Lesson #3

Scope of this lesson

Introduce the Analytical Reasoning (puzzles) section – 0.25 hour
Introduce the ordinal puzzles and tactics to use – 2.00 hours
Exercises and review – 0.25 hour

Objectives of this lesson

Learn about the puzzles and how this section fits into your overall strategy
Learn how to use diagrams to solve the puzzles
Learn when and how to use the ordinal (time & space or line) puzzles

The Puzzle Games Introduction

We will learn all the puzzle diagrams in a few minutes, but first we need some background information on the puzzle section and the methods we use to beat it.

I. The Analytical Reasoning section: why it's different, and why this is good news for you.
   A. Why it's different.
      1. We are fairly familiar with how to do the other LSAT questions.
         a. We do reading comprehension every day.
            i. We know how to read essays.
         b. We do logical reasoning every day.
            i. We can identify and make conclusions and assumptions.
      2. But, we don't do LSAT analytical reasoning every day.
         a. You do some types of analytical reasoning: You plan daily schedules to balance work, play, and sleep, according to your criteria.
            i. For example: When you registered for college classes every semester, you used analytical reasoning. You had to take certain required classes, you wanted to take certain optional classes, you had to make sure that the class schedules did not overlap, and you wanted classes in the morning, evening, or to have a day during the week with no classes.
               1. Do you remember how difficult this is? Well, the LSAT tests your ability to do this under serious time constraints.

   B. Why this difference good for you.

1. Because they are hard!
2. In Get Prepped classes we have seen engineering majors with 4.0 GPAs who could not answer these puzzles without first learning the diagrams. You will learn how to approach the puzzles, and once you know how to find the key to a puzzle problem, everything starts to fall into place.
    a. Since nobody does well on this section without preparation, the extra work you do will result in extra points, putting you ahead of the crowd.

II. What do the puzzles look like? There are only a few types of puzzles, all of which are listed below, along with their frequency in twenty recent LSATs.

A. The Lines (Spatial Relationships, or Ordinal Relationships) - Lesson #3
    1. The Simple Line (20%)
    2. The Multiple Line (20%)
    3. Heavier than/lighter than; taller/shorter than lines (5%)

B. The Non-Lines (Organizational Relationships) - Lesson #4
    1. The Matrix (or grid) (25%)
    2. Subsets (15%)

C. Infrequently tested puzzles - Lesson #5
    1. Network map (<5%)
    2. Organizational diagrams/Flow Charts (<5%)
    3. Map (directional map) (<5%)
    4. Hybrid puzzles & using elements of different puzzles (<5%)

D. We will come back to these puzzles soon, but first we need to cover more background information.

III. Background info for the puzzles.

A. Each Analytical Reasoning section contains 4 puzzle sets.
    1. You have less than 9 minutes to complete each problem set.
    2. Of the 4 sets, typically 1 is easy, 2 are fairly difficult, and 1 is difficult.

B. There are 8 possible analytical reasoning puzzle types. An LSAT only has 4 problem sets, so at most you will see 4 diagram types, and often only 2 or 3 diagram types, since one type of puzzle is usually used twice.
    1. The possible diagram types are introduced above.
    2. We will cover the common diagrams in detail, spending less time on the infrequent diagrams.

IV. Your strategy for completing the Analytical Reasoning sections – this section is vital.

A. There are two techniques you use to solve the puzzle games.
    1. Use a diagram

2. Use the condition violators answer elimination technique
    a. Both techniques may be used in the same puzzle set, and sometimes in the same question. They are complementary techniques, not mutually exclusive. Simply put, sometimes a question is better answered using a diagram, and other times condition violation is more efficient. Often, a combination of both techniques is the most effective approach to a question.

B. Diagram Technique
    1. This is a very important technique. If you don't diagram well, you will never succeed at the puzzle games.
    2. You will use a diagram to organize the conditions.
        a. In the Analytical Reasoning section, you MUST use one of the 8 diagram types. In the last 10 years, only 4% of Analytical Reasoning sets did not require a diagram to find the solution.
    3. You never create a different kind of diagram. You must use one of the 8 diagrams, and then slightly modify it depending on the conditions. You may be uncertain at first, but you will always use a variation of one of these diagrams. Some problems will require very little modification; some will require much more.
        a. Sometimes it will seem like you can use either of two different diagrams to solve the problem. While this is occasionally true, one diagram will be far more efficient at helping you arrive at an answer.
            i. This situation normally arises when you are looking at a possible subset or matrix.
        b. Once in a while, a problem will require you to mix and match the elements of two diagrams. This is what we call the "Hybridization Concept," which we will talk about it in the final puzzles lesson. For now, focus on learning the skills for the 8 diagrams, which will be the basic building blocks for any hybridization you do.
    4. Your objective is to use one of these diagrams to quickly graph the conditions.
        a. You only have enough time to apply the conditions to the diagram. This is why, before you enter the LSAT test-room, you must have a well-developed instinct for what the diagrams are, when to use them, and how to use them.

C. Condition Violators answer elimination technique
    1. This can be a highly useful and efficient technique.

a. It complements, but does not replace, diagramming.
b. It can be a shortcut to skip diagramming.

2. To use this technique, you simply find the one false member in each answer choice. When you find one false member in the choice, then you eliminate that answer choice.
    a. An exercise to learn how to use Condition Violation:
        i. We are given three conditions:
        X & R never travel together
        P never travels in car 1
        Q & P do not travel in the same car
        ii. We have this question:
        On a day when T travels in car 2, which of the following could ride together in car 1?
        iii. Our answer choices are:
            (A) P, V, W
            (B) Q, S, V
            (C) X, Q, R
            (D) Q, V, P
            (E) X, R, T
        iv. The Condition Violator process:
            1. Start with the first condition. Since X & R can't travel together, any answer choice showing X & R in the same car is wrong. This eliminates (C) and (E). Look at the second condition. Since P is never in car 1, answer choices (D) and (A) are wrong. Look at the final condition. Q & P do not travel together, so (D) is wrong, again. This leaves (B) as our answer choice, and we had to invest very little time to get to this point.
        v. Conclusion of condition violation:
            1. When answer elimination works, it works quite well, eliminating 2-4 answer choices without breaking a sweat.
            2. Answer elimination requires precise reading.
            3. Typically, each condition eliminates 1 answer choice, so you need to use some or all of the conditions to eliminate answer choices.

4. Normally, the first question in the puzzle set is best answered using condition violation. Go back to your diagnostic test and look at the first question of each puzzle set.
5. As you get better, you will probably use answer elimination more and diagramming less. But first, you must to learn how to diagram.

V. Overall Strategy for the Puzzles – with an example.

A. Quickly skim the conditions to decide on a diagram.
    1. Example: "6 cars of different colors are parked on the street. The yellow car is in the third position. The salmon car is always 1 position to the right of the yellow car. The purple car is always separated by 1 position from the yellow car. The green car is always to the right of the purple car."

B. Choose a diagram (See Roman numeral II for the 8 diagrams).
    1. The simple line seems like the most obvious diagram.

C. Draw the diagram:
    1. Skim all the conditions quickly once again.
        a. You want to ensure that you do not overlook something that would make your initial impression incorrect.
    2. Draw the basic diagram.
        a. Example: For the simple line, draw a series of 6 dashes: __ __ __ __ __ __
    3. Read the conditions a second time.
    4. Then graph those conditions that you are able to graph.
        a. Find and graph the anchor condition(s).
            i. Anchor conditions are those members who will never move positions.
                1. Example: "The yellow car is in the third position."
            ii. Graph the fixed anchor on your diagram.
                __ __ Y __ __ __
            iii. Eliminate the anchor condition.
                1. Place a check mark, or cross off, every condition that you are able to place on your diagram. This way you don't need to look at it again.
        b. Place other conditions that are related to your anchor.
            i. Graph the fixed conditions.

1. Example: "The salmon car is always 1 position to the right of Y."

   __ __ Y S __ __

ii. Graph the variable conditions.

1. Example: "The purple car is always separated by 1 position from the yellow car." We don't know from this language whether P is to the left or right.

   __ __ Y S __ __
   (P) (P)

2. Note – The parenthesis mean that P is a possibility in that location. Placing the P below the line is a different way to show it is only a possibility. In lesson 5, there is a full discussion of these symbols, tools, and techniques.

iii. Graph variable conditions that are based on other variable conditions.

1. Example: "The green car is always to the right of the purple car."

   __ __ Y S __ __
   (P) (P)→ (G)
   (P)——————→ (G)

iv. Remember to check off conditions as they are used so that you don't come back to them.

5. Draw Warranted Conclusions – VERY IMPORTANT. This is what you will spend most of your practice time learning to do correctly.

   a. Do not conclude too little.

      i. Example: You should recognize that G is never going to be in position 1.

         __ __ Y S __ __
         (P) (P)→ (G)
         (P)——————→ (G)
         noG

   b. Do not conclude too much.

      i. For example, you should not conclude that G can *only* be in positions 2 or 6. If P is in 1 then G can be in any position to the right of 1, meaning 2, 5, or 6.

   c. Check to see that you considered all conditions, even if you cannot place them yet.

6. To confirm the correctness of your conditions and conclusions, go to the first question that does not add new conditions.

a. Decide if the Condition Violation technique will help. If not, use the diagram.
b. Based on your diagram, do the answers make sense? Did you get the right answer quickly?
    i. Yes- then your skeleton diagram is correct.
    ii. No- then you made an error in your skeleton diagram.

7. When the question adds new conditions.
    a. Decide if the Condition Violation technique will help.
    b. If not, draw a new diagram if time and space allows.
    c. Do not transfer, intentionally or unintentionally, this new condition to any other questions. See Lesson 5 for tips on preventing accidental transfer.

VI. More details about the Overall Strategy

A. Choosing a Diagram.

1. First, decide which graph is the best way to chart the conditions in the question. There are only 8 puzzle diagrams, and only a few of them are regularly tested.
2. No test-taker is able to mentally keep track of all the relationships, but once you choose the correct diagram and complete it correctly, you are halfway to finding the correct answers. You should plan on spending half of your time diagramming the conditions.
3. Every problem set should be answered using one of the 8 diagrams. We will spend most of our time learning the diagrams and when to use them.
4. At first glance, a problem set may not SEEM to lend itself to a diagram. If a problem doesn't SEEM to lend itself to one of the diagram techniques, skip it. At the end of the section, return to the problem set. After coming back, you will probably realize that this difficult problem set really does fall into one of the diagram types. But, you have important things to do with your time. Focus on answering the "easy" points that your diagrams help you find.
5. This process of choosing a diagram requires fewer than 30 seconds once you develop the skill.
6. A flow chart is included at the end of this lesson. Memorize it so that you have a mental checklist for deciding on the correct diagram.

B. Drawing warranted conclusions.

1. If you don't draw the extra conclusions, you will never be able to answer the puzzles.

2. You will always end up with a partial diagram. There will be 2 or more letters/people/objects that the problem set has not told you where to place.
3. At this point, you must draw conclusions about implicit conditions that logically must result from applying the explicit conditions.
4. With enough practice, you will get a "gut" feeling for making warranted conclusions.
5. There are virtually <u>always</u> extra conclusions that you can make. If you haven't made an extra conclusion, you probably overlooked something.

The Ordinal / Line Puzzles

Alternative names for the ordinal puzzles include line puzzles or time/space puzzles. The point here is that you are organizing something in time or space. The ordinal/line puzzle category includes the simple line, the multiple line, and the heavier than/taller than line.

VII. The Simple Line

A. How frequently is it tested?

1. This is the most common type of puzzle.
    a. Approximately 45% of the LSAT puzzles are some kind of line. You will see at least one, and maybe two, line problems on your LSAT.
2. We start with the simple line, but there are three variations on the line:
    a. Simple line- 20% of the average LSAT puzzles
    b. Multiple occupants on a line- 20%
    c. Heavier/taller/before/more popular than questions- 5%

B. How hard are they?

1. The simple line is the easiest puzzle.

C. What do I do?

1. You create a line of objects: people, cars, letters, flags, etc.
    a. The conditions dictate where certain objects are placed on the line.

D. What does a simple line problem set look like?

1. Some common wording of simple lines:
    a. "There are seven houses on a street"
    b. "Beads are being put on a string"

2. Although seven is the most common number used, there can be more or less. Don't assume it is a simple line merely because it involves seven members. But, if there are five or fewer members, or eight or more, it is unlikely that you are dealing with a simple line.

E. How do I answer the simple line?
   1. The easiest first step in any line problem is to draw the horizontal line. You are always told how many objects must be placed in the line. You simply draw enough positions for the number of objects. Your line looks like this:
      "_ _ _ _ _ _ _"
   2. You will then place the appropriate letters in the correct spaces. (Use letters to stand-in for the names of the members.)
   3. Through the use of symbols, you can organize the relationship of the objects. You should develop whatever symbols you find easiest. Just a few commonly used symbols are:
      a. "AB": Used when two objects must be placed next to one other. For example, "A is always to the left of B."
      b. "~~D~~": A strike-though is used to indicate that an object cannot be used. For example, "D cannot be in position 2."
      c. "A► B": An arrow indicates relationships. For example, "if A is selected, then B is selected."
      d. "A/B": A probability slash indicates non-exclusive alternatives. For example, "either A or B must be in position 2."
      e. In Lesson 5 you will be shown a variety of helpful symbols, which are discussed in greater depth.

F. Example #1: Simple Line

There are 7 flags arranged in a row.
The flags are all single-color, solid color flags.
The flags are red, white, green, and blue.
There are exactly 2 red flags.
At least one color has exactly 3 flags.
At least one color has exactly 1 flag.
A blue flag must not be next to another blue flag.
A green flag must always be next to another green flag.
A white flag must be in the middle of the row.

How to Answer:

Step 1. Draw a row with 7 spaces: _ _ _ _ _ _ _

Step 2. Find an anchor. A white flag must be in the middle of the row. Write a "W" in position #4: __ __ __ W __ __ __

Step 3. You have at least 1 white flag and exactly 2 red flags. There must be, at most, 4 flags that are either blue or green. We know that green must have at least two flags, since green flags must always be next to each other, so at most, we can have two blue flags, and at least, one blue flag.

Step 4. Determine which color has the three flags. We know that red has only two flags--no more, no less. If white has three flags, this would only leave two flags (3 whites + 2 reds = 5). Since green alone must have two flags, this option would exclude blue, and thus, white cannot have three flags. If blue were to have three3 flags, then green would only have one, and this too violates the original condition regarding green. Thus, we have two red flags (explicit), exactly one white flag (implicit), exactly three green flags (implicit), and as a result of this, only one blue flag (implicit). This is an example of drawing warranted conclusions.

Step 5. Graph your conditions. We have three green flags, and green flags MUST stand next to each other, so the green flags must occupy the three spaces on the left of the "W" or the three spaces on the right of the "W." Conversely, the two reds and the one blue must be on the opposite side from the green flags. We do not know where the reds and blues actually stand: G G G W __ __ __ or __ __ __ W G G G

1. If the blue flag can only be one flag away from a green flag, what position could a red flag be?

(A) Position #3 – No, this must be occupied by a green or blue.
(B) Position #4 – No, this is the middle position occupied by W.
(C) Position #5 – No, see answer A.
(D) Position #7 – * Correct - A red flag can be at #1 & #2 or #6 & #7.
(E) Position #4 or #5 – No, see above.

2. What arrangement follows the conditions above and puts the most flags next to a differently colored flag?

(A) G,G,G,W,B,R,R – No, this satisfies the conditions, but does not mix the colors as the question asks, since the two reds are next to each other.
(B) B,R,R,W,G,G,G – No, see above.
(C) R,G,B,W,B,G,R – No, this separates the greens, violating a condition.

(D) R,B,R,W,G,G,G – * Yes, this satisfies the conditions and mixes the colors as asked.
(E) R,W,B,G,G,G,R – No, this moves the white incorrectly.

G. Example #2: Simple Line
Return to the diagnostic test you took and consult the third puzzle set, which involves organizing the beads. As you may remember, this set is made more complex due to the fact that there are no anchors at all, so everything "floats." What we do know is that every length of eight beads must adhere to all the conditions. Here the graph is of less use than is normal, and we have to do much of the diagramming after the questions supply more anchors. Also, condition violators is a useful strategy.
If you did not finish this puzzle when you did the diagnostic, try returning to it now and using what you have learned so far.

H. Conclusion of the simple line.
1. Some type of line--often a simple line--is certain to be on your LSAT. Learn to quickly and efficiently diagram and answer it so that you have more time for the harder puzzles.

VIII. Multiple occupants per position line and multiple lines diagrams.
A. How frequently is it tested?
1. About 20% of LSAT problems are a multiple line, so it is very likely one of your four puzzles will be a multiple line.

B. How hard is it?
1. It is harder than simple line, but not as difficult as some puzzles we will see later.

C. What do I do?
1. For multiple occupants on one line, you draw a single line of dashes, which you divide in two with a bisecting line.
a. __|__ __|__ __|__ __|__ __|__
2. For multiple lines puzzles, you draw two or three parallel lines.

— — — —
— — — —

3. In the simple line, you focus on the relationship of a member with other members on the same line. In the multiple line, you are also concerned with the interrelationship of members of one line with the members of the other line(s).

D. What does a multiple occupants per position line question look like?
1. Some common question stems:

a. “A group of eight students walk in two lines.”
b. “A group of 6 children make three pairs for three dances.”
c. “Five runners representing five charities run in parallel lanes.”
d. “A four-story office building has two offices per floor.”
e. Generally, if you can mentally envision running lanes, or a group of students holding hands and walking in two lines, then you are dealing with a multiple occupants per position line.

E. How do I answer a multiple occupants per position line question?

1. The first step is usually to draw two (or three) parallel sets of dashed lines. A group of eight students walking in pairs looks like this:

   — — — —
   — — — —

2. The five runners for five charities looks like this:

   — — — — —
   — — — — —

3. Sometimes the problem calls for a different graph; for example, the four-story building looks like this:
   __ |__ 4th floor
   __ |__ 3rd floor
   __ |__ 2nd floor
   __ |__ 1st floor

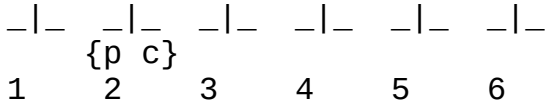
4. Remember, you draw a diagram to help you “see” the problem.

F. Example #1: Multiple occupants per position line

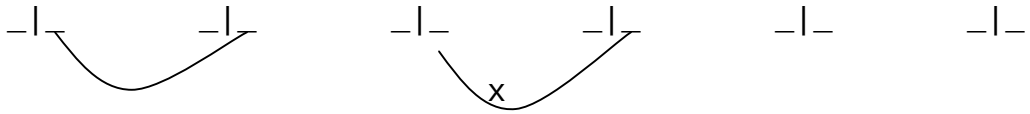
A series of paint in canisters is available in red, pink, and blue. Each color is available in oil and watercolor. The paints are placed on six shelves according to the following conditions:

Each shelf holds only one paint canister.
Shelf 1 holds the same color as shelf 2.
Blue watercolors are on shelf 1 or 4.
Shelf 3 holds a different color than shelf 4.
Red oils are on shelf 4 or 1.
Pink watercolors are not on shelf 5.

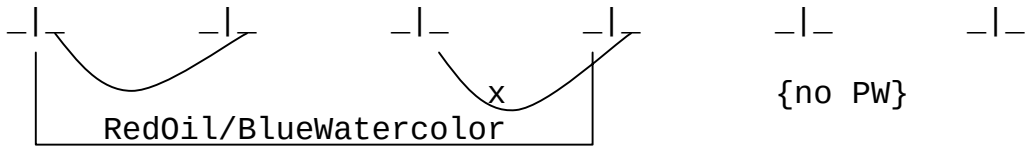
Step 1. Draw six (6) lines in a row. There is one line for each of the 6 shelves. Bisect each of the lines. The first half of the line is the paint type for that shelf and the second half of each line is the color.



Step 2. Chart the relationships given in conditions 2 & 4.



Step 3. Now graph conditions 3, 5, and 6.



Step 4. Make warranted conclusions. First, RO or BW must be in spaces 1 and 4, or 4 and 1. Whatever is in space 4 determines what cannot be in space 3. Whatever is in space 1 determines what is in space 2. There are too many permutations still left for us to account for, so go to the questions.

1. Which of the following could be a list the shelf contents from 1 to 6?

(A) red oils, red watercolor, blue oils, pink oils, pink watercolor, blue watercolor.
(B) blue oil, pink watercolor, pink oil, red oil, red watercolor, blue watercolor.
(C) red watercolor, red oil, pink watercolor, blue oil, pink oil, blue watercolor.
(D) blue watercolor, blue oil, pink oil, red oil, red watercolor, pink watercolor.
(E) blue watercolor, blue oil, red watercolor, red oil, pink oil, pink watercolor.

(A) Wrong; pink watercolor pink can't be on shelf 5.
(B) Wrong; shelf 1 can only be red oil or blue watercolor.
(C) Wrong; folder 1 can only be red oil or blue watercolor.
(D) * Correct. Diagram it if necessary.
(E) Wrong; shelves 3 and 4 can't have the same color.

2. Which of the following must be false?

(A) Red watercolors are on shelf 3.
(B) Blue oils are on shelf 5.
(C) Blue watercolors are on shelf 1.
(D) Pink oils are on shelf 3.
(E) Pink watercolors are on shelf 6.

(A) * is correct, this is false. If red oil is on shelf 1, red watercolor must be on shelf 2. Red watercolor can't be on 3 if red oil is on 4.
(B) Wrong; this is possible.
(C) Wrong; this is 50% likely.
(D) Wrong; this is possible.
(E) Wrong; this is possible.

3. If the blue oils are on shelf 2, which one of the following statements could be true?

(A) Red watercolors are on 4.
(B) Red watercolors are on 6.
(C) Pink oils are on 1.
(D) Pink watercolors are not on 3 or 6.
(E) Pink watercolors and pink oils are not on shelf 3.

If blue oils are on shelf 2, then blue watercolors must be on shelf 1. This means that red oils must be on shelf 4, which means red watercolor can't be on shelf 3.
(A) is wrong.
(B) * This might be true.
(C) This is false.
(D) Pink watercolors must be on either 3 or 6.
(E) Similarly, pink watercolor can't be on shelf 5, and can't be on 1, 2, or 4, leaving only 3 or 6.

G. Example #2: Multiple line diagram
Return to the diagnostic test and consult the first puzzle set, which involves seating airline passengers. As you remember, the LSAT provided the multiple-line diagram for you. There are some anchors, which makes it easier. If you did not finish all the questions when you did the diagnostic, try returning to it now and using what you have learned in this lesson.

H. Conclusion of the multiple lines questions.
1. Your diagram must "look like" the problem presented. Then focus on the interrelationship of the pairs.

IX. Taller than/Heavier than/Earlier than questions:

A. How frequently is it tested?
    1. About 5% of recent LSAT puzzles have been of this type, so there is only a small chance you will see one of these on your LSAT.

B. How hard is it?
    1. These puzzles are actually a simple line, with some extra modifications.
    2. Once you use the greater than/less than notation, these problems are not overly difficult. The greatest difficulty is remembering that one to three members "float." While most of the members are fixed relative to the other members, one to three members might be in any of three or four locations in the order. These problems can become very complex depending on how many anchors you are given.

C. What do I do?
    1. Use greater than/less than notation to organize the members' positions. You usually place the members on a horizontal plane, much like the simple line.

D. What does a taller than/heavier than problem look like?
    1. Some sample wordings:
        a. "Widgets come in six weights."
        b. "A teacher is arranging students according to height."
        c. "Seven subjects in a study are ordered by weight."
        d. "Seven products are ranked in order of popularity."

E. How do I answer a taller than/heavier than problem?
    1. The important thing is to know how to use < and >. If you use these correctly, it keeps the members organized.
    2. It also helps to consolidate as many members as you can into as few groups as possible. The following example shows how to do this.

F. Example #1: Heavier than diagram

Widgets come in six weights: A,B,C,D,E,F.
F weighs more than C.
C weighs more than A.
B weighs less than D.
C weighs more than E.

E weighs more than D.

Step 1. Diagram the relationships. F > C, C > A, D > B, C > E, E > D.

Step 2. Combine as many as possible. F > C > A/E The slash indicates that we do not know the relationship between A and E.
Also, E > D > B.
So our graph looks like this:
F > C > A/E[> D > B].

Or you could depict it this way:
F > C > A > ?
F > C > E > D > B

Or, to make it even clearer, these are the possible positions of A:
F > C > E > D > B
(A A A A)

Note that it is possible that D and/or B weighs more than A.
This is as far as we can go with the conditions.

1. Which of the following must be true?

(A) C is heavier than D.
(B) C is lighter than D.
(C) A is lighter than B.
(D) C is lighter than E.
(E) E is heavier than A.

Answer (A) * is correct. Although we don't know exactly where D lies on the graph, we know for sure that it falls below C. Note that choices (C) and (E) concern widget A or E, and of course, we don't know where those two fall.

2. Which of the following CANNOT be true?

(A) D is heavier than C.
(B) D is lighter than C.
(C) A is lighter than B.
(D) C is heavier than E.
(E) E is heavier than A.

Answer (A) * is correct. A quick look at our diagram reveals all we need to know.

3. If a new size, G, is added and is lighter than exactly three of the six original sizes, which of the following must be true?

(A) E is heavier than G.
(B) C is heavier than G.
(C) D is heavier than G.
(D) A is lighter than G.
(E) A is heavier than G.

Add this new condition to your graph. Since both C and F are definitely heavier than G, (B) * is correct. We can't be certain where A or E falls, so this rules out three answer choices.

G. Example #2: Heavier than diagram

Return to the diagnostic test and consult the fourth puzzle set, which involves the six songs performed by the three singers. This problem starts as a very easy earlier than/later than diagram, but then is made more complicated because it limits which singers can sing which songs and when. If you did not finish this puzzle or all the questions when you did the diagnostic, try returning to it now and using what you have learned in this lesson.

H. Conclusion of the heavier than diagram.

1. As we can see, the trick to these problems is to avoid fixing a member where it is only a possibility, locking yourself in. These problems always focus on the "floating" member(s) and the effect this "float" has on the other members.
2. Remember that you are certain to see some kind of line problem on the LSAT, and you are very likely to see two line problems. In the diagnostic test, three of the puzzles are line puzzles.
3. In recent years, the LSAT has increasingly used line puzzles.
4. Practice the line puzzles and you will efficiently move through most of the puzzles on your LSAT.

Exercises and Review

Quiz:

1 - Analytical Reasoning puzzles are most similar to which of the following daily activities?

(A) Doing your laundry
(B) Writing a term paper
(C) Planning a trip itinerary
(D) Reading a newspaper editorial
(E) Doing a crossword puzzle

Answers (A) and (D) are skills more related to the writing sample, Reading Comprehension, or Logical Reasoning.
(C) *, on the other hand, requires that you evaluate and prioritize what you will do, who you will visit, etc. Planning your college classes for a semester is another example. The LSAT often asks you to organize a sports team, or a committee.

2. Which of the following is the most commonly tested puzzle?

(A) Simple Line
(B) Multiple Line
(C) Heavier than Line
(D) Matrix
(E) Subset

This one is close, but the simple line (A) * is tested slightly more frequently than the multiple line. The percentages provided at the start of this lesson show that the simple lines and multiple lines each account for 20% of the puzzles. But in the last four years, the simple line has increased in popularity, making up 25% of all puzzles in that four-year period, while the multiple line made up 22.5% of all puzzles. The heavier than lines are only about 5% of recent puzzles. For the same four-year period, matrix puzzles have consistently been just over 20% of the tested puzzles, while subsets have made up about 15% of all puzzles.

3. On the parade float committee there are 8 members. G must be on the committee with X. P cannot be with H. X and H are on the committee together if one of them is on the committee. All of the following committee assignments must be false, EXCEPT

(A) G, P, Q, R
(B) P, G, Q, T
(C) X, G, R, T
(D) X, H G, R
(E) H, R, G T

The point of this question is to test your condition violator answer elimination skills. You want to find the one possible assignment.
(A) G must be with X (condition 1).
(B) G must be with X (condition 1).

(C) H must be on the committee if X is on it (condition 2).
(D) * This is possible.
(E) See the explanation for (C).

4. If you are presented the following language, which diagram should you use? "Seven houses are built on the south side of a road."

(A) Matrix
(B) Subset
(C) Multiple Line
(D) Simple Line
(E) Double Mulligan

This is easy to visualize. It should be a series of seven dashes in a single line.
(D) * is the correct answer.
(E) There is no such diagram as the double mulligan. If you choose (E), you aren't paying attention!

5. If you are presented the following language, which diagram should you use? "Six recordings will be broadcast according to the following conditions."

(A) Matrix
(B) Map
(C) Subset
(D) Multiple Line
(E) Heavier than Line

Given these answer choices, the best answer is (E) *. Often you must do a little extra digging to decide which diagram is best. One quick way to decide is this: If the conditions talk about a member being in a particular position, like position 4 or 5, then it is probably a simple line or a multiple line. If the conditions discuss one member coming before or after another member, then you are better off using the heavier than diagram.

6. How many parallel lines will you most likely need when answering a multiple line question?

(A) One
(B) Two
(C) Three
(D) Four
(E) Five

When you have a multiple line problem, you should expect to use two lines, so (B) * is correct. Sometimes you need to use three parallel lines, but it is more common to need to use two.

Flow chart to help you choose the correct diagram to solve a puzzle.