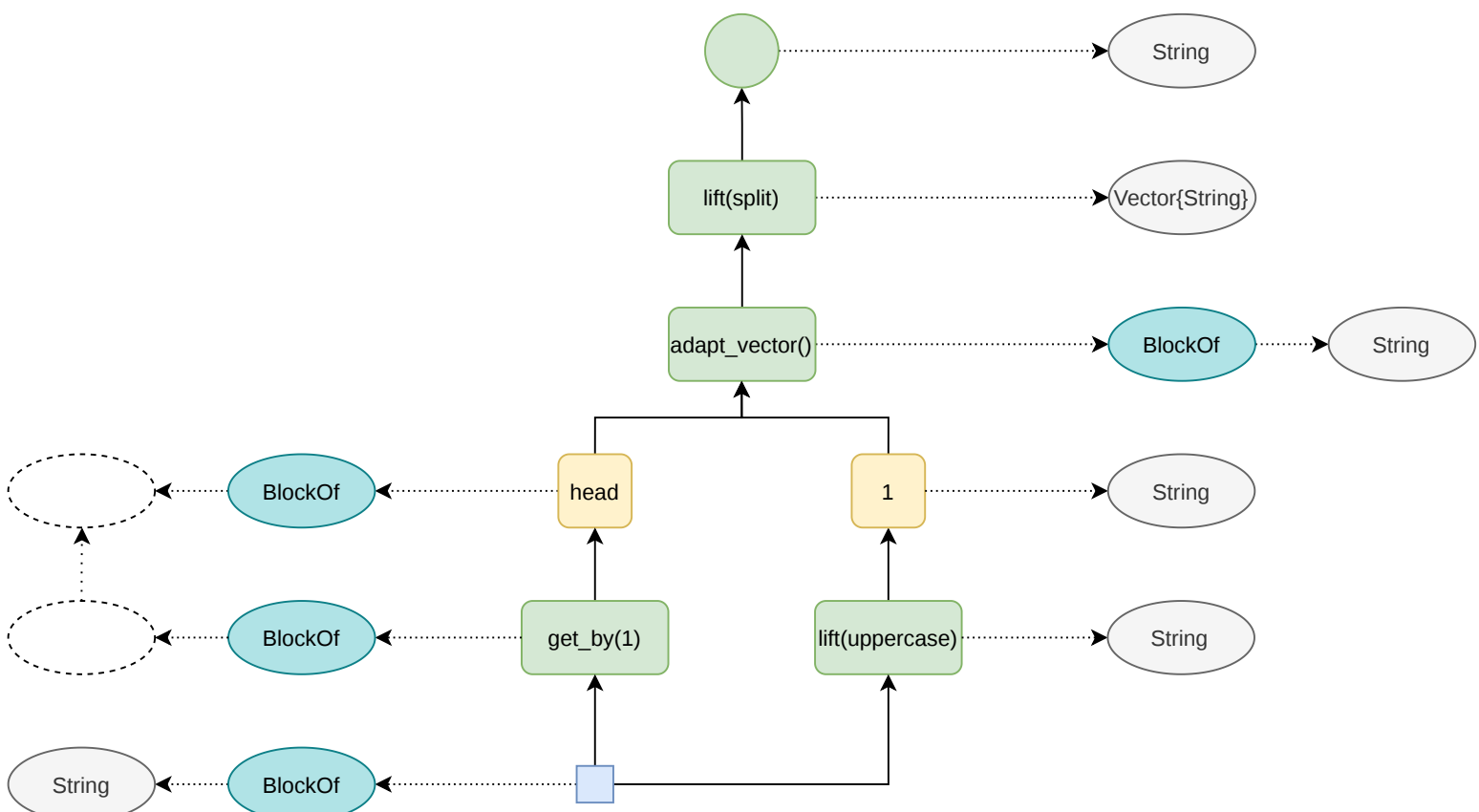


The diagram illustrates the transformation of a flat table into a hierarchical tree structure through four stages, connected by large grey arrows:

- Stage 1:** A flat table with two columns: an index (1) and a value ("Hello World").
- Stage 2:** The table is transformed into a JSON array: `String["Hello", "World"]`.
- Stage 3:** The array is converted into a tree structure. The root node has two children:
  - Node 1: A table with index 1 and value 1.
  - Node 2: A table with index 1 and value "Hello", and index 2 and value "World".
 A large grey arrow points down from Node 2 to a separate table representing its flattened content:
 

1	"HELLO"
2	"WORLD"
- Stage 4:** The tree structure is further processed. The root node now has two children:
  - Node 1: A table with index 1 and value 1, and index 2 and value 3.
  - Node 2: A table with index 1 and value "HELLO", and index 2 and value "WORLD".
 This stage is followed by a final transformation where the values are normalized to 1:
  - Node 1: A table with index 1 and value 1, and index 2 and value 2.
  - Node 2: A table with index 1 and value 1.



wrap()



chain\_of(tuple\_of(2), column(1))



sieve\_by0



chain\_of(wrap(), block\_length())



@query "Hello World" split(it)

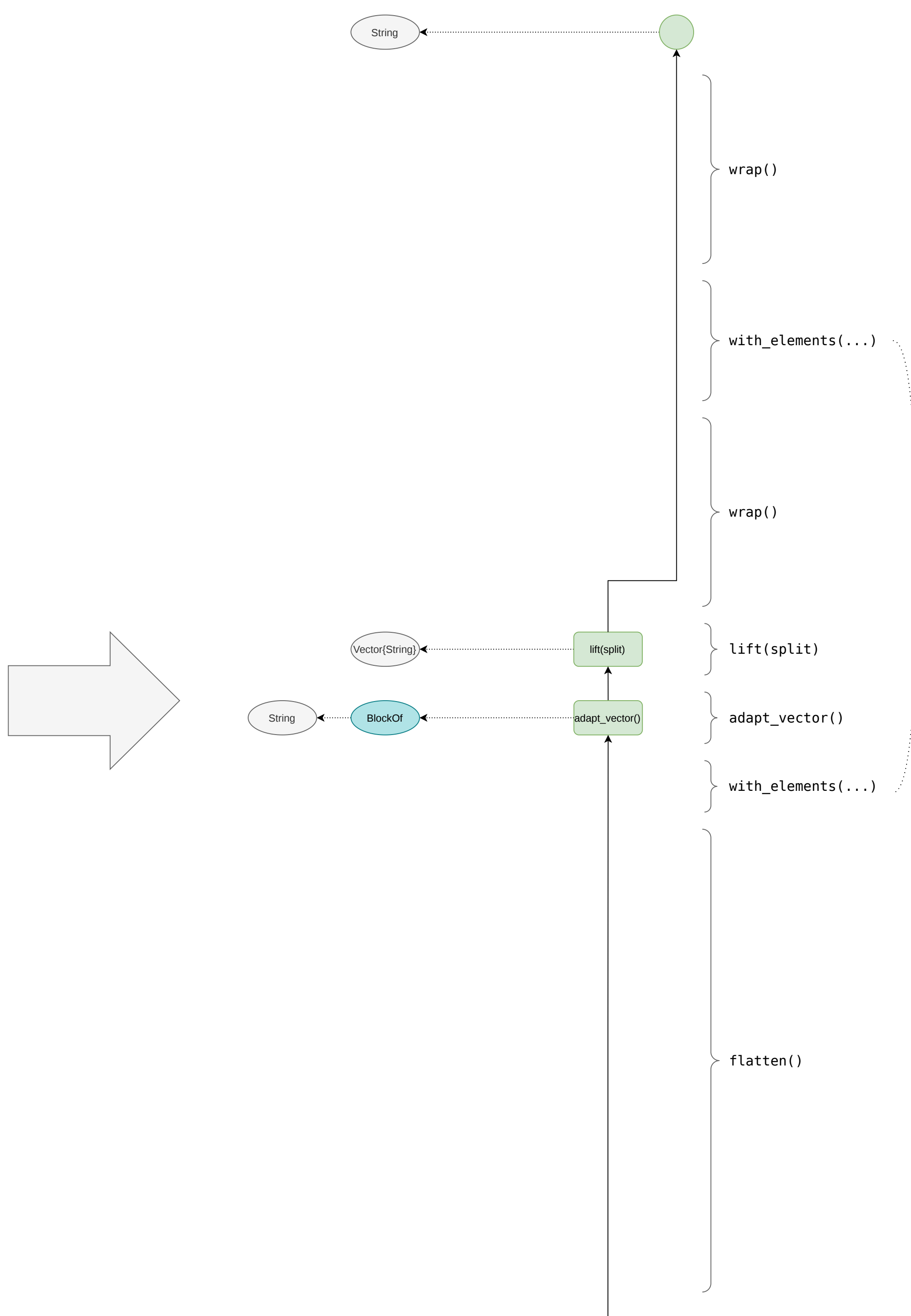
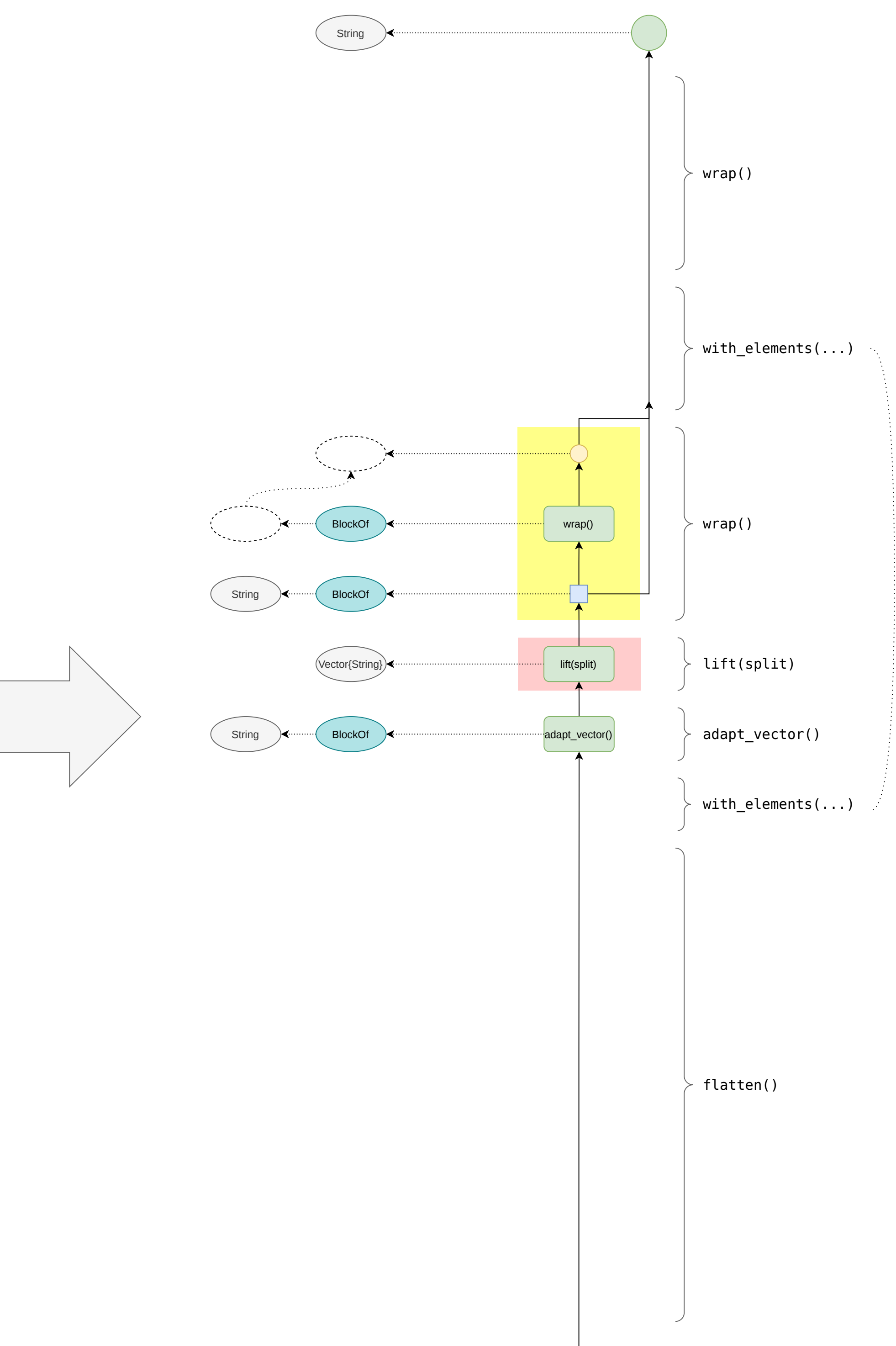
```
chain_of(
  wrap(),
  with_elements(
    chain_of(
      wrap(),
      lift(split),
      adapt_vector()),
    flatten())
```



untrace(n::NodeRef, guard::NodeRef)::Tuple{Pipeline,Vector{NodeRef}}

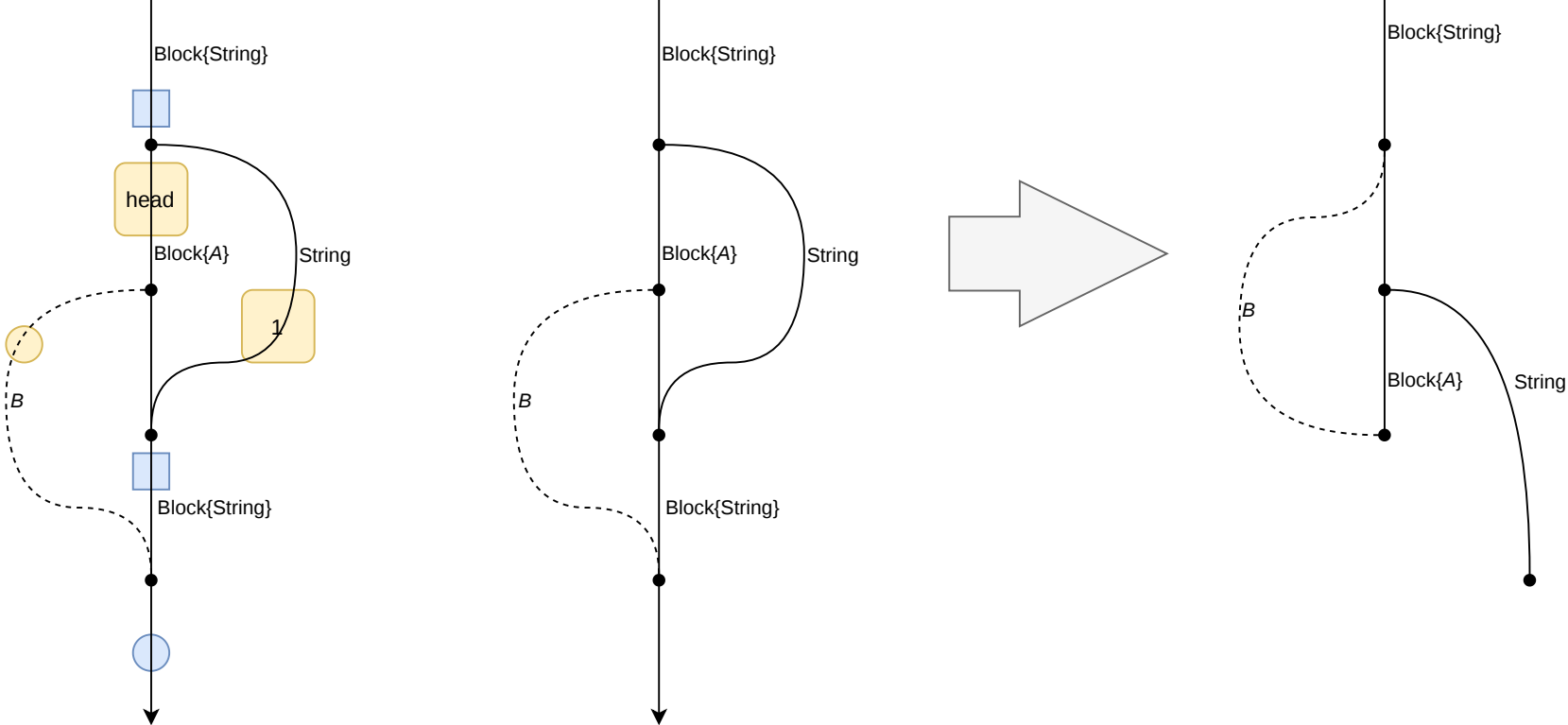






@query "Hello World" split(it)

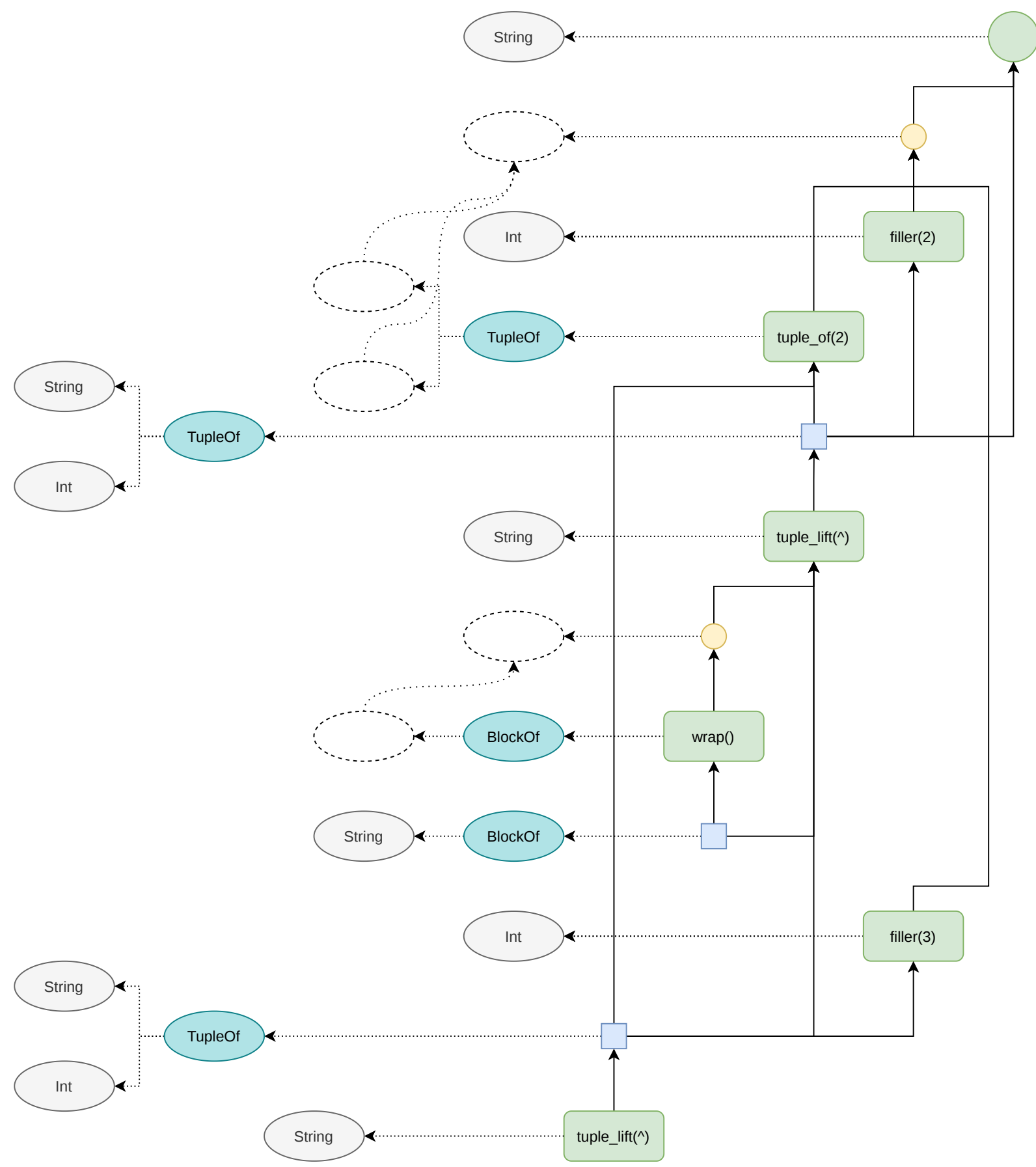
```
chain_of(
  wrap(),
  with_elements(
    chain_of(
      wrap(),
      lift(split),
      adapt_vector()),
    flatten())
```







untrace(n::NodeRef, guard::NodeRef)::Tuple{Pipeline,Vector{NodeRef}}

$$\{it^2, (it^2)^3\}$$


```
untrace(n::NodeRef, guard::NodeRef)::Tuple{Pipeline,Vector{NodeRef}}
```

@query "Hello World" split(it)

```
chain_of(
  wrap(),
  with_elements(wrap()),
  with_elements(lift(split)),
  with_elements(adapt_vector()),
  flatten())
```

