



SNS COLLEGE OF TECHNOLOGY

COIMBATORE -35

(An Autonomous Institution)



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Procedures call

Procedure is an important and frequently used programming construct for a compiler. It is used to generate good code for procedure calls and returns.

Calling sequence:

The translation for a call includes a sequence of actions taken on entry and exit from each procedure. Following actions take place in a calling sequence:

- When a procedure call occurs then space is allocated for activation record.
- Evaluate the argument of the called procedure.
- Establish the environment pointers to enable the called procedure to access data in enclosing blocks.
- Save the state of the calling procedure so that it can resume execution after the call.
- Also save the return address. It is the address of the location to which the called routine must transfer after it is finished.
- Finally generate a jump to the beginning of the code for the called procedure.

Let us consider a grammar for a simple procedure call statement

1. $S \rightarrow \text{call id}(E\text{list})$
2. $E\text{list} \rightarrow E\text{list}, E$
3. $E\text{list} \rightarrow E$

A suitable transition scheme for procedure call would be:

Production Rule	Semantic Action
$S \rightarrow \text{call id}(E\text{list})$	for each item p on QUEUE do GEN GEN (call id.PLACE)
$E\text{list} \rightarrow E\text{list}, E$	append E.PLACE to the end of QUEUE

Elist → E	initialize E.PLACE	QUEUE	to	contain	only
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Queue is used to store the list of parameters in the procedure call.