VERBAL LIVE PREP 2.0

WHAT AND HOW TO NEGATE

Pre-requisite: CR Session 2

Prethinking for Assumptions

WHAT AND HOW TO NEGATE

Purpose: The purpose of this article is to help you think about negating statements so that you can apply the negation test for CR assumption questions. In this article we will look at how to negate using the set theory approach for negating statements. This article is a pre-requisite to our free session on "Prethinking for CR assumptions". In addition, do not forget to register at e-GMAT to attempt a free quiz on negating statements.

Organization of the article: This article has three parts:

1. Introduction to Negation: In this section, we will briefly talk about what negating a statement means and why is it important.
2. Key skills for negation
3. 4 Questions
4. Follow on quiz with 10 questions (in the Verbal Live Add on course at e-GMAT.com)

Every super-smart GMAT aspirant registers on GMATClub. Hence, every Harvard admit is a registered student at GMATClub.

Assumption: Harvard only admits super-smart GMAT aspirants.

What is negation and negation test?

Negation technique can be used to determine if the given answer choice is the true assumption or not. In other words, it a sure shot way to validate the answer (recommended use) or to determine whether an answer choice is an assumption (not recommended unless you have a lot of time)

Why does negation test work?

The correct answer choice is like a missing premise. Which means that is has to be true for the conclusion to hold true. This implies that the negated version of the correct answer choice will shatter, falsify or invalidate the conclusion. Hence, once we have narrowed down our answer choice(s), we can verify it by evaluating whether the negated version really shatters the conclusion or not. If it does, then your selected choice is indeed the conclusion, otherwise not.

In the example above, the negated version of the assumption could be one of the following:

1. *Harvard does not only admit super-smart GMAT aspirants.*
2. *Some Harvard admits are not super-smart aspirants.*
3. *At least one Harvard admit is not super-smart aspirant.*

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Notice that all of them are equivalent.

Ok, sounds good. How do we negate?

When you think of negation, it helps to think in terms of sets. Each answer choice is "a part" of a super set. Hence, the negated statement = Super Set – Space occupied by the answer choice.

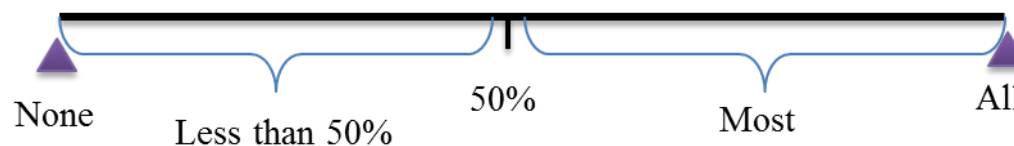$$Negated\ Statement = Super\ set - Space\ occupied\ by\ the\ anwer\ choice$$

Let's take some examples.

All GMAT test takers who take the exam after 1 month of preparation perform better than they did in their first mock

Θ   What is the **super set?**
Super set is the **set of possibilities** for GMAT takers who take the exam after one month of preparation. Let's assume that there are 100 test takers who take the exam after 1 month of the preparation. Then there are multiple possibilities that exist for this group of test takers

1. All 100 test takers who take the exam after 1 month of preparation perform better than they did on their first mock.
2. Not All test takers who take the exam after 1 month of preparation perform better than they did on their first mock.
3. Some Test Takers who take the exam after 1 month of preparation perform better than they did on their first mock.
4. Most test takers who take the exam after 1 month of preparation perform better than they did on their first mock.
5. Less than 50% of test takers who take the exam after 1 month of preparation perform better than they did on their first mock.
6. No test taker who takes the exam after 1 month of preparation performs better than he/she did on their first mock.

There are a few things to note in the above picture.

1. **Understand the Super Set**: Note, we are only talking about a **segment** of population – the test takers who take the exam 1 month after preparing for their GMAT. This is our Universe or the super set. We are not concerned with test takers who take the exam after 15 days of preparation or 2 months of preparation. Words such as "Who" (user for people), "that" (animals, corporations etc.), "which" and "those" have a segmentation effect. Therefore, any answer choice that deals with choices outside this segment – the segment in which people take the exam after 1 month of preparation – is incorrect.

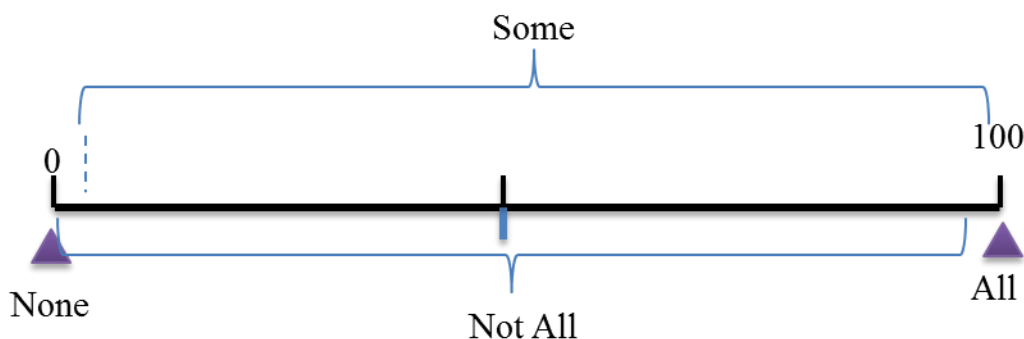**TakeAway**: Words such as Who, that, which, those etc. have a segmentation effect.

2. **Understand the Sample space occupied by the Sentence**: Once you have defined the Super set, understand the sample space occupied by the choice that you want to negate. Words such as all, none, some, most, etc. define these sample spacing. It is important to know what these words imply

in terms of sample spaces. Taking the "Super Set" in discussion and assuming that it contains 100 test takers, here is what the sample spaces mean

Super Set = Set of 100 test takers	
Term	**Sample Space it occupies**
All	All the 100 Test takers
Some	1 to 100 test takers (including both 1 and 100). Note some does not include 0
Not All	0-99 Test Takers (Notice how Not All is different from Some)
Most	51-100 test takers
None	0 Test takers out of 100

3. **Understand what negation means**: Negation or logical negation means that you select an answer choice that occupies the sample space that excludes the original choice. If it maps to another term above, then perfect, otherwise you may make the use of word "Not" to find the logical opposite. In the example above, the logical opposite of "All" is "Not All". Note, that you may be tempted to use "Some" but "some" includes All (Notice, it includes 100) and hence is not the logical opposite. Here is a table of logical opposites.

Term	**Logical Opposite**
All	Not All
Some	None (Notice, Some does not include 0)
Not All	All
Most	Not more than half (which means half or less, 0-50)
None	Some
Exactly X	Not Exactly X (Note that the sample space is both before XX and after X, just not X)
Significant	Insignificant
Never	Sometimes
Always	Not Always
Everywhere	Not everywhere

Our Original Question

All GMAT test takers who take the exam after 1 month of preparation perform better than they did in their first mock

Let's now look at the answer choices

Answer Chioce	Explanation
Some Test Takers who take the exam after 1 month of preparation perform better than they did on their first mock.	**Incorrect**: For the reasons discussed above. Notice "some" = 1-100 whereas we are looking for a sample space of 0-99. Hence, this choice is not correct.
Most test takers who take the exam after 1 month of preparation perform better than they did on their first mock	**Incorrect**: Only includes 51 to 100
Not All test takers who take the exam after 1 month of preparation perform better than they did on their first mock	**Correct:** This is the correct choice. Notice, how this occupies the complementary sample space and is the logical opposite.
Less than 50% of test takers who take the exam after 1 month of preparation perform better than they did on their first mock.	**Incorrect**: Only includes 0-50

WHAT IF YOU NEGATE THE VERB?

Let's bring the Original choice again for clarity purposes.

All GMAT test takers who take the exam after 1 month of preparation <u>perform better</u> than they did in their first mock

Notice, that in all the negated choices above, we did not modify the verb – perform better. Lets see what happens when we negate the verb. Consider the following negated choice

Neg 1: Some GMAT test takers who take the exam after 1 month of preparation **do not** perform better than they did in their first mock.

What does the above answer choice mean?

The answer choice implies that, out of 100 test takers, between 1 and 100 test takers did not perform better than they did in their first mock. This means that 0 to 99 test takers **did perform better** on their mock. This is the same is "Not all". Hence, the above answer choice is **Correct.** Lets see how this happened

Test Taker did not perform better	Test taker did perform better
1 test taker did not perform better	99 test takers performed better
100 test takers did not perform better	0 test takers performed better

Take Aways: It is sometimes possible to negate by either negating the subject of an answer choice or by negating the Verb.

Exercise Sentences:

Ex1: Most GMAT test takers who take the exam after 1 month of preparation perform better than they did in their first mock. (Multiple answers may be correct)

a) Most GMAT test takers who take the exam after 1 month of preparation do not perform better than they did in their first mock.
b) All GMAT test takers who take the exam after 1 month of preparation perform better than they did in their first mock.
c) No GMAT test taker who takes the exam after 1 month of preparation performs better than they did in their first mock.
d) At least half of GMAT test takers who take the exam after 1 month of preparation perform better than they did in their first mock.
e) Up to half of GMAT test takers who take the exam after 1 month of preparation perform better than they did in their first mock.
f) Up to half of GMAT test takers who take the exam after 1 month of preparation do not perform better than they did in their first mock.
g) Half or more of GMAT test takers who take the exam after 1 month of preparation do not perform better than they did in their first mock.

Ex2: Every internet dating profile in the world begs for some spontaneity (Multiple answers may be correct)

a) Not every internet dating profile in the world begs for some spontaneity
b) No internet dating profile in the world begs for some spontaneity
c) Most internet dating profiles in the world begs for some spontaneity
d) Some internet dating profiles in the world do not beg for some spontaneity

Ex3: Innovations such as iPhone happen nowhere outside Apple. (Multiple answers may be correct)

a) Innovations such as iPhone do happen outside Apple.
b) Innovations such as iPhone do not happen outside Apple.
c) No other company is as innovative as Apple is.
d) Innovations such as iPhone happen both inside Apple and in other companies.

Ex4: No sane person who has never given a ride to a stranded passenger will give a ride to someone dressed in a hood (Multiple answers may be correct)

a) Some sane people who have never given a ride to a stranded passenger will give a ride to someone dressed in a hood
b) Atleast one sane person who has never given a ride to a stranded passenger will give a ride to someone dressed in a hood
c) All sane people who have never given a ride to a stranded passenger will give a ride to someone dressed in a hood
d) No sane person who has ever given a ride to a stranded passenger will give a ride to someone dressed in a hood.
e) Some sane people who have given a ride to a stranded passenger will give a ride to someone dressed in a hood

Part 2 of this Article:

To complete this topic, I will write a Part 2 where we will summarize the Take Aways. But first let's have some discussions and get a few responses. Also let me know if this article helped you. And don't forget to attend the Prethinking session on Sunday. Register at e-GMAT to get an invite.