

Message Passing

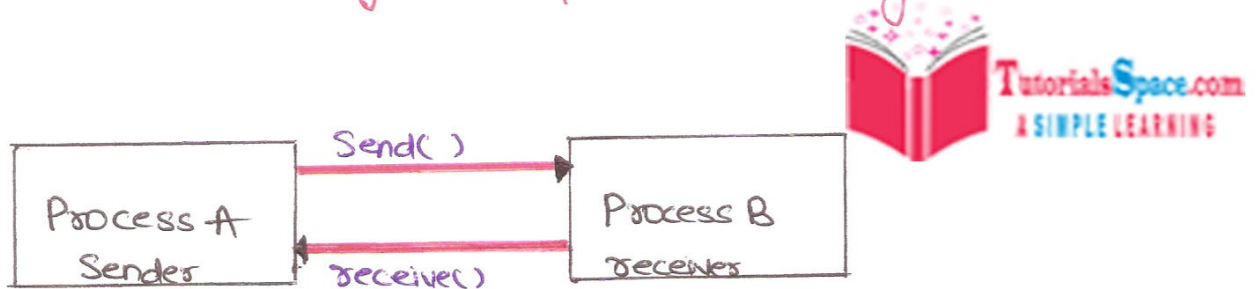
Message Passing refers to means of Communication b/w

- different threads within a process.
- different Processes running on same Node.
- different processes running on different Node.

In this a sender or a source process sends a message to a known receiver or destination process.

message has a predefined structure and message passing uses two system call: Send and Receive

Send (name of destination process, message):
receive (name of source process, message).



In this call, the sender and receiver processes address each other by names.

Mode of communication between two processes can take place through two methods

- Direct Addressing
- Indirect Addressing

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Direct Addressing :-

In this type, the two processes need to name each other to communicate.

This becomes easy if they have the same parent. Example
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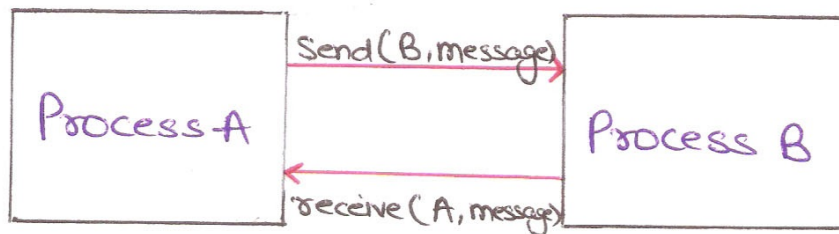
If process A sends a message to process B, then

`Send (B, message);`
`receive (A, message).`

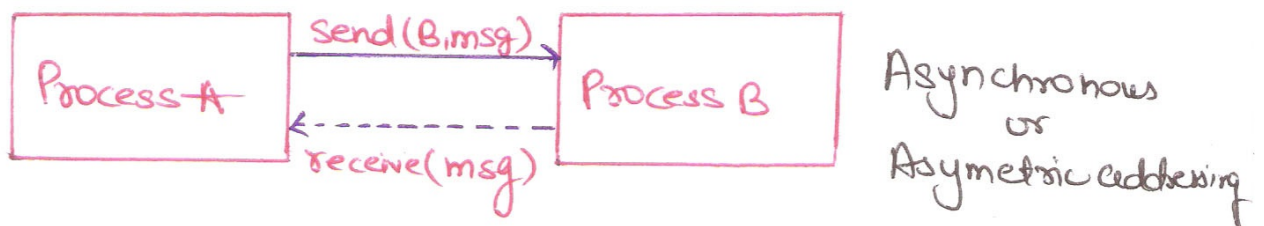
By message passing a link is established b/w A and B.

Here the receiver knows the identity of sender message destination.

This type of arrangement in direct communication is known as Symmetric addressing.



Another type of addressing known as asymmetric addressing where receiver does not know the ID of the sending process in advance.



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Indirect Addressing :-

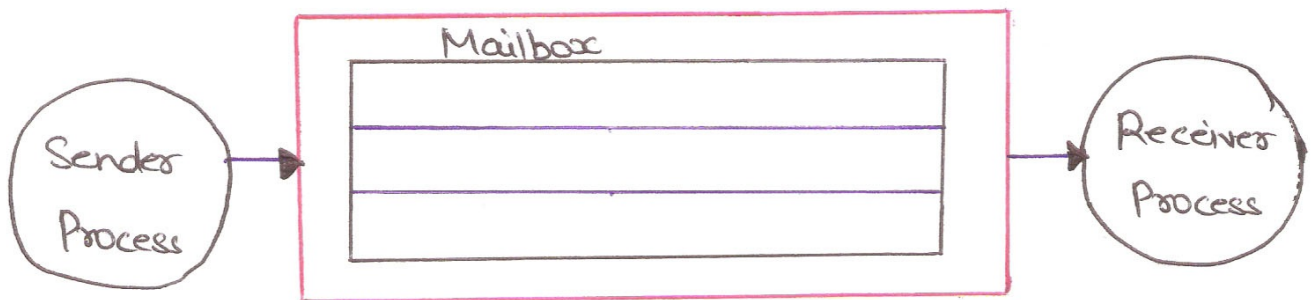
In this message send and receive from a mailbox. A mailbox can be abstractly viewed as an object into which messages may be placed and from ~~the~~ other which messages may be

removed by processes.

The Sender and receiver processes should share a mailbox to communicate

The following types of communication link are possible through mailbox:

- One-to-One link :- One sender wants to communicate with one receiver. Then single link is established.
- Many-to-one-link :- Multiple Senders want to communicate with single receiver. Eg in Client-Server System, there are many clients processes and one server process. The mailbox is here known as PORT.
- One-to-many link :- One sender wants to communicate with multiple receivers, that is, to broadcast a message.
- Many-to-Many link :- Multiple Senders want to communicate with multiple receivers.



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