

TUTORIAL 4

Quintic[®]

1 for Sports Analysis

Tutorial 4 – Synchronisation

Contents

Vertical and Horizontal Viewing
 Best Windows
 Synchronisation
 Mirror Image
 Blend
 Overlay




In this tutorial we are going to explore the functions of the ‘System’ tag that change the way you can view the video file.

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1: Vertical and Horizontal viewing


Open the video file ‘**Batting Front view**’ from the Cricket folder.
 Click on the ‘**System**’ tab.



These buttons  Vertical  Horizontal  Teaching change the shape and size of the window in which the video clip is displayed.

 Vertical = Sets the screen in the Vertical mode which suits images that are longer than they are wide.

 Horizontal = Sets the screen in the Horizontal mode which suits images that are wider than they are long.

 Teaching = Sets the screen in the Teaching mode which fills the computer screen so you can see the whole image.

It is, of course, always possible to resize the window to suit your needs by dragging it from the corners but these buttons automatically set the window at the correct size for a number of functions in the Quintic software.

GO TO QUESTIONS 1, 2, 3 AND 4 ON THE QUESTION SHEET

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2: Flip –



= This will show a mirror image of the action in an adjacent window. By using the play and pause controls in the Main window, the mirror video will play through the action simultaneously with the main video. This will allow you to view a video of a right-handed action from a left-handers point of view or vice-versa.

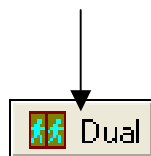
GO TO QUESTION 5 ON THE QUESTION SHEET

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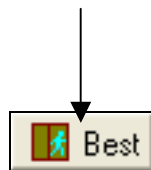
3: Best and dual windows

Open the video ‘Batting – Off drive – FV’ from the cricket folder.

Select the ‘Vertical’ mode to display the video. Now click the ‘Dual’ button to open up another window by its side.

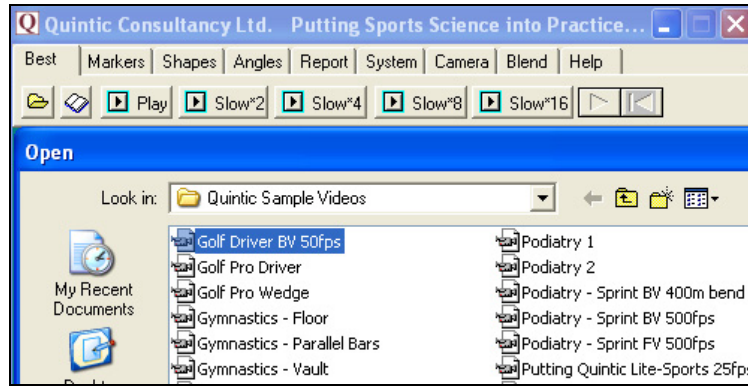


This window is called the ‘Best’ window and can also be opened by clicking the ‘Best’ button which is next to the ‘Dual’ button at the top of the main window when it is in Vertical viewing or Horizontal viewing mode. This can be done when in **either** the Vertical or Horizontal viewing modes. **Experiment with these buttons!**

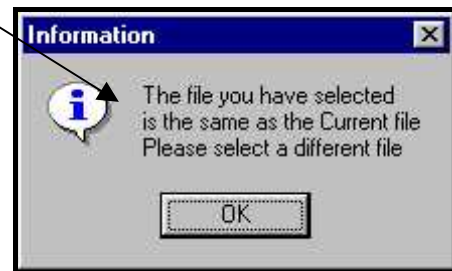


The Best window has most of the same functions as the Main window. You can open files, draw shapes and angles, set markers etc. all using the same tabs and buttons as you have done previously in the main window.

Open the video ‘Batting – On drive - FV’ from the cricket folder in the Best window.



Note: You cannot open the same video file in the Best window as you have in the Main window – this error message will appear to stop you.




4: Video synchronisation

Use the play and pause buttons along with the video scroll bar to move both clips to the point where the batsman first moves his right foot. When both clips are at this place, press the ‘Synchronisation’ button.



The two clips are now synchronised and can be played at any speed using the controls in the main window. Notice that the frame scroll bar in the Best window has disappeared.

If you want to synchronisation off press the  button again. The scroll bar will reappear and it will say ‘Sync off’ underneath the ‘Synchronisation’ button.



GO TO QUESTIONS 6 AND 7 ON THE QUESTION SHEET

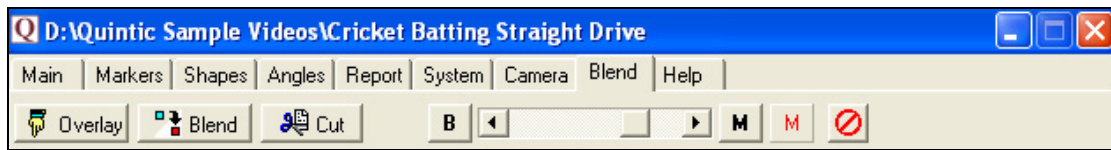
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5: Blend -

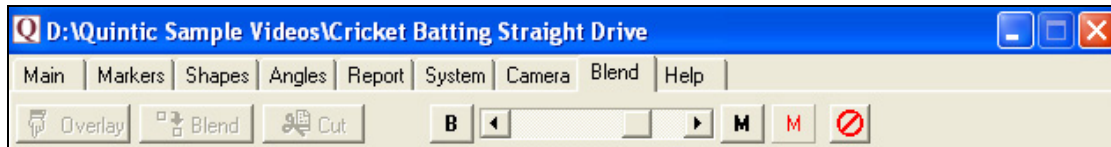
The blend function allows you to set one frame of the video to act as a background that stays faintly on screen while the rest of the video plays through. Allowing the coach/athlete to see differences in body position at the start and end of movement.

Open ‘Batting – ‘Back foot drive – SV’ in the Main window

Click on the ‘**Blend**’ tab.



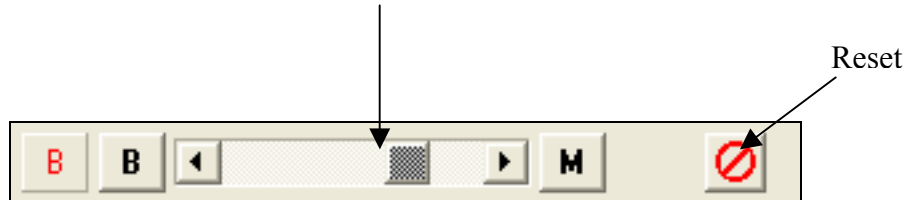
Pause the video at frame 0 and now click on the ‘**Blend**’ button, so that the writing on the button becomes underlined, frame zero will now become the background frame. Now scroll through to the end of the movement and click on the ‘Blend’ button again, the screen will flash and the blend button becomes greyed out. Your menu bar should now look like this;



Now play the video. You can see the shape of the athlete’s body faintly on the screen whilst the video plays.



You can change the heaviness of the background image by scrolling across the bar at the top of window. You can set it to 100% background by using the 'B' button to left of the scroll bar or 100% of the overlay (currently playing) by using the 'M' button to the right of the scroll bar. Experiment with these functions.



To exit this screen you must first click 'Reset'. This will release you from the blend function and allow you to use other functions.

6: Overlay - (Only available in Quintic Sports, Quintic Coaching and Quintic Biomechanics)

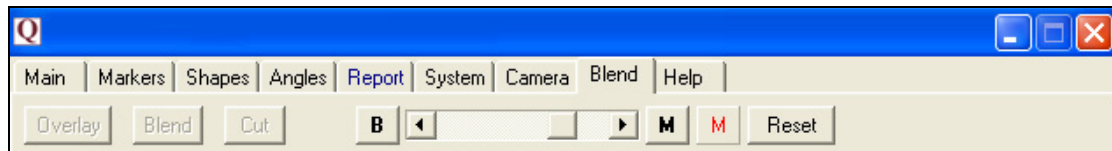
The blend function allows the performer to compare themselves at different stages of their movement but the Overlay function means you can directly compare two different performers at the same stage of their movement.

Open ‘Javelin Steve Backley – Front View’ in the Main window and ‘Javelin – Nick Nieland - Front View’ in the Best window.

Scroll to the point of right foot landing in both videos (frame 141 in the Main window and frame 118 in the Best window). Click on the synchronise button to synchronise the videos at this point.



Now select the ‘Blend’ tab and click on ‘Overlay’ so that the writing on the button becomes faded, and both videos appear on one screen.



When you play the video now using the controls at the bottom of the window you will be able to see both video clips on top of each other. The image from the Best window will be the ‘background’ clip and the image from the Main window will be the ‘overlay’ clip. In the same way as with the **Blend** function you can adjust the heaviness of each image with the scroll bar and the ‘B’ and ‘M’ buttons.



Reset

You must ensure that both athletes are in the same part of their respective windows before you press the ‘set overlay’ button.

E.g. as **Steve Backley** is on the right hand side of the image when he releases the javelin, you must scroll the image sideways in the best window to also put **Nick Nieland** on the right so that they overlap.

To exit this screen you must first click ‘Reset’. This will release you from the overlay function and allow you to use other functions.

GO TO QUESTION 8 AND 9 ON THE QUESTION SHEET

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Tutorial 4 – Question Sheet

RECAP

Open ‘IG-Side’ from the golf folder

- 1)
 - (i) Scroll to the frame just before the golfer starts his back swing.
 - (ii) Measure the angle between the golfers arms.
 - (iii) Create a 6 frame multiple screen capture sequence of this skill with this angle visibly drawn in each frame.
 - (iv) Save this as a JPEG.
 - (v) Open this multiple screen capture sequence in Microsoft Word and type at the top of the page an appropriate title.
 - (vi) Below this picture, type a short description of the technique that this golfer uses. Focus particularly on the angle of the arms throughout the shot. Ask your teacher if you may print this.

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QUESTIONS

- 1) Open the following videos. For each one state whether the vertical mode or horizontal mode are more appropriate for viewing them or whether they are viewed equally as well in both. (*Hint: Watch the whole clip through in both modes before deciding on your answer*)

Video	Best in Vertical	Best in Horizontal	Both
Athletics 100m sprint			
Rugby Punt			
Boxing UC Shot			
Athletics- Discus male			
Trampoline 2.5 twist			

(5)

Think of 6 other sports actions that could be seen completely in the Vertical and Horizontal Mode.

Vertical

Horizontal

- | | |
|---------|-------|
| 1)..... | |
| 2)..... | |
| 3)..... | |

(6)

Open the video clip ‘Drop-punt right’ from the Rugby Folder

- 2) You are a PE teacher; describe this skill to a beginner. They are right handed.

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(5)

- 3) Now, imagine you are teaching this skill to a left-handed person. Write down how you would describe the movement to them.

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(5)

4) In the video clip **‘Drop-punt right’** from the rugby folder you have ‘flipped’ the image.

(i) **Use this mirror-image** to write a description of the skill to the left-hander you are teaching.

.....

(4)

(ii) Was it easier to write this description than your answer to question 4? Explain your answer.

.....

(3)

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- 5) (i) Open the video **‘Boxing UC shot’** from the boxing folder in the main window.
 (ii) Open the video **‘Boxing arm shot’** from the boxing folder in the best window.
 (iii) First look at the video in the main window. Match up the frames with the correct description of the action you can see in them. The first one has been done for you.

Frame 23
 Frame 28
 Frame 30
 Frame 37
 Frame 27
 Frame 0

Contact
 Shoulder angle to vertical = 9°
 Glove is at the highest point
 Glove is at the lowest point
 Hip, shoulder and elbow are inline
 Hips furthest forward



(3)

6) Now look at the video in the best window. Match up the frames with the correct description of the action you can see in them. The first one has been done for you.

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|---|--|
| <p>Frame 15</p> <p>Frame 16</p> <p>Frame 20</p> <p>Frame 13</p> <p>Frame 11</p> <p>Frame 18</p> | <p>Contact</p> <p>elbow angle reaches 93 degrees</p> <p>Glove is at the highest point</p> <p>Glove is at the lowest point</p> <p>→ Hip, shoulder and elbow are inline</p> <p>Hips furthest forward</p> |
|---|--|

(3)

- 7) (i) Pause both videos at the point of impact (use the video scroll bar to get the exact frame).
- (ii) Synchronise the videos
- (iv) Describe any differences you see in:

Path of arm during the movement?.....

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Angle of the elbow at impact?.....

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Height of shoulder throughout the movement?.....

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Angle of the shoulder at impact?.....

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Path of the hand in the follow-through?.....

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(10)

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Blend

- 8) (i) Open the video **'Discus Female'** from the athletics folder in the Main window.
 (ii) Set the background frame at 0.
 (iii) Describe the differences you can see in the player's movement between the background and:

Frame 11?

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Frame 20?

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Frame 34?

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Frame 44?

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Frame 54?

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(10)

Overlay

- 9) (i) Open the video **‘Batting - Off-drive - FV’** from the cricket folder in the Main window.
- (ii) Open the video **‘Batting - On-drive - FV’** from the cricket folder in the Best window.
- (iii) Synchronise the two videos at ball impact.
- (iv) Name 3 differences and 3 similarities you can see between the two shots.

Differences

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(6)
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Jason Lewry Sussex County Cricket Club

Tutorial 4 - Answer Sheet

RECAP – Only compete this if you have Quintic Sports, Quintic Coaching or Quintic Biomechanics.

Open ‘IG-Side’_from the golf folder

- 1) (i) Scroll to the frame just before the golfer starts his back swing.
- (ii) Measure the angle between the golfers arms.
- (iii) Create a 6 frame multiple screen capture sequence of this skill with this angle visibly drawn in each frame.
- (iv) Save this as a JPEG.
- (v) Open this multiple screen capture sequence in Microsoft Word and add an appropriate title.
- (vi) Below this picture, type a short description of putting technique that you have learned from watching this clip. Focus particularly on the angle of the arms throughout the shot. Ask your teacher if you may print this.

BACK TO TUTORIAL SHEET

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QUESTIONS

- 1) Open the following videos. For each one state whether they are best viewed in the vertical mode the horizontal mode or whether they are equally as good in both. (*Hint: Watch the whole clip through in both modes before deciding on your answer*)

Video	Best in Vertical	Best in Horizontal	Both
Athletics 100m sprint		X	
Rugby Punt	X		
Boxing UC Shot	X		
Fast bowling SV			X
Trampoline 2.5 twist	X		

(5)

- 2) Think of 3 other sports actions that could be seen completely in the Vertical and Horizontal Mode.

<u>Vertical</u>	<u>Horizontal</u>
<i>Trampoline</i>	<i>Hurdles</i>
<i>Rings</i>	<i>100 m sprint</i>
<i>Diving (vertical movement)</i>	<i>Golf swing (horizontal movement)</i>

(6)

Open the video clip ‘Drop-punt right’ from the Rugby Folder

- 3) You are a PE teacher; describe this skill to a beginner : They are right footed.
- *Start with feet shoulder width apart, arms slightly in front of your body with elbows flexed holding the ball at the top (left hand) and the bottom (right hand) at waist height.*
 - *Look down at the ball and take 2 strides starting on your left leg, leaning slightly forward.*
 - *When right foot contacts with the ground after the 2nd stride drop the ball from waist height. Extending the left arm to the side and behind.*
 - *As the ball is dropping aim to plant the left leg to the side of where the ball is dropping.*
 - *Start to lean back slightly while bringing right (striking) leg forward. Keep leg flexed at the knee until both thighs are level.*
 - *Flex knee causing kicking action of the lower leg, while plantar flexing the foot. So that contact with the ball is made on the laces (top of the foot).*
 - *Aim to kick the ball when it is about 15 cm off the floor.*
 - *After kicking the ball the leg should continue to flex at the hip joint, extension of the knee continues until horizontal.*
 - *Left arm should also flex forward to help keep balance.*
 - *The leg will start to decelerate 2 frames after impact and be brought back down to the ground under control.*
- (5)
- 4) Now, imagine you are teaching this skill to a left-footed person. Write down how you would describe the movement to them.
- *Start with feet shoulder width apart, arms slightly in front of your body with elbows flexed holding the ball at the top (right hand) and the bottom (left hand) at waist height.*

- *Look down at the ball and take 2 strides starting on your right leg, leaning slightly forward.*
- *When left foot contacts with the ground after the 2nd stride drop the ball from waist height. Extending the right arm to the side and behind.*
- *As the ball is dropping aim to plant the right leg to the side of where the ball is dropping.*
- *Start to lean back slightly while bringing left (striking) leg forward. Keep leg flexed at the knee until both thighs are level.*
- *Extend the knee quickly causing kicking action of the lower leg, while plantar flexing the foot. So that contact with the ball is made on the laces (top of the foot).*
- *Aim to kick the ball when it is about 15 cm off the floor.*
- *After kicking the ball the leg should continue to flex at the hip joint, extension of the knee continues until horizontal.*
- *Right arm should also flex forward to help keep balance.*
- *The leg will start to decelerate 2 frames after impact and be brought back down to the ground under control.*

(5)

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- 5) In the video clip **Drop-punt right** from rugby folder you have ‘flipped’ the image.
- (i) Use this **mirror-image** to write a description of the skill to the left-hander you are teaching.
See answer for question 4
- (ii) Was it easier to write this description than your answer to question 4? Explain your answer.
This exercise should now be a lot easier as the video will now show the skill, as a left footed player would perform it.

(4)

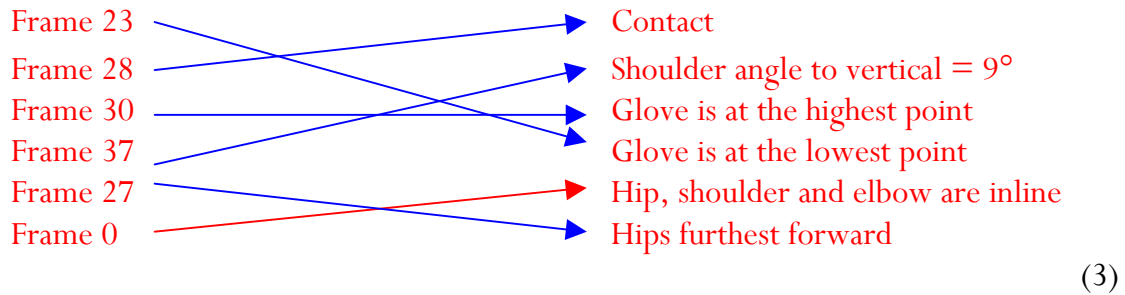
(3)

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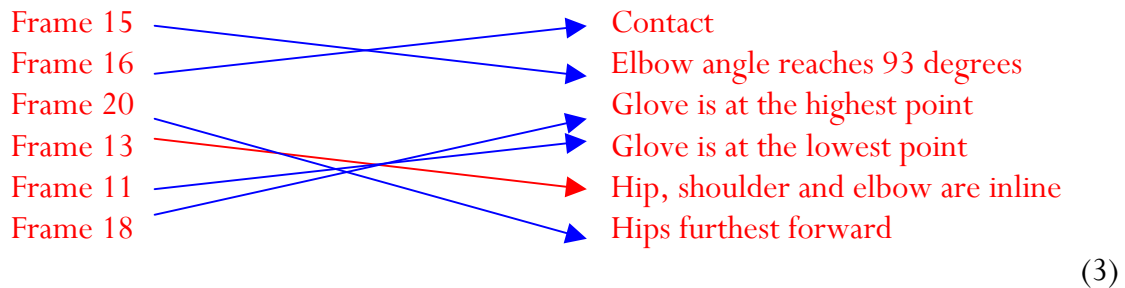
(PAGE 36)

- 6) (i) Open the video ‘**Boxing UC shot**’ from the boxing folder in the main window.
- (ii) Open the video ‘**Boxing arm shot**’ from the boxing folder in the best window.

(iii) First look at the video in the main window. Match up the frames with the correct description of the action you can see in them. The first one has been done for you.



(iv) Now look at the video in the **Best Window**. Match up the frames with the correct description of the action you can see in them.



7)

(i) Pause both videos at the point of impact (use the video scroll bar to get the exact frame).

(ii) Synchronise the videos

(iii) Describe any differences you see in:

Path of arm during the movement?

During the uppercut, the arm stays flexed throughout the movement where as with the straight arm punch the arm goes from flexion to extension in a short period of time to generate the force.

Angle of the elbow at impact?

Angle of elbow during the straight-arm punch is 167 degrees where as in the uppercut it is 112 degrees at contact this shows that the elbow is in a more flexed position at contact during the uppercut.

Height of shoulder throughout the movement?

During the straight arm shot the height of the shoulder remains constant where as during the uppercut the shoulder height drops quickly at the start then increases back to the original height by the time contact is made.

Angle of the shoulder at impact?

The angle of the shoulder at impact with the straight arm punch is 97 degrees where as with the uppercut the angle is 71 degrees.

Path of the hand in the follow-through?

In both movements the path of the hand punches through the pad before returning to the start position. During the straight arm punch the arm returns back to body in straight line. Where as during the upper cut the arm returns back to the start position before moving to the side.

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BLEND

8)

- (i) Open the video ‘ **discus female**’ from the athletics folder in the main window.
- (ii) ‘Set Background’ at Frame 0.
- (iii) Describe the differences you can see in the player’s movement between the background and:

Frame 11?

Athlete’s arm has moved clockwise (backwards) from starting position, left leg is flexed, and closer to the Ground.

Frame 20?

Athlete has now started moving anticlockwise and has passed her starting position, body has become more upright (extended) and legs are also extended.

Frame 34?

Athlete has continued rotating anticlockwise and is now balanced on her right leg with her left leg flexed behind her. Her throwing arm (right) is also now behind her body. Athlete has also completed a full rotation and is positioned in the centre of the circle.

Frame 44?

Athlete has continued rotating anticlockwise and is now totally off the floor, her throwing (right) arm has come in front of her body and her left arm is flexed and at her side. Athlete is now also positioned at the front of the throwing circle.

Frame 54?

Athlete has continued in her anticlockwise movement and is landing on her right leg while her left leg is flexed and still in the air, the athlete is now also facing out of the cage towards the field, with both arms extended into the air.

(10)

OVERLAY

9)

- (i) Open the video '**Batting - Off-drive - FV**' from the cricket folder in the Main Window
- (ii) Open the video '**Batting - On-drive - FV**' from the cricket folder in the Best Window.
- (iii) Synchronise the two videos at ball impact.
- (iv) Name 3 differences and 3 similarities you can see between the two shots.

Differences

- *Off drive left leg steps out more.*
- *Off drive steps across line of the ball.*
- *On drive looking down at floor when contact with ball is made.*

Similarities

- *Finishing position for both shots is the same.*
- *Starting stance is the same.*
- *Back swing length and timing is the same for both shots.*

(/ 60)