Princeton University
COS 217: Introduction to Programming Systems
SPARC Assembly Language "if...else" Statement Optimization

C:

```
...
instruction0;
if (test)
{
   trueinstruction1;
   trueinstruction2;
   ...
   trueinstructionN;
}
else
{
   falseinstruction1;
   falseinstruction2;
   ...
   falseinstructionN;
}
instruction1;
...
```

Assembly Language:

```
   ...
   instruction0
   cmp ...
   bnx else
   nop
   trueinstruction1
   trueinstruction2
   ...
   trueinstructionN
   ba ifend
   nop
else:
   falseinstruction1
   falseinstruction2
   ...
   falseinstructionN
ifend:
   instruction1
   ...
```

Optimized Assembly Lang. (version 1):

```
   ...
   instruction0
   cmp ...
   bnx,a else
   falseinstruction1
   trueinstruction1
   trueinstruction2
   ...
   ba ifend
   trueinstructionN
else:
   falseinstruction2
   ...
   falseinstructionN
ifend:
   instruction1
   ...
```

Optimized Assembly Lang. (version 2):

```
   ...
   instruction0
   cmp ...
   bnx,a else
   falseinstruction1
   trueinstruction1
   trueinstruction2
   ...
   trueinstructionN
   ba ifend
   instruction1
else:
   falseinstruction2
   ...
   falseinstructionN
   instruction1
ifend:
   ...
```