borrow(bob. book2.a): libB borrow(bob. book3.a); pubA intReturn(bob. book2.a); pubA borrow(alice, book1.b); libB borrow(alice, book2\_a); libC horrow(hob hook2 a): nuhA horrow(hob book3 a): libC return(hob\_book2 a): libC horrow(alice hook1 h): puhA horrow(alice hook2 a): lihB harrow(hah haak2 a): lihC horrow(hob\_hook3 a): lihB return(bob book2 a): libB horrow(alice book1 h): libC horrow(alice book2 a): nuhA intBorrow(bob, book2,a): pubA intBorrow(hob. hook3 a): lihB return(bob, book2\_a): pubA intBorrow(alice, book1,b): libC intBorrow(alice, book2,a): pubA intBorrow(alice, book2,a): libC intBorrow(bob. book2-a): libB intBorrow(bob. book3.a): pubA viol(return(bob. book2\_a)); libB intBorrow(alice, book1\_b); pubA viol(borrow(bob, book2\_a)): libC viol(borrow(bob, book3\_a)): libC viol(return(bob, book2\_a)): libC viol(borrow(alice, book1\_b)): libB viol(borrow(alice, book2,a)): libB allowance(alice, 2): libC allowance(alice 2): libC allowance(alice 2): lihC allowance(alice 2): libC allowance(alice 2): lihC allowance(alice, 2): libC allowance(bob, 2): libB allowance(bob 2): libB allowance(alice, 3): pubA allowance(alice 3): nuhA allowance(bob, 2): pubA allowance(bob 2): nubA allowance(bob, 2): pubA allowance(bob, 2): pubA allowance(bob, 2): pubA allowance(bob, 2): nubA available(book1.c): libC available(book1.c): libC available(book1\_c): libC available(book1.c): libC available(book1\_c): libC available(book1.c): libC available(book4 a): pubA available(book4\_a): pubA available(book4 a): pubA available(book4 a): pubA available(book4\_a): pubA available(book4-a): pubA available(book2 a) nubA available(book1 b): libB available(book1 b): libB available(book2 a): pubA available(book2 a) nubA available(book1\_b): libB available(book3\_a): pubA available(book1 b): libB available(book3\_a): pubA available(book1 b): libB available(book1 b): libB available(book3.a): pubA available(book3\_a): pubA available(book2\_c): libC available(book2\_c): libC available(book3\_a): pubA available(book3\_a): pubA available(book2\_c): libC available(book2 c): libC available(book2\_b): libB available(book2 b): libB available(book2 c): libC available(book2 c): libC available(book2 b): libB available(book2\_b): libB borrowed(bob. book2-a): borrowed(bob-book2-a): pubA available(book2\_b): libB available(book2\_b): libB borrowed(bob, book1\_a): pubA borrowed(bob. book1.a): pubA borrowed(bob. book1.a): pubA borrowed(bob. book1.a): pubA borrowed(bob. book1.a): pubA pubA borrowed(alice, book2\_a): loans(alice, 0): pubA borrowed(bob, book1\_a): pubA loans(bob, 2); pubA loans(alice, 0): pubA loans(alice, 0): pubA nuhΔ loans(bob. 0): libB loans(bob. 2): pubA loans(alice, 0): pubA loans(bob. 0): libB loans(bob. 0): libB loans(alice, 1): pubA loans(alice, 0): libC loans(alice, 0): pubA loans(bob, 0): libB loans(alice, 0): libC loans(alice, 0): libC loans(bob 0): libB loans(bob. 1): nubA loans(bob. 0): libB loans(alice, 0): libC loans(bob. 1): pubA loans(bob. 1): pubA loans(alice, 0): libC member(bob): libB loans(alice, 0): libC member(bob): libB member(bob): libB member(bob): libB loans(bob. 1): pubA member(alice): libC member(bob): libB member(alice): libC member(alice): libC member(alice): libC member(bob): libB normall lear(alice): libC member(alice): libC normalUser(alice): libC normalUser(alice): libC normalUser(alice): libC member(alice): libC normalUser(alice): pubA normalUser(alice): libC normalUser(alice): pubA normalUser(alice): pubA normalUser(alice): pubA normalUser(alice): libC manuscript the ball and the normalUser(alice): pubA normall lear(bob); libD normalUser(bob); pubA normalUser(bob): pubA normalUser(alice): pubA normalUser(bob): libB normalUser(bob): libB obl(intReturn(bob. book2-a)normalUser(bob): libB normalUser(bob): libB normalUser(bob): pubA obl(intReturn(bob\_book1\_a) obl(intReturn(bob, book2 a) due(bob book2 a) issueFine( obl(intReturn(bob, book1,a), obl(intReturn(bob. book1.a) normalUser(bob): libB due(bob. book1.a), issueFine( due(bob. book2.a). Adun ((a Cland dad due(bob\_book1.a)\_issueFine( due(bob. book1.a), issueFine( obl(intReturn(bob, book1\_a), issueFine(bob. book2.a)): obl(intReturn(bob, book1,a), bob book1.a)): pubA bob\_book1.a)): pubA bob. book1.a)): pubA due(bob. book1-a), issueFine( onLoan(book1\_a): pubA **DubA** due(bob, book1,a), issueFine( onLoan(book1\_a): pubA onLoan(book1\_a): pubA bob, book1\_a)): pubA obl(intReturn(bob\_book1\_a) bob book1 a)): pubA obl(intReturn(alice, book2, a), due(bob. book1\_a), issueFine( onLoan(book1\_a): pubA due(alice, book2, a). bob, book1\_a)): pubA ont can(hook? a) - nuhA issueFine(alice, book2\_a)): onl oan(book1.a): nubA nuhΔ onl oan(book2-a): pubA onLoan(book1\_a): pubA onLoan(book2\_a): pubA

return(bob, book2\_a)

horrow(alice hook2 a)

horrow(hob hook? a)

borrow(bob, book3\_a)