourable function.

A draw was used as a method of learning God's will not only in institutions sanctioned by tradition but also in isolated instances, as was the case of choosing the twelfth apostle to replace Judas: 'So they nominated two men: Joseph called Barsabbas (also known as Justus) and Matthias. Then they prayed, "Lord, you know everyone's heart. Show us which of these two you have chosen to take over this apostolic ministry, which Judas left to go where he belongs." Then they cast lots,

<sup>1</sup> For more information on the oracle of ephod and the lots of the Urim and Thummim, see e.g. Majewski (2012).

and the lot fell to Matthias; so he was added to the eleven apostles.’ (Acts 1:23–26). Selecting Saul by lot from among all Israelites was an additional source of legitimacy after he was anointed king (1 Sm 10). A draw was also used to identify the culprit. In cases described in the Old Testament, the drawn men indeed turned out to be guilty, to which they confessed themselves (Jos 7, 1 Sm 14:24–46).

In the contemporary Church, random methods have fallen out of prominence, although one can find some examples where they are still used. The Gnostics cast lots at their congregations to assign pastoral, episcopal, and prophetic roles. The assignments were only valid for the time of the given congregation, with lots being recast at the next meeting (Goodwin, 1992: 44). In the Coptic Orthodox Church, the Holy Synod selects papal candidates but the final choice is made by lot from among the pre-approved candidates (see Lissowski, 2014). According to tradition, the draw is made by a blindfolded boy. Lots are also cast by the Amish to select superiors of their congregation. A draw was also the final stage in the election of the Patriarch of the Orthodox Church of Russia at the Local Council in 1917–1918. An explanation of why random methods are absent from the Roman Catholic Church can be found in *De Sortibus* (‘Lots’) by Saint Thomas Aquinas (ed. 1963). St. Thomas states that since Pentecost it has no longer been necessary to resort to random methods because the Holy Spirit ‘instructs human consciousness so that it judge correctly’ (Ibid.). Consequently, ignorance about the right course of action is no longer as serious a problem as it once was.

The use of random methods as a remedy for ignorance is also known in the context of practices outside Judeo-Christian culture. Various fortune-telling techniques are a case in point. Their essence is to establish a given state of affairs as true (or a given course of action as right) based on the result of a random event. Some of them are based on events with known probability distributions (e.g. card reading) while others on events with unknown probability distributions (e.g. tea-leaf reading). The latter notably include practices based on natural lotteries, i.e. observing events that were not caused by the lottery administrator. Examples include reading bird flight patterns, which are independent of the person trying to draw conclusions based on them. There are also fortune-telling techniques that involve specific skills of the fortune-teller in addition to a random event, as is the case with, for example, the fortune-telling game of patience, where the chances of success depend on both the initial array and the fortune-teller’s patience skills. However, it should be noted that various fortune-telling practices may involve an interpretive component, to a greater or lesser extent; the same observable state of affairs may be interpreted as an omen of one thing or another, depending on the interpreter’s attitude. An example of an augury that leaves ample room for interpretation is candle wax reading on St. Andrew’s Day as the shadow cast by solidified wax may evoke different associations and is

open to broad interpretation<sup>2</sup>. However, there are auguries where this component is absent altogether, e.g. the aforementioned game of patience; the restrictions of moves transferring cards from one place to another are very specific and patience is either successfully arranged or not.

A vivid example of an unambiguous augury is the poison oracle used by the Azande tribe living in Sudan (see Evans-Pritchard, 1976). The oracle is used to find the culprit behind the death of a relative as the Azande believe that every death is caused by sorcery. The oracle can provide answers to dichotomous questions, e.g. whether the sorcerer lives in the village of the deceased. The answer is read by feeding poison to a chicken and observing whether the chicken lives. Before poison is given, it is announced which result will be considered an affirmative or negative answer. The answer is verified by asking the oracle further questions, which requires feeding poison to another chicken. The answer is always confirmed by the opposite result to that obtained in the first question; if the chicken died after the first question was asked, the second chicken must survive for the information to be confirmed but if the first chicken survived, the second chicken must die for the result to be confirmed. If the results were identical in both questions, the answer is considered invalid. The oracle's failure to answer a question is attributed to poison being too strong or too weak, the question being asked ineptly, breach of a taboo by one of the people present, or sorcery hanging over the place of the oracle.

Decision-making by lottery can be used as a solution in the case of ignorance even when the person using this method does not believe that they will gain any knowledge in the process. If the decision-maker cannot compare alternatives and select the best one among them, they may choose one of them at random, without necessarily hoping for some supernatural factor to lead to choosing the best alternative. What matters is that any decision will have been made and consequently the decision-maker will not have to grapple with the dilemmas of choice. An interesting literary example can be found in a comedy entitled 'Pierwsza Lepsza' [Any Bride Will Do] (1880) by Aleksander Fredro. Alfred, its main protagonist, decides to marry but has great difficulty deciding whom he should propose to. Although he knows what qualities his perfect match should possess, he does not know anyone who displays all of them. Unable to decide whom he would like to marry, he decides to propose to every lady he meets at the park, one after another, until he finds the first one who accepts (effectively using a natural lottery). He also predicts that he may have second thoughts about the idea and therefore takes precautions in advance to make any withdrawal more difficult. He does not expect to find *the* perfect spouse as a result of his endeavour but he is happy with the prospect of at least having *a* wife.

<sup>2</sup> This is reminiscent of the Rorschach inkblot test (1924).

### Making a choice in the case of equal entitlements

Ignorance about the optimal decision is not the only reason to resort to random solutions. In the case of the division of the Promised Land, it does not seem as if the main intention had been to learn God's decision on which part of the land He chose for individual tribes of Israel. Otherwise Moses would have probably asked God about His will on the matter before the lands in Gilead were allotted to the tribes of Reuben and Gad. However, it seems that the random mechanism had a different application in that context, namely that it helped allot land to the seven tribes of Israel free of any suspicion of partiality. It should be added that a random allotment of land was also used without the religious context. The Athenians cast lots to divide land between cleruchs (settlers) in the colonies they established while the Romans cast lots to allot land to veterans so that lands of potentially uneven appeal (e.g. in terms of fertility) were distributed impartially (Goodwin, 1992: 45).

The use of a random mechanism has an advantage over an arbitrary choice of a solution in that it ensures that the parties are treated equally. This is especially important in the case of dividing indivisible goods of varied value or where the number of goods is lower than the number of participants of the division (e.g. when assigning kindergarten places). In situations of this type, there is no allocation where the participants would be treated equally (except the decision not to give anything to anyone). It is worth noting that while random solutions can ensure all participants of the division an equal starting point (*ex-ante* equality), they cannot guarantee equality in the allocation of goods resulting from the draw (*ex-post* inequality). For instance, if there are two participants of the division and one good, e.g. a car, both participants may be given an equal chance of receiving the good ( $\frac{1}{2}$ ) but the good will eventually be given to one of them, resulting in unequal allocation, with one participant receiving the car and the other going home empty-handed. It should be stressed, however, that people are more inclined to accept allocation that is unfavourable to them if it was selected in a symmetrical lottery than one that was proposed by another participant of the division. However, if the allocation was selected in a lottery favouring another participant, it was rejected as frequently as a direct proposal of an unequal division (Bolton, Brandts & Ockenfels, 2005). This shows that a draw may be used to legitimise an unequal division, provided that the lottery was perceived as fair.

This legitimising role of a draw can be traced back to the Biblical Book of Proverbs, i.e. a piece written in the 5th century BC: 'Casting the lot settles disputes and keeps strong opponents apart.' (Prov 18:18). A draw was also used to divide an inheritance, as shown in this excerpt from the Wisdom of Sirach: 'Do good to a friend before you die, and reach out and give to him as much as you can. Do not deprive yourself of a happy day; let not your share of desired good pass by you. Will

you not leave the fruit of your labors to another, and what you acquired by toil to be divided by lot?’ (Sir 14:13–15).

An example of a random division of an indivisible good can be found in the Gospel of John. The Evangelist describes the division of Jesus’ clothes between four soldiers present at His crucifixion (Jn 19:23–24). They divided His robes into four shares but did not want to do the same with His tunic, which was not sewn but woven in one piece. Tearing it would decrease its value, which is why they decided to cast lots for the tunic instead of physically dividing it into parts.

### **Making a division in the case of unequal entitlements**

Random methods can also be employed if participants of the division differ in terms of their entitlements. Closer relatives should have a larger share in an inheritance than the more distant ones; people who put more effort in joint labour should have a larger share in its fruit, and limited resources should be allocated wherever they will bring the greatest benefits. Regardless of where the differences in entitlements originate from, they should be reflected in different probabilities of obtaining specific allocations; the more entitled should have greater chances of receiving the good in the case of dividing homogeneous goods, and greater chances of receiving more attractive goods in the case of dividing heterogeneous goods.

It may be argued that the most appropriate solution in the case of unequal entitlement is to allocate goods to those participants whose entitlements are the greatest (or, in the case of heterogeneous goods, to have them choose the goods in order of entitlement). This way, goods are allotted to those who, for one reason or another, deserve them the most. However, it should be noted that this deterministic division entirely excludes people with lesser entitlements. Consequently, they are treated as if their entitlements to allocated goods were not just lesser but virtually non-existent. The use of a lottery with unequal probabilities ensures that the more entitled have a better position while the less entitled retain their rights.

While lotteries with unequal chances of receiving goods are less common than those where chances are equal, some examples can be found, including ones involving a division of land. In the Sixth Georgia Land Lottery of 1832, each citizen was given an opportunity to draw a ticket that granted them ownership of a lot of land, and members of selected groups (orphans, veterans, heads of families, etc.) could draw an additional ticket (Elster, 1989: 47).

Hofstee (1983) describes the Dutch system for the admission of students to certain degree courses (medicine, chemistry, veterinary science). The better the candidate’s score, the greater the chances of admission. This solution is a kind of compromise



between a draw with equal chances and a deterministic solution where candidates are admitted according to their score. Candidates were surveyed on their preferences regarding the three methods mentioned above. As was expected, support for a draw with equal probabilities rose in inverse proportion to the candidate's score. A lottery with unequal probabilities was the most popular solution with candidates with high scores; it seems that what was key for this group was for a higher score to be rewarded by the admissions system, although not necessarily to determine admission decisions.

### **Impartial decision-making**

Random methods can ensure impartiality not only in the case of distributing goods but also in other situations that necessitate a decision. In this category of situations, entities may indeed have their preferences regarding the result of a draw but they should not be taken into account due to the nature of the problem. A good example of this is jury selection in court cases in the United States. The jury is drawn by lot to ensure impartial judgement on the case and enable all social strata and groups to present their case and participate in the delivery of justice. Some jurors may be unhappy with the duty imposed on them while there may be people who would like to take on this role, which means that the result of a draw does not need to be Pareto-optimal; if someone from the latter group replaced a person from the former group, they would both be satisfied with the outcome. However, that would defy the purpose of the jury understood as an institution that is to hear the voice of society as a whole rather than exclusively those who have the desire or ambition to influence the court's decision. Jurors may also have preferences as to which court case they wish to be assigned to, e.g. preferring to decide a case involving a member of their social group. Taking those preferences into consideration would be a flagrant violation of the jury's impartiality as it would be exclusively composed of people leaning, for one reason or another, towards a verdict of guilty or not guilty. The opposite rule tends to be applied in practice, with the jury being screened so as to eliminate any person who would be leaning towards a specific view beforehand (see Lissowski, 2014).

Contrary to what one might expect, impartiality does not require equal probabilities. Elster (Ibid.: 49) indicates that weighted lotteries could be used by the police and related services. Limited operational resources make it impossible to investigate all crimes committed, thereby necessitating a selection mechanism that would show which cases should be allocated time and resources. It could be proposed that detailed investigations be conducted in as many cases as resources permit, starting with the most serious offences. This would ensure that resources are never expended on a more trivial case if they could be used to pursue a case of greater importance. However, this would lead to impunity for lesser crimes.



Selecting priority cases through a simple lottery would mean that homicide cases would not receive more attention than petty thefts, which would bear all the hallmarks of wastefulness. The use of weighted lotteries seems a reasonable compromise, allowing resources to be distributed proportionately to the severity of the crime without entirely overlooking lesser cases. It should be noted that crimes of the same severity would have equal chances of becoming the subject of an extensive investigation. This would prevent bias to be displayed by police officers, who could have preferences as to which cases within the same category they would like to give more attention to, e.g. be more inclined to investigate crimes perpetrated in their neighbourhood. At the very most, a possible bias could occur while defining the severity of an offence. Elster suspects that weighted lotteries may in fact be used by the police and related services but information on the rules by which their operations are organised is understandably difficult to obtain.

### **RANDOM DIVISION OF GOODS METHODS**

In practice, the most frequently used method is a draw with equal probabilities. In the case of homogeneous goods, this means drawing participants who receive goods and those who do not. In the case of heterogeneous goods, this means drawing to decide which good will be given to which participant. All possible results are equally likely. This rule was probably used to divide the land at Shiloh.

It should be noted that this method has a major flaw, namely that it does not take information about participant preferences regarding the goods being distributed into account and therefore cannot use divergent tastes of the participants to their advantage. For instance, if I am to divide an apple and a pear between an apple lover and a pear enthusiast, I can allot them both their favourite fruit (in other words, use a lottery which allots the apple to the first participant and the pear to the second with a probability of 1) instead of giving them a  $\frac{1}{2}$  chance of receiving either fruit.

Paradoxically, not taking preferences regarding goods into account can also offer an advantage of participants not having to make an effort to compare the goods and define their preference. Individual tribes of Israel did not have to acquire information on land quality, ponder the advantages and disadvantages of the divided lands or seek a way to articulate a collective preference based on (possibly divergent) assessments made by their members.

It should be added here that prior to the division at Shiloh, the tribes of Reuben and Gad asked to be allotted lands east of the Jordan, since these were suitable pasturelands for their numerous herds. Moses fulfilled their request. It is therefore

clear that participant preferences were not entirely ignored in the division of the Promised Land; other tribes simply did not have clear preferences as to the lands, or at least they did not reveal them. The decision would probably have been more difficult had other tribes of Israel also contended for the lands of Transjordan. A draw with equal probabilities would also have been out of the question as allotting a disputed land to a tribe who did not want it would have been wasteful. Therefore, what would be useful would be a random procedure which would determine the probability for each individual to receive individual goods based on a preference profile of the participants of the division.

An invaluable contribution to the creation and analysis of such procedures was made by Klemens Szaniawski. Szaniawski formulated two proposals for finding fair lotteries, namely the equal chances of satisfaction rule and the equal chances of choice rule (1966, 1975, 1979). The former dictates that each participant of a division has the same chance of receiving a good occupying a specific position in their hierarchy of preferences as the other participants of receiving goods occupying the same place in their hierarchies of preferences. The equal chances of choice rule, also known as random serial dictatorship and random priority, dictates that the order in which participants of a division will choose goods be decided by lot, with each possible order having an equal chance of being drawn. Participants choose one good at a time in the selected order until all the goods are distributed. A creative procedure called *Probabilistic Serial* was presented by Anna Bogomolnaia and Hervé Moulin (2001). They describe it using a food metaphor where participants 'eat' their favourite goods at an equal pace. When any of them is finished, participants move on to 'eating' the goods that they value the most and that have not been 'eaten' yet. The participant's chances of receiving a given good are directly proportional to what share of that good has been 'eaten' by the participant. For a review of probabilistic methods and their attributes, please see my paper (Bożykowski, 2016).

### SELECTED APPLICATIONS OF RANDOM DECISION-MAKING

Random procedures find a wide practical application in a whole plethora of contexts. Examples can be traced back to antiquity (such as the division of land at Shiloh mentioned at the beginning) but random methods are also widely used today. Selected examples of classes of problems where random mechanisms are applicable are presented below.

### Assigning titles, offices, and tasks

History knows many examples where who would exercise a certain type of power was decided by lot. This method was used to appoint not only religious leaders (as was the case with the election of the Pope of the Coptic Orthodox Church mentioned before) but also secular ones. An example can be found in the Biblical First Book of Chronicles, which describes a random selection of heads of families (1 Chr 24). Lots were also cast to divide tasks between men performing specific roles, e.g. types of temple singers (1 Chr 25) or gatekeepers' shifts (1 Chr 26:1–19).

The ancient world contains far more examples of similar practices. For instance, lots were cast to appoint officials in Athenian democracy. Admittedly, strategists and supreme officials were elected by citizens, however judges, members of the Boule and their substitutes, as well as a majority of officials, were appointed by lot. Furthermore, there was a rule which prohibited holding the same office more than once. It should be mentioned that sortition is also present in Greek mythology; Zeus, Poseidon, and Hades drew lots to decide who would rule the sky, the seas, and the underworld (see Homer, Book XV: 272).

Thomas Gataker, an English clergyman and theologian born in the 16th century, lists a number of historical examples of sortition in his treatise entitled 'The Nature and Uses of Lotteries' (ed. 2008). In addition to the Biblical and Greek examples cited above, he also mentions Roman and Italian practices. Admittedly, a majority of officials in ancient Rome were appointed by election rather than sortition but it was common to randomly assign tasks associated with the office. A random component is also involved in the Venetian procedure for selecting the doge. This procedure is highly complex, composed of several stages where a lottery is used to choose electors, who then appoint a certain number of people, of whom a part is selected by lot to choose yet another group of people. In Venice, lots were also cast to appoint citizens who were entitled to nominate candidates for individual offices. Officials were elected from among the nominees by an assembly of citizens.

There are also numerous references to sortition in literature. Barbara Goodwin (1992) begins her book *Justice by Lottery* with a literary description of a fictional state of Aleatoria, where the social rank of individuals is determined by a central lottery. A lottery is repeated at agreed time intervals. Consequently, despite differences in income, the rich do not despise the poor; they not only know they could hypothetically be in their place but they also realise that a role reversal may actually occur in the next lottery. The author also refers to *The Lottery in Babylon*, a short story by Jorge Luis Borges (1970), which associates lottery with even greater social inequality as participants of the lottery may be allotted the fate of slaves. Sortition is also the subject of two literary commentaries in *Decyzje* (Lissowski, 2011, 2014).

### Distributing burdens and obligations

There are more or less unpleasant duties someone has to perform, as well as burdens someone has to bear. Sometimes volunteers come to save the day but sometimes there are not enough of them to be found. In that case, 'volunteers' can be appointed by lot. The legitimising role of a draw may ease the sense of reluctance and resistance of the selected; resistance could be greater if they were appointed to carry the burden by someone 'from above'. It should be added that the aforementioned selection of the jury in the United States tends to be considered precisely in the context of assigning an unpleasant duty (on the other hand, it is also a mechanism for conferring dispersed judicial power, which would make it fall more into the category of distributing offices discussed above).

Examples of a random distribution of burdens include certain rules of random conscription used in various historical contexts. Such a conscription was repeatedly organised in the United States, often raising serious doubts as to whether the draw truly preserves a uniform distribution (see Elster, 1989: 42-46). In this context, it is worth mentioning the controversy surrounding the practice of finding a paid substitute to serve in the military in one's place. Accepted by the government, the practice was widespread during the American Civil War on the Union's side (see Sandel, 2009). Consequently, the direct burden of the fight for a common cause was not borne by all social strata but only by the poorer citizens.

Random conscription can also be found in Polish history. A historically interesting example was 'branka', a wholesale enlistment into the Imperial Russian Army for a period of at least twenty-five years held in the Russian partition of Poland. It was common knowledge that only a few lived to see the end of their service. Conscripts were usually selected by lot. It is worth mentioning here that the 'branka' that immediately preceded the January Uprising, cited as one of the key reasons for its outbreak, was held under an unusual procedure, i.e. according to conscription lists (see e.g. Maśliński, 2014).

Less drastic examples can be found in the Bible. The problem of ensuring that the fire on the altar of the Lord is kept burning was solved by casting lots to determine the order of families pledged to contribute firewood (Neh 10: 35). Another example involves the arrival of repatriates from Babylonian captivity in Jerusalem and Judah in the 5th century BC. Jerusalem needed rebuilding but the task was impeded by an insufficient number of citizens (Neh 7:4). The number of volunteers willing to settle in the holy city was inadequate, which is why the people cast lots to choose one in every ten to live in Jerusalem (Neh 11:1-2). There is no mention of anyone attempting to shirk this duty by finding a substitute, as was the case with the aforementioned military service during the American Civil War.

### **Distribution of punishment**

Sometimes the number of culprits is too large to punish them all. If this is the case, there is a practice of using a lottery to choose those offenders who are to receive punishment. Augustus decided to use a draw to select and fine one in every five senators who missed too many Senate sessions (Gataker, 2008:54). This corresponds with a Roman custom where every tenth deserter chosen by lot was executed while the others were punished less severely. That way, one could set an example to discourage potential deserters without losing too many soldiers (Ibid.: 55). It is worth mentioning 'The Death Disk', a short story by Mark Twain (1933) in which a (supposedly) random method was used to decide which of the three insubordinate colonels shall be shot. The story was the subject of a literary commentary in one of the previous issues of *Decyzje* (Lissowski, 2006).

### **Sports and other games**

Random mechanisms are commonly used in various games and sports. A football match begins with the toss of a coin. The team winning the toss chooses on which end of the field they will begin the game while the other team kicks off the game. In the game of chess, a draw is used to determine which player will use the white pieces and which will use the black pieces. In all kinds of competitions, tournaments and leagues, a draw determines or co-determines (along with the results from previous rounds) who is going to face whom in the given round. In various game shows, the order of the contestants is also decided by lot.

### **A draw in the Electoral Code**

The Polish Electoral Code (Journal of Laws of 2011, No. 21, item 112 as amended) also provides for the use of a draw in decision-making. In elections to the Sejm, the seats assigned to a given list of candidates are allocated to candidates by order of votes received. If two or more candidates received an equal number of votes that entitles them to a seat, the subsequent factor taken into account is the greater number of electoral districts in which one of the candidates received more votes. If the number of such districts is equal, the decision is made by lot (Article 233). A similar procedure is used if an equal number of votes is cast for Senate (Article 273), town council (Article 443) and mayoral candidates (Article 473; in the latter case, a draw is used to both select candidates who move on to the second ballot and declare the winner of the second ballot in the case of an equal number of votes). Incidentally, no such mechanism is provided for in Polish presidential elections. The Polish law does not specify what should be done if both candidates receive an equal number of votes in the second round of a presidential election (Werner, 2015).

Random mechanisms appear in the Electoral Code not only in the context of determining which of the candidates with an equal number of votes should be elected. Electoral committees have the right to air election broadcasts in specific state-owned media free of charge. The order of broadcasting is determined by a draw. A draw is also used to assign the numbers of lists of electoral committees in Sejm elections (Article 195) and lists of candidates in local government elections (Article 408). While the number of the list may at first seem to be of marginal, if any, significance to the election results, it proved a relevant factor in the 2014 local government election. The reason was that the ballot paper was changed from a large sheet to a multi-page brochure. In that election, the Polish People's Party, which drew the number 1 and was placed on the front page of the brochure, received a surprisingly high number of votes. The result has been attributed to that change of the ballot paper, with the outcome of that change being referred to as the 'booklet effect' (see Flis, 2015).

## CONCLUSION

A draw has been known for millennia as a way to make decisions and distribute a variety of goods and burdens. It is applied in a number of diverse situations. A draw may ensure that the parties are treated equally. Even if the result of a draw proves unfavourable to someone, they find it easier to accept it if it came out of a fair lottery. Consequently, a draw constitutes a source of legitimacy of a solution.

In the context of distributing goods, monetary compensation is an alternative to random methods.<sup>3</sup> Although a draw is not a universal solution, it should be noted that the use of monetary transfers would be unacceptable in a substantial part of the presented cases. Football teams bidding for the right to choose the end of the pitch on which they will start the match or players vying for the right to choose white or black pieces at chess tournaments runs against the spirit of sportsmanship. When faced with several candidates with an equal number of votes received, choosing the one who is willing to pay the most would be grossly undemocratic (although it would apply to a narrow class of cases where candidates enjoy identical support). Bidding for the right to make the incense offering bears all the hallmarks of simony. Holding a bid among deserters for the right to avoid execution borders on grotesquery.

<sup>3</sup> For a review of these methods, please see my paper (Bożykowski, 2011).

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