

Step	Description	Server			Alice			Bob			Queue		
		Text .....1.....2.....	State	Await Buffer	Pending Buffer	Text .....1.....2.....	State	Await Buffer	Pending Buffer	Text .....1.....2.....	To Server	To Alice	To Bob
1	Initial State	Lorem ipsum	Synchronized			Lorem ipsum	Synchronized			Lorem ipsum			
2	Alice moves the cursor to position 6, just after the 'm' and types 'A1'	Lorem ipsum	Awaiting	Author: Alice Revision: 0 Changeset: Retain(5), Insert("A"), Retain(6)	Author: Alice Changeset: Retain(6), Insert("A1"), Retain(6)	Lorem A1 ipsum	Synchronized			Lorem ipsum	Author: Alice Revision: 0 Changeset: Retain(5), Insert("A"), Retain(6)		
3	Bob moves the cursor to position 6, just after the 'm' and types 'B1'	Lorem ipsum	Awaiting	Author: Alice Revision: 0 Changeset: Retain(5), Insert("A"), Retain(6)	Author: Alice Changeset: Retain(6), Insert("A1"), Retain(6)	Lorem A1 ipsum	Awaiting	Author: Bob Revision: 0 Changeset: Retain(5), Insert("B"), Retain(6)	Author: Bob Changeset: Retain(6), Insert("B1"), Retain(6)	Lorem B1 ipsum	Author: Alice Revision: 0 Changeset: Retain(5), Insert("A"), Retain(6)	Author: Bob Revision: 0 Changeset: Retain(5), Insert("B"), Retain(6)	
4	Bob moves the cursor to the end of the line after ipsum and adds 'B2'	Lorem ipsum	Awaiting	Author: Alice Revision: 0 Changeset: Retain(5), Insert("A"), Retain(6)	Author: Alice Changeset: Retain(6), Insert("A1"), Retain(6)	Lorem A1 ipsum	Awaiting	Author: Bob Revision: 0 Changeset: Retain(5), Insert("B"), Retain(6)	Author: Bob Changeset: Retain(6), Insert("B1"), Insert(" B2")	Lorem B1 ipsum B2	Author: Alice Revision: 0 Changeset: Retain(5), Insert("A"), Retain(6)	Author: Bob Revision: 0 Changeset: Retain(5), Insert("B"), Retain(6)	
5	Server processes Alice's first operation (see step 2)	Lorem ipsum	Awaiting	Author: Alice Revision: 0 Changeset: Retain(5), Insert("A"), Retain(6)	Author: Alice Changeset: Retain(6), Insert("A1"), Retain(6)	Lorem A1 ipsum	Awaiting	Author: Bob Revision: 0 Changeset: Retain(5), Insert("B"), Retain(6)	Author: Bob Changeset: Retain(6), Insert("B1"), Insert(" B2")	Lorem B1 ipsum B2	Author: Bob Revision: 0 Changeset: Retain(5), Insert("B"), Retain(6)	Author: Alice Changeset: Retain(5), Insert("A"), Retain(6)	Author: Alice Changeset: Retain(5), Insert("A"), Retain(6)
6	Alice processes first in-bound queue	Lorem ipsum	Awaiting	Author: Alice Revision: 1 Changeset: Retain(6), Insert("A1"), Retain(6)		Lorem A1 ipsum	Awaiting	Author: Bob Revision: 0 Changeset: Retain(5), Insert("B"), Retain(6)	Author: Bob Changeset: Retain(6), Insert("B1"), Insert(" B2")	Lorem B1 ipsum B2	Author: Bob Revision: 0 Changeset: Retain(5), Insert("B"), Retain(6)	Author: Alice Revision: 1 Changeset: Retain(6), Insert("A1"), Retain(6)	Author: Alice Changeset: Retain(5), Insert("A"), Retain(6)
7	Alice moves cursor to the beginning of the line and types 'A2'	Lorem ipsum	Awaiting	Author: Alice Revision: 1 Changeset: Retain(6), Insert("A1"), Retain(6)	Author: Alice Changeset: Insert("A2"), Retain(14)	A2 Lorem A1 ipsum	Awaiting	Author: Bob Revision: 0 Changeset: Retain(5), Insert("B"), Retain(6)	Author: Bob Changeset: Retain(6), Insert("B1"), Insert(" B2")	Lorem B1 ipsum B2	Author: Bob Revision: 0 Changeset: Retain(5), Insert("B"), Retain(6)	Author: Alice Revision: 1 Changeset: Retain(6), Insert("A1"), Retain(6)	Author: Alice Changeset: Retain(5), Insert("A"), Retain(6)
8	Server processes Alice's second operation (see step 2)	Lorem A1 ipsum	Awaiting	Author: Alice Changeset: Retain(6), Insert("A1"), Retain(6)	Author: Alice Changeset: Insert("A2"), Retain(14)	A2 Lorem A1 ipsum	Awaiting	Author: Bob Revision: 0 Changeset: Retain(5), Insert("B"), Retain(6)	Author: Bob Changeset: Retain(6), Insert("B1"), Insert(" B2")	Lorem B1 ipsum B2	Author: Bob Revision: 0 Changeset: Retain(5), Insert("B"), Retain(6)	Author: Alice Changeset: Retain(6), Insert("A1"), Retain(6)	Author: Alice Changeset: Retain(5), Insert("A"), Retain(6)
9	Server processes Bob's first operation (see step 3)	Lorem A1 ipsum	Awaiting	Author: Alice Changeset: Retain(6), Insert("A1"), Retain(6)	Author: Alice Changeset: Insert("A2"), Retain(14)	A2 Lorem A1 ipsum	Awaiting	Author: Bob Revision: 0 Changeset: Retain(5), Insert("B"), Retain(6)	Author: Bob Changeset: Retain(6), Insert("B1"), Insert(" B2")	Lorem B1 ipsum B2	Author: Alice Changeset: Retain(6), Insert("A1"), Retain(6)	Author: Bob Changeset: Retain(5), Insert("B"), Retain(9)	Author: Alice Changeset: Retain(5), Insert("A"), Retain(9)

10	Bob processes first of Alice's operations	Lorem A1 ipsum	Awaiting	Author: Alice Changeset: Retain(6), Insert("A1"), Retain(6)	Author: Alice Changeset: Insert("A2"), Retain(14)	A2 Lorem A1 ipsum	Awaiting	Author: Bob Revision: 0 Changeset: Retain(5), Insert(" "), Retain(6)	Author: Bob Changeset: Retain(6), Insert("B1"), Retain(6), Insert(" b2")	Lorem B1 ipsum B2		Author: Alice Changeset: Retain(6), Insert("A1"), Retain(6)	Author: Alice Changeset: Retain(6), Insert("A1"), Retain(6)
11	Bob processes second of Alice's operations	Lorem A1 ipsum	Awaiting	Author: Alice Changeset: Retain(6), Insert("A1"), Retain(6)	Author: Alice Changeset: Insert("A2"), Retain(14)	A2 Lorem A1 ipsum	Awaiting	Author: Bob Revision: 0 Changeset: Retain(5), Insert(" "), Retain(6)	Author: Bob Changeset: Retain(6), Insert("B1"), Retain(6), Insert(" b2")	Lorem B1 A1 ipsum B2		Author: Alice Changeset: Retain(6), Insert("A1"), Retain(6)	Author: Bob Changeset: Retain(5), Insert(" "), Retain(9)
12	Alice processes third in-bound queue	Lorem A1 ipsum	Awaiting	Author: Alice Revision: 2 Changeset: Insert("A2"), Retain(14)		A2 Lorem A1 ipsum	Awaiting	Author: Bob Revision: 0 Changeset: Retain(5), Insert(" "), Retain(6)	Author: Bob Changeset: Retain(6), Insert("B1"), Retain(6), Insert(" b2")	Lorem B1 A1 ipsum B2	Author: Alice Revision: 2 Changeset: Insert("A2"), Retain(14)	Author: Bob Changeset: Retain(5), Insert(" "), Retain(9)	Author: Bob Changeset: Retain(5), Insert(" "), Retain(9)
13	Alice processes Bob's change from inbound queue	Lorem A1 ipsum	Awaiting	Author: Alice Revision: 2 Changeset: Insert("A2"), Retain(14)		A2 Lorem A1 ipsum	Awaiting	Author: Bob Revision: 0 Changeset: Retain(5), Insert(" "), Retain(6)	Author: Bob Changeset: Retain(6), Insert("B1"), Retain(6), Insert(" b2")	Lorem B1 A1 ipsum B2	Author: Alice Revision: 2 Changeset: Insert("A2"), Retain(14)		Author: Bob Changeset: Retain(5), Insert(" "), Retain(9)
14	Server processes next Alice operation from inbound queue	A2 Lorem A1 ipsum	Awaiting	Author: Alice Revision: 2 Changeset: Insert("A2"), Retain(14)		A2 Lorem A1 ipsum	Awaiting	Author: Bob Revision: 0 Changeset: Retain(5), Insert(" "), Retain(6)	Author: Bob Changeset: Retain(6), Insert("B1"), Retain(6), Insert(" b2")	Lorem B1 A1 ipsum B2	Author: Alice Changeset: Insert("A2"), Retain(15)	Author: Bob Changeset: Retain(5), Insert(" "), Retain(9)	Author: Alice Changeset: Insert("A2"), Retain(15)
15	Alice processes next inbound queue	A2 Lorem A1 ipsum	Synchronized			A2 Lorem A1 ipsum	Awaiting	Author: Bob Revision: 0 Changeset: Retain(5), Insert(" "), Retain(6)	Author: Bob Changeset: Retain(6), Insert("B1"), Retain(6), Insert(" b2")	Lorem B1 A1 ipsum B2			Author: Bob Changeset: Retain(5), Insert(" "), Retain(9)
16	Bob processes next inbound queue	A2 Lorem A1 ipsum	Synchronized			A2 Lorem A1 ipsum	Awaiting	Author: Bob Revision: 3 Changeset: Retain(6), Insert("B1"), Retain(6), Insert(" b2")		Lorem B1 A1 ipsum B2	Author: Bob Revision: 3 Changeset: Retain(6), Insert("B1"), Retain(9), Insert(" b2")		Author: Alice Changeset: Insert("A2"), Retain(15)
17	Bob processes next inbound queue	A2 Lorem A1 ipsum	Synchronized			A2 Lorem A1 ipsum	Awaiting	Author: Bob Revision: 3 Changeset: Retain(6), Insert("B1"), Retain(6), Insert(" b2")		A2 Lorem B1 A1 ipsum B2	Author: Bob Revision: 3 Changeset: Retain(6), Insert("B1"), Retain(9), Insert(" b2")		
18	Server processes Bob's third change	A2 Lorem B1 A1 ipsum B2	Synchronized			A2 Lorem A1 ipsum	Awaiting			A2 Lorem B1 A1 ipsum B2		Author: Bob Changeset: Retain(9), Insert("B1"), Retain(9), Insert(" b2")	Author: Bob Changeset: Retain(9), Insert("B1"), Retain(9), Insert(" b2")
19	Alice processes next inbound queue	A2 Lorem B1 A1 ipsum B2	Synchronized			A2 Lorem B1 A1 ipsum B2	Awaiting			A2 Lorem B1 A1 ipsum B2			Author: Bob Changeset: Retain(9), Insert("B1"), Retain(9), Insert(" b2")
20	Bob processes last inbound queue	A2 Lorem B1 A1 ipsum B2	Synchronized			A2 Lorem B1 A1 ipsum B2	Synchronized			A2 Lorem B1 A1 ipsum B2			