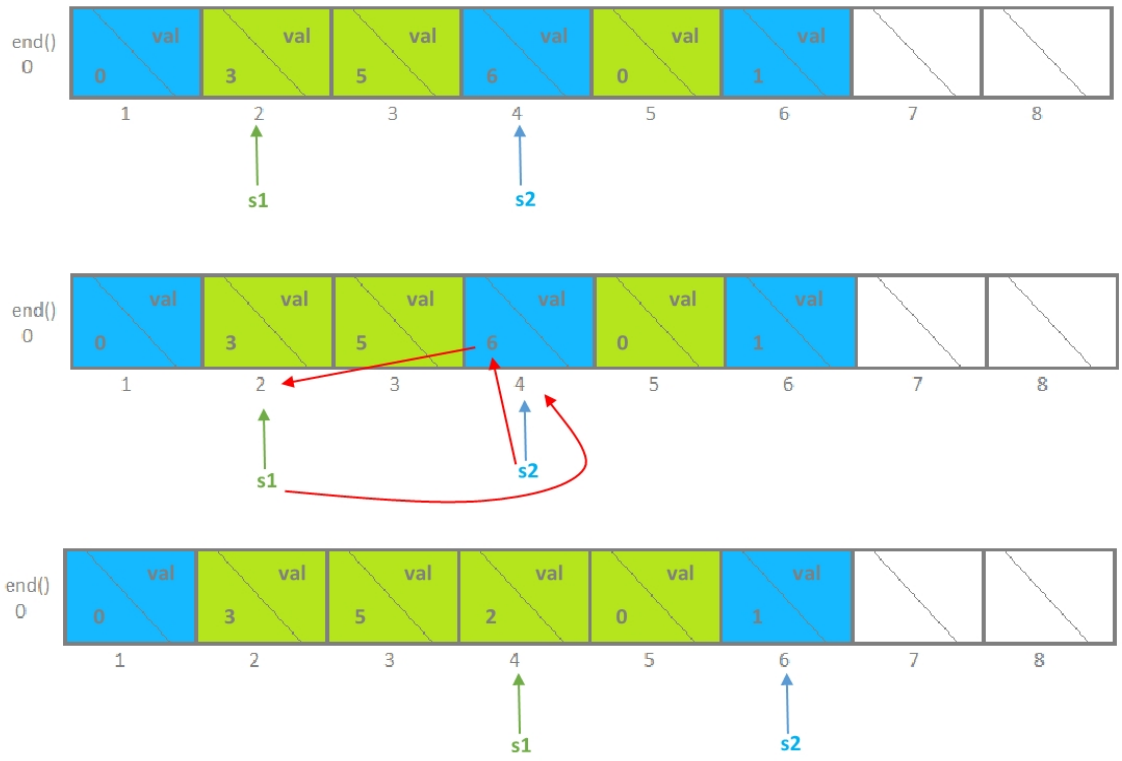
A Pool of Blazingly Fast Stacks
Supplementary Materials

Irene Baravelli

1 Reference Pictures

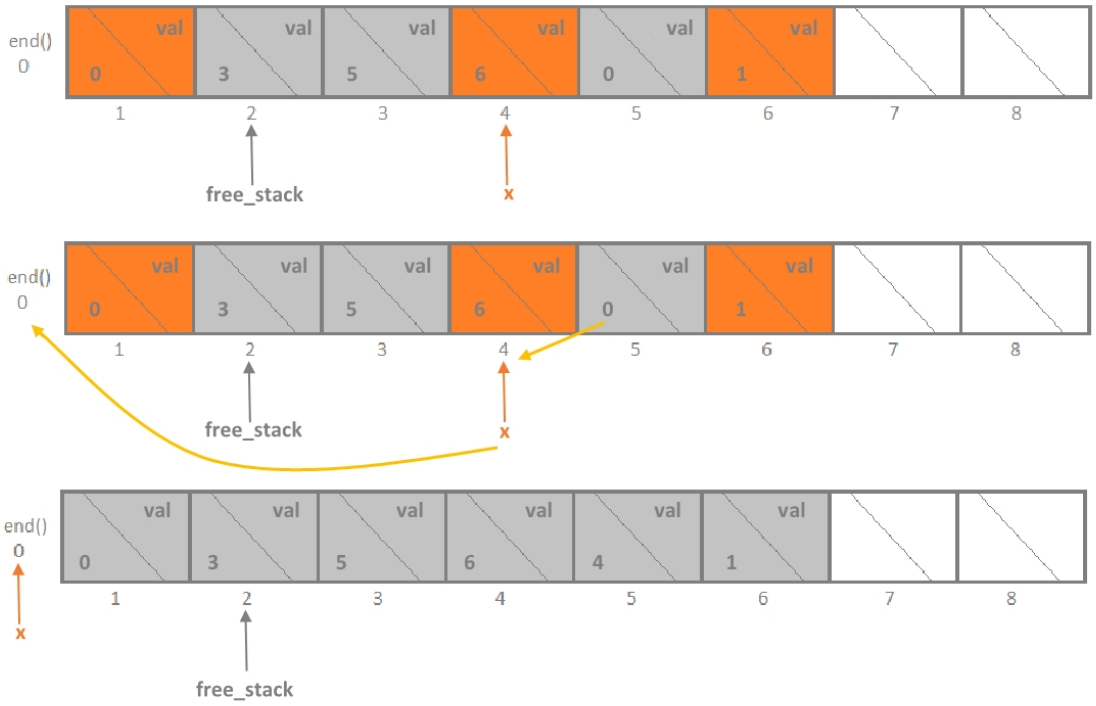
The following pictures exemplify the mechanims behind the functions `_new_first()`, employed by the functions `_push()` and `pop()`, and `free_stack`, which uses `_last_jump()`.

Mechanism behind `_new_first()`:



The mechanism is exploited by `_push()` in order to set a new node in place of the first node of `free_nodes`: in this case, s1 (green) is the stack the function is adding an element to, while s2 is `free_nodes`. In the function `pop()` the opposite occurs: s1 is `free_nodes` which gains the nodes removed from the given stack, which in this case is s2.

Mechanism behind `free_stack()`:



In this function the head of the given stack is set as the new `next` of the last node of `free_nodes`. This last `next` element is returned by `_last_jump()`.

2 Some useful sources

- https://stackoverflow.com/questions/30222608/c-noexcept-for-a-function-not-throwing-exceptions-but-can-cause-a-memory-fail
- https://stackoverflow.com/questions/9671749/whats-the-difference-between-stdmove-and-stdforward
- https://www.doxygen.nl/manual/docblocks.html
- https://docs.microsoft.com/en-us/cpp/cpp/this-pointer?view=msvc-170
- https://stackoverflow.com/questions/810839/throwing-exceptions-from-constructors
- https://en.cppreference.com/w/
- https://www.doxygen.nl/manual/commands.htmlcmdn
- https://stackoverflow.com/questions/117293/use-of-const-for-function-parameters?page=1tab=votestab-top

Sadly I forgot to save many others :(