

## FREE—STYLE WRESTLING: MATCH ANALYSIS

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### INTRODUCTION

When changes of a technical nature are made to the playing regulations of a sport they are bound to have some impact on the specifics of the game. If the changes are significant enough and relate to the duration of play, it is conceivable that they could alter the physiological basis for success in that sport as well as effecting the technical/tactical aspect of the game.

Following the 1988 Olympic Games, the Federation International de Lutte Amateur (FILA) introduced rule changes that reduced the duration of the match to a one-five minute period from the previous two-three minute period format, with a one minute rest period in between. Other rule modifications presented were aimed at making the progress of the match more continuous and eliminate as many of the stoppages in play as possible. Once these rule changes were implemented, there was overwhelming consensus amongst coaches of amateur free-style wrestling that the rule changes would have an impact on the profile of free-style wrestling. Unfortunately, there was a considerable difference of opinion as to the specifics of the anticipated effects and more importantly, there was uncertainty as to whether or not these rule changes would have any effect on the technical/tactical actions of the wrestler.

In an effort to address some of the concerns expressed by wrestling coaches and to better understand how the International wrestling

community was responding to the rule changes, matches recorded on video tape at five major International wrestling competitions were analyzed to establish the degree of change in the profile of free-style wrestling as a consequence of reducing the duration of the match to a one-five minute period.

### REVIEW OF LITERATURE

A majority of the research literature related to wrestling technique has conventionally focused on description and instruction. Very little game analysis literature is available. However, it is quite apparent that game statistics can be successfully employed to determine which variables are more closely associated with success and failure (Arnold, 1983). A study by Maertz (1971) determined the relationship of outcomes of wrestling matches by establishing which contestant scored the first takedown. In a review of 1,465 matches it was found that in 75% of the matches the wrestler who scored the initial takedown went on to win the match. In a study by Dziedic (1979) conducted in response to proposed rule changes that would reduce the duration of the match from three-three minute periods to two-three minute periods, it was reported that the greatest amount of passivity action took place during the first period of play and the least amount during the final three minute period. It was suggested that the com-

petitors adopted this tactic as a means to conserve energy and be able to finish the match with a strong final effort.

In an investigation of leg takedowns (Russian Study, Circa, 1974) on five Soviet wrestlers between 1971 and 1973 it was reported that 2354 standing techniques were used; 500 of which were throws (21.2%), 247 were neutral (10.6%), i.e., no points were scored, and 1607 were takedowns other than throws (68.2%). Of the 62.8% of takedowns classified as other than throws, 50% of the techniques were recorded as being single leg or high crotch attacks. Also, it was reported that for each point scored, the wrestler made between five to ten attempts to score, before being successful. Ichiguchi (1981) analyzed wrestling technique from world championship matches and reported that the mean scoring for all matches was 11.78 for the winners and 2.54 for the loser. In dividing the weight categories into three groups – Light (48.52, 57 & 62 kg), Medium (68, 74 & 82 kg), and Heavy (90, 100 & 100+ kg), the highest mean score was found in the Light class (13.5 points) for the winners and lowest in the Heavy class (10 pts) for the winners. For all divisions, 38% of the matches were won by pin, 14% resulted in passivity disqualifications and 14% were won by superior decision (>12 pts). Additionally it was reported that only eight different standing techniques were used to score 91% of the points and that ground techniques accounted for only 16% of the points scored.

## RESEARCH DESIGN

Wrestling matches recorded on videotape from the 1987 World Free-Style Wrestling Championships and the 1988 Olympic games were used to establish a profile of amateur free-style wrestling under the two-three minute format. Matches contested at the 1989 World

Championships, European Championships and World Cup were analyzed to establish the wrestling profile as per the one-five minute format. All matches were analyzed by employing a menu driven computerized scouting package which was interfaced with a standard video cassette recorder (VCR). From beginning to end of each match whenever a technical action occurred the VCR was manually put into the pause mode and a series of questions were answered specific to the technical action that occurred.

## DEFINITION AND DESCRIPTION OF TERMS

**ATTEMPT TO SCORE;** a legitimate effort made by the attacking wrestler to score points with a specific technical action.

**TAKEDOWN:** Any action that takes the opponent from a standing neutral position to a position of control on the mat with the awarding of points being present.

**SINGLE LEG ATTACK:** An effort made by the attacking wrestler to gain control of the opponents' legs as a means to score the takedown. The attacking wrestler holds on to the leg with both arms and positions his head facing in, towards the opponents' midsection.

**HIGH CROTCH ATTACK:** An effort made by the attacking wrestler to gain control of one of the opponents' legs as a means to score the takedown. The attacking wrestler grasps the leg with both arms and positions his head facing out, away from the opponents' midsection.

**DOUBLE LEG ATTACK:** An effort made by the attacking wrestler to gain control of both legs of the opponent as a means to score the takedown.



RESULTS

The wrestling match profile produced under the two competitive formats revealed some interesting differences. The average number of points scored per match showed a decrease from 9.63 to 8.08 points. A difference of 1.55 points per match under the 1 x 5 minute format. The average number of points scored by the winning and losing wrestler also showed a decrease (refer to Table 1) under the 1 x 5 minute format. The total number of points scored in the first three minutes of play increased by 12% under the 1 x 5 minute format (60-72%). Only 10% of the points were scored in the final minute of play under the 2 x 3 minute format, whereas, under the 1 x 5 minute format nearly 18% of the total points were scored during the final minute.

In comparing the winning wrestler to the losing wrestler under the 1 x 5 minute format it was found that the winning wrestler scored 66 percent of his points in the first three minutes of play while the losing wrestler scored only 28% of his total points during that same time. A minor difference of only two percent was found in the number of points scored from the standing and ground wrestling position, as well as the percentage of points scored offensively versus defensively. Under the 2 x 3 minute format it was found that in 87% of the matches the wrestler who scored the first point was also the winner, whereas, under the 1 x 5 minute format an 82% success rate was found for the wrestler scoring the first point.

Minor differences were noted in the percentage of points scored via five, four, three, two and one point moves. Nearly fifty percent of the

Table 2. A Comparison of the Top 15 Most Often Used Standing Techniques Under the 2x3 Minute Format and the 1x5 Minute Format in 234 and 238 Matches, Respectively

FRONT		2x3 Minute				1x5 Minute				
No. of Matches		234				238				
Technique	Variable No. of Attempts	% of Total Attempts	No. of Successful Completions	% Success Rate	Average Points Scored	No. of Attempts	% of Total Attempts	No. of Successful Completions	% Success Rate	Average Points Scored
Single Leg	443	.27	266	.60	1.10	483	.28	280	.58	1.15
High Crotch	242	.14	140	.57	1.05	249	.14	145	.58	1.22
Double Leg	153	.09	93	.60	1.40	191	.11	115	.60	1.27
Front Headlock	96	.05	55	.57	1.32	73	.04	44	.60	1.63
Shoulder Throw	70	.04	13	.18	2.46	33	.02	7	.21	2.42
Duck Under	61	.04	45	.73	1.37	63	.04	45	.71	1.31
Hip Toss	52	.03	9	.17	2.55	36	.02	14	.39	2.78
Ankle Pick	28	.02	21	.75	1.19	25	.01	21	.84	1.28
Firemans Carry	23	.014	16	.69	2.12	19	.01	13	.68	2.07
Arm Spin	22	.013	1	.04	2.00	26	.01	9	.34	1.22
Olympic Lift	22	.013	13	.59	1.84	23	.01	16	.70	2.00
Under & Over Throw	21	.013	12	.57	2.25	24	.01	13	.54	1.84
Footsweep	12	.007	7	.58	1.00	13	.008	7	.53	1.85
Inside Trip	12	.007	9	.75	2.00	20	.01	11	.55	1.75
Bear Hug	11	.007	6	.54	1.66	14	.008	8	.57	2.00

total points scored employed two point moves, whereas, less than one percent of the points were scored by way of four or five point moves (refer to table 1).

It was found that the single leg attack (head to the inside) was used most frequently under both formats, representing approximately 28% of the total takedown attempts. A success rate of 60% was noted under the 2 x 3 minute format and 58% under the 1 x 5 minute format. The high crotch attack (head to the outside) was next on the frequency list representing 15% of

total takedown attempts under both formats and produced a success rate of 58%. The double leg attack demonstrated the third highest frequency and represented 10% of the total takedown attempts. A success rate of 60% was established. The three distinct leg attacks (single, double, and high crotch) accounted for nearly 53% of all the takedowns attempted. A total of twenty different takedown maneuvers were used to score points under both formats (refer to Table 2).

Table 3. Frequency List of the Top 9 Techniques Used in Par-Terre Wrestling in 234 Matches Contested Under the 2x3 Minute Format

Variable Technique	No. of Attempts	% of Total Attempts	No. of Successful Completions	% Success Rate	Average Points Scored
Gut Wrench	203	.30	146	.72	1.89
Cross-Ankle	124	.18	87	.70	1.81
Leg Ride	94	.14	52	.55	2.00
Reversal	68	.10	59	.86	1.16
Arm Bar	33	.05	16	.48	2.00
High Gut Wrench	21	.03	12	.57	2.00
Turk Ride	20	.03	11	.55	2.00
Half Nelson	11	.01	5	.45	2.00
Cradle	9	.01	6	.66	2.00

Frequency List of the Top 9 Techniques Used in Par-Terre Wrestling in 238 Matches Contested Under the 1x5 Minute Format

Variable Technique	No. of Attempts	% of Total Attempts	No. of Successful Completions	% Success Rate	Average Points Scored
Gut Wrench	175	.28	129	.74	1.90
Cross-Ankle	126	.20	84	.67	1.75
Leg Ride	84	.13	45	.54	2.00
Reversal	43	.07	39	.90	1.05
Half Nelson	24	.04	17	.71	1.76
High Gut Wrench	17	.03	12	.71	2.00
Turk Ride	15	.02	12	.80	1.83
Arm Bar	12	.02	9	.75	2.00
Cradle	4	.01	4	1.00	2.00

An analysis of technique selection employed during the final minute of play under the 1 x 5 minute format revealed that 97% of the attacks were to the legs; with the single leg attack showing the highest level of frequency and a success rate of 42%. It was also found that in matches where the final score differed by less than eight points, the winning wrestler had scored from the par-terre position in 76% of the matches, whereas, the losing wrestler had only scored in 24% of the matches. Furthermore, the winning wrestler recorded scoring with the gut wrench in 64% of the matches.

Takedown attempts that were of the throws origin represented 11% of all takedown attempts under the 2 x 3 minute format. The shoulder throw and hip toss accounted for 75% of the total actions and yielded a success rate of 18%. Under the 1 x 5 minute format, 8.1% of the total takedown attempts were of the throws origin with the hip toss and shoulder throw showing the greatest frequency (51% of total attempts) and yielded a success rate of 30%.

From the par-terre wrestling position the gut wrench and cross-ankle maneuver represented 48% of all the attempts made to score points and account for 52% of the total points scored in ground wrestling. Both maneuvers produced an approximate success rate of 70% under both formats of play. The leg ride technique was found to have the third highest level of frequency under both formats and represented approximately 15% of the total attempts made to score points. In comparing the winning wrestler to the losing wrestler under the 1 x 5 minute format it was found that the winning wrestler scored with the gut wrench technique in 87% of the matches and showed a success rate of 83%, whereas the losing wrestler successfully scored with the gut wrench technique in only 12% of the matches. The winning

wrestler attempted the cross-ankle technique in 58% of the matches and produced a success rate of 84%, whereas, the losing wrestler attempted the cross-ankle technique in only 5.6% of the matches and produced a success rate of 52% (refer to Table 3).

A "reversal" of position in par-terre wrestling was found to occur on the average of once in every four matches and produced an average score of 1.16 points.

An analysis of the top ten ranked countries in the world competing under the one-five minute format revealed that the Soviet Union (currently ranked number one in the world) scores the highest average number of points per match (8.90) and wins 88% of all its matches. As a group they produced a success/failure rate of 83% for the takedowns showing the highest level of frequency (single, double, and high crotch). In par-terre wrestling, the gut wrench and cross-ankle technique represented 49% of the Soviet wrestlers total attempts made to score and produced a success rates of 83.1% and 95.0%, respectively. They scored 78% of their total points in the first three minutes of play and only 6% in the final minute of play. They also produced the most balanced attack with 51% of their points being scored from the standing position and 49% scored from ground wrestling. Only seven percent of their takedown attempts were of the throw origin and a success rate of 95% was recorded. The Soviets won 91% of their matches when they scored the first point. (For a complete profile of the top ten countries refer to Table 4).

A per weight class analysis of the winning wrestler under the 1 x 5 minute format revealed that the lower weight categories scored a higher average number of points per match. The 52 kg class showed the highest point total at 11.16, followed by the 48 kg class with a point

Table 4. Profiles of the Top Ten Ranked Countries in the World Derived from 238 matches contested under the 1 x 5 minute Format by the Winning Wrestler

VARIABLE	COUNTRY RANKING									
	1 URS	2 USA	3 BUL	4 TUR	5 IRN	6 FRG	7 KOR	8 JPN	9 MGL	10 CAN
Percentage of matches won	.88	.78	.64	.50	.69	.50	.43	.45	.41	.36
Average number of points scored per match	8.90	8.06	5.26	7.47	7.11	7.60	7.66	7.33	8.00	7.88
Correlation of 1st point scored to winning the match	.91	.93	.90	.92	.93	.78	.50	.69	.86	.75
Percentage of points scored in:										
1st min.	.26	.20	.29	.08	.17	.22	.12	.22	.17	.22
2nd min.	.26	.23	.31	.22	.22	.18	.29	.16	.21	.24
3rd min.	.25	.22	.14	.27	.27	.25	.29	.22	.22	.21
4th min.	.19	.21	.10	.23	.18	.25	.19	.18	.18	.15
5th min.	.06	.12	.15	.20	.13	.08	.11	.18	.18	.17
6th min.	.01	.02	.01	.00	.03	.02	.00	.04	.04	.01
Point Scoring Ratio: <u>STANDING</u>	<u>51</u>	<u>68</u>	<u>60</u>	<u>68</u>	<u>62</u>	<u>58</u>	<u>55</u>	<u>82</u>	<u>93</u>	<u>55</u>
GROUND	49	32	40	32	38	42	45	18	7	45
Point Scoring Ratio: <u>OFFENSIVELY</u>	<u>87</u>	<u>88</u>	<u>85</u>	<u>88</u>	<u>87</u>	<u>84</u>	<u>92</u>	<u>75</u>	<u>79</u>	<u>81</u>
DEFENSIVELY	13	12	15	12	13	16	8	25	21	19
Percent of total Takedowns attempted										
being: Single Leg Attack	.32	.28	.37	.24	.30	.45	.27	.29	.27	.26
Double Leg Attacks	.06	.07	.13	.33	.20	.16	.13	.12	.06	.09
High Crotch Attacks	.16	.17	.09	.05	.19	.16	.13	.09	.06	.12
Success Rate of: Single Leg Attacks	.79	.60	.69	.66	.69	.59	.50	.60	.60	.25
Double Leg Attacks	.82	.57	.41	.80	.83	.87	.51	.58	.75	.55
High Crotch Attacks	.77	.74	.77	.57	.70	.37	.75	.20	.50	.48
Percent of total points scored by:										
- Single Leg	.14	.15	.33	.14	.15	.18	.12	.23	.26	.07
- Double Leg	.04	.03	.04	.06	.15	.14	.13	.10	.05	.05
- High Crotch	.07	.11	.07	.15	.12	.03	.24	.02	.09	.06
Percent of total Ground attacks being:										
- Gut Wrench	.28	.29	.20	.31	.33	.23	.62	.21	.50	.27
- Cross Ankle	.21	.16	.05	.40	.22	.19	.19	.10	.17	.22
Success rate of: Gut Wrench	.82	.71	.80	.80	.66	.80	.69	.16	.33	.69
Cross Ankle	.95	.43	.50	.77	.62	.75	.50	.22	.30	.79
Percent of Total Points scored with:										
- Gut Wrench	.13	.12	.09	.11	.11	.11	.04	.05	.03	.11
- Cross Ankle	.12	.02	.03	.12	.07	.07	.06	.01	.04	.09
Percentage of Matches in which the Gut Wrench was successfully used to score points:	.51	.42	.30	.42	.44	.40	.40	.28	.11	.61
Percentage of Matches in which the Cross Ankle was successfully used to score points:	.44	.15	.07	.52	.27	.30	.22	.12	.10	.57

Table 5. Weight Category Profiles of the Winning Wrestler Derived from 238 Matches Contested under the 1 x 5 minute format.

VARIABLE	WEIGHT (kg)									
	48	52	57	62	68	74	82	90	100	130
Average Number of Points Scored per Match	8.54	11.16	7.92	8.25	7.68	7.73	6.95	6.13	6.50	6.72
Correlation of Scoring 1st point to winning the Match	.75	.89	.75	.79	.76	.81	.85	.88	.93	.91
Percent of Points Scored in:										
1st min.	.21	.25	.22	.20	.12	.18	.25	.07	.20	.29
2nd min.	.27	.23	.21	.26	.23	.18	.23	.23	.28	.29
3rd min.	.21	.18	.19	.23	.24	.27	.22	.30	.24	.20
4th min.	.19	.19	.15	.20	.22	.20	.15	.24	.13	.12
5th min.	.12	.13	.19	.11	.17	.15	.12	.15	.12	.08
6th min.	.00	.02	.04	.00	.02	.02	.03	.01	.03	.02
Point Scoring Ratio: <u>STANDING</u>	<u>56</u>	<u>49</u>	<u>60</u>	<u>62</u>	<u>70</u>	<u>72</u>	<u>61</u>	<u>68</u>	<u>72</u>	<u>64</u>
<u>GROUND</u>	44	51	40	38	30	28	39	32	28	36
Point Scoring Ratio: <u>OFFENSIVELY</u>	<u>94</u>	<u>87</u>	<u>83</u>	<u>84</u>	<u>80</u>	<u>87</u>	<u>82</u>	<u>80</u>	<u>94</u>	<u>86</u>
<u>DEFENSIVELY</u>	6	13	17	16	20	13	18	20	6	14
TOP FOUR STANDING TECHNIQUES USED:										
1. <u>Technique</u>	<u>S</u>	<u>S</u>	<u>S</u>	<u>S</u>	<u>S</u>	<u>S</u>	<u>S</u>	<u>S</u>	<u>HC</u>	<u>S</u>
Success Rate	.69	.58	.65	.47	.47	.57	.59	.62	.64	.62
2. <u>Technique</u>	<u>HC</u>	<u>HC</u>	<u>D</u>	<u>HC</u>	<u>HC</u>	<u>D</u>	<u>HC</u>	<u>HC</u>	<u>S</u>	<u>D</u>
Success Rate	.73	.60	.68	.36	.64	.51	.58	.59	.57	.54
3. <u>Technique</u>	<u>D</u>	<u>D</u>	<u>HC</u>	<u>D</u>	<u>D</u>	<u>HC</u>	<u>D</u>	<u>D</u>	<u>DU</u>	<u>HC</u>
Success Rate	.84	.60	.50	.57	.55	.56	.62	.62	.83	.55
4. <u>Technique</u>	<u>FHA</u>	<u>FHA</u>	<u>FHA</u>	<u>DU</u>	<u>FHA</u>	<u>DU</u>	<u>FHA</u>	<u>AS</u>	<u>D</u>	<u>U/O</u>
Success Rate	.66	.67	.42	.85	.50	.73	.50	.33	.83	.57
TOP THREE GROUND TECHNIQUES USED:										
1. <u>Technique</u>	<u>G W</u>	<u>G W</u>	<u>G W</u>	<u>G W</u>	<u>G W</u>	<u>G W</u>	<u>G W</u>	<u>XA</u>	<u>XA</u>	<u>LR</u>
Success Rate	.94	.84	.75	.78	.54	.64	.65	.84	.33	.64
2. <u>Technique</u>	<u>XA</u>	<u>XA</u>	<u>XA</u>	<u>XA</u>	<u>XA</u>	<u>XA</u>	<u>XA</u>	<u>G W</u>	<u>G W</u>	<u>G W</u>
Success Rate	.67	.74	.50	.71	.61	.44	.68	.57	.83	.83
3. <u>Technique</u>	<u>LR</u>	<u>LR</u>	<u>LR</u>	<u>LR</u>	<u>LR</u>	<u>LR</u>	<u>LR</u>	<u>LR</u>	<u>LR</u>	<u>XA</u>
Success Rate	.44	.78	.50	.60	.37	.30	.46	.33	.66	.66
Names	<u>Symbols</u>									
Single Leg Attack	S									
Double Leg Attack	D									
High Crotch Attack	HC									
Duck Under Attack	DU									
Front Head & Arm	FHA									
Arm Spin	AS									
Under & Over Throw	U/O									
Gut Wrench	G W									
Cross Ankle	XA									
Leg Ride	LR									

total of 8.54. The 62 kg class ranked third with an average score of 8.25. The 90, 100 and 130 kg class scored the least number of points per match recording an average winning score of 6.13, 6.50 and 6.72, respectively. (For a complete weight class profile refer to Table 5).

### Discussion

The number of total points scored under the 1 x 5 minute format when compared to the 2 x 3 minute format showed a decrease of nearly 17%. This reduction is in keeping with the duration of play also being reduced by 17%. Of importance however, is the noted change in the number of points being scored in the first three minutes of play. As indicated in Table 1, an increase of 12% was found under the 1 x 5 minute format. This finding confirms one of the initial stated hypothesis that the wrestlers would attempt to score a large number of points in the early part of the match when they are not tired and then attempt to hang on for the win. This hypothesis is further reinforced by the individual country profiles. As evidenced in Table 4, the top two ranked countries in the world, namely the Soviet Union and Bulgaria, respectively, score 78% and 74% of their total match points in the first three minutes of play.

One of the most significant findings of this study is the high correlation between the first point scored in the match and the match outcome. As noted in Table 4, the top five ranked countries all had a correlation greater than .90. In earlier investigations when the playing regulations of the time stipulated that in the event of a tie score at the end of regulation time, the victory would go to the wrestler who scored the first point, a correlation of .75 was reported. The high correlation found in this study supports the hypothesis that the more successful

wrestlers will attempt to score first and thereby take control of the match from a psychological perspective as well as potentially forcing the opponent to abandon his game plan.

Another very significant finding is that of technique selection from both the standing and par-terre position. In the standing position the single, double leg, and high crotch attack have the highest frequency, respectively, and the highest success rate. In par-terre wrestling, the gut wrench and cross ankle have the highest frequency and success rate, respectively. This finding however, takes on greater significance when the individual country profiles are examined. As indicated in Table 4, in par-terre wrestling, the Soviet wrestlers rely primarily on the gut wrench and cross ankle to score points. These two techniques account for nearly fifty percent of their total par-terre attack sequences and they demonstrate a remarkable success rate of 82% and 95%, respectively. Equally significant is the finding that the Soviet wrestlers successfully use the gut wrench to score points in over 50% of their matches and score with the cross ankle in 44% of their matches. Although other top ten rated countries demonstrate similar technique selection profiles none approach the results of the Soviet wrestlers. The Soviet wrestlers also had the most balanced attack revealing a Standing/Ground scoring ratio of 51/49. This finding is particularly interesting as it identifies a specific characteristic of the very best amateur free-style wrestlers in the world.

The country profiles generated by this study, although interesting in themselves, can be of value in establishing a game plans against specific opponent. For example, it is noted that both Japan and Mongolia score the vast majority of their points from the standing position. As such, when competing against either Japan or Mongolia the opposing wrestler can expect

these wrestlers to be very good in the standing position and relatively weak in scoring from the par-terre position. (Personal observation confirms this finding on a general level).

Although this study has identified some interesting technical-tactical patterns, caution must be utilized in reaching absolute conclusions. It is quite conceivable that the profile of the 1 x 5 minute match will change as the current National team wrestlers are replaced by wrestlers who have been trained according to the 1 x 5 minute format. In this study, the majority of the wrestlers had competed under the 2 x 3 minute format for most of their competitive careers. Consequently, it is doubtful that the sudden change in match format and duration would alter the strategies and tactics that they had developed over many years. As such, an on going monitoring and evaluation process is needed to continually validate the findings of this study and to assist the coach in the development of potential National Team wrestlers.

The reported increase in the number of points being scored in the first three minutes of play can serve to reinforce the position that free-style wrestling is predominantly power orientated and that training for explosive power should continue to dominate the training program of the amateur free-style wrestler. However, as the progress of the match is now less frequently interrupted and fewer stoppages in play are noted, it is speculated that the successful wrestler will continue to require a high level of explosive power, but will also require a superior level of cardiovascular and muscular endurance in order to meet the demands of the FILA rules which call for total wrestling for the duration of the match.

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