CSE - 103

ASSIGNMENT FROM BOOK

Chapter: 1

Section: 2

Exercise: 10

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Question 10. Are these system specifications consistent? "Whenever the system software is being upgraded, users cannot access the file system. If users can access the file system, then they can save new files. If users cannot save new files, then the system software is not being upgraded."

Solution:

Let u be "the system software is being upgraded", let a be "users can access the file system", let s be "users can save new files".

Then the statement "whenever the system software is being upgraded, users cannot access the file system" denotes, u<->!a.

 Next, the statement "if users can access the file system, then they can save new files" denotes, a->s; and the statement "if users cannot save new files, then the system software is not being upgraded" denotes !s->!u.

Let u be T. Hence a needs to be F for the first statement to be true. And if a is F, s can be either T or F, for the truth of the second statement. But since u is T, s must be T for the third statement to be true.

For the second assumption, let u be F. Then obviously a needs to be T. Now if a is T, s needs to be T. And since u is F, s being T can satisfy both the second & the third statements.

Hence the statements are consistent whether u is T or F.