

CLAIMS

1. A computing device comprising a processor configured to:
 - receive source code at a compiler, wherein the source code includes:
 - at least one compound conditional having a plurality of conditions; and
 - for each condition of the plurality of conditions, a respective code block including one or more instructions to evaluate the condition;
 - for each ordering of a plurality of orderings of the plurality of conditions, determine that the ordering satisfies one or more legality constraints;
 - for each ordering of the plurality of orderings that satisfy the one or more legality constraints, determine a respective estimated computational cost for that ordering; and
 - reorder the plurality of conditions to have an ordering that has a lowest estimated computational cost of the plurality of orderings that satisfy the one or more legality constraints.
2. The computing device of claim 1, wherein the source code further includes:
 - a first branch code block including one or more first branch evaluation instructions configured to be executed when the plurality of conditions are true; and
 - a second branch code block including one or more second branch evaluation instructions configured to be executed when at least one condition of the plurality of conditions is false.
3. The computing device of claim 2, wherein the one or more legality constraints include a constraint that the source code includes one first branch code block and one second branch code block.
4. The computing device of claim 1, wherein the one or more legality constraints include a constraint that the respective code block of each condition includes an instruction to proceed to a common target code block.
5. The computing device of claim 4, wherein the one or more legality constraints include a constraint that a portion of the source code following a last code block of the respective code blocks of the plurality of conditions and preceding the common target code block has one entry point and one exit point.
6. The computing device of claim 1, wherein the one or more legality constraints include a constraint that no instruction calls an undefined variable.
7. The computing device of claim 1, wherein each code block is a basic block.
8. The computing device of claim 1, wherein at least one code block includes a plurality of basic blocks.

9. The computing device of claim 1, wherein the processor is configured to determine the respective estimated computational cost for each ordering at least in part by:
- assigning an estimated cost score to each instruction included in the ordering; and
 - summing the respective estimated cost scores assigned to each instruction.
10. The computing device of claim 1, wherein the compound conditional includes three or more conditions.
11. A method performed by a processor of a computing device, the method comprising:
- receiving source code at a compiler, wherein the source code includes:
 - at least one compound conditional having a plurality of conditions; and
 - for each condition of the plurality of conditions, a respective code block including one or more instructions to evaluate the condition;
 - for each ordering of a plurality of orderings of the plurality of conditions, determining that the ordering satisfies one or more legality constraints;
 - for each ordering of the plurality of orderings that satisfy the one or more legality constraints, determining a respective estimated computational cost for that ordering; and
 - reordering the plurality of conditions to have an ordering that has a lowest estimated computational cost of the plurality of orderings that satisfy the one or more legality constraints.
12. The method of claim 11, wherein the source code further includes:
- a first branch code block including one or more first branch evaluation instructions configured to be executed when the plurality of conditions are true; and
 - a second branch code block including one or more second branch evaluation instructions configured to be executed when at least one condition of the plurality of conditions is false.
13. The method of claim 11, wherein the one or more legality constraints include a constraint that the respective code block of each condition includes an instruction to proceed to a common target code block.
14. The method of claim 11, wherein the one or more legality constraints include a constraint that no instruction calls an undefined variable.
15. The method of claim 11, wherein determining the respective estimated computational cost for each ordering includes:
- assigning an estimated cost score to each instruction included in the ordering; and
 - summing the respective estimated cost scores assigned to each instruction.