

Grand Slam Point Outcomes – Coaching Applications

A Study into the 4 Shot Combinations™ in Tennis

Peter D. McCraw (2008)

Introduction & Background

The study attempted to investigate the connection between outcome type, percentage of point outcomes and gender. The intended use of this study is to establish if tennis is played differently on the ATP and WTA Tour and assist in the tactical development of junior tennis players.

ATP Tour Methodology

- The study was conducted at the 2008 Australian Open (Hard Court – Plexi Cushion), Roland Garros (Clay Court), Wimbledon (Grass Court) and US Open (Hard Court - Deco Turf) Championships.
- Men’s Singles Main Draw matches were charted over the duration of each tournament. Matches were selected at random. Table 1.1 illustrates the sample size collected at each event.
 - Table 1.2 illustrates Percentage Point Outcome for Surface on ATP Tour.

Methodology

- The last two shots of each point were recorded to identify the point outcome rule.
- Each point outcome rule was classified by outcome type. The three categories were: Winner (W), Unforced Error (UF) and Forced Error (F).

WTA Tour Methodology

- The study was conducted at the 2007 Australian Open (Hard Court – Rebound Ace), Roland Garros (Clay Court) and Wimbledon (Grass Court) Championships.
- Women’s Singles Main Draw matches were charted over the duration of each tournament. Matches were selected at random. Table 1.3 illustrates the sample size collected at each event.
 - Table 1.4 illustrates the Percentage Point Outcome for Surface on WTA Tour.

ATP Tour Results

Table 1.1 – Sample Size

	US Open	Roland Garros	Wimbledon	Aust. Open	Total
# Matches	6	7	6	7	26
# Sets	19	22	20	23	84
# Games	186	191	178	222	777
# Points	688	803	587	829	2907

Table 1.2 – Percentage Point Outcomes for Surface

	Rule 1	Rule 2	Rule 3	Rule 4
Roland Garros	30	20	17	33
Wimbledon	25	25	19	31
Australian Open	28	22	13	37
US Open	29	21	14	36
Total (Ave)	28	22	12.5	34.25

* Values in percent (%)

WTA Tour Results

Table 1.3 – Sample Size

	Roland Garros	Wimbledon	Aust. Open	Total
# Matches	7	8	11	26
# Sets	17	18	26	61
# Games	167	171	228	566
# Points	784	648	1016	2448

Table 1.4 – Percentage Point Outcomes for Surface

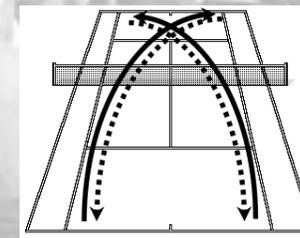
	Rule 1	Rule 2	Rule 3	Rule 4
Roland Garros	26.5	22.6	14.5	36.4
Wimbledon	28.2	23.6	14.5	33.6
Australian Open	28.5	23.2	12.3	36.0
Total	27.8	23.1	13.8	35.3

* Values in percent (%)

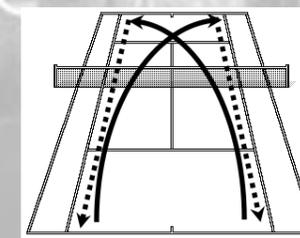
Point Outcome Rule Description

There are essentially two shot directions you can hit in tennis – Cross-Court (X) and Down-the-Line (DTL). These two choices result in four possible shot combinations.

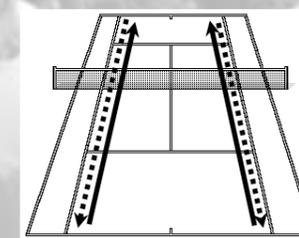
The first shot (first symbol) is considered player A’s shot (dotted line) and the subsequent shot is considered the point ending shot (solid line) by player B. E.g. Rule 2: Player A, hits Down-the-Line (DTL) then player B responds with a Cross-Court (X) shot.



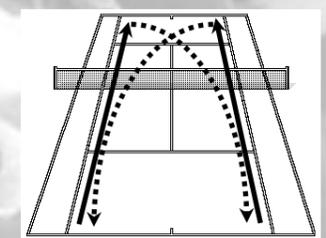
Rule 1
X – X



Rule 2
DTL – X



Rule 3
DTL – DTL



Rule 4
X – DTL

Hard Court Coaching Applications

1. Coaches should train the same point outcome combinations (four rules) for boys and girls on Hard Court, independent of the player's style or specific match strategy or tactic.
2. Coaches should prioritise the following when training boys and girls:
 - a. **Rule 1** – Both boys and girls should learn to reduce unforced errors when rallying cross court. This should be reflected in the structure of drills and practice in both their purpose and the time spent hitting cross-court in relation to down-the-line directions for both rallying and point ending situations.
 - b. **Rule 2** – Girls should develop ability to hit winners at the expense of unforced errors and boys learn to reduce unforced errors on a Hard Court.
 - c. **Rule 3** - Increased awareness of opportunities to create forced errors and hit winners.
 - d. **Rule 4** – Train decision making of 'right shot at right time' and train hitting down-the-line in the context of this 'change of direction' combination.
3. Players should focus on creating forced error outcomes at the expense of unforced errors and not focus on hitting winners at the expense of increased unforced errors.
4. An understanding of the four point outcome rules and three outcome types (unforced error, forced error and winner) can serve as a tactical foundation for players through all stages of development.

Clay Court Coaching Applications

1. Coaches should train the same point outcome combinations (four rules) for boys and girls on Clay Court, independent of the player's style or specific match strategy or tactic.
2. Coaches should prioritise the following when training boys and girls:
 - a. **Rule 1** – Both boys and girls should learn to reduce unforced errors when rallying cross court. This should be reflected in the structure of drills and practice in both their purpose and the time spent hitting cross-court in relation to down-the-line directions for both rallying and point ending situations.
 - b. **Rule 2** - Develop ability to hit winners at the expense of unforced errors on Clay Court.
 - c. **Rule 3** – Boys to learn to create forced errors and girls to hit winners using Rule 3 as a tactical point outcome on Clay Court
 - d. **Rule 4** – Train decision making of 'right shot at right time' and train hitting down-the-line in the context of this 'change of direction' combination. Boys to emphasise forced errors and girls winners, both at the expense of unforced errors on Clay Court.
3. Players should focus on creating forced error outcomes at the expense of unforced errors and not focus on hitting winners at the expense of increased unforced errors.
4. An understanding of the four point outcome rules and three outcome types (winner, unforced error and forced error) can serve as a tactical foundation for players through all stages of development.

Hard Court Conclusions from the Tour

1. Grand Slam level tennis is a game of unforced errors. Regardless of point outcome, unforced errors remained the highest outcome type irrespective of Tour type. This held true for all point outcomes except WTA Tour Rule 3.
2. Table 1.2 & 1.4 demonstrates there is no significant difference in the percentage of Hard Court point outcomes between the ATP and WTA Tour. Therefore, point outcome is not Tour dependent.
3. **Rule 1:** The highest number of unforced errors and lowest number of winners for all rules were committed by both Tours.
4. **Rule 2:** WTA Tour end the point with 10% more winners at the expense of unforced errors compared to ATP Tour.
5. **Rule 3:** Was by far the lowest used point outcome of all rules. Both Tours create the highest forced errors. WTA Tour hit more winners at the expense of unforced errors.
6. **Rule 4:** The highest point outcome of all rules. ATP Tour hit more winners at the expense of unforced errors.
7. Tour type does not dictate the point outcome used on Hard Court at the Grand Slam level.

Clay Court Conclusions from the Tour

1. Grand Slam level tennis is a game of unforced errors. Regardless of point outcome, unforced errors remained the highest outcome type irrespective of Tour type.
2. Table 1.2 & 1.4 demonstrates there is no significant difference in the percentage of Clay Court point outcomes between the ATP and WTA Tour. Therefore, point outcome is not Tour dependent.
3. **Rule 1:** The highest number of unforced errors and lowest number of winners for all rules were committed by both Tours.
4. **Rule 2:** Is not surface dependent as there was no significant difference in point outcome type between Tours.
5. **Rule 3:** Was by far the lowest used point outcome of all rules. ATP Tour created the highest forced errors. WTA Tour hit more winners at the expense of forced errors.
6. **Rule 4:** The highest point outcome of all rules. ATP Tour created more forced errors at the expense of winners. WTA Tour hit more winners at the expense of forced errors.
7. Tour type does not dictate the point outcome used on Clay Court on the ATP and WTA Tours.

Grand Slam Point Outcomes – Coaching Applications

A Study into the 4 Shot Combinations™ in Tennis

(Page 3)

Grass Court Coaching Applications

1. Coaches should train the same point outcome combinations (four rules) for boys and girls on Grass Court, independent of the player's style or specific match strategy or tactic.
2. Coaches should prioritise the following when training boys and girls:
 - a. **Rule 1** – Both boys and girls should learn to reduce unforced errors when rallying cross court. This should be reflected in the structure of drills and practice in both their purpose and the time spent hitting cross-court in relation to down-the-line directions for both rallying and point ending situations.
 - b. **Rule 2** - Develop ability to hit winners at the expense of unforced errors on a Grass Court.
 - c. **Rule 3** – Boys to learn to create forced errors and girls to hit winners using Rule 3 as a tactical point outcome on Grass Court
 - d. **Rule 4** – Train decision making of 'right shot at right time' and train hitting down-the-line in the context of this 'change of direction' combination. Both boys and girls to learn to hit winners and create forced errors at the expense of unforced errors for Rule 4 on Grass Court.
3. Players should focus on creating forced error outcomes at the expense of unforced errors and not focus on hitting winners at the expense of increased unforced errors.
4. An understanding of the four point outcome rules and three outcome types (unforced error, forced error and winner) can serve as a tactical foundation for players through all stages of development.

Grass Court Conclusions

1. Grand Slam level tennis is a game of unforced errors. Regardless of point outcome, unforced errors remained the highest outcome type on Both Tours except Rule 2 and Rule 3 for ATP Tour.
2. Table 1.2 & 1.4 demonstrates there is no significant difference in the percentage of Grass Court point outcomes between the ATP and WTA Tour. Therefore, point outcome is not Tour dependent.
3. **Rule 1:** The highest number of unforced errors and lowest number of winners for all rules were committed by both Tours.
4. **Rule 2:** Is not surface dependent as there was no significant difference in point outcome type between Tours.
5. **Rule 3:** Was by far the lowest used point outcome of all rules. ATP Tour made the lowest unforced errors and the WTA the second highest behind Rule 1.
6. **Rule 4:** The highest point outcome of all rules. Is not surface dependent as there was no significant difference in point outcome type between Tours.
7. Tour type does not dictate the point outcome used on Hard Court on the ATP and WTA Tour.

What – Where – Why – When?

The four W's is a simple formula that helps put in context the 4 Shot Combinations™ in Tennis.

What to hit? (Rule 1): Cross-court forms the foundation from which all shot combinations emanate. It is supported by both positive court and shot geometry. Remember, the 2.9:1 ratio!

Where to hit Winners? (Rule 2): By focusing on hitting Rule 2 winners, a player has the open court to hit into in addition to having positive court and positive shot geometry working for them. It does not get any better than that!!

Why to hit? (Rule 3): It's tactical. Use it for specific purposes as you have negative court geometry working against you. So send a strong message by using it to exploit an obvious weakness in an opponent's game. Remember you will leave the cross-court, open-court option for them to hit.

When to hit? (Rule 4): The right shot at the right time is more important than how often you hit it. Rule 4 is the most important shot in tennis, so you have got for it. Make sure you think forced error over winner because you are facing negative court geometry.



Glossary

- **Point Outcome:** The final two shots of a point as classified by one of four rules.
- **Outcome Type:** The way in which a point is concluded as classified by one of the three categories.
 - **Winner (W):**
 - (i) *Clean Winner:* A point won where no touch of the ball is made by opposing player's racquet.
 - (ii) *Effective Winner:* A point won where a touch of the ball is made by opposing player's racquet, but no competent attempt to return the ball was possible.
 - **Unforced Error (UF):** A mistake made from a competent attempt where the player is not under significant pressure and tactically is in relative control of the ball.
 - **Forced Error (F):** A mistake made from a competent attempt where the player is under significant pressure and tactically is not in relative control of the ball.
- **Court Geometry:** Dealing with the measurement and relationship of lines, angles and surfaces of a tennis court. The two major components are distance of usable court that shots can be hit to and what situation a shot direction leaves your opponent in.

Court Geometry is governed by the laws and physics of tennis. It cannot be changed unless the shape, size, height of the net or laws of the game are altered. Therefore, court geometry governs the overall implementation of a player / opponent match strategy.

 - **Negative Court Geometry:** A situation where a player changes the direction of the ball with the court geometry working against them. E.g. A shot down-the-line travels the shorter distance than cross-court and leaves the opponent no wider than the singles side line.
 - **Positive Court Geometry:** A situation where a player changes the direction of the ball with the court geometry working for them. E.g. A shot hit cross-court travels a longer distance than down-the-line and can force the opponent wider than the singles side line.
- **Shot Geometry:** The angle of deflection from two shot directions combined with a margin of error of the ball landing in the playable court. It also includes the way in which the shot is constructed in relation to the body.
 - **Positive Shot Geometry:** The angle of deflection and direction is across the body.
 - **Negative Shot Geometry:** The angle of deflection and direction is away from the body.

In general it is considered easier to hit the ball across the body regardless of technique. Negative shot geometry can be counteracted by hitting the 'inside-in' shot.
- **Player / Opponent Match Strategy:** Is the specific plan a player uses to give themselves the highest probability of winning a single match. It drives the type and number of tactics executed during the course of a match.

Coaching Applications

1. A player who possesses the ability to reduce unforced errors has a distinct advantage over their opponent.
2. It is essential for a player to develop the ability to maintain a cross-court rally without committing unforced errors. This should be reflected in the structure of drills and practice in both their purpose and the time spent hitting cross-court in relation to down-the-line directions for both rallying and point ending situations.
3. Players must focus on creating forced error outcomes at the expense of unforced errors and not focus on hitting winners at the expense of increased unforced errors.
4. The better the technical foundation and understanding of court geometry the less your tactical development is influenced by surface. The more open a player's tactical development remains, the more a complete game style can be developed within the player's potential.
5. Coaches should emphasise creating forced errors over hitting winners on Rule 4. Although being the largest point outcome, the rule itself should be taught with the understanding that it is more important to hit the right shot at the right time rather than the number of times it is hit in a match. In practice, coaches should train the execution of hitting down-the-line in the context of a Rule 4 combination.
6. The faster the court surface the more coaches should emphasise the importance of creating Rule 2 forced errors and winners.
7. REMEMBER: You can only implement tactically what you execute technically, and you can only execute technically what you can do physically. Hence, the foundation for a player's game begins with maximizing their athletic capabilities.

2008 TAP Tour Research Team – Peter McCraw, Andrew Burgess, Mat Obrien, Adrian Muscillo, Chris Johnson, Kevin Woolcott, Nathan Lundy, Michael Tucci, Aviran Reuven.