Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% gcc217 testforkloop.c -o testforkloop
```

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```

```
9857
```

```
int main(void)
{
   pid_t iPid;
   int i;
   printf("%d parent\n",
      (int)getPid());
   fflush(stdin);
   fflush(stdout);
   iPid = fork();
   if (iPid == 0)
   {  for (i = 0; i < 10; i++)
         printf("%d child %d\n",
            (int)getPid(), i);
      exit(0);
   }
   for (i = 0; i < 10; i++)
      printf("%d parent %d\n",
         (int)getPid(), i);
   return 0;
}
```

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```

```
9857
```

```
int main(void)
{
   pid_t iPid;
   int i;
   printf("%d parent\n",
      (int)getPid());
   fflush(stdin);
   fflush(stdout);
   iPid = fork();
   if (iPid == 0)
   {  for (i = 0; i < 10; i++)
         printf("%d child %d\n",
            (int)getPid(), i);
      exit(0);
   }
   for (i = 0; i < 10; i++)
      printf("%d parent %d\n",
         (int)getPid(), i);
   return 0;
}
```

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```

```
9857
```

```
int main(void)
{
   pid_t iPid;
   int i;
   printf("%d parent\n",
      (int)getPid());
   fflush(stdin);
   fflush(stdout);
   iPid = fork();
   if (iPid == 0)
   {  for (i = 0; i < 10; i++)
         printf("%d child %d\n",
            (int)getPid(), i);
      exit(0);
   }
   for (i = 0; i < 10; i++)
      printf("%d parent %d\n",
         (int)getPid(), i);
   return 0;
}
```

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```

```
9857
```

```
int main(void)
{
   pid_t iPid;
   int i;
   printf("%d parent\n",
      (int)getPid());
   fflush(stdin);
   fflush(stdout);
   iPid = fork();
   if (iPid == 0)
   {  for (i = 0; i < 10; i++)
         printf("%d child %d\n",
            (int)getPid(), i);
      exit(0);
   }
   for (i = 0; i < 10; i++)
      printf("%d parent %d\n",
         (int)getPid(), i);
   return 0;
}
```

Writes:

```
9857 parent
```

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```

```
9857
```

```
int main(void)
{
   pid_t iPid;
   int i;
   printf("%d parent\n",
      (int)getPid());
   fflush(stdin);
   fflush(stdout);
   iPid = fork();
   if (iPid == 0)
   {  for (i = 0; i < 10; i++)
         printf("%d child %d\n",
            (int)getPid(), i);
      exit(0);
   }
   for (i = 0; i < 10; i++)
      printf("%d parent %d\n",
         (int)getPid(), i);
   return 0;
}
```

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```

```
9857
```

```
int main(void)
{
   pid_t iPid;
   int i;
   printf("%d parent\n",
      (int)getPid());
   fflush(stdin);
   fflush(stdout);
   iPid = fork();
   if (iPid == 0)
   {  for (i = 0; i < 10; i++)
         printf("%d child %d\n",
            (int)getPid(), i);
      exit(0);
   }
   for (i = 0; i < 10; i++)
      printf("%d parent %d\n",
         (int)getPid(), i);
   return 0;
}
```

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```

9857

```
int main(void)
{
   pid_t iPid;
   int i;
   printf("%d parent\n",
      (int)getPid());
   fflush(stdin);
   fflush(stdout);
   iPid = fork();
   if (iPid == 0)
   {  for (i = 0; i < 10; i++)
         printf("%d child %d\n",
            (int)getPid(), i);
      exit(0);
   }
   for (i = 0; i < 10; i++)
      printf("%d parent %d\n",
         (int)getPid(), i);
   return 0;
}
```

concurrent

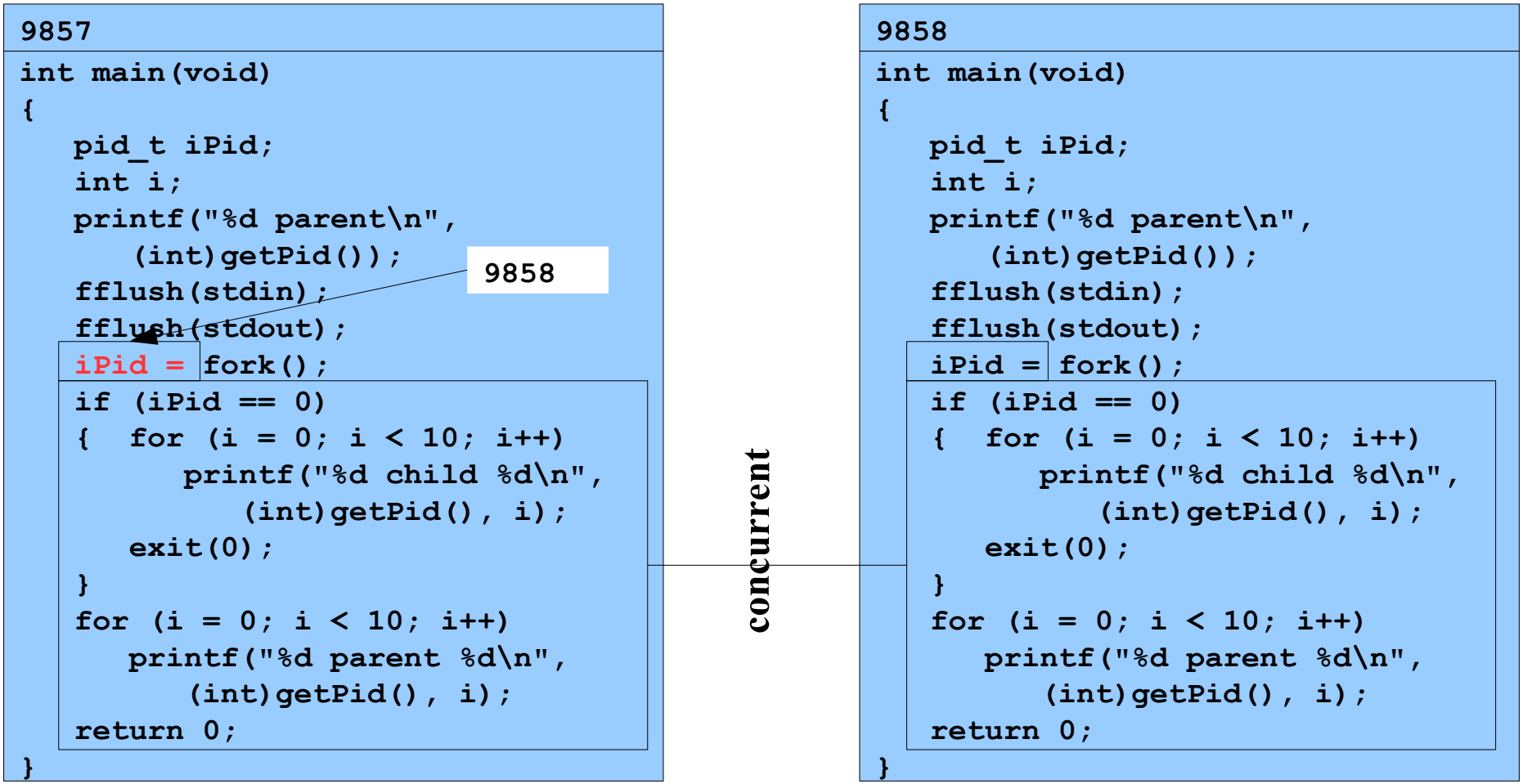
9858

```
int main(void)
{
   pid_t iPid;
   int i;
   printf("%d parent\n",
      (int)getPid());
   fflush(stdin);
   fflush(stdout);
   iPid = fork();
   if (iPid == 0)
   {  for (i = 0; i < 10; i++)
         printf("%d child %d\n",
            (int)getPid(), i);
      exit(0);
   }
   for (i = 0; i < 10; i++)
      printf("%d parent %d\n",
         (int)getPid(), i);
   return 0;
}
```


Assume OS gives CPU to parent

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

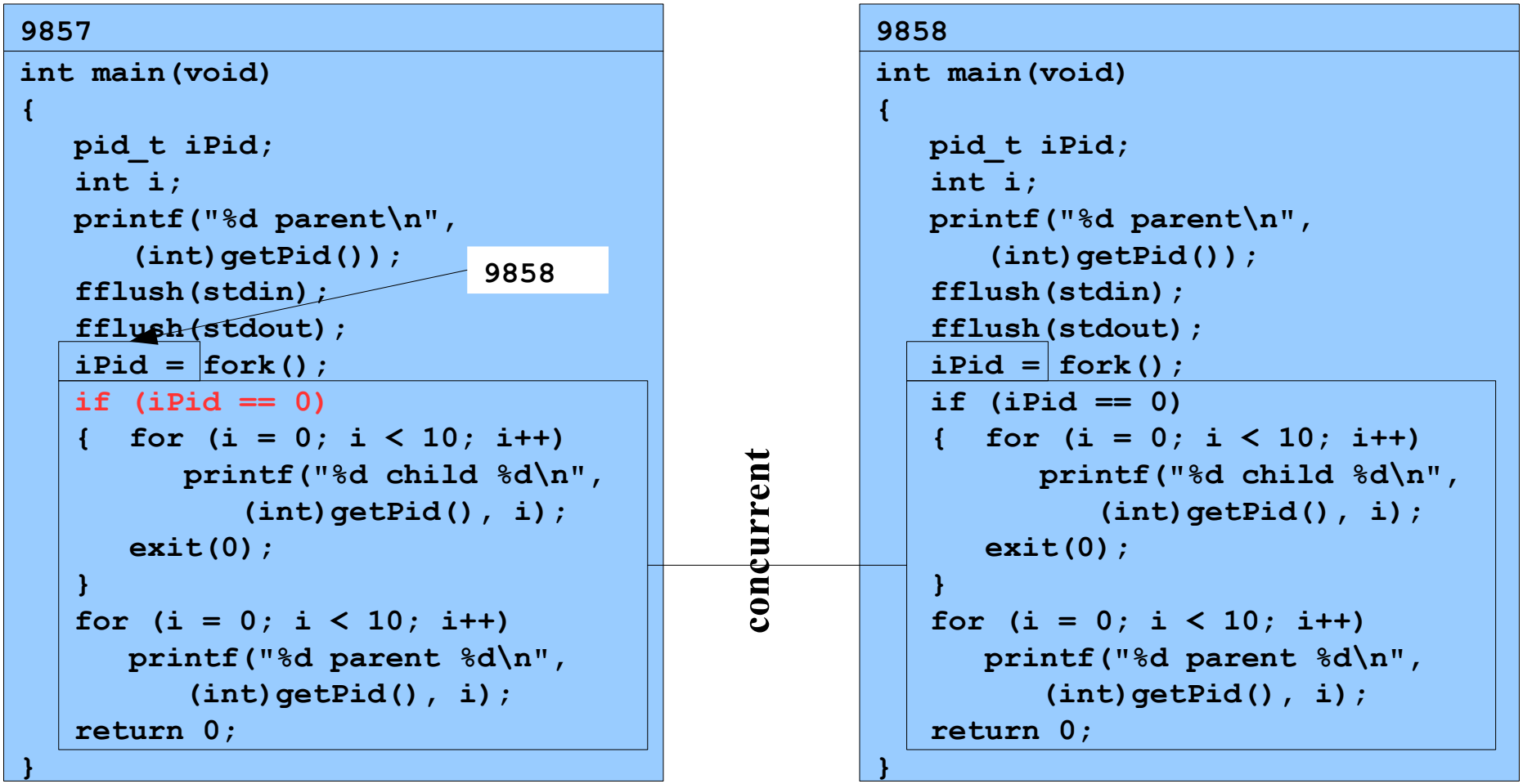
```
% ./testforkloop
```



Assume OS gives CPU to parent

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

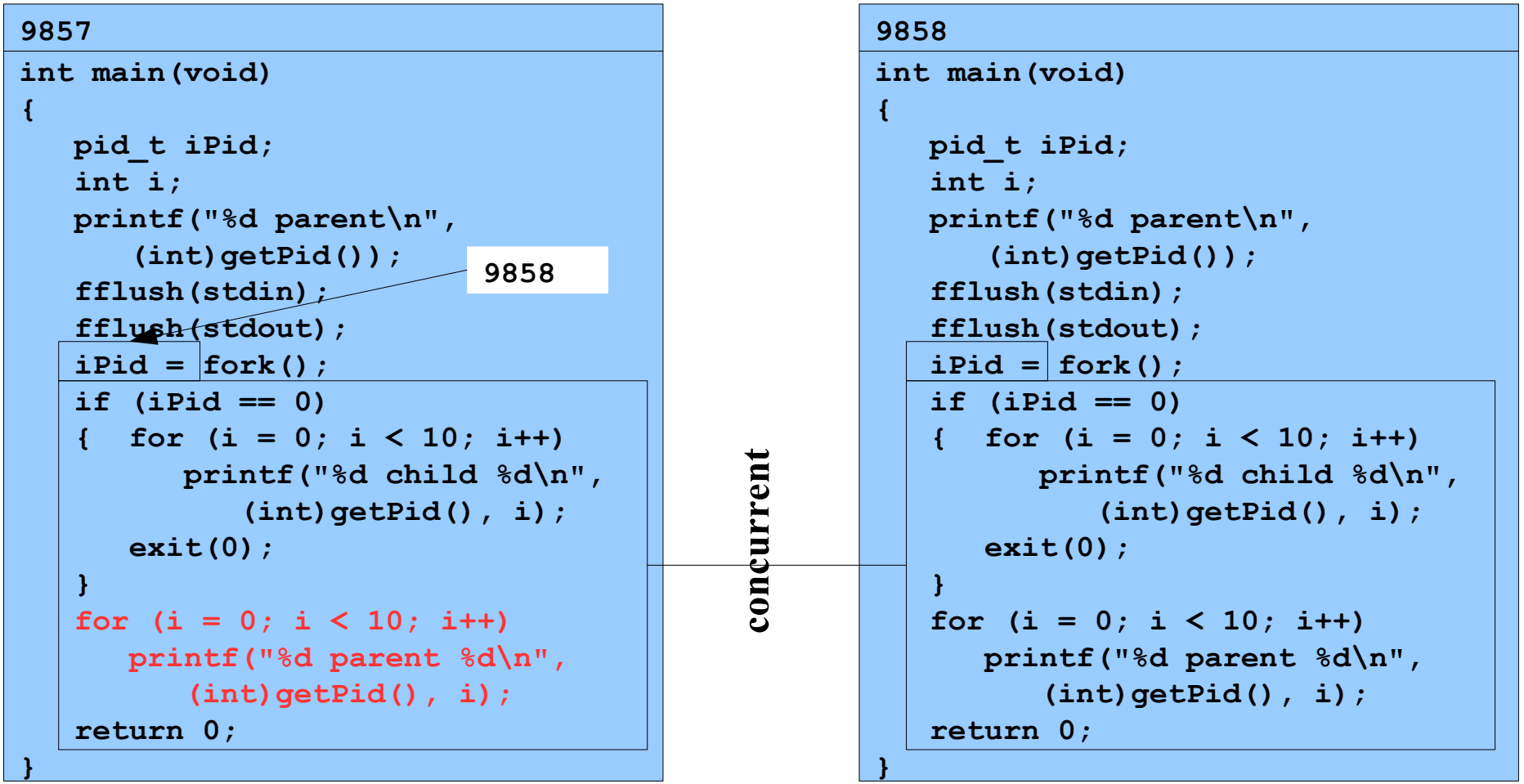
```
% ./testforkloop
```



Assume OS gives CPU to parent

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```



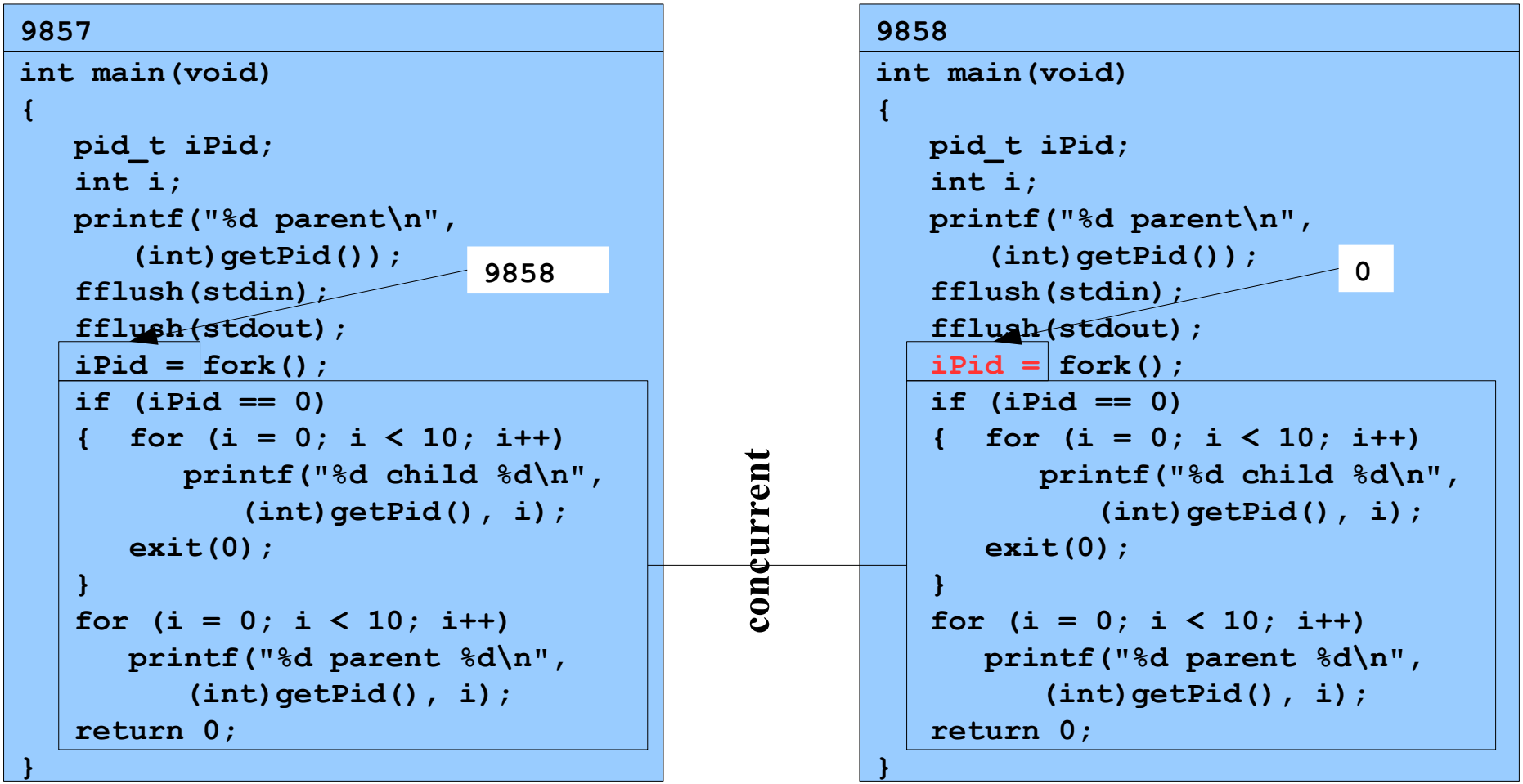
Writes:

```
9857 parent 0 ... 7
```


Assume OS gives CPU to parent

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

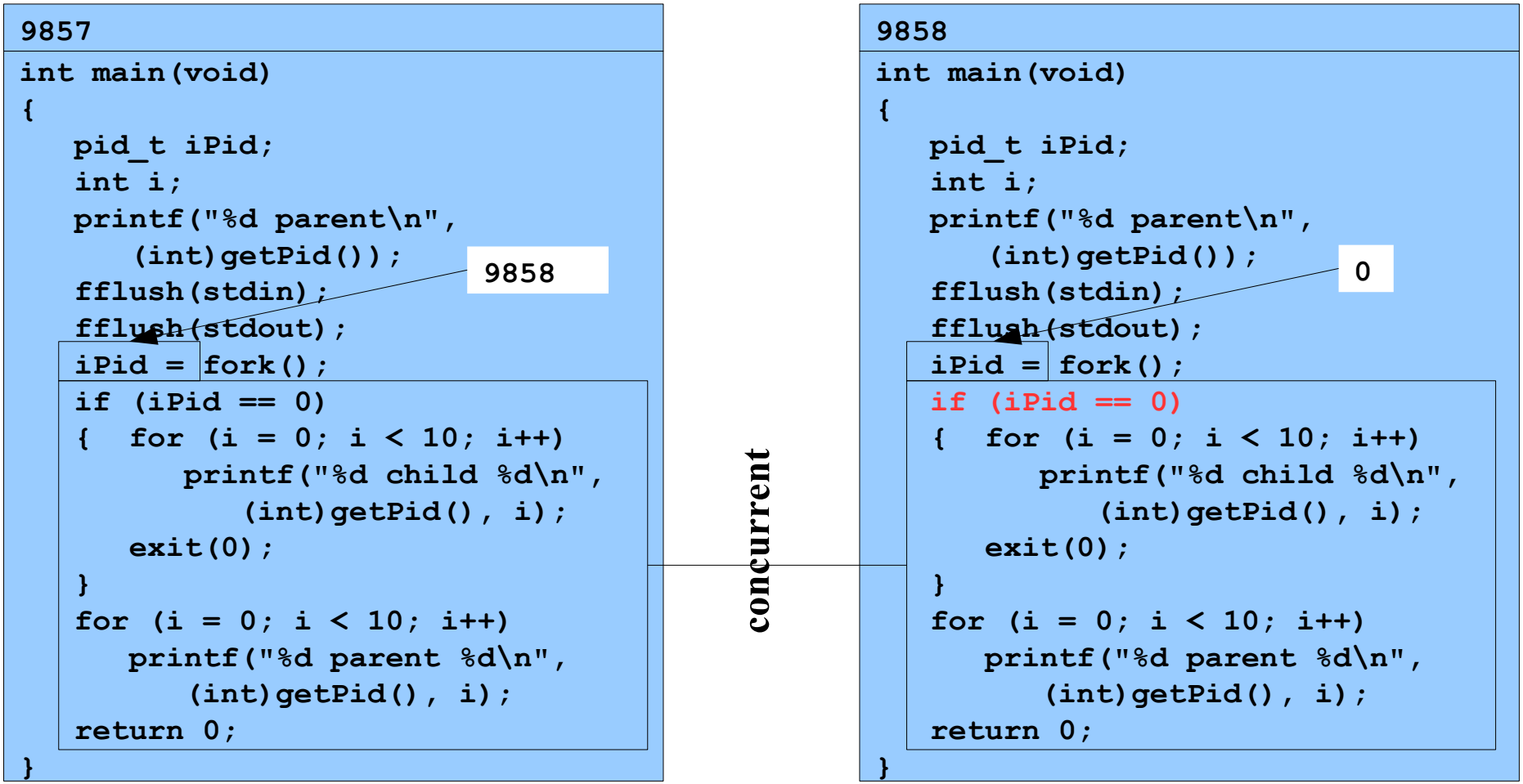
```
% ./testforkloop
```



Assume OS gives CPU to child

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

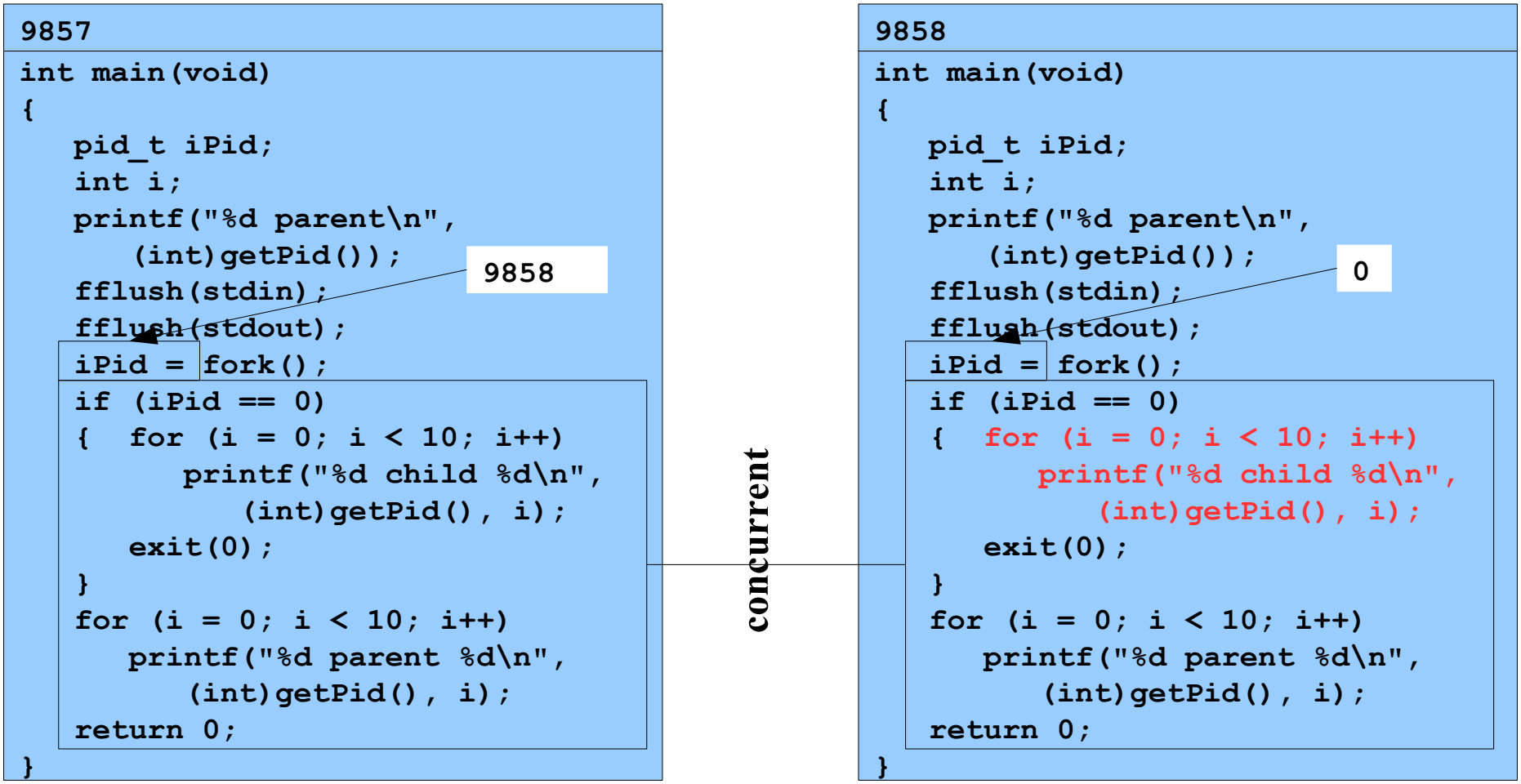
```
% ./testforkloop
```



Assume OS gives CPU to child

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```



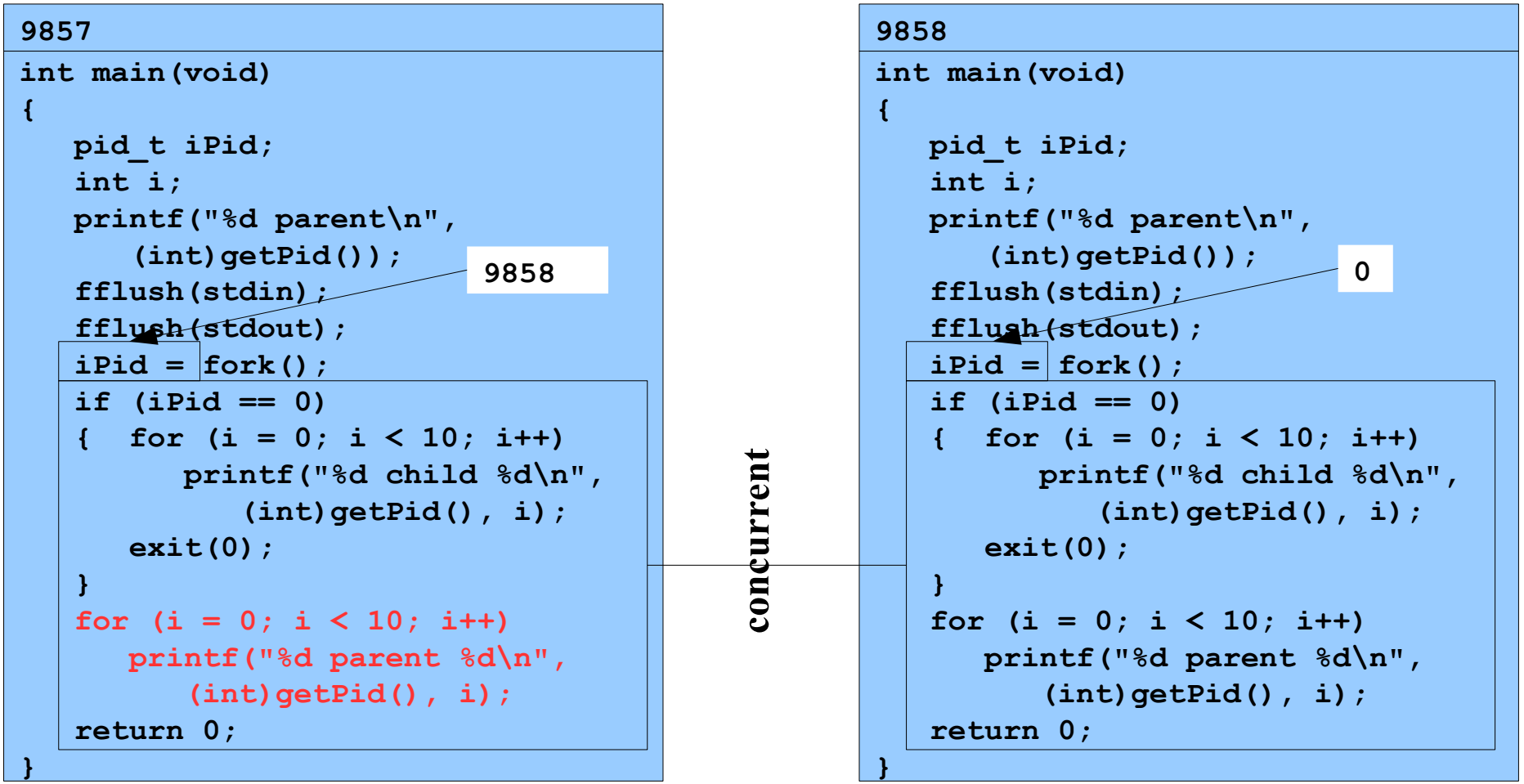
Writes:

```
9858 child 0
```


Assume OS gives CPU to parent

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```



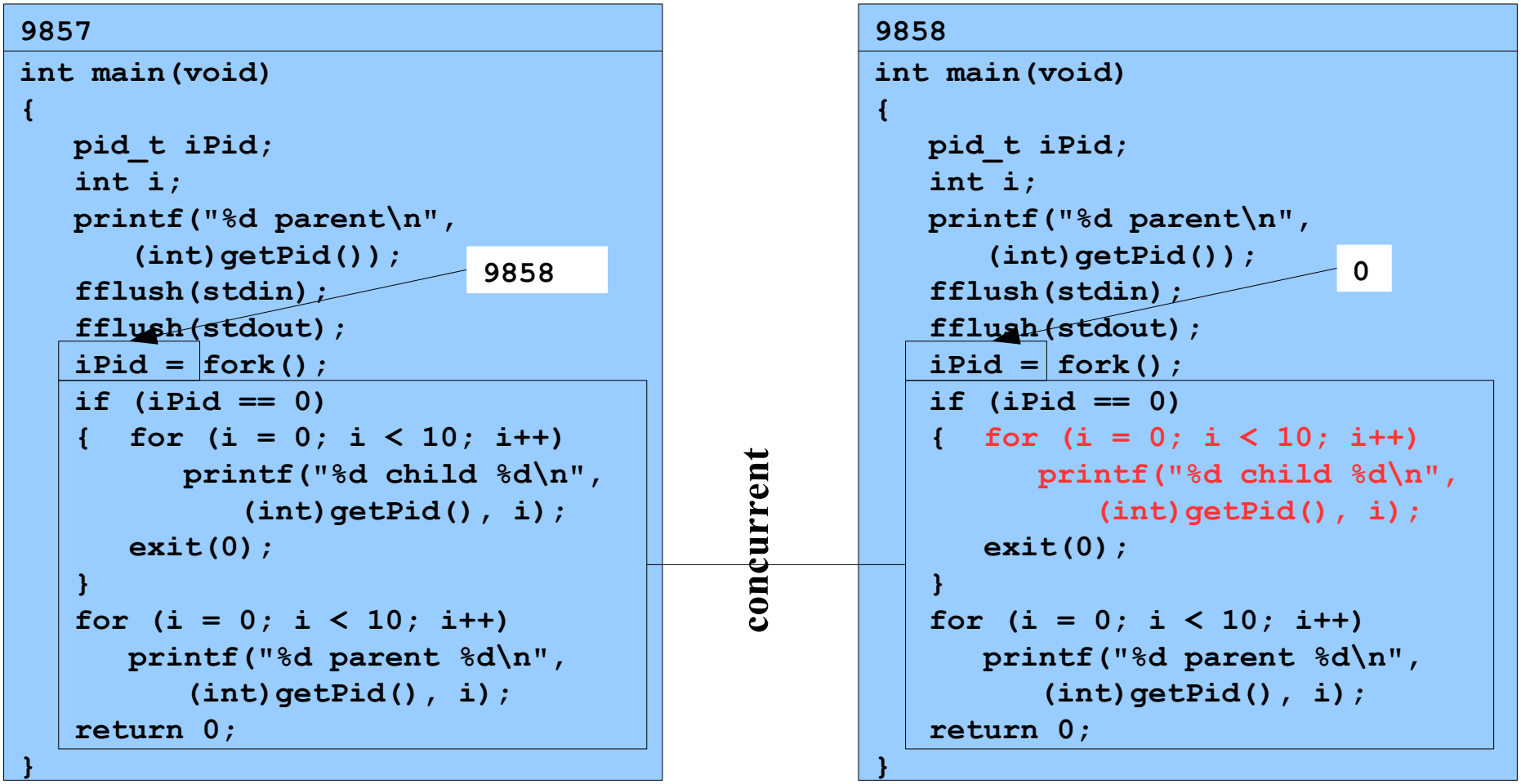
Writes:

```
9857 parent 8
```


Assume OS gives CPU to child

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```



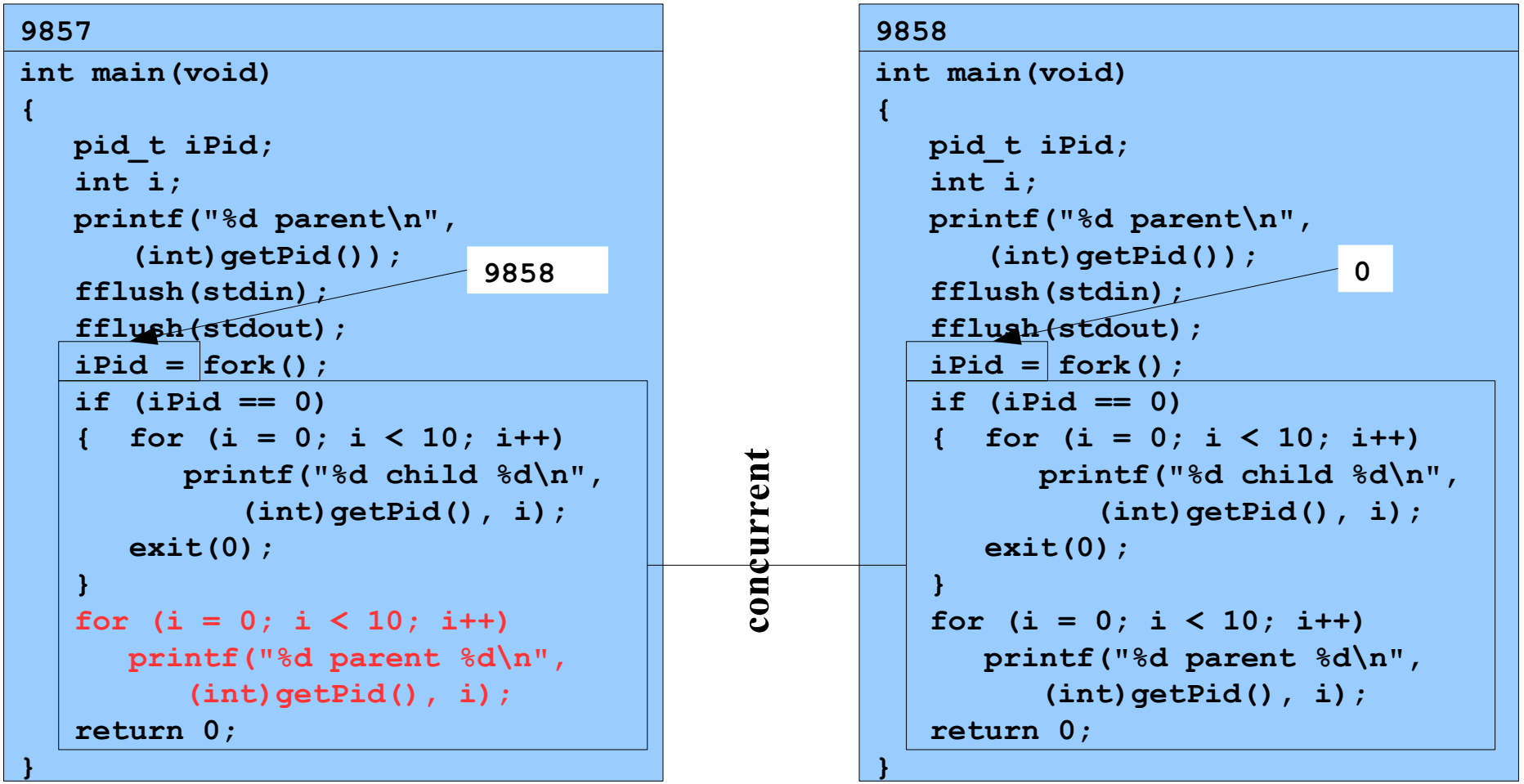
Writes:

```
9858 child 1
```


Assume OS gives CPU to parent

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```



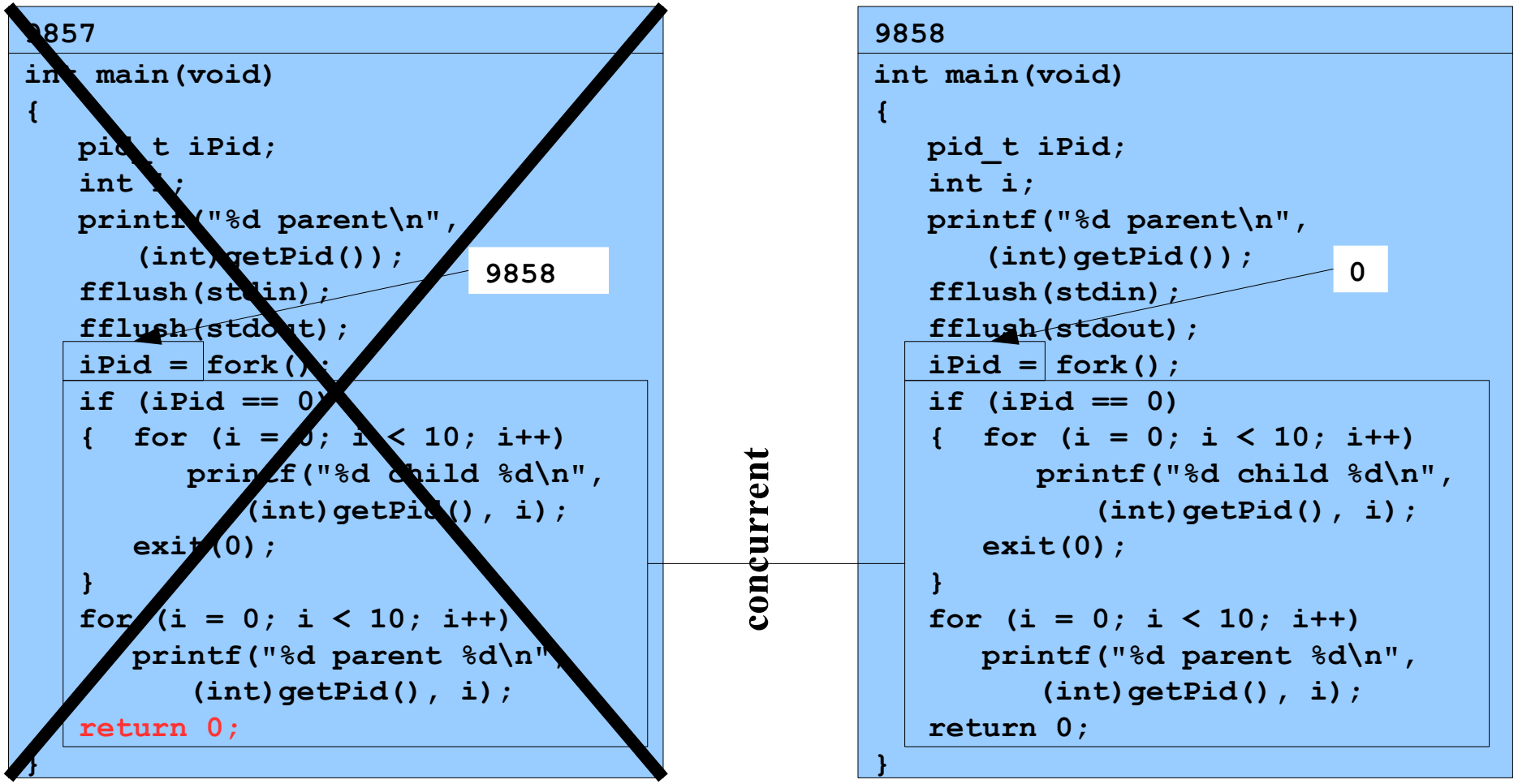
Writes:

```
9857 parent 9
```


Assume OS gives CPU to parent

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```



Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```

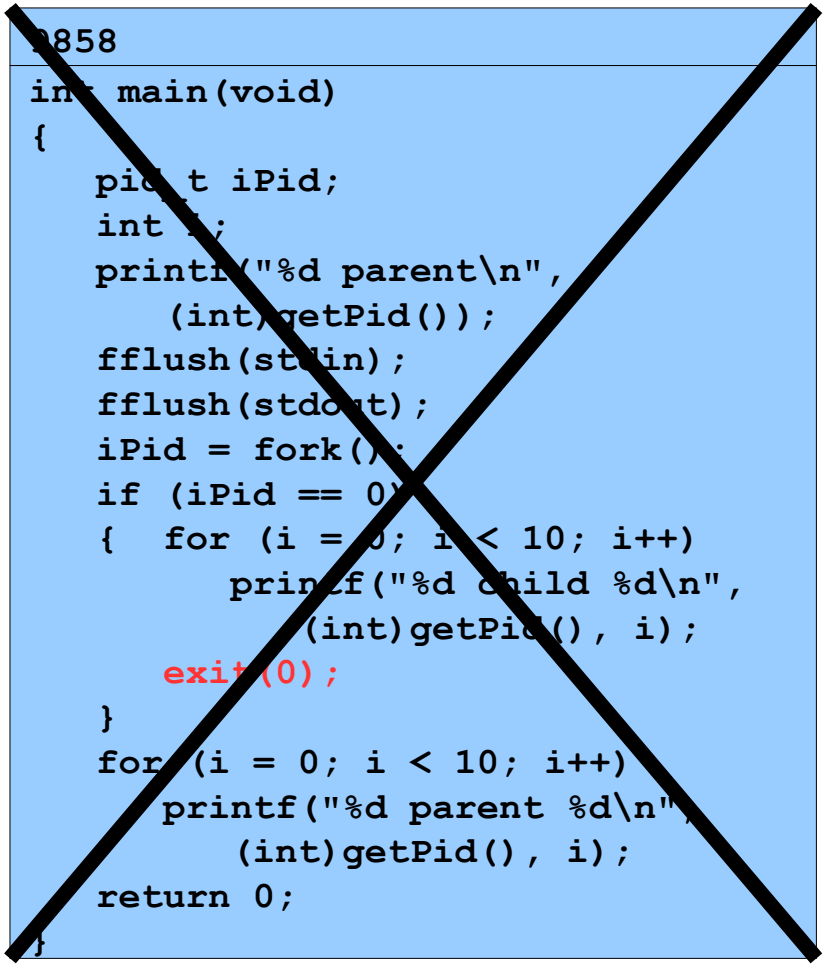
```
9858
int main(void)
{
   pid_t iPid;
   int i;
   printf("%d parent\n",
      (int)getPid());
   fflush(stdin);
   fflush(stdout);
   iPid = fork();
   if (iPid == 0)
   {  for (i = 0; i < 10; i++)
         printf("%d child %d\n",
            (int)getPid(), i);
      exit(0);
   }
   for (i = 0; i < 10; i++)
      printf("%d parent %d\n",
         (int)getPid(), i);
   return 0;
}
```

Writes:

```
9858 child 2 ... 9
```

Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
% ./testforkloop
```



Princeton University
COS 217: Introduction to Programming Systems
Trace of testforkloop

```
%
```

Copyright © 2019 by Robert M. Dondero, Jr.