Exercises on refinement

The sequence diagrams for the exercises are on the next page.

1. Calculate the semantics of each of the sequence diagrams Ex1, Ex2 and Ex3.

2. Answer the following:
    a. Is Ex2 a refinement of Ex1?
    b. Is Ex1 a refinement of Ex2?
    c. Is Ex3 a refinement of Ex1?
    d. Is Ex1 a refinement of Ex3?

3. Make a specification called MySpec that is a refinement of Ex3.
    a. Is Ex1 a refinement of MySpec?
    b. Is MySpec a refinement of Ex1?

4. Is Ex7 a refinement of Ex6?

5. Consider the sequence diagrams Ex1 and Ex6. Does the refinement relation hold between these specifications?

6. Draw a sequence diagram that specifies exactly 5 traces

7. Draw a sequence diagram that specifies exactly 10 traces

8. Give a general strategy for how to draw a sequence diagram that specifies exactly 10, 20, 40, 80, etc. traces

sd Ex1

x:U   y:U

a
b
c

sd Ex2

x:U   y:U

a

veto
b

c

sd Ex3

x:U   y:U

a
b

veto
d

c

sd Ex4

x:U   y:U

f
g

sd Ex5

x:U   y:U

f

veto
h

g

sd Ex6

x:U   y:U

alt

ref   Ex1

ref   Ex4

sd Ex7

x:U   y:U

alt

ref   Ex3

ref   Ex5