

Columbus 2 - High Level

Compile time (could be run time if we need it to be)

AnnotationProcessor visits all classes with @Metamorphic → MetamorphicPropertyCompiler outputs new class files _tests versions with test + check methods

Load time (could be a preprocessor at compile time if we need it to be)

PreMain gets called first from -javaagent flag (could be dynamic I think if we need) → PreMain intercepts loading of all relevant classes and passes on to ASM
↓
InterceptingClassVisitor adds an interceptor field, child flag to each object ← InterceptingMethodVisitor adds pre and post execute calls to the Interceptor object attached to each object

Run time

Interceptor grabs each method call pre/post, as instrumented in the new class files → Interceptor spawns n threads for n metamorphic rules and executes each rule in a new thread/clone
↓
Interceptor waits for completion from each thread and calls the corresponding *check* method from each test