## Quiz 4: Abstract Data Types

Read the code for the function unravel.

```
def unravel(nested: list) -> None:
       """Print elements of \ensuremath{^{<\!L}\!\!>} and its nested sub-lists in "level order".
      q = Queue()
      for e in nested:
           q.enqueue(e)
       while not q.is_empty():
           i = q.dequeue()
           if not isinstance(i, list):
10
                print(i)
11
           else:
12
                for e in i:
13
                    q.enqueue(e)
```

For this quiz, when asked to draw the state of a queue, draw it with the front labeled, and queue elements separated by vertical lines. For example, if we enqueue 10, then 20, then 30, draw the queue like this:  $10 \rightarrow 20 \rightarrow 30$ 

Consider the following code snippet that uses a queue:

```
1 >>> L = ['a', ['b', ['c', 'd'], 'e', 'f'], ['g', 'h', 'i'], 'j']
2 >>> unravel(L)
```

- 1. Draw the state of **q** during the function call **unravel(L)** at line 7 in **unravel**.
- 2. For each iteration of the while loop in unravel, write/draw two things:
  - (i) What, if any, output is printed at line 11.
  - (ii) The state of q at the end of the iteration (right after line 15).

Output (if any)	State of q