

Board Game Design

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Dice

A top-down view of a backgammon board. The board is light-colored with dark triangular points. Red and black pieces are arranged on the board. Two dice are visible: a red die showing 6 and 4, and a white die showing 1 and 2. Two black dice cups are also present. A large black circle is overlaid in the center, containing the title and text.

Backgammon

Recognisable backgammon can be traced to the 3rd Century but the game goes back 5000 years.

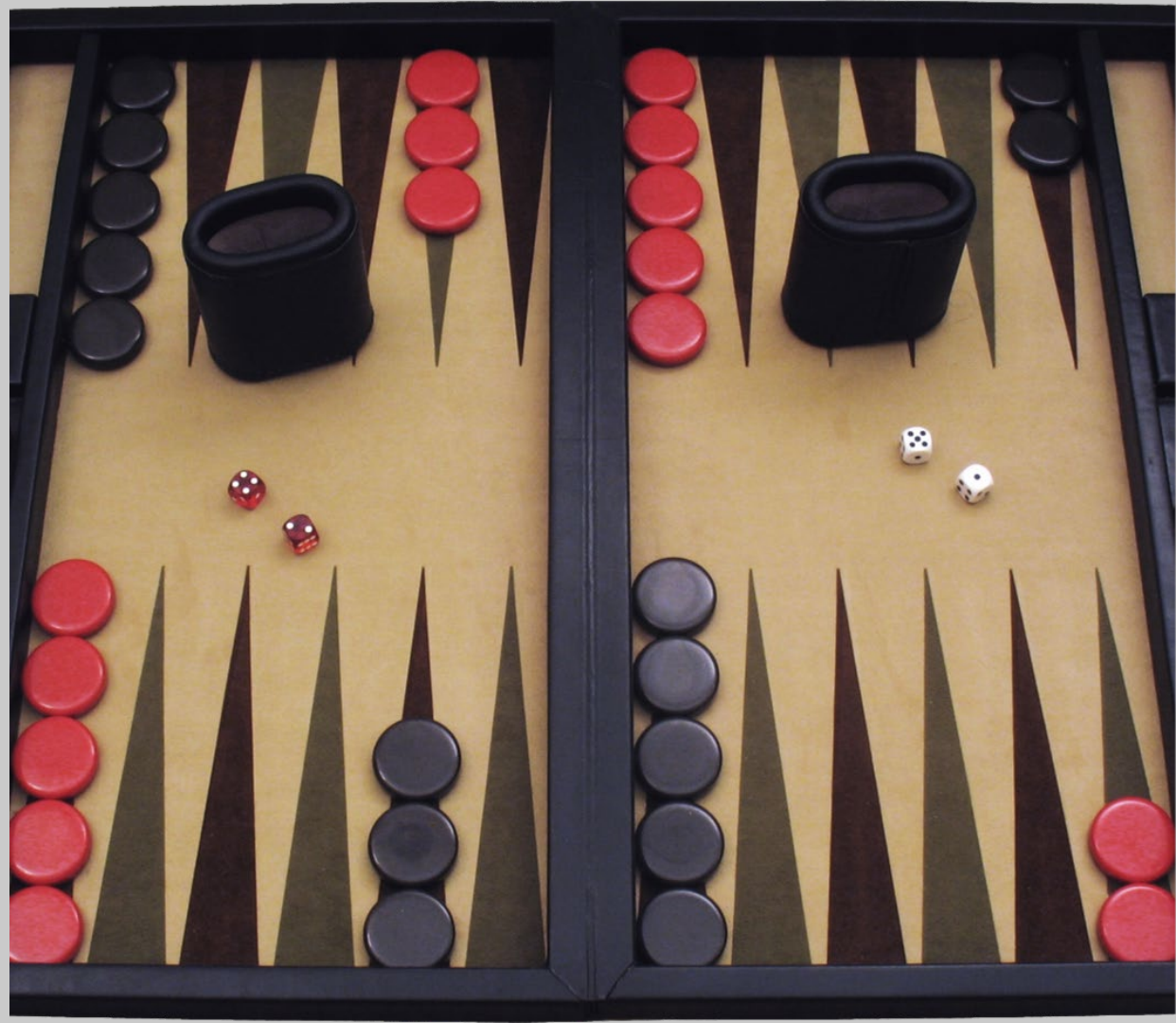
Backgammon stuff

So one die can make any number from one to six with equal probability for all the results.

Two dice gives you a number from 2 to 12 if you add them together, BUT the probabilities are no longer the same.

Twos and twelves are actually very, very rare. And seven happens pretty often.

One of the things you can do with dice is, the more dice you add to your pile, the more you can expect that the extremes of what you're going to roll are going to be rarer.

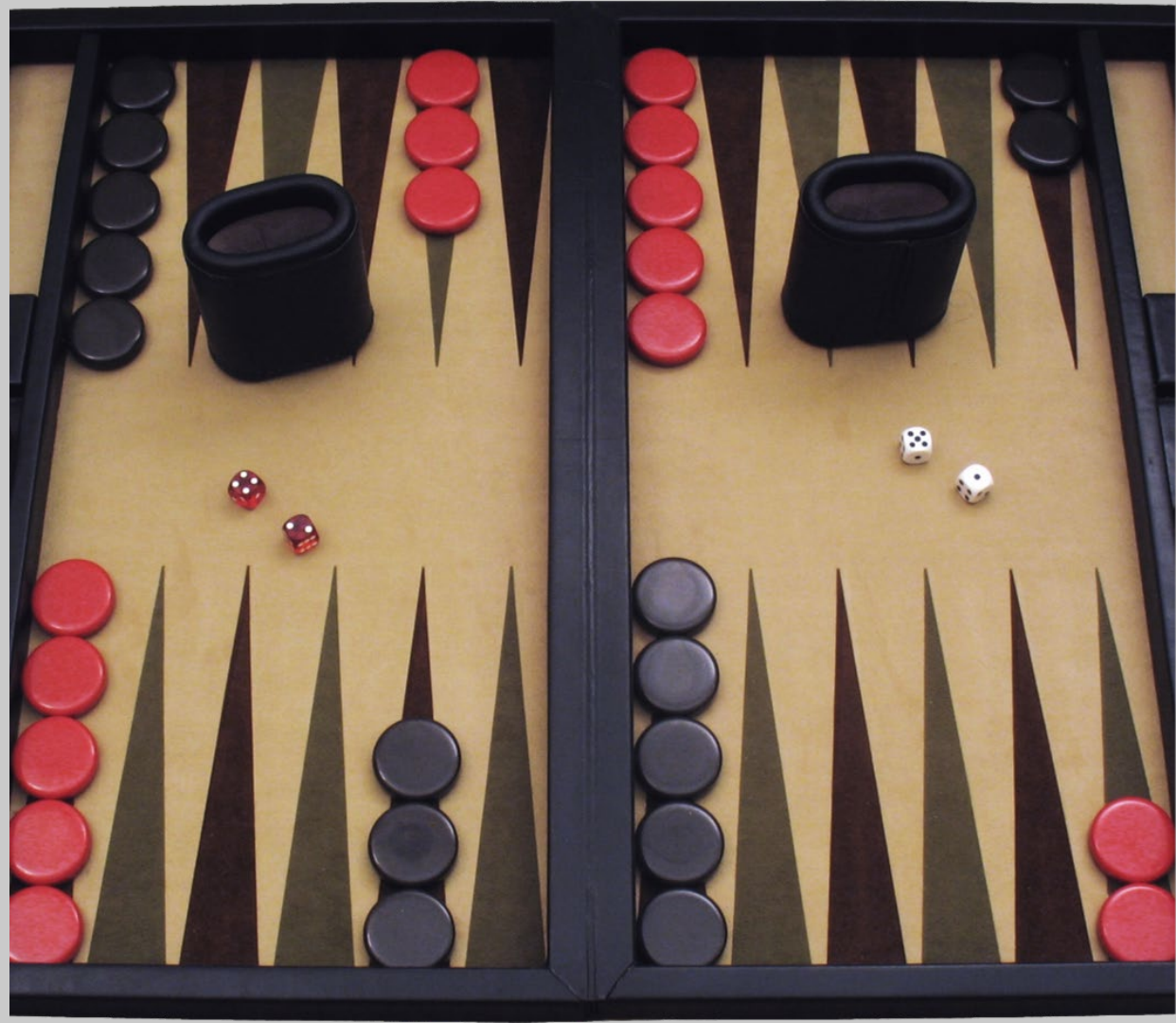



Dice are random
number generators
but that doesn't
mean the results are
random

Backgammon stuff

In this format 7 becomes the most likely number and we can use this number to estimate the length of a game or make decisions on board length.

Number of pieces \div dice average \approx number of turns





History of Dice

From divination to probability and statistics



Cubical dice with markings practically equivalent to those of modern dice have been found in Chinese excavations from 600 BCE and in Egyptian tombs dating from 2000 BCE.



The first written records of dice are found in the ancient Sanskrit epic the *Mahabharata* composed in India more than 2,000 years ago.

Pyramidal dice (with four sides) are as old as cubical ones; such dice were found with the so-called Royal Game of Ur, one of the oldest complete board games ever discovered, dating back to Sumer in the 3rd millennium BCE. Another variation of dice is teetotums (a type of spinning top).



Pictured is a twentyfaced die dating from somewhere between 304 and 30 B.C., a timespan also known as Egypt's Ptolemaic Period.



It was not until the 16th century that dice games were subjected to mathematical analysis—by Italians Girolamo Cardano and Galileo, among others—and the concepts of randomness and probability were conceived.

Until then the prevalent attitude had been that dice and similar objects fell the way they did because of the indirect action of gods or supernatural forces.



Dungeons & Dragons

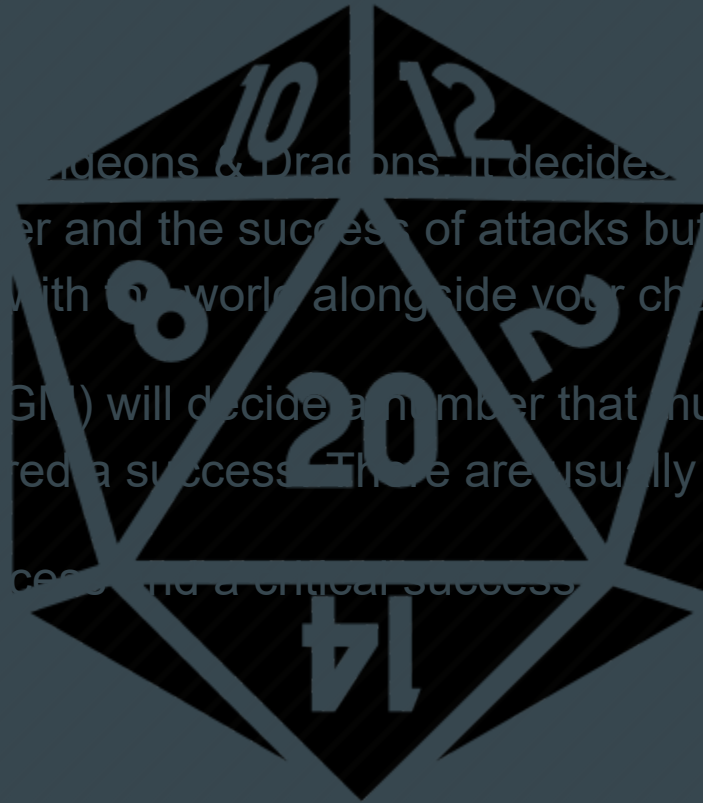


Dungeons & Dragons, first published in 1974, is a tabletop fantasy RPG inspired by miniature war games that had been popular for over a century before. However Dungeons & Dragons departed in several key ways.

It emphasised story, roleplaying and immersion. As different versions of the game were developed the core mechanics were (debatably) refined to make these key elements more accessible and more dynamic.



The D20



Dungeons & Dragons. It decides
 whether and the success of attacks but
 with the world alongside your cha
 (GM) will decide a number that mu
 red a success. There are usually
 cess and a critical success.

**YOU ATTEMPT TO BLOW OUT THE
BIRTHDAY CAKE CANDLES**



**BUT INSTEAD TIP THEM OVER, LIGHT THE
CURTAINS ON FIRE AND NOW YOUR ROOM
IS BURNING**

The D20 System

The D20 System generally refers to the system of Dungeons & Dragons 3rd Edition and onwards when the D20 became the crucial “core” of the game engine.

Although games had for a long time been using derivatives of Dungeons & Dragons gameplay it was the free licensing of the D20 system that led to a boom in games (both table top and PC/console) that used it as the main engine of gameplay.

D20 games



Translating the D20 System
lesson in recreating the “feel” of
a game rather than just
transcribing its rules

Activity Time!!!

Design a 100 square game board

Design three scenarios each with three potential consequences.

Each one will result in a new scenario with its own potential states. A failure should also result in hit point damage. A high success should give some benefit.

This must be fair and balanced with success and failure always possible.

1. You wake up in the morning...

1-2: Hard fail. You sleep through your alarm (Don't move)

3-4: Success. You're still tired from the night before (move two spaces)

5-6: Critical Success. You jump up ready for the day (Move six spots)

2. You run out hoping to flag a taxi.

1-2: Hard fail.....

3-4: Success.....

5-6: Critical Success....

3. You arrive at work

1-2: Hard Fail.....

3-4: Success.....

5-6: Critical Success.....