

A photograph of a cricket pitch. In the center, there are three wooden stumps. A cricket bat with a yellow handle and a wooden blade is leaning against the stumps. A blue cricket helmet is on the ground in front of the stumps. The background is a green cricket field.

DLS - METHOD

DUCKWORTH-LEWIS - STERN METHOD

IN THE SPORT OF CRICKET, THE DUCKWORTH–LEWIS–STERN METHOD (DLS METHOD) IS A MATHEMATICAL WAY TO CALCULATE THE TARGET SCORE FOR THE TEAM BATTING SECOND IN A ONE-DAY CRICKET OR TWENTY-20 CRICKET MATCH INTERRUPTED BY WEATHER OR OTHER CIRCUMSTANCE. IT IS GENERALLY ACCEPTED TO BE A FAIR AND ACCURATE METHOD OF SETTING A TARGET SCORE, BUT AS IT ATTEMPTS TO PREDICT WHAT WOULD HAVE HAPPENED HAD THE GAME COME TO ITS NATURAL CONCLUSION, IT GENERATES SOME CONTROVERSY.

THEORY

THE ESSENCE OF THE DLS METHOD IS 'RESOURCES'. EACH TEAM IS TAKEN TO HAVE TWO 'RESOURCES' TO USE TO MAKE AS MANY RUNS AS POSSIBLE: THE NUMBER OF OVERS THEY HAVE TO RECEIVE; AND THE NUMBER OF WICKETS THEY HAVE IN HAND. AT ANY POINT IN ANY INNINGS, A TEAM'S ABILITY TO SCORE MORE RUNS DEPENDS ON THE COMBINATION OF THESE TWO RESOURCES. LOOKING AT HISTORICAL SCORES, THERE IS A VERY CLOSE CORRESPONDENCE BETWEEN THE AVAILABILITY OF THESE RESOURCES AND A TEAM'S FINAL SCORE, A CORRESPONDENCE WHICH DLS EXPLOITS.

USING A PUBLISHED TABLE WHICH GIVES THE PERCENTAGE OF THESE COMBINED RESOURCES REMAINING FOR ANY NUMBER OF OVERS (OR, MORE ACCURATELY, BALLS) LEFT AND WICKETS LOST, THE TARGET SCORE CAN BE ADJUSTED UP OR DOWN TO REFLECT THE LOSS OF RESOURCES TO ONE OR BOTH TEAMS WHEN A MATCH IS SHORTENED ONE OR MORE TIMES. THIS PERCENTAGE IS THEN USED TO CALCULATE A TARGET (SOMETIMES CALLED A 'PAR SCORE') THAT IS USUALLY A FRACTIONAL NUMBER OF RUNS. IF THE SECOND TEAM PASSES THE TARGET THEN THE SECOND TEAM IS TAKEN TO HAVE WON THE MATCH; IF THE MATCH ENDS WHEN THE SECOND TEAM HAS EXACTLY MET (BUT NOT PASSED) THE TARGET (ROUNDED DOWN TO THE NEXT INTEGER) THEN THE MATCH IS TAKEN TO BE A TIE.

APPLICATION

THE DLS METHOD IS RELATIVELY SIMPLE TO APPLY, BUT REQUIRES A PUBLISHED REFERENCE TABLE AND SOME SIMPLE MATHEMATICAL CALCULATION (OR USE OF A COMPUTER). AS WITH MOST NON-TRIVIAL STATISTICAL DERIVATIONS, HOWEVER, THE DLS METHOD CAN PRODUCE RESULTS THAT ARE SOMEWHAT COUNTERINTUITIVE, AND THE ANNOUNCEMENT OF THE DERIVED TARGET SCORE CAN PROVOKE A GOOD DEAL OF SECOND-GUESSING AND DISCUSSION AMONGST THE CROWD AT THE CRICKET GROUND. THIS CAN ALSO BE SEEN AS ONE OF THE METHOD'S SUCCESSES, ADDING INTEREST TO A "SLOW" RAIN-AFFECTED DAY OF PLAY. APPLIED TO 50 OVER MATCHES, EACH TEAM HAS TO FACE AT LEAST 20 OVERS BEFORE DLS CAN DECIDE THE GAME. IN TWENTY20 GAMES, EACH SIDE HAS TO FACE AT LEAST 5 OVERS.

WHAT IS REQUIRED ?

RUNS SCORED – OVERS BOWLED – WICKETS LOST – OVERS LOST

[DLS WORKSHEET](#)

[DLS RESOURCE TABLE](#)

**CASE 1: TOUR MATCH (ODI CONDITIONS), SOUTH AFRICA A
VS. SRI LANKANS POTCHEFSTROOM 23/11/02. SA 'A' 221
IN THEIR 50 OVERS. SRI LANKANS' REPLY DELAYED. INNINGS
REDUCED BY 8 OVERS. WHAT WAS THE TARGET?**

FIRST INNINGS INTERRUPTIONS/CLOSURE DETAILS (COMPLETE AS SOON AS AVAILABLE)

Overs left going off		1			
Wickets down		2			
Resources left going off	Chart	3			
Overs left going on		4			
% resources left going on	Chart	5			
% resources lost in suspension	3-5	6			
Total % resources lost in suspension (cumulative)		6a			
Overs available at start of innings		7	50		
% resources available at start of innings	Chart	8	100		
% resources ultimately used by Team 1	8-6a	9	100		
Team 1 Final score		10	221		

START OF INTERVAL - CALCULATION OF TARGET SCORE

Team 2 overs' available at start of interval (actual if delay)		11	42		
% resources available at start Team 2	Chart	12	91.7		
Ultimate % resources available Team 1	Box 9	13	100		
Team 1 Final score		14	221		
Target score calculation:		15	203		
A. If (12) more than (13): $T = S + G50X(R2 - R1) / 100 + 1$ $(12) - (13) / 100 \times 200 + (14) + 1$					
B. If (13) more than (12): $T = S \times R2 / R1 + 1$ $(14) \times (12) / (13) + 1$					

**CASE 2: CARLTON & UNITED BREWERS ODI SERIES,
AUSTRALIA V ENGLAND, BRISBANE, 8/1/99. ENGLAND
178/8 IN FULL 50 OVERS. RAIN BEFORE RESTART DEDUCTED
14 OVERS FROM AUSTRALIA'S INNINGS. WHAT WOULD
HAVE BEEN THE TARGET UNDER THE DLS METHOD?**

FIRST INNINGS INTERRUPTIONS/CLOSURE DETAILS (COMPLETE AS SOON AS AVAILABLE)

Overs left going off		1			
Wickets down		2			
Resources left going off	Chart	3			
Overs left going on		4			
% resources left going on	Chart	5			
% resources lost in suspension	3-5	6			
Total % resources lost in suspension (cumulative)		6a			
Overs available at start of innings		7	50		
% resources available at start of innings	Chart	8	100		
% resources ultimately used by Team 1	8-6a	9	100		
Team 1 Final score		10	178		

START OF INTERVAL - CALCULATION OF TARGET SCORE

		11	36		
% resources available at start Team 2	Chart	12	84.1		
Ultimate % resources available Team 1	Box 9	13	100		
Team 1 Final score		14	178		
Target score calculation:		15	150		
A. If (12) more than (13):					
$T = S + G50 \times (R2 - R1) / 100 + 1$ $(12) - (13) / 100 \times 200 + (14) + 1$					
B. If (13) more than (12):					
$T = S \times R2 / R1 + 1$ $(14) \times (12) / (13) + 1$					

**CASE 3: WORLD CUP 1992, SOUTH AFRICA V PAKISTAN,
BRISBANE 8/3/92. SOUTH AFRICA 211 IN 50 OVERS,
PAKISTAN 74/2 IN 21 OVERS. 14 OVERS LOST. BY THE DLS
METHOD WHAT WOULD HAVE THE REVISED TARGET?**

FIRST INNINGS INTERRUPTIONS/CLOSURE DETAILS (COMPLETE AS SOON AS AVAILABLE)

Overs left going off		1			
Wickets down		2			
Resources left going off	Chart	3			
Overs left going on		4			
% resources left going on	Chart	5			
% resources lost in suspension	3-5	6			
Total % resources lost in suspension (cumulative)		6a			
Overs available at start of innings		7	50		
% resources available at start of innings	Chart	8	100		
% resources ultimately used by Team 1	8-6a	9	100		
Team 1 Final score		10	211		

SECOND INNINGS INTERRUPTIONS - CALCULATION OF TARGET SCORE

Overs left going off		16	29		
Wickets down		17	2		
% resources left going off	Chart	18	66.1		
Overs left going on		19	15		
% resources going on	Chart	20	42.6		
% resources lost in suspension	18 – 20	21	23.5		
Total % resources lost in suspension(s) (cumulative)		21 a	23.5		
Overs allocated at start to Team 2		22	50		

SECOND INNINGS INTERRUPTIONS - CALCULATION OF TARGET SCORE

	Chart	23	100		
% resources available at start to Team 2					
	23 - 21 α	24	76.5		
% resources ultimately available					
		25	211		
Team 1 Final score					
		26	162		
Target score calculation:					
A. If (R2) is more than (R1) If (24) is more than (9)					
$T = S + G50X(R2 - R1) / 100 + 1$					
$(24) - (9) / 100 \times 200 + (25) + 1$					
B. If (R2) is less than (R1) If (24) is less than (9)					
$T = S \times R2 / R1 + 1$					
$(25) \times (24) / (9) + 1$					

CASE 4: BCCSL, PLOT, NONDESCRIPTS CRICKET CLUB V COLTS, COLOMBO. 9/11/02. MATCH REDUCED BY 48 OVER PER SIDE. COLTS 238/6 IN THEIR 48 OVERS. NCC, 184/4 IN 40 OVERS WHEN RAIN CAUSED THE MATCH TO BE ABANDONED. AT THE ABANDONMENT OF PLAY WHAT WAS THE PAR SCORE AND WHO WON?

FIRST INNINGS INTERRUPTIONS/CLOSURE DETAILS (COMPLETE AS SOON AS AVAILABLE)

Overs left going off		1			
Wickets down		2			
Resources left going off	Chart	3			
Overs left going on		4			
% resources left going on	Chart	5			
% resources lost in suspension	3-5	6			
Total % resources lost in suspension (cumulative)		6a			
Overs available at start of innings		7	48		
% resources available at start of innings	Chart	8	98.1		
% resources ultimately used by Team 1	8-6a	9	98.1		
Team 1 Final score		10	238		

SECOND INNINGS INTERRUPTIONS - CALCULATION OF TARGET SCORE

Overs left going off		16	8		
Wickets down		17	4		
% resources left going off	Chart	18	23.8		
Overs left going on		19	-		
% resources going on	Chart	20	-		
% resources lost in suspension	18 - 20	21	-		
Total % resources lost in suspension(s) (cumulative)		21 a	23.8		
Overs allocated at start to Team 2		22	48		

SECOND INNINGS INTERRUPTIONS - CALCULATION OF TARGET SCORE

	Chart	23	98.1		
% resources available at start to Team 2 $= S + G50 \times (R2 - R1)/100 + 1 =$					
	23 - 21 α	24	74.3		
% resources ultimately available					
		25	238		
Team 1 Final score					
		26	181 Target		
Target score calculation:					
A. If (R2) is more than (R1) If (24) is more than (9)			180 Par Score		
$T = S + G50 \times (R2 - R1) / 100 + 1$					
$(24) - (9) / 100 \times 200 + (25) + 1$					
B. If (R2) is less than (R1) If (24) is less than (9)					
$T = S \times R2 / R1 + 1$					
$(25) \times (24) / (9) + 1$					

**CASE 5: ACB MMC, VICTORIA V WESTERN AUSTRALIA,
MELBOURNE. 7/2/98. VICTORIA SCORED 223 IN THEIR 50
OVERS. WESTERN AUSTRALIA WAS 188/1 IN 43.2 OVERS
WHEN RAIN CAUSED THE MATCH TO BE ABANDONED. WHO
WOULD WIN BY THE DLS METHOD?**

FIRST INNINGS INTERRUPTIONS/CLOSURE DETAILS (COMPLETE AS SOON AS AVAILABLE)

Overs left going off		1			
Wickets down		2			
Resources left going off	Chart	3			
Overs left going on		4			
% resources left going on	Chart	5			
% resources lost in suspension	3-5	6			
Total % resources lost in suspension (cumulative)		6a			
Overs available at start of innings		7	50		
% resources available at start of innings	Chart	8	100		
% resources ultimately used by Team 1	8-6a	9	100		
Team 1 Final score		10	223		

SECOND INNINGS INTERRUPTIONS - CALCULATION OF TARGET SCORE

Overs left going off		16	6.4		
Wickets down		17	1		
% resources left going off	Chart	18	22.1		
Overs left going on		19	-		
% resources going on	Chart	20	-		
% resources lost in suspension	18 - 19	21	-		
Total % resources lost in suspension(s) (cumulative)		21 a	22.1		
Overs allocated at start to Team 2		22	50		

SECOND INNINGS INTERRUPTIONS - CALCULATION OF TARGET SCORE

	Chart	23	100		
% resources available at start to Team 2					
	23 - 21 _a	24	77.9		
% resources ultimately available		25			
Team 1 Final score			223		
Target score calculation:		26	174		
A If (R2) is more than (R1) If (24) is more than (9)					
$T = S + G50X(R2 - R1) / 100 + 1$					
$(24) - (9) / 100 \times 200 + (25) + 1$					
B. If (R2) is less than (R1) If (24) is less than (9)					
$T = S \times R2 / R1 + 1$					
$(25) \times (24) / (9) + 1$					

CASE 6: WICB RSB SEMI FINAL, LEEWARD ISLANDS V TRINIDAD AND TOBAGO, JAMAICA 17/10/98. EARLY MORNING RAIN SHORTENED THE MATCH TO 41 OVERS PER SIDE. LEEWARD ISLANDS SCORED 172/9 IN THEIR 41 OVERS. T & T WERE 137/5 IN 31.3 OVERS WHEN MATCHED ABANDONED. WHAT WAS THE PAR SCORE AT THE TERMINATION AND WHAT WOULD HAVE BEEN THE RESULT BY THE DLS METHOD?

FIRST INNINGS INTERRUPTIONS/CLOSURE DETAILS (COMPLETE AS SOON AS AVAILABLE)

Overs left going off		1		
Wickets down		2		
Resources left going off	Chart	3		
Overs left going on		4		
% resources left going on	Chart	5		
% resources lost in suspension	3-5	6		
Total % resources lost in suspension (cumulative)		6a		
Overs available at start of innings		7	41	
% resources available at start of innings	Chart	8	90.5	
% resources ultimately used by Team 1	8-6a	9	90.5	
Team 1 Final score		10	172	

SECOND INNINGS INTERRUPTIONS - CALCULATION OF TARGET SCORE

Overs left going off		16	9.3		
Wickets down		17	5		
% resources left going off	Chart	18	25.2		
Overs left going on		19			
% resources going on	Chart	20			
% resources lost in suspension	18 - 19	21			
Total % resources lost in suspension(s) (cumulative)		21 a	25.2		
Overs allocated at start to Team 2		22	41		

SECOND INNINGS INTERRUPTIONS - CALCULATION OF TARGET SCORE

	Chart	23	90.5		
% resources available at start to Team 2					
	23 - 21 α	24	65.3		
% resources ultimately available					
		25	172		
Team 1 Final score					
		26	125		
Target score calculation:					
A. If (R2) is more than (R1) If (24) is more than (9)					
$T = S + G50X(R2 - R1) / 100 + 1$					
$(24) - (9) / 100 \times 200 + (25) + 1$					
B. If (R2) is less than (R1) If (24) is less than (9)					
$T = S \times R2 / R1 + 1$					
$(25) \times (24) / (9) + 1$					

**CASE 7: ODI, ZIMBABWE V PAKISTAN, BULAWAYO,
24/11/02. PAKISTAN 344/5 IN 50 OVERS.
ZIMBABWE 133/6 IN 32 OVERS. RAIN DEDUCTED 4
OVERS. WHAT WAS THE REVISED TARGET? ZIMBABWE
ADVANCED TO 140/6 IN 33 OVERS WHEN FURTHER
RAIN CAUSED THE MATCH TO BE ABANDONED. WHAT
WAS THE RESULT?**

FIRST INNINGS INTERRUPTIONS/CLOSURE DETAILS (COMPLETE AS SOON AS AVAILABLE)

Overs left going off		1			
Wickets down		2			
Resources left going off	Chart	3			
Overs left going on		4			
% resources left going on	Chart	5			
% resources lost in suspension	3-5	6			
Total % resources lost in suspension (cumulative)		6a			
Overs available at start of innings		7	50		
% resources available at start of innings	Chart	8	100		
% resources ultimately used by Team 1	8-6a	9	100		
Team 1 Final score		10	344		

SECOND INNINGS INTERRUPTIONS - CALCULATION OF TARGET SCORE

Overs left going off		16	18		
Wickets down		17	6		
% resources left going off	Chart	18	29.8		
Overs left going on		19	14		
% resources going on	Chart	20	27		
% resources lost in suspension	18 - 19	21	2.8		
Total % resources lost in suspension(s) (cumulative)		21 a	2.8		
Overs allocated at start to Team 2		22	50		

SECOND INNINGS INTERRUPTIONS - CALCULATION OF TARGET SCORE

	Chart	23	100		
% resources available at start to Team 2					
	23 - 21 _a	24	97.2		
% resources ultimately available					
		25	344		
Team 1 Final score					
		26	335		
Target score calculation:					
A. If (24) is more than (9)					
$T = S + G50X(R2 - R1) / 100 + 1$					
$(24) - (9) / 100 \times 200 + (25) + 1$					
B. If (24) is less than (9)					
$(25) \times (24) / (9) + 1$					

FIRST INNINGS INTERRUPTIONS/CLOSURE DETAILS (COMPLETE AS SOON AS AVAILABLE)

Overs left going off		1			
Wickets down		2			
Resources left going off	Chart	3			
Overs left going on		4			
% resources left going on	Chart	5			
% resources lost in suspension	3-5	6			
Total % resources lost in suspension (cumulative)		6a			
Overs available at start of innings		7	50		
% resources available at start of innings	Chart	8	100		
% resources ultimately used by Team 1	8-6a	9	100		
Team 1 Final score		10	344		

SECOND INNINGS INTERRUPTIONS - CALCULATION OF TARGET SCORE

Overs left going off		16	18	13	
Wickets down		17	6	6	
% resources left going off	Chart	18	29.8	26.1	
Overs left going on		19	14	0	
% resources going on	Chart	20	27	0	
% resources lost in suspension	18 - 19	21	2.8	26.1	
Total % resources lost in suspension(s) (cumulative)		21 a		28.9	
Overs allocated at start to Team 2		22	50	50	

SECOND INNINGS INTERRUPTIONS - CALCULATION OF TARGET SCORE

	Chart	23		100	
% resources available at start to Team 2					
	23 - 21 _a	24		71.1	
% resources ultimately available					
		25		344	
Team 1 Final score					
		26		244 Par	
Target score calculation:					
A. If (R2) is more than (R1) If (24) is more than (9)			Pak won by 104 Runs-DLS Method		
$T = S + G50X(R2 - R1) / 100 + 1$					
$(24) - (9) / 100 \times 200 + (25) + 1$					
B. If (R2) is less than (R1) If (24) is less than (9)					
$T = S \times R2 / R1 + 1$					
$(25) \times (24) / (9) + 1$					

WIN CODA 2.1



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