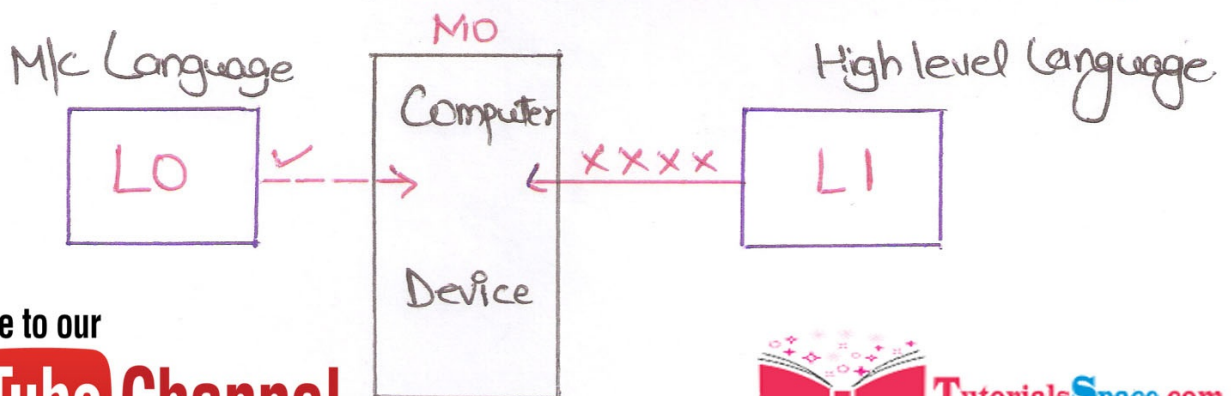


STRUCTURED COMPUTER ORGANIZATION

- * When we entered in the ERA of Designing Computers, a big problem come in existence this was that there is a gap between what is Convenient for people and what is Convenient for computers because most 'Machine Language's are so simple, it is difficult and tedious for people to use them.
- * So this problem led to a way of structuring computers as a series of abstractions, each abstraction building on the one below it.

By this approach, the complexity can be mastered and computer system can be designed in a systematic, organized way. And this approach is called 'Structured Computer Organization'

Let suppose there is two language LO (M/c lang) and LI (other non-understandable by machine) by MO



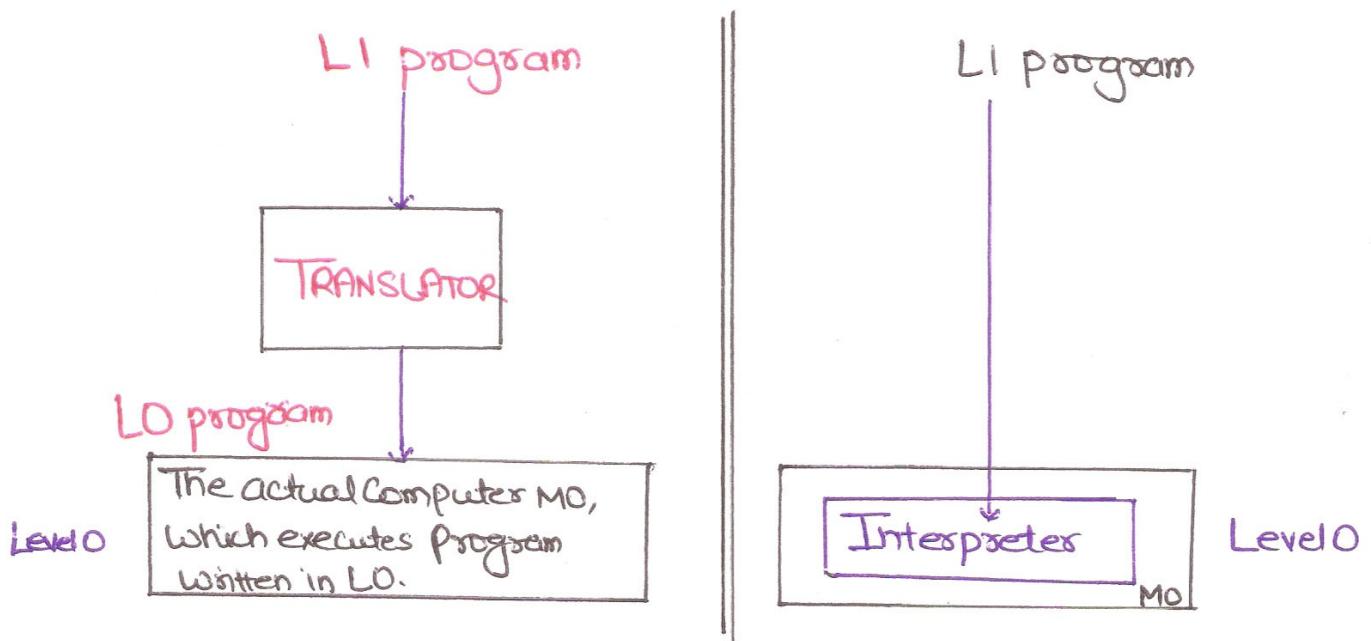
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So there is two methods by which LI can be executed on Machine MO.

One Method:- Replace each LI Instruction to Equivalent Sequence of Instructions in LO. So this Technique is called TRANSLATION.

Second Method:- In this Technique, write a program in LO that takes programs in LI as input data and carries them out by examining each instruction in turn and executing the equivalent sequence of LO instructions directly.
→ This technique does not require first generating a new program in LO. It is called Interpretation and the program that carries it out is called an Interpreter.



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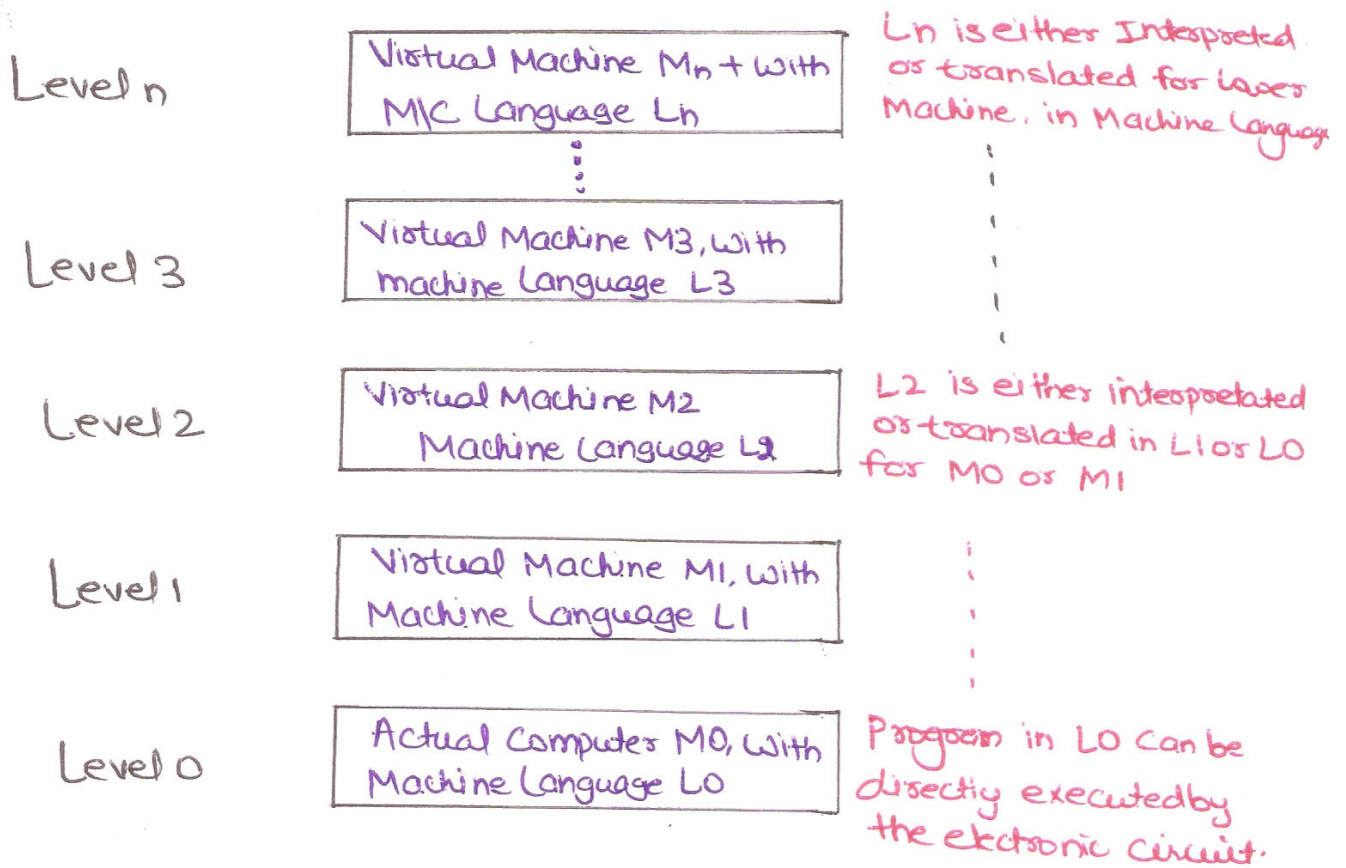
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So we can imagine a no. of Levels each one with its Own Language L_n and Virtual machine M_n .



User of level n has only to know Language L_n and can forget about all below layers: to his eyes the Computer is the Virtual Machine M_n .

→ So through Interpretation / translation the final result is that a program written in L_n will be executed on M_0 (the actual Computer which understand M/C lang.)

It Involves :- CPU, Cache, Main Memory, Secondary Memory, I/O Devices.