

Guide on assessing games of chance

A guide to determine whether a game falls under the supervision of the Netherlands Gaming Authority

Contents

1.	Introduction.....	4
2.	Threshold criterion.....	7
3.	Overlap with other rules and regulations	8
3.1	Decision-making formula regarding overlap with other rules and regulations	8
3.2	Financial products	8
3.2.1	Binary options.....	8
3.2.2	Life insurance.....	9
3.3	Slot machines	9
4.	Prize or premium.....	10
4.1	Criteria for deciding whether something is a prize or a premium	10
4.2	Different types of gameplay	11
4.3	What is a prize?	11
4.3.1	General definition.....	12
4.3.2	Traditional prizes	12
4.3.3	Prizes abroad	12
4.3.4	Betting and Gaming Tax Act (<i>Wet op de kansspelbelasting</i>).....	12
4.3.5	Prizes with economic value	13
4.3.6	Significant prizes.....	13
5.	Chance versus skill.....	14
5.1	Decision-making formula regarding chance vs skill	14
5.2	Elements for determining whether a game is a game of chance.....	14
5.2.1	Choosing winners	14
5.2.2	Chance	14
5.2.3	Influence.....	14
5.2.4	Participants in general.....	15
5.2.5	Predominant influence.....	15
5.3	Jeux de contrepartie.....	15
5.3.1	Expected value.....	16
5.3.2	General expected value.....	16
5.3.3	Learning effect with <i>jeux de contrepartie</i>	16
5.3.4	Promotional games of chance.....	17
5.3.5	Conclusion: jeux de contrepartie	17
5.4	Jeux de cercle	18
5.4.1	Preominant influence.....	18

5.4.2	Learning effect with <i>jeux de cercle</i>	18
5.4.3	The number of times a game is played	19
5.4.4	The number of choices	19
5.4.5	Observations.....	20
5.4.6	Spectrum	20
5.4.7	Conclusion: jeux de cercle	21
6.	Substitute for games of chance.....	22
7.	Reference list.....	23

1. Introduction

The gambling market in the Netherlands is regulated by the Betting and Gaming Act (*Wet op de kansspelen: Wok*). Regulation of the gambling market is considered necessary in order to ensure the protection of three public goals, namely:

- protecting and informing consumers, in short ‘consumer protection’;
- preventing addiction, in short ‘addiction prevention’;
- combating illegality and crime.

The Gaming Authority was established on 1 April 2012 as a nondepartmental public body (NDPB). The Gaming Authority is responsible for (a) implementation & licensing (b) supervision (c) and enforcement in the context of the Betting and Gaming Act. As an independent regulator, the Gaming Authority monitors an attractive, safe and responsible gambling landscape.

The expectation is that, as a result of the increasing fusion of gaming and gambling, as well as physical and online gambling, the Gaming Authority will increasingly be confronted with new forms of play or variations on existing games. The Betting and Gaming Act – the assessment framework of the Gaming Authority – leaves room for interpretation of a legal definition of a ‘game of chance’. In addition, there is little case law on new games of chance. In this guide, the Gaming Authority will describe what it means by ‘game of chance’ as referred to in Section 1 of the Betting and Gaming Act:¹

‘Subject to the provisions of Title Va of this Act, it is prohibited to provide an opportunity to compete for prizes or premiums if the winners are designated by means of any random process over which the participants are generally unable to exercise a predominant influence, unless a licence therefor has been granted pursuant to this Act.’²

This guide is intended for licensed operators, unlicensed operators and anyone else involved in gambling in any other way. Parallel to this, this guide provides the Gaming Authority with an aid in assessing games of chance.

In the event that a new form of play appears, the Gaming Authority must assess whether it is competent to supervise this new form of play. This document divides the new games of chance available encountered so far into roughly three categories:

1. Games with a strong financial character. Past examples reported on by the Gaming Authority include binary options, penny auctions, pyramid schemes and multi-level marketing. These products have a high risk with regard to consumer protection, fraud and money laundering. In addition, there is often overlap with supervision of financial products, which makes it unclear to operators whom they should turn to;
2. Games with a social component where it is unclear whether there are prizes or premiums. Examples of this are social games where only points can be earned that cannot be distributed in cash (but can possibly be traded). The Gaming Authority suspects that some social games are addictive;

¹ In the light of the Betting and Gaming Tax Act (*Wet op de kansspelbelasting*), the term ‘game of chance’ is interpreted differently in a small number of cases.

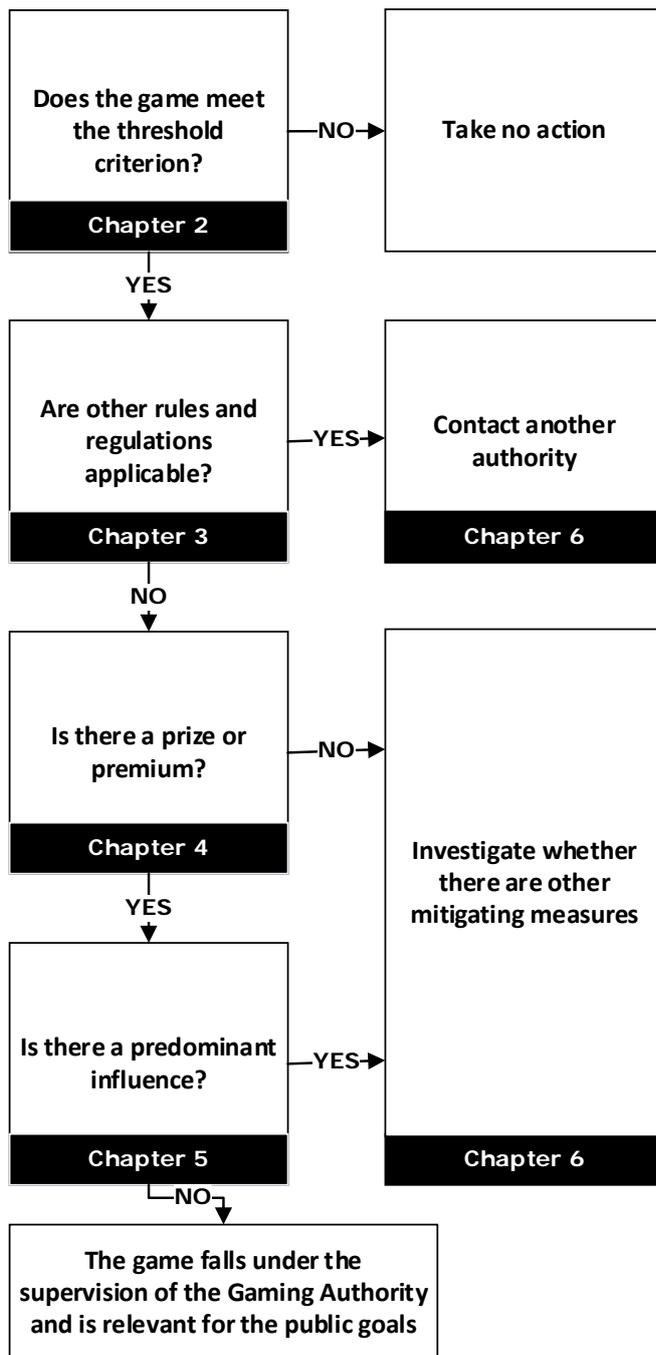
² Title Va deals with slot machines. These games are subject to different rules than other games supervised by the Gaming Authority. Section 3.3 discusses slot machine rules and regulations in more detail.

3. Games with a certain amount of skill components where it is unclear without further analysis whether there is a predominant influence on the selection of the winners. Examples include poker, fantasy sports, and Golden Ten-like games.

As mentioned above, Section 1 of the Betting and Gaming Act leaves room for interpretation of the legal definition of a 'game of chance'. In order to remove any ambiguities regarding the question of whether new games fall within the scope of the Betting and Gaming Act, this document describes a number of steps (see also Figure 1):

1. **Threshold criterion:** the extent of supply and demand that can be expected in the long term and an estimate of the damage that the forms of play can cause to the three public goals;
2. **Decision tree:** a methodology for assessing whether the Dutch Gaming Authority is competent to supervise the specific new form of play. This method successively tests the following three parts:
 - a. the applicability of Section 1 of the Betting and Gaming Act and/or other rules and regulations;
 - b. the presence of a prize or premium;
 - c. the extent to which participants can influence the selection of winners;
3. **Substitute for games of chance:** a description of how to deal with forms of play that, based on the interpretation of this guide, the Gaming Authority is not competent to supervise, but where certain risks are identified with respect to the public goals of the Gaming Authority.

Figure 1: Schematic representation of the assessment framework



This document has been produced by bringing together existing insights from law, economics and mathematics in a practical way. The Betting and Gaming Act serves as the starting point in this respect. This guide can be amended if necessary, for example on the basis of new gaming techniques, insights or social views.

The Gaming Authority emphasises that laws and regulations shall always have the final say and that the final decision is always up to the court. The Gaming Authority may at any time take into account special and/or unforeseen circumstances when forming its opinion.

This document is a courtesy translation. The original document in Dutch is leading.

2. Threshold criterion

Before proceeding to the technical assessment of a game, the Gaming Authority checks whether risk-based supervision provides sufficient reason to assess the game. This assessment is made by looking at any potential damage the game causes to the public goals of the Gaming Authority:

- protecting and informing consumers;
- addiction prevention;
- prevention of illegal and criminal practices.

In order to make this assessment, a risk analysis can be made of the extent to which the six main strategic objectives of the Gaming Authority are threatened at the time of the assessment. As a result of this risk analysis, the following types of games are not subjected to a substantive assessment: games that are not or hardly played (either for money or otherwise) (e.g. Yahtzee), or that are probably not or hardly harmful to the public goals (e.g. *'klaverjassen'* (a popular Dutch card game)), or games that are not open to the public and are not offered on a commercial basis.³

- If it is concluded that there are sufficient grounds for assessing the game, continue with Chapter 3.
- If it is concluded that there are insufficient grounds to assess the game, the findings are reported. No other action with respect to the game is necessary.

³ As referred to in Section 2, first subsection, under a. of the Betting and Gaming Act.

3. Overlap with other rules and regulations

Before determining whether a game falls under its supervision, the Gaming Authority first checks whether the game is also subject to other rules and regulations. It is possible that a game falls under Section 1 of the Betting and Gaming Act, but is described in another regulation (*lex specialis*). This *lex specialis* then takes precedence over Section 1 of the Betting and Gaming Act, which constitutes more general rules and regulations, or *lex generalis*.

This chapter further discusses the jurisdictional issue surrounding the game, rather than any related issues that may fall under the supervision of other authorities.

3.1 Decision-making formula regarding overlap with other rules and regulations

In order to determine whether a game is subject to rules and regulations other than the Betting and Gaming Act, the Gaming Authority goes through the following steps:

- If the game to be investigated is a financial product, the Gaming Authority will contact the Dutch Authority for the Financial Markets (AFM). See Chapter 6.
- If the game to be investigated also falls or might also fall under the supervision of another body, the Gaming Authority will contact this body to discuss any issue of jurisdiction. See Chapter 6, although the Gaming Authority is not aware of any such issues having come up so far.
- If the game to be examined is a slot machine, it shall be subject to the supervision of the Dutch Gaming Authority. Supervision of slot machines is governed by Title VA of the Betting and Gaming Act. There is no need for further research on the basis of this document.
- If none of the above points apply to the game to be examined, the next step is to proceed to Chapter 4.

The following sections elaborate on the above recommendations.

3.2 Financial products

The Board of Directors of the Gaming Authority takes the view that the Gaming Authority currently has no role to play in the assessment of financial products as referred to in Section 1:1 of the Dutch Financial Supervision Act (*Wet op het financieel toezicht: Wft*).⁴ If a product qualifies as a financial product as referred to in the Dutch Financial Supervision Act, the Dutch Authority for the Financial Markets (AFM) is competent. In order to clarify any jurisdictional issues, the AFM and the Gaming Authority have entered into an agreement with each other.⁵

Below are some examples of special rules and regulations relating to products that are covered by the interface between the Betting and Gaming Act (Wok) and the Dutch Financial Supervision Act (Wft).

3.2.1 Binary options

In the EU Markets in Financial Instruments Directive (MiFID), binary options are explicitly referred to as a financial product. This Directive has been incorporated into the Financial Supervision Act (Wft). Since binary options are subject to the supervision of the Dutch Authority for the Financial Markets

⁴ The Dutch Gaming Authority, *Richt snoer financiële instrumenten en kansspel* [Guideline on financial instruments and games of chance], Consulted on 19 December 2016, http://www.Kansspelautoriteit.nl/publish/pages/3411/richtsnoer_financiele_instrumenten_en_kansspelen_def_325_kb.pdf

⁵ <https://www.kansspelautoriteit.nl/nieuws/alle-nieuwsberichten/2016/artikel/>

(AFM), the Gaming Authority takes the view that there is no need to determine whether binary options are also a game of chance.⁶

3.2.2 Life insurance

Life insurance is excluded from the Betting and Gaming Act. This is provided for in Section 2(2) of the Betting and Gaming Act. In addition, life insurance is specifically included in Section 1:1 of the Dutch Financial Supervision Act (Wft). Exclusion in the Betting and Gaming Act is therefore superfluous, as the *lex specialis* (of the Wft) applies. This means that life insurance, even if it could be qualified as gambling within the meaning of the Betting and Gaming Act, is subject to the supervision of the Dutch Authority for the Financial Markets (AFM).

3.3 Slot machines

The Betting and Gaming Act may also contain special rules and regulations that prevail over Section 1 of the Betting and Gaming Act. An example of such rules and regulations of the Betting and Gaming Act is Title VA, which regulates slot machines.

⁶ This is in line with the response of former Minister of Finance Dijsselbloem to Parliamentary questions; see: <https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/kamerstukken/2015/12/21/antwoorden-kamervragen-binaire-opties/antwoordenkamervragen-binaire-opties.pdf>

4. Prize or premium

This chapter discusses prizes and premiums. The relevant phrase in Section 1 of the Betting and Gaming Act reads as follows:

‘... to compete for prizes or premiums...’

On the basis of this phrase, the Gaming Authority concludes that, if no prize or premium can be won in a game of chance, the Gaming Authority is not competent within the meaning of the Betting and Gaming Act. The concept of premiums is an outdated concept with regard to games of chance. Therefore, this document only refers to prizes.

4.1 Criteria for deciding whether something is a prize or a premium

The Betting and Gaming Act does not specify which game results are to be regarded as prizes. In order to be able to interpret the concept of a prize, the Gaming Authority looked at the definitions used by the Van Dale dictionary, other countries and the Dutch Tax and Customs Administration. Based on a consideration of the different perspectives discussed in this chapter, the Gaming Authority arrived at the following decision-making formulas with regard to the concept of a prize:

A prize is a game outcome that represents or can represent economic value. If such an outcome exists, continue with Chapter 5.

If there is a game outcome, but this outcome does not represent economic value, continue with Chapter 6.

If there is no game outcome, continue with Chapter 6.

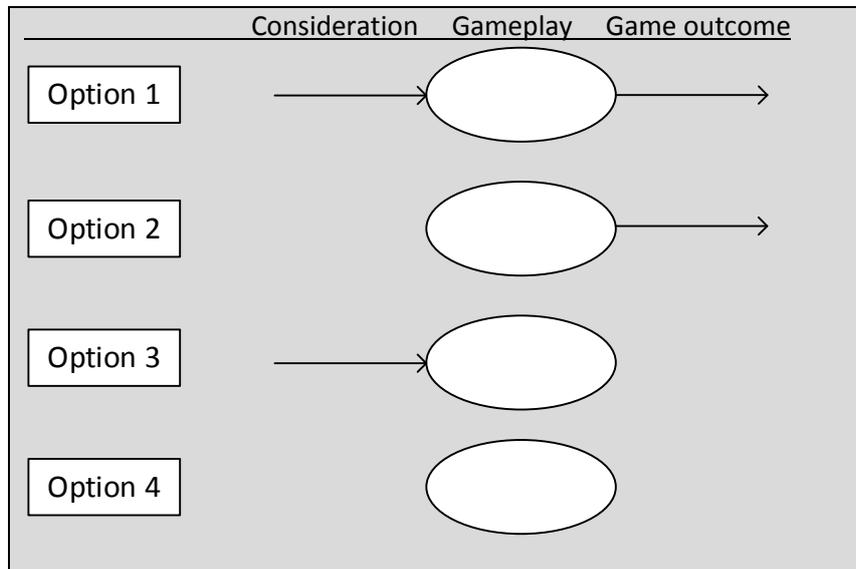
The Gaming Authority is aware that other interpretations of the concept of a prize are possible. If, on the basis of future legal rulings or new games of chance, it appears that a broader interpretation is applicable, the above recommendation may be amended.

The sections of this chapter explain in more detail how the Gaming Authority arrived at the current definition.

4.2 Different types of gameplay

Figure 2 provides insight into the four traditional forms that gameplay can take.

Figure 2: Possible forms of gameplay



Option 1:

- The participant pays a stake for the game.
- The participant can win a prize.
- This falls under the Betting and Gaming Act.

Option 2:

- The participant does not pay a stake for the game.
- The participant can win a prize.
- This falls under the Betting and Gaming Act.

Option 3:

- The participant pays a stake for the game.
- The participant cannot win a prize.
- This does not fall under the Betting and Gaming Act.

Option 4:

- The participant does not pay a stake for the game.
- The participant cannot win a prize.
- This does not fall under the Betting and Gaming Act.

Within these four possible forms, all kinds of variants occur, such as:

- games that can be played either for free or against payment;
- games in which the game outcome includes potentially free participation in a new round of play;
- games in which the game outcome is potentially an object that can be used in the game.

Since Section 1 of the Betting and Gaming Act only refers to a prize and not to a stake, only the game variants in Figure 2 with an outgoing arrow are subject to the Betting and Gaming Act. In other words, consideration is not required.⁷ Therefore, if participation in a game is free of charge, the game may still fall under the supervision of the Gaming Authority. An example of a game of chance without a stake is a promotional game of chance (see Section 5.3.4).

4.3 What is a prize?

In this section, the notion of a prize will be elaborated on the basis of different perspectives.

⁷ This makes the Netherlands an international exception.

4.3.1 General definition

According to the definition of the Van Dale dictionary, a prize is:⁸

1. *amount of money to be paid for a good or service;*
2. *remuneration for an exceptional performance in a competition, game, etc.;*
3. *that which someone wins in a lottery.*

The second and third definitions may be relevant in terms of the competence of the Gaming Authority. Based on the second definition, any game outcome could be seen as a prize, even if it were something without value, such as 'eternal fame'. As game results that do not represent any value are likely to fall outside the priorities of the Gaming Authority, a more specific interpretation of the concept of prize is given in this section.

4.3.2 Traditional prizes

The definition of prize includes at least traditional game outcomes, money and prizes in kind. The current range of games and/or games of chance, however, offers more than traditional game outcomes, for example, in the growing market of social games. Obviously, this had not been taken into account when the Betting and Gaming Act (1963) was adopted. For such games, the Gaming Authority must also determine whether there are prizes to be won within the meaning of the Betting and Gaming Act.

4.3.3 Prizes abroad

The UK Gambling Act of 2005 defines prize as follows:

- (a) *'means money or money's worth, and'*
- (b) *'includes both a prize provided by a person organising gaming and winnings of money staked.'*

In the United States, a prize is defined as follows:

'money, money's worth or something of realworld/tangible value'

In both countries, in addition to traditional prizes, prizes are also goods of value. These can also be intangible goods.

4.3.4 Betting and Gaming Tax Act (*Wet op de kansspelbelasting*)

Section 3, subsections 2 and 3, of the Betting and Gaming Tax Act states the following:

2. *Prizes are defined as all goods to which economic value can be assigned that accrues to the participants in the games of chance by virtue of their participation.*
3. *Where they do not exist in cash, prizes shall be taken into consideration at their economic value.'*

The economic value is the price that is established through supply and demand under normal circumstances. It is logical that the Tax and Customs Administration would use such a definition, as tax on games of chance must be paid on prizes above €449. Prizes with no economic value are not relevant to the Tax and Customs Administration.

⁸ Van Dale, *Prijs* [Prize], Consulted on 19 December 2016, <http://www.vandale.nl/opzoeken?pattern=prijs&lang=nn>

4.3.5 Prizes with economic value

Prizes can also be intangible game outcomes that represent an economic value. Below, a case is elaborated for clarity.

Skins

The games League of Legends (LoL) and Counter Strike – Global Offensive (CS-GO) are popular computer games (E-sports). These are primarily free games ('freemium' games) where participants can spruce up their accounts by buying or winning so-called 'skins' (cosmetic elements in the game). These skins often have no influence on the outcome of the game. The difference between the two games is that the skins of CS-GO, but not of LoL, are currently being traded. LoL skins are 'attached' to the player account, while CS-GO skins are transferable between accounts. Trade in CS-GO skins is therefore possible and CS-GO skins represent a potential economic value. This does not apply to LoL skins and these skins therefore do not represent any economic value.

For prizes in kind for which there is no liquid market, the value is determined by the price that a well-informed buyer and seller would have agreed.⁹

4.3.6 Significant prizes

In addition to prizes that have no economic value, such as the LoL skins in the example, there are also prizes that have such a low value compared to the first prizes that they are insignificant. To clarify this, here is an example of a ruling by the Amsterdam District Court.

The text message game

On 17 April 2002, in preliminary relief proceedings between the Lotto and LuckySMS, the District Court of Amsterdam ruled that the winners of the big prizes were the real winners. Winners of a fun text message, a horoscope or a logo are not always prize winners. The mere fact that they win something does not make them prize winners, according to the Court. The fact that the costs of a fun text message, a horoscope or a logo are sometimes higher or sometimes lower than the costs of participation in the game does not make a difference. The fact that LuckySMS itself sees this as such is demonstrated by the fact that it only mentions the winners of the big (i.e. real) prizes on its web page.¹⁰

In the above example, the operator of LuckySMS argued that every participant won a prize and that it could therefore not be considered a game of chance.

⁹ This method is used by the Tax and Customs Administration for property and agricultural land, inheritance law and the valuation of e.g. intangible assets of companies.

¹⁰ Amsterdam District Court, 17 April 2002, KG02/617 OdC, ECLI:NL:RBAMS:2002:AE2131

5. Chance versus skill

This section describes how the Gaming Authority can determine whether a game qualifies as a game of chance within the meaning of the Betting and Gaming Act. The Gaming Authority can do this by weighing the ratio between the influence of chance and skill on the outcome of a game. The relevant passage in Section 1 of the Betting and Gaming Act reads as follows:

...if the winners are designated by means of any random process over which the participants are generally unable to exercise a predominant influence...

5.1 Decision-making formula regarding chance vs skill

The Gaming Authority divides games into two categories:

1. games played against the house (*jeux de contrepartie*);
2. games played against other participants (*jeux de cercle*).

@1. In practice, games that are played against a commercial operator are games of chance.

@2. Determining whether games that are played against other participants are games of chance is considerably harder. To do so, the influence of chance and/or skill on the selection of the winners will be weighed up. Section 5.4 provides a number of tools for making this assessment.

The foregoing will be explained in the remainder of this chapter.

5.2 Elements for determining whether a game is a game of chance

Section 1 of the Betting and Gaming Act contains a number of terms that are important when assessing a game. These terms are discussed in this section.

5.2.1 Choosing winners

A winner is a participant who wins a prize. Winners are chosen using two elements of the game:

- chance; see Section 5.2.2;
- skill/influence of the participant; see Section 5.2.3.

5.2.2 Chance

The elements of a game that provide chance are random events. These could include:

- dealing cards;
- drawing a bingo ball;
- throwing dice;
- turning a roulette cylinder;
- drawings using a random number generator.

Participants never have any influence on the outcome of these random events. Even if the participant is the one who throws the die, there is still no skill involved. It is true that the participant is the one who throws the die, but they cannot influence what number is thrown. The participant therefore has no influence whatsoever on the outcome of the throw, which (partly) results in the selection of the winners.

5.2.3 Influence

For almost all games, participants may develop a degree of skill that contributes to the selection of the winners. This skill comes in many forms, such as:

- determining a strategy;
- collecting relevant information during the game;
- adjusting the chosen strategy during the game;
- selecting opponents.

The more choices a game offers that influence the selection of winners, the greater the influence of participants can be. For example, a chess player is given a very wide range of possibilities when it comes to a move, and the skill level of chess is therefore very high. In a game like the Game of the Goose, on the other hand, the participant has no options to choose from and there is thus no influence. This is discussed in more detail in Section 5.4.4.

Given the basic rules of a game, different variants are conceivable. These variants have the potential to increase the influence of the participants. This is illustrated by poker:

Limit vs No-limit poker

Poker is played in many variants. Take, for example, the difference between Limit poker and No-limit poker. With the latter variant, participants can decide for themselves how high they want to make the bet. This provides more possibilities compared to Limit poker, where the size of the bet is fixed. The extra options ensure that the influence of participants in No-limit poker is higher than in Limit poker.

In the 1998 judgment, the Dutch Supreme Court ruled that poker is a game of chance, despite the fact that there are several variants that feature different degrees of skill.¹¹ The Supreme Court based this judgment on four variants of poker.

5.2.4 Participants in general

If it can be demonstrated that a game was played profitably by a few participants over a long period of time (i.e., by professionals), it has not necessarily been demonstrated that it is a game of skill. Only when the majority of participants – participants in general – exert a predominant influence on the selection of the winners can it be concluded that it is a game of skill.¹²

5.2.5 Predominant influence

For a game to qualify as a game of skill, the presence of a certain degree of influence on the selection of the winners is insufficient; this influence must be predominant. This is the case when the influence factor is significant in relation to the chance factor. This can be seen as a tug-of-war between chance and influence. In order to determine whether there is predominant influence, the Gaming Authority divides games into two categories:

- games in which participants play against the house (*jeux de contrepartie*); see Section 5.3;
- games in which participants play against each other (*jeux de cercle*); see Section 5.4.

5.3 Jeux de contrepartie

In the case of games played against the house for money, the participants generally do not have a predominant influence on the outcome of the game. If a game against the house is to be offered profitably, these games can never be profitable in the long term even for experienced players (see Section 5.3.1), but they can also never be too disadvantageous for the average player (see Section 5.3.3). The small differences in expected game outcome between experienced and average players

¹¹ Supreme Court, 3 March 1998, 106628 E, ECLI:NL:PHR:1998:ZD0952.

¹² District Court of The Hague, 2 July 2010, 09-867520-08, ECLI:NL:RBSGR:2010:BN0013, Note 6 (Saturne)

do not make the effect of skill predominant. This justifies the general assertion that all games against the house offered in practice are games of chance.

5.3.1 Expected value

Operators of games against the house earn money from these games because the expected outcome of the participant is negative. The expected game outcome is referred to in mathematics as the 'expected value'. We will explain the concept of 'expected value' by means of an example:

Expected value of roulette

As can be seen in Figure 3, a roulette wheel has 37 squares. Of these, 18 squares are red, 18 squares are black and 1 square is green. Suppose a player places a chip on red. If the ball stops on one of the red squares, the player gets two chips back (one chip profit). This is the case in 18 out of 37 cases. If the ball stops on black or green, the player loses a chip.¹³ This is the case in 19 out of 37 cases. The expected value of this betting strategy can be calculated on the basis of these probabilities and payments:

$$\text{Expected value} = +1 \text{ chip} * 18/37 + -1 \text{ chip} * 19/37 = -1/37$$

The result of this sum indicates that the player loses an average of 1/37th chip per turn. Note that the expected value is not a real outcome of the game; it is a game-theoretical value.

Figure 3: roulette wheel



The above example describes the operation of casino games. The casino may lose money in a round or even a day, but in the long run, the casino will earn money from its games. The variation with respect to the average game outcome disappears as the number of games played increases.

5.3.2 General expected value

Games played against the house have a negative expected value for the participant. However, there are exceptions to this rule, such as Golden Ten.¹⁴ According to some players, it was possible to make a profit from this roulette-like game in the long term. In other words, these players claimed to have a positive expected value.¹⁵ Regardless of whether or not these players were right in these exceptional cases, an operator will only offer a game if players in general play the game at a loss. Based on this, the conclusion is justified that the game is a game of chance, despite the fact that there is a possibility of a predominant influence for an individual player.

5.3.3 Learning effect with *jeux de contrepartie*

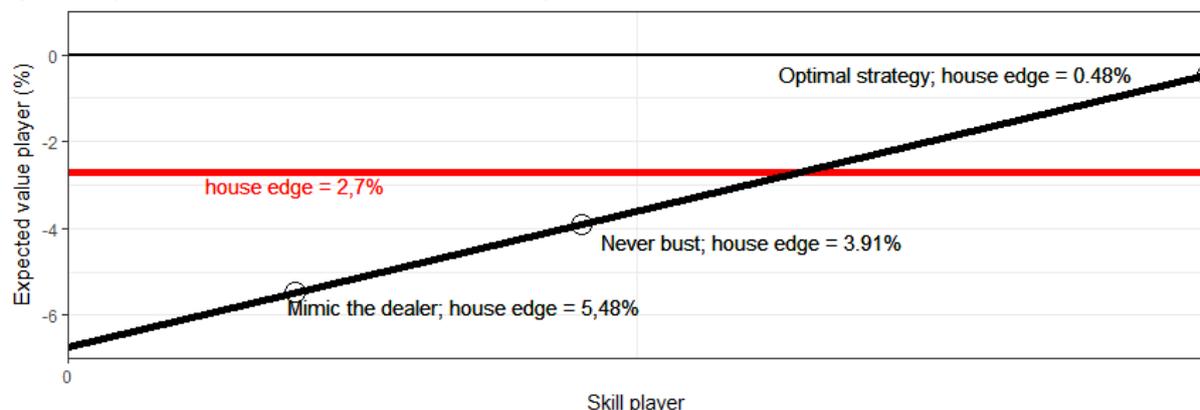
In practice, games played against the house have a fairly flat learning curve. This is reflected in the small differences in the expected outcome of the game between experienced and average players. Figure 4 makes this clear.

¹³ At Holland Casino, in some cases, the player loses only half of their stake when the ball stops on the '0'.

¹⁴ Supreme Court, 25 June 1991, NJ 1991, 808, ECLI:NL:PHR:1991:AD1447

¹⁵ Van der Genugten, B.B.; Borm, P.E.M. (1991): *Het onderscheiden van kansspelen en behendigheidsspelen met als toepassing "Golden Ten"* [Distinguishing between games of chance and games of skill using the 'Golden Ten' application]

Figure 4: Expected loss with roulette (red line) and blackjack (black line)



The horizontal axis in Figure 4 shows the skill of the player; a skill of '1' represents a perfect player, and a skill of '0' represents a monkey making random choices. The vertical axis shows the expected (negative) outcome of the player in %. The red line in Figure 4 shows that, regardless of the degree of skill of the roulette player, the expected loss of the player is 2.7% of the bet; in other words, skill is irrelevant in roulette (see also Section 5.4.2). The black line shows that there is a learning effect for Blackjack. Figure 4 shows three common blackjack strategies:

- *Mimic the dealer*; in this strategy, the strategy used by the bank is copied. The expected loss per game is 5.48% of the stake;
- *Never bust*; with this strategy, the participant never risks exceeding 21. The expected loss per game is 3.91% of the stake;
- The optimal strategy.¹⁶ With perfect play, the expected loss of the player is only 0.48% of the stake per game.

Figure 4 shows that, for both roulette and blackjack, participants cannot achieve a positive expected outcome, even with perfect play. In addition, the flat angle of the black line indicates that there is no great difference in outcome between the experienced and novice player. This justifies the general assertion that all games against the house offered in practice are games of chance and therefore no further analysis is required of such games.

5.3.4 Promotional games of chance

A final form of games played against the house concerns promotional games of chance. Promotional games of chance are organised to promote a product, service or organisation. Participation in these games is virtually free and prizes can be won. The expected value of these games is therefore positive for the participants. These games are permitted, provided that the conditions of the Dutch Code of Conduct for Promotional Games of Chance (*Gedragcode Promotieele Kansspelen*) are met.¹⁷

5.3.5 Conclusion: jeux de contrepartie

Games against the house are games of chance. If a game against the house is to be offered profitably, these games can never be profitable in the long term even for experienced players, but they can also never be too disadvantageous for the average player. These small differences in

¹⁶ The optimal strategy will depend on the rules of the game. Given the rules, the optimal strategy can be found on the internet

¹⁷ Dutch Gaming Authority, *Promotieele kansspelen* [Promotional games of chance], Consulted on 19 December 2016, <http://www.kansspelautoriteit.nl/onderwerpen/vergunningen/promotieele/>

expected game outcome between experienced and average players therefore do not make the effect of skill predominant.

5.4 Jeux de cercle

For games in which participants play against other participants, the operator usually plays a facilitating role. Consequently, the operator has no financial interest in the outcome of the game. The revenue model of the operator is not the negative expected value (Section 5.3.1) of the participants, but a percentage of the stake (rake), a fixed amount at the start of a tournament or an amount per time unit. Given that participants play against each other, the Gaming Authority distinguishes three types of games:

- games where skill does not play any role, such as Game of Goose;
- Games where skill plays a role, but exerts no predominant influence on the selection of winners, such as poker;
- Games where skill plays a role and exerts a predominant influence on the selection of winners, such as chess.

In order to classify a game into one of these categories, it is necessary to weigh up the influence that skill and chance have on the selection of the winners. We note that, in a game that is played against other participants, the degree of skill of a participant is the difference between their skill and that of the other participants.

5.4.1 Preominant influence

Whether there is predominant influence is a difficult question, as it is often not clear what the influence is of greater skill on the selection of the winners (indicated in Figure 4 by the slope of the lines), and thus on the relationship between influence and chance. The following sections contain a number of mental steps that can contribute to a well-founded opinion.

5.4.2 Learning effect with *jeux de cercle*

Professor of Probability Theory and Statistics Ben van der Genugten (University of Tilburg) has developed a method for determining the skill level of a game.¹⁸ The method calculates the skill level of a game by comparing the game outcomes of three types of players with each other:

- the game outcome of a Novice player: a player who knows the rules but does not play tactically;
- the game outcome of an Optimal player: a player who plays the game according to the optimal strategy;
- the game outcome of a Fictitious player: a player who knows the outcome of the game in advance. For example, in roulette, the Fictitious player knows which number the ball will land on.

Significantly, this method looks at the financial result of the game. It is assumed that the designation of winners is equal to the financial result of real players. Based on the three types of players, two effects are calculated:

- the random effect (RE): the outcome of the Fictitious player minus the outcome of the Optimal player;
- the learning effect (LE): the outcome of the Optimal player, minus the outcome of the Novice player.

¹⁸ See e.g.: van der Genugten, B.B.; Borm, P.E.M.; Dreef, M.R.M.; Das, M. 'De toepassing van de Wet op de Kansspelen op de managementspelen Competitie Manager en Grand Prix Manager' [The application of the Dutch Betting and Gaming Act (Wok) to the management games Competitie Manager and Grand Prix Manager]

The skill level (S) of a game can be calculated according to the formula:

$$S = LE / (LE + RE)$$

The skill level is a ratio between the player's ability to learn the game (LE) and the game's random factors (RE). The skill level always has a value between 0 (pure chance) and 1 (pure skill). By way of illustration, the skill level for roulette will be calculated.

Skill level of roulette

- The learning effect of roulette is 0: a Novice player is equally as able as an Optimal player to predict the winning number (or several numbers). Tactics do not play any role in this.¹⁹
- The RE of roulette is very large; a Fictitious player knows which number will fall, while an Optimal player guesses a number.
- S has a value of 0 in roulette. Roulette is therefore purely a game of chance.

Unfortunately, not all games are as easy to calculate as roulette. For the game outcomes of the Novice player and the Optimal player, outcomes from practice are needed, given that it is possible to identify these types of players. In addition, a considerable database must be available, or it must be possible to simulate the game and the strategies, in order to be able to make a well-founded judgement. The method described will mainly help in the reflection process that will lead to an assessment of the degree of skill.

In Figure 4 from Section 5.3.3, the skill level of games such as poker could also be shown. Since the skill level of poker is higher than that of blackjack, the poker line will be a lot steeper than the black line in Figure 4. An increase in skill in poker leads to a faster increase in the expected result than the same increase in skill in blackjack. The poker line will also rise above the horizontal axis; in other words, players can achieve a statistically positive game outcome as their skill level (relative to the other players) increases.

5.4.3 The number of times a game is played

For most games, when the game is played only once, the chance factor is predominant. However, if the number of games is increased, the influence of chance decreases. This is because the outcome of the chance process is sometimes positive and sometimes negative. In the long run, these outcomes will cancel each other out and the average result will remain. In statistics, this is called the Law of large numbers. According to this law, the variance (the dispersion compared to the average/expected value) will decrease, depending on the number of times an experiment is performed. When assessing a game, it is therefore also important to look at the number of rounds of play. Potter van Loon, et al. (2015), for example, describe that research has shown that skill will have a greater influence on the outcome than chance when playing around 1,500 games of poker.

5.4.4 The number of choices

Games in which participants have many different choices require more skill from the participants than comparable games with fewer choices. These are choices that actually affect the outcome of the game, not whether it is played with red or black chips. This principle is illustrated by a number of examples:

¹⁹ This does not entirely apply to the form of roulette offered in Holland Casino. Playing red/black, for example, is marginally better than betting on a single number, since the participant gets half of their bet back if they bet on red/black and the ball stops at '0'.

Number of choices

Game of Goose players cannot make any strategic decisions. The throw of a die completely determines the course of the game.

Ludo offers more choices than Game of the Goose. Players can choose which piece to move after the throw. This freedom to choose allows the player to make tactical decisions.

The number of choices players can make in chess is very large, which means that the number of potential games is almost infinite. The player with the best overview of these different games will win the chess game.

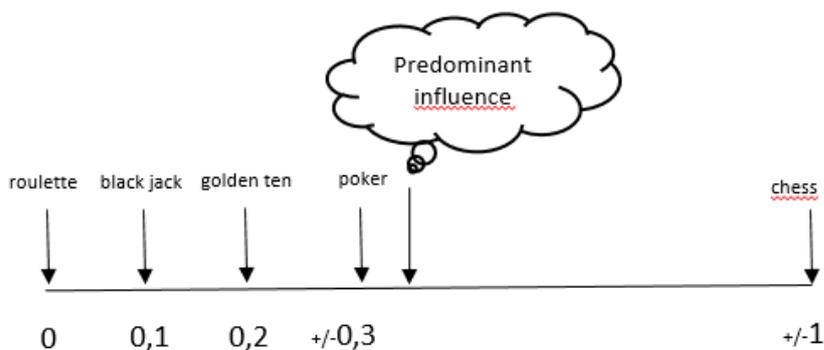
5.4.5 Observations

If statistics show that a percentage of the players make a profit in the long term when playing a certain game, then it is plausible that this game offers the possibility of exercising a predominant influence. At the same time, a large percentage of players will also lose (which does not mean that the losing players are playing the game without strategy). In order to assess this, the strategy of the average player should be observed if possible. An example of this has already been discussed in Section 5.3.2 by means of the Golden Ten judgement.

5.4.6 Spectrum

Based on the skill index, discussed in Section 5.4.2, Van der Genugten calculated the degree of skill of well-known games.²⁰ These values are shown in Figure 5, with a game based purely on chance on the left-hand side of the spectrum and a game based purely on skill on the right-hand side. The spectrum of games of chance is subject to constant adjustment. When new pronouncements are made, the spectrum becomes more elaborate, and therefore more useful.

Figure 5: Spectrum of influence



In his paper, Van der Genugten states that the line predominant influence must lie between 0.1 and 0.3. However, this value is based on a theoretical approach to the definition of a game of chance. In practice, more matters are considered than just the game-theoretical value of skill in determining whether a game is a game of chance. In view of the fact that poker is currently classified as a game of chance in the Netherlands, the Gaming Authority has placed the line of predominant influence to the right of poker.

²⁰ Van der Genugten, B.B.; Borm, P.E.M. (2014): *Cash and Tournament Poker*

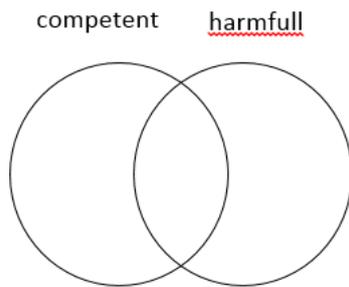
5.4.7 Conclusion: jeux de cercle

Whether there is a predominant influence on the selection of winners in a game in which participants play against other is determined by weighing up the elements of the game. On the one hand, elements of chance make it impossible to speak of a predominant influence; on the other hand, the fact that there is freedom to choose from various options may ensure that there is predominant influence. In addition, new games can be tested on the basis of games in the spectrum of Figure 5 that have already been assessed.

6. Substitute for games of chance

If the analysis based on this guide shows that a game does not qualify as a game of chance within the framework of the Betting and Gaming Act, the Gaming Authority is not formally competent. However, the Gaming Authority has determined that the game is sufficiently important to be supervised, as the game has been assessed against the threshold criterion in Chapter 2. This puts the public goals of the Gaming Authority under pressure. To illustrate this, the Gaming Authority cites the 'Circles of Harm' of Malcolm Sparrow. Compared to the original 'Circles' of Sparrow, the Gaming Authority has used 'competent' instead of 'illegal'.

Figure 6: Circles of harm of Malcolm Sparrow



The Gaming Authority considers it important that the risks it identifies are dealt with in respect of the assessed game. Two situations are conceivable:

- games under the supervision of another competent body, e.g. binary options.
- games that exceed the threshold criterion, and for which there is a reasonable suspicion that they have risky characteristics similar to games of chance and may have a negative effect on the Gaming Authority's public goals. Games with elements of chance and/or a potentially addictive character are examples of this.

In the first case, the Gaming Authority shall inform the other authority and discuss the possible next steps.

In the second case, there is a risk that monitoring of the games will fall between two stools. The Gaming Authority may re-evaluate the game or contact an authority such as the Netherlands Authority for Consumers & Markets (ACM) in the context of consumer protection. These considerations will obviously depend very much on the game in question and its impact on the participants.

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