```
;; ---------- Warehouse TV Ontology v1 ----------
(defrelation Television (?x))
(defrelation size-inches (?tv ?n))
(defrelation hdmi-ports (?tv ?n))
(defrelation stock-quantity (?tv ?n))
(defrelation tv-of-size (?tv ?n))
(forall (?tv ?n) (<= (tv-of-size ?tv ?n) (and (Television ?tv) (size-inches ?tv ?n))))
(Television TV-SKU-50A)
(size-inches TV-SKU-50A 50)
(hdmi-ports TV-SKU-50A 3)
(stock-quantity TV-SKU-50A 75)
(Television TV-SKU-50B)
(size-inches TV-SKU-50B 50)
(hdmi-ports TV-SKU-50B 2)
(stock-quantity TV-SKU-50B 25)

;; --- Dialogue ---
(advertise
 :sender Bob
 :receiver Alice
 :language KIF
 :ontology warehouse-tv-ontology-v1
 :content
  (and
    (capability Bob (ask-if (exists (?tv) (Television ?tv))))
    (capability Bob (ask-one (stock-quantity ?tv ?q)))
    (capability Bob (ask-all (and (tv-of-size ?tv ?n) (hdmi-ports ?tv ?p))))
    (capability Bob (ask-one (and (size-inches ?tv 50) (stock-quantity ?tv ?q))))
)))
(ask-one
 :sender Alice
 :receiver Bob
 :language KIF
 :ontology warehouse-tv-ontology-v1
 :reply-with MSG-1
 :content
  (exists (?total)
    (= ?total
       (sum ?q
            (setofall ?q
              (exists (?tv)
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                (and (tv-of-size ?tv 50)
                     (stock-quantity ?tv ?q)))))))))
(tell
 :sender Bob
 :receiver Alice
 :in-reply-to MSG-1
 :language KIF
 :ontology warehouse-tv-ontology-v1
 :content
  (and
    (= (setofall ?q
         (exists (?tv)
           (and (tv-of-size ?tv 50)
                (stock-quantity ?tv ?q))))
       (setof 75 25))
    (= (sum (setof 75 25)) 100)))
(ask-all
 :sender Alice
 :receiver Bob
 :language KIF
 :ontology warehouse-tv-ontology-v1
 :reply-with MSG-2
 :content
  (and (tv-of-size ?tv 50) (stock-quantity ?tv ?q)))
(tell
 :sender Bob
 :receiver Alice
 :in-reply-to MSG-2
 :language KIF
 :ontology warehouse-tv-ontology-v1
 :content
  (and
    (and (= ?tv TV-SKU-50A) (= ?q 75))
    (and (= ?tv TV-SKU-50B) (= ?q 25))))
(ask-all
 :sender Alice
 :receiver Bob
 :language KIF
 :ontology warehouse-tv-ontology-v1
 :reply-with MSG-3
 :content
  (and (tv-of-size ?tv 50) (hdmi-ports ?tv ?ports)))
```

```
(tell
 :sender Bob
 :receiver Alice
 :in-reply-to MSG-3
 :language KIF
 :ontology warehouse-tv-ontology-v1
 :content
  (and
    (and (= ?tv TV-SKU-50A) (= ?ports 3))
    (and (= ?tv TV-SKU-50B) (= ?ports 2))))
(ask-if
 :sender Alice
 :receiver Bob
 :language KIF
 :ontology warehouse-tv-ontology-v1
 :reply-with MSG-4
 :content
  (forall (?tv)
    (implies (tv-of-size ?tv 50) (>= (hdmi-ports ?tv ?p) 2))))
(tell
 :sender Bob
 :receiver Alice
 :in-reply-to MSG-4
 :language KIF
 :ontology warehouse-tv-ontology-v1
 :content
  (true))
```