

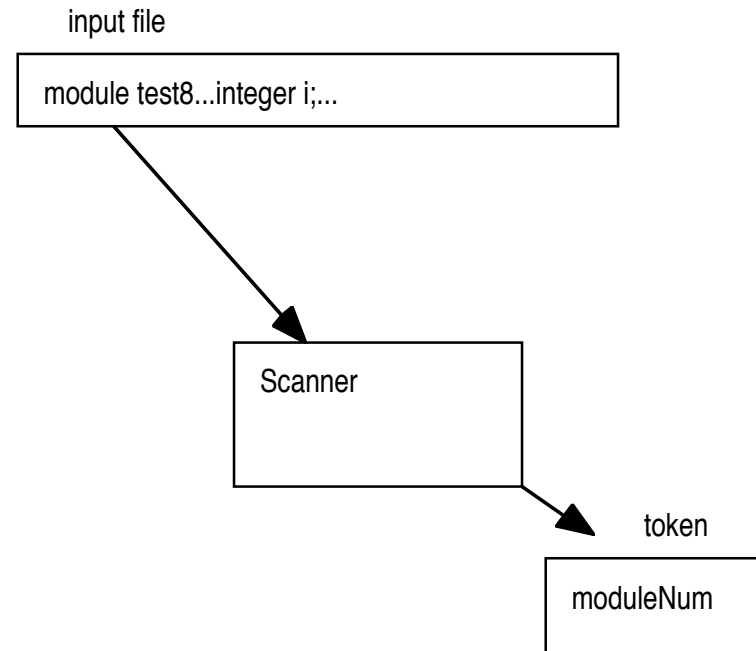
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# Information Flow

## Moving Information Through the Compiler

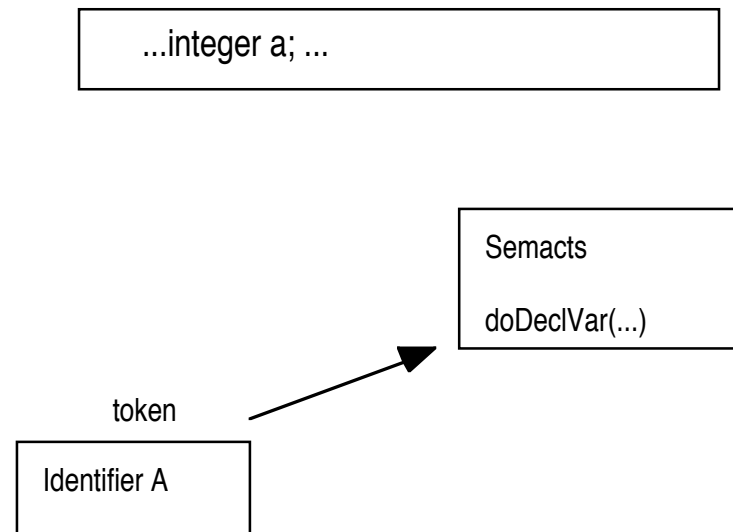
# Origination of the Data

- The scanner reads the input file and creates a TOKEN record.
- The TOKEN describes the symbol seen in the input.



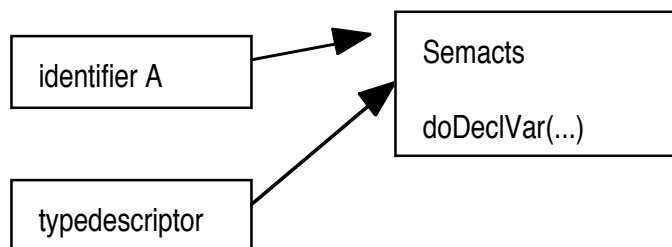
# Passed to Semacts

- The parser calls a semantic routine after scanning important tokens.
- The semantic routine may have various parameters. but it can see the token as a “global.”



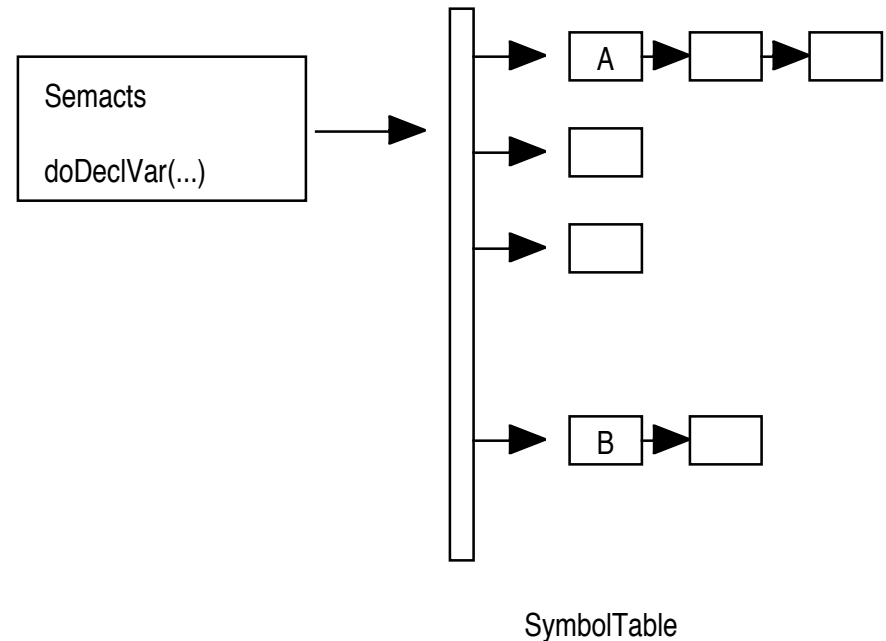
# Continuing

- Several semantic records may be created.
- Some are transformed along the way by semantic actions
- Then a major action is called.



# Declaring Variables

- An action like DoDeclVars takes a set of semantic records and creates Symboltable entries.
- These entries may then be retrieved later.



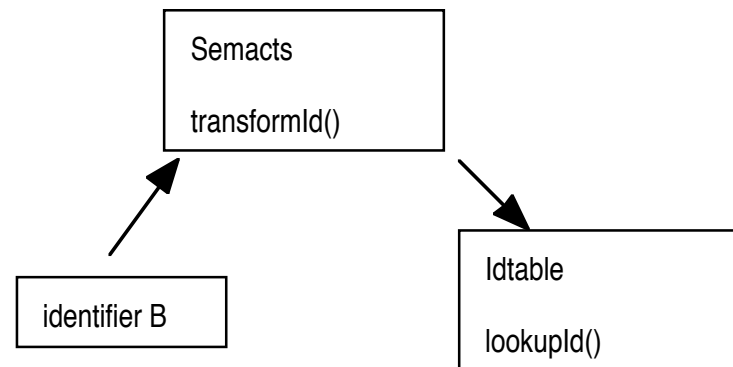
# Reversing the Process

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- Later, that same identifier may be used in the program.
- Once a name is in the symboltable, transformId may retrieve it.
- transformId rebuilds a semantic record from information in the symboltable.
- This is a two step process.
- First transformId looks up a name in an identifier record.

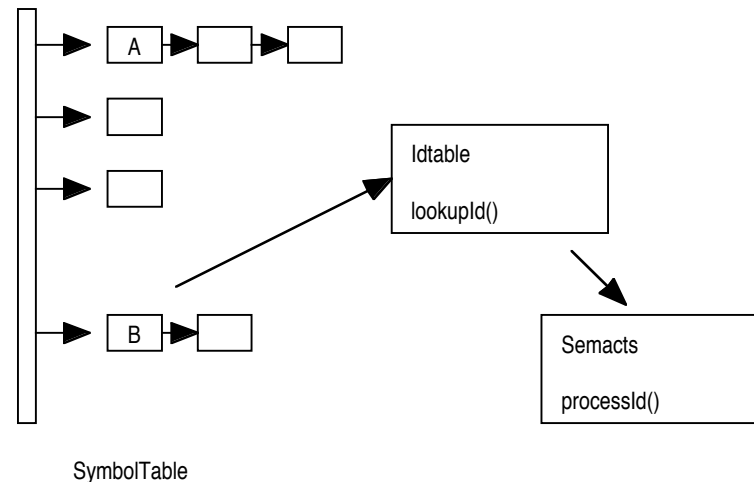
# TransformId Operation

- transformId calls lookupId from the symboltable module.
- LookupId finds the record in the symboltable and returns it to transformId.



# Retrieving SymbolTable Info

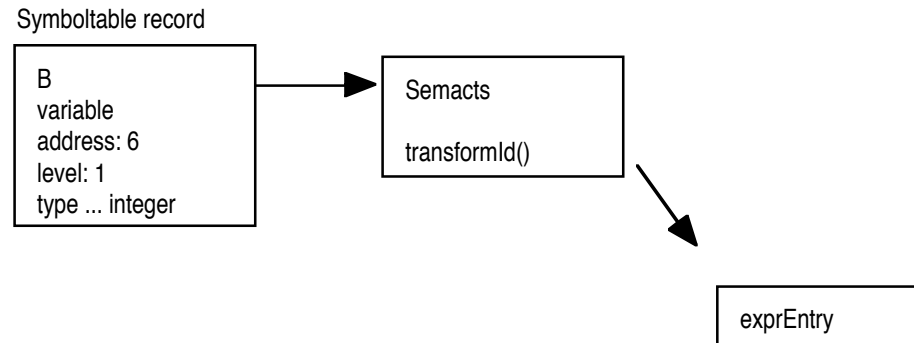
- LookupId returns a pointer to a symboltable record
- transformId can then examine the record to determine what kind of data it has.
- In this case B is a variable





# Examining The Record

- transformId looks at the record it gets from lookupId.
- transformId then creates an appropriate Semantic entry and returns the new object.



# And On...

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- This new semantic entry will be returned, only to be the input parameter to another semantic action.
- The entry will be discarded when it is no longer needed.

# The Basic Flow

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- Information flows from the scanner into a token. From the token into semacts via parameters to transforming actions like transformId and doDeclVar.
- The semantic record is the basic medium of exchange in this kind of a compiler.