

Daniel Memmert ·  
Bernd Strauss · Daniel Theweleit

# Mind Match Soccer

The Final Step  
to Become a Champion



Springer

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# Preface

International soccer tournaments have been globally perceived as major events for many years now, linked to all kinds of issues and interests. The 2006 World Cup shaped a new image of the Germans; four years later in South Africa, the self-esteem of an entire continent was boosted. In 2018, Russian warmonger Vladimir Putin was able to use the 2018 World Cup in Russia for his fatal self-promotional lies, and the 2022 World Cup in Qatar has the explicit purpose of cementing the desert state's status in the Middle East's difficult power structure. Focusing on soccer in this context of tension is becoming increasingly difficult, for the players as well as for spectators and observers.

When the 2014 World Cup in Brazil became charged with a large-scale mission accompanied by intra-societal conflicts, the Seleção collapsed in the madness of a semifinal overloaded with hopes and expectations. The Brazilians' defeat by Germany, 7-1—"sãtschi—um" in Portuguese—has passed into common parlance as a frequently used metaphor for resounding defeats. It is hard to imagine the influences that soccer players often have to cope with when their competitions are politically exaggerated when nations suffer along with them when life's dreams are threatened with bursting and half of the earth's population is watching.

In the decisive moments, this is especially true at the end of most major tournaments: Psychological, social, and mental factors are even more important than differences in soccer quality. One of the eternal truths of the game is that close games are always decided in the mind. However, the ideas of what exactly might be meant by this statement remain rather vague for most people involved in the sport. Terms such as "double six," "counter-pressing"

or “switching play” have long been part of the standard repertoire of stadium language; soccer has become a sport that is increasingly well understood in its tactical-strategic dimensions and has thus gained an intellectual component. But why is Germany victorious in almost all penalty shootouts, while England fails miserably time and again?

In this book, such questions are answered on the basis of findings from science, although even these are never incontestable and irrefutable. Some things have been clarified or even revised since a first edition of this book was published in 2013 under the title “Der Fußball. Die Wahrheit” (Soccer-The Truth) was published by the Munich Süddeutscher Verlag, to whom we would like to express our sincere thanks, as well as to Springer Nature for their cooperation during the creation of this revised new edition, first in German language and published as “Mind Match Fußball” in the beginning of 2023. Due to the success of this edition the Springer Nature asked us for an English translation of this new German 2023 edition, what you have now in your hands.

Since 2013, many new answers to the big questions of the game have been found and many new puzzles have arisen. For example, the development of the Video Assistant Referee (VAR) led to fundamental changes in refereeing, which were scientifically accompanied from the beginning. The years of the pandemic, with many games played in empty stadiums, provided a unique environment for research on the influence of the audience on the players and on the phenomenon of home field advantage. While soccer will never reveal some of its secrets, the following ten chapters provide well-founded, often surprising, and sometimes contentious answers to the question of which psychological and mental processes determine victory and defeat.

And the focus is by no means only on the players. Of great importance are also referees, coaches, managers, and spectators. The findings in this book apply equally to both female and male people in the world of soccer. In any case, like knowledge of tactics and strategy, psychological soccer knowledge can make the engagement with this most beautiful game in the world a bit more enjoyable for both women and men.

July 2023

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# 1

## Faith and Knowledge



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There are millions of people who accumulate vast amounts of rather useless soccer knowledge, memorized lineups from the deepest past, for example, or years of construction of stadiums. Some people can even explain in detail how the patterns get into the stadium turf. And of course, many soccer fans think they know the answer when asked why it's an advantage to play away first in a European Cup duel with a home and away game. Or why it is particularly difficult for visiting teams to take points from tight, noisy arenas like the Westfalen Stadion in Dortmund. But are these observations actually true? Or are they based, like so much else in soccer, on a kind of historically grown belief? Or why this phenomenon is disappearing at a similarly rapid pace as the polar ice caps.

This chapter begins with questions like these, but it will focus on the often still unused knowledge in soccer about how soccer players can become better if they train their heads. How does self-confidence develop? What is the term self-efficacy all about? How can athletes learn to successfully manage the key moments of their careers? How are functioning groups formed? Answers based on knowledge and not on faith are provided by Hans-Dieter Hermann. Probably Germany's best-known sports psychologist, who was appointed to the staff of the national team in 2004 under the aegis of then national coach Jürgen Klinsmann, tells us where he can help make the dream of winning a major tournament a little more likely.

## 1.1 “Home Advantage is Nowadays no Longer as Significant as it Once Was”

“There is no place like home,” says Judy Garland as Dorothy Gale in the famous 1939 film version of the *Wizard of Oz*, as she returns home chastened by her adventures in the magic land of Oz. It was the English jurist Edward Coke (1552–1634) who first used the phrase “the home is my castle, describing one's home as a castle that may and must be specially protected, and which thus also acquires special powers. Many people associate positive feelings with their own home. It is seen as a place to which people like to return, a place that needs to be protected. In a very sad way, this sentiment became visible in 2022 at the beginning of the terrible war in the Ukraine, in which people were fighting with all their power and at the risk of their lives for their freedom and their homeland.

In a peaceful, playful variant, such forces are also important in sports, for example, when it comes to the phenomenon of a home advantage. In competitions, where details often determine victory and defeat, positive feelings

associated with the own home could be crucial. In fact, the phenomenon of home field advantage exists in all team sports, whether in basketball, rugby, handball, ice hockey, even baseball and, of course, soccer. Scientifically, in all these sports, more than 50 percent of all decisive games (not counting draws) are won by the home team. But contrary to the subjective impression of many fans and observers, not even in many hundreds of games without spectators during the COVID pandemic could it be proven that this home advantage was related to the presence of spectators, at least not in the main, as will be shown below.

Also knowing this, UEFA President Aleksander Čeferin stated on 27 June 2021: “It is fair to say that home advantage is nowadays no longer as significant as it once was. (...) Taking into consideration the consistency across Europe in terms of styles of play and many different factors which have led to a decline in home advantage...”. The influential official’s statement was by no means referring to the particular COVID-19 situation facing the world from 2020 onwards, but to the abolition of the away goals rule in first and second games in European cup competitions (see also Sect. 1.3). Since the 2021/2022 season, away goals no longer count double in the event of a goal tie after first and second game. This rule change is based on the need for more spectacle, as it increases the likelihood of extra time and penalty shoot-outs, which in turn makes soccer more attractive. But home-field advantage, which has been scientifically observed over many years, also seems to have played a role in the decision, as Čeferin’s words suggest.

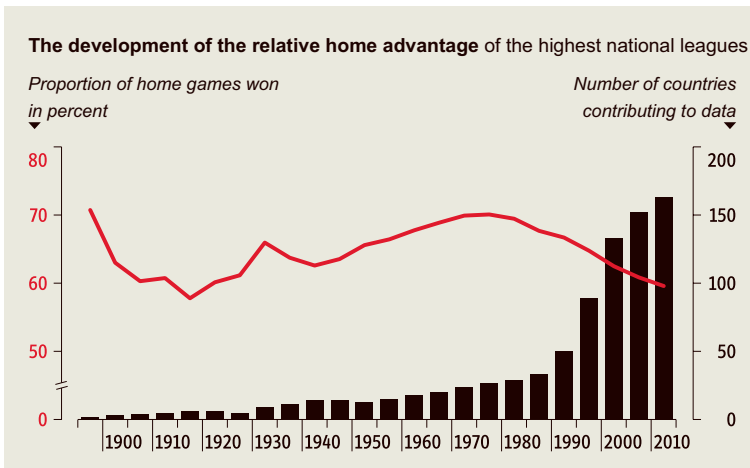
A large study conducted by the research group around Bernd Strauss from the University of Münster in 2014 analyzed 305,217 matches in the first men’s league from 194 FIFA countries (208 in total at the time) between the 2000/01 and 2011/12 seasons. And indeed, 61.9 percent (the so-called relative home advantage) of the matches decided worldwide during the study period (not counting draws, but only decided games) were won by the home team. However the fluctuation is enormous: In San Marino there is no home advantage at all (48.6 percent), in the soccer country Uruguay only a very small one (53.5 percent), while the host first division teams in Indonesia (79.7 percent) or in Nigeria (92.3 percent) win particularly frequently. In the German Bundesliga, there is a (relative) home advantage of 62.6 percent for this period. Germany is thus roughly in line with the global average (similar to England and Spain).

If we now consider all matches and the absolute home advantage, i.e. including draws, an average of 47.5 percent of all duels in Germany’s top division in the first decade of this century were won by the home team; in the 2009/10 season, the figure was as low as 40.8 percent. In the nine years

before Corona, from 2010/11 to 2018/19, the average was even lower, at 45.8 percent (see Sect. 8.3). Only three times, in 2000/01 (52.3 percent), 2001/02 (52.3 percent) and 2003/4 (52.3 percent), the 50 percent mark was exceeded in a season of this millennium, meaning that a so-called absolute home advantage did not exist in the recent past in the men's first Bundesliga in Germany. Fifty years ago, this was quite different: In the 1960s and 1970s, 60 percent of all games were won in front of a home crowd.

This gradual disappearance of home field advantage in men's soccer can be observed worldwide, as was also shown by the Münster study, which analyzed 694,478 matches since 1888 in a further analysis. The results clearly show that the host team's chances of winning have been steadily declining for the last 30 years. An even more detailed analysis by the Münster team also showed that this decline is particularly noticeable in Europe (Fig. 1.1).

The reasons for the slow decline in home advantage have not yet been adequately investigated; it is possible that much more professional preparation plays a major role here. Travelling is becoming more and more comfortable (a recent study can show for the Bundesliga that travel distance may have



**Fig. 1.1** The worldwide (relative) home advantage (draws were not taken into account) of the highest national leagues between 1888 and 2010 (red line). From 1900 onward, the plot is in a five-year interval. The black bars show the number of countries included in the data. The more countries that could be included, the more precise the result (the so-called standard deviations—the intervals around the measured mean values become smaller and smaller) (from Riedl, Staufenbiel, Heuer & Strauss, 2014)

played a role in the past, but not anymore), arenas are becoming more and more similar, referees are better trained, most teams spend the night before a matchday in a luxury hotel, no matter if it is played at home or elsewhere in the world. There is simply less and less difference between the home and away situations, especially in European soccer. And yet, teams that have a reputation for being particularly strong at home keep popping up.

Sometimes, the impression even arises that a club can no longer win away from home at all, while the same players appear almost unbeatable in their own stadium. Like the German premier league team Borussia Mönchengladbach in the 2002/2003 season, when the club achieved a goal difference of plus 20 at home, while at the end of the season this figure was minus 22 in the away table. The team lost only twice at home, while twelve games away from home ended without a point. Or another example from the 2016/17 season: Hertha BSC managed to finish sixth in the season, mainly because the club won twelve games at home, but only three away from home. But there also seems to be the opposite phenomenon: VfL Wolfsburg lost eight games away from home in the same season, while nine games were lost in front of their home crowd. That's unusual, because more games are usually still won at home than lost.

Andreas Heuer, a physics professor from Münster, has addressed this question of supposed home strength and also home weakness in his book "Der perfekte Tipp".(english: the perfect bet). To do this, he looked at all the games in the first division from 1995/96 to 2010/11. Heuer wanted to know whether certain teams are particularly conspicuous in terms of their home strength, or whether there are only the statistically expected fluctuations to which no particular significance should be attached. His findings are quite sobering: although there is the general home advantage already mentioned above (at least still), it applies equally to all. Statistically, over a longer period of time, neither a club that is particularly strong at home has stood out, nor a club that does particularly badly away from home.

But, many readers will now ask, didn't the Corona pandemic also produce the realization that home field advantage has disappeared without the many spectators and that this is evidence that spectators are so important after all that a significant home field advantage is created? Let's take a striking example: between August 2015 and March 2020, The BVB, this is the German Premier league team of Borussia Dortmund lost only five German Premier league games at its home stadium in more than four and a half years. Then, when no spectators were allowed to attend due to the Corona pandemic, six teams managed the previously rare away win at BVB within a few months

(Fig. 1.2). Doesn't this support the thesis that the power of the crowd is effective, especially in Germany's biggest stadium?

It's worth taking a closer look here, even beyond Germany's borders. There are now numerous studies around the world that have looked at the odds of winning home games in the 2019/20 season before and after the outbreak of the pandemic, in which referee behavior (for example, in the allocation of tickets) was also examined before and during the pandemic. As a reminder; In March 2020, ongoing competitions were suspended almost everywhere due to the COVID-19 outbreak. Some leagues did not finish the season at all (like the French one), many others resumed play from May 2020, but in empty stadiums, in front of very few spectators or else with many other changes. There were unusual infection-related regulations, think of the five substitutions instead of three. Several times games had to be postponed because of infections of the players and infections in the environment of the players. It was often impossible to think of an orderly and long-term preparation.

In the German Bundesliga, which started playing again as the first soccer league after the first hard lockdown in May 2020, the home win rate



**Fig. 1.2** Dortmund's fallacy: Lost home strength as an exception. (© firo Sportphoto/Ralf Ibing/dpa/picture alliance)



dropped dramatically from 43 to 33 percent. Teams actually earned more away wins than home wins during the COVID period in the 19/20 season. Many commentators, as well as early studies, concluded that the lack of spectators had been the deciding factor and seemed to have found “proof” that spectators were the major factor in creating the home advantage. However, they overlooked the fact that home field advantage is diminishing in the Bundesliga, throughout Europe and even worldwide, and that, given the large influence of coincidences, a very large number of matches need to be studied in order to obtain solid results pattern.

The 83 Bundesliga matches played under COVID conditions are simply not enough to make reliable statements. Moreover, there was a very different picture in the second Bundesliga, as the home win rate increased a little, but it remained unchanged in the third league. When looking at a single league, the picture is distorted: In Serie A in Italy and in England, there was an increase in the home win rate during the period with matches without a crowd, but not in Spain, and so on (see Table 1.1). In short, there were very heterogeneous results in soccer worldwide, also because the number and selection of leagues included varied widely and the periods of comparison (only the same season, or numerous seasons before) differed. Studies that included many countries either concluded that home field advantage did not change at all within the 2019/20 season after the exclusion of the public, or only to a very small extent of two to three percent. And since home field advantage remained worldwide even during the pandemic ghost matches, it can be concluded that the presence and behavior of spectators is rather not the decisive factor for the occurrence of home field advantage.

What the scientific studies largely agreed on is that the elimination of the crowd led to a change in the way referees awarded cards. Away teams received significantly fewer yellow cards (about 30 percent) in games without an audience, which appears to have been the case in numerous leagues. In this respect, the results suggest that spectators provide decision guidance to referees (we described this in more detail in the Sect. 6.1).

Soccer spectators are only too willing to (hastily) deduce general causes from snapshots. This may also be true for some scientists—but many of them are also soccer fans. In the thicket of information, they search for confirmation of their own impressions, which can hardly be upheld on closer and longer examination. But myths are what make soccer interesting, whether UEFA and its president are right: “Home advantage is nowadays no longer as significant as it once was,” with or without Corona.



**Tab. 1.1** Home wins in the respective league in the 2019/20 season before and after Covid-19 outbreak; examples

League/Country	Percent home wins before Covid-19	Percent home wins by COVID	Difference Percent
Albania	47	46	-1
Australia	47	40	-7
Austria	36	30	-6
Costa Rica	35	37	2
Denmark	49	39	-10
England I	45	47	2
England II	43	38	-7
Germany I	43	33	-10
Germany II	42	43	1
Germany III	41	42	-1
Greece	48	33	-15
Hungary	41	48	7
Italy I	40	44	4
Italy II	46	42	-4
Poland	50	34	-16
Portugal	40	44	4
Romania	46	46	0
Russia	37	34	-3
Serbia	51	52	1
Slovenia	45	31	-14
Spain I	48	41	-7
Spain II	39	44	5
Switzerland	42	42	0
Turkey	43	46	3
Ukraine	45	45	0

## 1.2 “Self-Confidence”

First and foremost, it must have been a nice marketing stunt when the shirt designers at Germany’s leading sporting goods manufacturer decided to incorporate FC Bayern’s motto into the record champion’s shirts in the spring of 2011. “Mia san mia” (not actual German language, it is a Bavarian phrase: translated: “We are us”) has been printed in small letters on the shirt collar ever since. It’s possible that this idea is actually boosting merchandising sales. And perhaps the club credo on the back of the neck is even conducive to sporting performance, because “Mia san mia” describes the conviction of not being dependent on anyone, the identity and togetherness, the untouchability and the great self-confidence of this club. After all, it can’t hurt to be constantly reminded of one’s own strengths. Those who believe in themselves and their own qualities ultimately benefit in sporting competition (Fig. 1.3).



**Fig. 1.3** Self-confidence as a recipe for success: FC Bayern and its “Mia san mia” mentality. (© Ulrich Wagner/Wagner/picture alliance)

To describe this effect, the recently deceased re-owned American social psychologist Albert Bandura, one of the greats in his field, created the term “self-efficacy” in the 1990s, which still has a firm place in the psychology of competitive sports. A player has a high level of self-efficacy if he is firmly convinced that his skills, his special and hard training, his knowledge of the opponent, his experience and other qualities will enable him to put in a good performance, to take advantage of the next scoring opportunity or to combat a striker so skilfully for 90 min that he cannot create any danger. While the more general term self-confidence tends to describe a fundamental belief in one’s own ability to successfully accomplish a wide variety of tasks, the term self-efficacy describes the belief that one can develop very specific potential. For example, there are soccer players who have the most incredible confidence in themselves on the pitch, they have a high level of self-efficacy, while in the TV interview afterwards they appear shy and insecure—their general self-confidence is less pronounced.

In the meantime, numerous studies have shown that a high level of self-efficacy makes a significant contribution to successfully completing upcoming tasks. And in soccer, of course, there is also the team, in which a kind of collective self-efficacy can develop: the common belief, shared by everyone, that the team has realistic possibilities of being successful. The decisive factor here is that the players are convinced that they can function

as a unit, and that they believe that strength emerges from the totality of their abilities that holds out the prospect of very good chances of success.

Before this state is reached, however, considerably more complex processes are required than simply spouting optimism. And even general self-confidence alone is not enough. A very precisely conducted study with American wrestlers from the 1990s made the mechanisms behind strong self-efficacy visible.

During most of the matches that were analyzed in a first step, training condition or fundamental differences that were already apparent in earlier matches were much more useful for predicting tournament results than the self-efficacy of the individual wrestler. Applied to soccer, this means that if Manchester City plays Fulham FC, Manchester is most likely to win because of fundamental differences in quality. In that case, it helps if the underdog's players build up a great deal of self-efficacy, but that will at best be enough to make an unlikely sensation a bit more likely.

The situation is different when similarly strong teams or even wrestlers fight each other. The authors of the study therefore explicitly looked at the matches with overtime, i.e. "wrestling stoppage time", in the course of which a decision must be reached. In these duels, the wrestlers were roughly equal in strength, otherwise there would have been a winner already at the end of regular fighting time. And in exactly these fights between two equal teams—or wrestlers in this case—the head played a decisive role. The winners are likely to be those athletes who ascribe to themselves a high degree of self-efficacy, who are firmly convinced that they have the means and opportunities to decide the match in their favor. The question of how such self-efficacy can be generated is now exciting, and there are many well-founded findings on this as well.

The most important factor is a repertoire of authentic experiences and adventures that have shown very concretely that one's own resources and ability have contributed to victory. Based on this knowledge, Matthias Sammer, during his time as sports director at the German Football Association, always took the stance—which was sometimes controversial—that youth selection teams should win titles at all costs so that later, as adults, they could draw on these experiences in the decisive moments in the semifinals of a World Cup or in a major Champions League match. Previously, people shied away from burdening teenagers with overly high expectations, saying: Success is not so important, after all, it's about training.

To this day, the coaches of the junior selection teams sometimes have to fight against resistance to be allowed to nominate the best players for

tournaments. This was the case at the 2021 Olympic Games in Tokyo, where many clubs did not give their talents the go-ahead to take part in the tournament. For them, it was more important that the players took part in the preparation for the league season. German U21 coach Stefan Kuntz had to deal with a particularly depleted squad, and his team had no chance. At clubs, U19 players are often brought up to the pros to fill the back of the squad instead of seeing final games in the Youth League, Junior Bundesliga or Cup with their peers. Even in the senior national team, there have been groups of players who could have participated in tournaments with the U21s as leaders, but instead sat on the bench in the senior national team and were thus deprived of valuable title experience.

But there is a second source of great self-efficacy: physiological, physical states that give athletes a sense of superiority. It is possible that one secret of home field advantage is that teams secrete increased doses of the sex hormone testosterone in front of their own crowd, in response to the feeling of having to defend their own territory. Testosterone increases aggressiveness and the desire to dominate, thus increasing the willingness to exert effort and, in the end, the belief in one's own superiority. The many people in the soccer business who claim that doping in soccer is not really helpful must realize, at the latest against the background of this finding, that the seductive power of banned substances in this sport must be enormous.

However, comparable self-efficacy effects can also be achieved through challenging training, through exercises that are not just about improving one's own physical condition, but also about experiencing previously unknown personal physical strengths. The training methods of legendary coach Felix Magath, who won the German championship a total of three times with FC Bayern Munich and VfL Wolfsburg, could be an example of this effect. The controversial soccer teacher always brought his teams into excellent physical condition, the players felt this physically and developed a special confidence in their own strengths. However, in order to create quite sustainable positive effects lasting for several months, it requires the team's willingness to surrender to such methods, otherwise resistance to the coach may be built up quite soon. In this case, the positive effect of self-efficacy threatens to fizzle out quickly because the energy generated is used to work against the trainer's measures.

The experience that one's own abilities are superior to those of the opponent and the knowledge of one's own physical condition are thus important sources for the development of self-efficacy, but group cohesion can also generate such effects. However, this factor is difficult to control and often

only really comes to fruition under the influence of the irresistible force of success. A convincing trainer's work and approach or, at times, vicarious experiences, such as examples from other teams in the same situation ("Others also prevented relegation in this situation.") can also promote belief in one's own strength. However, the most important source of self-efficacy is previous experience and the knowledge of having the necessary means for success.

Now, it stands to reason to assume that teams with a high level of self-efficacy have the best prerequisites for entering what is known as a "positive run", an upward spiral. After all, previous positive experiences are available here, which should have a favorable influence on self-efficacy. But as you can read in Sect. 5.2, this form of statistical series does not exist, as physics professor, Andreas Heuer from Münster in Germany has found out. Although we can assume that self-efficacy is quite certainly increased when one hits or wins several times in a row, this does not necessarily lead to a series of exclusively winning games. The only thing that can be proven is the downward spiral, the so-called negative run, as Heuer has shown us. At this point, a particular problem with self-efficacy usually comes into play: once teams are caught in such a vortex, it is very difficult for them to break free again. The probability of losing the next time after a series of defeats is actually higher than if they had won before.

It is easy to understand that soccer players suffer from self-doubt after many defeats, but in most cases, such crisis-like crashes are based on earlier mistakes in the club. Often, the team failed to build strong group cohesion or to establish solid trust in the coach and his methods. These are fundamentals that can stand up in defeat. When the downward spiral begins, it is usually already too late.

However, a high level of self-efficacy on the part of the players and belief in one's own work, provided it is realistic, offer a thoroughly high level of protection against crashes—even if there are, of course, no guarantees. At least as long as the team does not lose its most important forces due to other reasons, such as extraordinary bad luck with injuries.

### 1.3 First Match Away? No Matter!

For years, the same phrases were trotted out when the traveling club representatives commented on the results of the European Cup draws at UEFA's noble headquarters in Nyon, Switzerland. "Of course we would have liked

to play away first,” said BVB Dortmunds official Lars Ricken in the spring of 2013 after Borussia Dortmund was drawn to face Real Madrid in the Champions League semifinals. The belief that it is an advantage to first play away from home in order to then be able to turn around a possible first-game defeat in front of a home crowd is widespread. Even the regulations take this assumption into account: The group winners of the Champions League preliminary round are rewarded by being “allowed” to play away first in the round of 16. Added to this was the rule, introduced in 1965 but abolished in 2021, that in the event of draws in the first and second game, away goals counted double. During this period, teams could gain a particularly favorable starting position by scoring one or two goals in an away game played first, or so the belief went.

The course of the above-mentioned duel, however, then told a completely different story. The BVB won its home match 4:1 and traveled to Madrid so confidently after this success that the team ended up entering the final quite confidently. And in the other semifinal, Bayern Munich dismantled FC Barcelona first at home and then a week later away, while Schalke 04, the third German Champions League participant that year, was knocked out of the competition by a 3–2 loss at home to Galatasaray Istanbul after what was actually a respectable 1–1 draw in the round of 16 first game. Were these games really just a strange twist of fate? Or is the supposed advantage of playing away first actually overestimated?

At first glance, the statistics seem to confirm Lars Ricken and all the others who prefer to play at home in the second game. The study examined a total of 152 round of 16, quarterfinal and semifinal pairings in the Champions League from the 1994/95 season to the summer of 2010. And indeed, 85 winners of these 152 duels had home rights in the second game, meaning that 56 percent of those teams that first made the away trip reached the next round. So the advantage seems to be demonstrable.

But these calculations do not take into account the fact that in the round of 16 first games, the clubs that finished the group stage top of the table automatically play away first. As a rule, these are the teams with the strongest quality in the respective Champions League season. As soon as the statistics are cleared of these games, there is no longer any discernible advantage and the probability of advancing one round drop to exactly 50 percent for the team that plays away first. If only the quarterfinals and semifinals are compared, where the draw alone decides the location of the first game, there are no longer any differences, so it is statistically irrelevant whether the first match is played at home or away.