

**There are 2 parts to this assignment, the data collection is labeled “Part 1” and should be its own quiz. The analysis/discussion should be a second quiz and this is labeled “Part 2”. Each bolded section is a new question on the quiz, and the quiz type we have used is shown in parentheses.**

## PART 1

### **QUIZ DIRECTIONS (on front page before starting quiz)**

In November 2020, Dartmouth alumna and U.S. Senator Kirsten Gillibrand '88 (D-N.Y.) wrote legislation to establish a federal office called the Unidentified Aerial Phenomena Task Force (UAPTF). Charged with cataloging and analyzing accounts of UAPs, the UAPTF's inaugural report to Congress was fascinating on many levels, and not least because it signaled the possibility of alien spacecraft and a need for sustained research. If Earth is being visited by beings from the Gliese planetary system, which has several planets in the habitable zone of its parent star, then it is tempting to view them as curious scientists, or perhaps even anthropologists fascinated by humans and their behaviors. For the purposes of this assignment, your job is to imagine yourself as a Gliesian college student.

### **INTRODUCTION (text - no question)**

As an anthropology major, you've developed a strong interest in human recreational activities, especially basketball, and you want it to be the focus of your honors thesis. You've noticed that human spectators tend to adorn themselves with the jerseys of players on the court, but the choice of jersey is nonrandom; some are worn far more frequently than others. Your working hypothesis is that spectators wear jerseys in proportion to the performance abilities of players, but you're not sure how to quantify performance. Propelling the ball toward the basket seems a good measure of skill, and you discover that humans call this act “a shot” or sometimes “field goal attempt.” So, you write to your advisor to propose rank-ordering players based on the % of shots taken, and you predict that variation in this metric will explain variation in the jerseys worn by spectators. Unfortunately, there is funding for only one visit to Earth to watch one basketball game.

Your advisor asks you to carefully define a shot and to use a systematic method of measuring behavior that is both reproducible and representative of longer timescales (e.g., season, years). This feedback puts you in a quandary because you don't know whether to use instantaneous scan sampling or focal bout sampling. The main advantage of instantaneous scan sampling is that it is done at regular intervals, which gives you time to collect other data that could prove useful. But it also overrepresents behaviors that occur frequently. The main advantage of focal bout sampling is that it is more likely to capture rare behaviors that could have outsized importance. In this assignment, you will explore one of the two methods and develop an understanding of the advantages and disadvantages of both.

## **DEVELOP ETHOGRAM (essay question)**

Your first step towards ranking the players based on % of shots taken is to define what a “shot” actually is. This can be done using something called an *ethogram*, which is a catalog that describes what certain behaviors are, so that they can be easily recognized. Ethograms are important to thoroughly define in advance so that different researchers can categorize behaviors in the same way. In the space below, try to define what a “shot” is. Try to consider all the behaviors that you would need to clarify in order to be able to definitively tell whether or not a basketball player has attempted a shot.

## **NBA DEFINITION (essay question)**

There are many different ways to attempt to score in basketball, including some less likely behaviors that you may not have thought of when coming up with your own definition. Below is the description of a shot as defined by an association of Earth basketball experts (the NBA) in section 11 of rule #4 in their official rulebook:

*Shot* = a player’s attempt to shoot the ball into his basket for a field goal. The act of shooting starts when, in the official’s judgment, the player has started his shooting motion and continues until the shooting motion ceases and he returns to a normal floor position. For jump shots, the shooting motion starts when the offensive player starts to bring the ball upward towards the basket. On drives to the basket or other moving shots, the shooting motion starts when the player gathers the ball and continues through with a shot (except during a take foul situation when the clocks are not expiring, the shooting begins when the player’s shoulders start upward). It is not essential that the ball leave the shooter’s hand. His arm(s) might be held so that he cannot actually make an attempt. The term is also used to include the flight of the ball until it becomes dead or is touched by a player. A tap during a jump ball or rebound is not considered a field goal attempt. However, anytime a live ball is in flight toward the rim from the playing court, the goal, if made, shall count, even if time expires or the official’s whistle sounds. The field goal will not be scored as a shot if time on the game clock expires before the ball leaves the player’s hand or the ball is in flight toward the rim.

Take some time to consider this definition -- how is it different from the one you came up with, and how do you think it could be improved? Do not go back and edit your own ethogram.

## **FORMAL DEFINITION (text - no question)**

To ensure that the recording of behavior during the game runs smoothly, everyone will use the same definition of a shot, simplified from the official one provided above. Do not go back and edit your own ethogram.

*Shot* = a player’s attempt to get the ball into their basket. The act of taking a shot begins when the player has started their specific shooting motion, and ends once the shooting motion has ended and the player has resumed a normal position. The "shooting motion" itself is highly variable, but

generally consists of a vector-like motion of the ball from the player's hands to the approximate position of the basket. A "shot" includes any attempt to get the ball into the basket.

### **SAMPLING METHODS (text - no question)**

You have been assigned one of the two sampling methods, which, as a reminder, are explained here:

*Instantaneous Scan Sampling* is a data collection method in which you observe and record the actions of the entire group being observed at specific time intervals, essentially “scanning” the behavior of the population at each interval. In this method, you only record behaviors that happen at the specified time intervals.

*Focal Bout Sampling*, on the other hand, is a data collection method in which you follow one particular individual, watching and recording their behavior for a specific period of time. After that period of time is up, you then switch to observing another individual. In this method, you only record behaviors performed by the individual that you are following.

### **VIDEO TYPE (multiple choice)**

Please select the sampling type you have been assigned.

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- Instantaneous Scan

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  - Focal Bout

### **INSTANTANEOUS SCAN DIRECTIONS (text - no question)**

#### *Instantaneous Scan Sampling Video Directions*

The following video is of game 6 of the 2013 NBA finals between the San Antonio Spurs (black jerseys) and the Miami Heat (white jerseys). It has been edited so it only includes time when the clock is running (this means there are no commercials, timeouts, substitutions, or free throws).

In the version of the game provided here, the video is paused at one minute intervals. During each pause, the team name and number of the player who is currently holding or last held the ball is shown near the bottom of the screen like so:



Your job is to analyze the freeze frame at each interval and determine whether the player with the ball has just attempted a shot or is about to.



You will then record this data in the score sheet in the form of a tally mark for each time you think a player has attempted a shot. **Only record a shot if it occurs during the freeze frame.**

Remember that accuracy is not the goal of this exercise. It is fine and in fact expected for you to make mistakes in determining when, or if, a player has made a shot. Instead of focusing on accuracy, try to focus instead on the experience of collecting data through this method. Watching and analyzing the video may take a significant amount of time.

## FOCAL BOUT DIRECTIONS (text - no question)

### *Focal Bout Sampling Video Directions*

The following video is of game 6 of the 2013 NBA finals between the San Antonio Spurs and the Miami Heat. It has been edited so it only includes time when the clock is running (this means there are no commercials, timeouts, substitutions, or free throws).

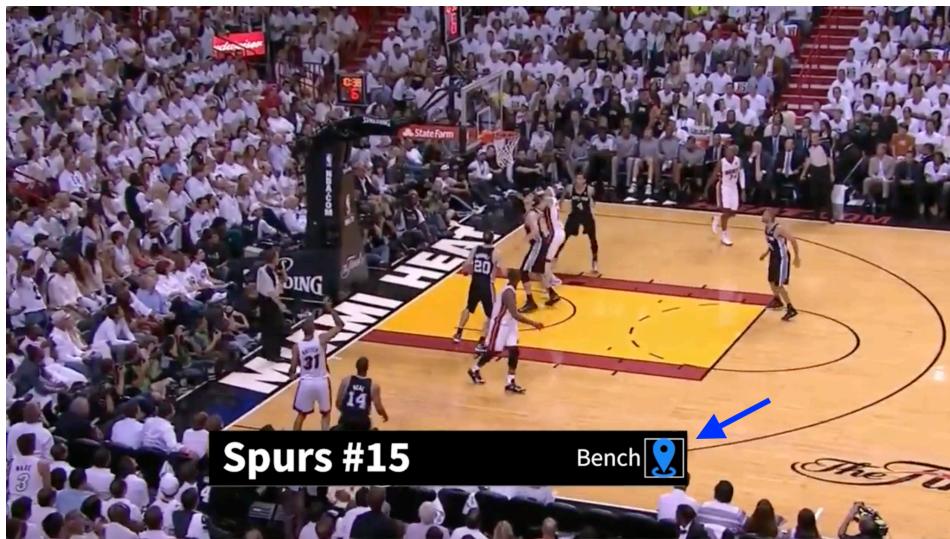
In the version of the game provided here, the player you are supposed to follow is marked by a tracking tag above their head. The team name and number of this player are shown near the bottom of the screen as shown below:



Your job is to track the behavior of the currently marked player. If the marked player makes a shot, record that shot in the form of a tally mark in the score sheet.



If the player to follow is on the court but not in frame, there will be no marker on the screen. If the player to follow is not in the game and instead is sitting on the bench, the marker will remain in the box next to the word "bench" near the bottom of the screen.



The player you are supposed to follow will change every one minute, which will be made clear by a change in the color of the tag, appearing above the new player to follow, and the new player number appearing at the bottom. **Only record a shot if it is taken by the marked player.**

Remember that accuracy is not the goal of this exercise. It is fine and in fact expected for you to make mistakes in determining when, or if, a player has made a shot. Instead of focusing on accuracy, try to focus instead on the experience of collecting data through this method. Watching and analyzing the video may take a significant amount of time.

## **VIDEOS (text - no question)**

The definition of a shot is provided again here:

*Shot* = a player's attempt to get the ball into their basket. The act of taking a shot begins when the player has started their specific shooting motion, and ends once the shooting motion has ended and the player has resumed a normal position. The "shooting motion" itself is highly variable, but generally consists of a vector-like motion of the ball from the player's hands to the approximate position of the basket. A "shot" includes any attempt to get the ball into the basket.

If you have lost the hard copy of the scoresheet, it can be found in Files under "Uploaded Media" or at the link here: [\[insert link to scoresheet\]](#)

*Instantaneous Scan Sampling Video*  
[\[insert Panopto video link\]](#)

*Focal Bout Sampling Video*  
[\[insert Panopto video link\]](#)

**INPUT DATA (fill in multiple blanks)**

Input the number of shots you recorded for each of the players:

Spurs 2 Spurs 4 Spurs 9 Spurs 14 Spurs 15 Spurs 20 Spurs 21 Spurs 22 

(etc in jersey order, Spurs then Heat)