



The Role of Fighting Style in UFC Match Outcomes

Team Sawyer-n-them

Topic & Motivation

We study how different fighting styles in the Ultimate Fighting Championship (UFC) influence fight outcomes and betting expectations. By combining detailed fight statistics with historical betting odds, this project examines whether stylistic differences between fighters help explain who wins and whether betting markets fully account for these differences.

Why UFC fighting styles?

- The UFC provides a rich setting where athletes specialize in different disciplines (e.g., striking, grappling, balanced skill sets), allowing for clear comparisons across styles.
- Fight outcomes are influenced not only by physical ability, but also by **strategy, matchup dynamics, and skill specialization**, making style an important factor.
- The availability of both performance data and betting odds enables analysis of whether **market expectations align with actual outcomes**.

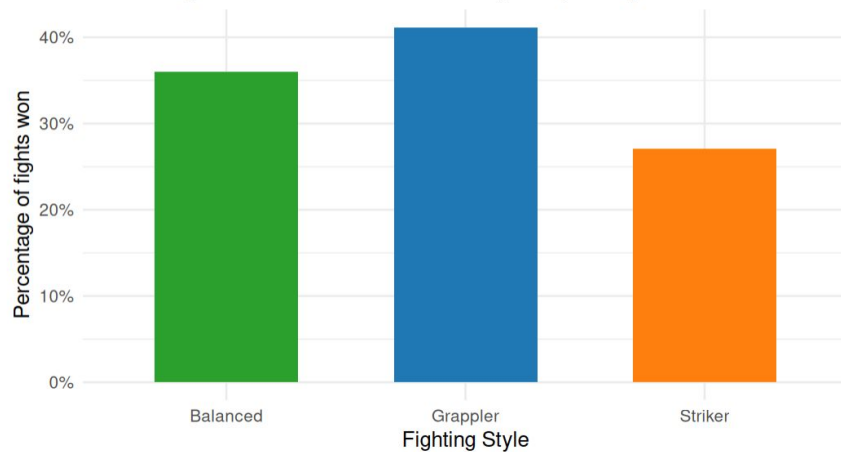
Research Questions:

- Do certain fighting styles (e.g., grappler, striker, balanced) have higher win probabilities?
- Do stylistic matchups (e.g., grappler vs striker) systematically affect fight outcomes?
- Are there differences between **implied probabilities from betting odds** and **actual win rates** across fighting styles?
- Does fighting style provide predictive information that is not fully captured by betting markets?

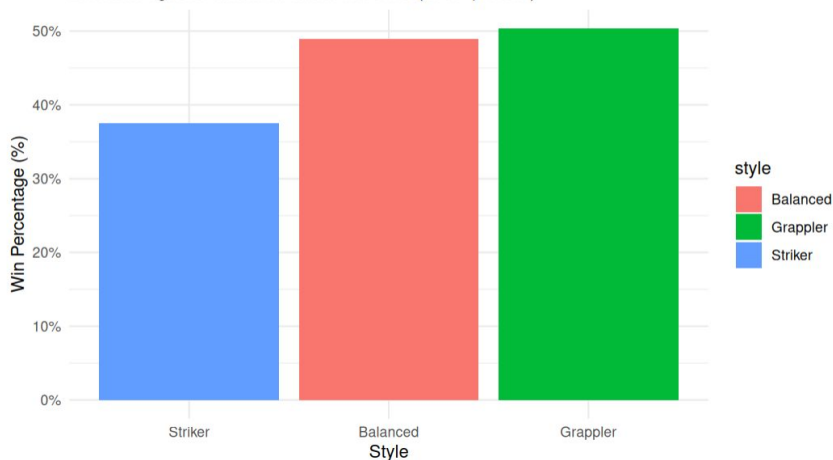
Data

- We use two datasets scraped from publicly available UFC sources, including fight statistics from **ufcstats.com** and historical betting odds, covering the period **2016–present**, with a total of **fight observations after merging datasets, including both fighting styles and odds**.
- Each observation corresponds to a **single UFC fight**, including both fighters' performance statistics and the fight outcome.
- **Key variables include:**
fighting style (*style*), winner (*winner_id / win_1*), betting odds (*odds_1, odds_2*), and fighter names (*r_name, b_name, fighter_1, fighter_2*).
- We construct fighter-level performance measures such as:
-> *sig_att_per_min, td_att_per_15, sub_att_per_15, dist_share, clinch_share, and ground_share*.
- Using these statistics, we classify fighters into three styles:
Grapppler, **Striker**, and **Balanced**, based on thresholds in takedowns, submissions, and striking distribution.
- We also compute **win percentage (*win_pct*)**, total fights, and total wins for each fighter, and merge this information with betting odds to create matchup-level variables such as:
-> *style_matchup, win_pct_diff*, and implied probabilities (*implied_prob_1, implied_prob_2*) derived from betting odds.

Percentage of fights won by each fighting style
Based on fighters' historical career win rates (2016–present)



Win Percentage by Fighting Style
Based on fighters' historical career win rates (2016–present)

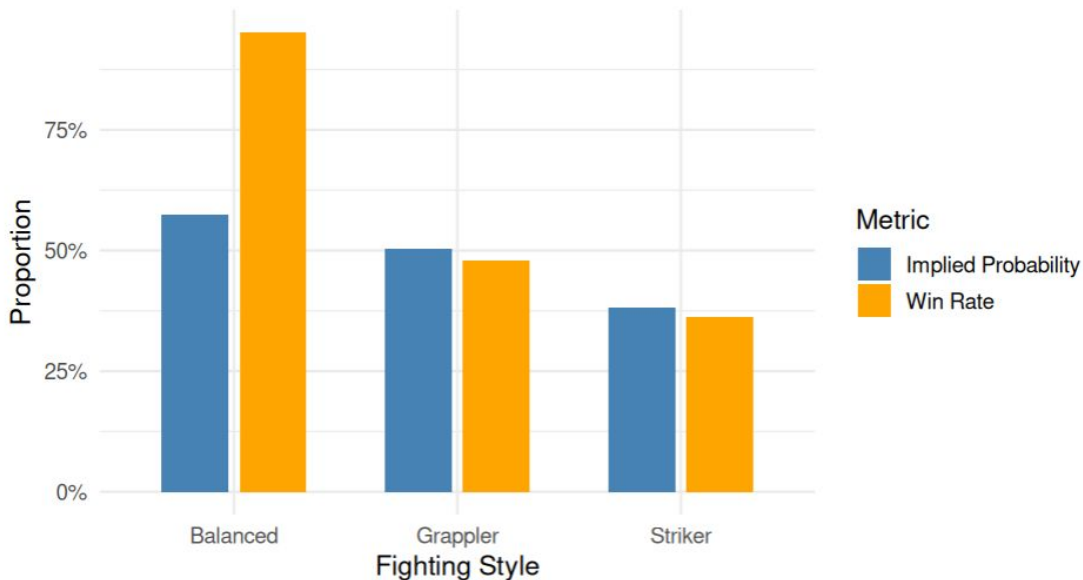


Key Insights

- **Grapplers win the highest percentage of fights overall**
 - Suggests grappling-based strategies are highly effective in match outcomes
 - Likely reflects control, takedowns, and submission threats
- **Balanced fighters have moderate win rates**
 - Perform better than strikers, but below grapplers
 - Indicates versatility provides consistent outcomes
- **Strikers win the lowest percentage of fights**
 - Lower success compared to other styles
 - Suggests striking-heavy approaches may be less reliable overall

Win Rate vs Implied Probability by Fighting Style

Actual fight outcomes compared with market-implied win probabilities



Balanced fighters strongly outperform expectations

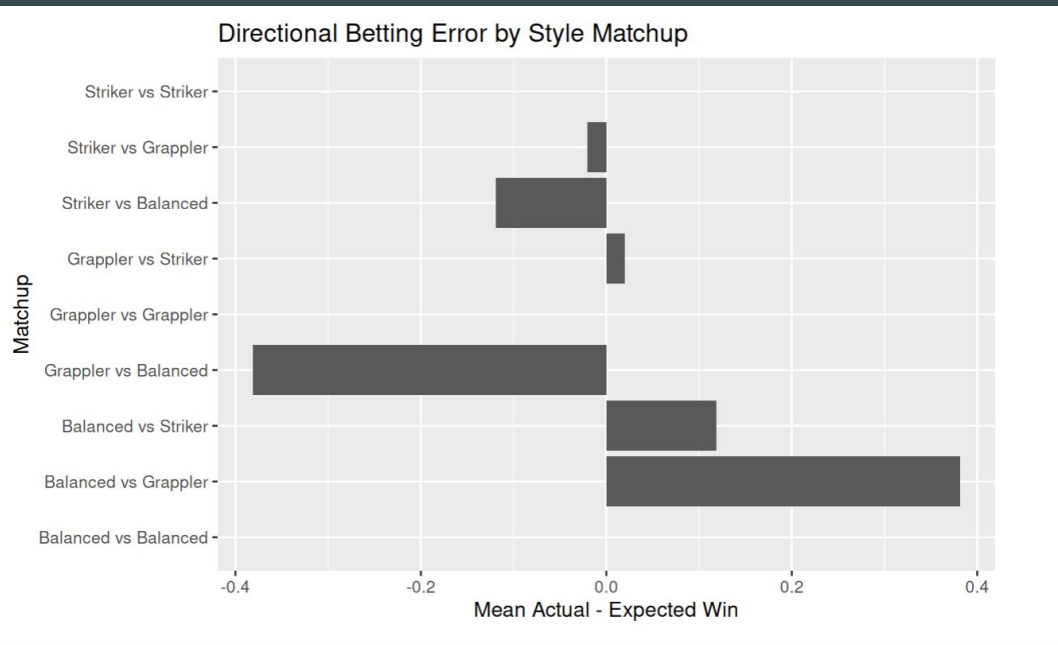
- Actual win rate is much higher than implied probability
- Suggests potential undervaluation in betting markets

Grapplers perform somewhat close to market expectations

- Win rate aligns closely with implied probabilities, with marginal differences
- Indicates betting markets price grapplers relatively efficiently, only with slight overvaluation

Strikers slightly underperform expectations

- Actual win rates fall below implied probabilities
- May suggest slight overvaluation of striking-focused fighters



Markets are relatively efficient in symmetric matchups

- Striker vs striker and grappler vs grappler near zero
- Indicates pricing works better when styles are similar

Balanced fighters are consistently undervalued

- Strong positive errors vs both **strikers and grapplers**
- Markets systematically underestimate balanced fighters

Grapplers vs Balanced is the biggest inefficiency

- Large negative error → grapplers heavily overvalued in this matchup
- Balanced fighters win far more than expected

Conclusions, Discussion, and Critique

Do fighting styles affect UFC match outcomes and betting expectations?

Fighting style matters for performance:

- Grapplers have the highest average win rates
 - Strikers have the lowest win rates
- Balanced fighters perform moderately well

Differences between expected vs actual outcomes:

- Balanced fighters **outperform betting expectations**
- Grapplers are somewhat **accurately priced by markets**
 - Strikers **slightly underperform expectations**

What are some possible limitations? Here is our critique regarding about our work:

- The analysis relies on **simplified style classifications** which might lead to the fighting style classification as “subjective”, is **limited to data from 2016-present**, and **identifies correlations rather than pure causal relationships**.