

Problem

Recall the Post Correspondence Problem that we defined in Section 5.2 and its associated language PCP . Show that PCP is decidable relative to A_{TM} .

Step-by-step solution

Step 1 of 1

Given:

Here, A_{TM} is with associated with oracle concept.

Proof:

PCP (Post Correspondence Problem) is decidable relative to A_{TM} . Here, Post Correspondence Problem can be considered as an example of un-decidability problem concerning with manipulation of strings to find a match. A match can be found, if String made by combining all symbols of upper side and string made by combining all symbols of lower side, both is same.

Consider a contrary that PCP is un-decidable relative to A_{TM} but it is not associated with oracle concept.

The concept of oracle associated with A_{TM} provides flexibility or countable property that is not provided by other Turing machines that are not associated with oracle.

Now, it is clear that first found a match to find PCP. It is considered that PCP is un-decidable relative to A_{TM} but it is not associated with oracle concept.

Here, it is quite obvious if terminology of Turing machine is not associated with concept of oracle then it will be un-decidable rather PCP (Post

Correspondence Problem) is decidable relative to A_{TM} . Here A_{TM} is with associated with oracle concept

Conclusion:

Hence, PCP is decidable with respect to A_{TM} .

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