

Discuss within your group, choose a spokesperson for class discussion...

Some programming languages and compilers allow *foreign calls* to external libraries that are written in different languages.

What are some of the challenges in providing this feature?

Why do we need this feature?

Cite three (computer) languages without runtime semantics

Foreign Calls

Challenges...

Call stack semantics (order of arguments, passing of return values).

Data encoding into and out of foreign routines (how are strings sent?
floating point formats? lists?)

Data runtime semantics — will the foreign call change procedure or global data values that are expected to remain constant?

Foreign Calls

Why?

Development speed — using pre-existing (debugged) logic for common system tasks is a no-brainer.

Some external libraries (facial recognition, graph analysis, . . .) implement very complex, perhaps proprietary, algorithms. These would be difficult and time consuming to reproduce.

Non-trivial applications need OS system call access and the interpretation of system call outcomes — these are commonly provided by the ubiquitous `LIBC` (written in C).

Sans Runtime Semantics

Pretty much any declarative language :)