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# Spoilt for choice - strategies for choosing the right investment

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### Abstract

Investors in Germany have a wide range of opportunities to participate in the capital market. Too much choice could be partly responsible for the fact that only a few have taken advantage of these opportunities to date. We present behavioural patterns that facilitate decision-making and participation.

### Zusammenfassung

Anlegern stehen in Deutschland eine Vielzahl an Möglichkeiten zur Verfügung, um am Kapitalmarkt teilzunehmen. Zuviel Auswahl könnte mit dafür verantwortlich sein, dass diese Möglichkeiten bisher nur von wenigen wahrgenommen werden. Wir stellen Verhaltensweisen vor, die Entscheidungsfindung und Teilnahme erleichtern.



### I. Large-scale selection as a decision problem and heuristics as a Possible solution

### Spoilt for choice

Many people will recognise the situation: You just want to buy a quick carton of milk on the way home. But when you arrive at the supermarket, your plans come to a standstill when you look at the selection: Should it be organic milk, regionally produced or the cheapest product? What fat content should it have? Or should I try the plant-based alternative today? In the end, agonising minutes pass without a decision and, looking at the long queue at the check-out, you end up leaving the supermarket without having achieved anything and enjoying your coffee the next morning without milk. Scientists refer to this phenomenon as "choice overload" - too many options inhibit the ability to make decisions.<sup>1</sup>

Car manufacturers are currently reducing the number of variants offered for their vehicles. Whether in terms of wheel rims, seats or colour, the trend is towards less choice. The move away from the historically grown variety of models indicates that, in addition to cost considerations, manufacturers are increasingly realising that customers are being overwhelmed by too much choice.<sup>2</sup>

And there is also a risk of choice overload in the financial industry. There are almost 15,000 investment funds in Germany and 1.5 million securities are traded on the Frankfurt Stock Exchange. If investors stay away from the capital market due to the sheer mass of choice, valuable liquidity is lost on the one hand and, on the other, insufficient savings are built up for retirement provision, for example.

### What prevents us from deciding

There are many causes of choice overload. A (non-exhaustive) list of characteristics in which a lot of choice makes a decision more difficult includes the following three points:<sup>3</sup>

<sup>&</sup>lt;sup>1</sup> S. Iyengar, M. Lepper: <u>When Choice is Demotivating: Can One Desire Too Much of a Good</u> <u>Thing?</u>, 2000.

<sup>&</sup>lt;sup>2</sup> <u>Study on equipment variants: How German carmakers are overtaxing their customers - and themselves - manager magazin (manager-magazin.de)</u>

<sup>&</sup>lt;sup>3</sup> T. Eyerund: Die Qual der Wahl, unpublished manuscript, IW Cologne. see also <u>15 Jahre Ro-</u> man Herzog Institut - Science Slam.



- Unclear or weak preferences: If preferences and needs that a product is supposed to satisfy first have to be worked out during the purchasing process, this is exhausting. It is easier to abandon the purchase process. This phenomenon occurs in particular when a product is bought rarely or for the first time.
- 3. High negative emotional connection with the task: For example, drawing up a living will or a will makes many people feel uncomfortable. If too many text modules and options come into play, we quickly prefer to focus on more pleasant things.

In addition to these subjective factors, the occurrence of choice overload also depends on the structure of the selection options. If the choice set consists of many similar products or substitute goods in which no dominant option can be identified, choice overload is encouraged. A complicated presentation of the selection options, for example by specifying a particularly large number of product features, also has a favourable effect.<sup>4</sup> In the context of fundbased investments, a recent study puts forward an appropriate hypothesis:

"The presence of a large number of mutual funds in the markets leads to increased decision difficulty, increased anticipatory regret, higher chances of deferring a choice, reduced product satisfaction, and reduced decision process satisfaction." <sup>5</sup>

A large number of available investment funds makes it difficult for private investors to make a choice. This is supported quantitatively by an earlier study. It shows a negative correlation between the participation rate in a 401K plan, i.e. the predominant form of equity-based company pension scheme in the USA, and the number of funds available. <sup>6</sup>

<sup>&</sup>lt;sup>4</sup> A. Chernev, U. Bockenholt, J. Goodman: <u>Choice Overload: A conceptual review and meta-analysis</u>, 2015

<sup>&</sup>lt;sup>5</sup> B. Jacob, J. Joseph: <u>A Comprehensive Analysis of Choice Overload in Mutual Funds</u>, 2022.

<sup>&</sup>lt;sup>6</sup> S. Iyengar, W. Jiang & G. Huberman: <u>How Much Choice is Too Much?: Contributions to</u> 401(k) Retirement Plans, 2003.



#### Figure 1: Large fund selection - low participation rates



Source: Figure 2 from "How much choice is too much?" See footnote 6, dashed lines indicate the 95 % confidence interval

### Choice overload in capital investment

The findings in Figure 1 fit in with the list of characteristics that promote choice overload that we drew up at the beginning. Capital investment probably fulfils all three of the above characteristics for many people:

- Low emotional connection to the product: Few people proudly tell their friends about choosing a particular capital-forming life insurance policy or fund savings plan. For many, this is a necessary evil and not a joyful hobby. According to a recent representative survey, investing money is not one of Germans' ten favourite hobbies. <sup>7</sup>
- Unclear or weak preferences: Weak financial literacy suggests that individuals are unclear about their preferences between savings accounts, bonds and shares.<sup>8</sup>
- 3. High negative emotional connection with the task: At the latest when you have to realise losses on the investment, a negative emotional connection with the associated investment arises. However, as this is almost certain to happen at some point with every form of savings apart

<sup>&</sup>lt;sup>7</sup> Idealo.de and Kantar: <u>Germans and their hobbies: No more money for leisure activities?</u>, 2024.

<sup>&</sup>lt;sup>8</sup> BaFin - Specialist articles - Financial knowledge can be expanded

from fixed-interest investments and guaranteed products, this danger hangs over risky investments like a sword of Damocles.

The qualitative assessments are also reflected in the figures: despite 15,000 authorised funds, only 12.5 per cent of financial assets in Germany are invested in shares. Over 40 per cent of German financial assets are tied up in cash or (savings) deposits.<sup>9</sup>

The lion's share of savings is therefore clearly in "safe" investments such as savings books and fixed-term deposits. It seems that the wide range of funds on offer is fuelling the maxim "if you don't do anything, you won't do anything wrong". As a result, only one in twelve euros of retirement income in Germany comes from private provision.<sup>10</sup>

### How to act anyway

But how do individuals avoid doing nothing when faced with a wide range of investment opportunities? How do individuals make decisions and what techniques do they use or should they use? In order to understand this, you first need to understand the decision-making environment in which you find yourself on the capital market.

For a long time, Harry Markowitz's "Modern Portfolio Theory" was considered a sufficiently good approximation of reality for making decisions. It assumes that the individual is in a risky decision-making situation. He knows the expected returns of all investments and can calculate their correlations with each other. It defines risk as price fluctuations (and not as a final loss) and assumes that the market conditions of the future will not differ significantly from those of the past. Only then are the estimated parameters stable and useful for predicting future developments. To this end, the individual knows his personal risk appetite (defined here as tolerance for price fluctuations),<sup>11</sup> which implicitly assumes that the concept of risk is correctly defined.

However, it is not possible to accurately predict returns over a longer period of time, nor can we subscribe to the academic concept of risk. Instead of being as afraid of steeply rising portfolio values as we are of falling ones, we rejoice at the rise and fret at the fall. We are therefore not in a situation of (fully) quantifiable risk when it comes to planning how we want to and should

<sup>&</sup>lt;sup>9</sup> Deutsche Bundesbank: <u>Financial investment and external financing in Germany in the</u> <u>fourth quarter of 2023</u>, 2024 and <u>financial accounts</u>, 2023

<sup>&</sup>lt;sup>10</sup> Federal Ministry of Labour and Social Affairs: <u>Alterseinkommen und zusätzliche Vorsorge</u> (2019), 2023.

<sup>&</sup>lt;sup>11</sup> Markowitz model - Wikipedia and Modern portfolio theory - Wikipedia

save. Rather, we are in a situation of uncertainty, as described by Frank Knight in 1921<sup>12</sup> and taken up again by Nassim Taleb in his 2007 bestseller.<sup>13</sup> The future is partly unknown and therefore cannot be calculated from the past as a solution to an optimisation task.

In an uncertain world, the limits of analytical ability in the sense of optimisation among alternatives are reached. Therefore, anyone who relies on complex (mathematical) models for decision-making and searches for an "optimal" solution is lost. Those who manage to rely on heuristics, i.e. simple action or decision-making schemes, and choose one (of possibly many) satisfactory solutions, will survive in such an environment.<sup>14</sup>

### **Duality of skills and environment**

Heuristics for decision-making under uncertainty do not exist in a vacuum. They live from and in the duality of personal cognition and the environment. Heuristics are processes whose goal is to solve a problem under limited information, time pressure and limited mental capacity.

Not every heuristic is suitable for every problem and every environmental situation. Experts in a field are characterised by the fact that they are able to assess which heuristic will lead to success and apply it better than a layperson in their area of expertise - whether consciously or unconsciously. Nobel Prize winner Herbert Simon illustrated this with the two blades of a pair of scissors. Both cognition and context are necessary to solve a problem under uncertainty.<sup>15</sup> Human behaviour under uncertainty can thus be explained as a process in which people react flexibly to their environment with "evolved abilities".<sup>16</sup>

<sup>&</sup>lt;sup>12</sup> F. Knight: Risk, uncertainty and profit, Houghton Mifflin, 1921 see also J. Kay and M. King: Radical uncertainty, The Bridge Street Press, 2020.

<sup>&</sup>lt;sup>13</sup> N. Taleb: The Black Swan 2007.

<sup>&</sup>lt;sup>14</sup> In his book "The Paradox of choice", the American psychologist Barry Schwartz examines the satisfaction of making decisions when faced with a wide range of choices and finds that greater choice leads to greater dissatisfaction. In particular, he identifies the search for the "optimal" solution instead of a "satisfactory" one as the source of this.

<sup>&</sup>lt;sup>15</sup> D. Lockton: <u>Simon's Scissors and Ecological Psychology in Design for Behaviour Change</u>, 2012.

<sup>&</sup>lt;sup>16</sup> G. Gigerenzer, Bauchentscheidungen, p.75, Goldmann Verlag, 2008.

Figure 2: Decisions are based on cognition and environment



Figure 1: An interpretation of Herbert Simon's 'behavioural scissors'

Source: Figure 1 from Simon's Scissors and Ecological Psychology in Design for Behaviour Change, see footnote 15

In a business context, the term "entrepreneurial skill" has been coined for this. Without knowing exactly why, company owners with many years of experience often seem to find pragmatic and, in retrospect, appropriate solutions. Charlie Munger, the recently deceased, congenial business partner of Warren Buffett, described it as a latticework of different "mental models" from which he draws depending on the situation:

"What you need is a latticework of mental models in your head."<sup>17</sup>

### And further:

"You can reach out and grasp the model that better solves the overall problem. All you have to do is know it and develop the right mental habits."<sup>18</sup>

In the following, we look at some such heuristics in the context of capital investment.

<sup>&</sup>lt;sup>17</sup> C. Munger: Poor Charlie's Almanack: The Essential Wit and Wisdom of Charles T. Munger, Stripe Press, 2024.

<sup>&</sup>lt;sup>18</sup> C. Munger: Poor Charlie's Almanack: The Essential Wit and Wisdom of Charles T. Munger, Stripe Press, 2024.



### II. Heuristics for capital investment

### The imitation heuristic

Imitation is one of the most basic methods of making decisions. If you have no time, little practical experience or simply no interest in investing, you take your lead from others. They make use of other people's experiences. This is called imitation heuristics. It works according to the motto "Do what the majority of your social environment does".<sup>19</sup> One variation of this is "Do what successful people do", which partly explains the popularity of investment guides.

On a social level, we observe the imitation heuristic in the tradition of saving in Germany, which dates back to the 18th century. The idea of putting some money aside for old age has survived the hyperinflation of the 1920s, the currency reform of 1948 and the financial crisis of 2007/08.<sup>20</sup> On a personal level, it is also true that money management is primarily learnt at home and is strongly culturally and socially influenced.<sup>21</sup> So the more my personal and social environment is characterised by savers, the more likely I am to save myself. The principle expressed above in connection with the high fixed-interest savings balances "if you don't do anything, you won't do anything wrong" is therefore probably more aptly translated as "if you don't do anything differently, you won't do anything wrong".

However, the imitation heuristic has an Achilles heel. It is slow to pick up on short and medium-term developments.<sup>22</sup> It only adapts to new circumstances over generations and therefore sometimes leads to the imitation of outdated practices in dynamic environments. The German investment culture illustrates this: Despite real interest rates close to zero, fixed-interest investments and guaranteed products are still very popular.<sup>23</sup> In an environment of high nominal interest rates and (expected) low inflation rates, this made perfect sense between 1990 and 2000. However, with continuously falling real interest rates, savers should have focussed more on equities as an

<sup>&</sup>lt;sup>19</sup> G. Gigerenzer & H. Brighton: <u>Homo Heuristicus: Why Biases Minds Make Better Interfer</u><u>ences</u>, Topics in Cognitive Science, 2008, Table 2.

<sup>&</sup>lt;sup>20</sup> Deutschlandfunk.de: <u>The history of saving - From a bourgeois virtue to the "Kaputtsparen"</u> (deutschlandfunk.de)

<sup>&</sup>lt;sup>21</sup> Stuttgarter Nachrichten: Money: Can you actually learn to save?

<sup>&</sup>lt;sup>22</sup> G. Gigerenzer & H. Brighton: <u>Homo Heuristicus: Why biases minds make better inferences</u>, Table 2, 2008.

<sup>&</sup>lt;sup>23</sup> Deutsche Bundesbank: <u>Financial asset formation and external financing in Germany in the fourth quarter of 2023</u>, 2024 and <u>financial accounts</u>, 2023 and Association of Private Building Societies: <u>Top Geldanlagen 2024 - Verband der privaten Bausparkassen e.V.</u>, 2024.

asset class from the turn of the millennium onwards. And when negative real interest rates were reached in 2010 at the latest, increased investment in the capital market would have been the order of the day. Between 2005 and 2014, however, the number of shareholders in Germany actually fell slightly. The extent to which the bursting of the dotcom bubble in 2000 and the financial crisis of 2007/08 played a role here remains uncertain. In any case, the percentage and number of share owners in Germany has only increased noticeably since 2015.



Figure 3: Falling real interest rates do not immediately lead to more shareholders

Source: Deutsche Bundesbank, Deutsches Aktieninstitut, Flossbach von Storch Research Institute

The adaptation weakness of the imitation heuristic is reminiscent of the slow realisation of paradigm shifts in science, as described by Thomas Kuhn. Only the "extinction" of the prevailing opinion makes room for new ideas, which are usually put forward by a few outside the established theory.<sup>24</sup> Imitation is therefore an important building block when it comes to saving anything at all. However, those who want to break new ground in capital investment must use other heuristics to build up assets.

### **Mental Accounting**

If not all savings are to remain in the savings account, the first question is how much of the savings should be invested on the capital market. The "mental accounting" heuristic can be used for this: Instead of racking your brains over the volatility of the capital market and the associated maximum loss

<sup>&</sup>lt;sup>24</sup><u>Paradigm shift - Wikipedia</u> see also Max Planck: <u>Max Planck Quote Truth: A New Scientific</u> <u>Truth (welt-der-zitate.com)</u>

according to the classic understanding of risk, you estimate how much capital is needed for living expenses in the short and medium term. This money is separated from the total capital and invested safely. The rest is invested on the capital market. The saver keeps separate accounts in his mind.

The American behavioural economist Meir Statman has found a fitting name for the two accounts. He calls one "protection from poverty". The other is called "prospects for riches". For Statman, the accounts are an expression of personal life needs.<sup>25</sup> Wealth can have several meanings: One person wants to save up as much wealth as possible and pass it on to their children. Another wants to be able to retire early.

My colleague Thomas Mayer recently suggested a practical implementation for these theoretical considerations. The capital required in the short term is placed in a money market fund or an overnight money account. The funds needed in the medium term are paid into term funds, which generally pay back the money safely after 3-5 years with a slightly higher interest rate. The saver invests the rest in a global equity fund, whose fluctuations he can now tolerate more calmly as he is protected from poverty by his other two investments.<sup>26</sup>

### Questionnaires on the weighting of asset classes

However, as not everyone feels comfortable underpinning their hopes of wealth exclusively with equity investments, the question arises of how to choose the right allocation for you personally from the various (risky) asset classes. As a rule, a list of criteria such as investment horizon, fluctuations in value and return is drawn up for this purpose. The criteria can be weighted differently. The simplest way of weighting is to concentrate on the most important personal criterion, for example the expected return, as the sole decision criterion. The investor then chooses only the asset class that performs best in terms of this criterion; in our example, presumably equities. Such a "take-the-best" heuristic is very simple and works particularly well when the various decision criteria contain redundant information.

However, studies show that people do not subordinate everything to returns.<sup>27</sup> This is also sensible, as the ability to maintain the chosen strategy is at least as important in asset allocation as the return.<sup>28</sup> It is therefore a

<sup>&</sup>lt;sup>25</sup> M. Statman: <u>Behavioural Finance - The Second Generation</u>, 2019.

<sup>&</sup>lt;sup>26</sup> T. Mayer: Investing money with Homer Simpson, Welt am Sonntag, 9 June 2024.

<sup>&</sup>lt;sup>27</sup> M. Statman: <u>Behavioural Finance - The Second Generation</u>, 2019.

<sup>&</sup>lt;sup>28</sup> S. Ebert: <u>Behaviour-based asset management - identifying goals, choosing the right invest-</u> <u>ment strategies</u>, 2024.

matter of allocating your own assets based on various criteria. For example, if I want to decide between equities and bonds, I could use the expected return, minimum investment horizon and my personal previous experience with the asset class and count how many categories the respective asset class fulfils my requirements in. The number of characteristics in which the respective asset class fulfils my requirements divided by the total number of all fulfilled characteristics then results in the percentage of my assets that I should invest in this asset class. If shares fulfil two out of three criteria and bonds. This is a variation of the so-called Dawes rule, in which all inputs to a decision are weighted equally.<sup>29</sup> Such a rule works particularly well if the individual characteristics are more or less equally important to me.

Risk appetite questionnaires developed by financial experts use variations of these weighting rules.<sup>30</sup> Contrary to the Dawes Rule, not all characteristics are rated equally here. However, the deviations from the simple model are not based on complicated statistical risk models, but on the experts' practical observations, which take into account findings such as loss aversion on the part of their clients (although book and real losses are often considered to be the same).

### **Decision trees**

Once you have found an allocation of your investment to different asset classes, the next question is which products to invest in within the classes. If you have a choice between two alternatives, special decision trees are available. The so-called fast-and-frugal trees are truncated, binary decision trees. The decision problem is solved by answering a maximum of three questions, each with only two possible answers.<sup>31</sup>

<sup>&</sup>lt;sup>29</sup> J. Czerlinski, G. Gigerenzer & D. Goldstein: How good are simple heuristics?, Chapter 5 in Simple Heuristics that make us smart, Oxford University Press, 1999.

<sup>&</sup>lt;sup>30</sup> S. Ebert: <u>Behaviour-based asset management - identifying goals, choosing the right invest-</u> ment strategies, 2024.

<sup>&</sup>lt;sup>31</sup> L. Martignon, O. Vitouch, M. Takezawa & M. Forster: <u>Naive and Yet Enlightened: From Natural Frequencies to Fast and Frugal Decision Trees</u>, 2003.



### Figure 4: Active fund or ETF - decision by tree



Source: Own illustration, Flossbach von Storch Research Institute

When investing in funds, one question often discussed among investors is whether to invest my money in an actively managed fund or a passive exchange-traded fund, or ETF for short. My colleague Thomas Lehr has compared this to choosing between "driving yourself" and "hailing a taxi".<sup>32</sup> Based on his arguments, a decision tree can be constructed (Fig. 4). An investor who wants to look after his savings himself, for whom maximising returns is the primary goal and who manages to stay invested even in volatile times, ends up with an ETF. For all other investors, the tree recommends actively managed funds.

The tree shows the two blades of Herbert Simon's scissors (see Fig. 2). Each of the three questions takes into account both personal abilities and the environment of the decision. For example, the question "Can I manage to stay invested in the long term?" is based on the realisation that long-term holding of shares generates good returns, but that some people find it difficult to muster the patience required for this strategy. In contrast to generalised advice that ignores the individual or lists that only list the advantages and disadvantages of the two options, the Fast and Frugal Tree allows you to make an informed decision independently and self-determined.

<sup>&</sup>lt;sup>32</sup> T. Lehr: ETF - Why not?, 2024.

### 1/N heuristic

The number of people investing directly in individual shares has fallen recently. However, 4.7 million people in Germany are still invested in individual shares.<sup>33</sup> The question for them is how to allocate their capital to the various stocks. One simple method is to place all stocks in the portfolio in equal proportions. This is called the 1/N heuristic, where N is the number of individual stocks. How large N is and how often rebalancing, i.e. the equalisation of an imbalance resulting from price fluctuations, is the responsibility of the investor.

This simple approach contradicts the aforementioned Modern Portfolio Theory by Harry Markowitz. According to this theory, there is an optimal solution when selecting the right financial securities: if you have N investment options to choose from, you only need their (historical) returns, variances and covariances to create an optimal portfolio. If I limit myself to 10 stocks, 110 variables need to be determined.

However, in one study, this complex model did not show a better (risk-adjusted) performance than the simple 1/N rule.<sup>34</sup> This should not come as a surprise, as the "optimal" allocation is based on estimates from past data. However, structural breaks and "regime changes" are omnipresent on financial markets. Predicting the future based solely on past correlations therefore seems impossible. The study merely provides empirical evidence for our thesis that we find ourselves in a world of uncertainty. Under this premise, the 1/N heuristic provides a simple way of finding a portfolio allocation that is "good enough" or "satisfactory". Elaborate "optimisation" does not lead to better results. Rather, there is a risk of getting bogged down in the formulae, not seeing the wood for the trees and ultimately not investing at all.

### **Confidence** heuristic

If you don't want to take care of your own investments or don't have the confidence to do so, you need to find a suitable advisor. People apparently make decisions based on trust. An Italian study shows that savers have a very high level of trust in their advisor, while they have only a mediocre level of trust in the financial industry as such.

But what are the reasons for trust and what do people look for when choosing a consultant? Firstly, two overarching themes stand out: The expertise of

<sup>&</sup>lt;sup>33</sup> Deutsches Aktieninstitut: <u>Shareholder figures 2023</u>, 2024.

<sup>&</sup>lt;sup>34</sup> V. DeMiguel, L. Garlappi & R. Uppal: <u>Optimal Versus Naive Diversification: How Inefficient</u> <u>is the 1/N Portfolio Strategy?</u>, The review of financial studies, 2009.

the advisor and - doubly important - the quality of the interaction with the advisor. However, the latter only serves as a surrogate for the expertise of the advisor.<sup>35</sup> As they believe that they lack the expertise, not all savers dare to assess the competence of an adviser. Instead, they use an auxiliary variable that seems reliable to them. They assess the quality of the interaction using "honest signals". These are unconscious social signals of interpersonal communication that build trust. Copying the behaviour of a conversation partner is one example.<sup>36</sup> As they are largely unconscious, they are intended to show that the advisor is genuinely interested in the investor. In addition, there is the subjectively perceived transparency of the advisor's explanations: Do I understand the explanations? Is the advice comprehensible? Am I satisfied with the explanations?

The following simple heuristic can therefore be formulated for the search for an advisor: Choose an advisor whom you trust, whom you understand and who puts your financial goals at the centre of their work. Apart from regularly checking whether this trust is still justified, once I have chosen an advisor I can get back to the things I enjoy spending my time on.

### Conclusion

Capital investment fulfils many characteristics that promote choice overload. However, if the saver accepts that this is a decision under uncertainty, in which by definition there can only ever be satisfactory solutions rather than optimal ones, heuristics can be used to make decisions. Questionnaires, decision trees and other simple rules of thumb based on Herbert Simon's "behavioural scissors", which are based on the two cutting edges of cognition and environment, help with capital investment. Equipped with a toolbox of heuristics, everyone can find the right investment for them.

<sup>&</sup>lt;sup>35</sup> C. Guglielmetti, L. Martignon, M. Monti & V. Pelligra: <u>The insurance by my side: better risk</u> <u>assessment for smarter insurance decisions.</u> CAREFIN Working paper, 2011.

<sup>&</sup>lt;sup>36</sup> A. Pentland: Honest Signals: How they shape our world, MIT Press, 2008.

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