

Order of execution of code in Ensc351Part3-test.cpp and some output and details of the solution

threadT41 (priority 50)	threadT32 (priority 70 to 40 to 80 to 40)	threadT42 (priority 60)	daSktPr[0] - 3			daSktPr[1] - 4		
			tW/mTCR	pair	cvDrn	tW/mTCR	pair	cvDrn/cvR
			-	-	-	-	-	-
	mySocketpair(AF_LOCAL, SOCK_STREAM, 0, daSktPr); mySocketpair(AF_LOCAL, SOCK_STREAM, 0, daSktPr1); mySocketpair(AF_LOCAL, SOCK_STREAM, 0, daSktPr2);		0/0	4		0/0	3	/
	PE_NOT(myWrite(daSktPr[0], "abcd", 4), 4); posixThread threadT42(60, threadT42Func); PE(myTcdrain(daSktPr[0])); // blocked		0/0	4		4/0	3	/
		PE_NOT(myWrite(daSktPr[1], "ijkl", 5), 5); posixThread threadT41(50, threadT41Func); <u>/* X */ myTcdrain(daSktPr[1]); //blocked</u>	0/0	4		4/0	3	T32/
<u>/* A */ myReadcond(daSktPr[1], Ba, 20, 12, 0, 0); // blocked</u>			5/0	4		4/0	3	T32/
	setSchedPrio(40); PE_NOT(myWrite(daSktPr[0], "123456789", 10), 10);		5/0	4	T42	4/0	3	T32/
			5	4	T42	4/20	3	/T41
/* finished: statement A: result was 14 Ba: abcd123456789 */ myReadcond(daSktPr[1], Ba, 20, 0, 0, 0); // returned 0; <u>myWrite(daSktPr[1], "Will not be read", 17);</u> <u>/* B */ myReadcond(daSktPr[1], Ba, 20, 12, 0, 0); // blocked</u>			5/0	4	T42	14/20	3	/
			5/0	4	T42	0/0	3	/
			22/0	4	T42	0/0	3	/
			22/0	4	T42	0/20	3	/T41
	setSchedPrio(80); PE_NOT (myWrite(daSktPr[0], "xyz", 4), 4); PE(myTcdrain(daSktPr[0])); PE(myClose(daSktPr[0])); // returned 0 setSchedPrio(40);		22/0	4	T42	4/20	3	/T41
			22/0	-1		4/20	-2	/
		/* finished: statement X: result was 0 */ myTcdrain(daSktPr[1]); threadT41.join();	22/0	-1		4/20	-2	/
<u>/* finished: statement B: result was 4 Ba: xyz */</u> <u>myReadcond(daSktPr[1], Ba, 20, 1, 0, 0)); // errno 104 "Reset"</u> <u>myWrite(daSktPr[1], "Will not be read", 17)</u> <u>/* C */ myReadcond(daSktPr[1], Ba, 20, 1, 0, 0); // bl'ked</u>								
	PE(myClose(daSktPr1[0]));							
/* finished: C: res was -1 errno 104: Connection reset by peer */ myReadcond(daSktPr1[1], Ba, 20, 1, 0, 0)); // will return 0 myWrite(daSktPr[1], "Added", 6); // ret -1 errno 32: Broken pipe <u>/* D */ myRead(daSktPr2[1], Ba, 20); // blocked</u>								
	PE_NOT(myWrite(daSktPr2[0], "mno", 4), 4);							
/* finished: statement D: result was 4 Ba: mno */ <u>/* E */ myRead(daSktPr2[1], Ba, 20);</u>								
	PE(myClose(daSktPr2[0]));							
/* finished: statement E: result was 0 */ myClose(daSktPr2[1]); // returned 0 myClose(daSktPr1[1]); // returned 0 myClose(daSktPr[1]); // returned 0 myClose(daSktPr[1]); // ret -1 errno 9 ⁱⁱ : Bad file descriptor myRead(daSktPr[1], Ba, 20); // ret -1 errno 9 // ... /* end of threadT41 */								
	threadT42.join();	/* end of threadT42 */						

ⁱ For this course, we will accept a return value of 0 in addition to `errno 104` (Connection Reset by Peer)

ⁱⁱ The OS supplies the error string “Bad file descriptor” like this even though there is no “file” associated with the descriptor. I would have named it simply “Bad descriptor”, but files came first in the OS design.