Unified Code Generation for the Parallel Computation of Pairwise Interactions using Partial Evaluation

The AnyDSL Approach to Code Generation

- Uniform syntax for the static and dynamic parts of a program
- Code generation is triggered through Partial Evaluation
- Typesafe template metaprogramming without additional syntax

Template Metaprogramming in C++

```cpp
template <int N> struct Factorial {
enum {
    value = N*Factorial<N-1>::value
};
};
```

Partial Evaluation in Impala

```java
fn factorial(i32 n) {
    // by supplying the P-namespace
    // the compiler will evaluate this function
    fn factorial(i32 n) {
        if (n == 0) {
            return 1;
        } else {
            return n * factorial(n - 1);
        }
    }
}
```