

SKILLcorner

Phases of Play

CSV Specifications

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Table of content

Table of content.....	2
Tracking Data.....	3
Phases of Play.....	3
How It Works.....	4
Special Case: Disruption.....	5
Attributes.....	6

Tracking Data

Phases of Play are generated using SkillCorner Tracking v3.

Many **Phases of Play** attributes are derived either directly **from tracking data** or through machine learning models using tracking data as input.

Hence **the quality of Phases of Play depends on the quality of SkillCorner Tracking v3**.

This quality can be affected by several factors, including:

- Video feed quality and associated production limitations (such as close-ups, replays, and players moving out of the camera's field of view)
- Camera location and stadium conditions
- SkillCorner ability to accurately detect the player and the ball, as well as read jersey numbers

To reduce the risk of delivering inaccurate information, we only provide Phases of Play for matches that meet the following criteria:

- A quality index above 4 for both the players and the ball
- Successful matching of a sufficient number of Wyscout events with SkillCorner Tracking v3.

For more information on the quality of SkillCorner Tracking v3, please refer to the associated validation study.

Phases of Play

Phases of play capture which phase the attacking and defending team are in concurrently.

Phases of play are only defined when the ball is in play. When the ball is out of play there is no phase of play.

Each in-possession phase directly corresponds to an out-of-possession phase.

In Possession Phase	Out of Possession Phase	Description (from the team in possession point of view)
Build up	High Block	The ball is in the team's own third; the ball carrier is under pressure or the opposing players are positioned and stay very high.
Create	Medium Block	This is the default phase, typically occurring near the middle third of the pitch. However, it can also take place: • In the team in possession defensive third, if the ball carrier is not under pressure, or • In the team in possession attacking third, if the defending team's last defensive line is positioned away from its penalty

		area.
Finish	Low Block	The ball is in the final (attacking or defending depending on point of view) or middle third; the defensive line is close to the penalty area, with established possession for at least 1 second.
Direct	Defending Direct	Begins with a long ball pass (32+ meters along the x axis, without being a switch of play) from own half targeting a player near reception, lasting until reception.
Quick Break	Defending Quick Break	Starts with regaining possession <u>in the opponent's half</u> , followed by rapid progression up the pitch.
Transition	Defending Transition	Begins with regaining possession <u>in own half</u> , followed by rapid progression up the pitch.
Set Play	Defending Set Play	This phase includes corners, free-kicks, and long throw-ins directed into the penalty area. The phase ends when: • The opposition establishes clear possession, • The ball is cleared back to the defending team's half, • The ball goes out of play, or • 20 seconds have passed since the set piece was taken. <u>Important point:</u> It excludes quick free-kicks in the team's own half or any free-kick without a cross attempt within 10 seconds, unless in a wide channel. These free-kicks are considered as the start of Build Up, Create or Finish.
Chaotic	Chaotic	A chaotic phase is marked by a short contested possession. For a phase to avoid being labelled chaotic, it must meet one of these criteria: • Include at least three passes with no more than one header, or • Involve at least 5 seconds of possession. Clearances under pressure are always considered chaotic.

How It Works

To establish which team has possession at any given moment, we apply specific rules based on player possession dynamic events:

1. When a player has possession, their team is considered to be in possession.
2. If two consecutive player possessions are recorded for the same team (Team A), then Team A retains possession between those possessions.

3. If possession transitions between two teams (Team A and Team B), possession shifts to Team B at the start of their player possession event.
4. If no events (player possession, set piece or goal) occur for more than 30 seconds, we consider the ball to be out of bounds.

Once team possession is established, we break it down into sequences to which we attach one for the aforementioned phases of play. This process primarily relies on:

- **Player possession** dynamic events,
- **Ball tracking data** (the position on the pitch, particularly the third where the ball is located),
- **Player tracking data**, e.g. to determine if the ball carrier is under pressure, which qualifies the phase as a build-up phase, or to determine the last defensive line height, and
- **Set pieces and goal data.**

Special Case: Disruption

Phases of play can be temporarily disrupted, for instance, when a defender blocks a shot and unsuccessfully attempts to clear the ball, allowing the attacking team to regain possession and resume their finish phase.

We don't want to cut phases of play due to these short interruptions.

In this scenario, the defending player's possession is labelled as 'Disruption.' However, the overall phase index remains assigned to the 'Finish' phase for example.

Attributes

The goal here is to deliver an exhaustive list of the attributes grouped under key themes.

Attribute	Type	Description	Values
index	int	Sequence notation for the ordering of events within each match. If two events happen at the same time, we order them using their id.	e.g. 1
match_id	int	The ID of the match the event is associated with.	e.g. 32839
frame_start	int	Frame associated with the start of the event in SkillCorner extrapolated tracking data.	e.g. 304
frame_end	int	Frame associated to the end of the event in SkillCorner extrapolated tracking data.	e.g. 350
time_start	timestamp	Time the event starts, recorded to the millisecond. The second period starts at 00:45:00.	e.g. 00:00:06.293
time_end	timestamp	Time in the period the event ends, recorded to the millisecond. The second period starts at 00:45:00.	e.g. 00:00:10.331
minute_start	int	The minutes on the clock at the time of this event. Resets to 45 at half- time, 90 at the start of extra time etc.	e.g. 25
second_start	int	The seconds part of the timestamp.	e.g. 10
duration	float	Number of seconds the event lasts.	e.g. 4.1
period	int	An identified identifier for the period of the match when the event happens.	1 (first_half) / 2 (second_half) / 3 (first_extratime) / 4 (second_extratime) / 5 (penalty_shootout)
attacking_side_id	int		1 (left_to_right) / 2 (right_to_left)
attacking_side	str	Attacking side of the team of the player.	left_to_right / right_to_left

Attribute	Type	Description	Values
team_in_possession_id	int	ID of the team in possession	e.g. 2
team_in_possession_shortcode	str	Shortname of the team of the player performing the event.	e.g. Fiorentina
n_player_possessions_in_phase	int	Count of unique player possession within an attacking phase	e.g. 3
team_possession_loss_in_phase	bool	Does the team lose possession at the end of this phase	TRUE / FALSE
team_possession_lead_to_goal	bool	TRUE when the team possession ends with a goal. Else FALSE.	FALSE
team_possession_lead_to_shot	bool	TRUE when at least one shot occurs during the team possession (it can be during it or at the end of it). Else FALSE.	TRUE
team_in_possession_phase_type	str	Name of phase attacking team is in	build_up / create / finish / quick_break / transition / chaotic / direct / set_play
team_in_possession_phase_type_id	str		0 (build_up) / 1 (create) / 2 (finish) / 3 (quick_break) / 4 (transition) / 5 (chaotic) / 6 (direct) / 7 (set_play)
team_out_of_possession_phase_type	str	Name of defensive phase	chaotic / low_block / medium_block / high_block / defending_transition / defending_quick_break / defending_set_play / defending_direct
team_out_of_possession_phase_type_id	str	ID of defensive phase	5 (chaotic) / 8 (low_block) / 9 (medium_block) / 10 (high_block) / 11 (defending_transition) / 12 (defending_quick_break) / 13 (defending_set_play) / 15 (defending_direct)
x_start	float	x coordinate of the ball at the start of the phase.	e.g. -5,2
y_start	float	y coordinate of the ball at the start of the phase.	e.g. 10,8
channel_id_start	int	Channel id where the event starts.	1 (wide_left) / 2 (half_space_left) / 3 (center) / 4 (half_space_right) / 5 (wide_right)
channel_start	str	Channel where the event starts.	wide_left / half_space_left / center / half_space_right / wide_right

Attribute	Type	Description	Values
third_id_start	int		1 (defensive_third) / 2 (middle_third) / 3 (attacking_third)
third_start	str	Third where the ball is at the start of the phase.	defensive_third / middle_third / attacking_third
penalty_area_start	bool	TRUE if the event start location is in the penalty area of the out of possession team. Else FALSE.	TRUE / FALSE
x_end	float	x coordinate of ball at the end of the phase.	e.g. -5,2
y_end	float	y coordinate of ball at the end of the phase.	e.g. 10,8
channel_id_end	int		1 (wide_left) / 2 (half_space_left) / 3 (center) / 4 (half_space_right) / 5 (wide_right)
channel_end	str	Channel where the event ends.	wide_left / half_space_left / center / half_space_right / wide_right
third_id_end	int		1 (defensive_third) / 2 (middle_third) / 3 (attacking_third)
third_end	str	Third where the ball is at the end of the phase.	defensive_third / middle_third / attacking_third
penalty_area_end	bool	TRUE if the event end location is in the penalty area of the out of possession team. Else FALSE.	TRUE / FALSE
team_in_possession_width_start	float	Width of the attacking team at phase start	e.g. 63.77
team_in_possession_width_end	float	Width of the attacking team at phase end	e.g. 52.55
team_in_possession_length_start	float	Length of the attacking team at phase start	e.g. 34.23
team_in_possession_length_end	float	Length of the attacking team at phase end	e.g. 63.77
team_out_of_possession_width_start	float	Width of the defensive team at phase start	e.g. 63.77
team_out_of_possession_width_end	float	Width of the defensive team at phase end	e.g. 63.77
team_out_of_possession_length_start	float	Length of the defensive team at phase start	e.g. 52.55
team_out_of_possession_length_end	float	Length of the defensive team at phase end	e.g. 52.55