Manhattan LSAT

Everything You Wanted to Know (and More) About Equivalent Rule Questions

MANHATTAN

LSAT

Deconstructing Equivalent Rule LSAT Questions

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Equivalent Rule Questions

Five of the last six published LSATs have contained an **Equivalent Rule** question—that is, a question that asks us to identify a rule that could replace one of the original constraints and have the same consequences. This question is similar to the Rule Replacement question and seems to have overtaken it—for the most part—in the test-writers' hearts and minds. Equivalent Rule questions can be intimidating at first, in large part because they require a readjustment of what is, for most of us, an already fragile understanding of a game. However, like all LSAT questions, they can be made easier if we attack them with a practiced and sound process.

In this paper, we will deconstruct the Equivalent Rule question.

(1) We'll start by thinking about the various ways in which a test-writer *could* create such a question.

(2) Next, we'll breakdown the first three Equivalent Rule questions that appeared—those from Practice Tests 57, 58 and 59. We'll use these to get a sense of the types of Equivalent Rule questions the authors have *chosen* to write.

(3) Armed with this understanding, we'll derive a process for getting through Equivalent Rule questions quickly and effectively.

(4) Finally, we'll model this process on the two most recent Equivalent Rule questions that have been published—those from Practice Tests 61 and 62 (there was no Equivalent Rule question in Practice Test 60).

Three caveats before we begin:

(1) There are a limited number of Equivalent Rule questions that have appeared on recent exams, and we will be discussing *all* of them here. Be careful not to "use up" all your practice questions with this paper before actually trying those games. We strongly recommend that you try solving these questions on your own before reading their respective explanations, and, if you aren't at the point in your studies yet when you are ready to try a particular problem (perhaps you are saving some of these exams to use as full practice tests) you should hold off on reading that particular explanation until a more appropriate time.

(2) Because of copyright issues, we cannot print actual games or problems here. Ideally, you'll want copies of the exams to refer to as you read this article. However, we've also done our best to write this in such a way so that you can follow along even without the actual practice tests.

(3) This is meant to be an advanced lesson. It is written with an expectation that you are already familiar with the basics of solving games in general. That doesn't mean the lesson is just for high scores—it does mean it will be much

more beneficial for you towards the tail end of your study process.

Okay, so with all that out of the way, let's get to it…

Part 1: Imagine that you are the test-writer.

How would you come up with such a question?

For the purposes of this discussion, let's use a simple hypothetical game scenario:

> Five people—Q, R, S, T, and U—finish a race in order.
>
> S finishes third.
> T finishes immediately before or immediately after S.
> Q finishes at some point before R.

Imagine that as the test-writer, you've just written this question stem:

> Which of the following, if substituted for the rule that T finishes immediately before or after S, would have the same consequence on determining the order in which people finished the race?

How do you come up with the right answer?

For many, the first idea would be to reword the same exact information in a different way. We'll consider this as our first option:

Option 1: Reword It

> Original: T finishes immediately before or immediately after S.
> New: No one finishes between T and S.
> New(2): Either S finishes immediately before T, or T finishes immediately before S.

It may seem simple enough, but even answers that are just rewordings can cause challenges during the pressure of the exam.

Let's consider one final possibility:

> "Neither Q, nor R, nor U can finish between S and T."

What would this rule actually mean? Since no letter can go between S and T, S and T must be next to each other. It's likely this answer would cause us some trouble on the actual exam, because it looks very different from the original constraint. However, it's important to note that this answer is not actually different from the original rule in terms of the information it gives us.

We've covered the first option. If you were the test-writer, how else could you come up with a right answer?

Option 2: Match the Direct Consequences / Show the Flip Side

Okay, so for this discussion, we are going to arbitrarily draw a line in the sand between a "direct consequence" and a "secondary inference." This is a subjective call, and a very blurry line by its nature, but if you agree to go along with us a bit, I think you'll find this differentiation quite useful.

Generally speaking, *"direct consequences"* will only have to do with either the elements or the slots specifically mentioned in the original constraint. Many of these direct consequences can be thought of as the "flip side" of the information given—they aren't necessarily new understandings, or new information—just different ways to consider the information originally presented.

To illustrate, here's the scenario and the question stem again:

> Five people—Q, R, S, T, and U—finish a race in order.
>
> S finishes third.
> T finishes immediately before or immediately after S.
> Q finishes at some point before R.
>
> Which of the following, if substituted for the rule that T finishes immediately before or after S, would have the same consequence on determining the order in which people finished the race?

Based on the rule in question, what do we know about the spots that T can occupy?

Because S must be in the third spot, and T must be next to S, T must be in the second or fourth spot. Imagine we were told the following:

> "T must finish in the second or fourth spot."

A direct consequence would be that T would have to be immediately before or after S.

The rule "T must finish in the second or fourth spot" is a valid match for the given rule. It gives us different information from that which the original rule gave us, and can be considered as the *flip side* of the original information.

Notice, another valid match would be:

> "T does not finish first or last."

This again gives the "flip side" of the information we know directly.

Again, we realize that many of distinctions are somewhat arbitrary, but if this concept of a "flip side" makes sense to you, it can be a powerful tool for recognizing matches.

Let's put ourselves back into the minds of the test-writers. We have one final tool for coming up with a wicked answer:

Option 3: Match the Indirect Consequences

Again, the line between Option 2 and 3 is blurry (as is the line between Options 1 and 2), but for Option 3, imagine the test-writer creating an answer that doesn't relate directly to the original constraint, but, in some incredibly clever way, ends up yielding the same consequences.

To illustrate, let's go back to our hypothetical one final time and play it out a bit further.

> Five people—Q, R, S, T, and U—finish a race in order.
>
> S finishes third.
> T finishes immediately before or immediately after S.
> Q finishes at some point before R.

We know that T must finish in the second or fourth slot, and we can set up frames based on this information:

_ T S_ _ or _ _ S T_ *
*(*For more info about framing, refer to our strategy guides or other course materials.)*

Based on these frames, we could come up with what turns out to be a fairly limited number of total possible orders of finish. Try to come up with them yourself, if you'd like, before looking at our list.

> QTSRU
> QTSUR
> UTSQR
> QRSTU
> QUSTR
> UQSTR

So, what if we wrote an answer like this one:

> "Either Q or U is first, and either U or R is last."

Another way this answer could be written is…

> "If not U, only Q or R can be first or last."

If you work backwards through the game, you can see that either of these rules, in conjunction with the other given constraints, would force T into two or four, and would thus force T to be next to S. These rules would also not have any other

unintended, or mismatching, consequences.

Notice that these rules look very little like the original constraint that we were given, and they center on very different information, yet they ultimately have exactly the same impact on the game.

Scary.

Okay, so, we've broken down and discussed the various ways in which the test-writer can derive equivalent rules. Here's our hypothetical game scenario one more time, along with the question stem, and the matching answers we derived, all of which could be correct answers to this question.

> Five people—Q, R, S, T, and U—finish a race in order.
>
> S finishes third.
> T finishes immediately before or immediately after S.
> Q finishes at some point before R.
>
> Which of the following, if substituted for the rule that T finishes immediately before or after S, would have the same consequence on determining the order in which people finished the race?

Option 1: Reword it

> No one finishes between T and S.
> Either S finishes immediately before T, or T finishes immediately before S.
> Neither Q, nor R, nor U can finish between S and T.

Option 2: Match the Direct Consequences / Show the Flip Side

> T must finish in the second or fourth spot.
> T does not finish first or last.

Option 3: Match the Indirect Consequences

> Either Q or U is first, and either U or R is last.
> If not U, only Q or R can be first or last.

Armed with this understanding, let's take a look at the Equivalent Rule questions that *have* appeared on the LSAT.

Part 2: Let's Review the LSATs

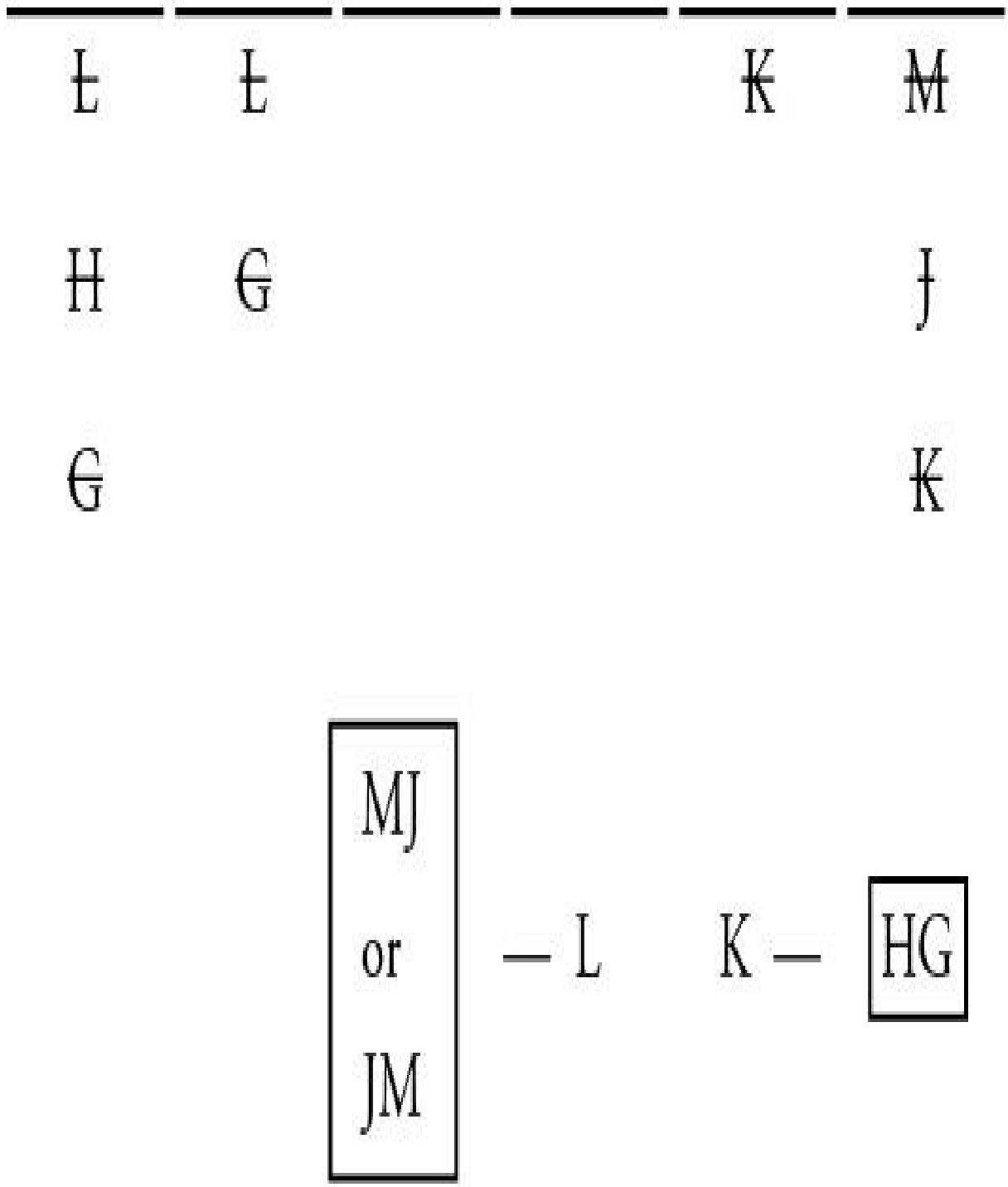
Let's start with the first Equivalent Rule question, which appeared on the June 2009 exam.

Practice Test 57, Game 1, Question #5

In these explanations, our focus will be on the Equivalent Rule questions. For more detailed discussion on other aspects of these particular games, please refer to our forums (www.manhattanprep.com/lsat/forums), where, by the way, for those of you who haven't heard, **you can get explanations for all LSAT problems for free**.

> In this game, six elements—G, H, J, K, L, and M—have to be ordered. The game has the following rules (paraphrased):
>
> G is immediately after H.
> K is earlier than G.
> M is earlier than L.
> M is either immediately before or immediately after J.

These rules are fairly simple to understand, and lend themselves to being joined together. The first and second rules are easy to relate, and naturally go together, as do the third and fourth rule. Therefore, you could create a diagram that looks something like this:



The final question for this game asked for a rule that would be the equivalent of one that tells us that M is before L.

Let's consider the consequences of this rule in layers.

1. First, we know what this rule tells us explicitly: **M is before L**.

2. Next, let's evaluate the direct consequences, which don't present us with too many challenges:

Since M and J are immediately next to one another, if L is after M, **L must also be after J**.

Next, since L must be behind at least two letters, **L cannot go in slots 1 or 2**.

Finally, because M must have L after it, **M cannot go in slot 6**.

3. Finally, let's consider the indirect consequences. The L after M rule, in combination with the other rules, contributes to two overlapping "chunks" (JM/MJ—L, K—HG). Here is a list of ways in which these chunks can come together:

JM/MJ—L—K—HG
JM/MJ—K—L—HG
JM/MJ—K—HG—L
K—HG—JM/MJ—L
K—JM/MJ—HG—L
K—JM/MJ—L—HG

Overwhelming! Can the test-writer come up with some clever answer that gets us to arrive at the same consequences through an unexpected path? Hopefully not!

Okay, so here are the things that we were told or able to infer directly:

M is before L.
J is before L.
L can't go in slots 1 or 2.
M can't go in slot 6.

Armed with this understanding, as well as a sense of the exhausted possibilities, let's dissect the answer choices that were presented. We need to find an answer that gives us the same consequences as the original rule, without giving us additional consequences.

(A) states that L must be one of the last three elements.

This is inconsistent with the direct consequences we discussed initially (L just can't be in 1 or 2). Furthermore, this answer doesn't allow us to replace the idea that L must come after M.

(A) is not a match and can be eliminated quickly.

(B) states that L must be immediately before or immediately after J.

This is very different from our understanding of the original constraint, and therefore (B) is not a match and can be eliminated quickly.

(C) states that J must be earlier than L.

Since J and M must go together as a block, this has exactly the same consequence as being told that M must be earlier than L.

This is our answer, and it didn't require a lot of work to see the match.

On the test, we wouldn't bother looking further, but for the sake of review, let's continue looking at the other choices:

(D) states that L has to be before H.

This doesn't match any of the direct consequences we came up with and therefore (D) can be eliminated quickly.

(E) states that L has be earlier than J.

This is different in meaning from the original constraint, and can be eliminated quickly.

Verdict:

This was the first Equivalent Rule question—it would have been unfair to those test-takers had it been a very convoluted one. The test-writers chose to be very kind.

All four wrong answers could be eliminated simply based on a correct understanding of the initial rule. The one right answer was predictable based on a very direct inference, and confirming it required little work.

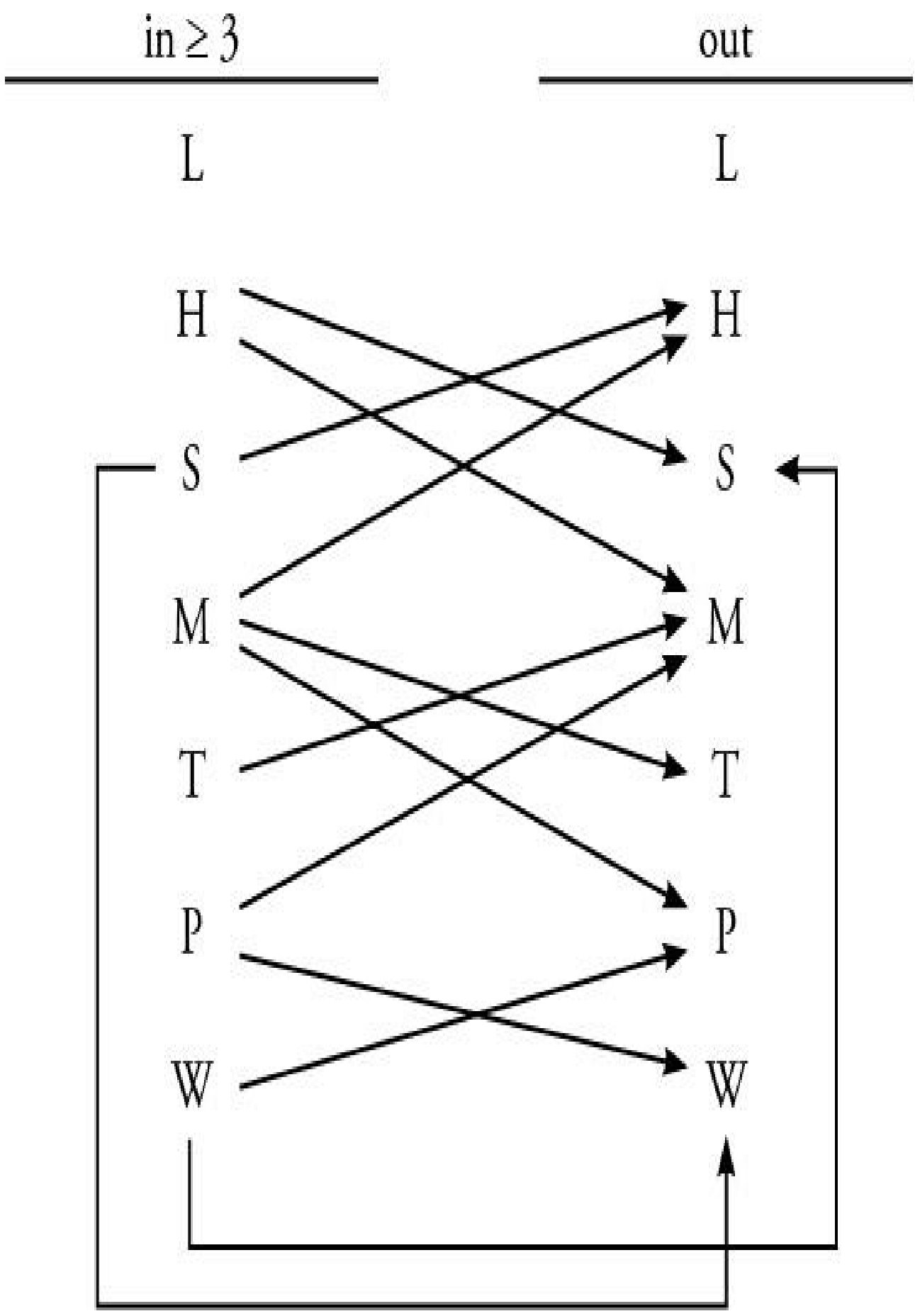
Would the test-writers be so kind on the next exam? Let's review the Equivalent Rule question from it now:

Practice Test 58, Game 4, Question #23

This game was a relatively straightforward binary grouping game.

> At least three of seven elements must be selected—H, L, M, P, S, T, W.
>
> The rules are conditional:
>
> If H is in, neither S nor M is.
> If M is in, neither P nor T is.
> IF W is in, neither P nor S is.

The diagram presented here utilizes a system we call the Logic Chain. *(For more information about the Logic Chain, please refer to our website or the Manhattan LSAT strategy guides.)*


in ≥ 3
out
L
L
H
S
M
T
P
W
H
S
M
T
P
W

The Logic Chain is a great tool for organizing conditional statements that link together. For this particular game, since there are few conditionals that link together, the Logic Chain serves more to represent rules than it does to reveal inferences. For those already comfortable with the Chain, it would still be a useful tool for thinking about the game and organizing information.

This particular Equivalent Rule question, which happened to be the last question in the section, asked us to identify a rule that would have the same consequences as the following:

> If M is in, neither P nor T is.

As in the previous problem, let's break this rule down carefully before we evaluate the answers.

Here we have a compound conditional where the elements of the compounded component (P and T) have no direct impact on one another. This type of compound conditional can be split in two:

> If M, no P.
> If M, no T.

Splitting up the original conditional is certainly not necessary, but it can be helpful in finding the contrapositives, which would be:

> If P, no M.
> If T, no M.

Remember, we derive the contrapositive by reversing and negating the elements in the original conditional. (From M –> –P, we can infer P –> –M, and from M –> –T, we can infer T –> –M.) Constrapositives are inferences that are ALWAYS valid, and they are ones that should be made automatically for any binary grouping game.

Thus, we can think of the original conditional constraint as giving us 4 unique rules, which we've listed here:

> If M, no P.
> If M, no T.
> If P, no M.
> If T, no M.

If we look to the chain, we can see that none of these rules have any further, or secondary, consequences—that is, there are no other conditions that "link" to these.

Now, let's imagine that instead of being told the student must take at least three classes out of seven, we were told the student must take at least five out of seven. If that were the case, the original conditional could yield further information based on inferences

about *numbers*. If we had to pick five out of seven, suddenly this rule, which forces multiple elements out, would become much more constricting. However, with the way the game is actually constructed, it's tough to see any inference that can be gleaned by comparing this rule to the number of classes a student should take.

Okay, so we have a fairly simple compound conditional that doesn't seem to lead to many direct or indirect consequences other than the contrapositives. Let's go ahead and take a look at the answers:

Here's what the original rule told us one more time:

If M, no P.
If M, no T.
If P, no M.
If T, no M.

(A) states if M, then either S or W. We never initially considered that either S or W would have to be selected, and this answer has very little consequence for P and T (the only thing we know is P is out if W is in).

We can eliminate this answer at this point.

(B) states that the only elements that are eligible to be in with M are L, S and W.

The "are eligible" is a bit of a curveball. Conditional logic is based on absolutes, and "are eligible" represents possibilities, not absolutes—we don't know if L, S or W has to be taken for sure.

However, there is an absolute statement hidden in this answer, and if you noticed it, this problem likely became much easier. If the only elements that are eligible are L, S and W, it MUST BE TRUE that when M is in, all other elements are NOT.

What are the other elements? P, T, and H.

We already know from another rule that when M is in, H is not.

Thus, the actual significance of this answer choice can be summed up as follows:

If M is in, P and T are not.

This is exactly the same as the original constraint, and this is the correct answer.

For review's sake, let's take a look at the other answers:

(C) states that the only elements eligible to be in with P are H and L.

This answer is similar to (B) in its construction.

This rule means that if P is in, T, M, S, and W cannot be. Without needing to

investigate too much, we can see that the consequences of this rule are far more significant than those of the initial rule.

We can eliminate this answer fairly quickly.

(D) states that the only elements eligible to be in with T are H, L and W.

This would mean that if T is in, P, M and S cannot be. We had nothing in the original constraints about T excluding P, nor is there a match for T excluding S.

We can eliminate (D) fairly quickly.

(E) states that if P and T are in, M cannot be.

Wow, this looks just like the contrapositive of the original constraint, right? This looks really tempting.

We can represent this compound conditional as follows:

P and T –> –M

Notice that we need both P and T to trigger a consequence. Just knowing that P is in, or just knowing that T is in does not lead us to definite consequences. Therefore, we cannot split this compound conditional into simpler ones.

Still, let's take the contrapositive of this statement and see if we have a match for our original condition.

To take the contrapositive of a compound conditional, you want to reverse and negate the elements, AND you want to switch "and"s for "or"s and vice-versa. *(For full instruction on conditionals and contrapositives, please refer to our strategy guides.)*

So, the contrapositive of this answer would be:

M –> –P **or** –T.

Close, but no cigar. The initial rule was that P **and** T have to be out if M is selected. (B) is correct.

Verdict:

This was a tough question. Most test-takers who saw this on their exams weren't expecting an Equivalent Rule question and didn't have a process for it. Furthermore, the condition in question happened to be a *compound* conditional, which many students find especially challenging, and the answer choices were written in a convoluted fashion. Though the LSAC doesn't publish statistics on individual questions, we can safely assume that the combination of these challenges made it so that the vast majority of people had to select an answer for this problem without a whole lot of confidence.

But, as we've been doing, let's take a look at this from the test-writer's perspective. How did he create the correct answer? Did he work cleverly off of some indirect consequence? No, and in fact the original constraint was such that we knew indirect consequences wouldn't be relevant in this case.

Did he work off of direct inferences? This is a subjective call, but we'd argue not. He could have chosen to give us the information in terms of the contrapositive of the original constraint, but he chose not even to do that.

So, how was the correct right answer created? We would argue that it's simply a rewording of the original rule. It's an unexpected, clever, and challenging rewording, but it's a rewording nonetheless. When we decipher the conditional statement given in (B), it is an exact match in meaning to the original constraint. Furthermore, and perhaps more significantly, three of the four wrong answer choices were very different in meaning from the original constraint. If you understood them correctly, you could eliminate them quickly. Only (E) required careful evaluation before we eliminated it.

Again, we don't mean to imply that this question should have been easy—it would likely feel challenging for pretty much everyone who takes the exam. However, it's critical to note that the challenges are those of language—how they've chosen to write the information—rather than those of reasoning. We did not need to use any advanced reasoning skills to arrive at the correct choice.

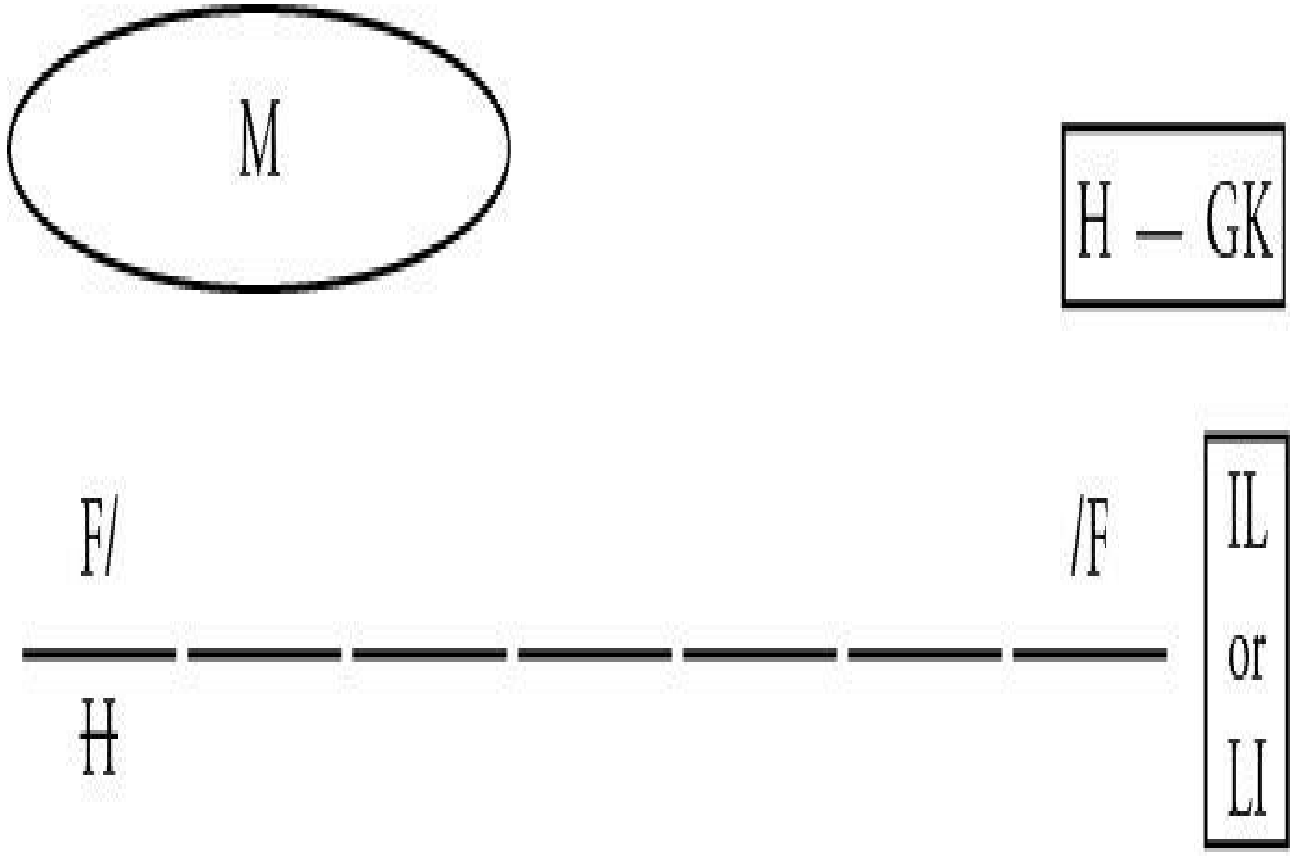
Practice Test 59, Game 2, Question #10

This game was a fairly straightforward numbered ordering game. Seven elements—F, G, H, I, K, L, and M—are ordered in positions one through seven.

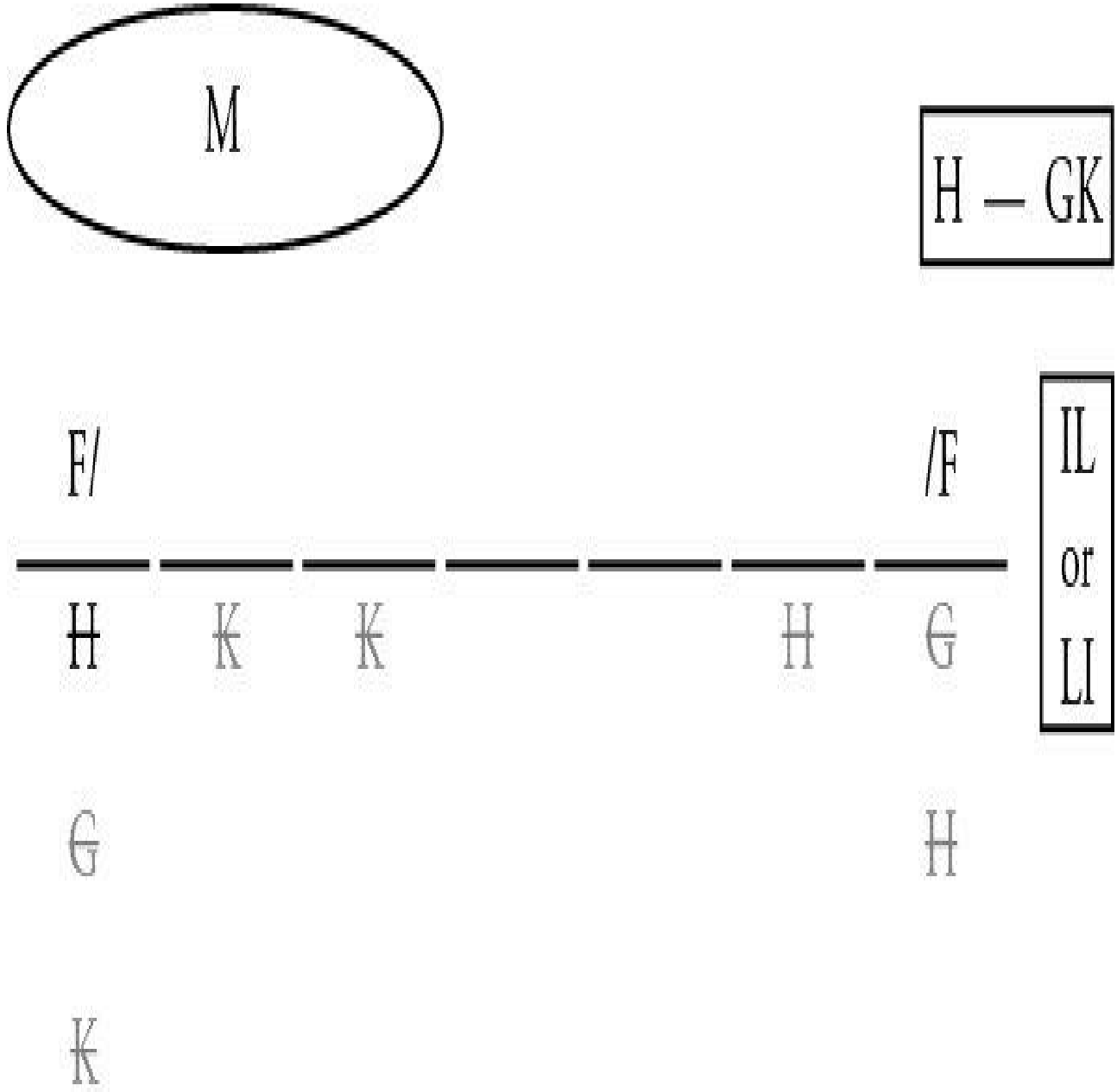
There are five rules:

G is immediately before K.
H is before K, but not first.
I and L are right next to each other.
M is in one of the first three positions.
F is either first or seventh.

Here is a diagram with just the constraints noted (note the first and second constraint were combined for one of the notations):



And here is a diagram with some basic inferences made:



Question 10 asked that we find an equivalent for the second rule, which told us two things specifically:

H is before K.
H is not first.

What are the direct consequences we can see?

We know H must be before G.
We know H must be before at least two others, so H can't be last, or second to last.

We now know of two elements that must go before K, and so K can't go first or second.

What are the indirect consequences of this rule?

K also can't go in the third slot. If we put K third, two elements H and G, would have to go in slots 1 and 2, and M would have to go in 1 or 2. Thus, K could not go third.

Also, because of this rule, the first slot is severely restricted—we now know three elements—H, G and K—that can't go first.

Okay, let's take a look at the answers.

(A) gives a conditional: If F is seventh, H is second. This is very different from our understanding, and far more specific than what we expected. We can eliminate this answer quickly.

(B) gives us two bits of information: G is after H, and F or M is first. The first bit is exactly what we need—knowing G is after H has the same consequence as knowing that K is after H. The second part is a bit more specific than we anticipated. We didn't know that F or M had to be first.

Answer choice (B) is a strong match, and an extremely attractive answer. It is, in our highly subjective opinion, the most attractive of all wrong answers that have appeared in all Equivalent Rule questions.

Perhaps we missed something in our initial understanding of the game, and perhaps there *is* some reason the first slot is limited to just F or M. This is the type of answer that makes an Equivalent Rule question scary.

Two things that might make you feel more comfortable: one, this is the last problem of the game—if there was such an inference to be made about the first slot, you probably would have noticed it already. Two, if you are comfortable with your diagram, confirming that (B) is wrong should not require too much time. We can see fairly quickly that both I and L could go in slot one. (B) is incorrect because it is more restrictive than the original constraint.

(C) tells us that H must be in slots 2, 3, 4, or 5. This is a tempting answer because it does match what we know about where H can go. However, this answer is missing some critical information—it has nothing to replace the impact of knowing that H is before K.

(D) is a strange constraint that tells us that one of two things must be true about H—it either must be second, or it must be between M and G. Though this is not what we expect, there is nothing wrong with this statement, at least on its surface. Let's break it down carefully:

One option is that H is second. If H is second, a consequence would be that it must come before the inseparable GK chunk—therefore, if H is second, the consequences will match up with those of the original constraint.

We're told that if H is not second, it must come between M and G. We know that this would have to mean H must come after M and before G (because there wouldn't be space for M in one of the first three slots otherwise). If H is not first or second, it will have to come after M, whether this rule is given or not. The part about H coming before G is exactly the information we need.

What a tough answer! But here's what it tells us:

H is second, or after second.
H is before G.

These rules yield the same consequences as the original rule, and this is the correct answer.

(E) tells us H must be after F but before K. We can eliminate this answer quickly. We've been given no indication that H must be after F.

Verdict

This was, in our opinion, the most difficult of the Equivalent Rule questions that have appeared. There are a few characteristics that, in combination, make this one more challenging than the others:

(1) The right answer was written in a very unexpected way.

This was also somewhat true of the previous Equivalent Rule question. However, this answer was even more challenging to understand. The ramifications overlapped a bit with what we already knew (such as H has to be after M if H is not second) and did so in a very clever way.

(2) There was a very attractive wrong answer.

We had to dig a bit deeper to eliminate (B). Of course, we could have said immediately that we didn't have a severe restriction on the first slot and we could have eliminated (B) quickly, but that would have been a bit rash, perhaps, in the exam. With this type of open-ended game, it would make sense to take a bit of extra time to confirm that (B) is actually incorrect.

Part 3: Let's Develop a Strategy!

Okay, now that we've taken a look at three Equivalent Rule questions that have appeared on actual exams, let's do a quick assessment.

Each question posed relatively unique challenges.

The first question worked off a simple constraint, and the right answer was based on a direct inference that could be made off that simple constraint.

The second question worked off a compound conditional constraint that did not link to other constraints. The right answer required us to carefully decipher meaning, but required little reasoning skill.

Finally, the last question posed several smaller challenges that, brought together, made for one tough question. The constraint in question was one that had several direct consequences, and the right answer was a very well-cloaked one. It presented information that overlapped with that given in other original constraints, and this made it so that the right answer appeared to give more information than the original constraint it replaced, though it actually didn't.

Though these questions have posed unique challenges, there has also been some great commonality, and it is this commonality that we can use, as test-takers, to our advantage.

Some important points to consider:

Eleven of twelve wrong choices were fairly easy to eliminate. All that was required to do so was a clear understanding of the meaning of the original rule and of its most direct consequences. These wrong answers have obvious tells, such as having a very different impact than the original rule states, or creating restrictions the original rule clearly did not create.

No right answers hinged on clever indirect inferences. Right answers were well-cloaked and perhaps it was difficult to understand their meaning, but the challenges were primarily those of presentation—how information was worded.

These characteristics make a lot of sense and perhaps should be expected. The test-writers understand very clearly the time limitations on the test-taker, and they understand the level of burden a particular question can carry. It would be unfair for them to create an Equivalent Rule problem that requires an insanely long series of inferences, or an understanding of a "chain" of inferences—something that would, even for the expert game-solver, take more than a minute to consider. Yes, they are going to make these questions hard to solve, but it's critical to note that they are not going to make them hard by expecting you to see a ton of indirect consequences and they are not expecting you to evaluate the answer choices from a completely different perspective.

Based on the first three of these questions, we can recommend a general process for solving Equivalent Rule questions. We'll use the final two Equivalent Rule questions to practice this process and firm up our understanding.

Here are the steps of a general process we recommend:

1) Make sure you have a clear understanding of the meaning of the original rule. Especially if the rule is multi-faceted, simply understanding the rule will likely be all you need to eliminate several wrong choices, if not all wrong choices. Don't rush this step.

2) Consider the most direct consequences, and jot them down if you'd like, or note them in your diagram in some way. A big key here is to limit yourself—don't waste time looking for all possible secondary inferences. Per our understanding of how these problems work, that work will be unnecessary at best, and a distraction at worst.

3) Eliminate wrong choices that seem to have very different ramifications than those of the original rule. This may seem obvious, but if you are focused on advanced inferences, these answers can be some of the most tempting. It's useful to know that if an answer sounds way off, chances are it is.

However, as always, be cautious. Be mindful of the fact you could have missed inferences initially. Don't be afraid to slow down and confirm answers to be wrong when need be.

4) Confirm that the right answer has the same consequences as the original rule. No more and no less.

Hopefully, this process seems reasonable and intuitive to you. Let's go ahead and model it on the Equivalent Rule questions that appeared in Practice Tests 61 and 62. There was no Equivalent Rule Question in Practice Test 60.

Part 4: Let's Practice Our Strategy!

Practice Test 61, Game 2, Question #11

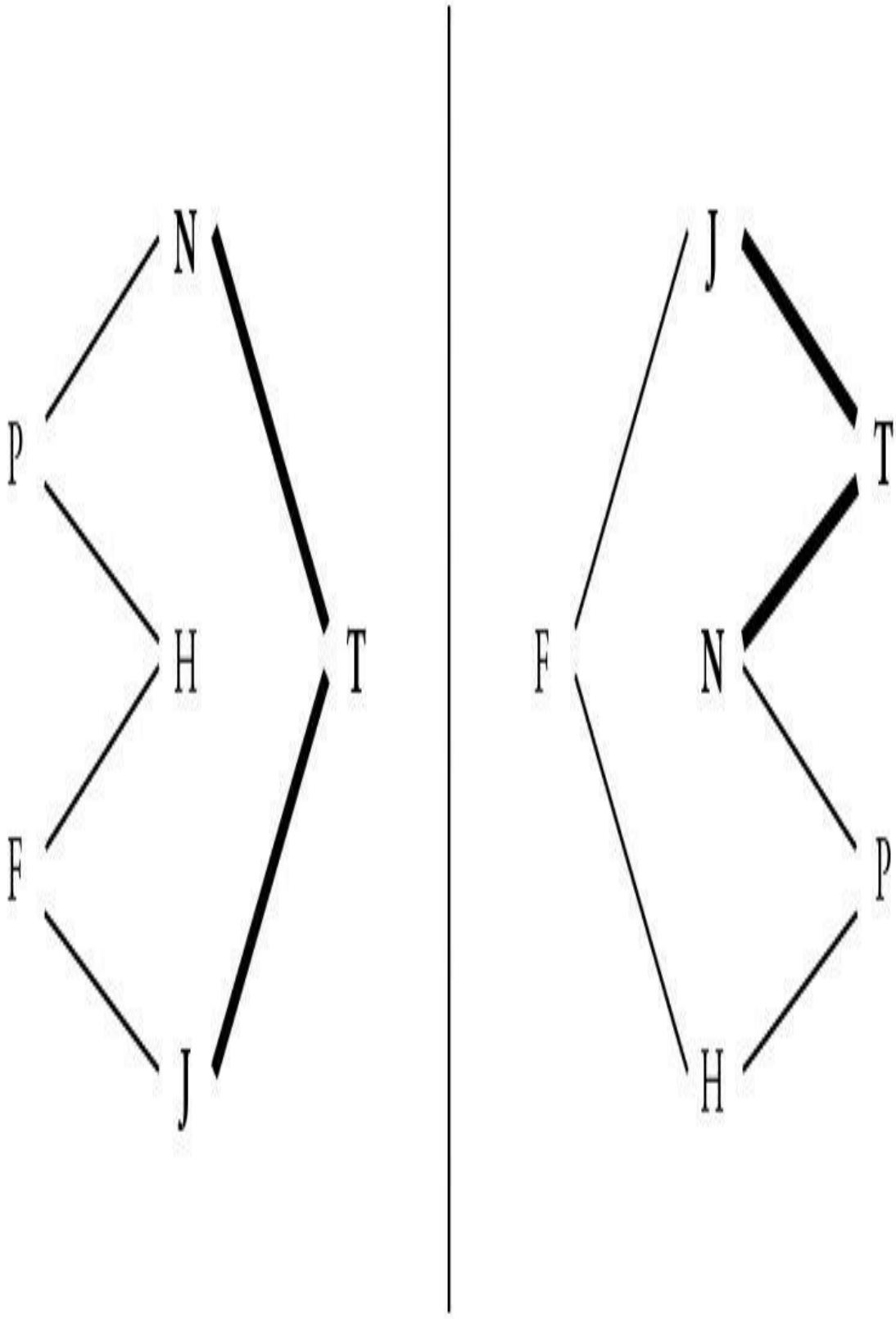
This game was what we categorize as Relative Ordering. We are asked to place six elements—F, H, J, N, P and T—in order, and all the rules we are given relate elements to one another, but don't tell us of specific placements.

We're given the following rules:

> F is before J and H.
> Both N and J are before T.
> Either P is before H and N, or H and N are before P.

This is a game that strongly suggests, per its design, the construction of frames. This is due to the either/or compound conditional, which is difficult to capture in a single diagram, and which can be used as a springboard for creating two very useful frames. *(For more on this game, or framing in general, again, please consult our website or strategy guides.)*

Here are the two frames that many of our students would likely create for this game:



Question 11 asked us to find an equivalent for the rule that N and J are before T, and we've highlighted this rule in the diagram.

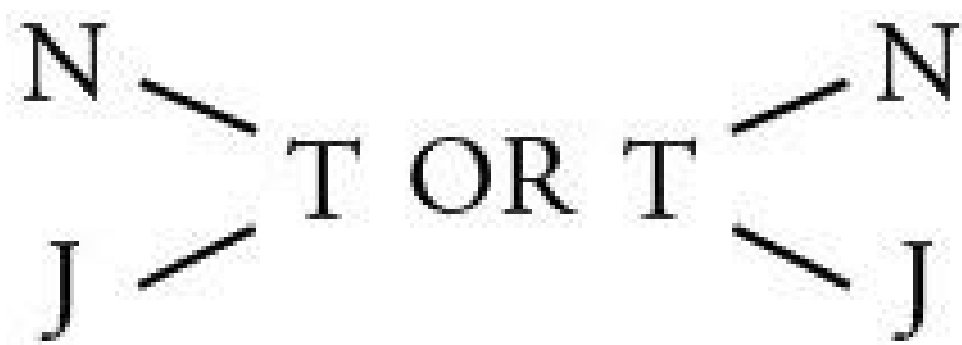
Let's model the process you could use in real time to get to the right answer:

We could consider the ramifications of knowing this rule up front, but we know this is probably going to be unnecessary. We just want to understand the rule correctly, and, as long as we're comfortable with the tree diagrams, that's really all we need up front.

(A) states that T is before H but after F. This has nothing to do with our original rule and can be eliminated quickly.

(B) states that F and N are both before T. This is tempting, but it tells us nothing of J. We can eliminate this quickly.

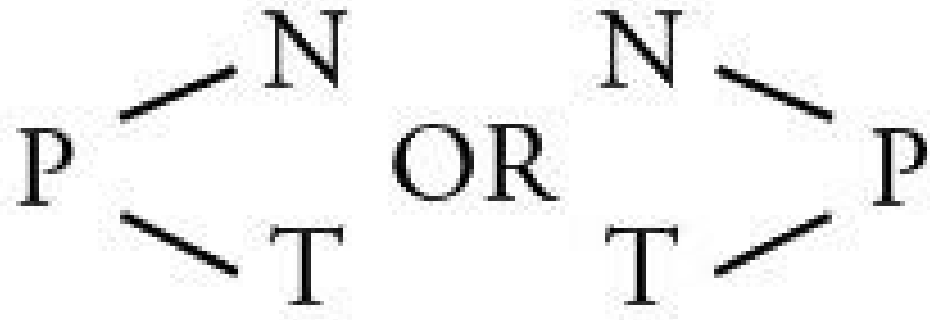
(C) states that N is before T if and only if J is. The if and only if is a tricky biconditional, but regardless, we should be suspicious of this answer because the original rule was not a conditional at all. Essentially, (C) is stating that either



The second possibility is different from what the original constraint gave us, and we can eliminate this answer quickly.

(D) states that all elements other than the H and P must be before T. This is different from what our original constraint stated, but it is consistent with our diagrams. Let's keep it for now.

(E) is another conditional, like (C), and (E) would mean:



This answer is clearly not a match for the original rule.

On the exam, it's unnecessary to go this far in our thought-process for this answer choice. We know that this conditional cannot be a match for our original rule, and we can eliminate it quickly.

(D) is our correct answer. It looks very little like our original constraint, but our basic understanding allowed us to eliminate the other four answers with complete confidence.

Why is (D) a match? Essentially, (D) is telling us that F, J and N are before T. This is only different from the original rule in that the original rule didn't include F. However, the F is easily inferable—since F must be before J, which must be before T, F must be before T.

(D) is a well-cloaked way of giving us pretty much exactly the same information as the original constraint.

Without a process, we could have wasted time…

- trying to make inferences about where T, N and J could or could not go
- trying to make inferences about where the other elements must go relative to T, N, or J
- trying to find clever ways for the wrong choices to match up with the original constraint

A clear understanding of the original rule was all that was required to eliminate the four wrong choices. The right answer was a clever rephrasing of the original constraint, and required minimal inferences to confirm.

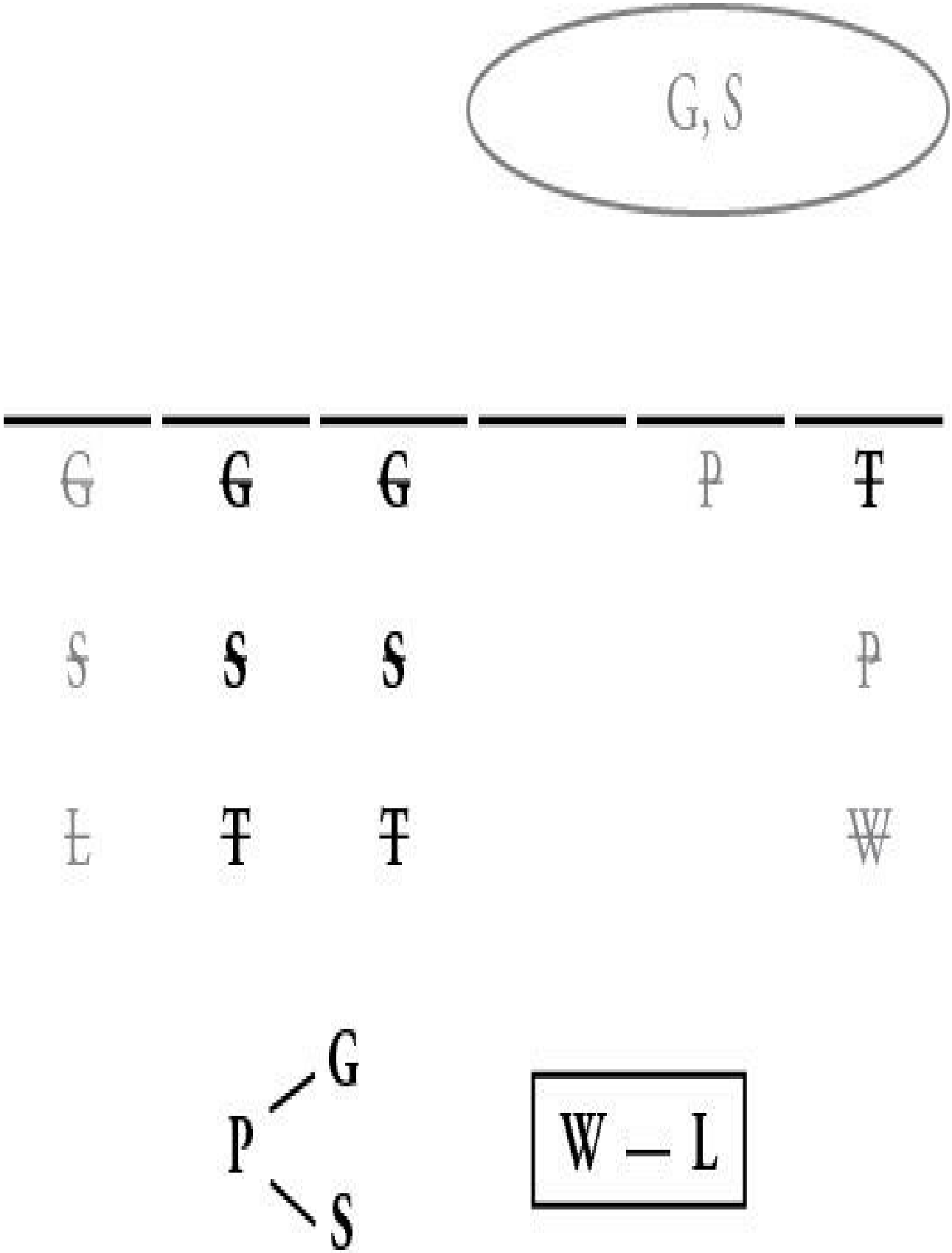
Here's the final question. It's from the December, 2010 exam:

Practice Test 62, Game 1, Question #6

This was a very straightforward Numbered Ordering game.

> Six elements—G, L, P, S, T, and W—are to be placed in order, in accordance with the following rules:
>
> W is at some point before L.
> P is at some point before G and S.
> G, S, and T cannot go in the second or third position.
> T cannot go last.

Here's a basic diagram of the rules, along with a few inferences (the rules are in bold, the inferences in gray):



The final question for this game asked that we replace the rule that T cannot be sixth. Again, let's run through our process in real time:

At the point of the question stem, we quickly think of the direct consequences of this rule—T can only go in slots 1, 4 or 5, and the final slot must be occupied by G, S or L.

Perhaps there are some further inferences to be made, but it would be a waste of our energy to try to find them at this point. We move on to the answers:

(A) states that T must be before G, S, or both. This seems good, because it forces T out of the sixth slot. This rule is consistent with the fact that T must go in slots 1, 4, and 5, and doesn't seem to prevent G, S, or L from occupying the final slot.

However, we never considered that T *must* be before G or S. Was this true of the original rule? (A) looks good, but it's not perfectly clear cut. Let's take a look at the other answers.

(B) states that T must be immediately before G or S. This is also good in that it forces T out of the sixth slot, but it seems to add even more new info than A does. Do we know T must go immediately before G or S? No. A quick confirmation shows that per the original rule T could go in slot 1, in which case it won't be immediately before those two (since they can't go in slot 2). We can eliminate (B) quickly.

(C) states that T must come before L. This pushes T out of the sixth slot, but is more specific than the original rule. The original had nothing about T being before L. We can eliminate this answer quickly.

(D) states that T must be first, or immediately before G. We didn't have a sense, from the original rule, that T in slots 4 or 5 must be immediately before G, and it's fairly easy to see this does not have to be true. This answer can be eliminated quickly.

(E) states that either G or S must be sixth. This is tempting too, in that it shows us that T can't be sixth. However, this answer is more specific than the original constraint, in that answer (E) prevents L from being sixth.

Did the original rule prevent L from being sixth too? No, and a quick check shows that there is no reason L can't be sixth. We can eliminate this quickly.

That leaves us with (A), the only remaining option and the correct answer. If you were confident in your understanding of the game and in your elimination process, you should, at this point, select (A) and move on.

For the purposes of discussion, let's evaluate: Why is (A) correct?

Per answer choice (A), T can go in slots 1, 4 and 5. This is a match for our original rule.

Per answer choice (A), we can still have G, S, or L as our options for slot six.

If we try to put T in slots 1, 4 or 5, we can see that all valid combinations require that T be in front of at least G, S, or both. (If L is in the sixth slot, G and S would have to occupy slots 4 and 5, and T would have to be first).

This is our first example of a correct answer that plays around significantly with reasoning. The right answer is different in meaning from the original constraint, but in a clever way that results in the same consequences.

While this might be a bit of a scary portend for the Equivalent Rule questions to come, keep in mind that you did not have to "see" the clever match in order to arrive at the right answer. Like the other Equivalent Rule questions that the test-writers have created, this one happened to have four wrong answers that could be eliminated pretty easily with a correct understanding of the original constraint and its *direct* implications. If you used our recommended process, you should have arrived at the answer efficiently and with great confidence.

Summary

Now that we've taken a look at all Equivalent Rule Questions, let's summarize the key points of this paper, one more time:

1) The test-writer can create equivalent rules through the use of clever wording, direct inferences, or secondary inferences. It is most likely that the right answer will be created off of a rewording or direct inference.

2) Wrong answers fail to match the meaning of the original constraint, and the constraint's direct inferences. Wrong answers also often add a lot more limitations than the original rule did.

3) The most dangerous area in terms of potentially wasting time is at the beginning. It's easy to get lost in considering all the secondary impacts of a particular rule. We recommend you spend a few seconds thinking about the most direct ramifications, then move on quickly to evaluating answers.

4) In looking at the choices, work from wrong to right. Realize that most wrong choices will be glaringly different from the original rule, and know that the key to consistent success on these types of questions is being able to quickly and accurately identify mismatches.

5) Only when you are down to two tempting answers should you try to confirm a match between an answer and the original constraint. Again, first focus on the meaning of the original rule, and its most direct impact. Go to secondary inferences only if need be, and know that usually they won't be necessary for arriving at the right answer.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