

Fashion Under the Microscope:
Sentiment Trends and Designer Performance from 2018-2024

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1. Introduction

In the world of designer fashion, critical reception plays a major role in shaping the reputation of various designers and their overall success. This project aims to dive deeper into this by performing sentiment analysis on fashion show reviews from Women's Wear Daily (WWD) in order to answer this research question: how do critical receptions of top fashion designers differ, and how have these perceptions evolved over time based on sentiment analysis of fashion show reviews?

2. Related Works

While there is minimal outside work done on the topic of sentiment analysis within the realm of high fashion, a Medium article by Kiitan Olabiya titled, "Data4Fashion: What Can Sentiment Analysis Tell Us About Fashion Weeks?" touches on the topic. In the article, Olabiya outlines "...keywords used in the 2019 Fall/Winter Fashion Week (by city) through social network analysis." Olabiya shares various metrics such as "frequently mentioned keywords", their frequency, "items with the most attention", among other data.

City	Date	Frequently mentioned keywords	Freq	Keywords from item grouping	Other keywords	Most influential brands	Items with the most attention	Important Themes
Paris	Feb. 25–March 5, 2019	Chanel Tommy Hilfiger Saint Laurent Zendaya Coleman Dior Gigi Hadid Balmain street fashion Miu Miu Off-White	814 681 375 360 328 253 224 217 207 203	"double denim," "sweat shirt," "lace bra," "teddy bear coat," "fur coat," "lace skirt," "leather jacket," "micro bag," "boyfriend blazer," "trench coat," "bucket hat," and "boiler suit	"fave style," "fashion blogger," and "mix and match,"	Off-White, Chanel, and Chloe	"micro bag," "leather jacket," and "black dress"	"art deco," "glam rock," "sustainable," and "feminine"

Figure 1: Olabiya's results for Paris Fashion Week 2019

Olabiya's project is not entirely similar to this project in methodology, however, this project builds on the idea of dissecting text to extract meaningful insights, but instead of social media content, it delves into professional critiques published on Women's Wear Daily. This shift to a more curated source of reviews provides a unique perspective on designer reception, potentially offering a better understanding of industry trends and public sentiment.

3. Methodology

The first step to sentiment analysis was to collect each individual review from all eight designers. The selection of the eight designers for this analysis was informed by a combination of personal familiarity with the designers and their widespread recognition within the designer fashion industry. The eight designers chosen were: Louis Vuitton, Gucci, Hermes, Chanel, Bottega Veneta, Dior, Balenciaga, and Saint Laurent.



Figures 2-9: Each designer's corresponding logo

For each designer, 14 reviews were collected. Each designer's Spring/Summer (SS) and Fall/Winter (FW) collection reviews from 2018 to 2024 were collected, for a total of 112 reviews (with two missing reviews from WWD's website being Bottega Veneta's SS19 collection, due to it being canceled, and their FW21 collection for unknown reasons). The shows collected were women's shows, while some were unisex/had both men and women models featured. None of the shows collected were strictly men's collections. Each review was copied and pasted as plain text into individual .txt files labeled with the corresponding abbreviated designer, season, and year.

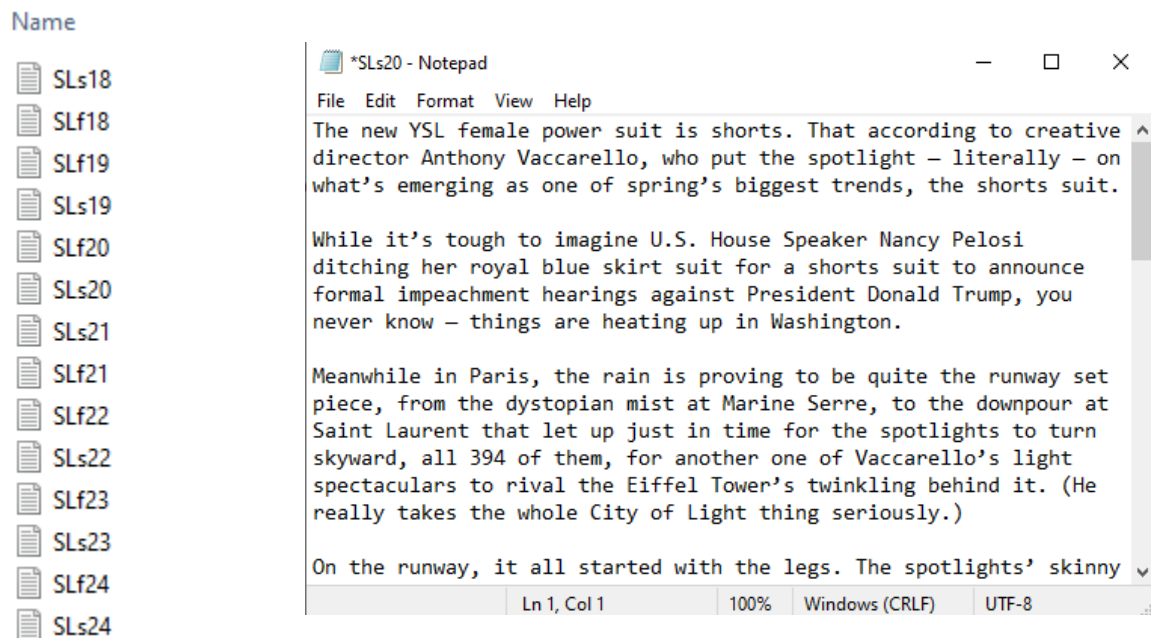


Figure 10 (left): Saint Laurent's WWD reviews from 2018 to 2024 in .txt format

Figure 11 (right): An example Saint Laurent review in plain text

Next, all of the reviews collected were transferred to a JupyterLab Notebook. Within the notebook, a script to perform sentiment analysis on .txt files lay. First, the individual .txt file would be loaded into the script as such:

```
# Read in text file
text = open("BVf24.txt").read()
# Replace line breaks with spaces
text = text.replace('\n', ' ')
```

Figure 12: A screenshot of the text reading function in the script (Walsh)

The next step was to break the text into sentences and perform a VADER sentiment analysis on each sentence.

```
# Break text into sentences
sentences = nltk.sent_tokenize(text)

# Make empty list
sentence_scores = []
# Get each sentence and sentence number, which is what enumerate does
for number, sentence in enumerate(sentences):
    # Use VADER to calculate sentiment
    scores = sentimentAnalyser.polarity_scores(sentence)
    # Make dictionary and append it to the previously empty list
    sentence_scores.append({'sentence': sentence, 'sentence_number': number+1, 'sentiment_score': scores['compound']})
```

Figure 13: A screenshot of the sentiment analysis function (Walsh)

Finally, a function to calculate each review's average sentiment score was performed.

```
total_sentiment_score = 0

for number, sentence in enumerate(sentences):
    # Calculate sentiment score
    scores = sentimentAnalyser.polarity_scores(sentence)
    # Append the score to the list
    sentence_scores.append({'sentence': sentence, 'sentence_number': number + 1, 'sentiment_score': scores['compound']})

    # Add to total sentiment score
    total_sentiment_score += scores['compound']

# Calculate the average sentiment score
average_sentiment_score = total_sentiment_score / len(sentences)

print("Average Sentiment Score:", average_sentiment_score)

Average Sentiment Score: 0.19670625
```

Figure 14: A screenshot of the average sentiment score function

Each average sentiment score was pasted into a Microsoft Excel spreadsheet for clarity and further data analysis.

	A	B	C	D	E	F	G	H	I
1		Louis Vuitton	Bottega Veneta	Gucci	Hermès	Balenciaga	Dior	Chanel	Saint Laurent
2	SS18	0.32503	0.25459	0.25324	0.18287	0.23929	0.27487	0.30901	0.36857
3	FW18	0.1342	0.23001	0.23165	0.19442	0.16878	0.17995	0.20265	0.22854
4	SS19	0.05913		0.3382	0.26606	0.18911	0.1523	0.24308	0.32377
5	FW19	0.28755	0.14883	0.0478	0.46433	0.28316	0.29524	0.24481	0.14832
6	SS20	0.19517	0.24522	0.24658	0.26355	0.1845	0.2256	0.17188	0.20166
7	FW20	0.1469	0.2087	0.32463	0.29762	0.12178	0.10346	0.10064	0.13779
8	SS21	0.27215	0.28775	0.22598	0.13438	0.26724	0.14482	0.21984	0.34131
9	FW21	0.44291		0.28302	0.22983	0.34868	0.13755	0.28344	0.2716
10	SS22	0.21511	0.23735	0.45998	0.40749	0.16538	0.24938	0.18158	0.35981
11	FW22	0.20415	0.32768	0.17102	0.18289	-0.0291	0.28023	0.11018	0.35815
12	SS23	0.21026	0.32581	0.22948	0.25607	-0.0152	0.24299	0.20437	0.34724
13	FW23	0.2245	0.21801	0.19279	0.20481	0.17716	0.19177	0.15329	0.23333
14	SS24	0.08695	0.25444	0.28277	0.3201	0.13207	0.14367	0.24895	0.20421
15	FW24	0.15851	0.12034	0.26588	0.19204	0.22204	0.17796	0.24563	0.19671

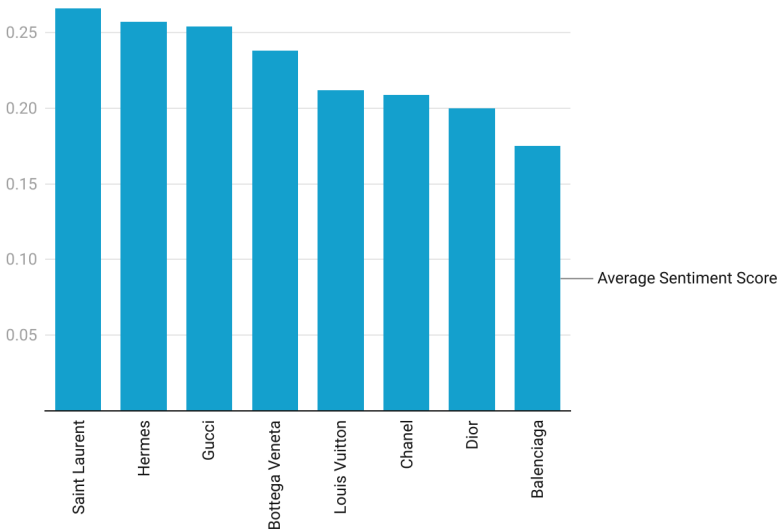
Figure 15: A screenshot of the Excel spreadsheet used

Finally, a Python script was used to calculate the total average sentiment score for each designer. The excel spreadsheet was then downloaded as a Comma-Separated Value (CSV) file and pasted into Datawrapper to create a visualization.

4. Results

Two visualizations were created after collecting all the results. The first visualization represents each designer's average sentiment score, sorted from highest to lowest.

Average Sentiment Scores per Designer, 2018-2024

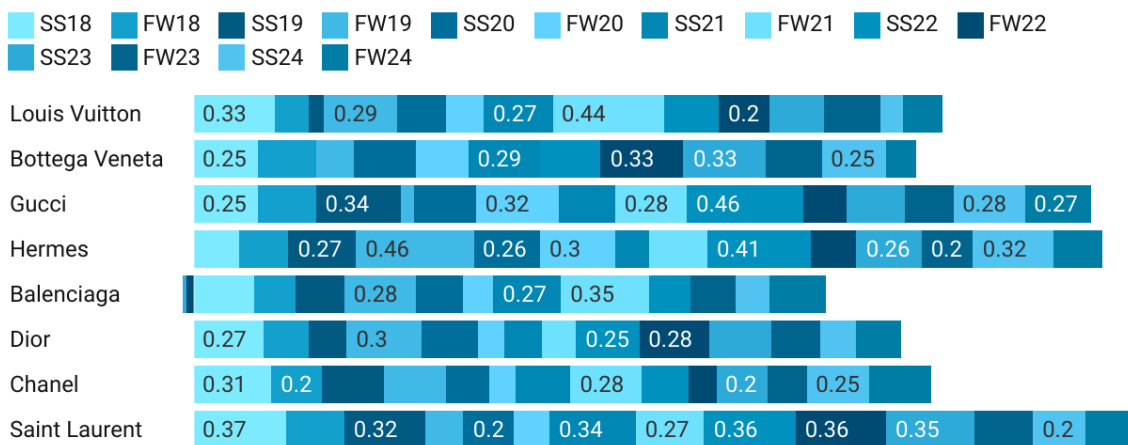


Created with Datawrapper

Figure 16: A stacked column visualization outlining each designer's average sentiment score

The second visualization created was a stacked bar graph which breaks each designer up by season and highlights each individual season's average sentiment score.

Analyzing WWD Reviews of Fashion Designers, 2018-2024



Created with Datawrapper

Figure 17: A stacked bar graph containing each designer's average sentiment score from their SS18 to FW24 collections

5. Discussion

After analyzing the data, it was found that the designer with the highest average sentiment score was Saint Laurent with a score of 0.266 (rounded to 3 decimal places). The designer with the lowest score was Balenciaga with a score of 0.175. Interestingly, as seen on the left side of the stacked bar graph visualization, Balenciaga was the only designer to have a review with a negative average sentiment score with both their FW22 and SS23 collection being negative (-0.029 and -0.015 respectively). This makes sense, however, due to the fact that at the time of November 2022, Balenciaga released a holiday campaign ad with children holding teddy bears in bondage costumes stirring a massive controversy. As seen in the second visualization, Balenciaga's average sentiment scores steadily increased in the seasons following their controversy. Balenciaga's latest collection (FW24) scored fifth out of all of their past collections (from SS18).

The designer with the highest sentiment score for a single review was Hermes's FW19 collection with a score of 0.464. In terms of total mean score, Bottega Veneta placed fourth against all eight designers despite missing two seasons. Bottega Veneta came in sixth place in terms of total sentiment score as seen in the stacked bar graph visualization above.

Regarding COVID-19 and its effect on the designer fashion industry, it can be seen in the stacked bar graph that the bottom four designers (Balenciaga, Dior, Chanel, and Saint Laurent) all saw a decrease in score from their SS20 to their FW20 collection. This could be a result of the WWD reviewers writing more negatively due to the global pandemic and the situation as a

whole, or it could be due to the designers putting out a poorer quality collection due to the same reasons, or a mix of causes. The next season immediately after (SS21), all four of the mentioned designers all saw an increase in average sentiment score. This could be due to both the reviewers and designers adjusting to life in lockdown, or them having a more positive overall outlook on life in the pandemic.

6. Conclusion

In conclusion, this study has provided a detailed analysis of sentiment trends among eight prominent fashion designers from 2018 to 2024, using sentiment analysis on fashion show reviews sourced from Women's Wear Daily (WWD). The findings reveal the connection between outside events and fashion shows/reviews, highlighted by the impact of COVID-19. Saint Laurent consistently received favorable reviews, highlighting its enduring appeal, while Balenciaga experienced the lowest average sentiment scores potentially due to external controversies, although a following increase in sentiment scores may suggest a rebound in critical reception. Hermes had the highest average sentiment score for a single season being their FW19 collection.

Moving forward, this study may enhance academic resources by providing a quantitative analysis that adds a deeper understanding of fashion criticism and runway shows. Future research could expand these analyses to include more designers or different types of fashion reviews, further broadening the scope of understanding in fashion.

Bibliography

Olabiya, Kiitan. "Data4Fashion: What Can Sentiment Analysis Tell Us about Fashion Weeks?"

Medium, August 28, 2023.

<https://medium.com/data4fashion/data4fashion-what-can-sentiment-analysis-tell-us-about-fashion-weeks-c741d3f44df>.

Walsh, Melanie. "Sentiment Analysis." Sentiment Analysis - Introduction to Cultural Analytics & Python. Accessed June 4, 2024.

<https://melaniewalsh.github.io/Intro-Cultural-Analytics/05-Text-Analysis/04-Sentiment-Analysis.html>.

WWD Review Data Collection Links

<https://wwd.com/runway/spring-ready-to-wear-2018/paris/louis-vuitton/review/>

<https://wwd.com/runway/fall-ready-to-wear-2018/paris/louis-vuitton/review/>

<https://wwd.com/runway/fall-ready-to-wear-2019/paris/louis-vuitton/review/>

<https://wwd.com/runway/spring-ready-to-wear-2019/paris/louis-vuitton/review/>

<https://wwd.com/runway/spring-ready-to-wear-2020/paris/louis-vuitton/review/>

<https://wwd.com/runway/fall-ready-to-wear-2020/paris/louis-vuitton/review/>

<https://wwd.com/runway/fall-ready-to-wear-2021/paris/louis-vuitton/review/>

<https://wwd.com/runway/spring-ready-to-wear-2021/paris/louis-vuitton/review/>

<https://wwd.com/runway/fall-2022/paris/louis-vuitton/review/>

<https://wwd.com/runway/spring-2022/paris/louis-vuitton/review/>

<https://wwd.com/runway/spring-2023/paris/louis-vuitton/review/>

<https://wwd.com/runway/fall-2023/paris/louis-vuitton/review/>

<https://wwd.com/runway/fall-2024/paris/louis-vuitton/review/>

<https://wwd.com/runway/spring-2024/paris/louis-vuitton/review/>

<https://wwd.com/runway/fall-ready-to-wear-2018/new-york/bottega-veneta/review/>

<https://wwd.com/runway/spring-ready-to-wear-2018/milan/bottega-veneta/review/>

<https://wwd.com/runway/fall-ready-to-wear-2019/milan/bottega-veneta/review/>

<https://wwd.com/runway/fall-ready-to-wear-2020/milan/bottega-veneta/review/>

<https://wwd.com/runway/spring-ready-to-wear-2020/milan/bottega-veneta/review/>

<https://wwd.com/runway/spring-ready-to-wear-2021/london/bottega-veneta/review/>

<https://wwd.com/runway/fall-2022/milan/bottega-veneta/review/>

<https://wwd.com/runway/spring-2022/all/bottega-veneta/review/>

<https://wwd.com/runway/fall-2023/milan/bottega-veneta/review/>

<https://wwd.com/runway/spring-2023/milan/bottega-veneta/review/>

<https://wwd.com/runway/fall-2024/milan/bottega-veneta/review/>

<https://wwd.com/runway/spring-2024/milan/bottega-veneta/review/>

<https://wwd.com/runway/fall-ready-to-wear-2018/milan/gucci/review/>

<https://wwd.com/runway/spring-ready-to-wear-2018/milan/gucci/review/>

<https://wwd.com/runway/fall-ready-to-wear-2019/milan/gucci/review/>

<https://wwd.com/runway/spring-ready-to-wear-2019/paris/gucci/review/>

<https://wwd.com/runway/spring-ready-to-wear-2020/milan/gucci/review/>

<https://wwd.com/runway/fall-ready-to-wear-2020/milan/gucci/review/>

<https://wwd.com/runway/fall-ready-to-wear-2021/milan/gucci/review/>

<https://wwd.com/runway/spring-ready-to-wear-2021/milan/gucci/review/>

<https://wwd.com/runway/fall-2022/milan/gucci/review/>

<https://wwd.com/runway/spring-2022/los-angeles/gucci/review/>

<https://wwd.com/runway/fall-2023/milan/gucci/review/>

<https://wwd.com/runway/spring-2023/milan/gucci/review/>

<https://wwd.com/runway/fall-2024/milan/gucci/review/>

<https://wwd.com/runway/spring-2024/milan/gucci/review/>

<https://wwd.com/runway/spring-ready-to-wear-2018/paris/hermes/review/>

<https://wwd.com/runway/fall-ready-to-wear-2018/paris/hermes/review/>

<https://wwd.com/runway/spring-ready-to-wear-2019/paris/hermes/review/>

<https://wwd.com/runway/fall-ready-to-wear-2019/paris/hermes/review/>

<https://wwd.com/runway/fall-ready-to-wear-2020/paris/hermes/review/>

<https://wwd.com/runway/spring-ready-to-wear-2020/paris/hermes/review/>

<https://wwd.com/runway/spring-ready-to-wear-2021/paris/hermes/review/>

<https://wwd.com/runway/fall-ready-to-wear-2021/paris/hermes/review/>

<https://wwd.com/runway/fall-2022/paris/hermes/review/>

<https://wwd.com/runway/spring-2022/paris/hermes/review/>

<https://wwd.com/runway/fall-2023/paris/hermes/review/>

<https://wwd.com/runway/spring-2023/paris/hermes/review/>

<https://wwd.com/runway/fall-2024/paris/hermes/review/>

<https://wwd.com/runway/spring-2024/paris/hermes/review/>

<https://wwd.com/runway/fall-ready-to-wear-2018/paris/balenciaga/review/>

<https://wwd.com/runway/spring-ready-to-wear-2018/paris/balenciaga/review/>

<https://wwd.com/runway/fall-ready-to-wear-2019/paris/balenciaga/review/>

<https://wwd.com/runway/spring-ready-to-wear-2019/paris/balenciaga/review/>

<https://wwd.com/runway/spring-ready-to-wear-2020/paris/balenciaga/review/>

<https://wwd.com/runway/fall-ready-to-wear-2020/paris/balenciaga/review/>

<https://wwd.com/runway/fall-ready-to-wear-2021/paris/balenciaga/review/>

<https://wwd.com/runway/spring-ready-to-wear-2021/paris/balenciaga/review/>

<https://wwd.com/runway/fall-2022/paris/balenciaga/review/>

<https://wwd.com/runway/spring-2022/paris/balenciaga/review/>

<https://wwd.com/runway/fall-2023/paris/balenciaga/review/>

<https://wwd.com/runway/spring-2023/paris/balenciaga/review/>

<https://wwd.com/runway/fall-2024/paris/balenciaga/review/>

<https://wwd.com/runway/spring-2024/paris/balenciaga/review/>

<https://wwd.com/runway/fall-ready-to-wear-2018/paris/christian-dior/review/>

<https://wwd.com/runway/spring-ready-to-wear-2018/paris/christian-dior/review/>

<https://wwd.com/runway/fall-ready-to-wear-2019/paris/christian-dior/review/>

<https://wwd.com/runway/spring-ready-to-wear-2019/paris/christian-dior/review/>

<https://wwd.com/runway/spring-ready-to-wear-2020/paris/christian-dior/review/>

<https://wwd.com/runway/fall-ready-to-wear-2020/paris/christian-dior/review/>

<https://wwd.com/runway/spring-ready-to-wear-2021/paris/christian-dior/review/>

<https://wwd.com/runway/fall-ready-to-wear-2021/paris/christian-dior/review/>

<https://wwd.com/runway/spring-2022/paris/christian-dior/review/>

<https://wwd.com/runway/fall-2022/paris/christian-dior/review/>

<https://wwd.com/runway/fall-2023/paris/christian-dior/review/>

<https://wwd.com/runway/spring-2023/paris/christian-dior/review/>

<https://wwd.com/runway/fall-2024/paris/christian-dior/review/>

<https://wwd.com/runway/spring-2024/paris/christian-dior/review/>

<https://wwd.com/runway/fall-ready-to-wear-2018/paris/chanel/review/>

<https://wwd.com/runway/spring-ready-to-wear-2018/paris/chanel/review/>

<https://wwd.com/runway/spring-ready-to-wear-2019/paris/chanel/review/>

<https://wwd.com/runway/fall-ready-to-wear-2019/paris/chanel/review/>

<https://wwd.com/runway/fall-ready-to-wear-2020/paris/chanel/review/>

<https://wwd.com/runway/spring-ready-to-wear-2020/paris/chanel/review/>

<https://wwd.com/runway/fall-ready-to-wear-2021/paris/chanel/review/>

<https://wwd.com/runway/spring-ready-to-wear-2021/paris/chanel/review/>

<https://wwd.com/runway/spring-2022/paris/chanel/review/>

<https://wwd.com/runway/fall-2022/paris/chanel/review/>

<https://wwd.com/runway/spring-2023/paris/chanel/review/>

<https://wwd.com/runway/fall-2023/paris/chanel/review/>

<https://wwd.com/runway/fall-2024/paris/chanel/review/>

<https://wwd.com/runway/spring-2024/paris/chanel/review/>

<https://wwd.com/runway/spring-ready-to-wear-2018/paris/yves-saint-laurent/review/>

<https://wwd.com/runway/fall-ready-to-wear-2018/paris/yves-saint-laurent/review/>

<https://wwd.com/runway/fall-ready-to-wear-2019/paris/yves-saint-laurent/review/>

<https://wwd.com/runway/spring-ready-to-wear-2019/paris/yves-saint-laurent/review/>

<https://wwd.com/runway/fall-ready-to-wear-2020/paris/yves-saint-laurent/review/>

<https://wwd.com/runway/spring-ready-to-wear-2020/paris/yves-saint-laurent/review/>

<https://wwd.com/runway/spring-ready-to-wear-2021/paris/yves-saint-laurent/review/>

<https://wwd.com/runway/fall-ready-to-wear-2021/paris/yves-saint-laurent/review/>

<https://wwd.com/runway/fall-2022/paris/yves-saint-laurent/review/>

<https://wwd.com/runway/spring-2022/paris/yves-saint-laurent/review/>

<https://wwd.com/runway/fall-2023/paris/yves-saint-laurent/review/>

<https://wwd.com/runway/spring-2023/paris/yves-saint-laurent/review/>

<https://wwd.com/runway/fall-2024/paris/yves-saint-laurent/review/>

<https://wwd.com/runway/spring-2024/paris/yves-saint-laurent/review/>

