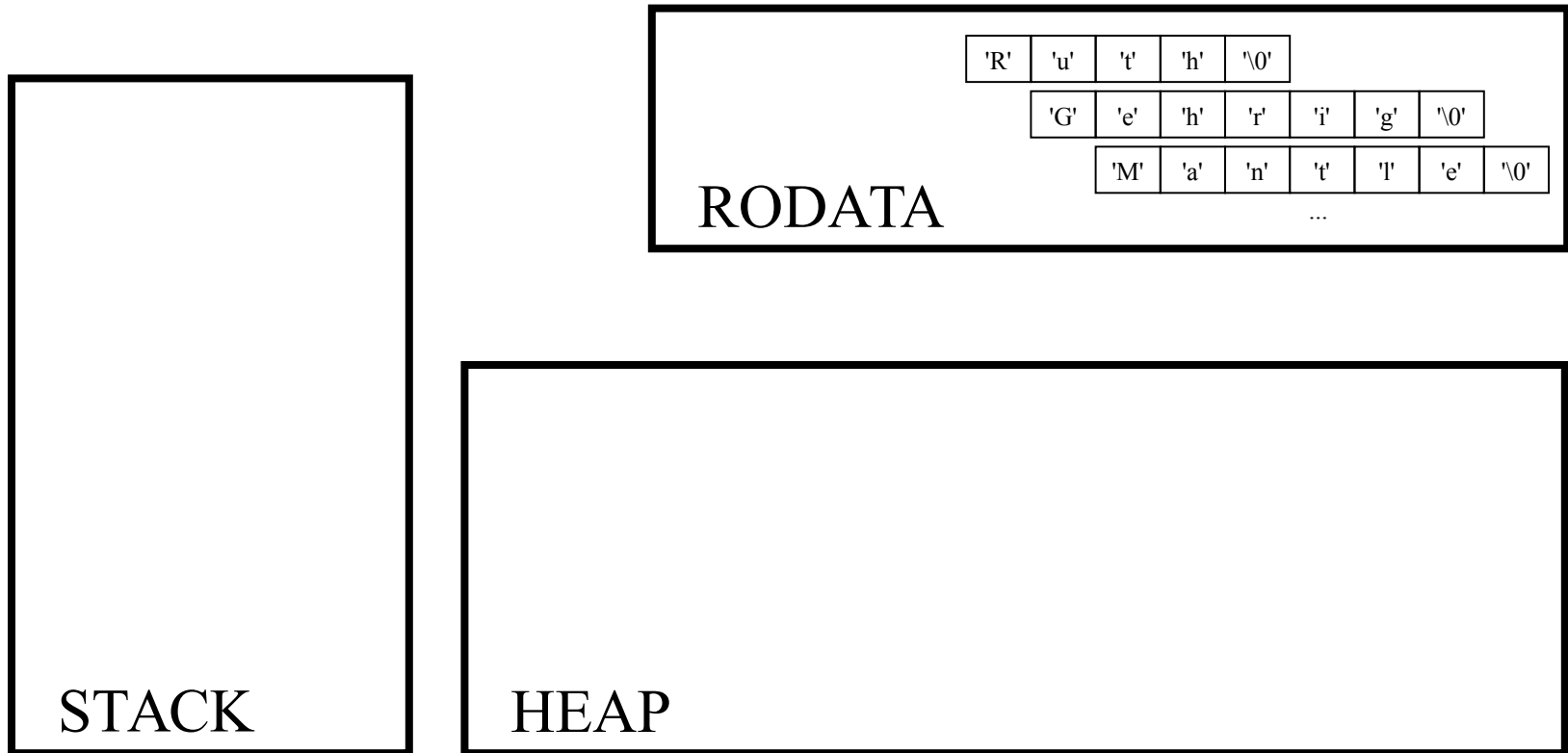


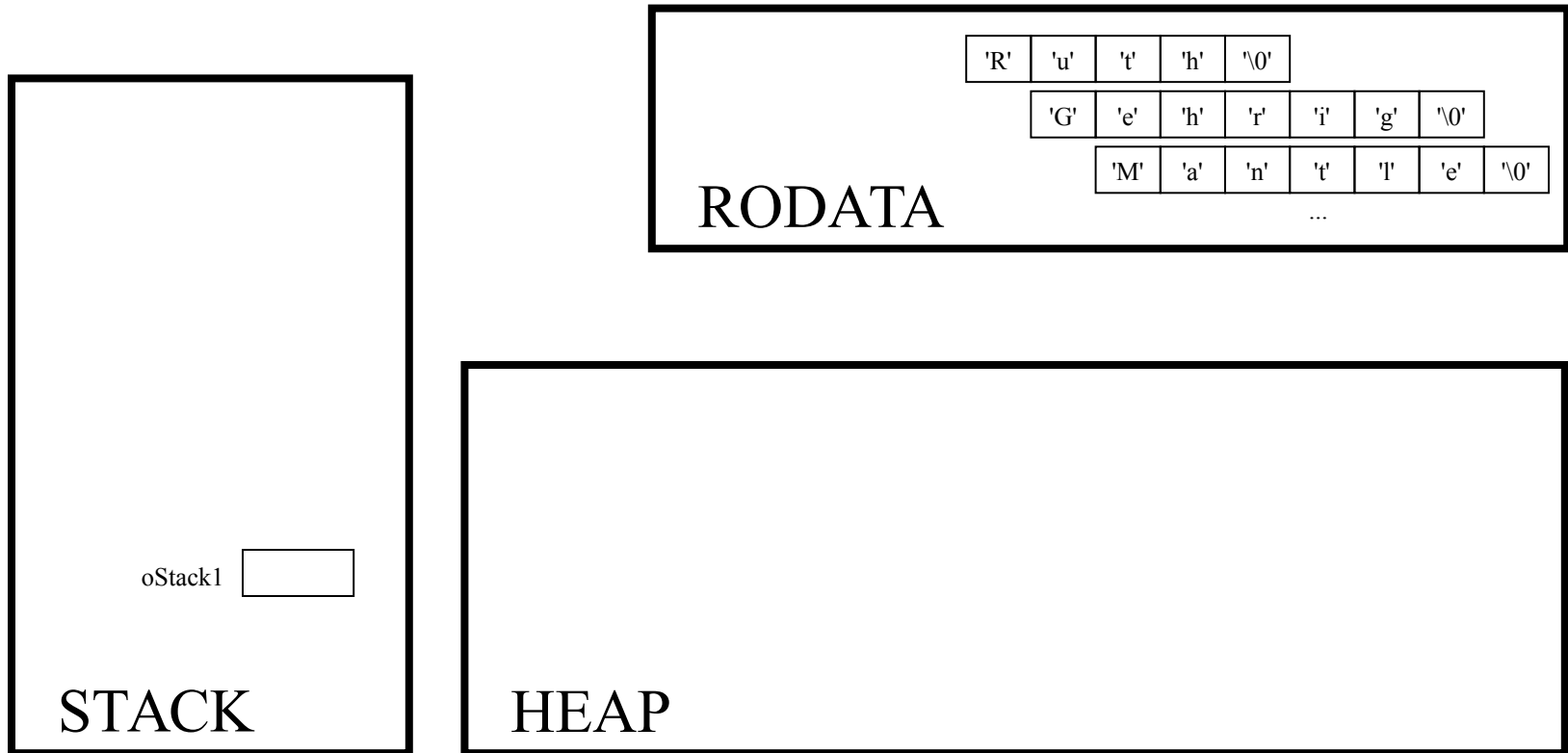
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```
int main(void)
```



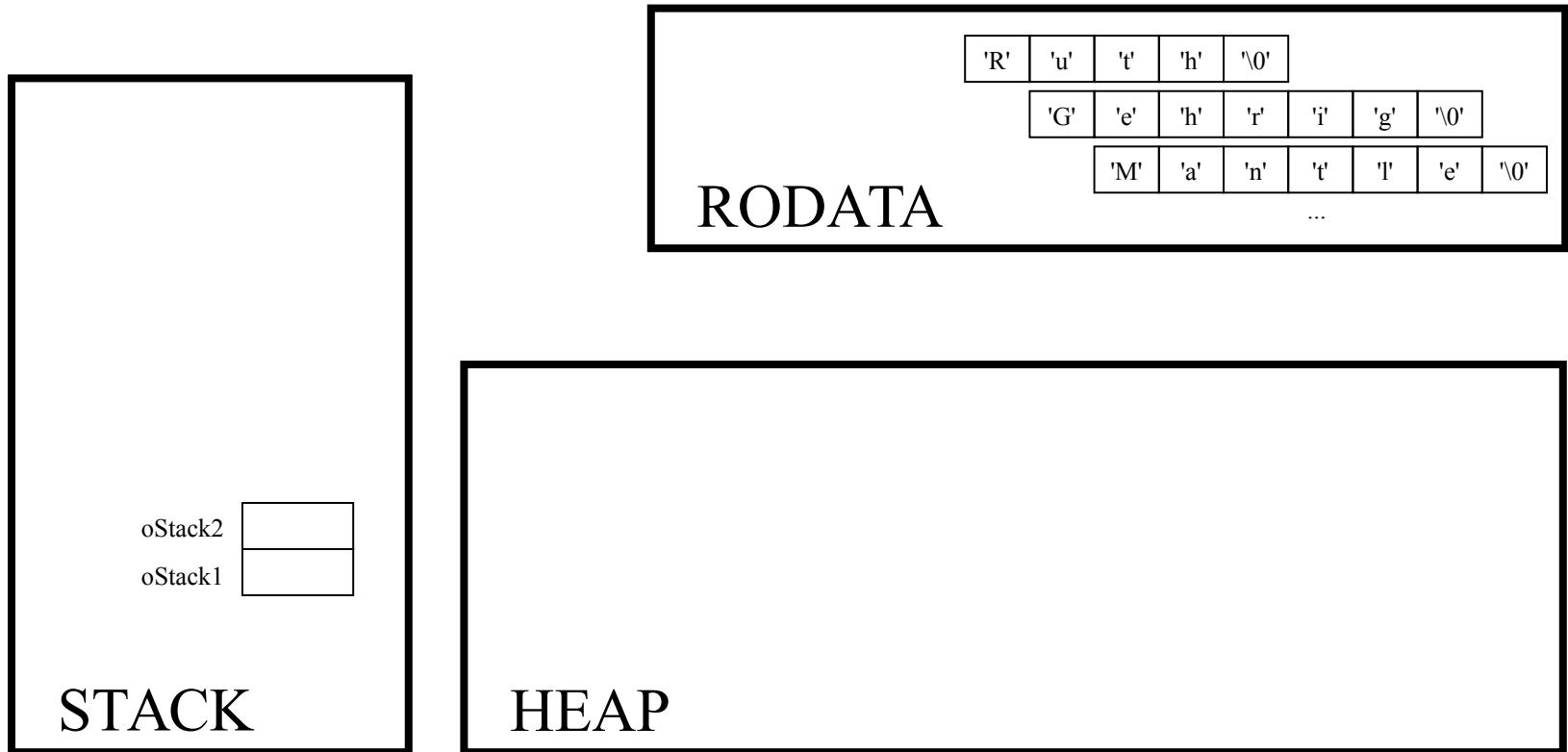
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```
Stack_T oStack1;
```



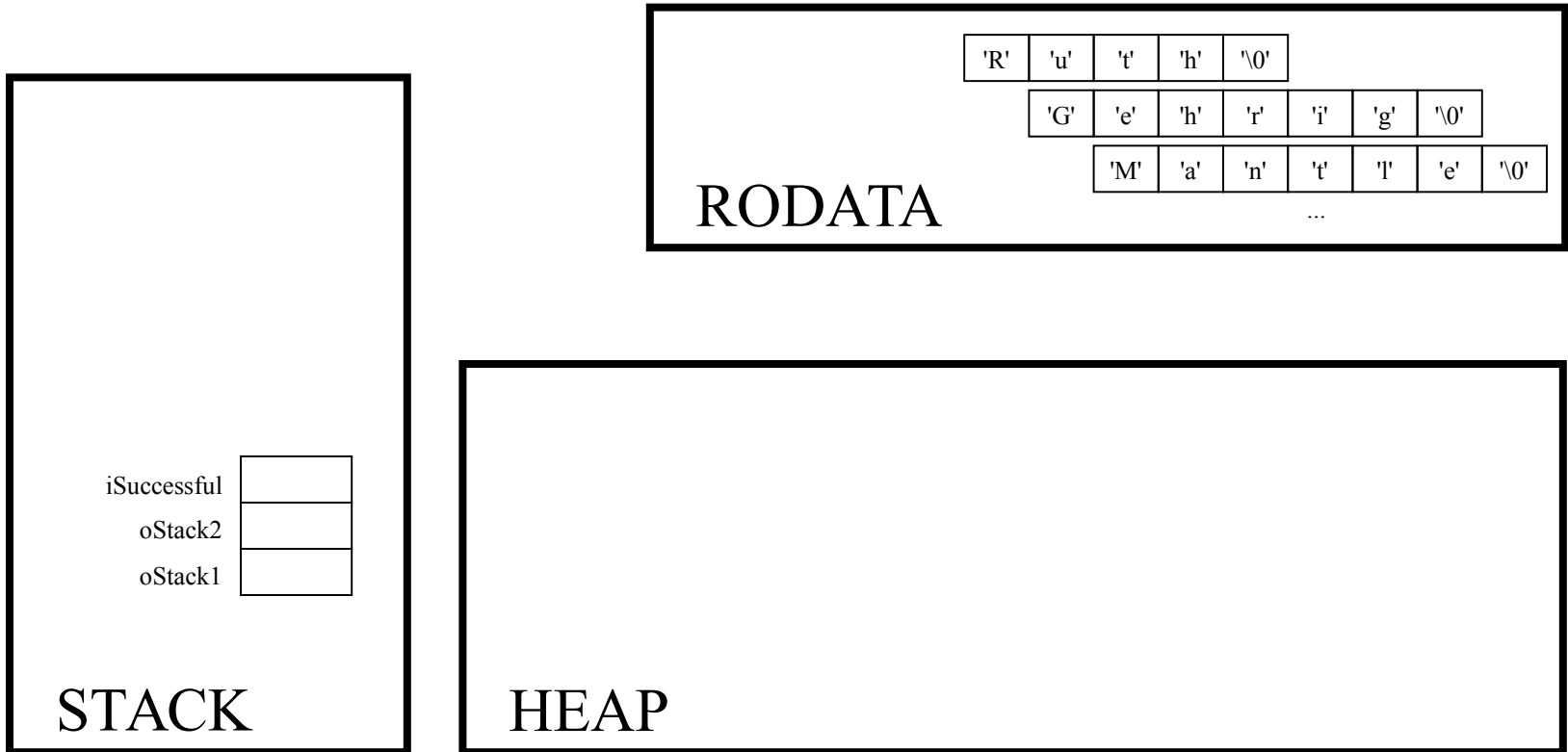
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```
Stack_T oStack2;
```



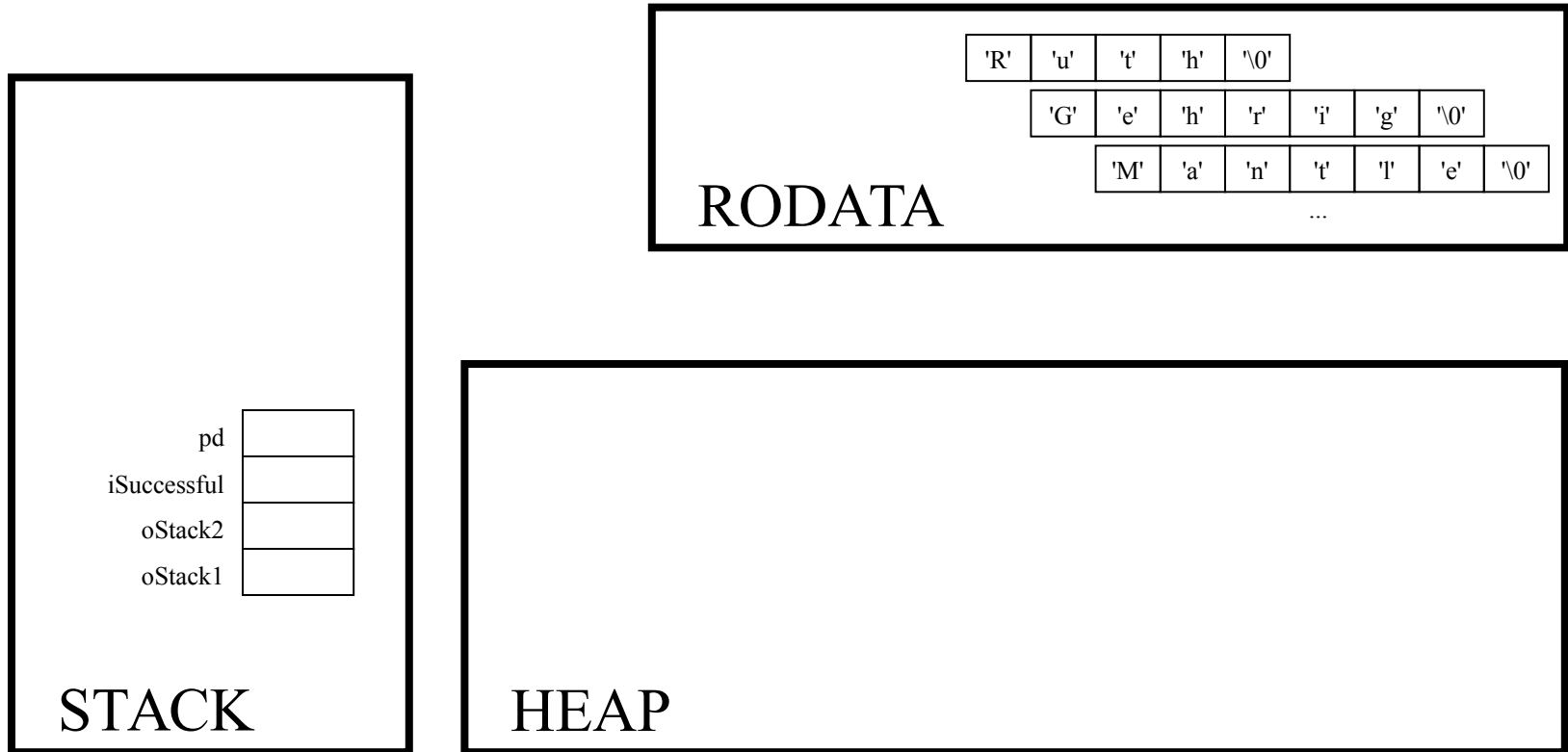
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```
int iSuccessful;
```



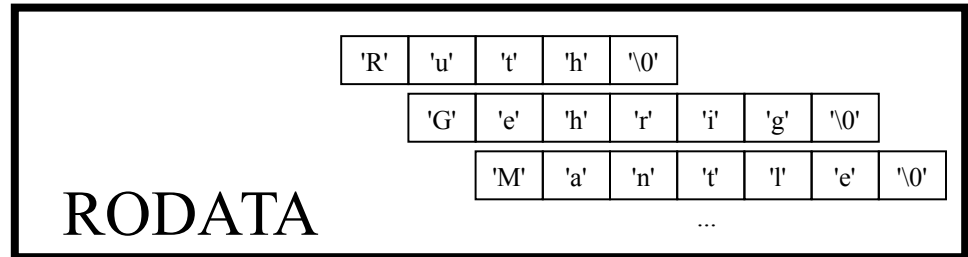
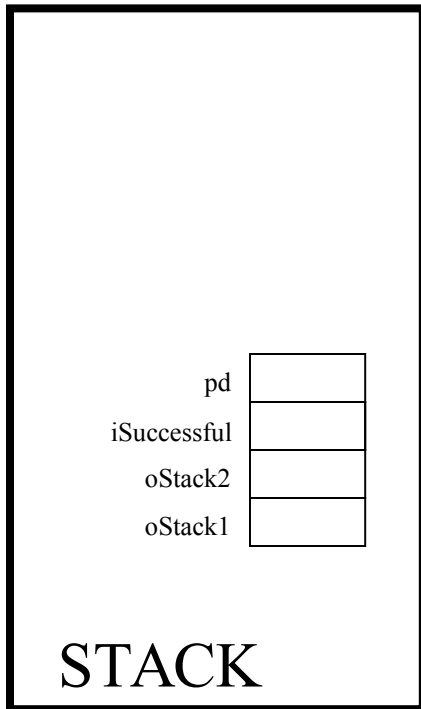
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```
double *pd;
```



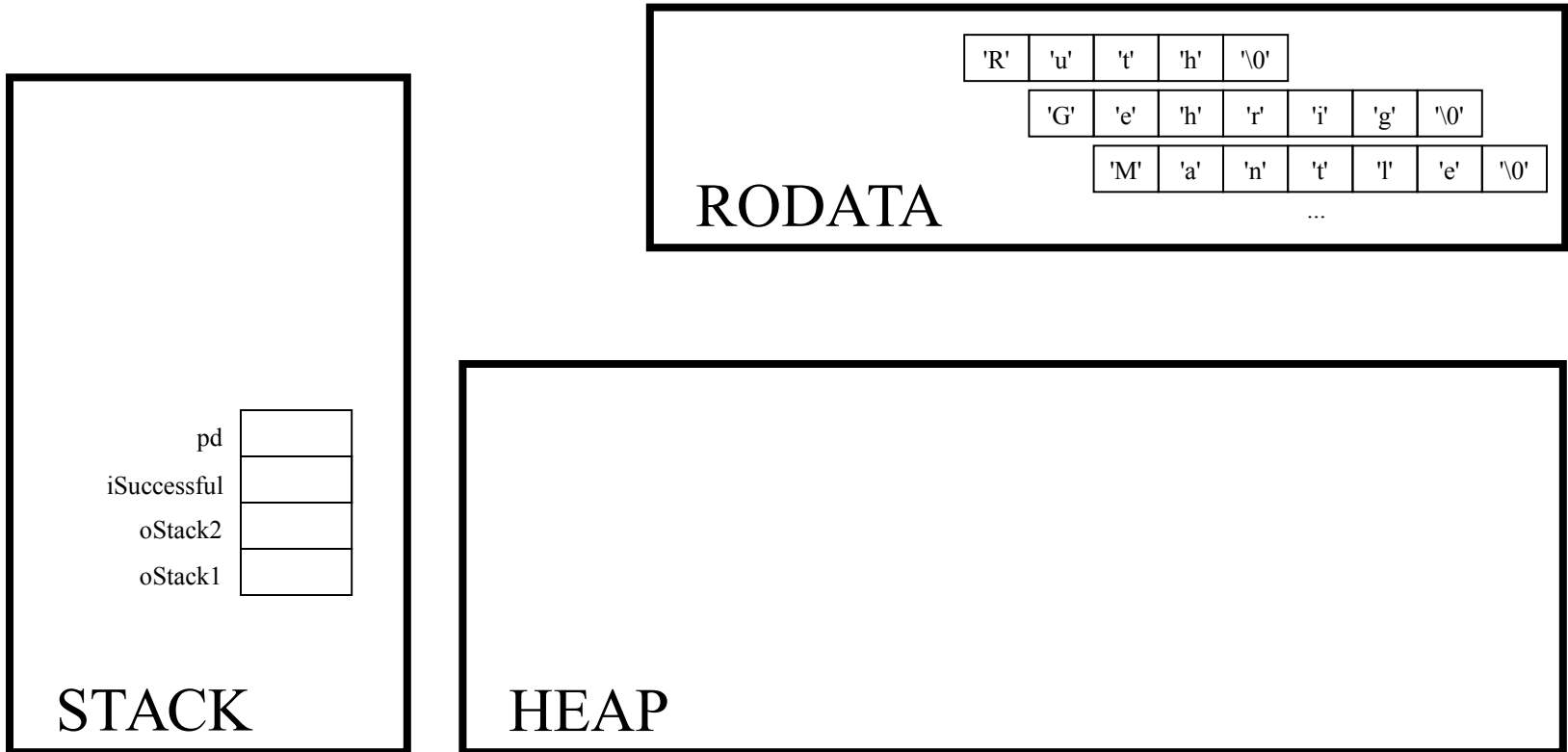
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```
oStack1 = Stack_new();
```



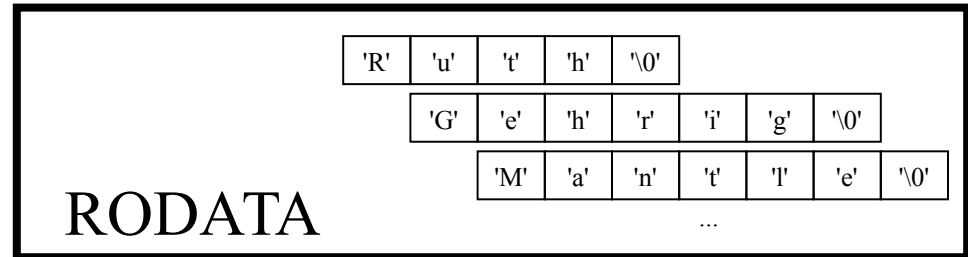
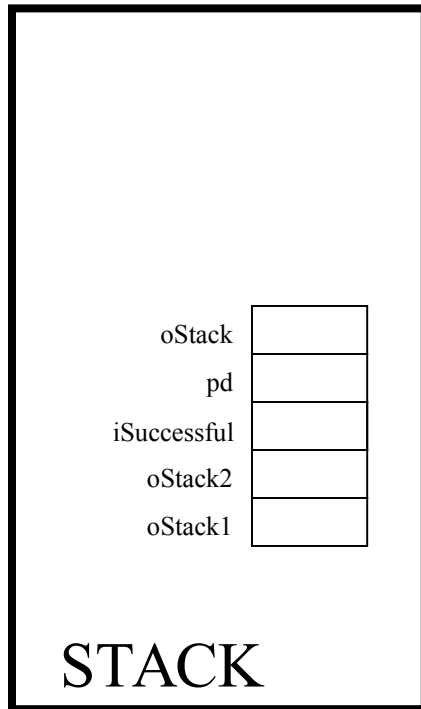
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```
Stack_T Stack_new(void)
```



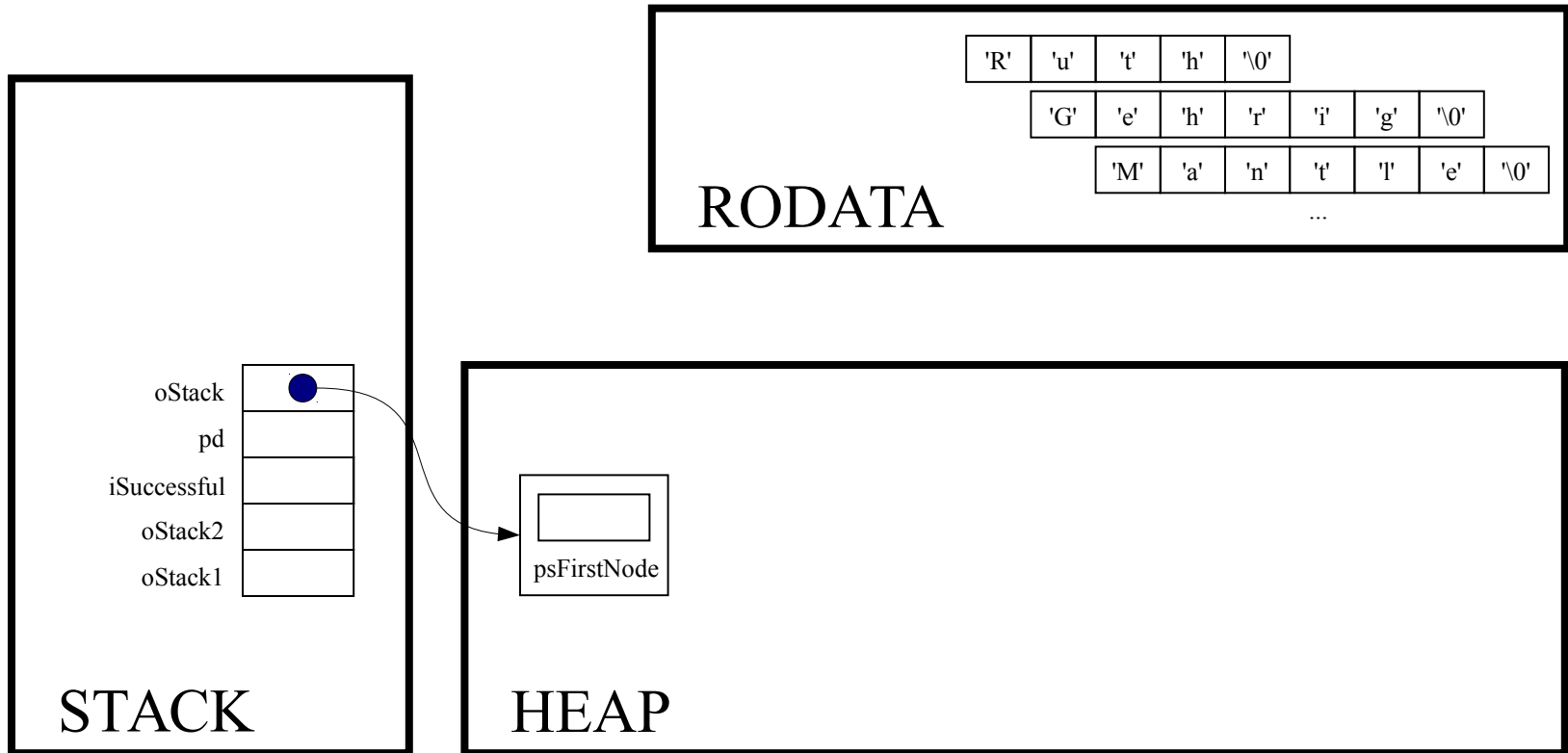
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```
Stack_T oStack;
```



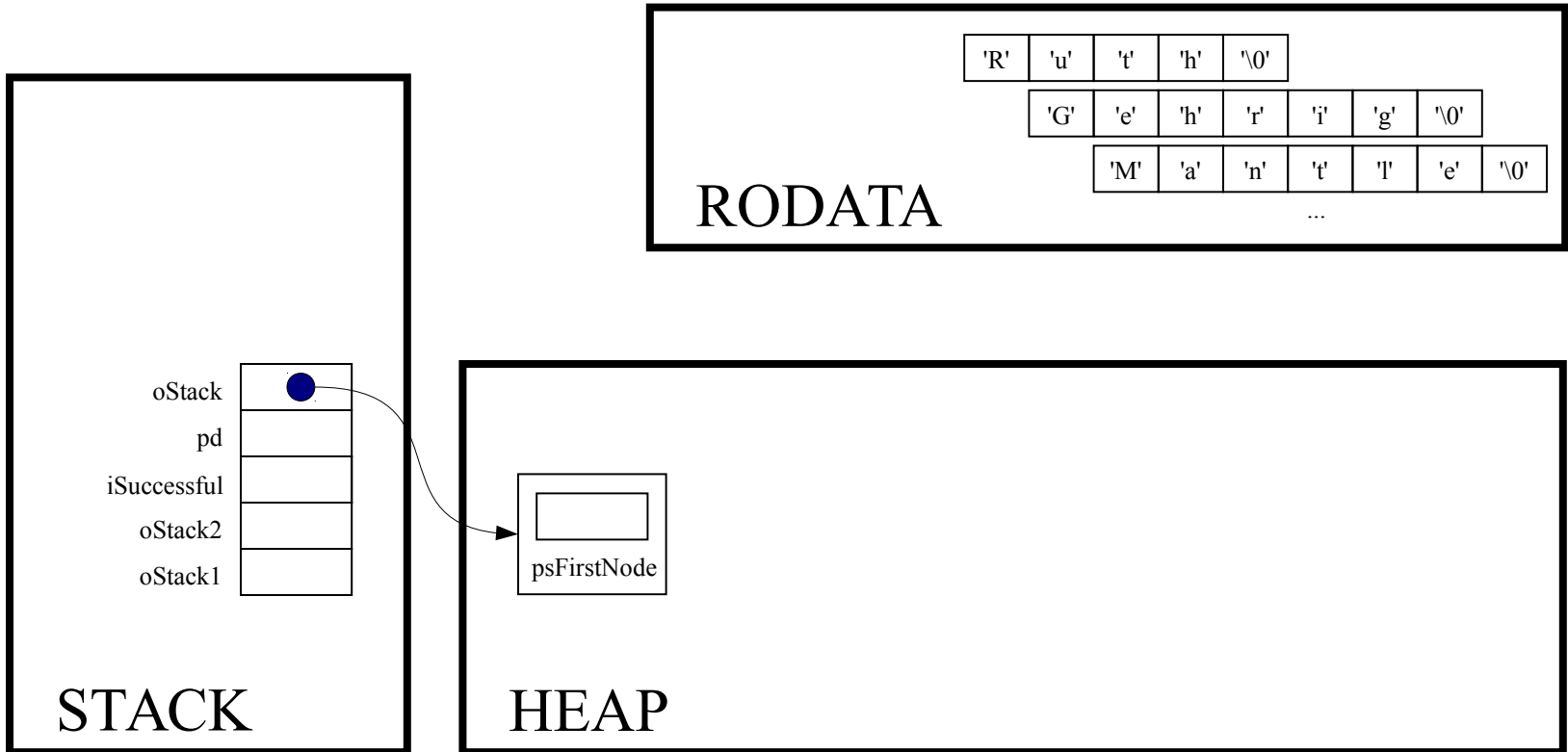
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```
oStack = (Stack_T)malloc(sizeof(struct Stack));
```



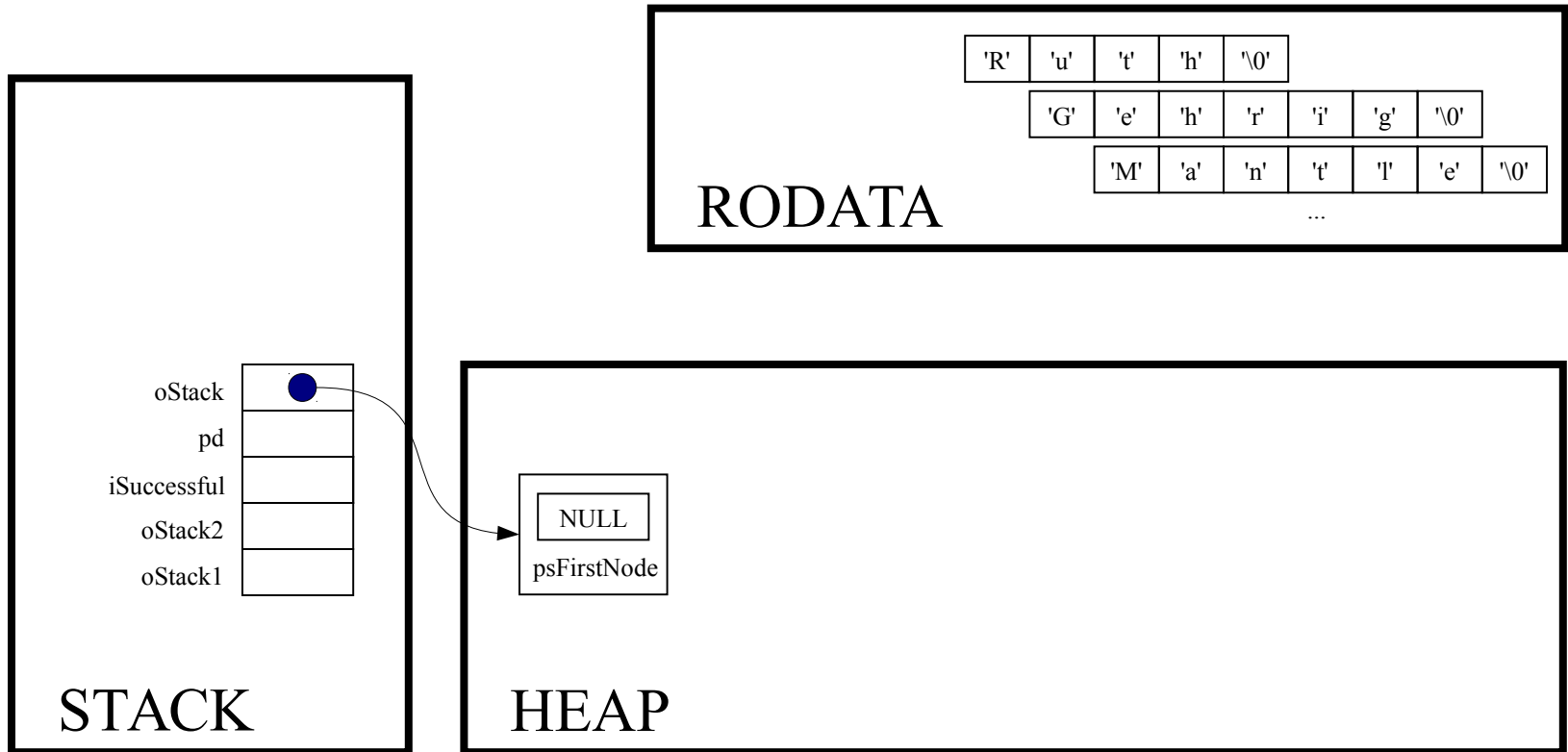
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```
if (oStack == NULL)
    return NULL;
```



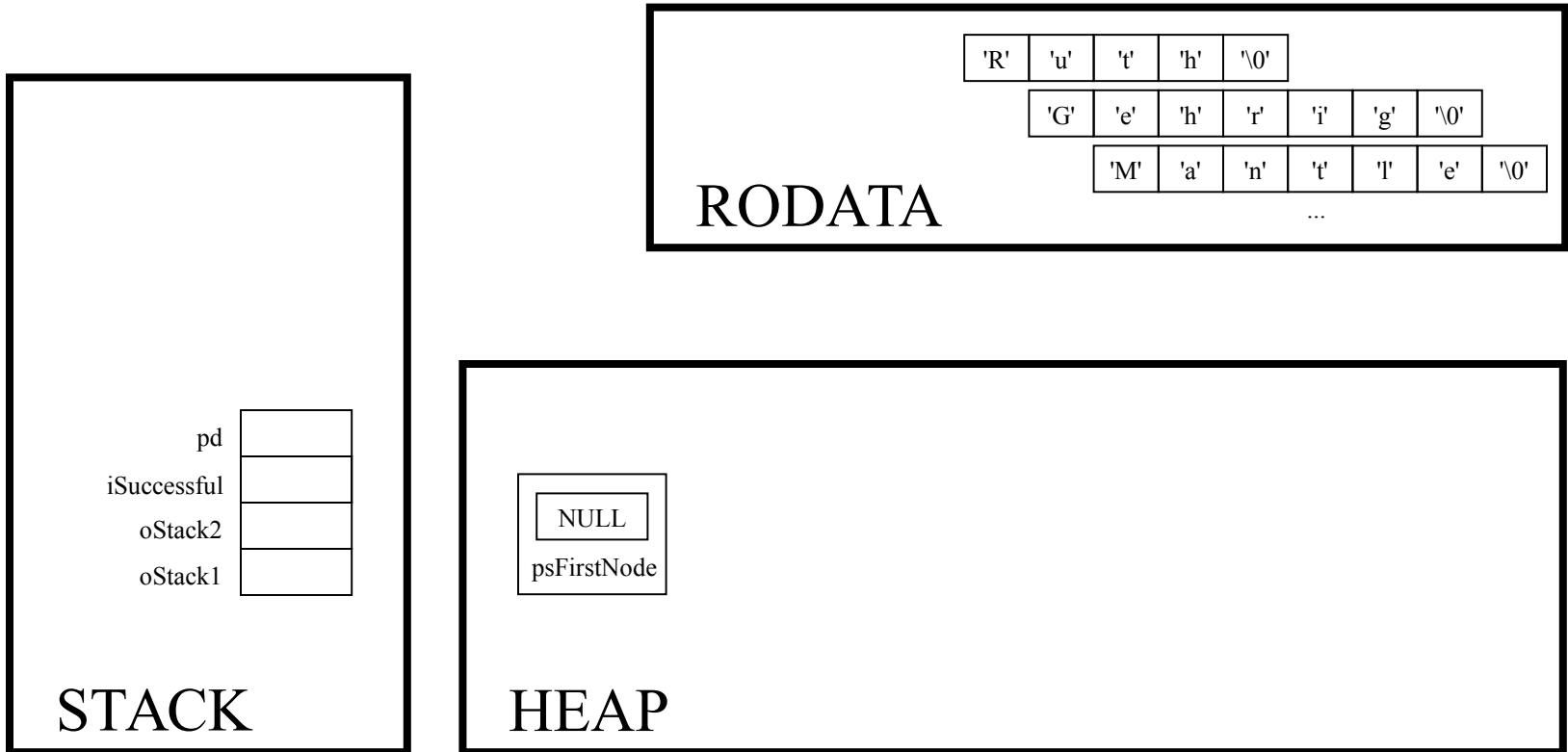
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```
oStack->psFirstNode = NULL;
```



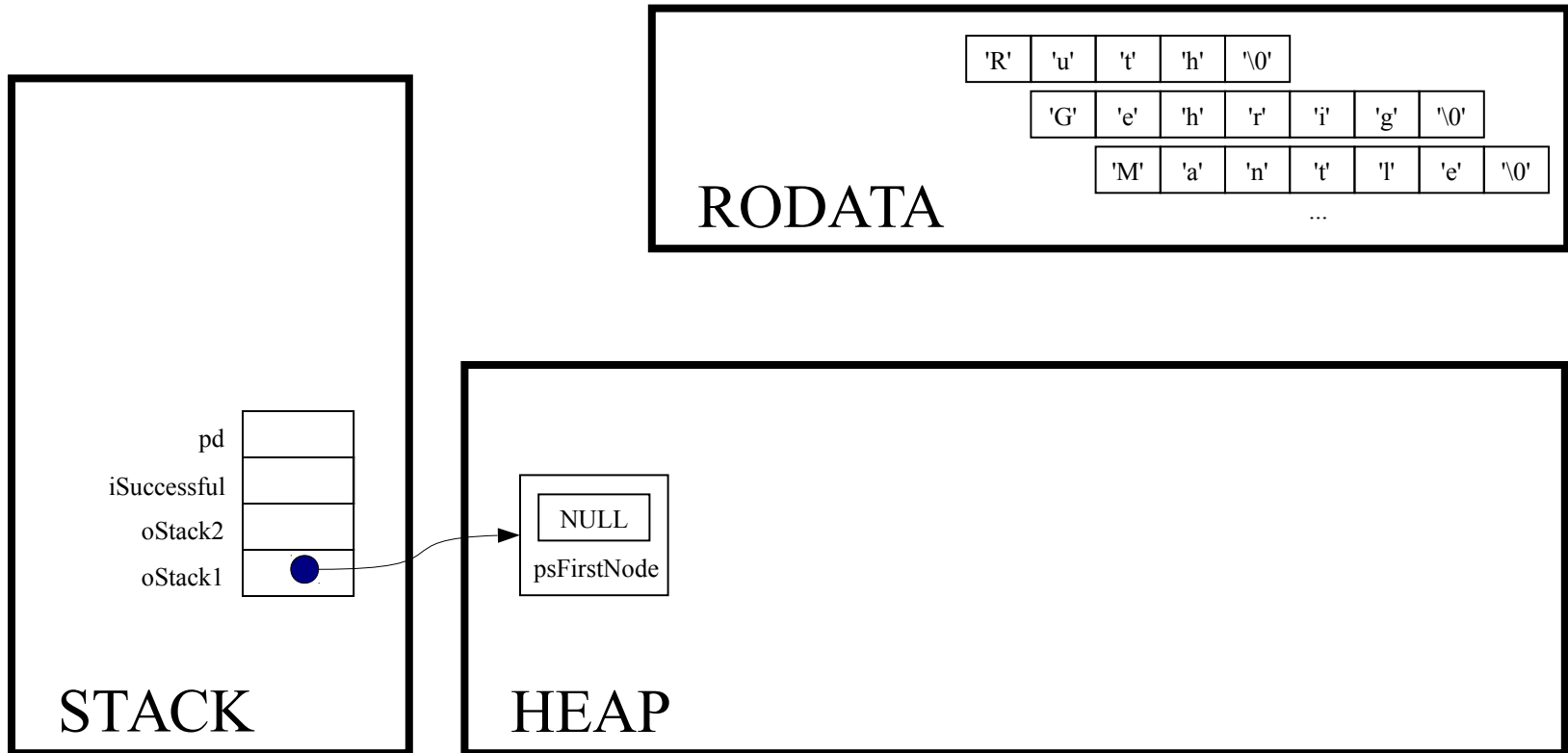
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```
return oStack;
```



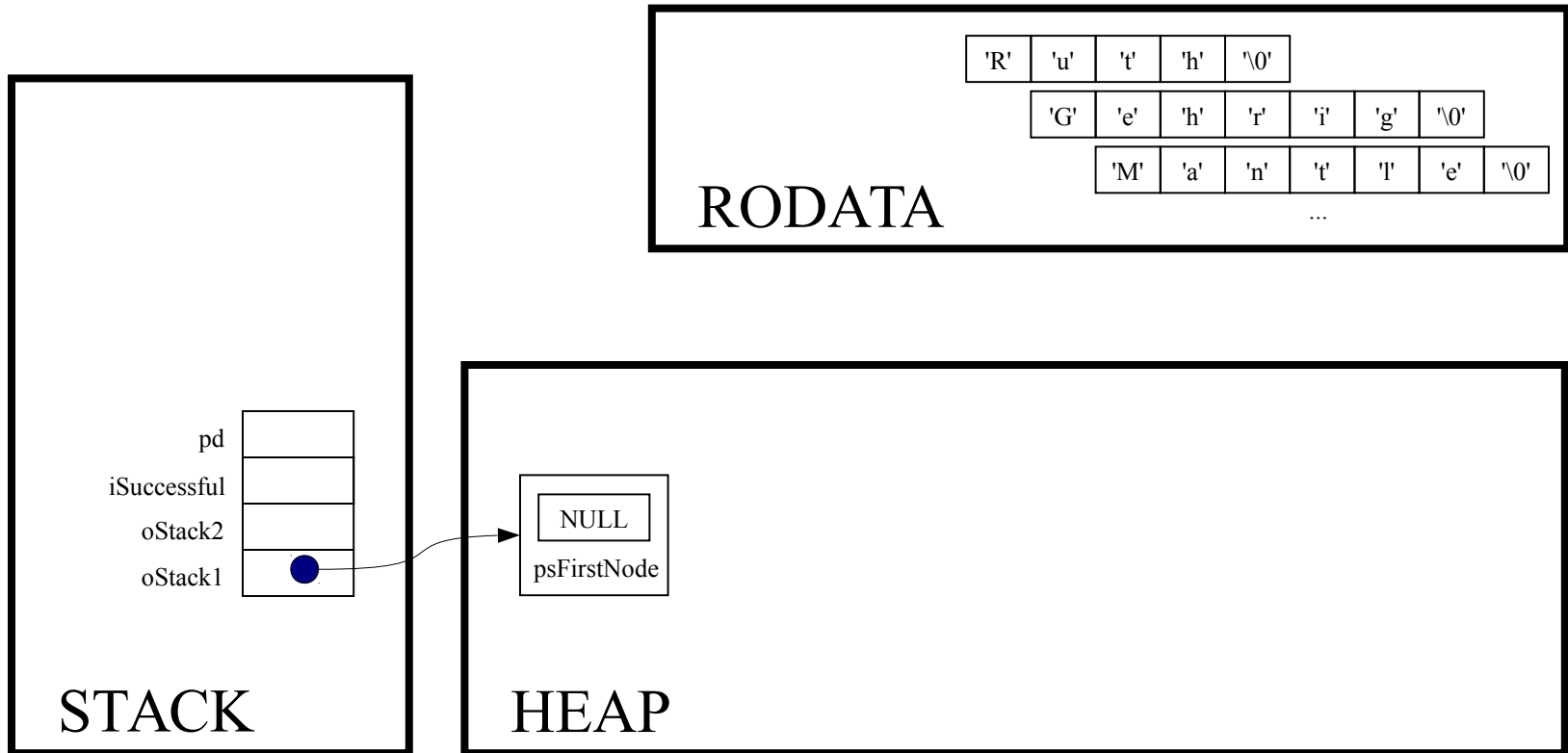
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```
oStack1 = Stack_new();
```



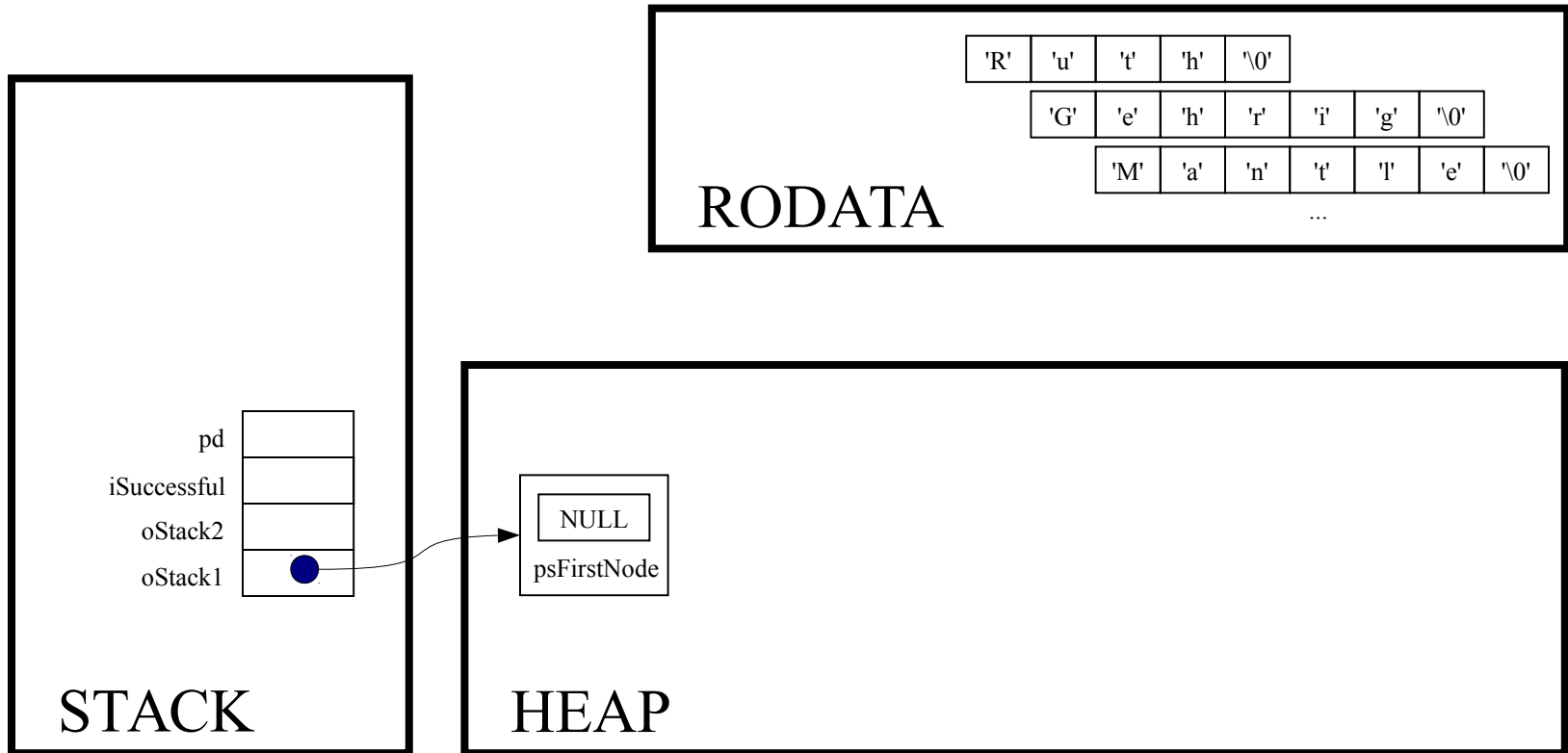
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```
if (oStack1 == NULL) handleMemoryError();
```



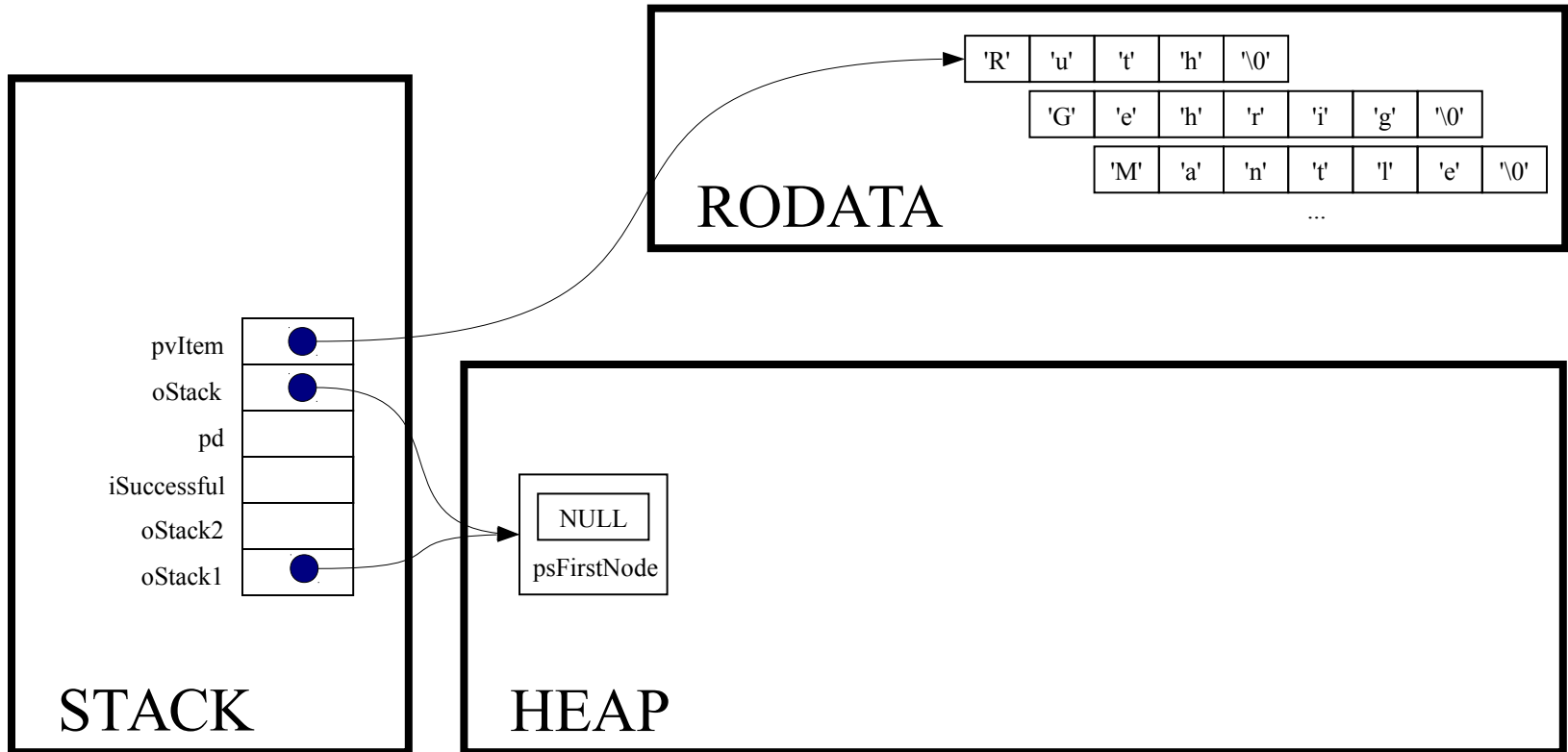
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```
iSuccessful = Stack_push(oStack1, "Ruth");
```



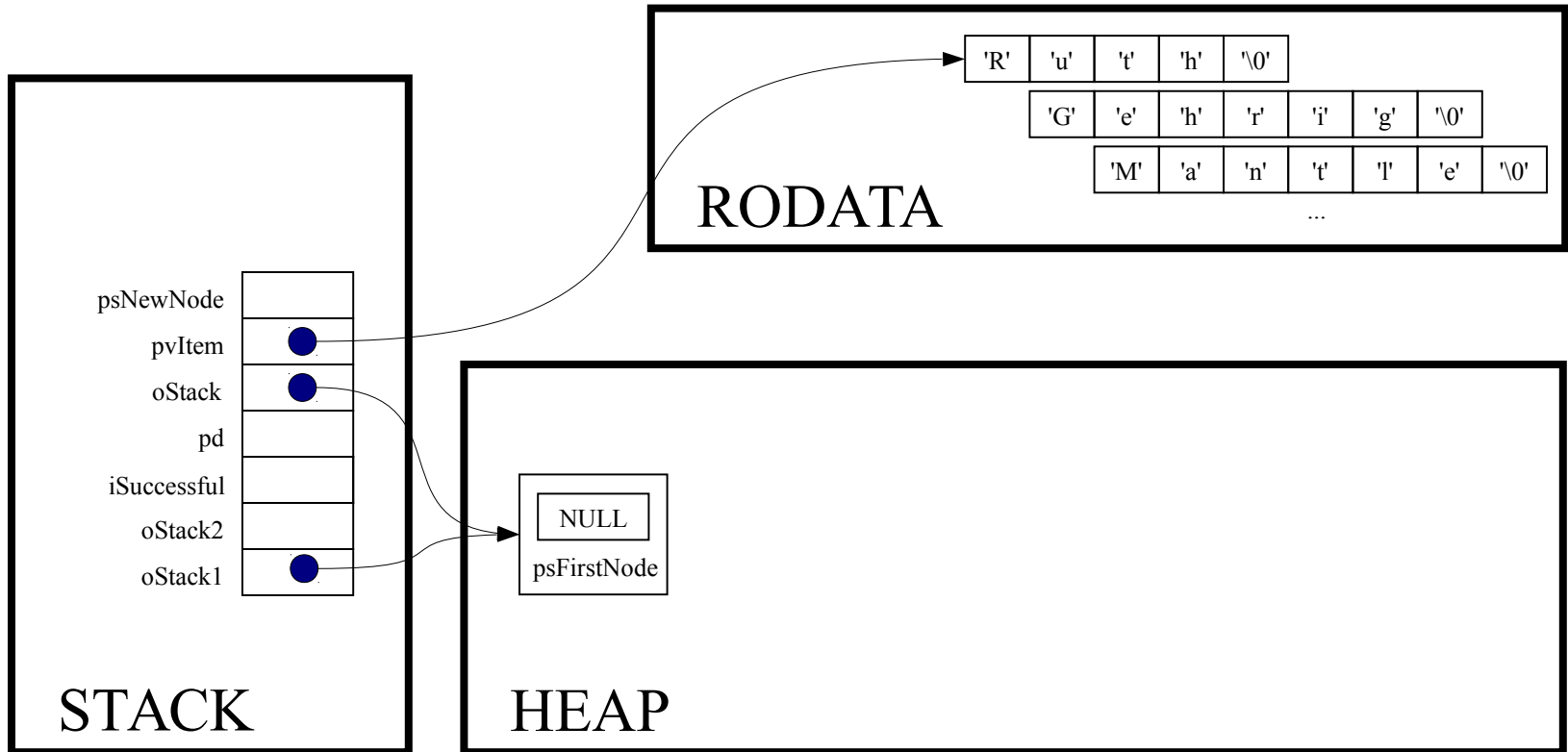
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Trace of teststack (Version 5)

```
int Stack_push(Stack_T oStack, const void *pvItem)
```



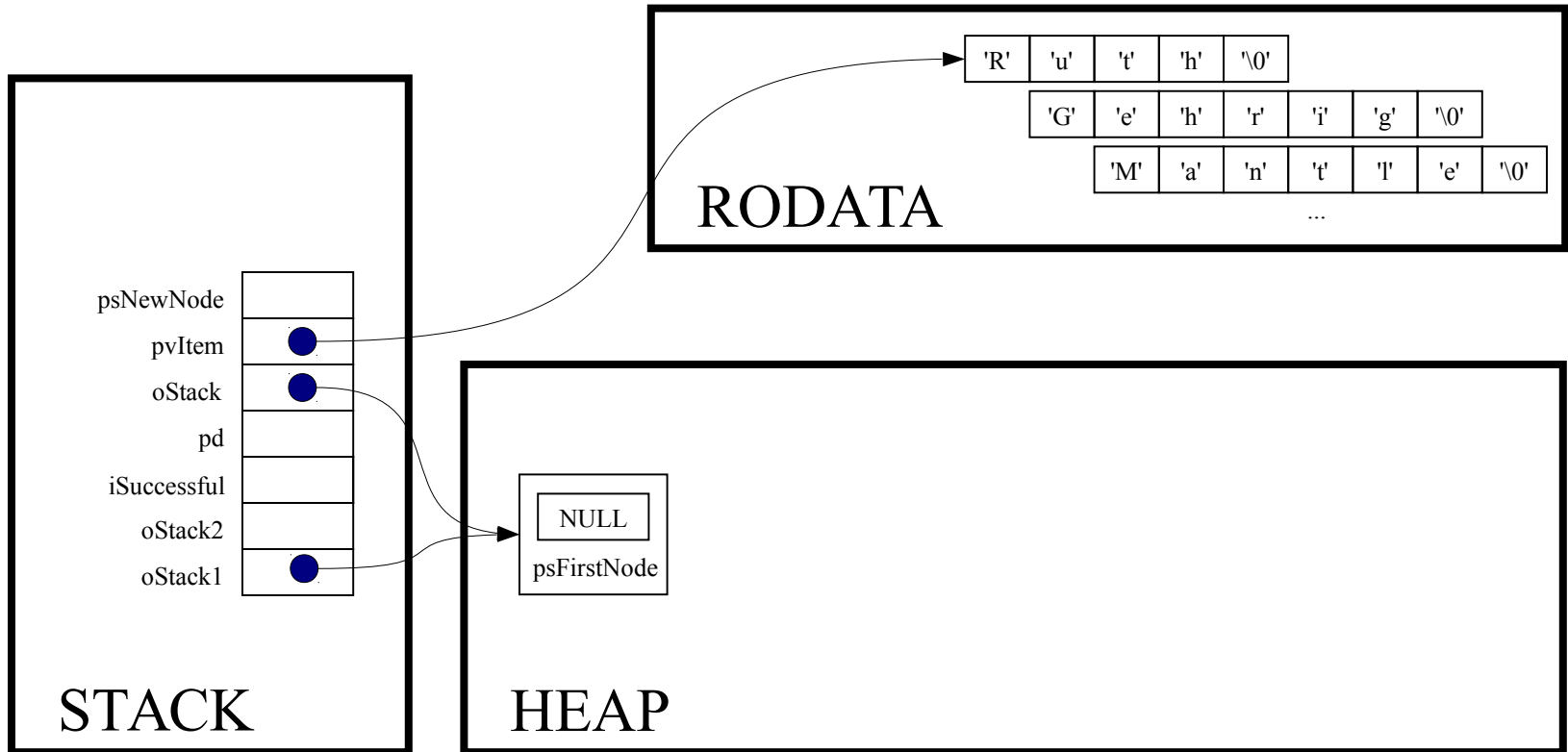
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```
struct StackNode *psNewNode;
```



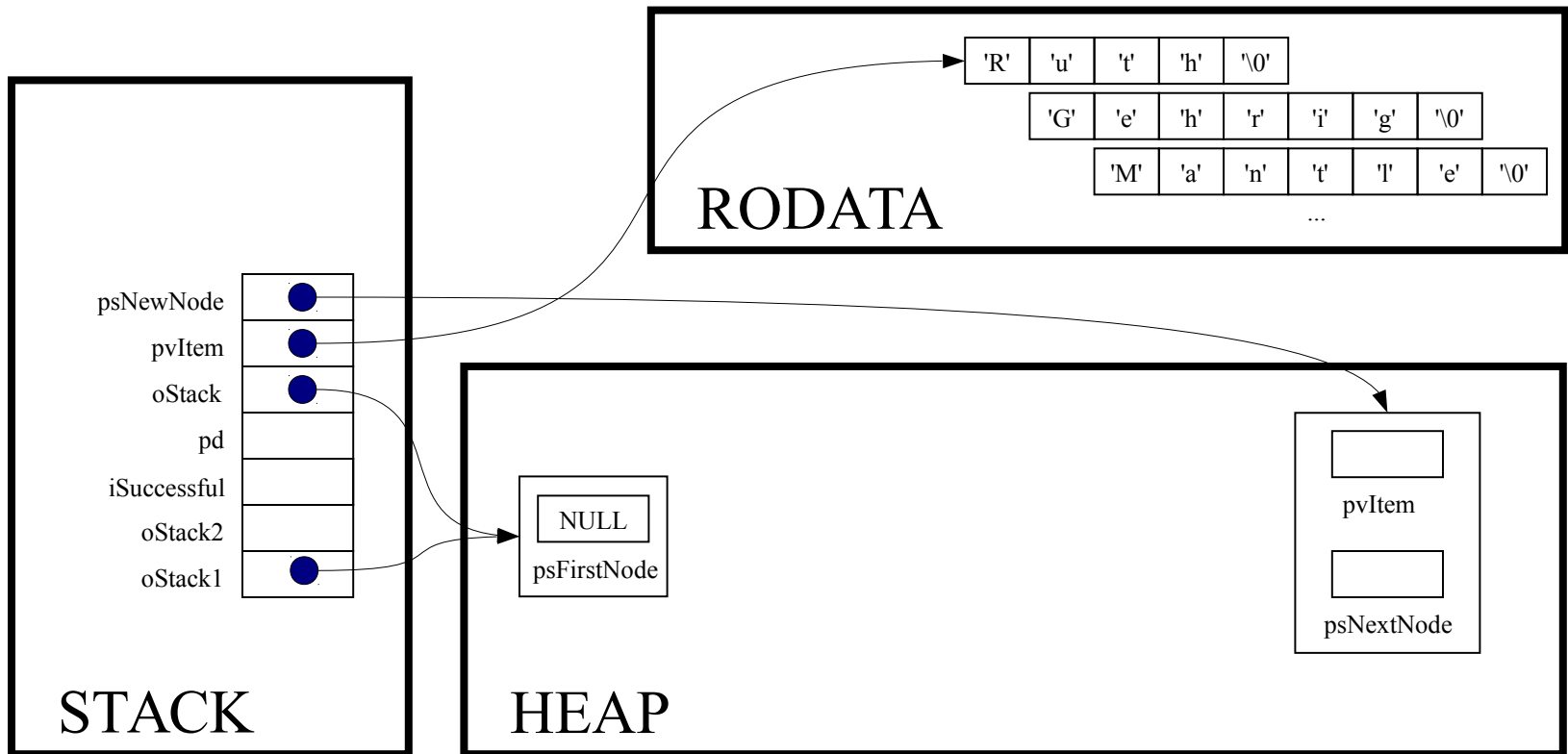
Princeton University
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```
assert(oStack != NULL);
```



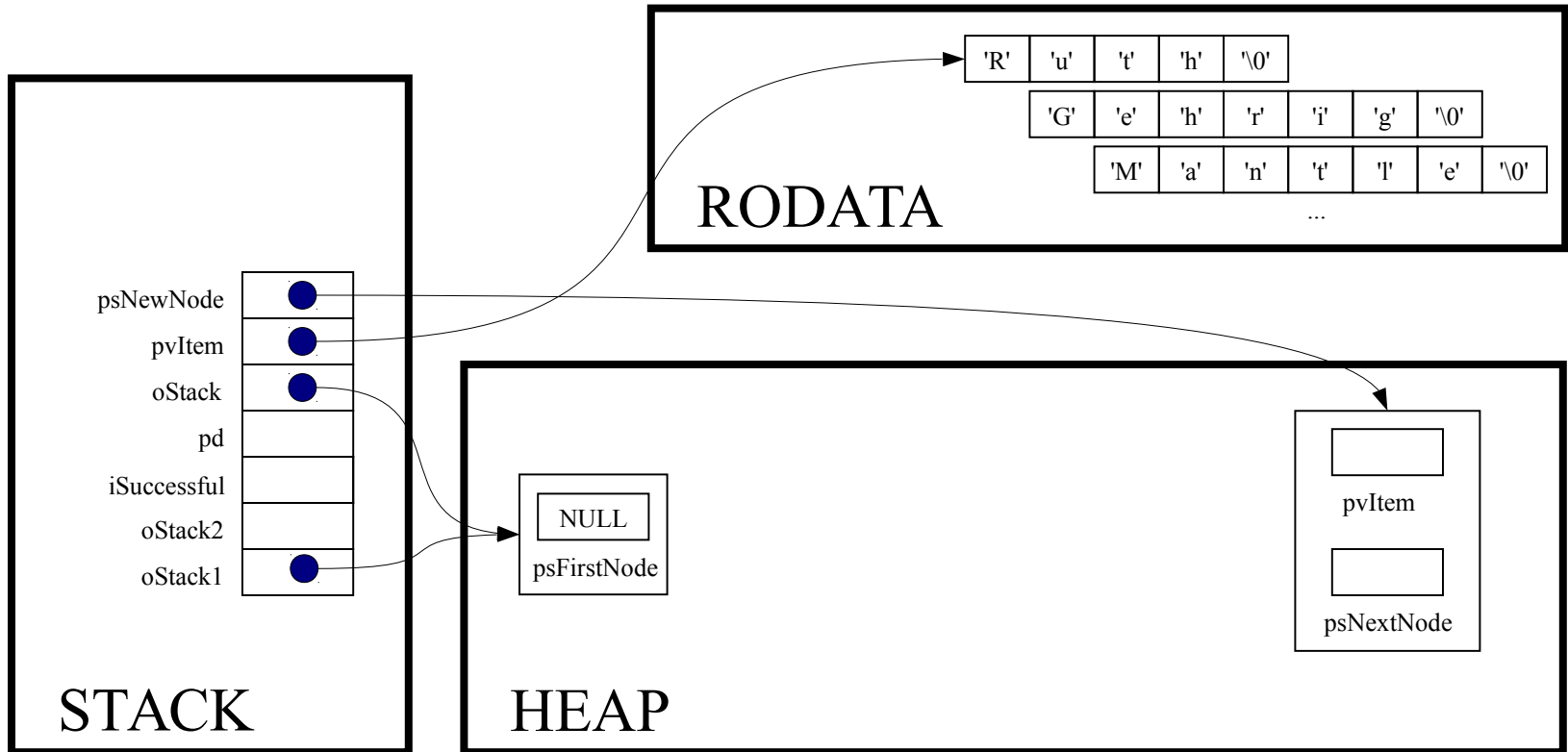
Princeton University
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Trace of teststack (Version 5)

```
psNewNode = (struct StackNode *)malloc(sizeof(struct StackNode));
```



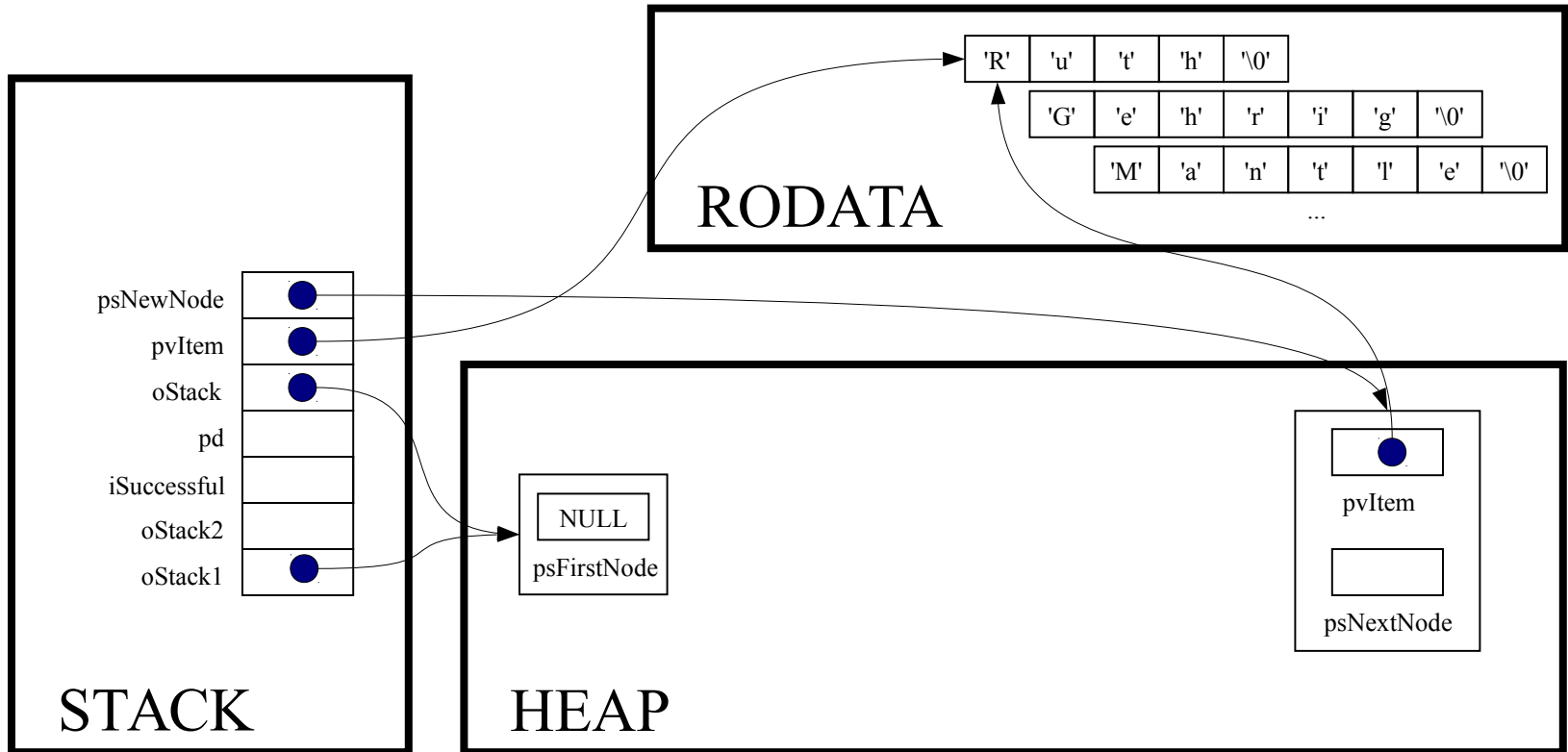
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Trace of teststack (Version 5)

```
if (psNewNode == NULL)
    return 0;
```



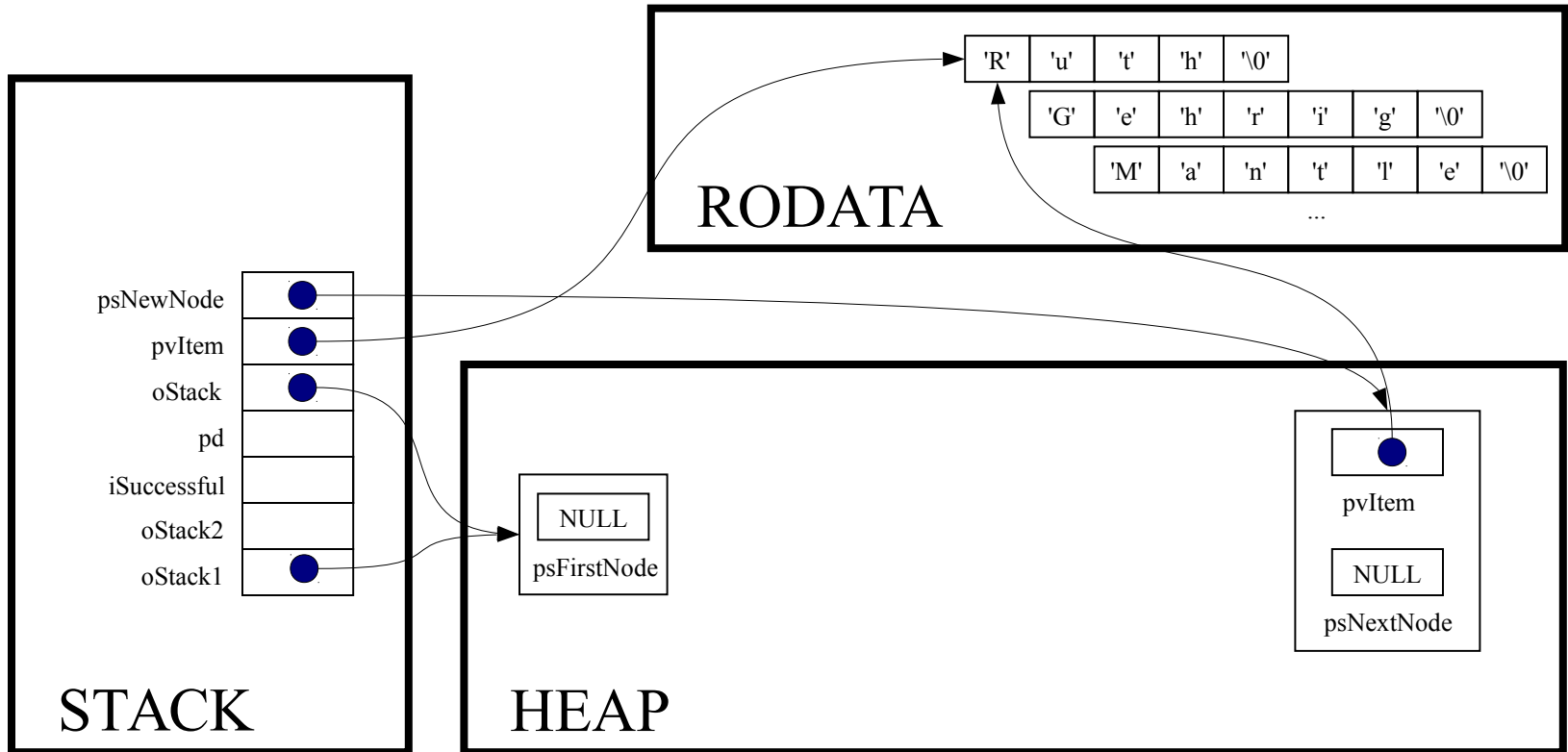
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```
psNewNode->pvItem = pvItem;
```



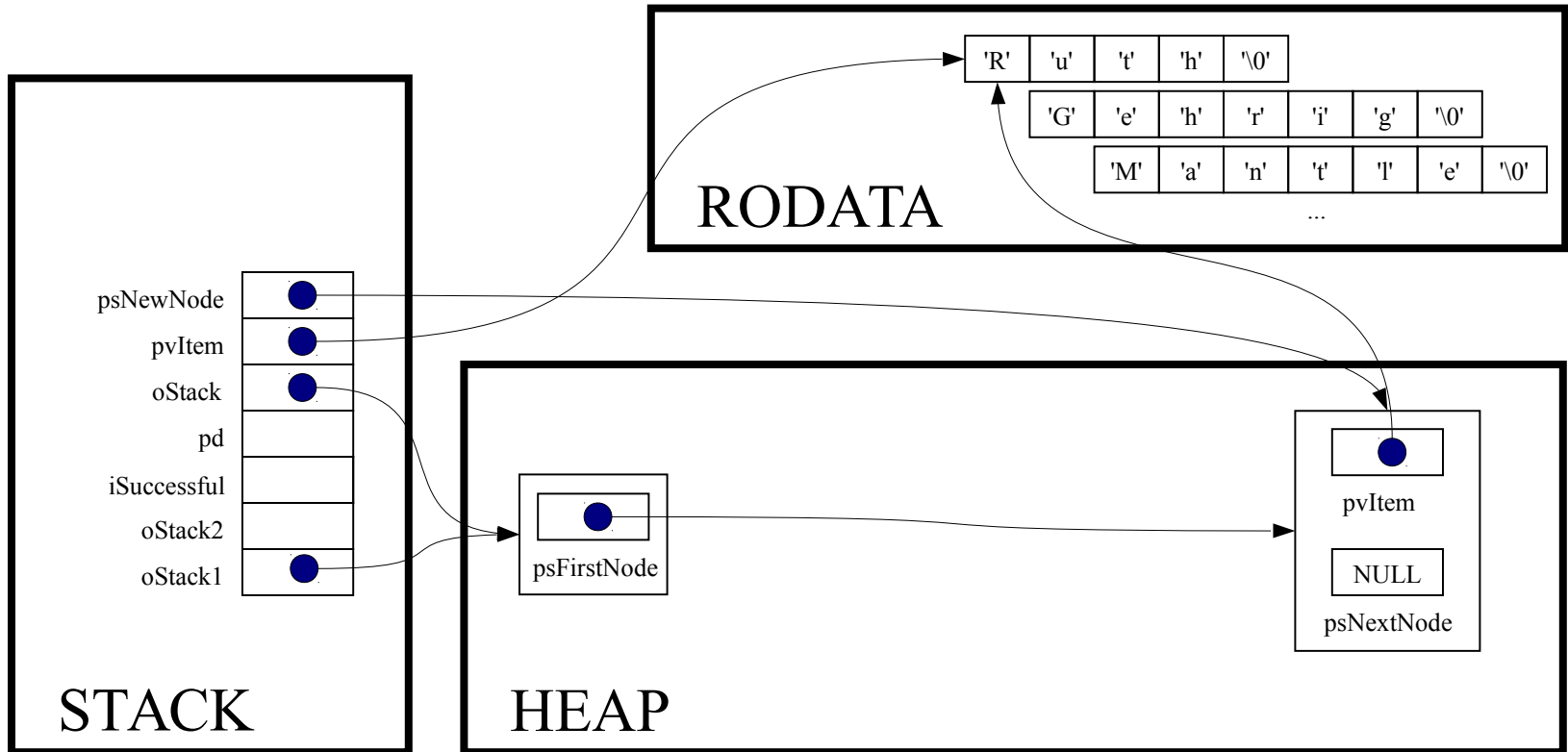
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```
psNewNode->psNextNode = oStack->psFirstNode;
```



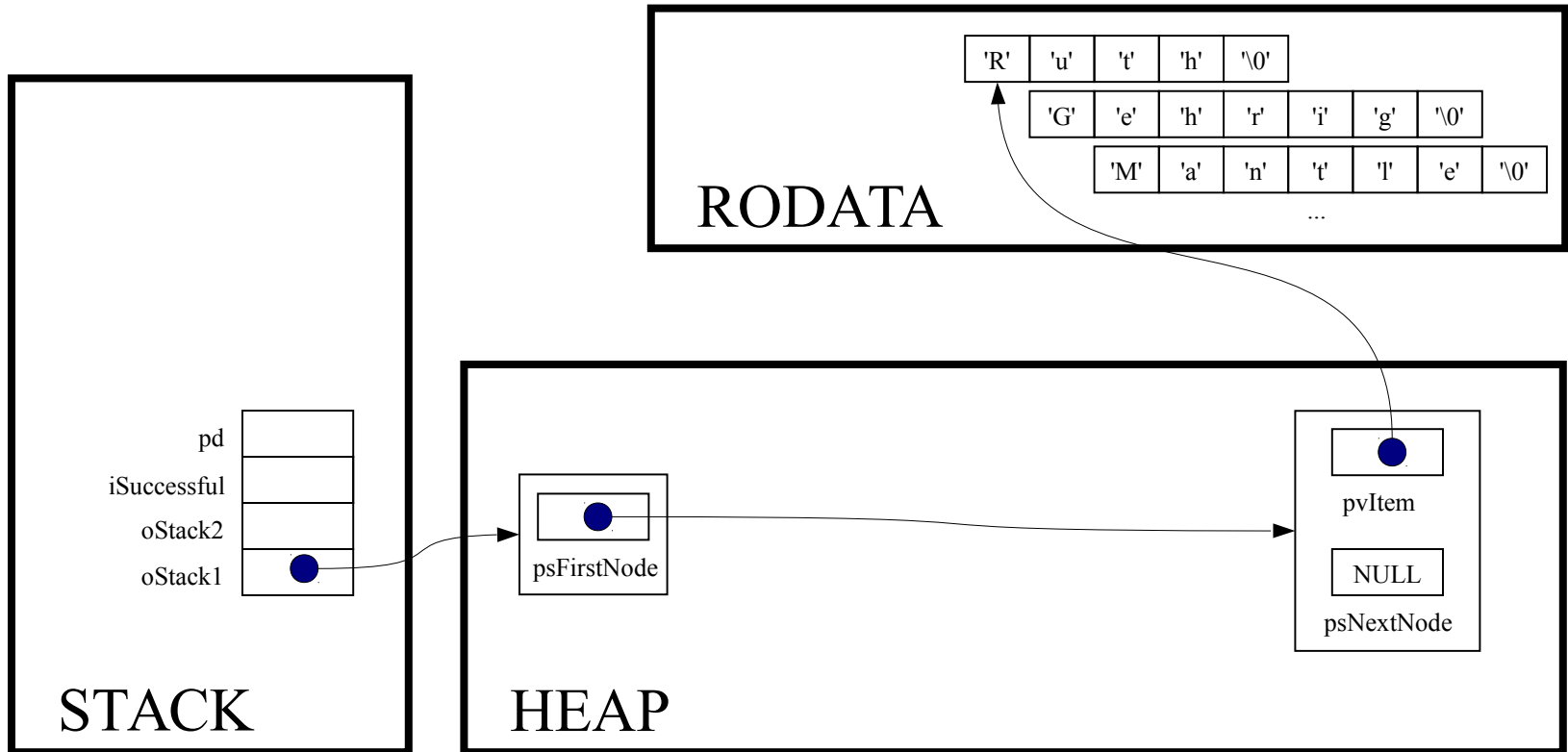
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```
oStack->psFirstNode = psNewNode;
```



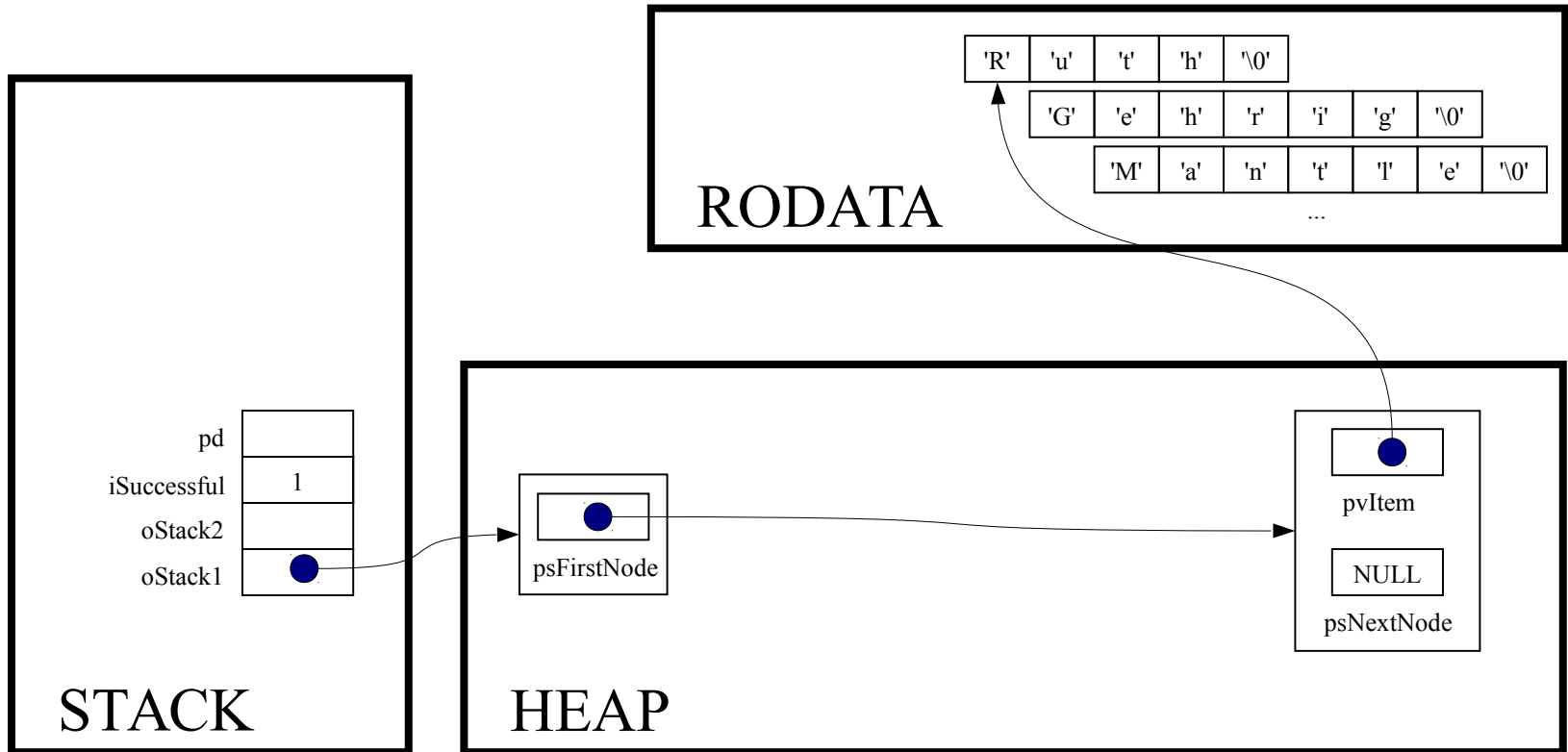
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```
return 1;
```



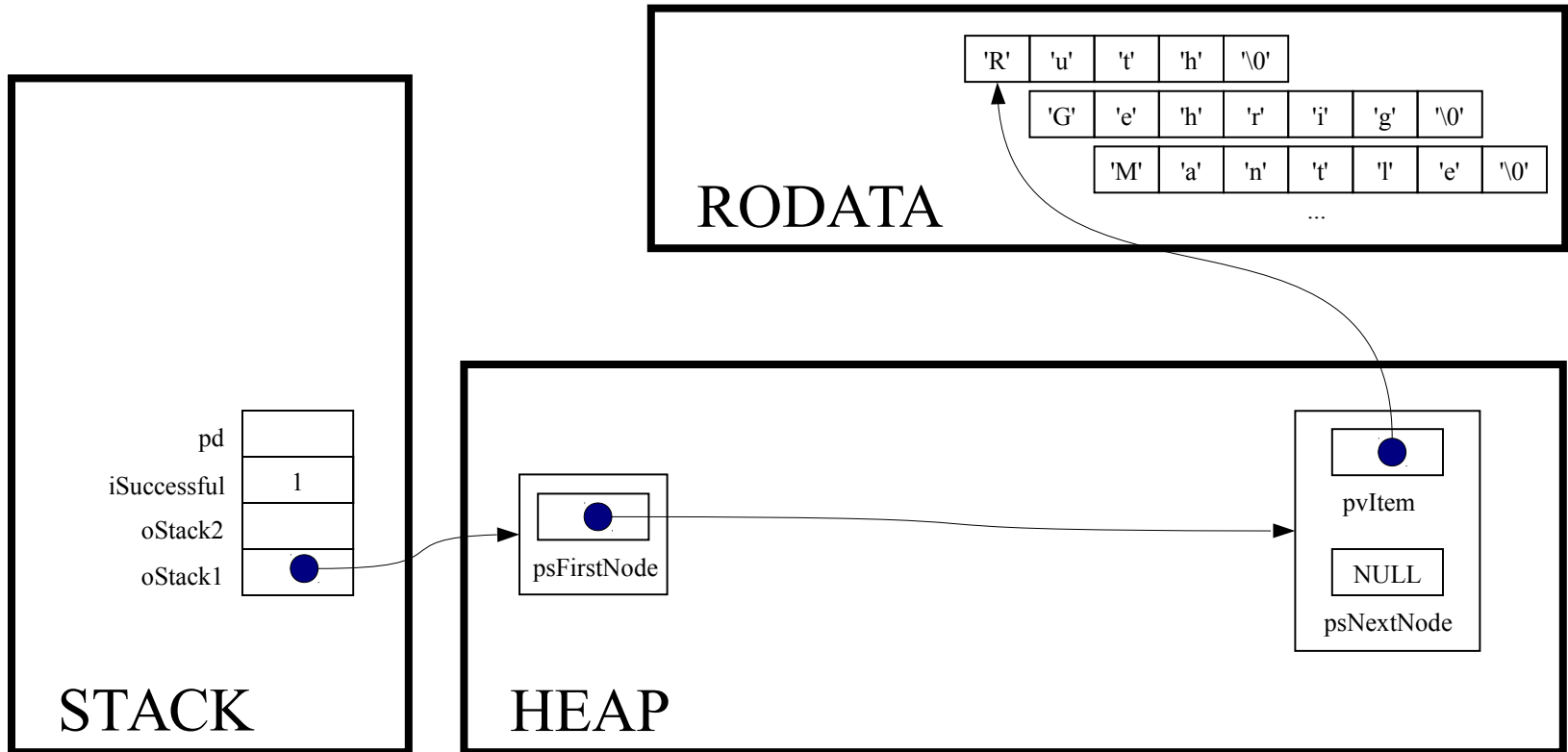
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```
iSuccessful = Stack_push(oStack1, "Ruth");
```



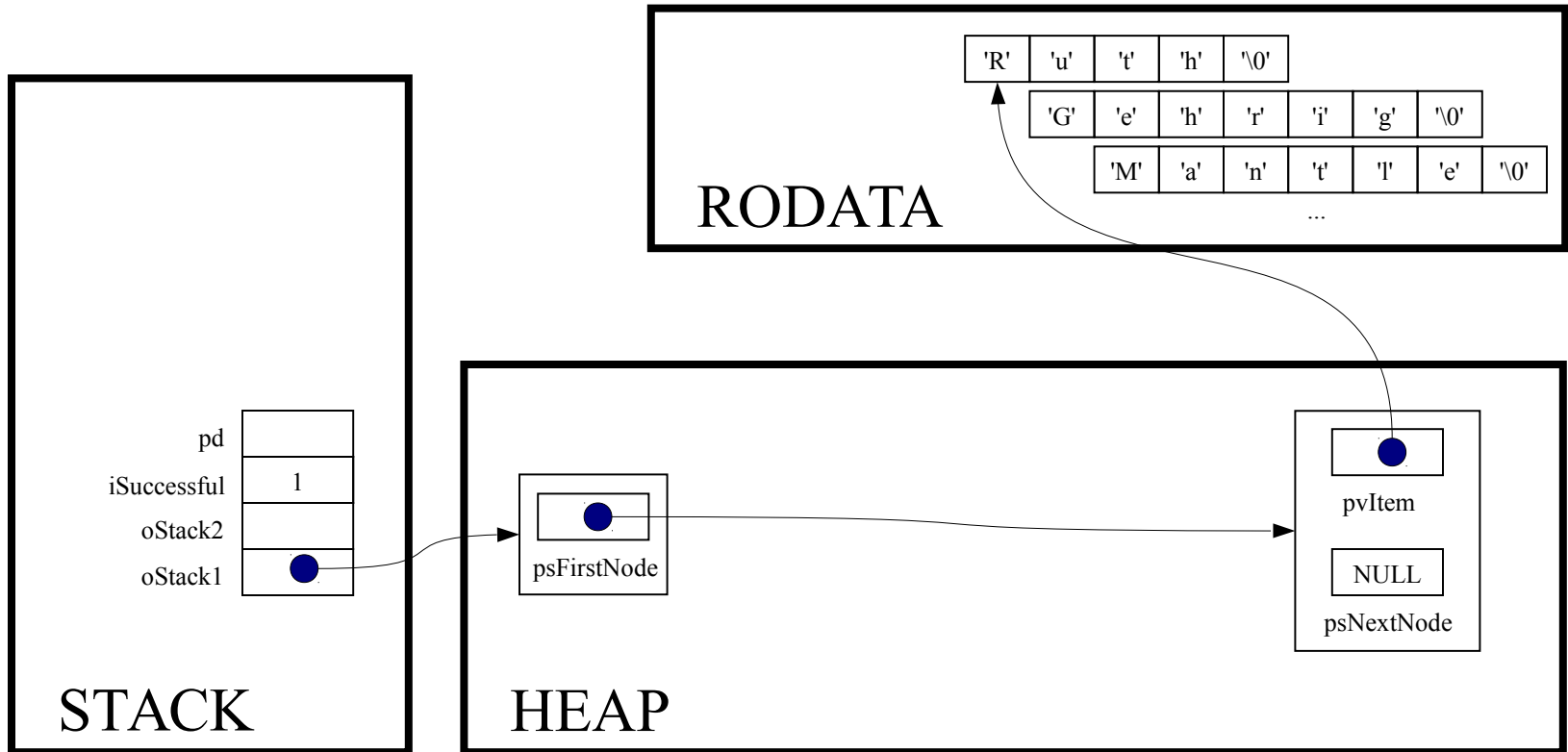
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```
if (! iSuccessful) handleMemoryError();
```



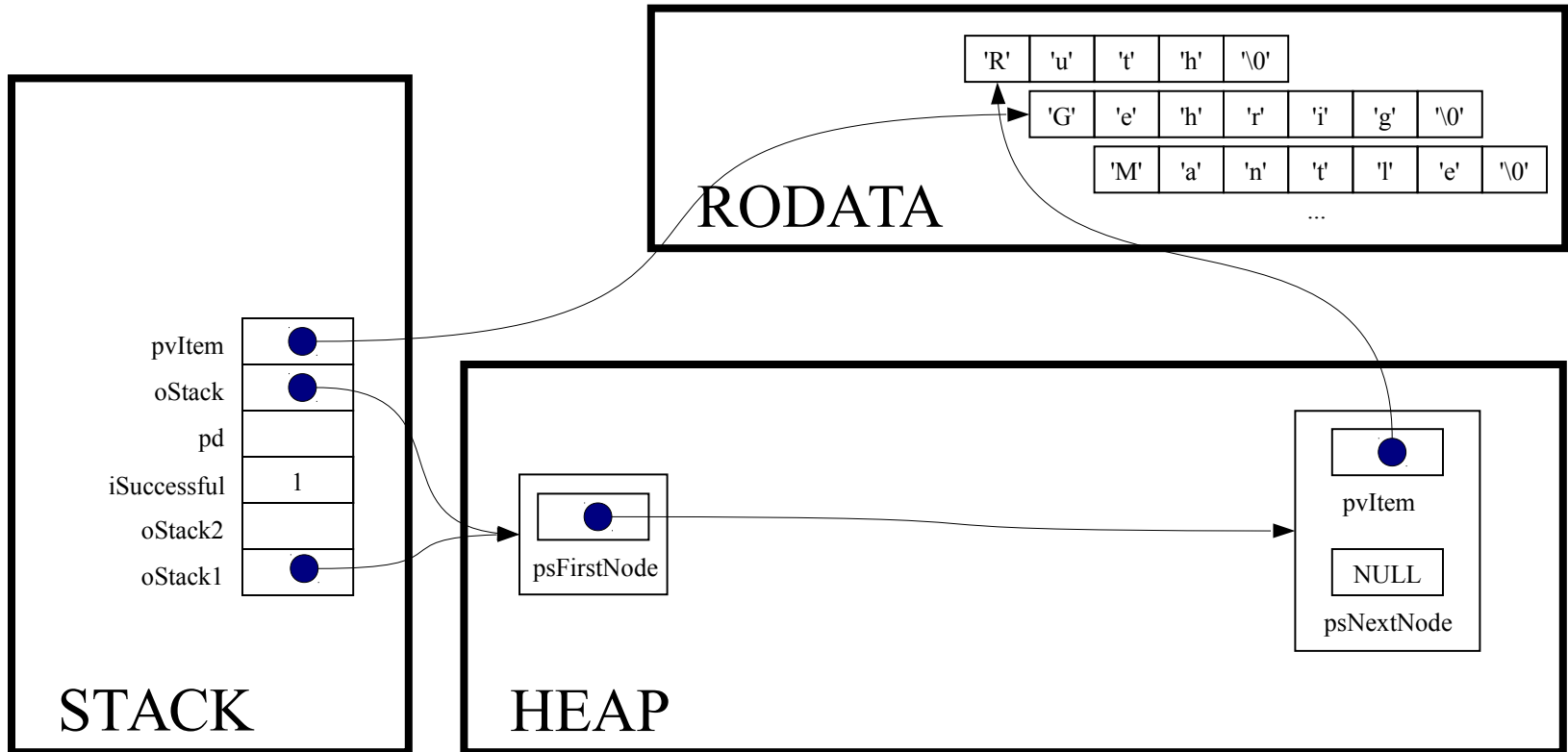
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```
iSuccessful = Stack_push(oStack1, "Gehrig");
```



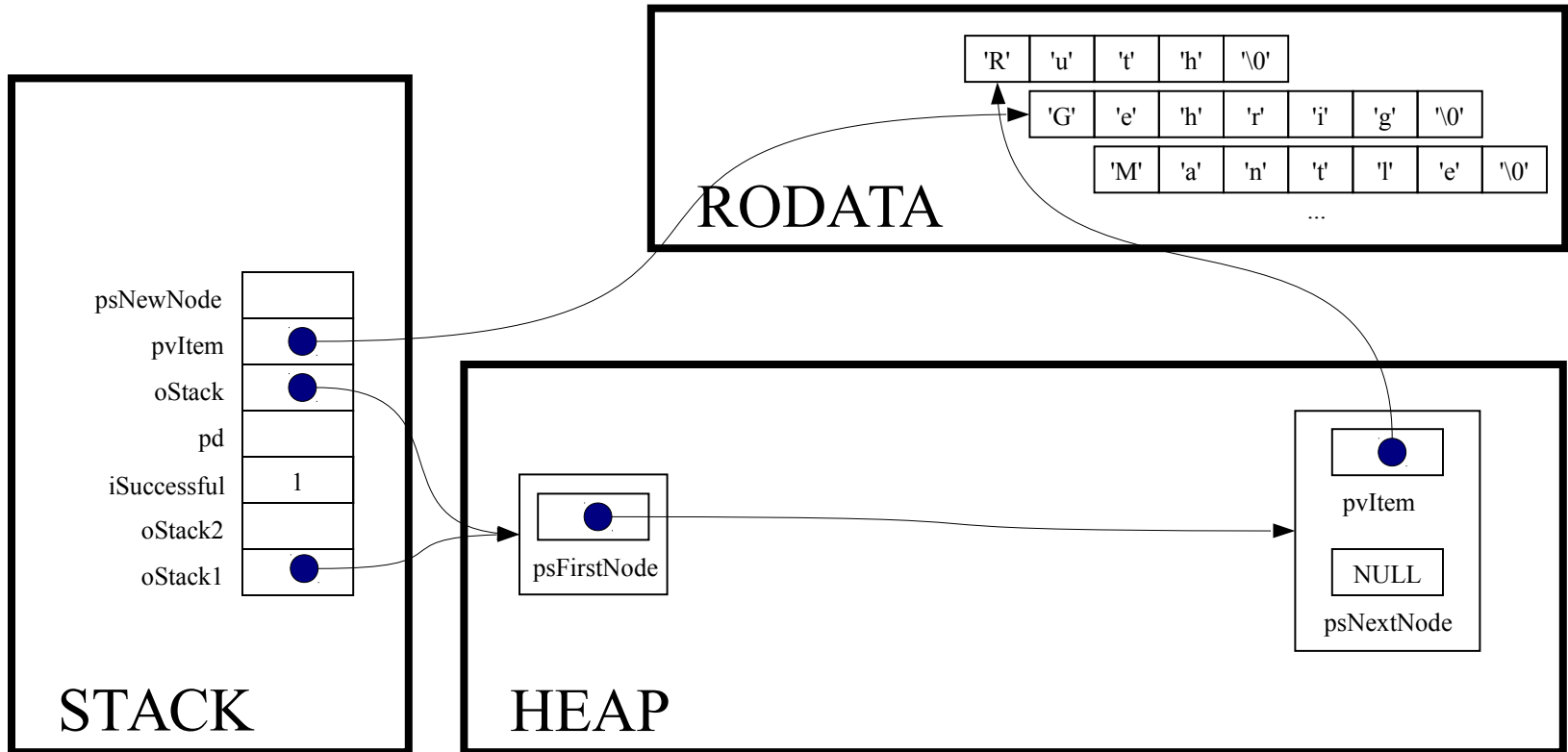
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```
int Stack_push(Stack_T oStack, const void *pvItem)
```



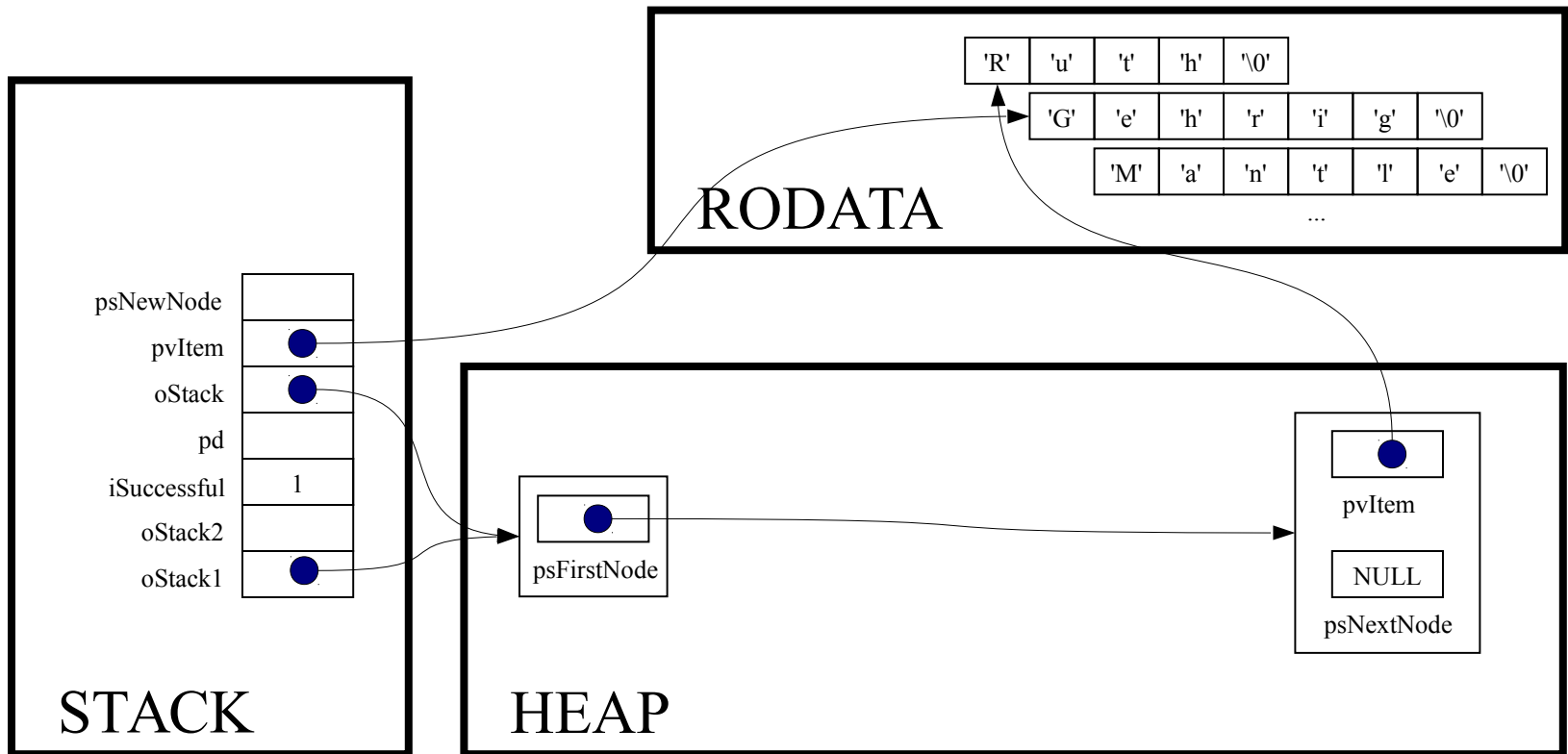
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Trace of teststack (Version 5)

```
struct StackNode *psNewNode;
```



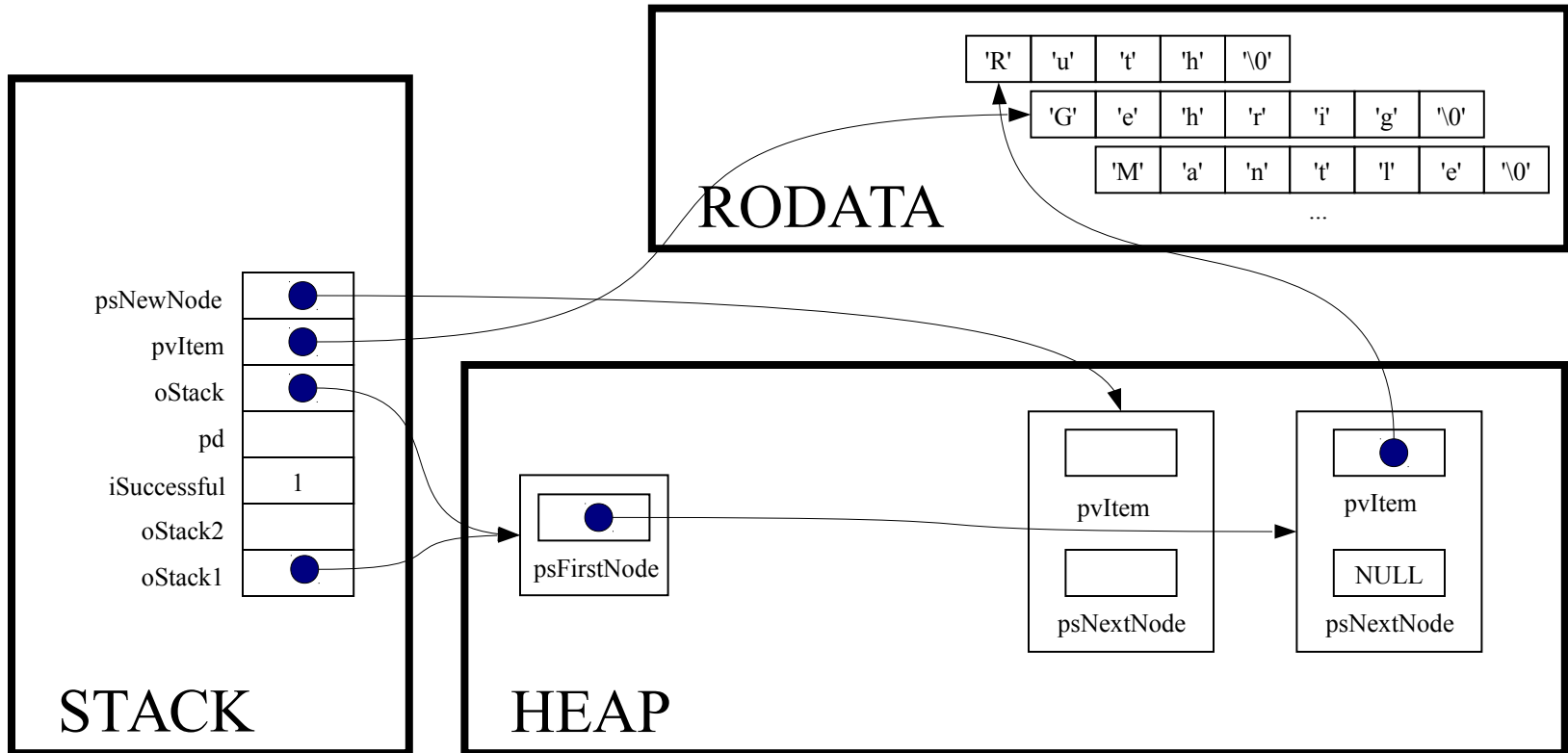
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```
assert(oStack != NULL);
```



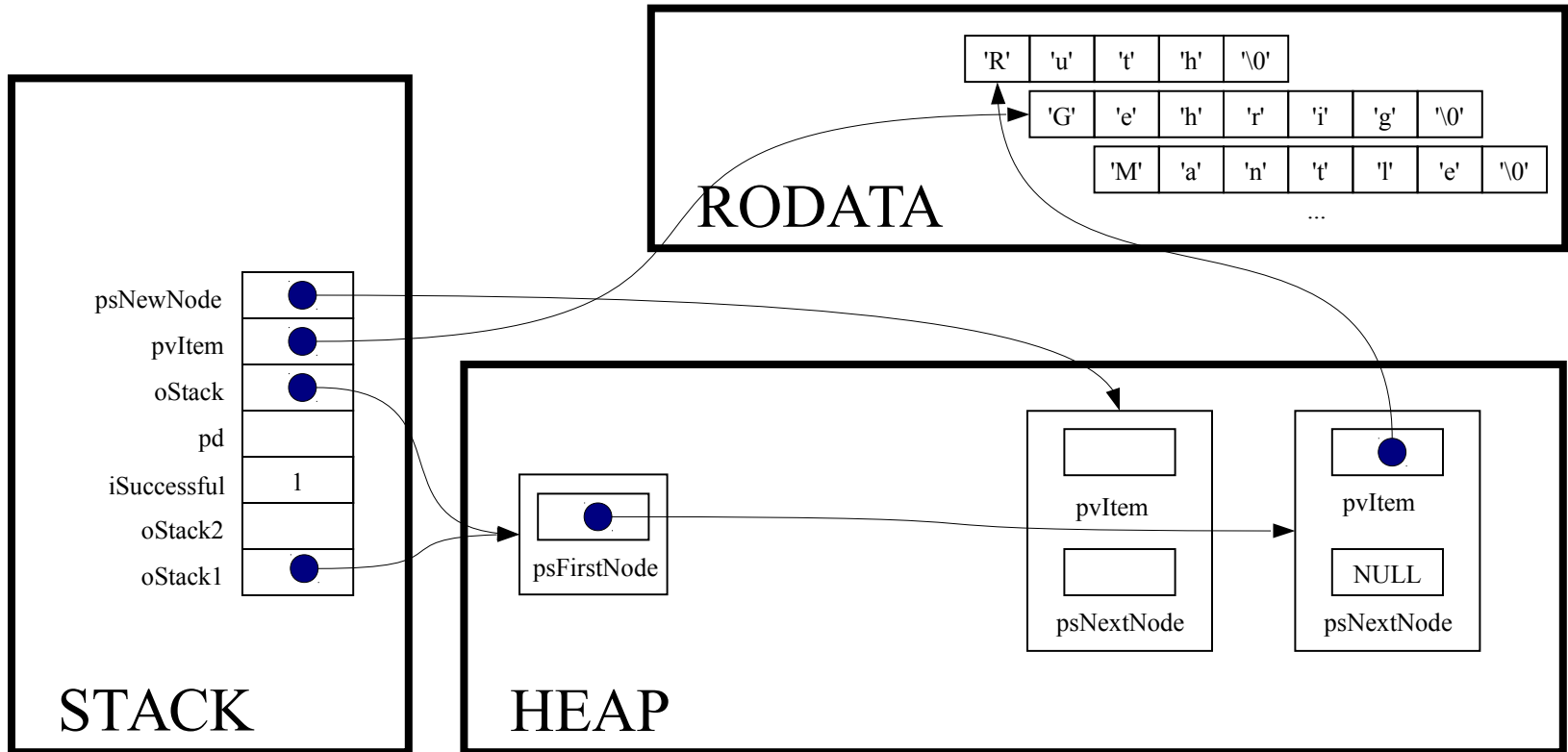
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```
psNewNode = (struct StackNode*)malloc(sizeof(struct StackNode));
```



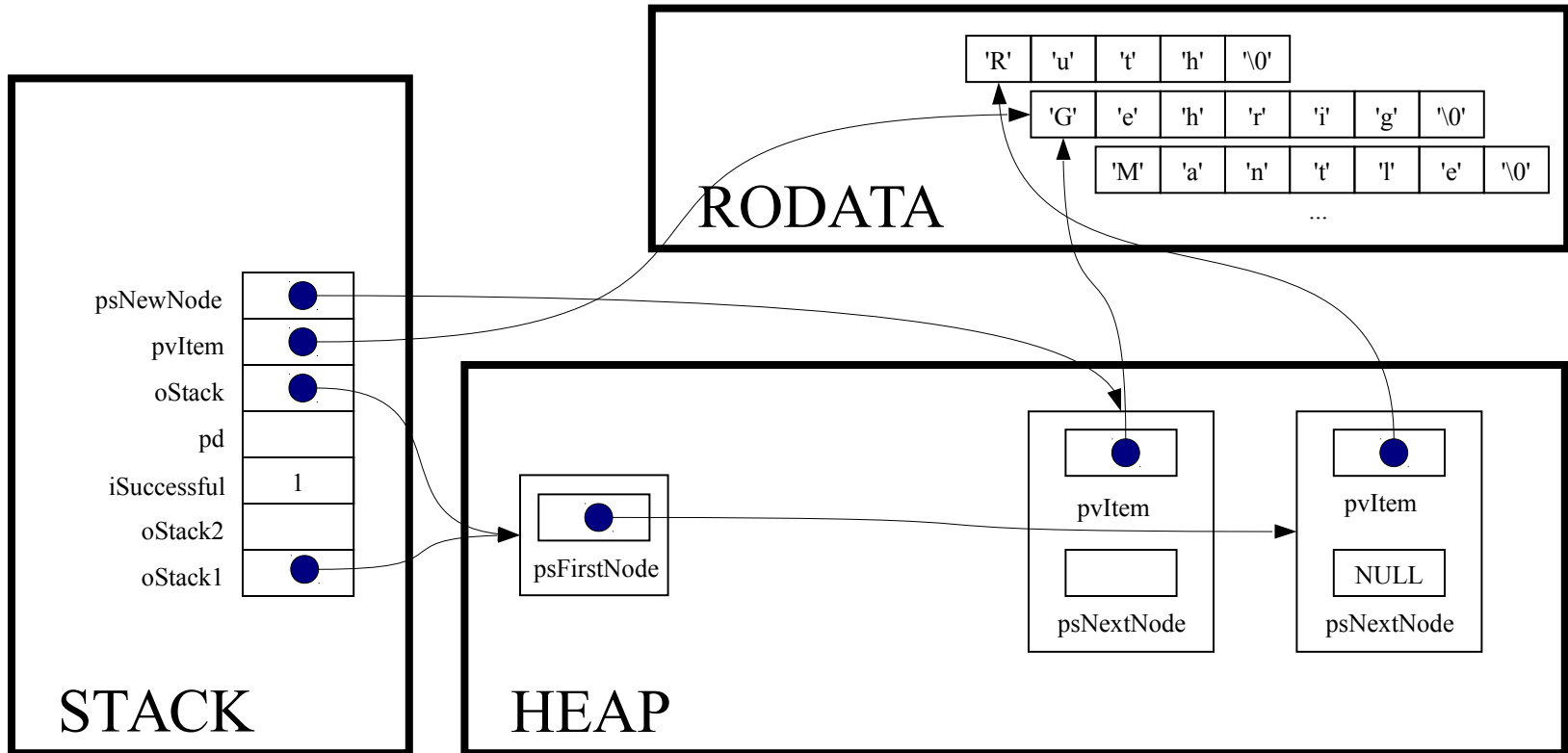
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```
if (psNewNode == NULL)  
    return 0;
```



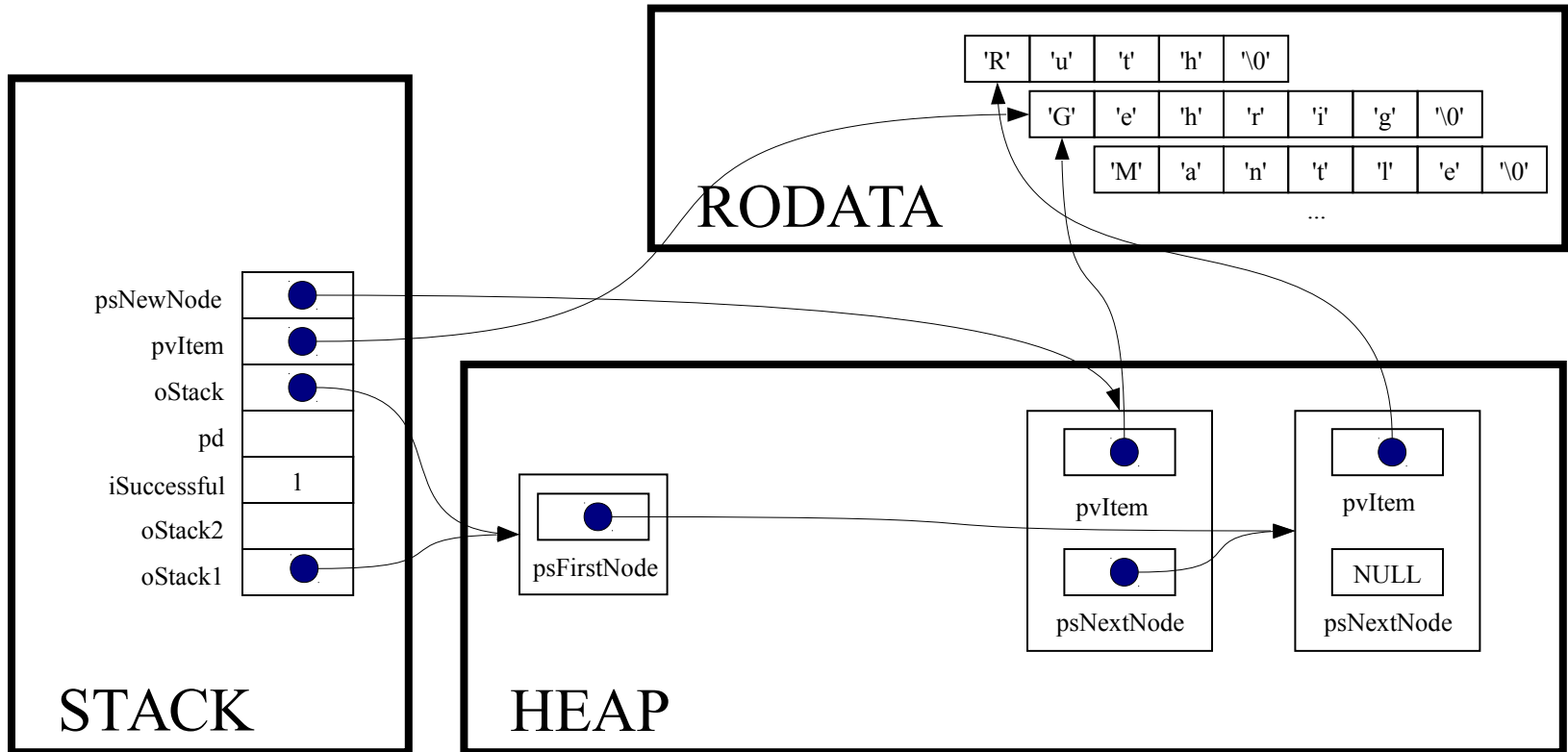
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```
psNewNode->pvItem = pvItem;
```



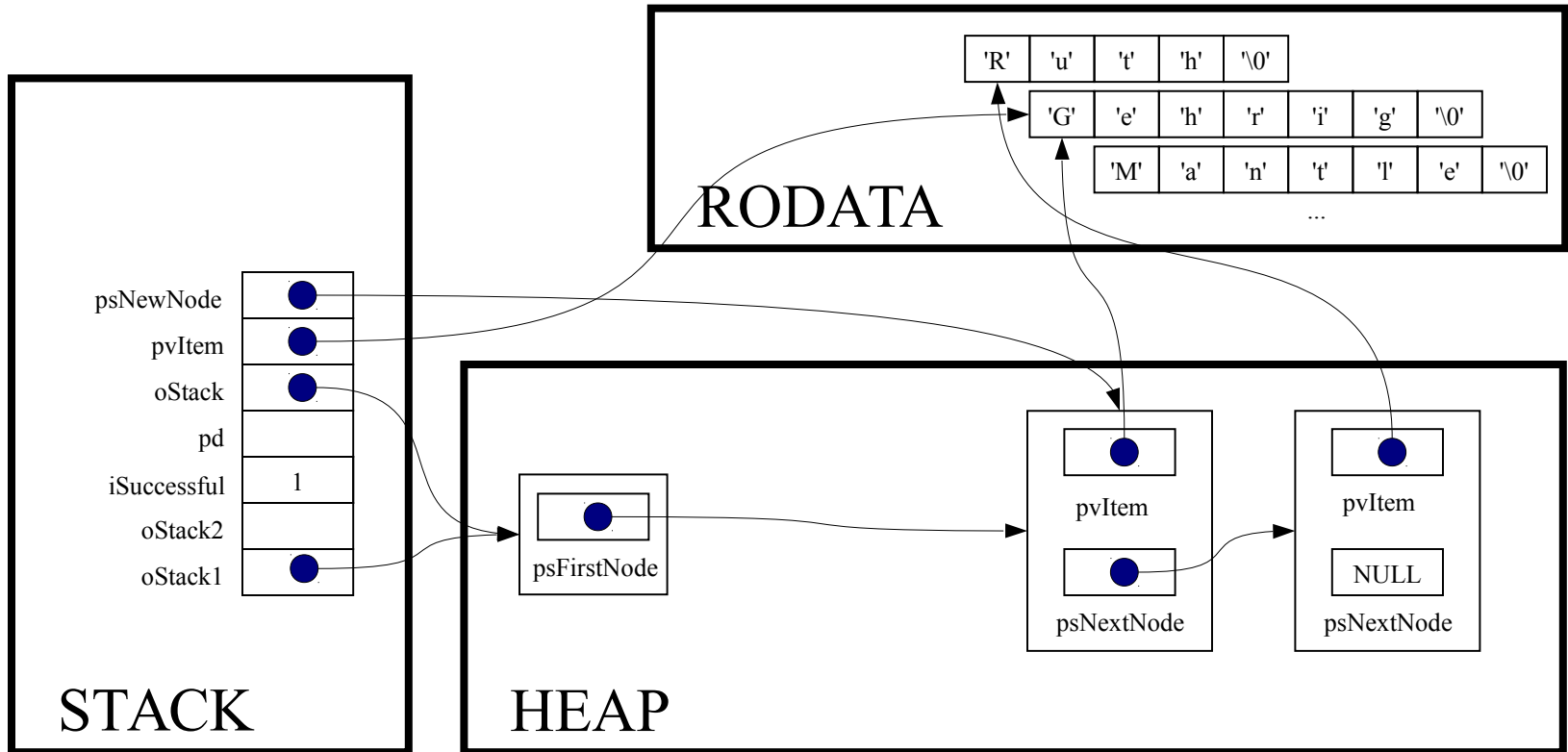
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```
psNewNode->psNextNode = oStack->psFirstNode;
```



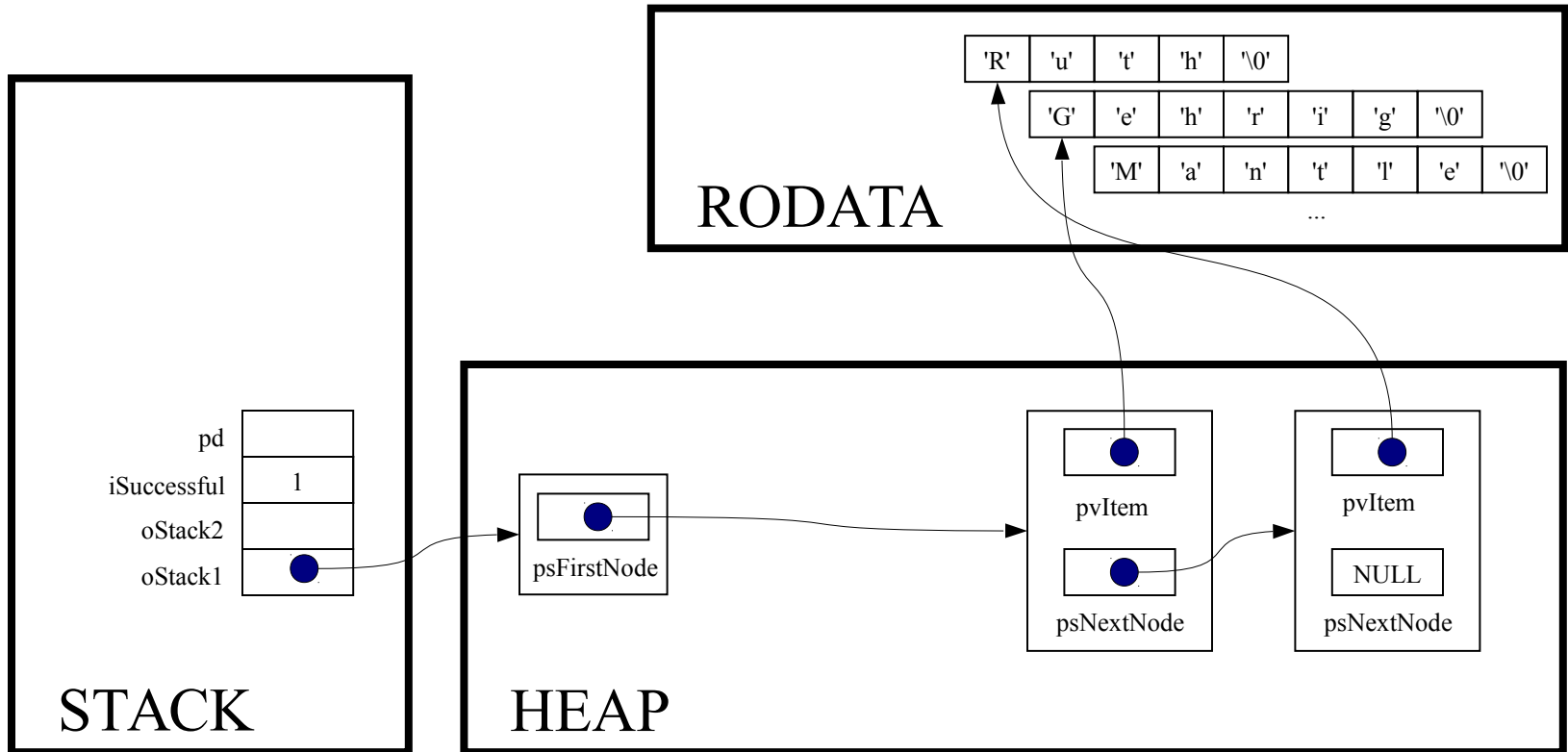
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```
oStack->psFirstNode = psNewNode;
```



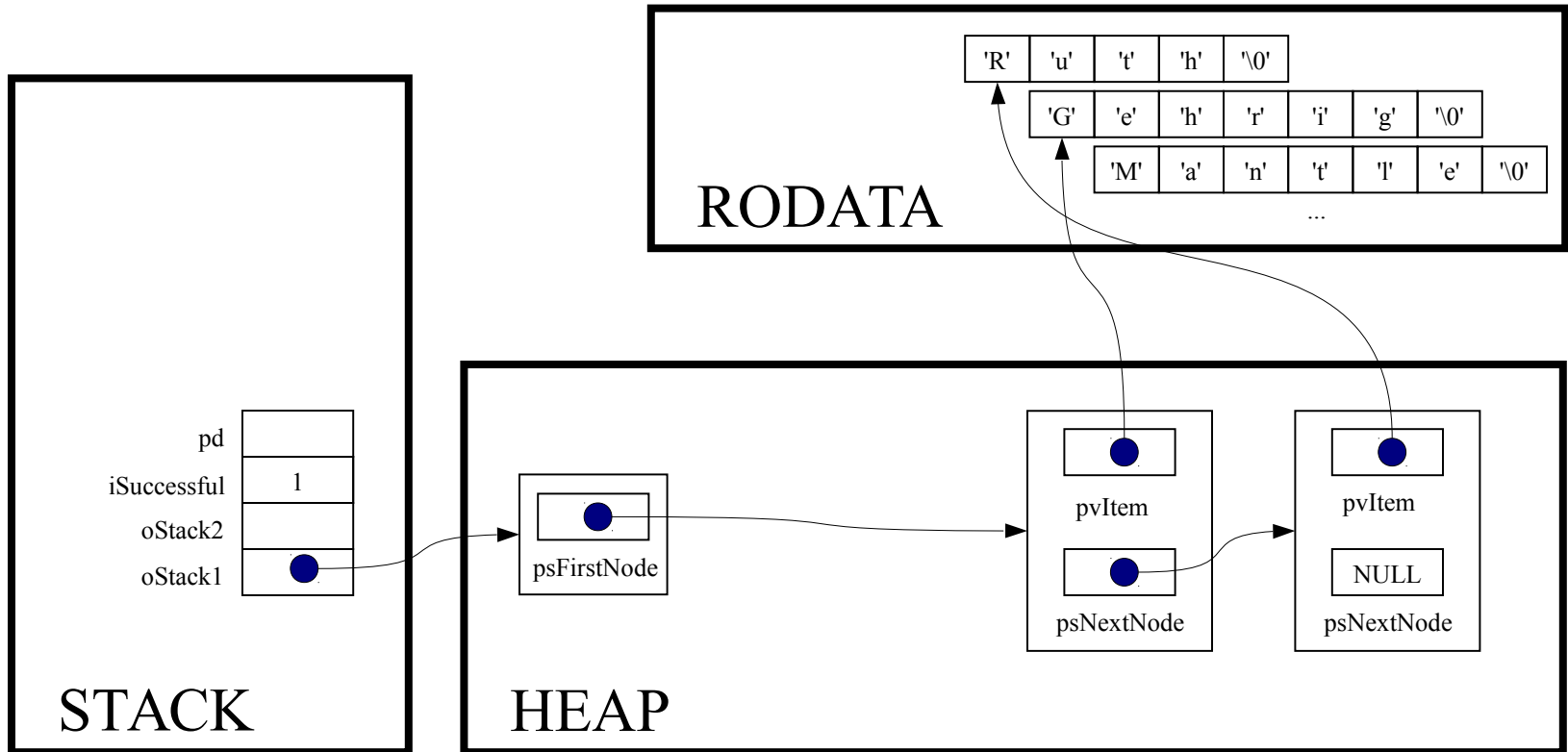
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```
return 1;
```



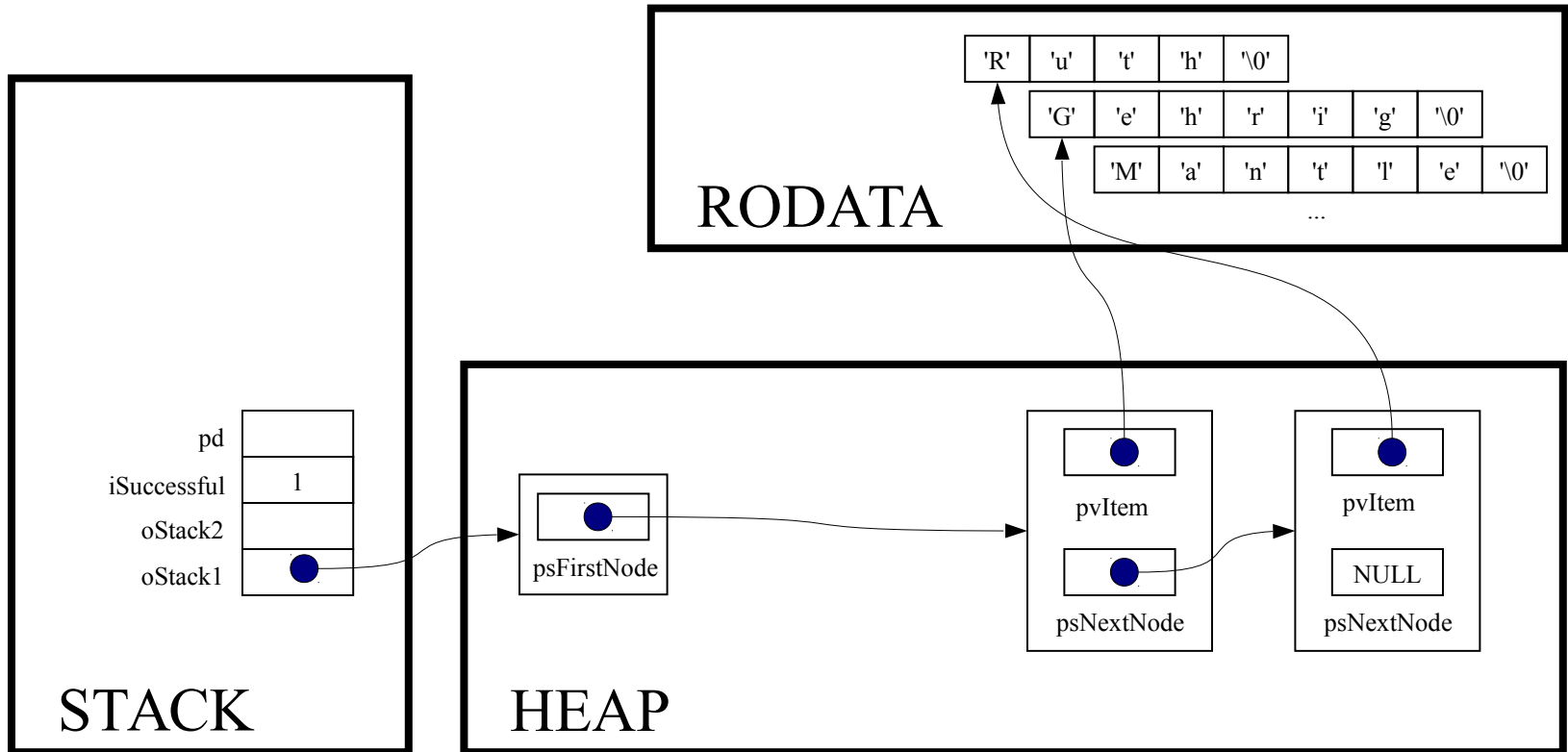
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```
iSuccessful = Stack_push(oStack1, "Gehrig");
```



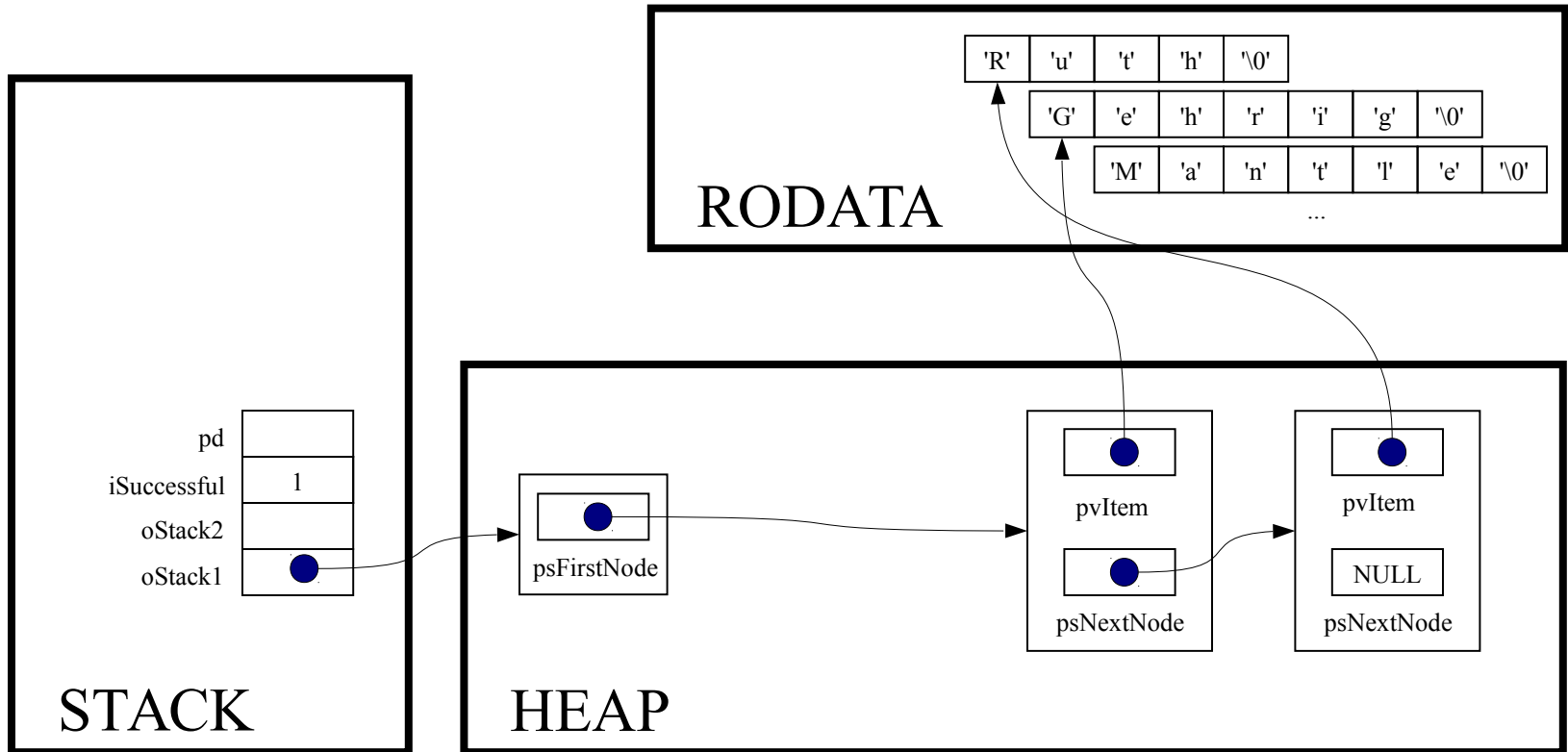
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```
if (! iSuccessful) handleMemoryError();
```



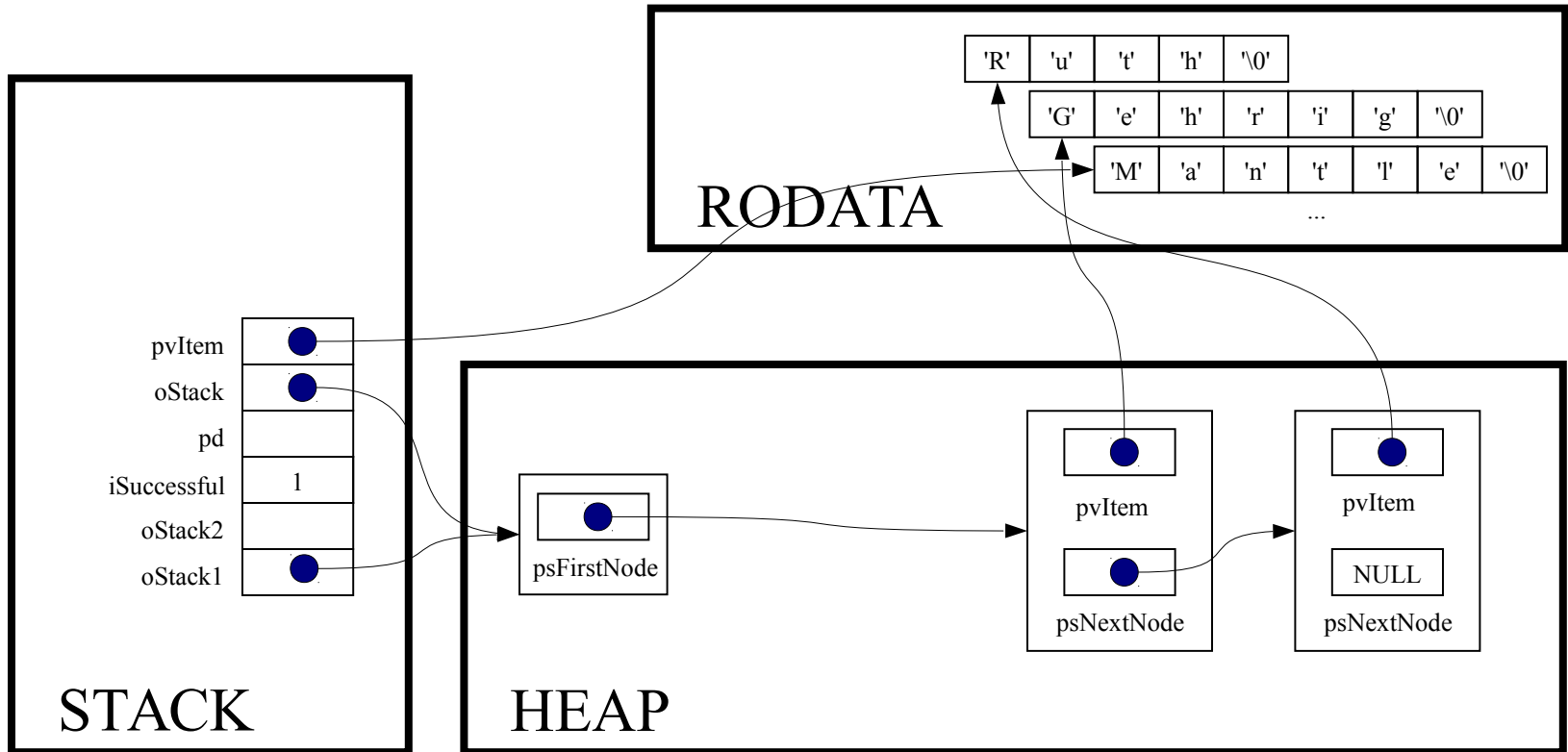
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```
iSuccessful = Stack_push(oStack1, "Mantle");
```



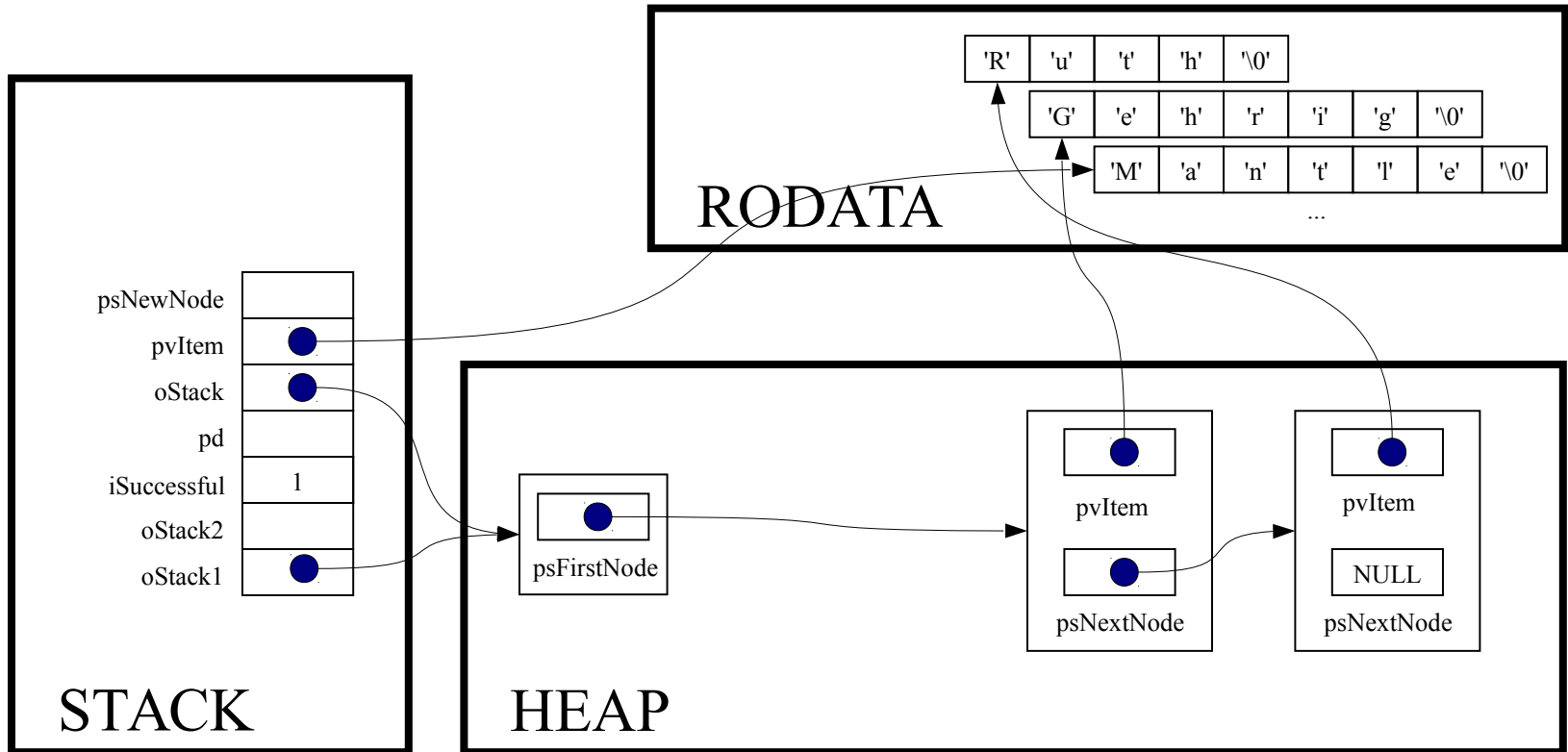
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```
int Stack_push(Stack_T oStack, const void *pvItem)
```



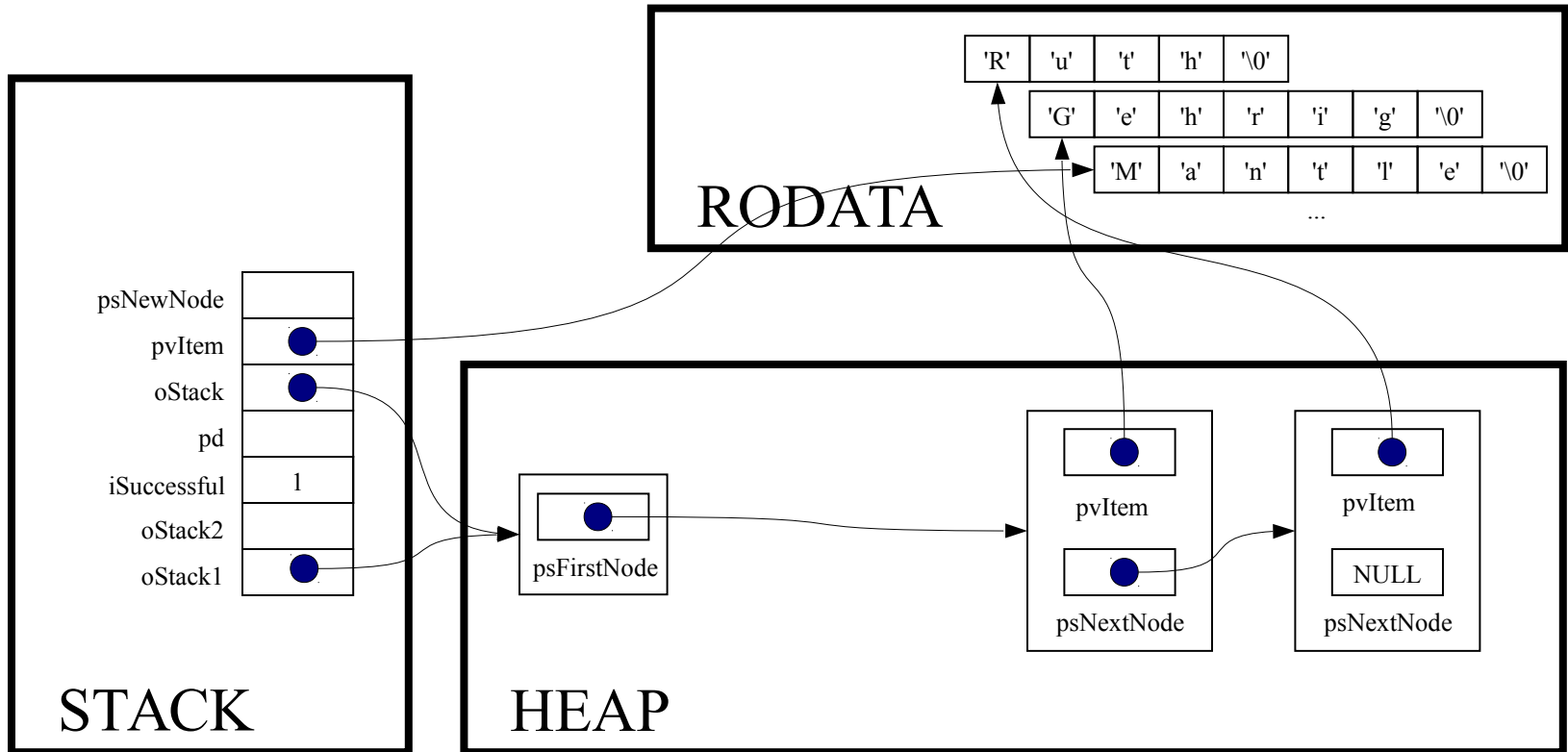
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```
struct StackNode *psNewNode;
```



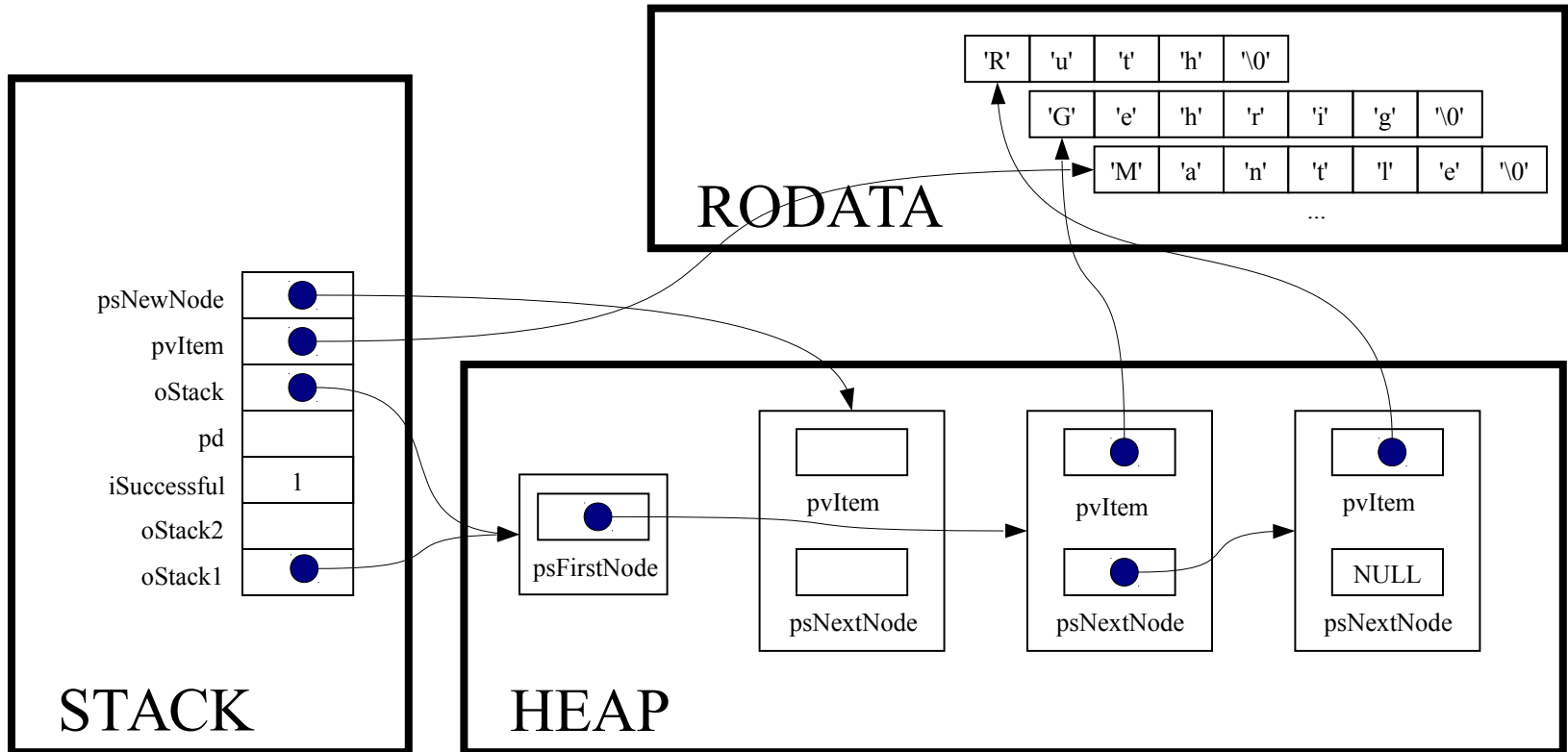
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```
assert(oStack != NULL);
```



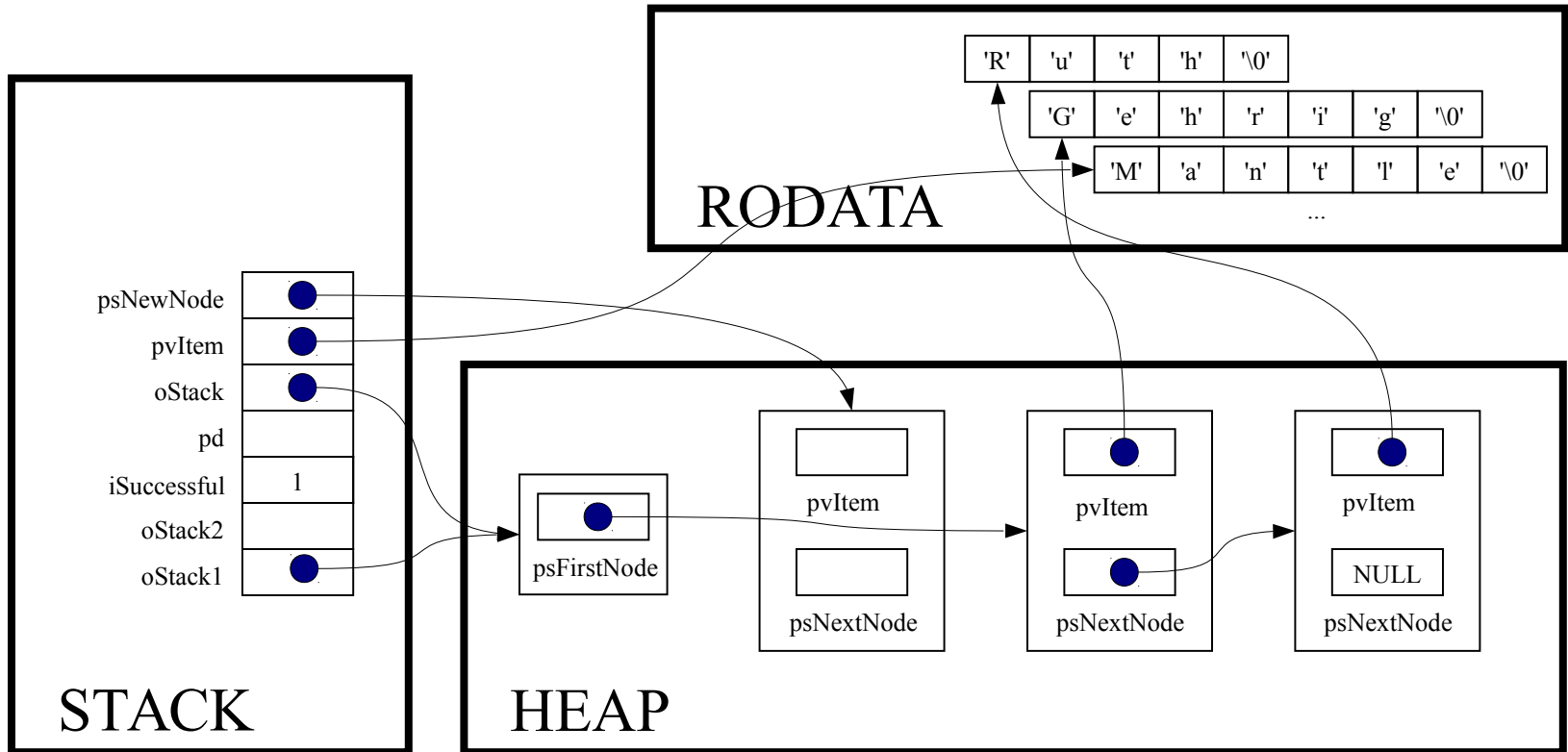
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```
psNewNode = (struct StackNode*)malloc(sizeof(struct StackNode));
```



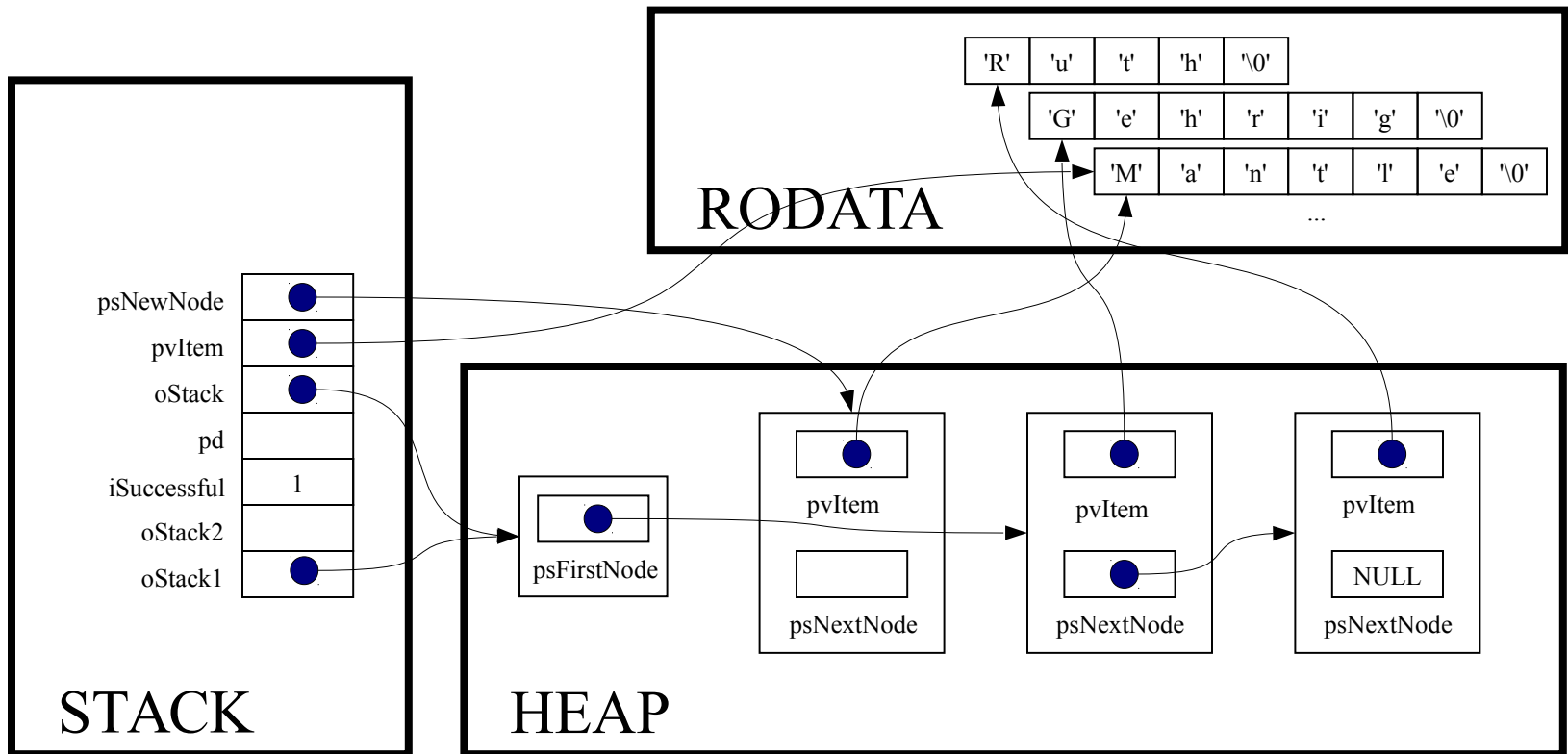
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```
if (psNewNode == NULL)  
    return 0;
```



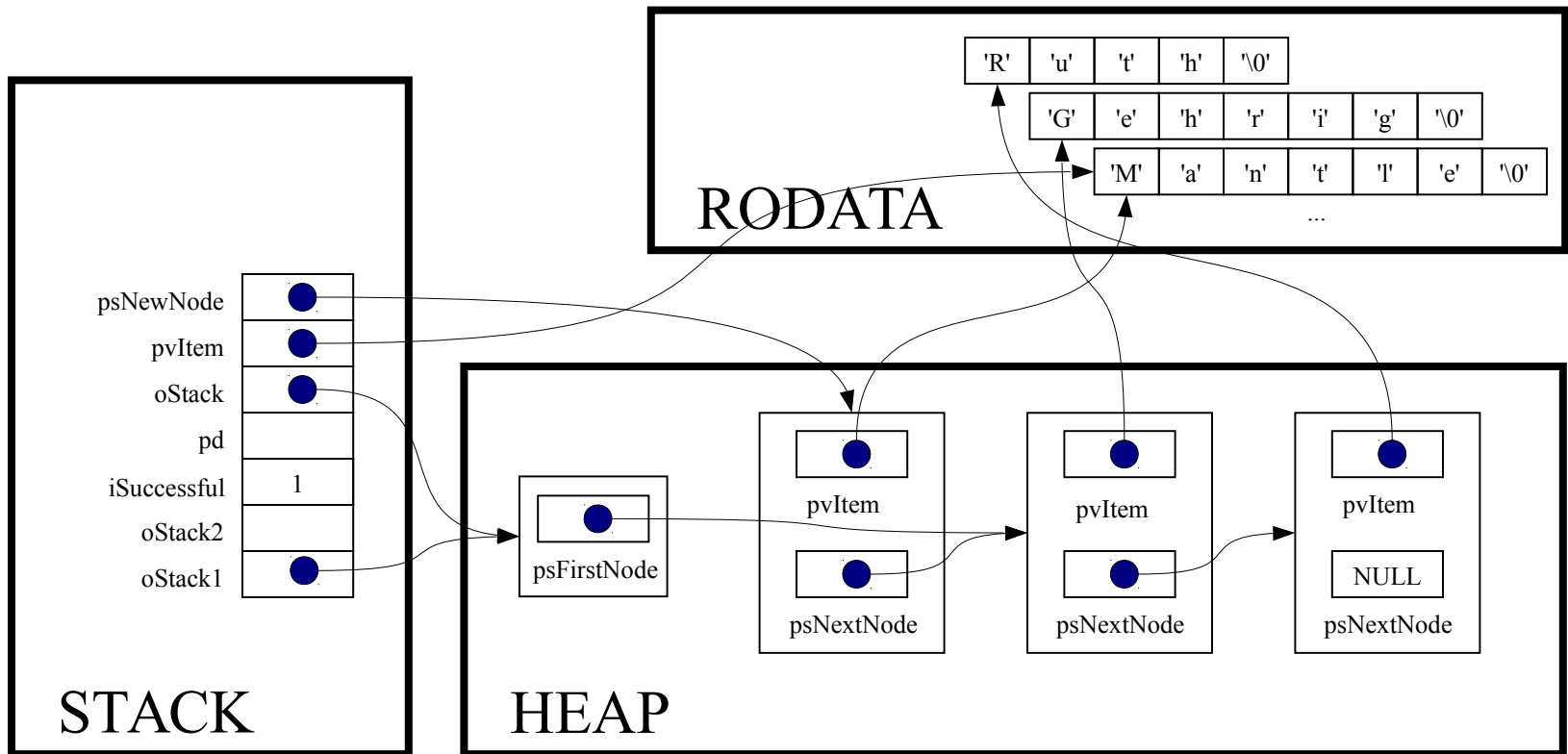
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```
psNewNode->pvItem = pvItem;
```



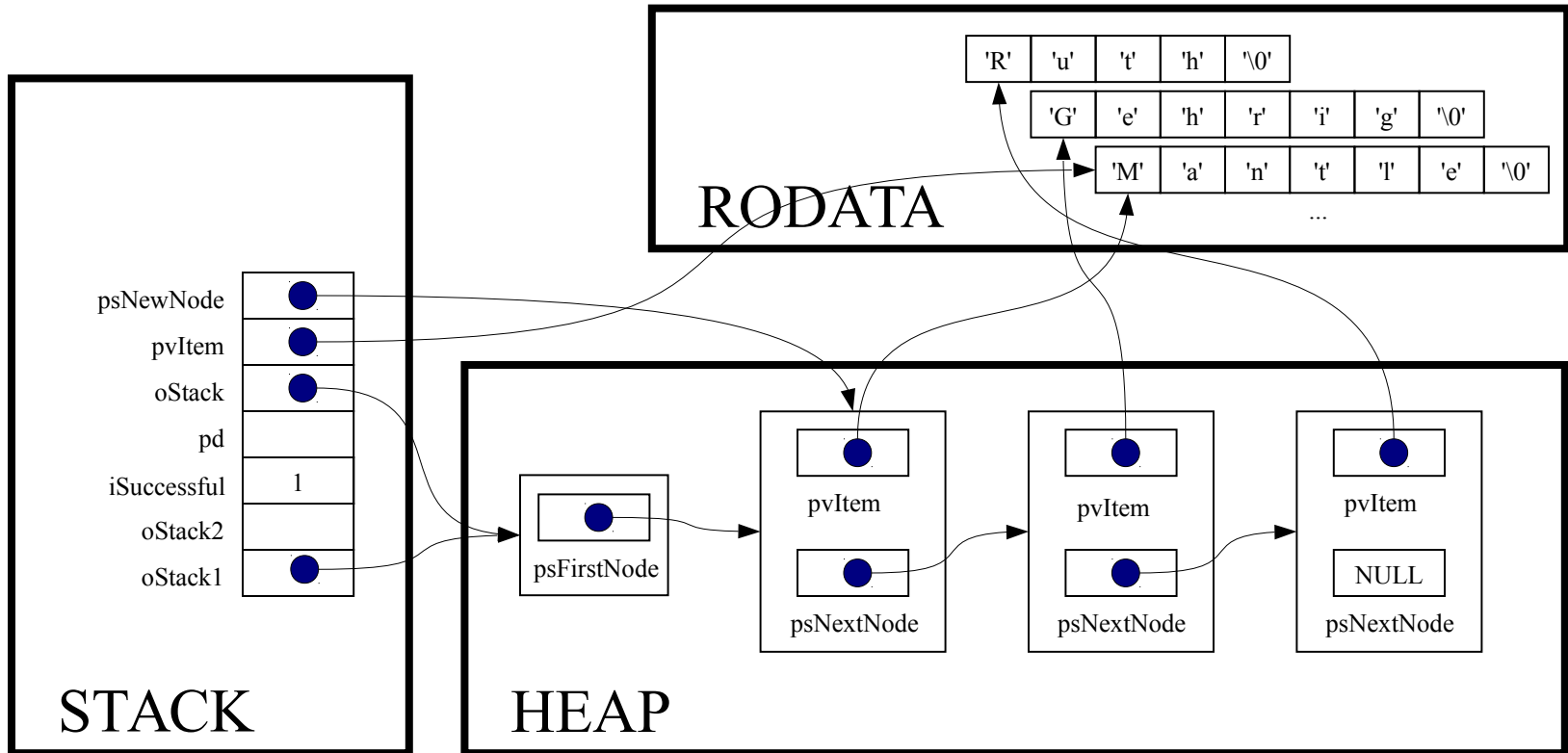
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```
psNewNode->psNextNode = oStack->psFirstNode;
```



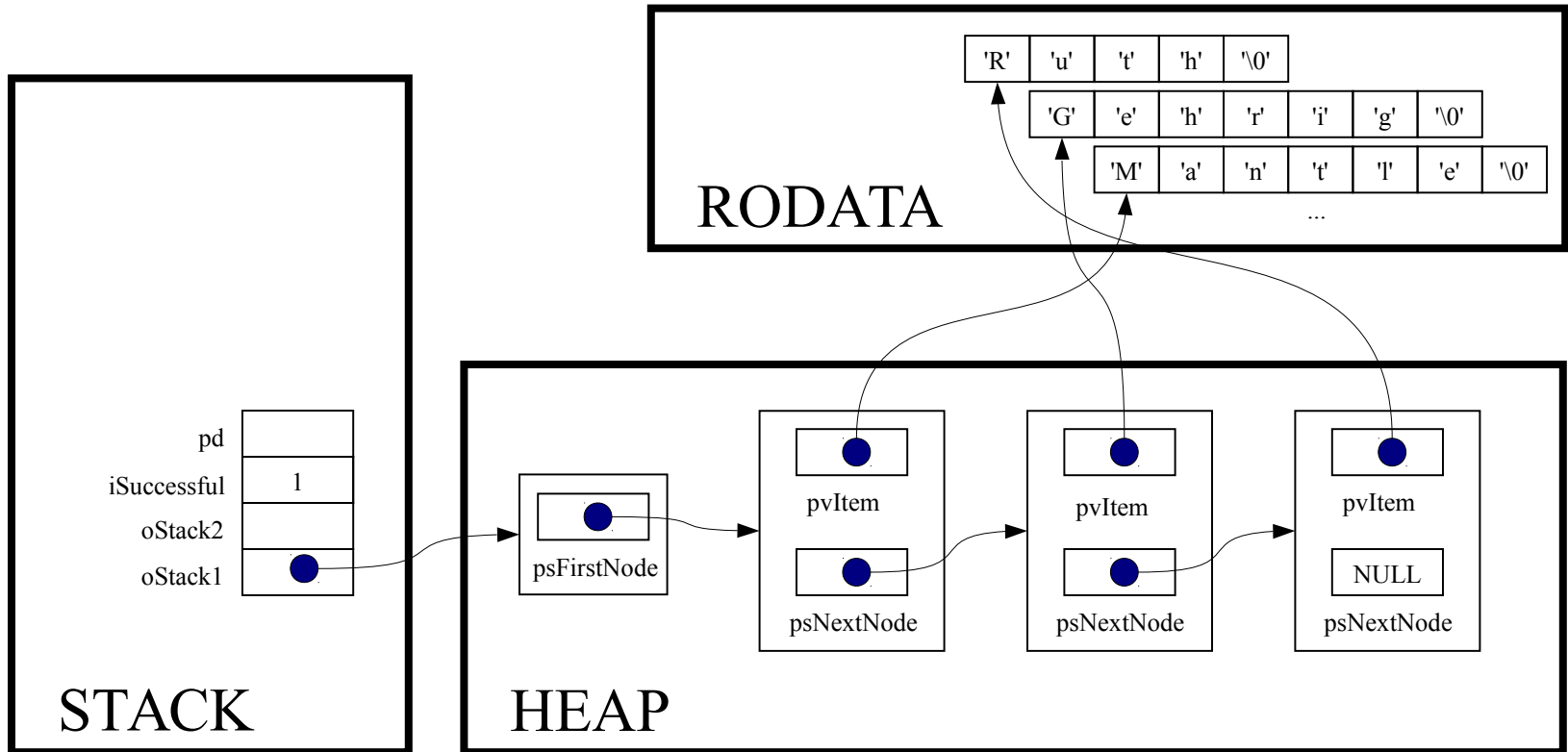
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```
oStack->psFirstNode = psNewNode;
```



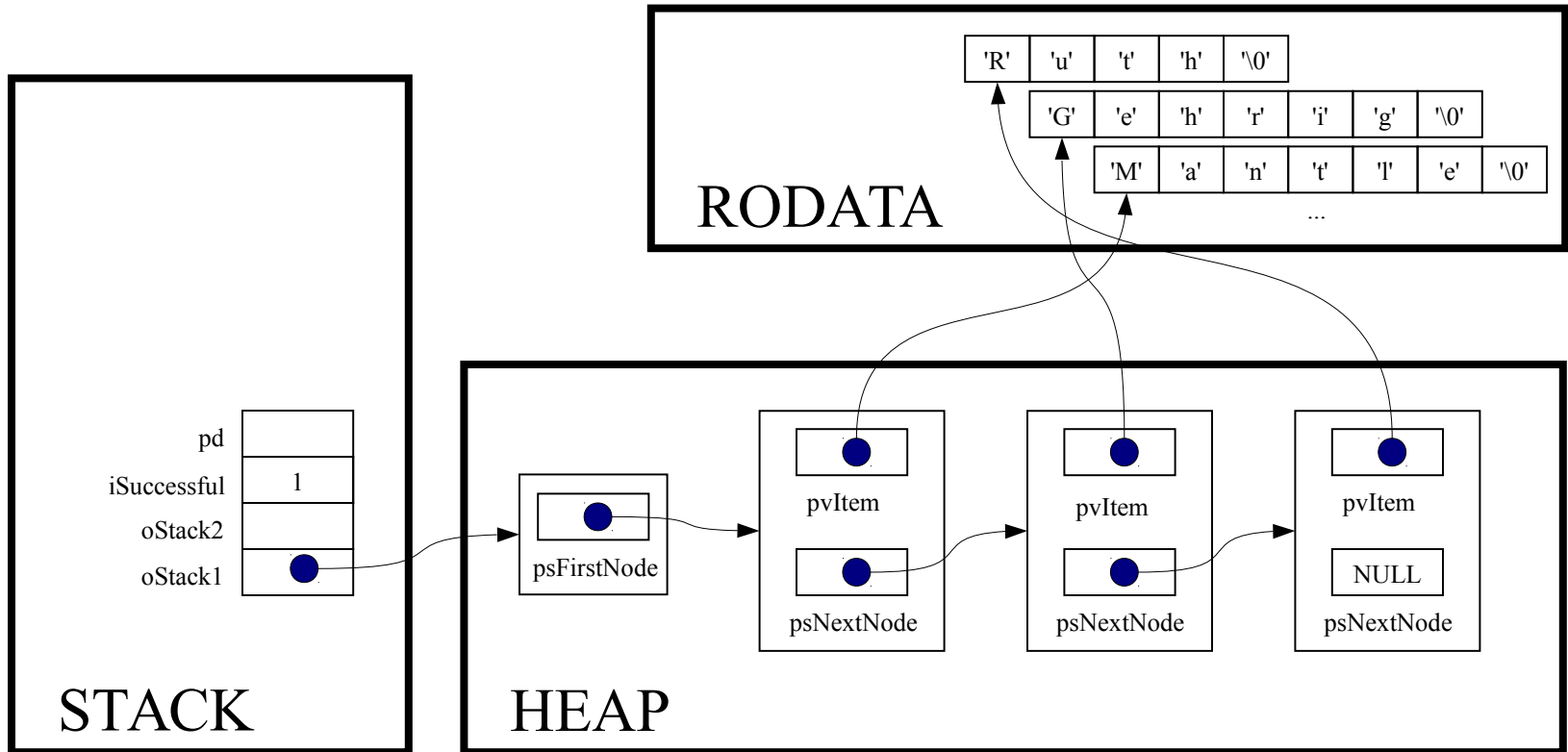
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```
return 1;
```



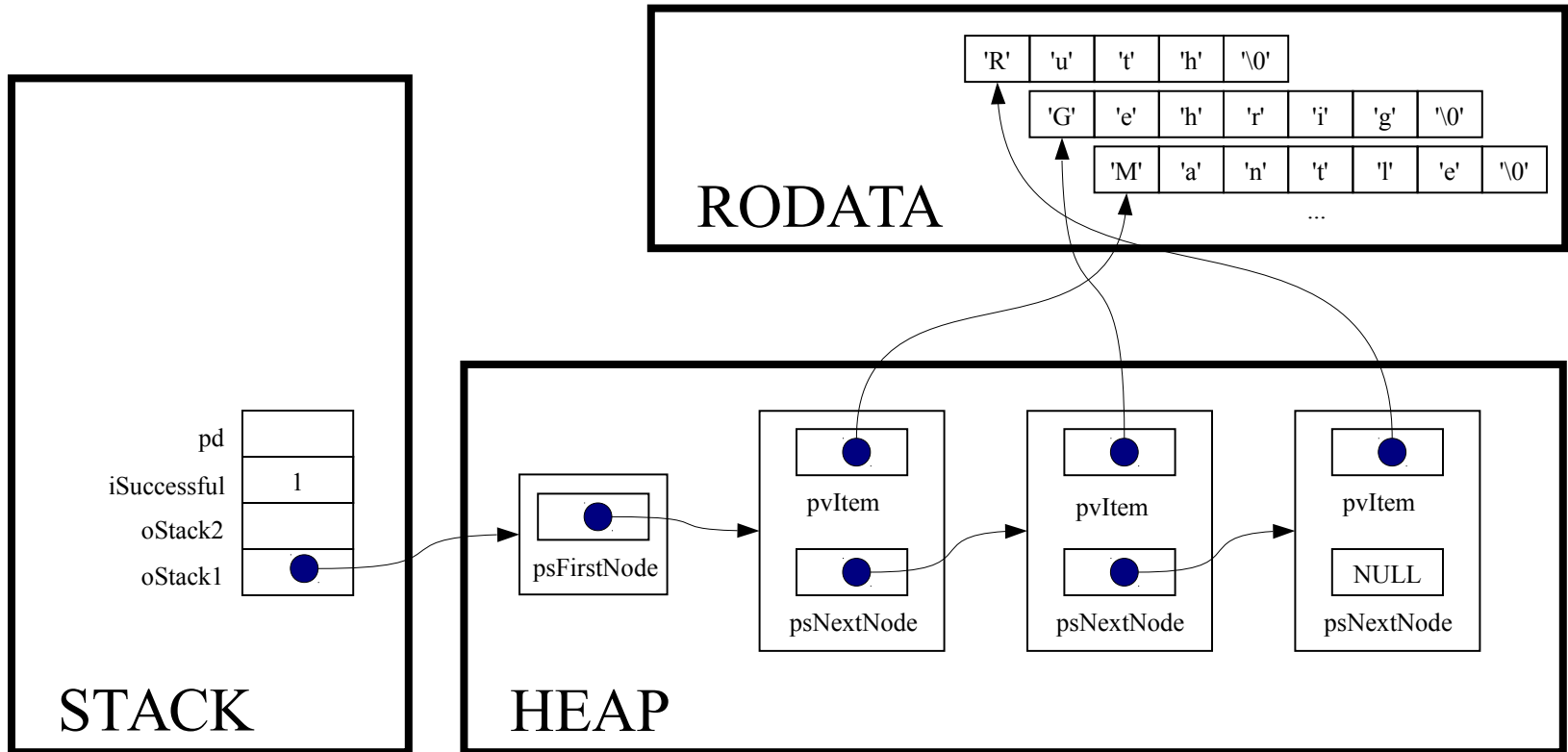
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```
iSuccessful = Stack_push(oStack1, "Mantle");
```



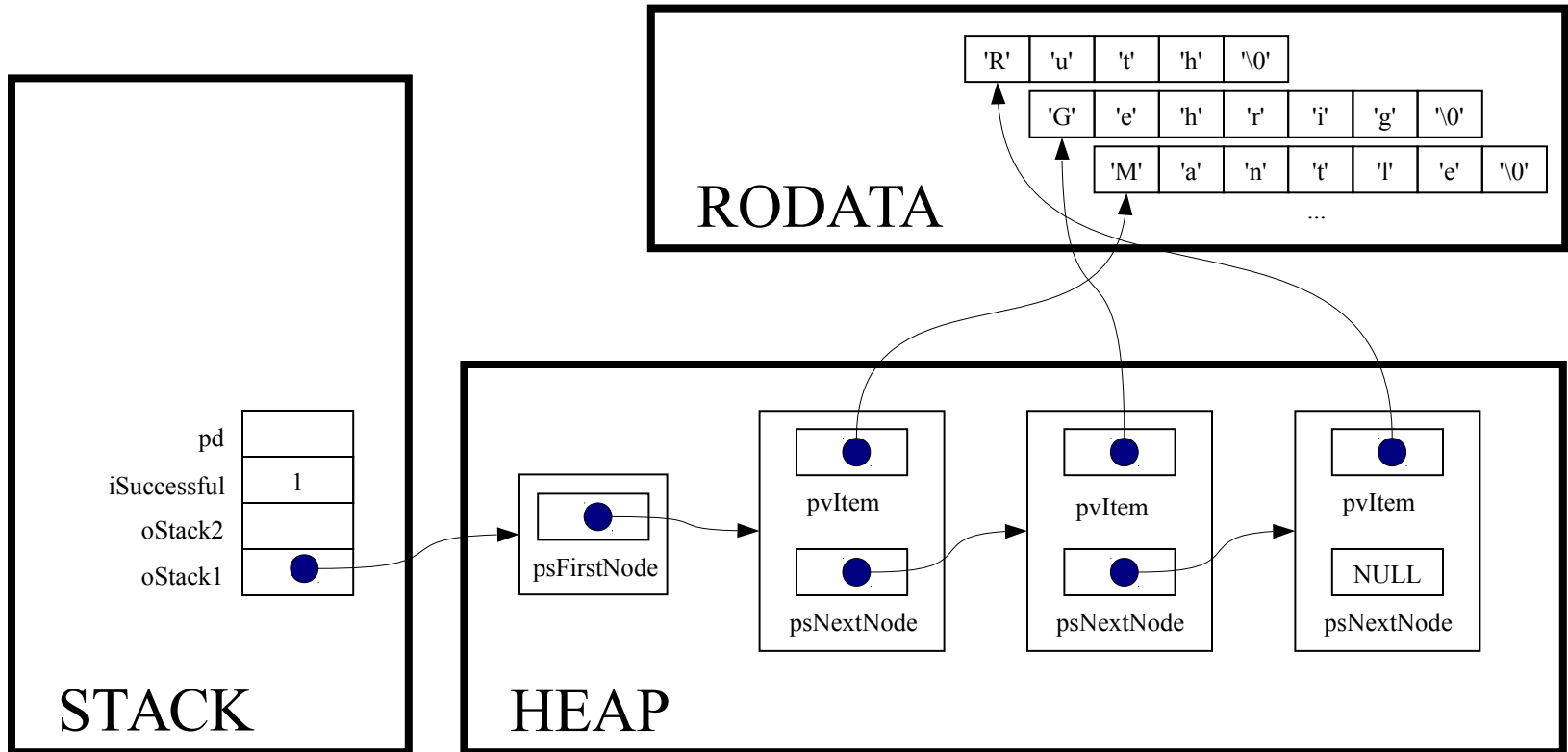
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```
if (! iSuccessful) handleMemoryError();
```



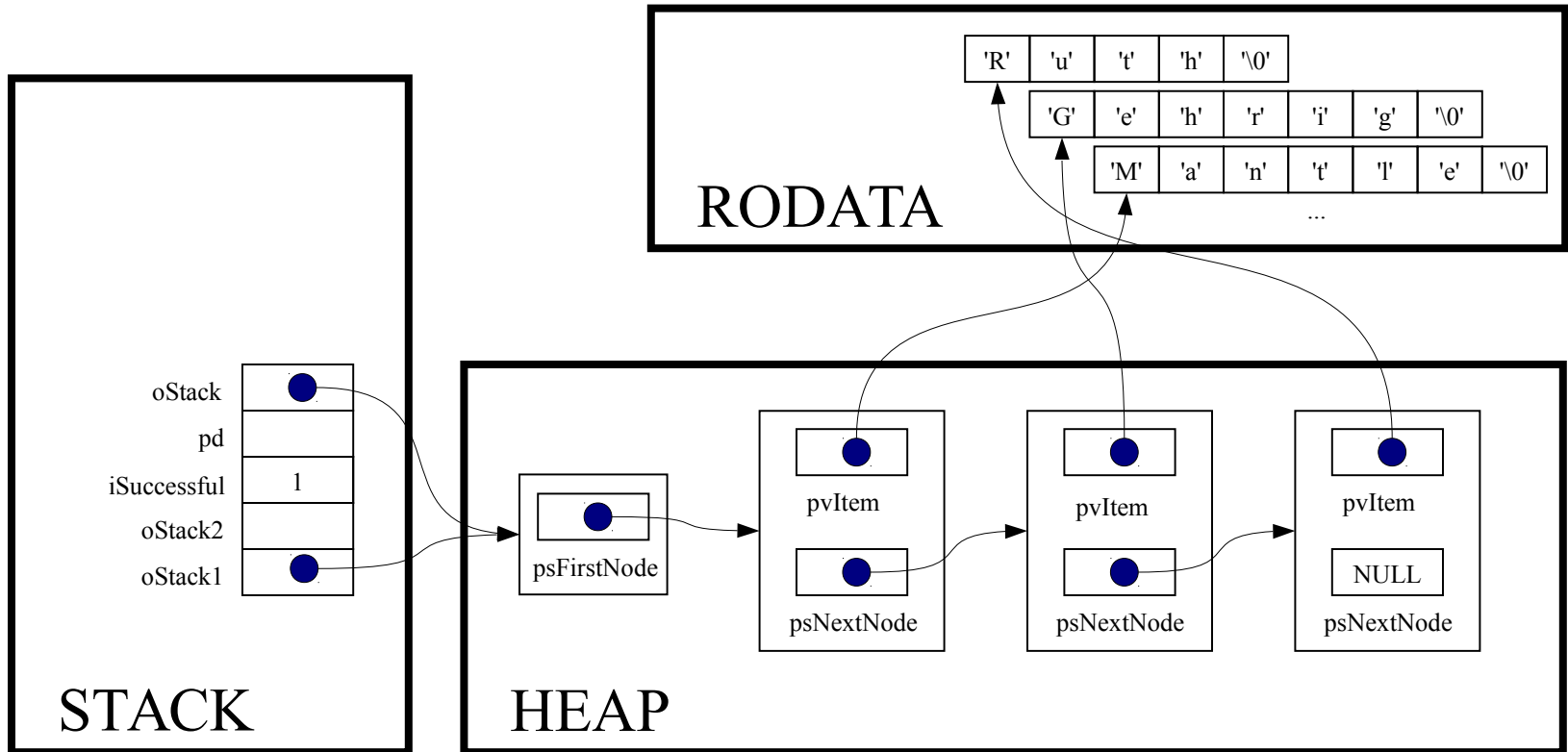
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```
while (! Stack_isEmpty(oStack1))
```



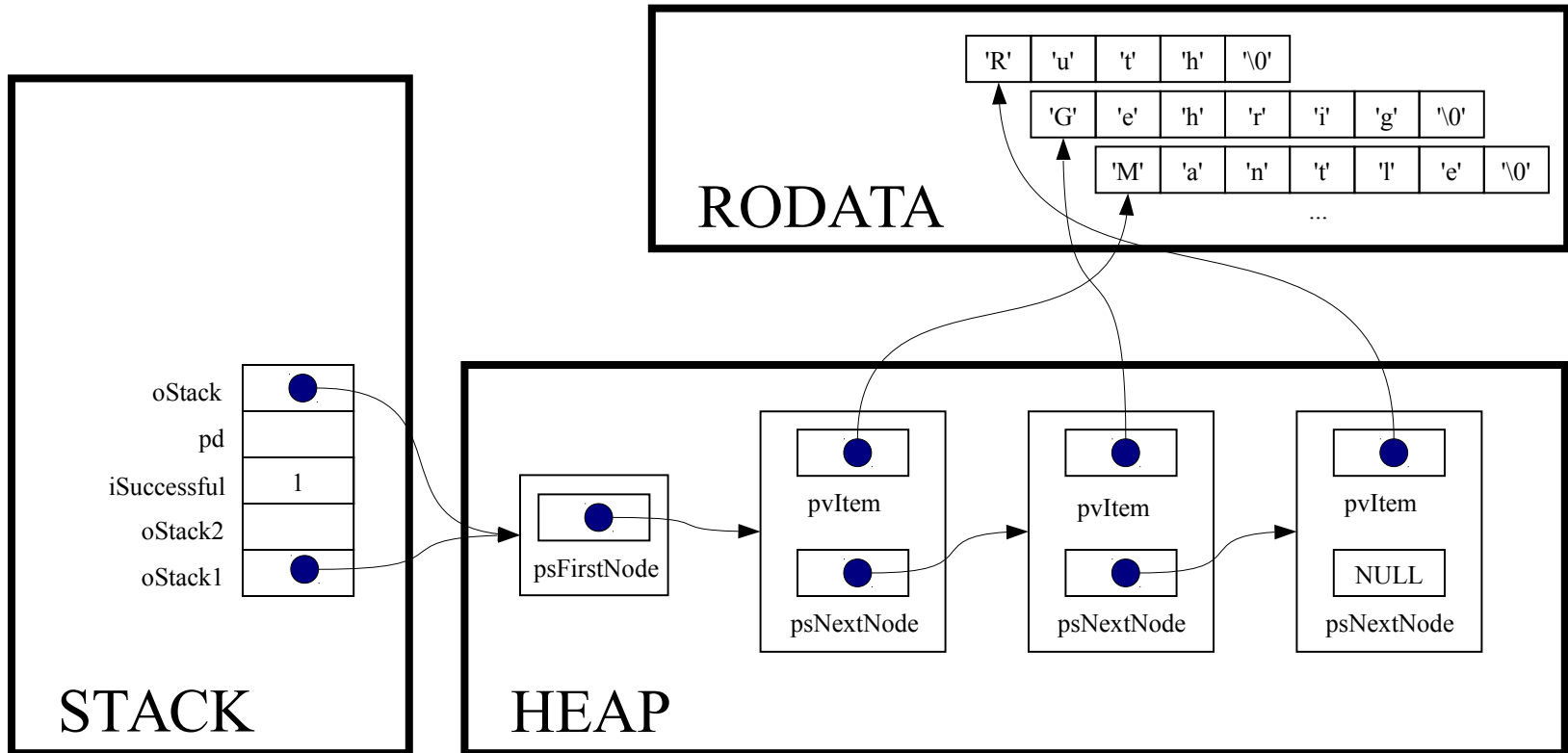
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```
int Stack_isEmpty(Stack_T oStack)
```



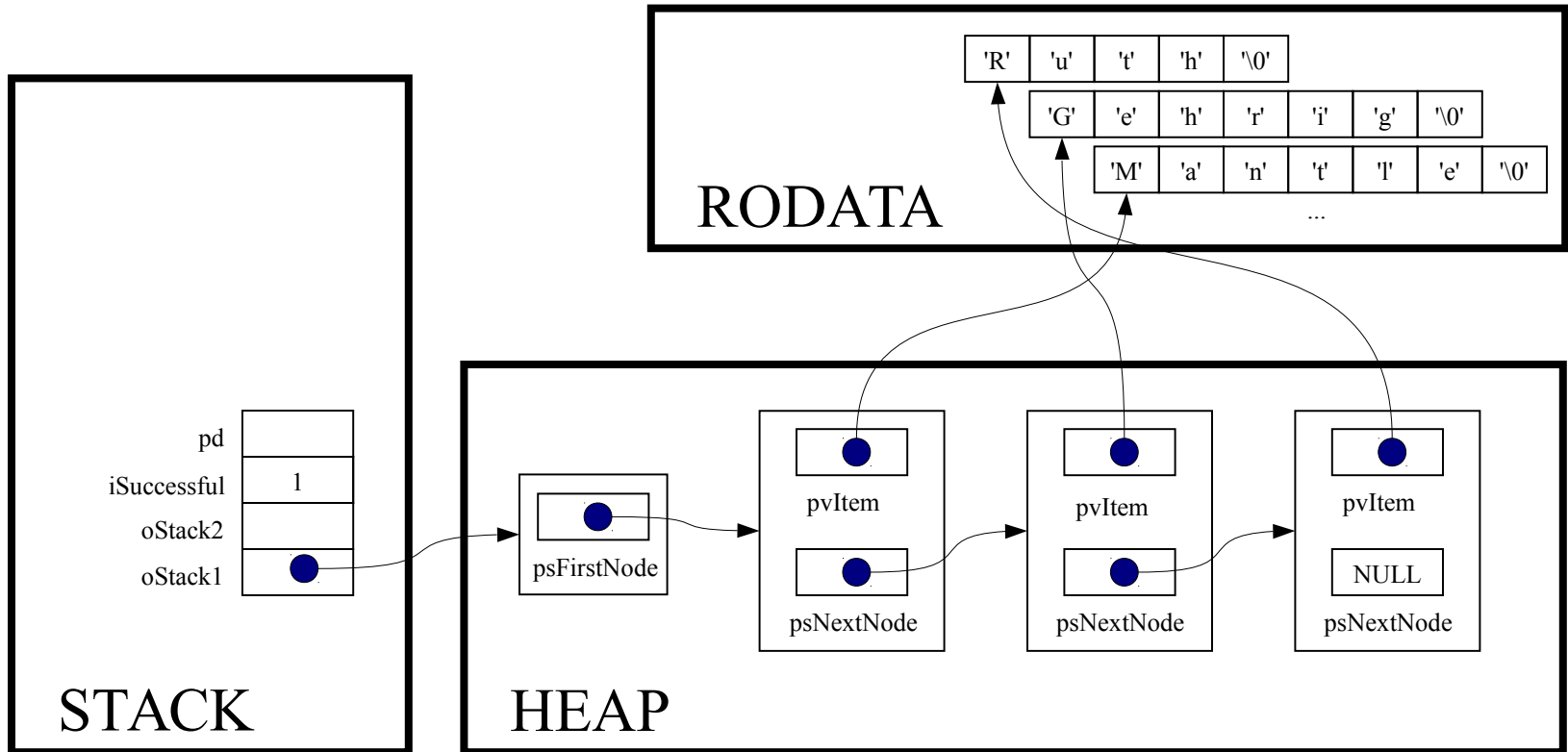
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```
assert(oStack != NULL);
```



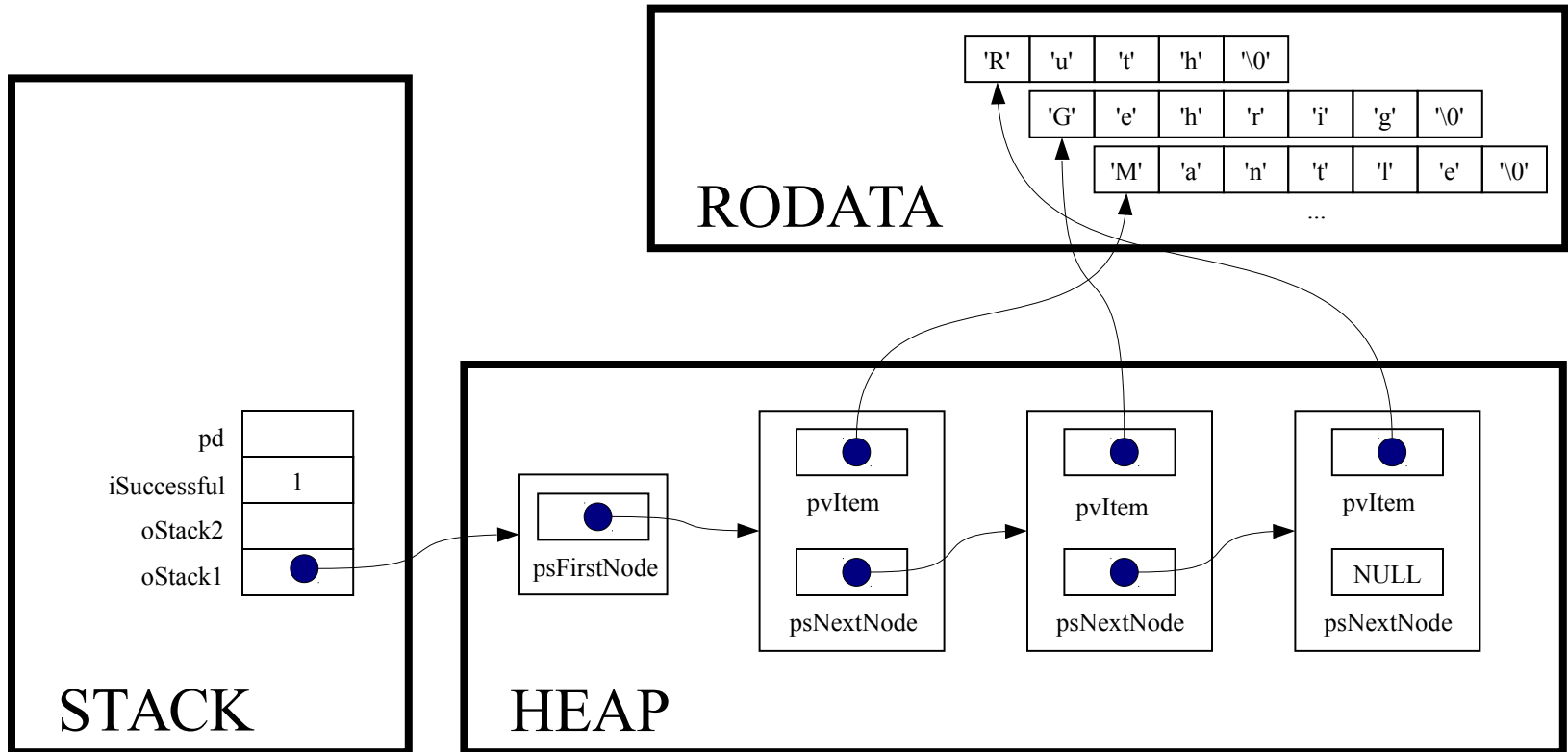
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```
return oStack->psFirstNode == NULL;
```



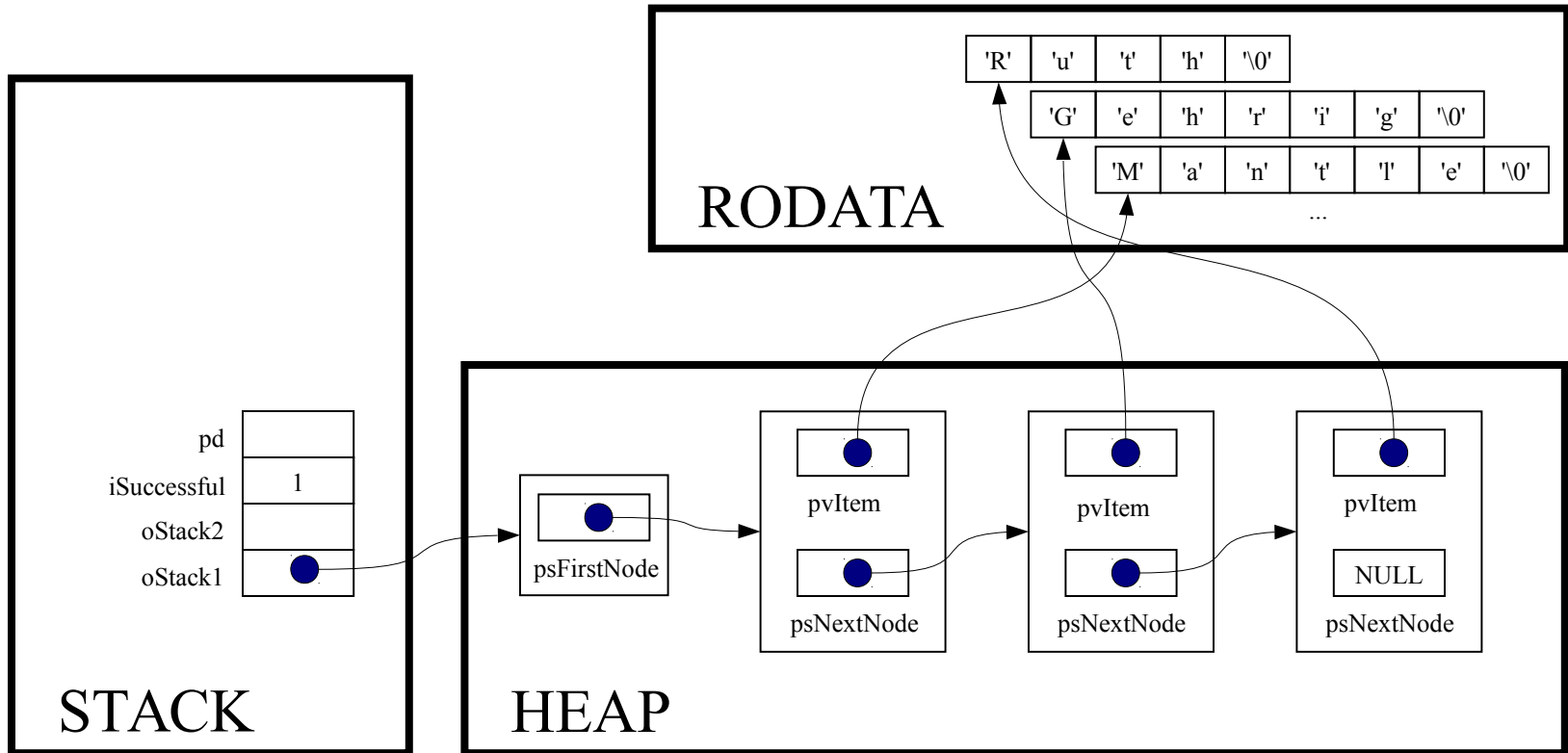
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Trace of teststack (Version 5)

```
while (! Stack_isEmpty(oStack1))
```



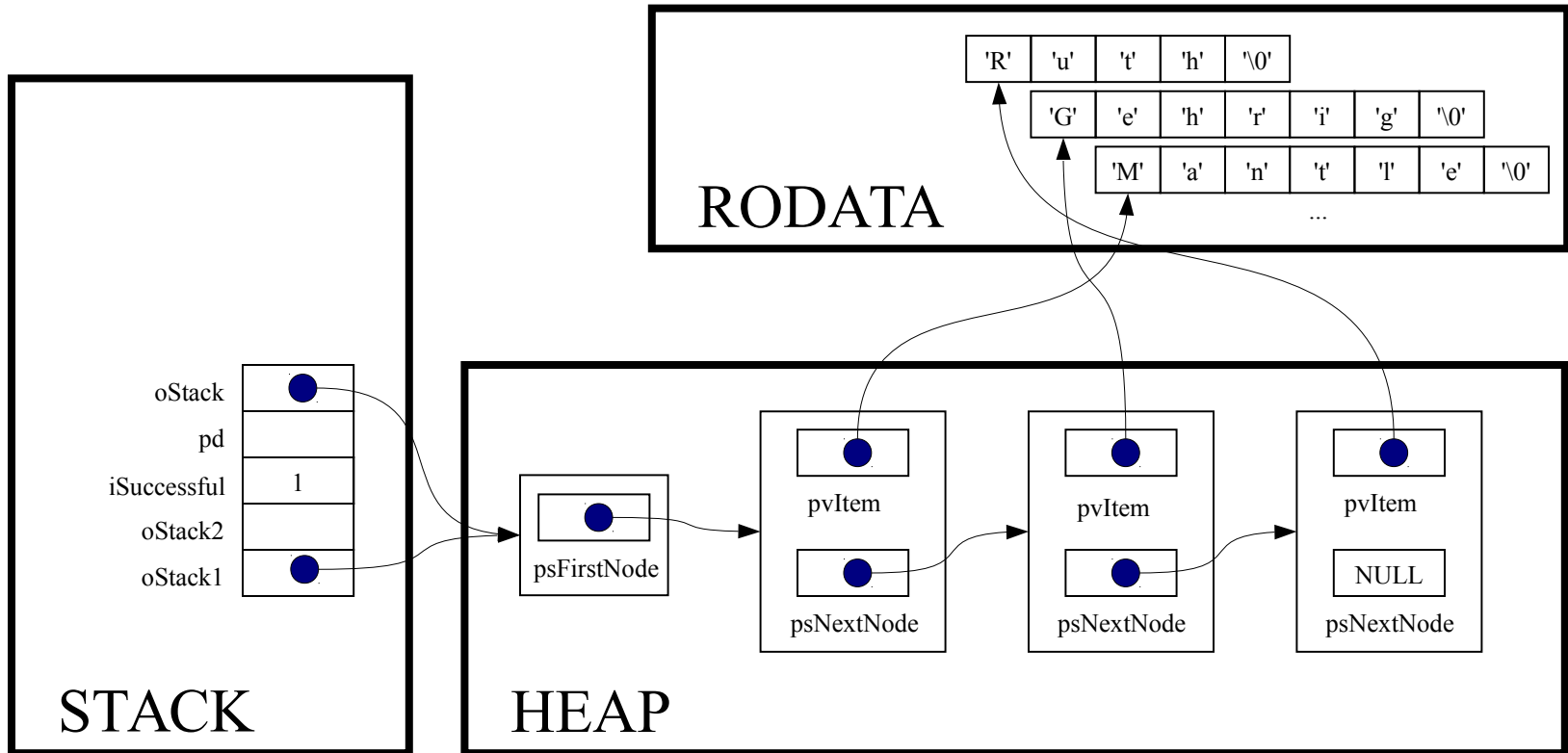
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```
printf("%s\n", (char*) Stack_pop(oStack1));
```



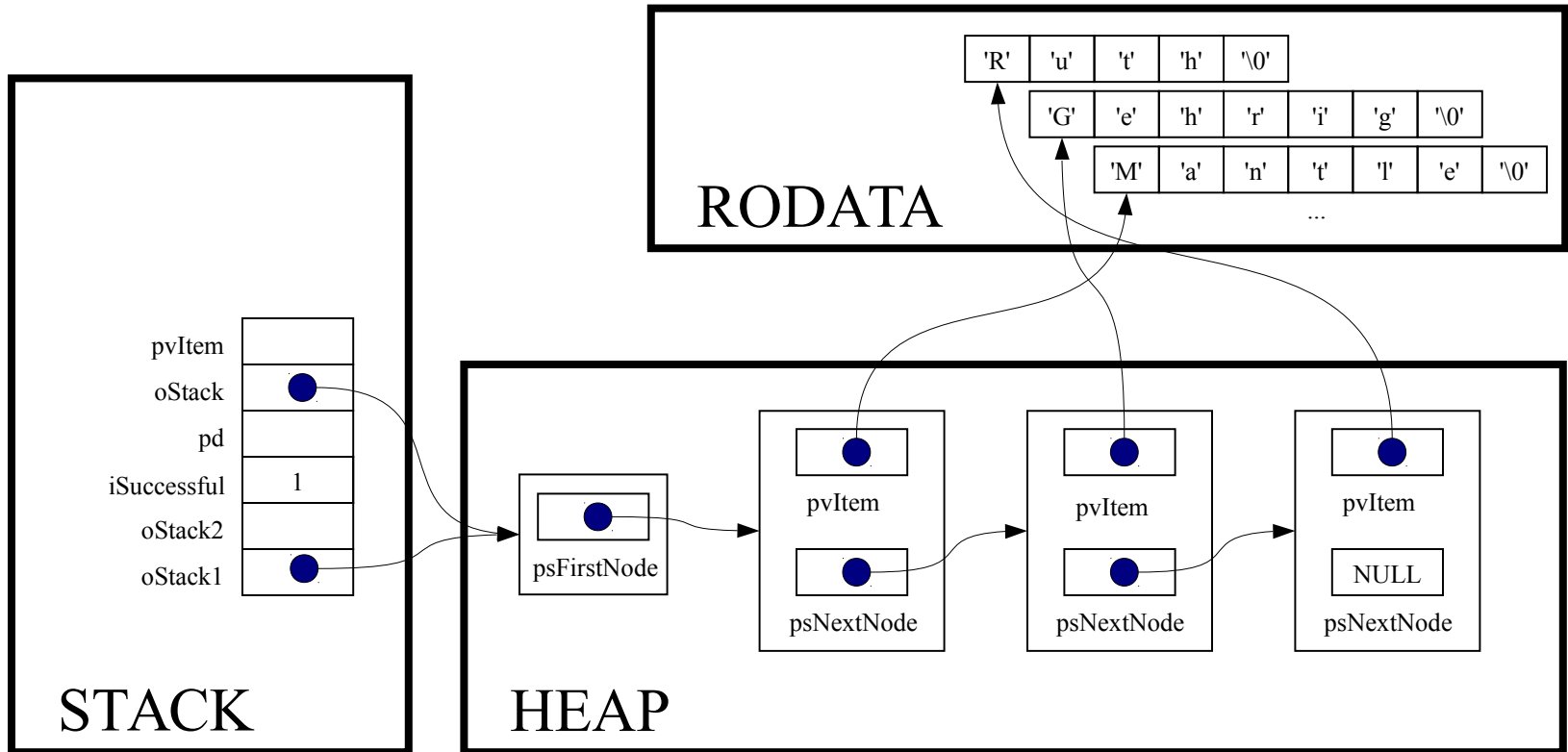
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```
void *Stack_pop(Stack_T oStack)
```



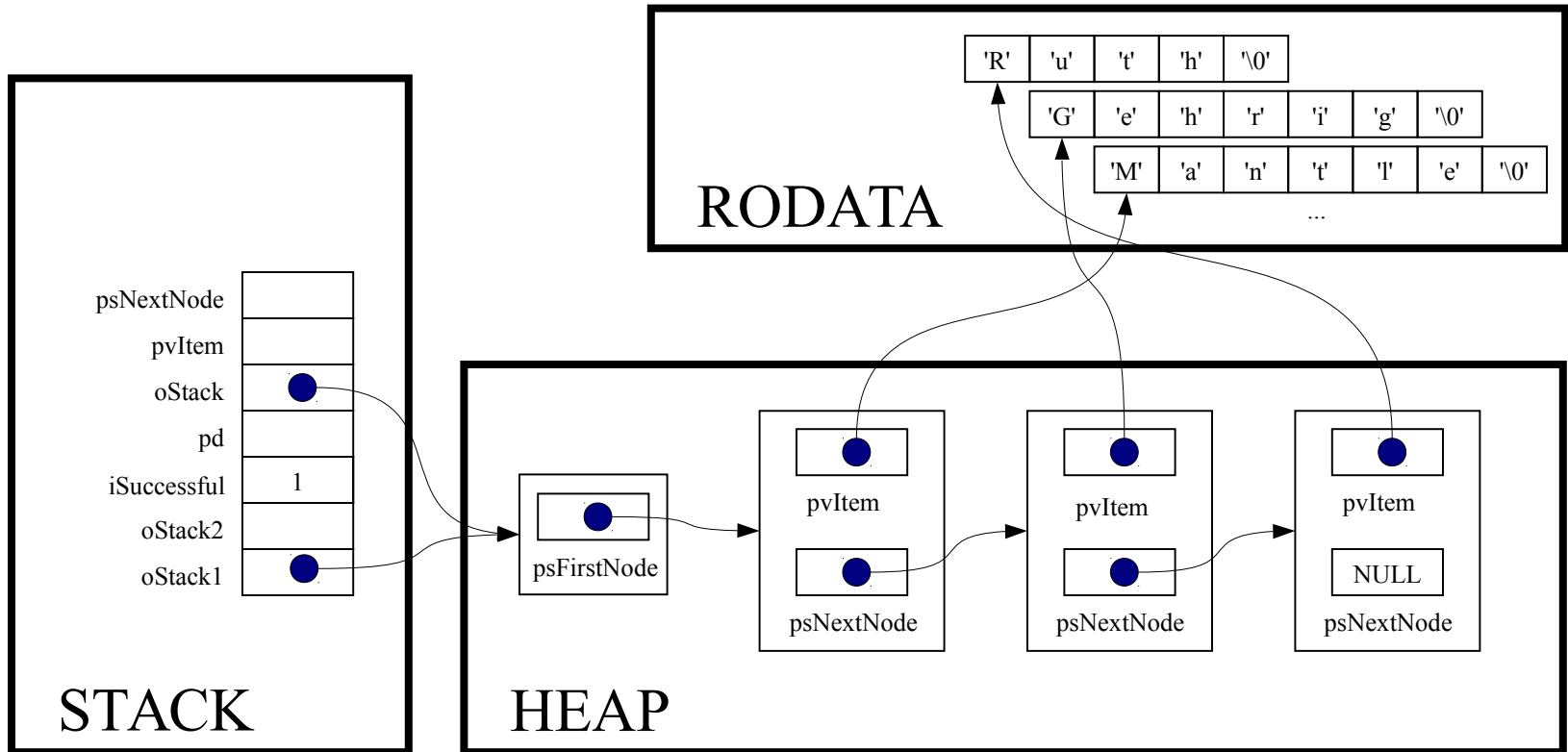
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```
const void *pvItem;
```



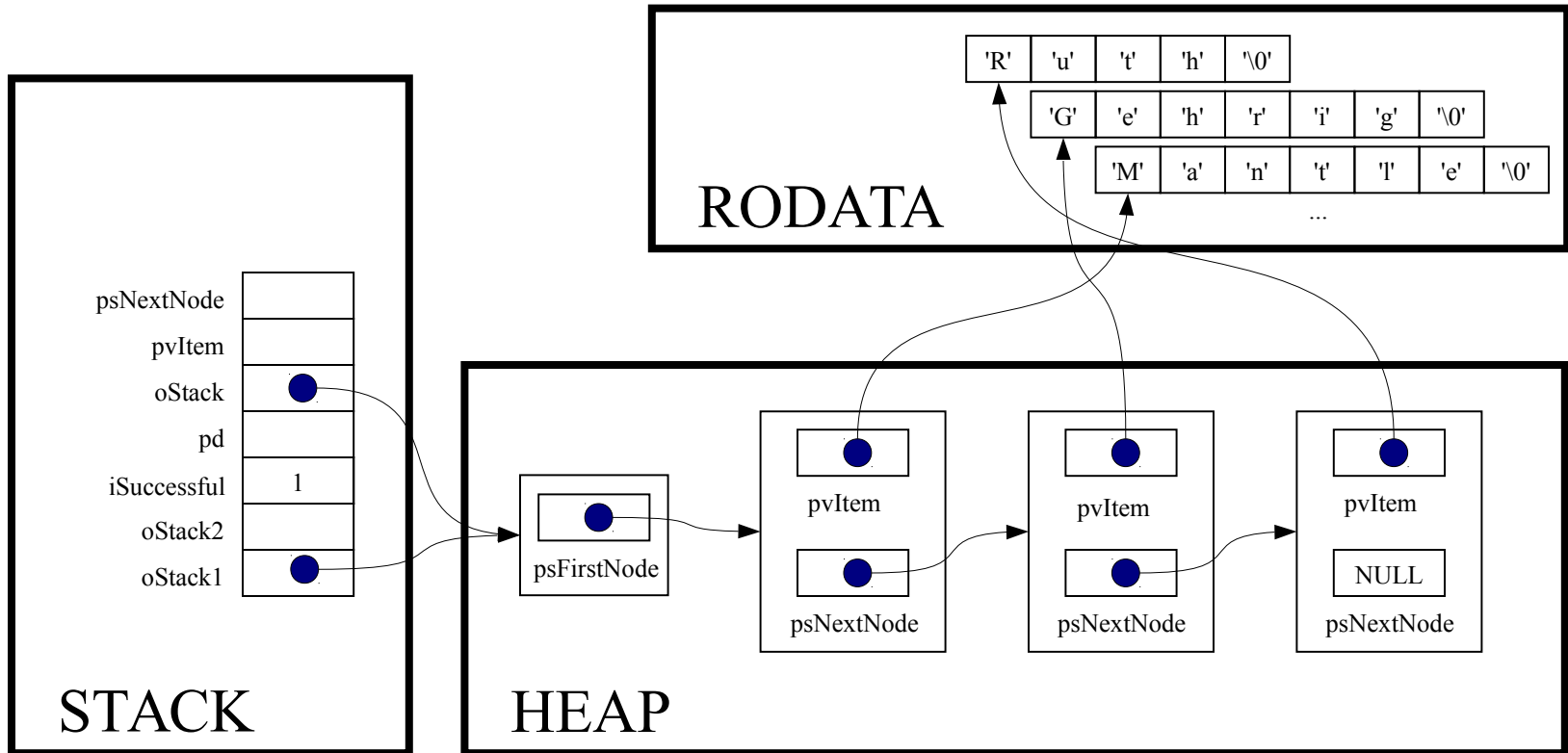
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Trace of teststack (Version 5)

```
struct StackNode *psNextNode;
```



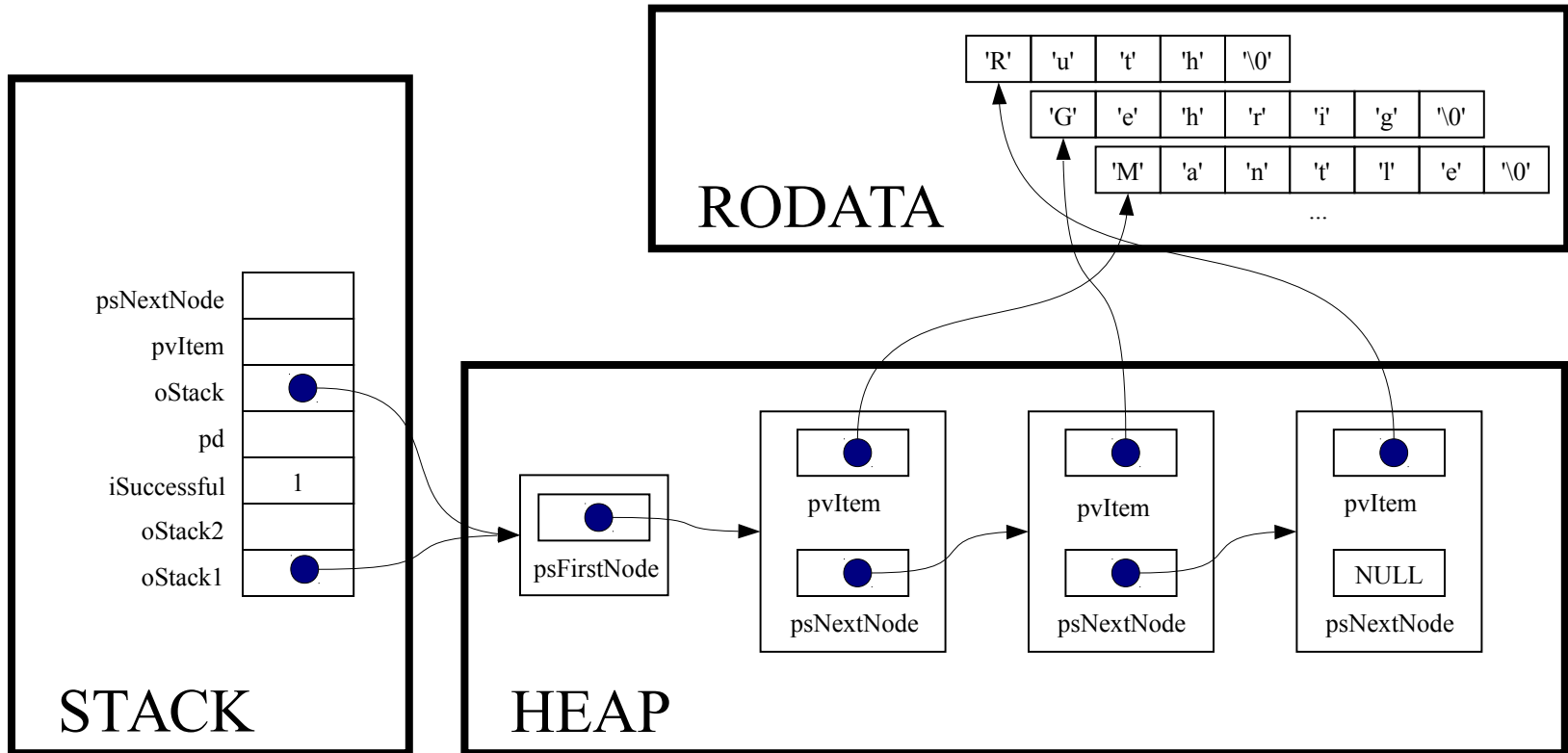
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```
assert(oStack != NULL);
```



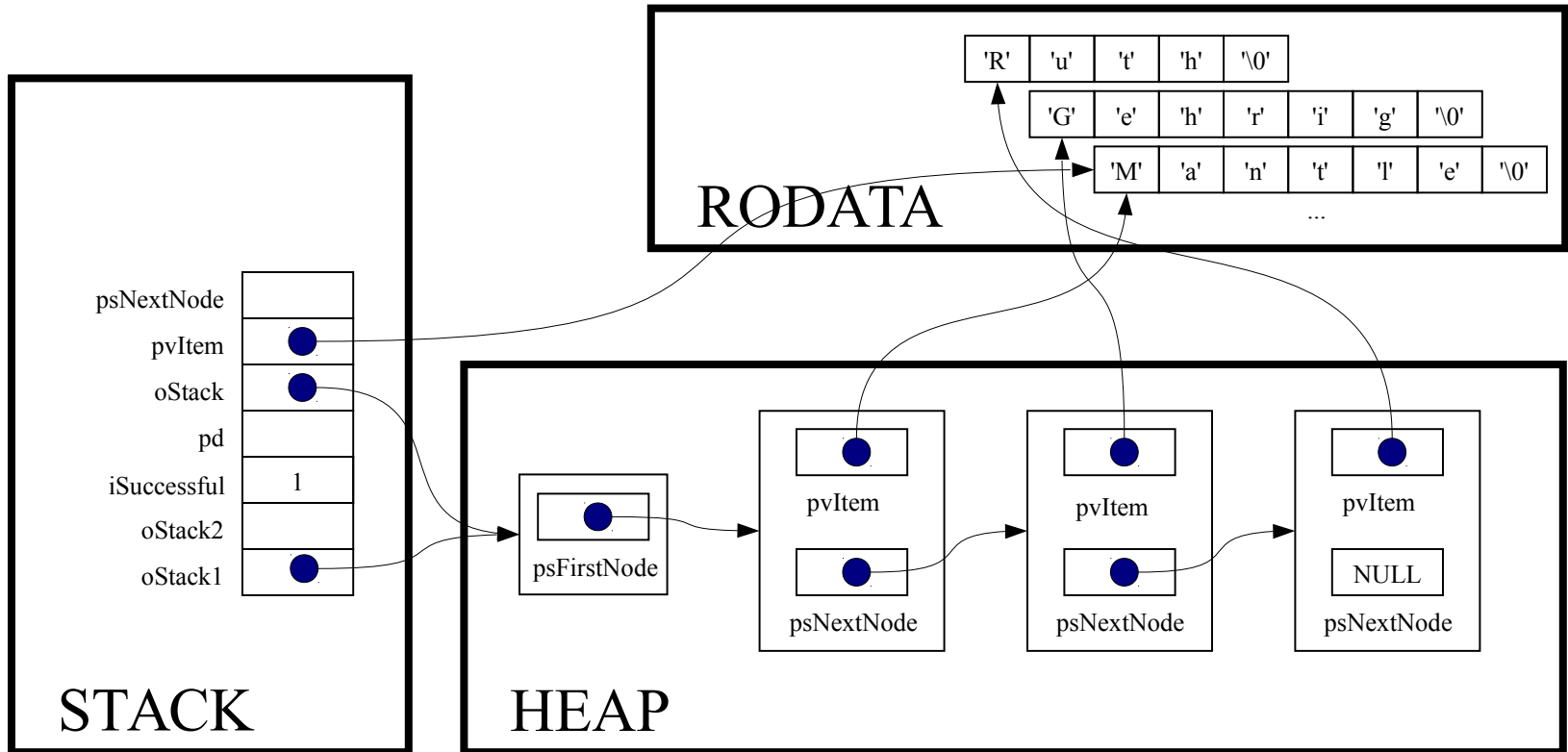
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```
assert(oStack->psFirstNode != NULL);
```



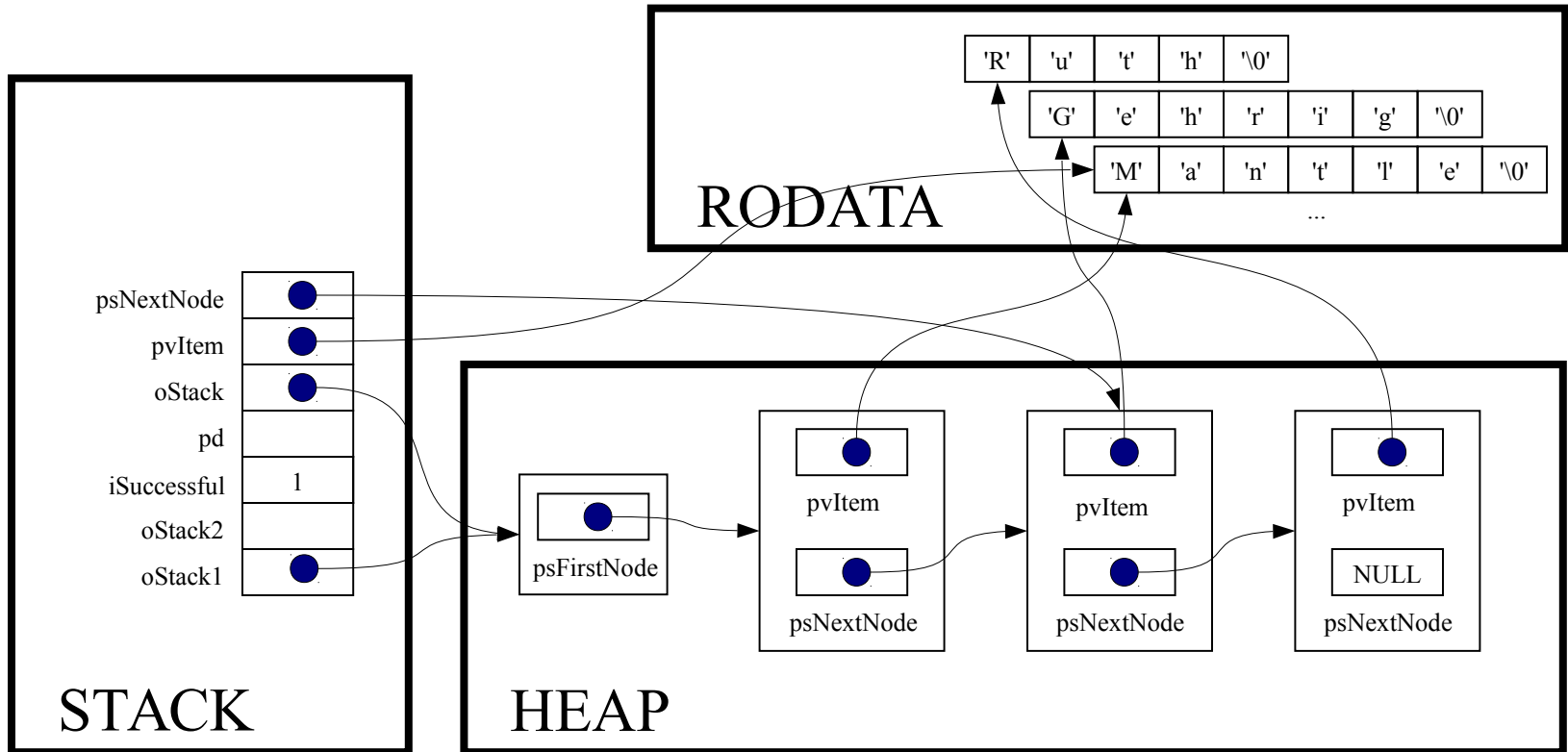
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Trace of teststack (Version 5)

```
pvItem = oStack->psFirstNode->pvItem;
```



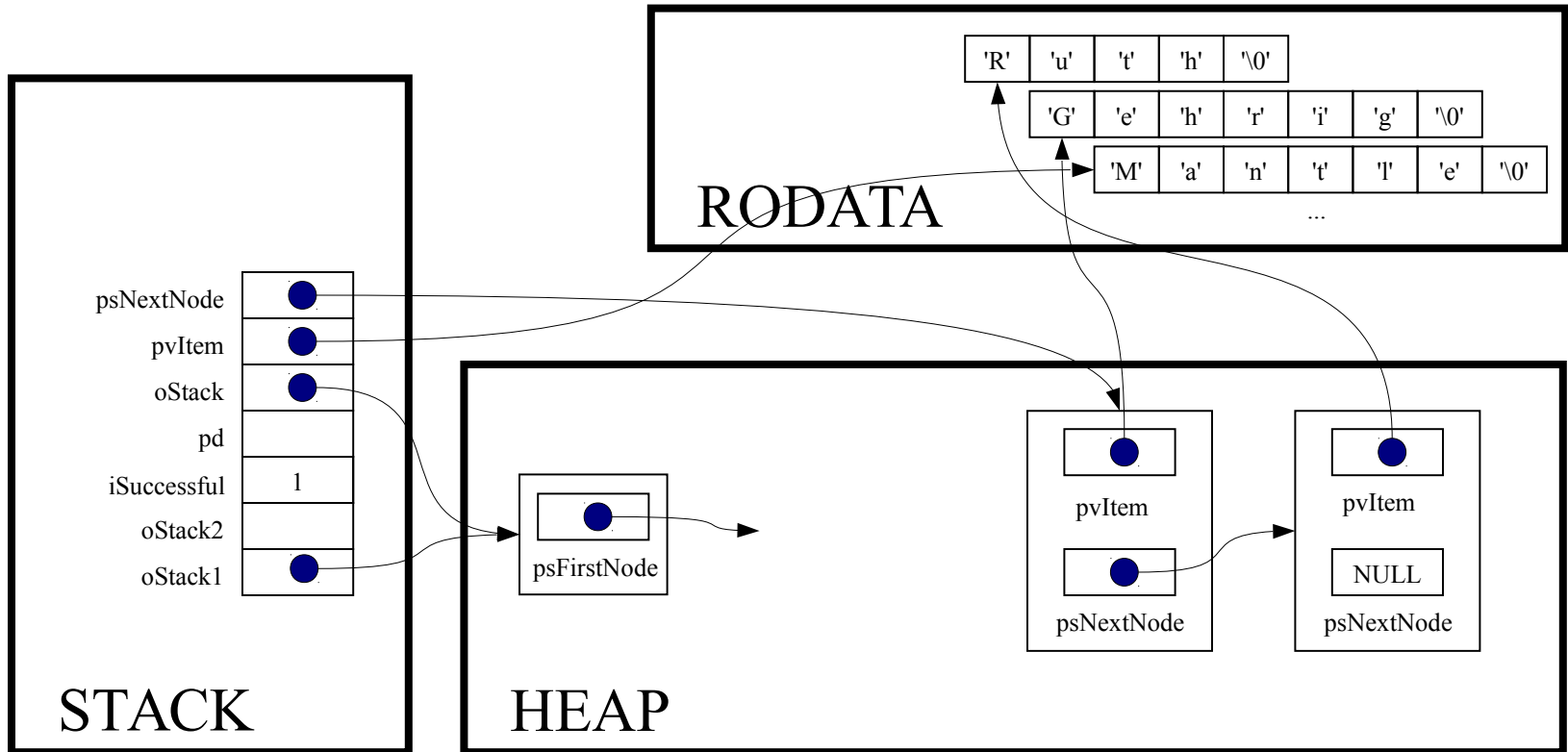
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```
psNextNode = oStack->psFirstNode->psNextNode;
```



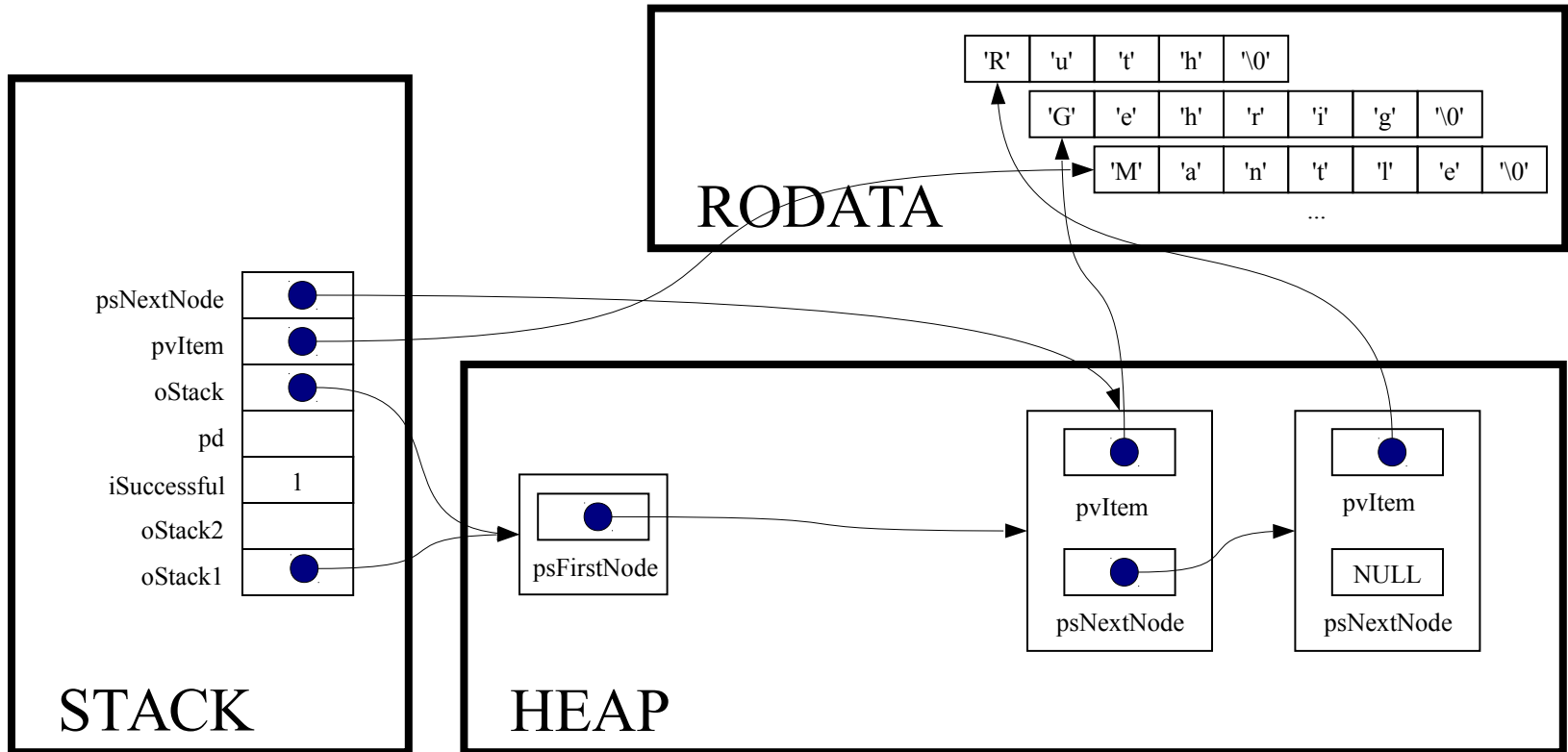
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```
free(oStack->psFirstNode);
```



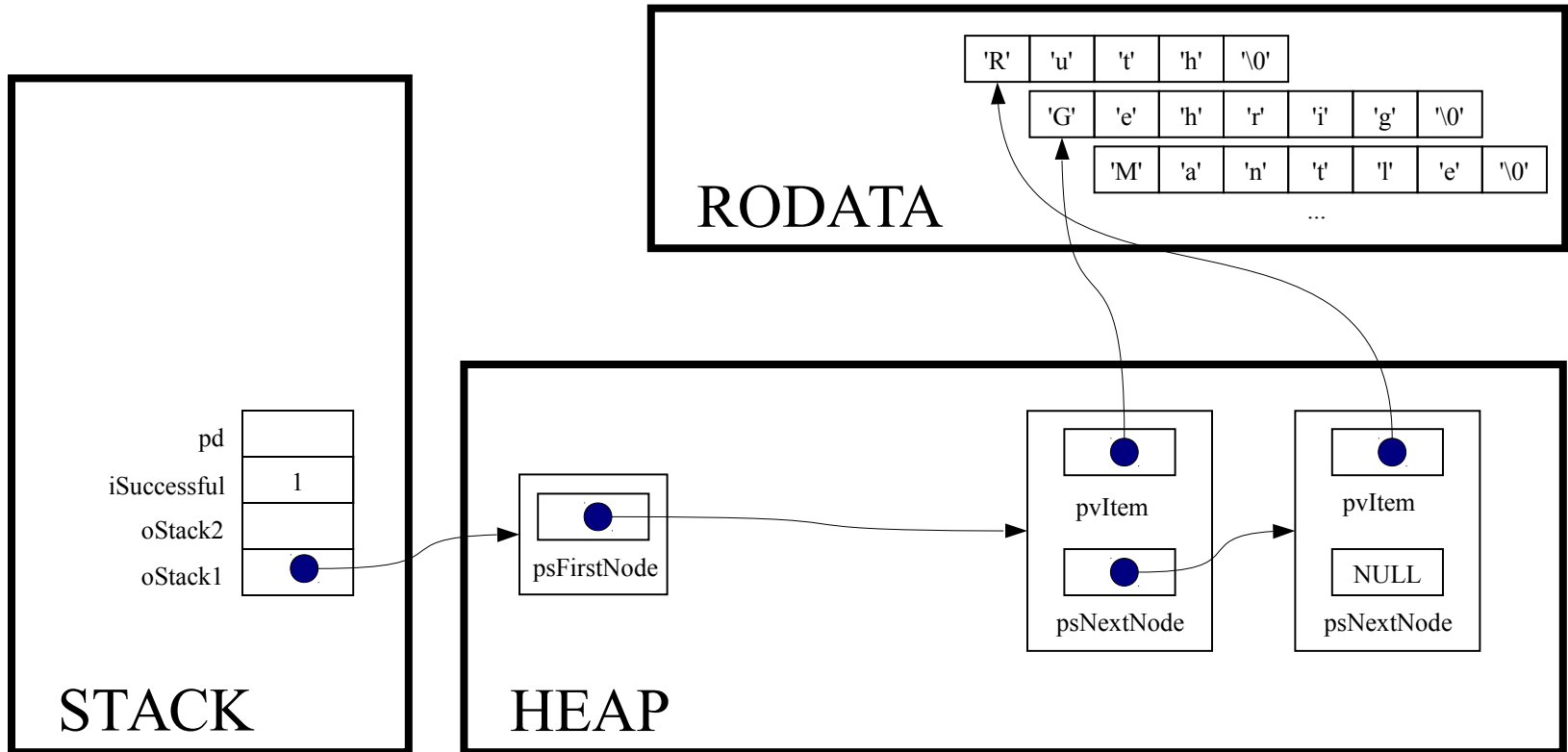
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```
oStack->psFirstNode = psNextNode;
```



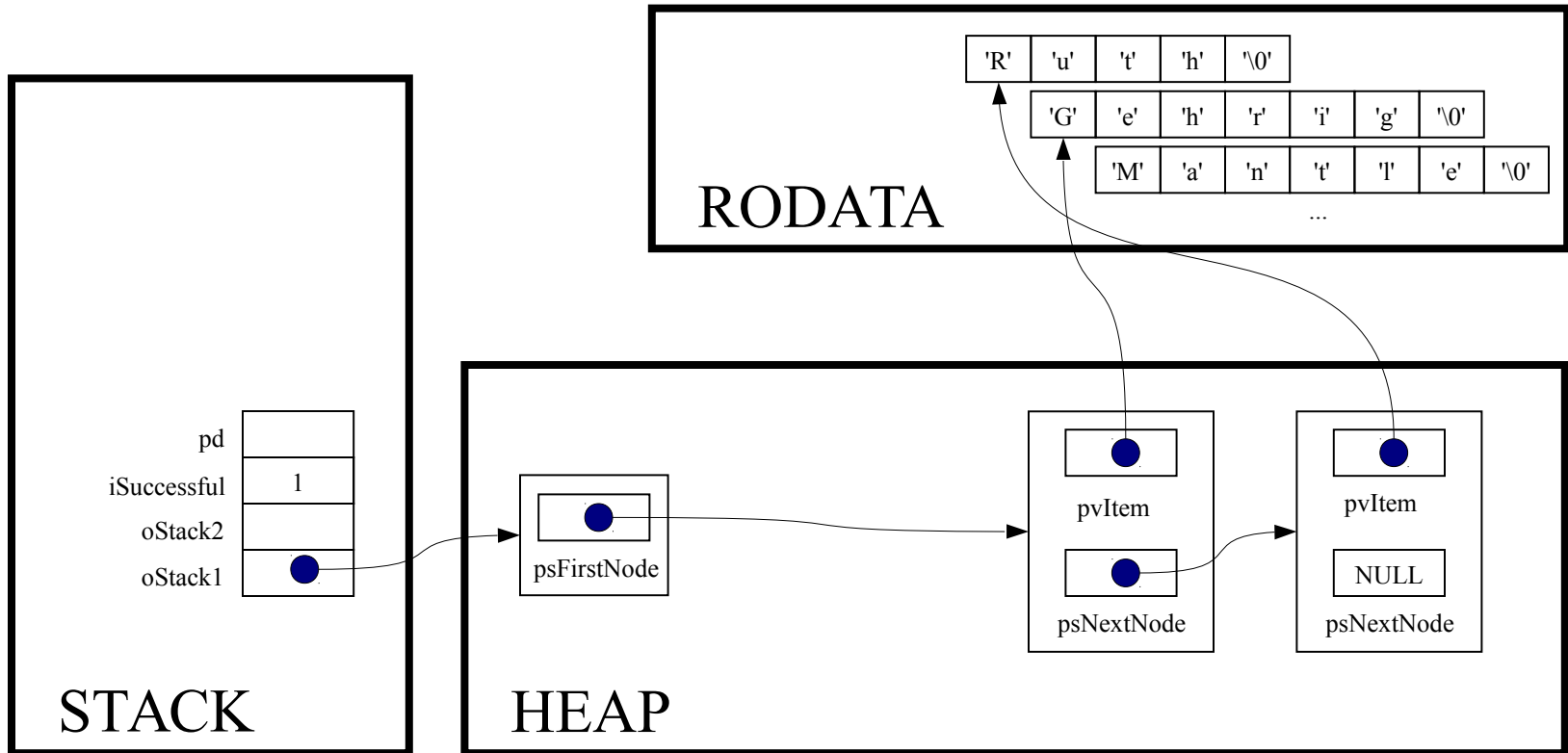
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```
return (void*)pvItem;
```



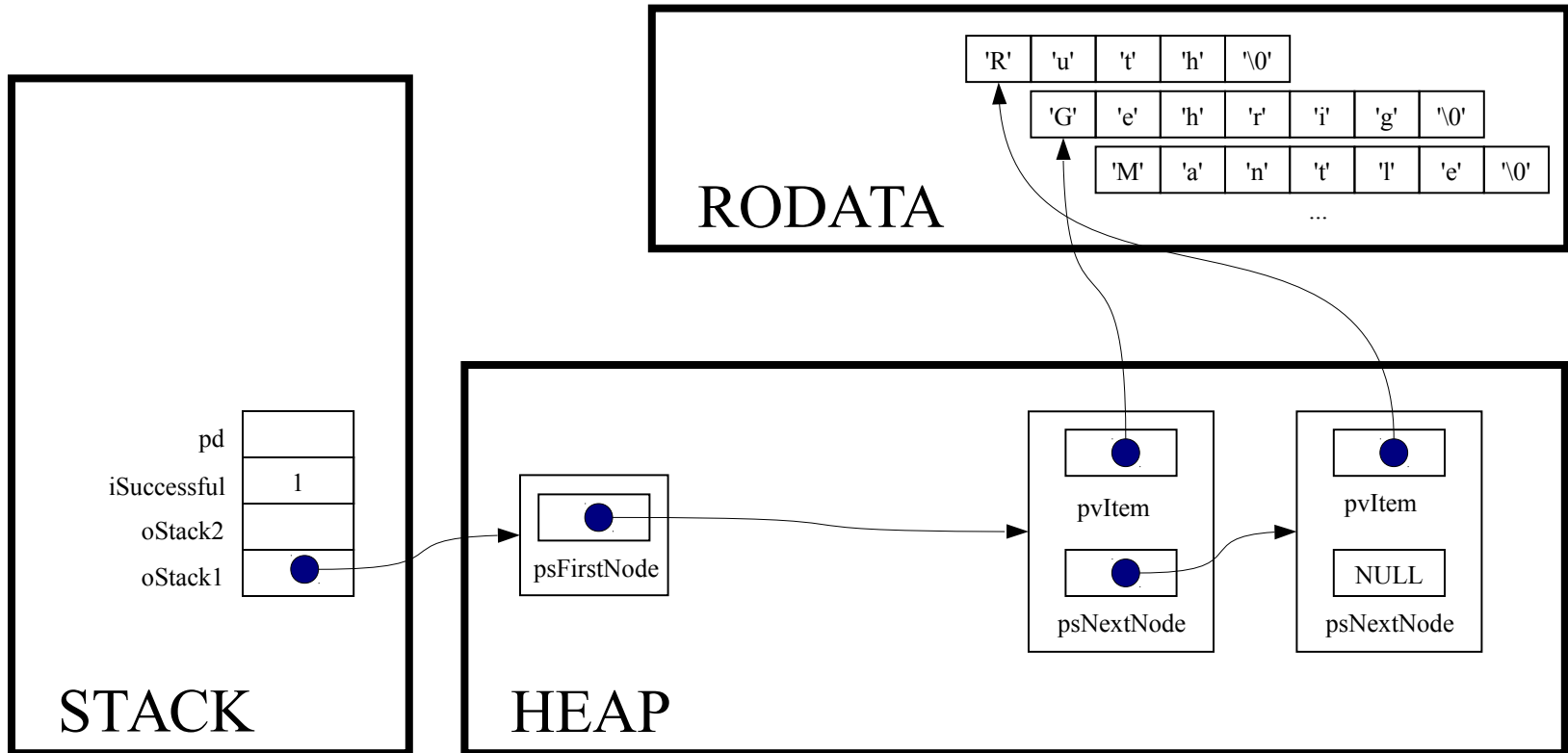
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Trace of teststack (Version 5)

```
printf("%s\n", (char*)Stack_pop(oStack1));
```



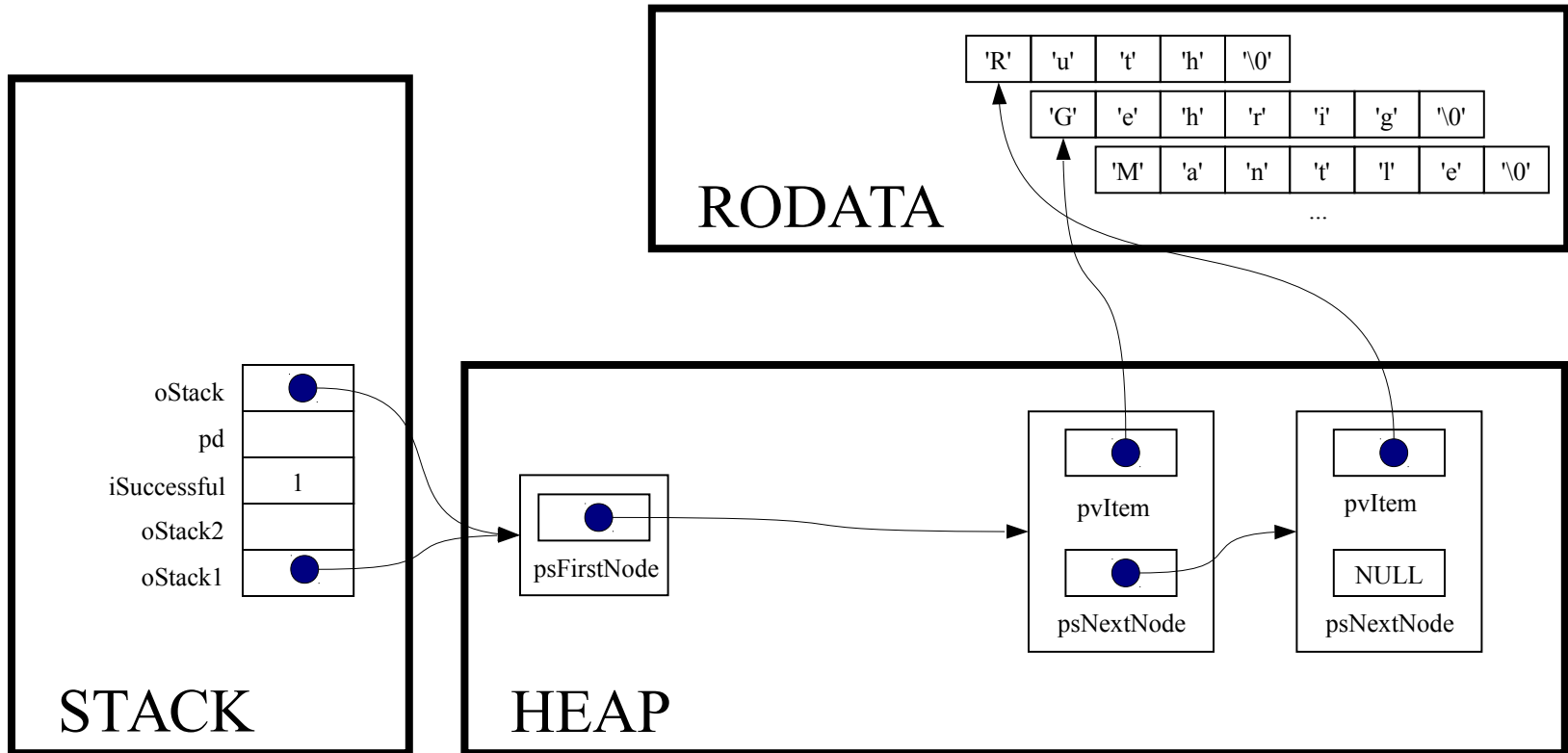
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```
while (! Stack_isEmpty(oStack1))
```



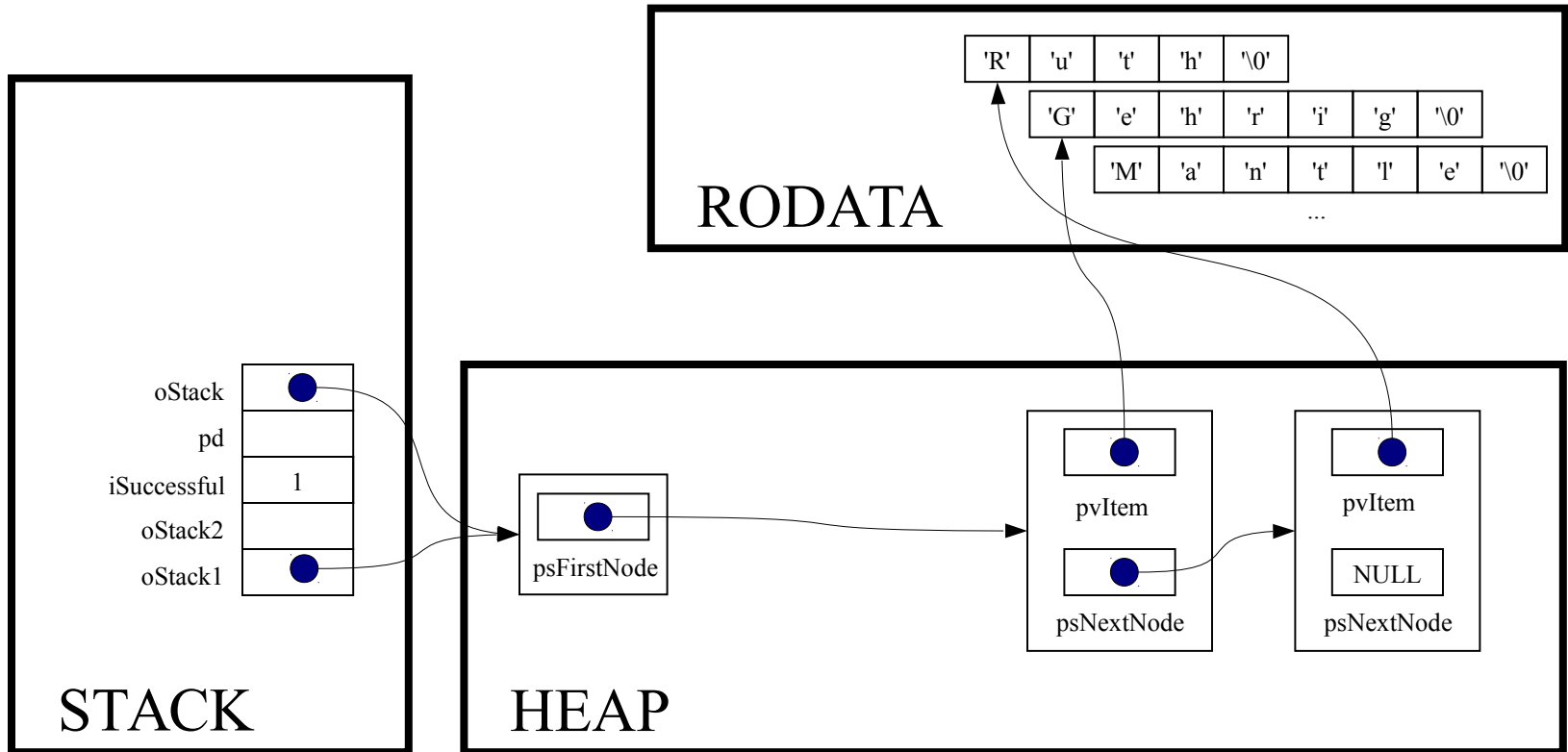
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```
int Stack_isEmpty(Stack_T oStack)
```



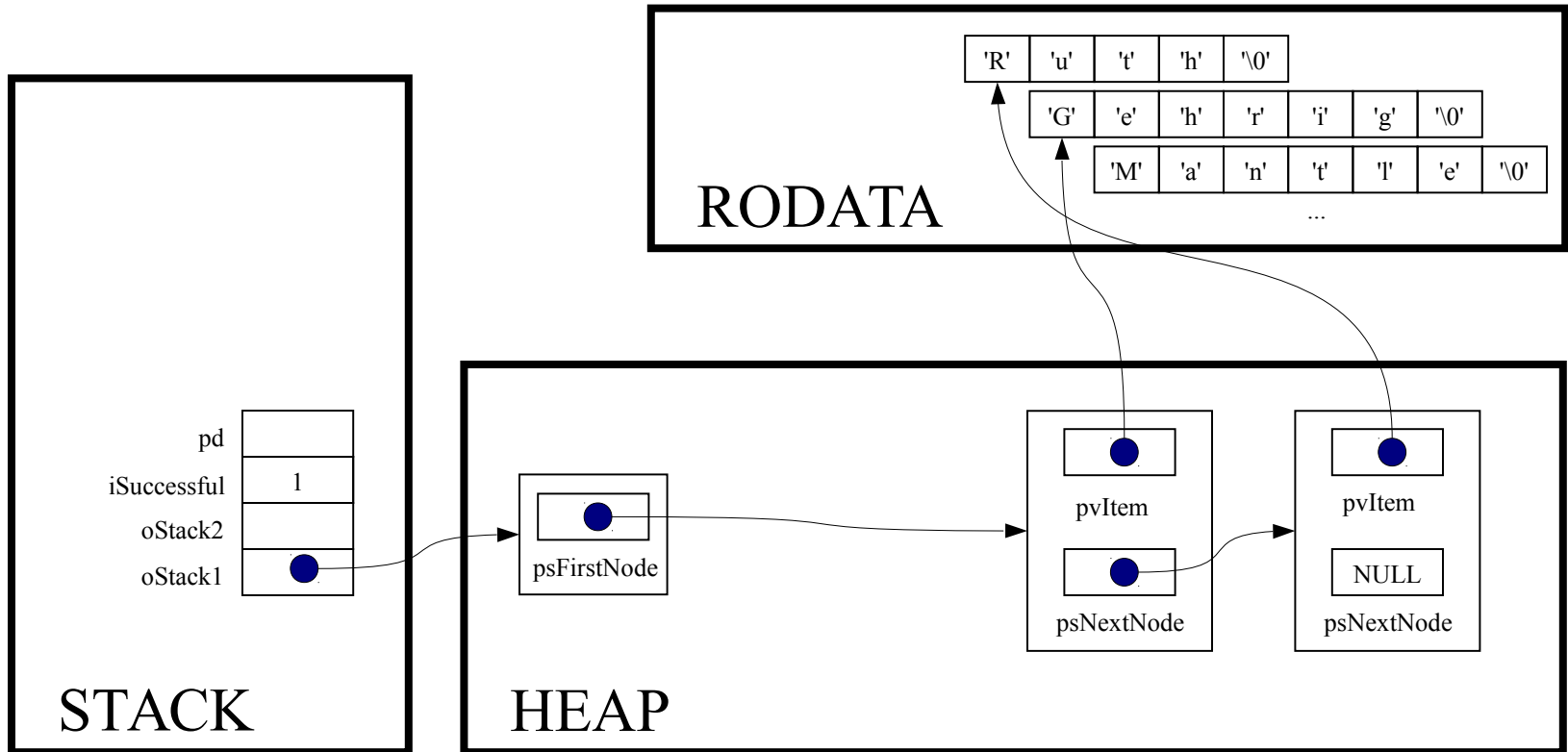
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```
assert(oStack != NULL);
```



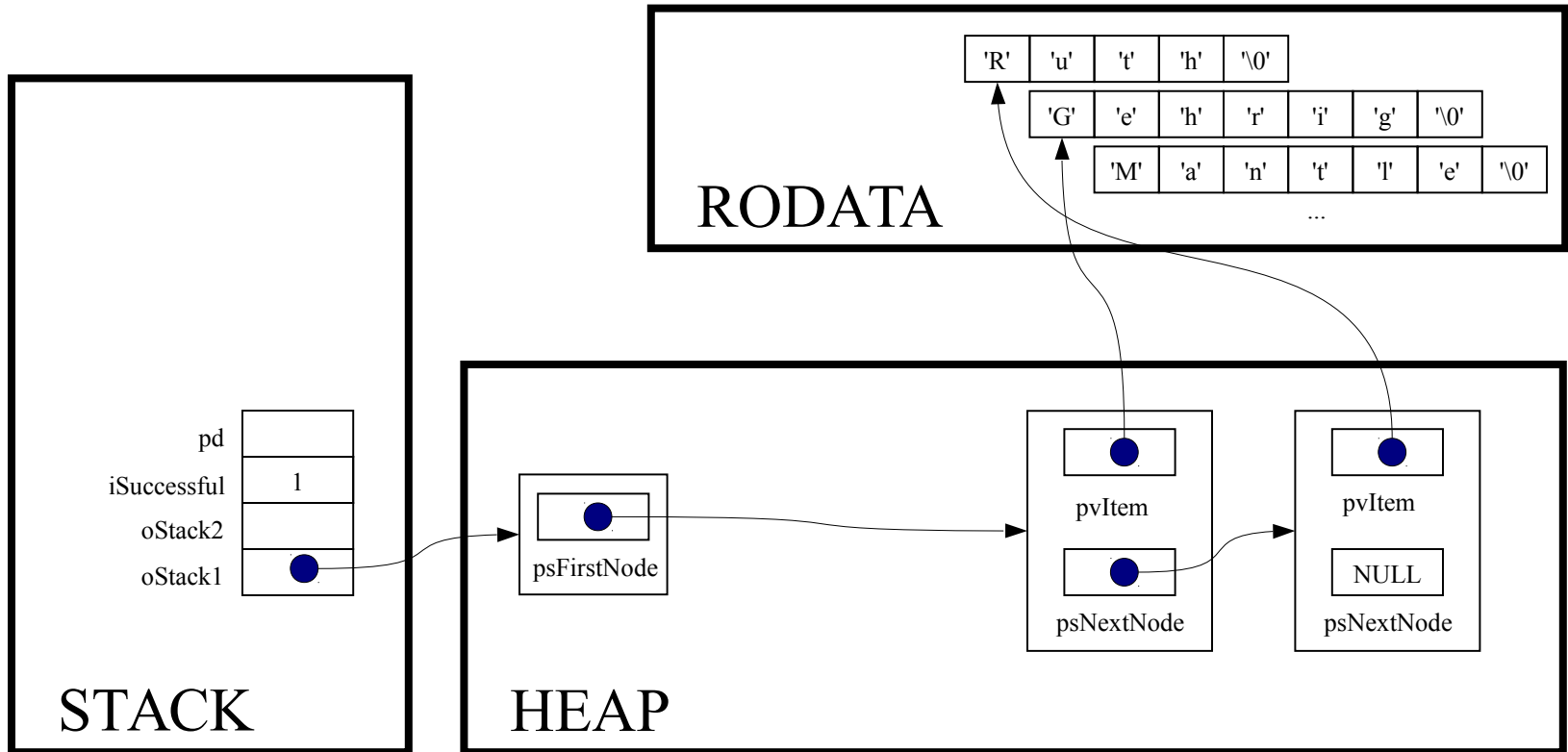
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```
return oStack->psFirstNode == NULL;
```



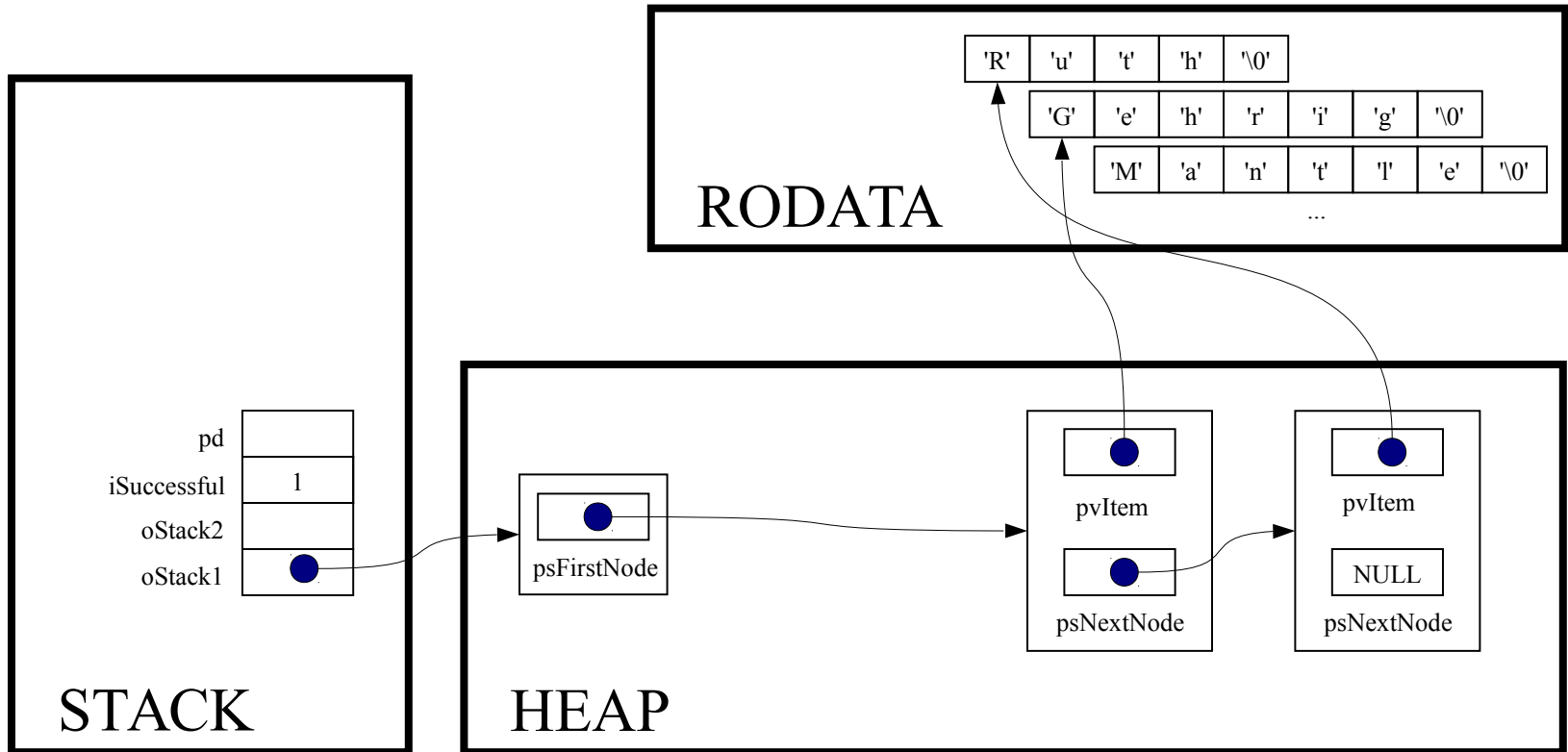
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```
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```



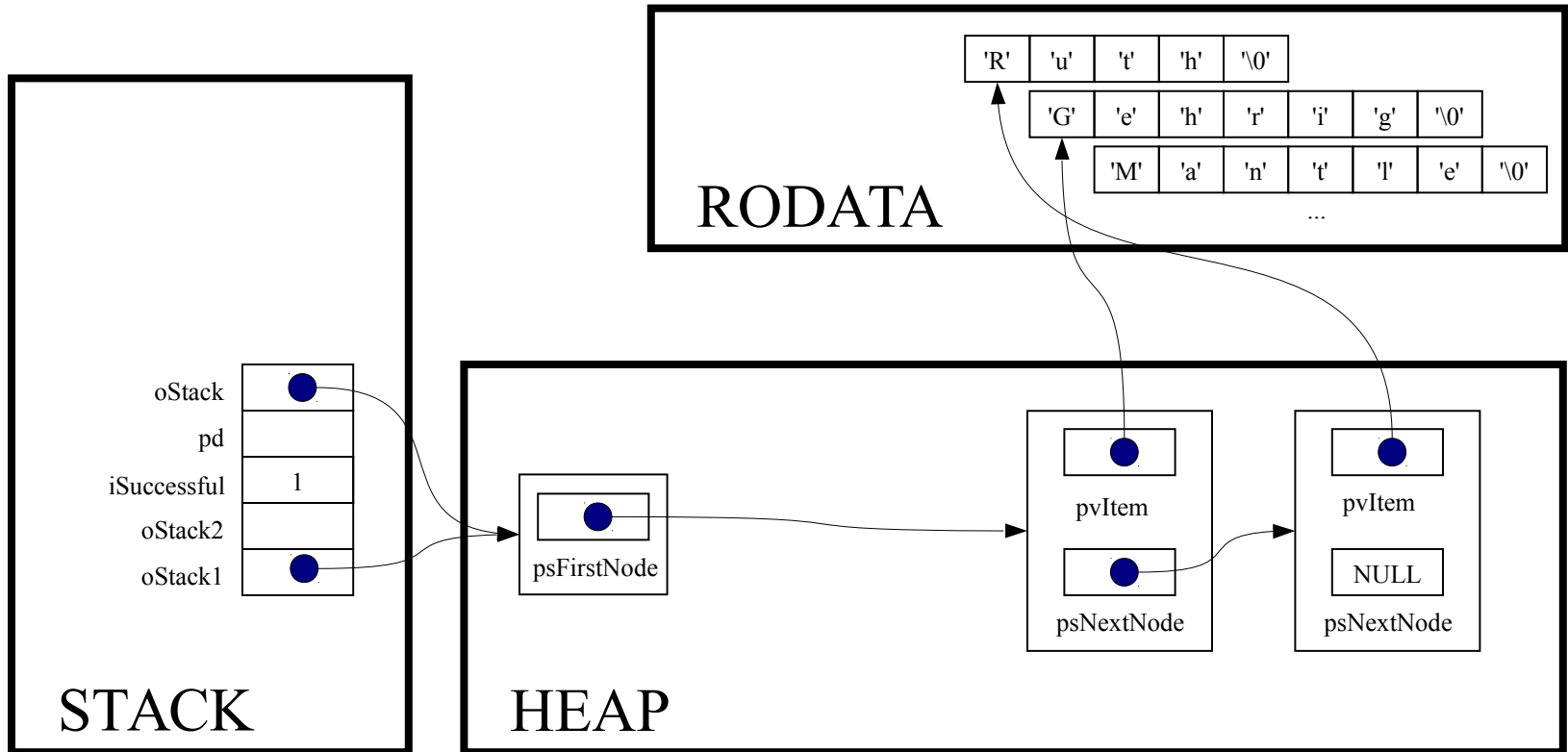
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```
printf("%s\n", (char*) Stack_pop(oStack1));
```



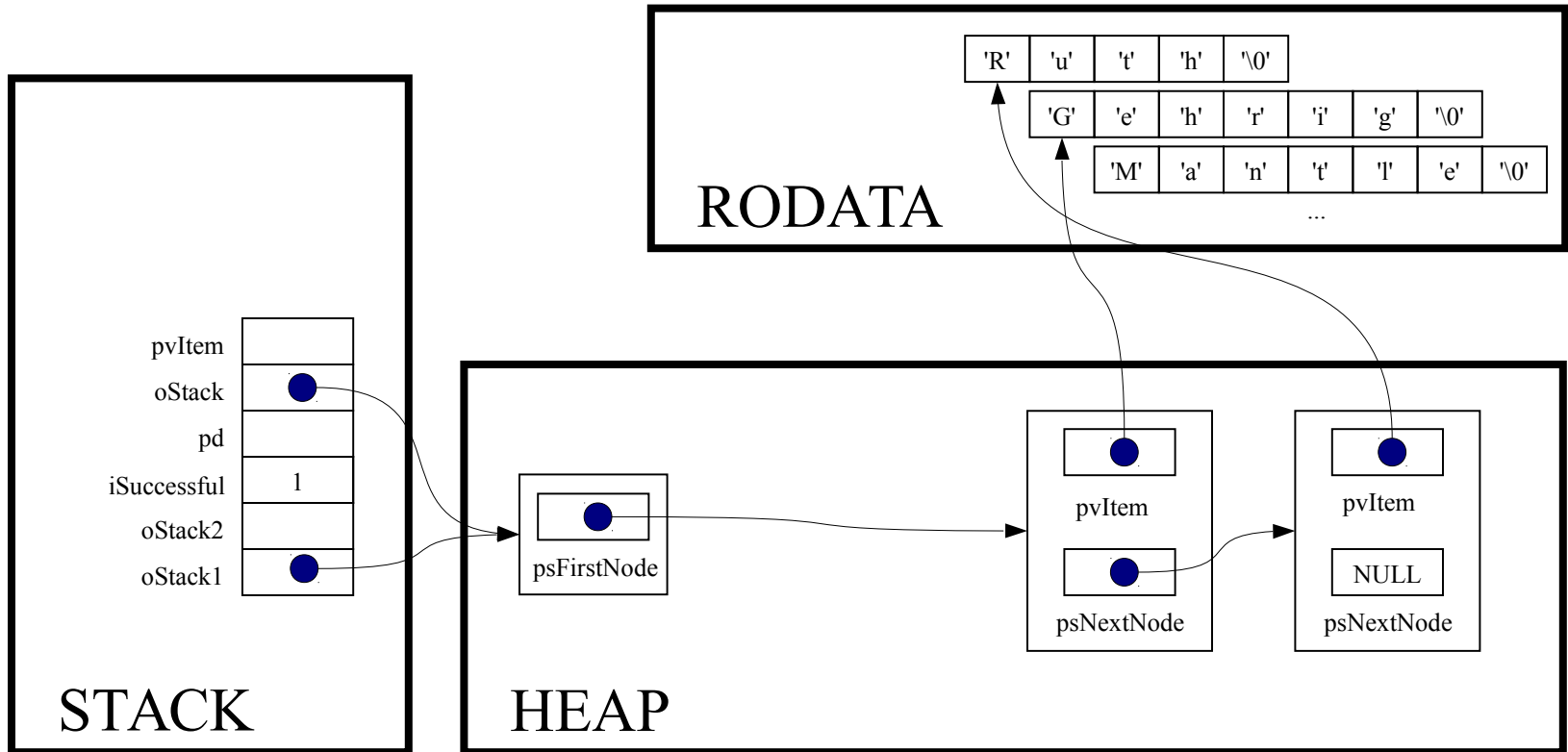
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```
void *Stack_pop(Stack_T oStack)
```



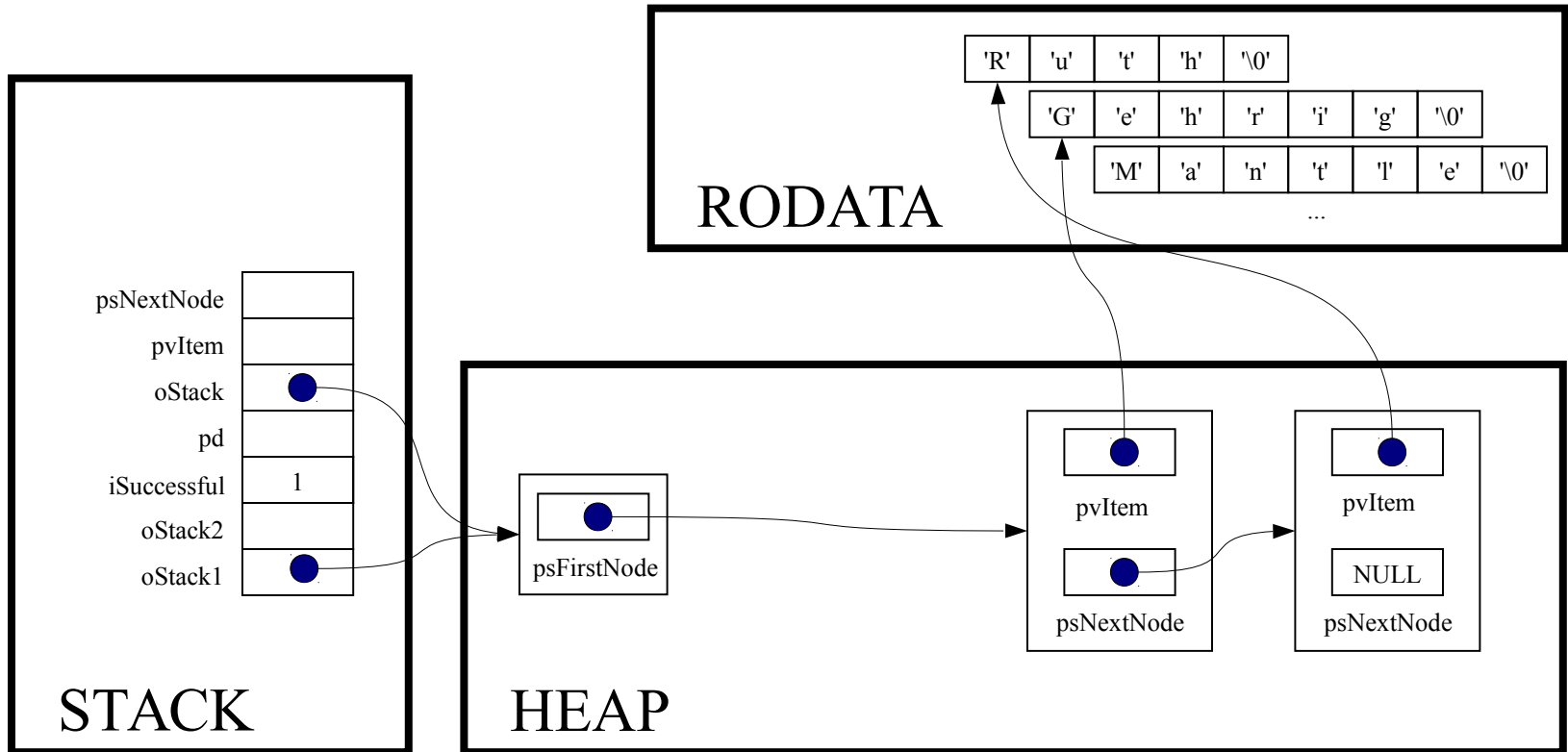
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```
const void *pvItem;
```



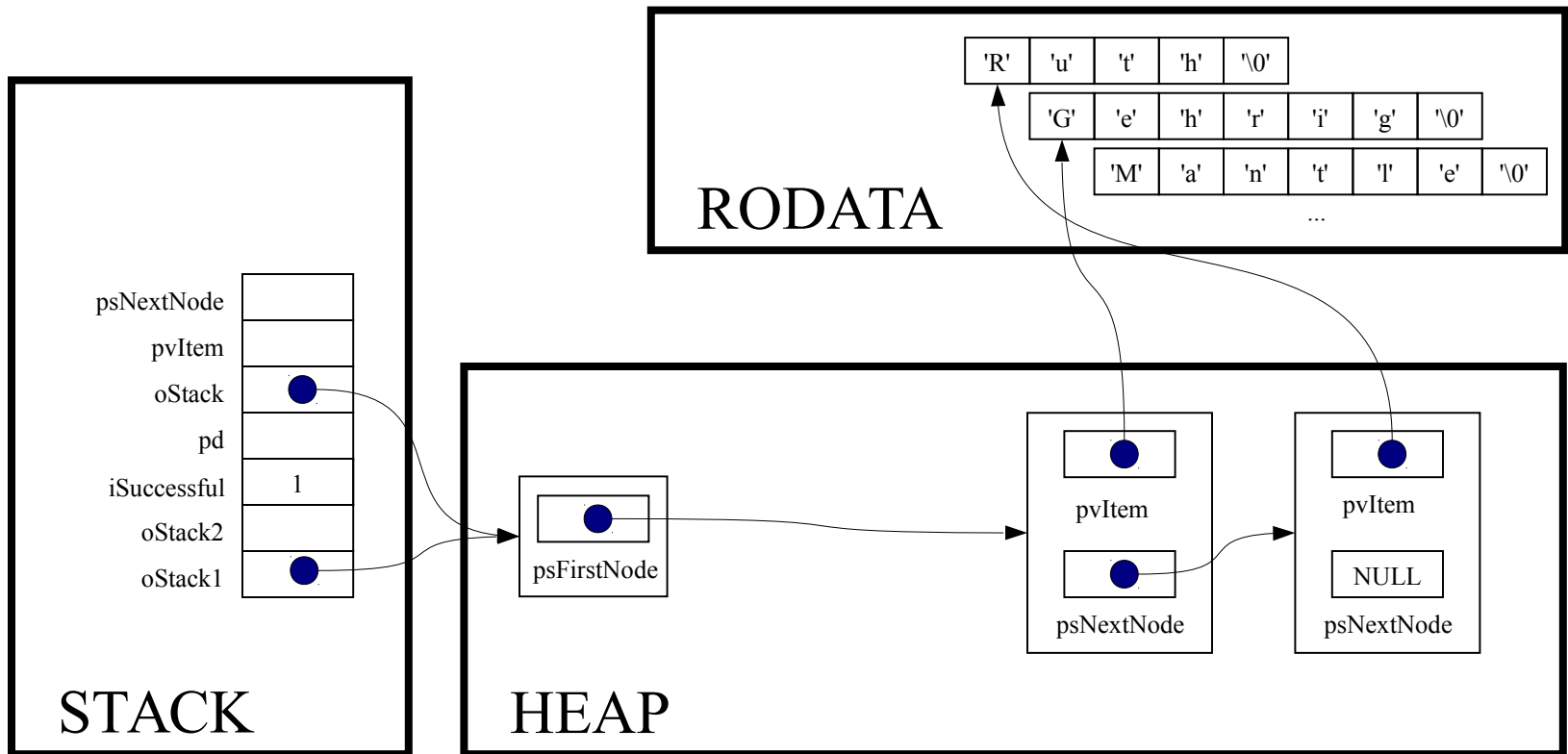
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```
struct StackNode *psNextNode;
```



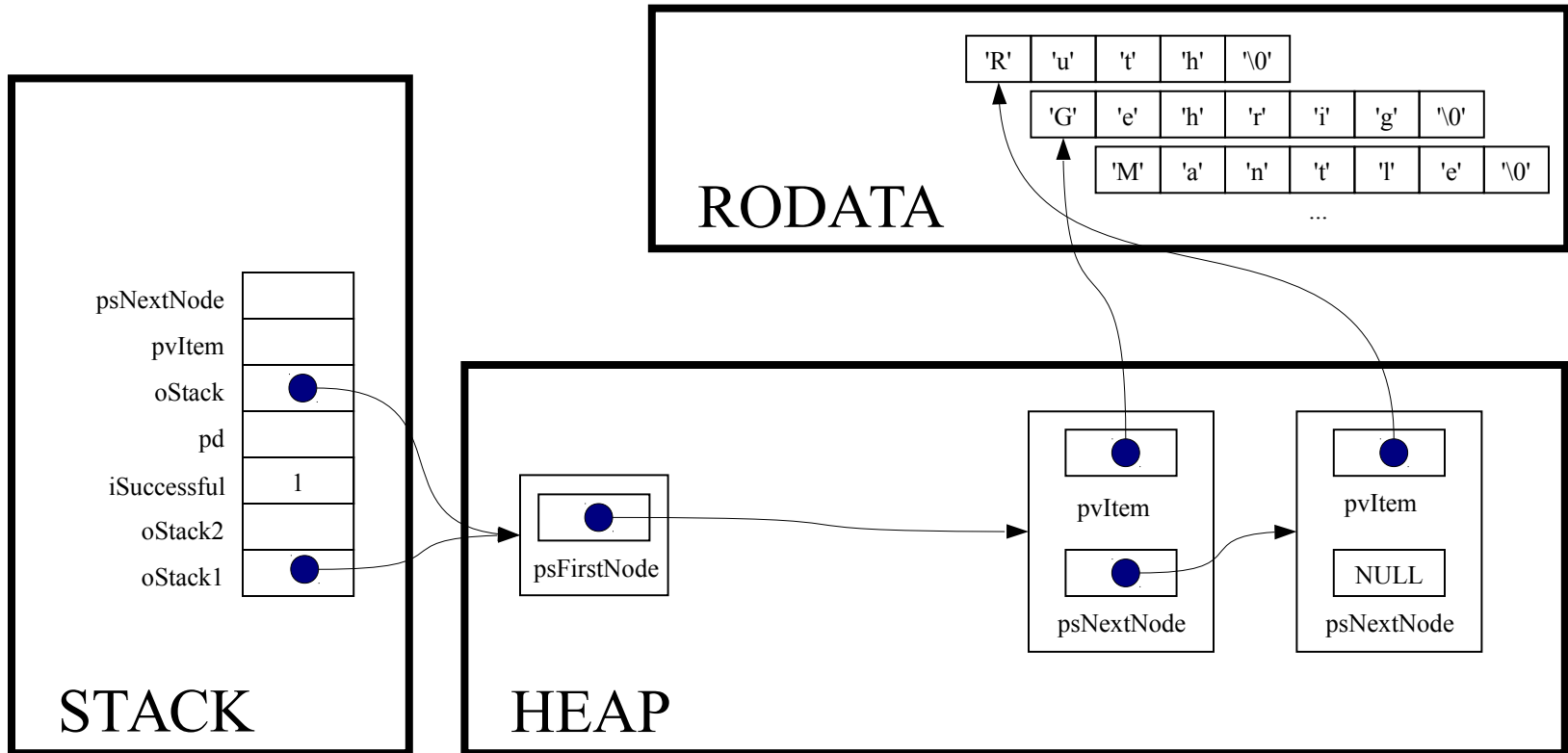
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```
assert(oStack != NULL);
```



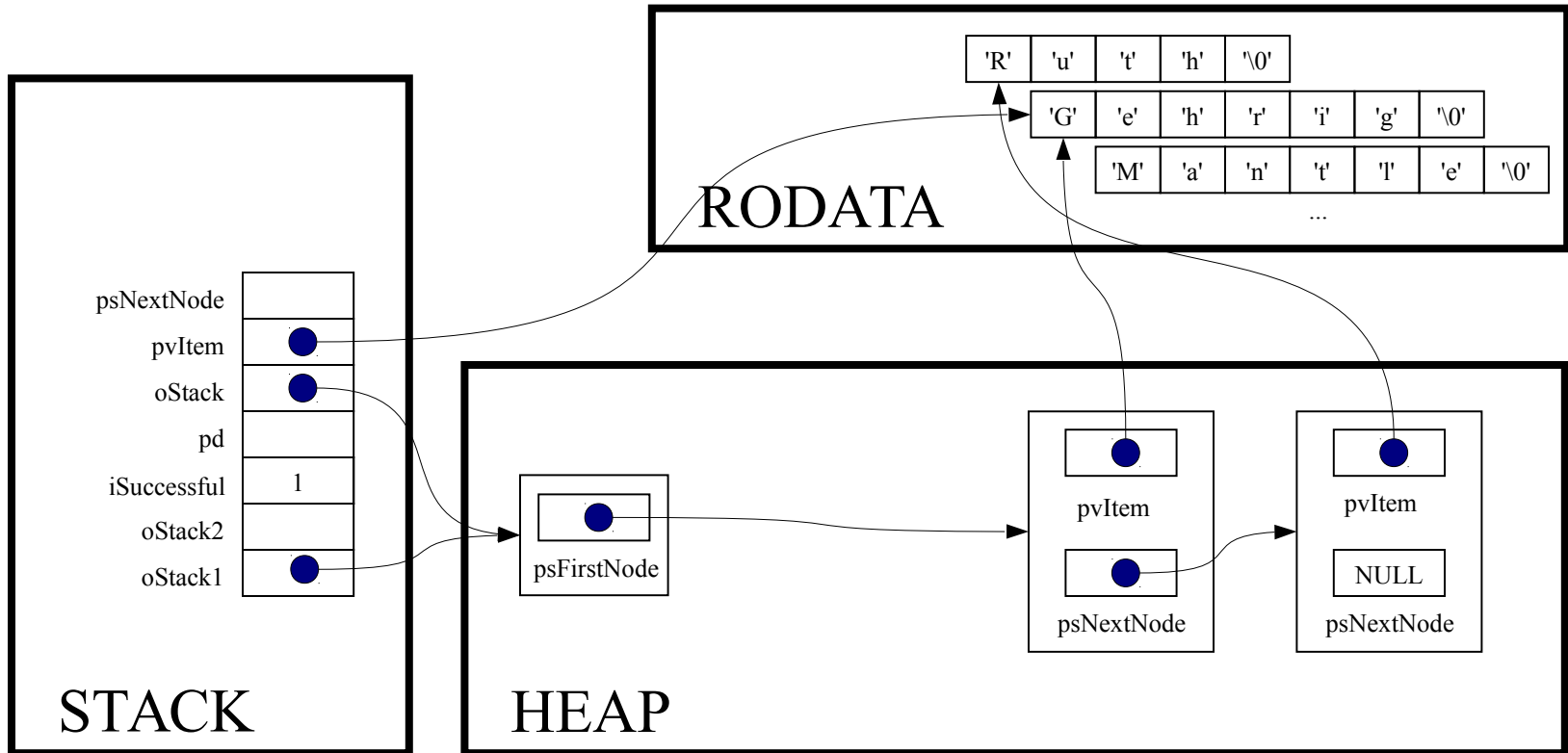
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```
assert(oStack->psFirstNode != NULL);
```



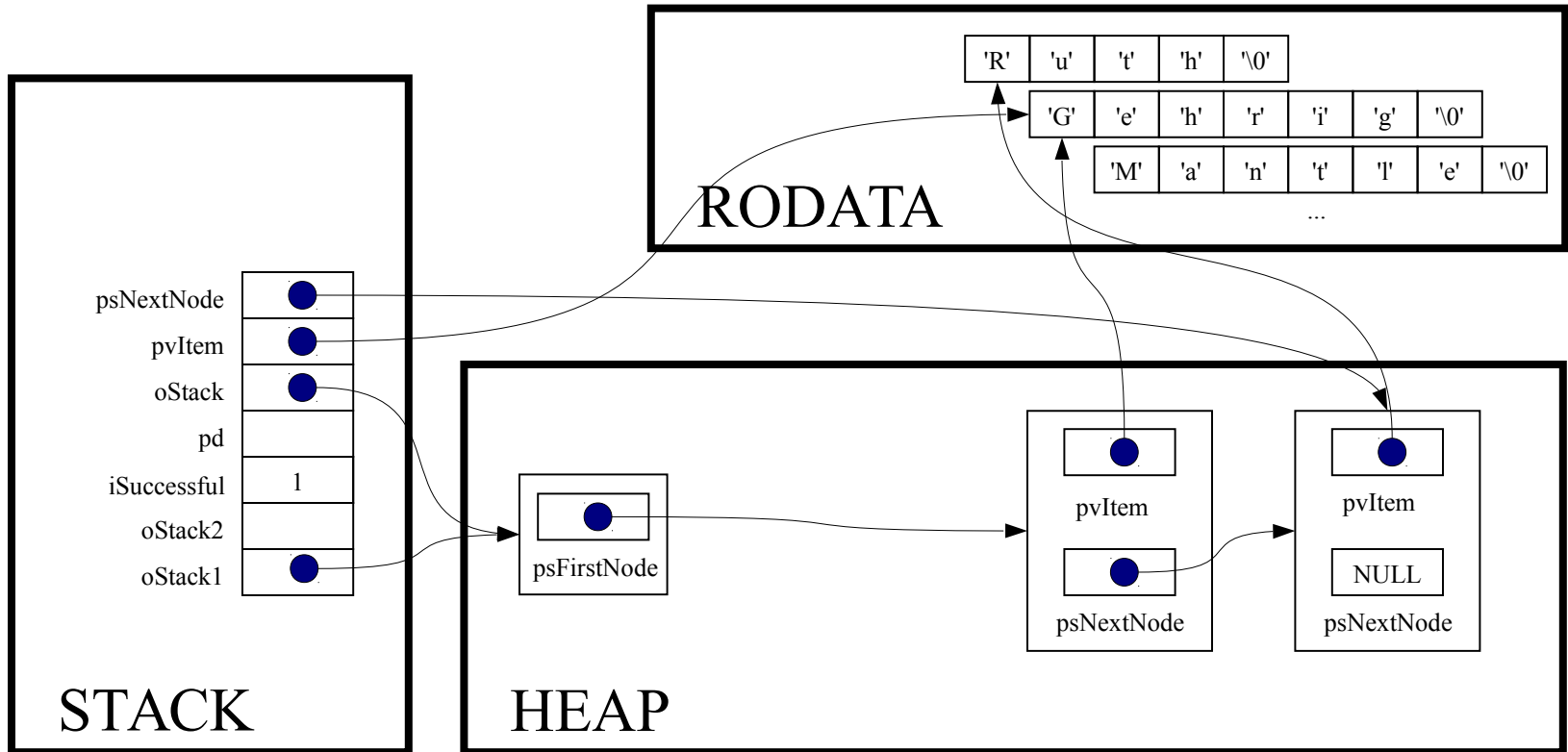
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```
pvItem = oStack->psFirstNode->pvItem;
```



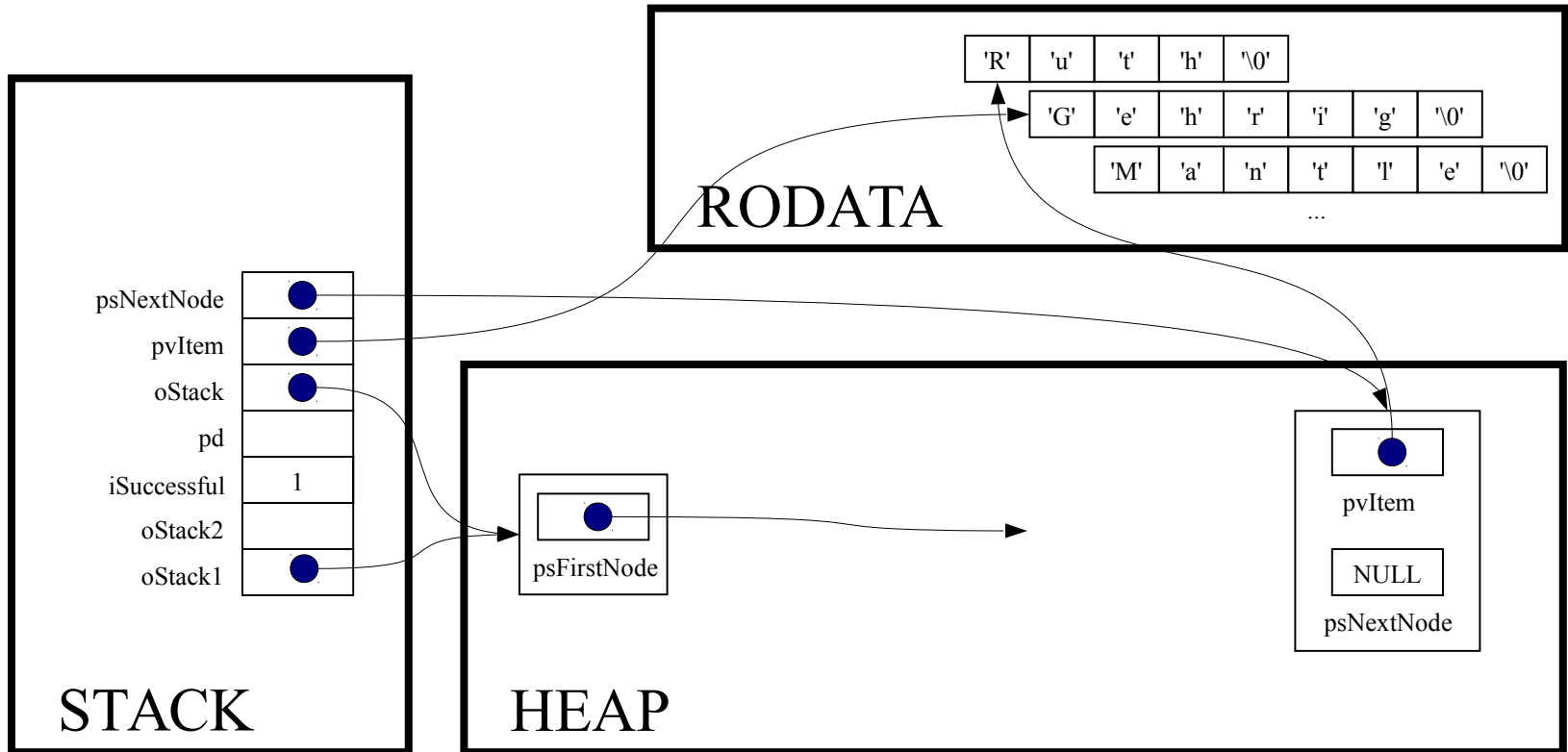
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```
psNextNode = oStack->psFirstNode->psNextNode;
```



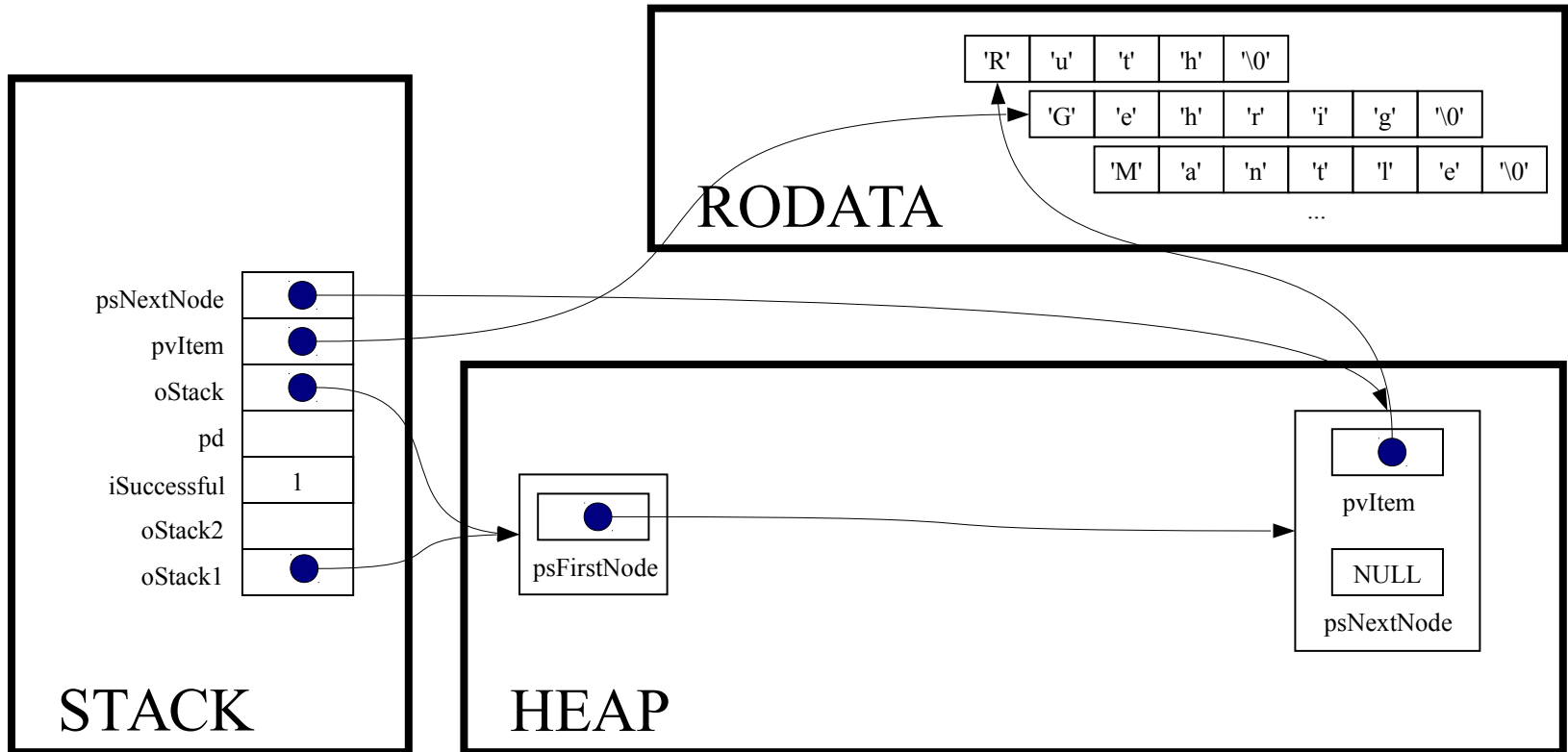
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```
free(oStack->psFirstNode);
```



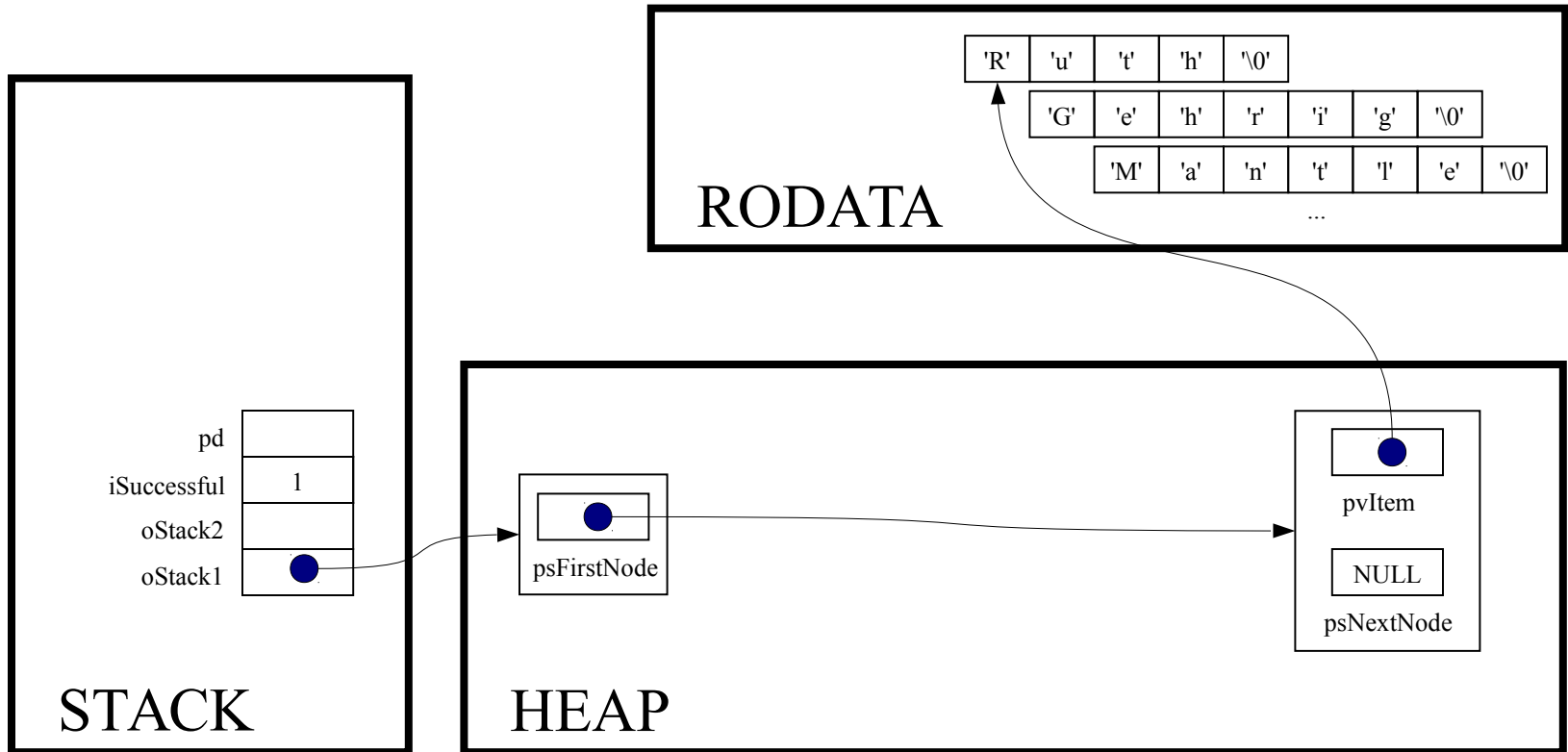
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```
oStack->psFirstNode = psNextNode;
```



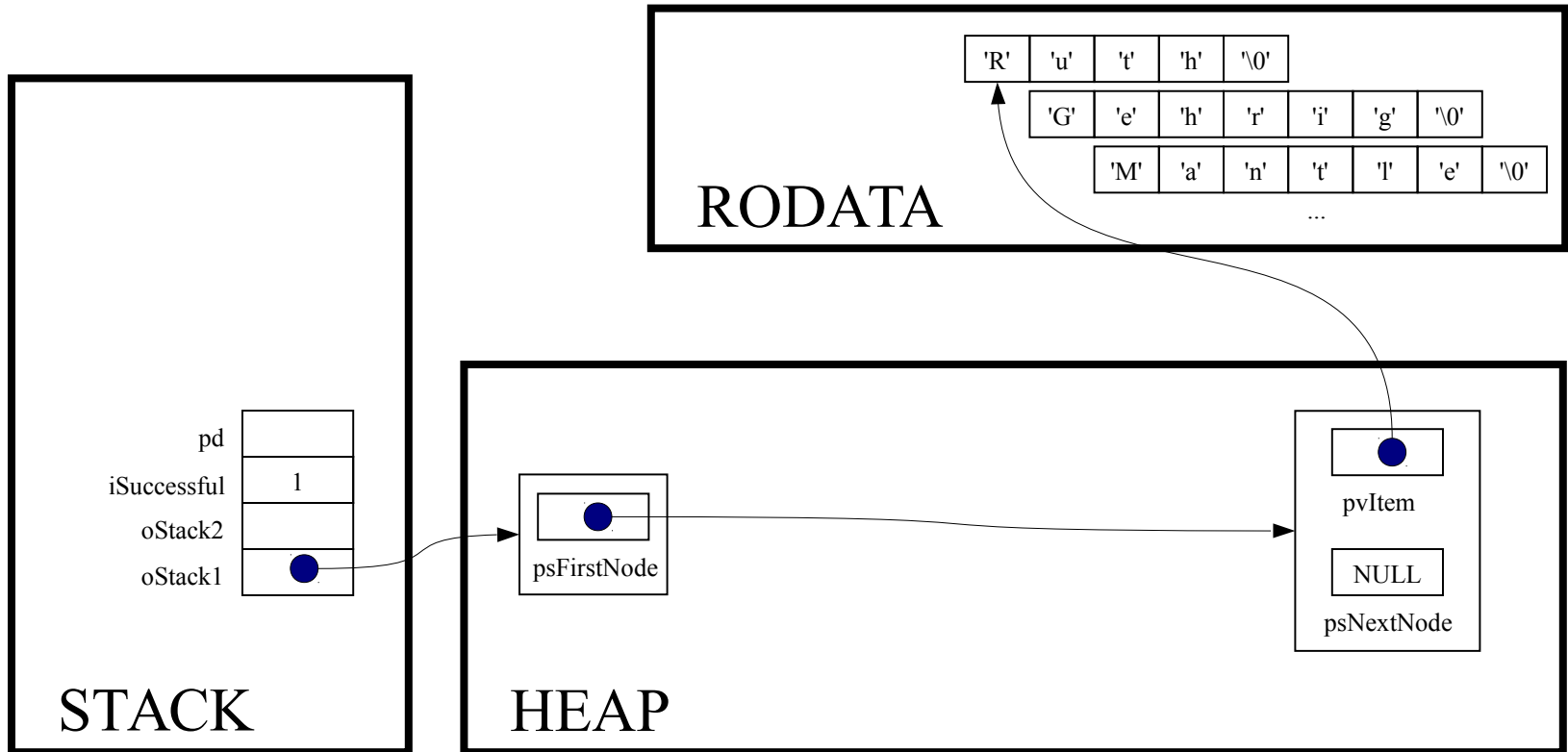
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```
return (void*)pvItem;
```



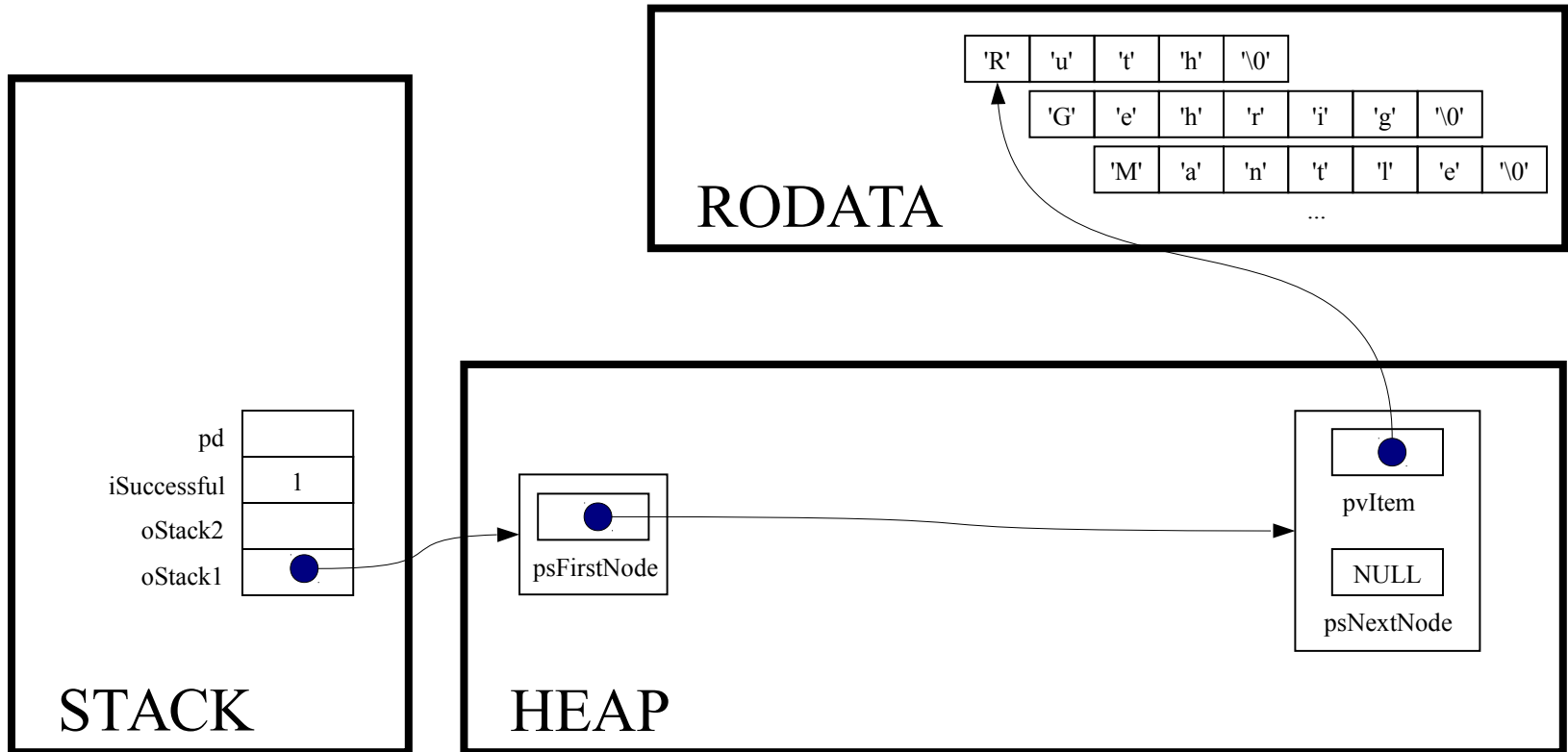
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```
printf("%s\n", (char*)Stack_pop(oStack1));
```



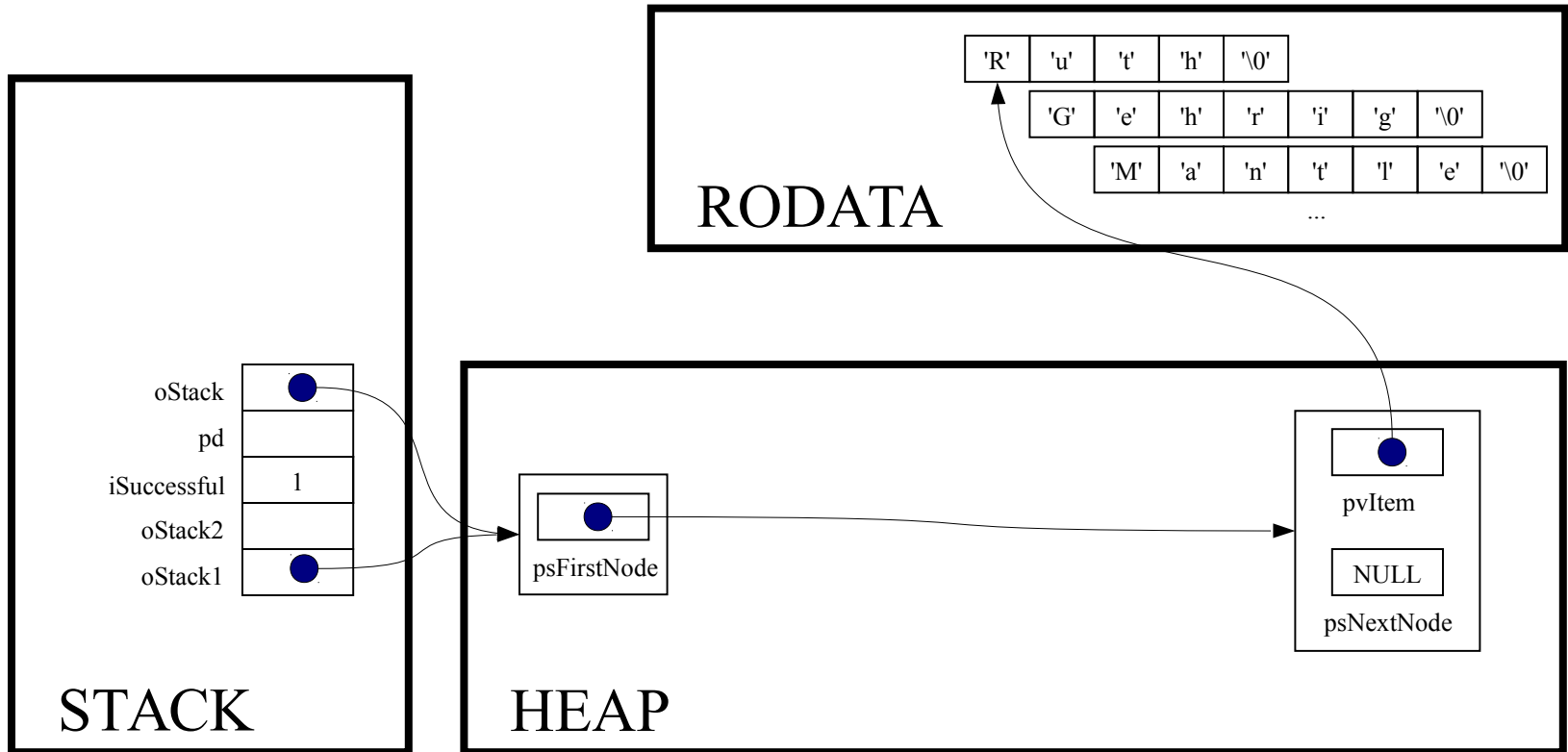
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```
while (! Stack_isEmpty(oStack1))
```



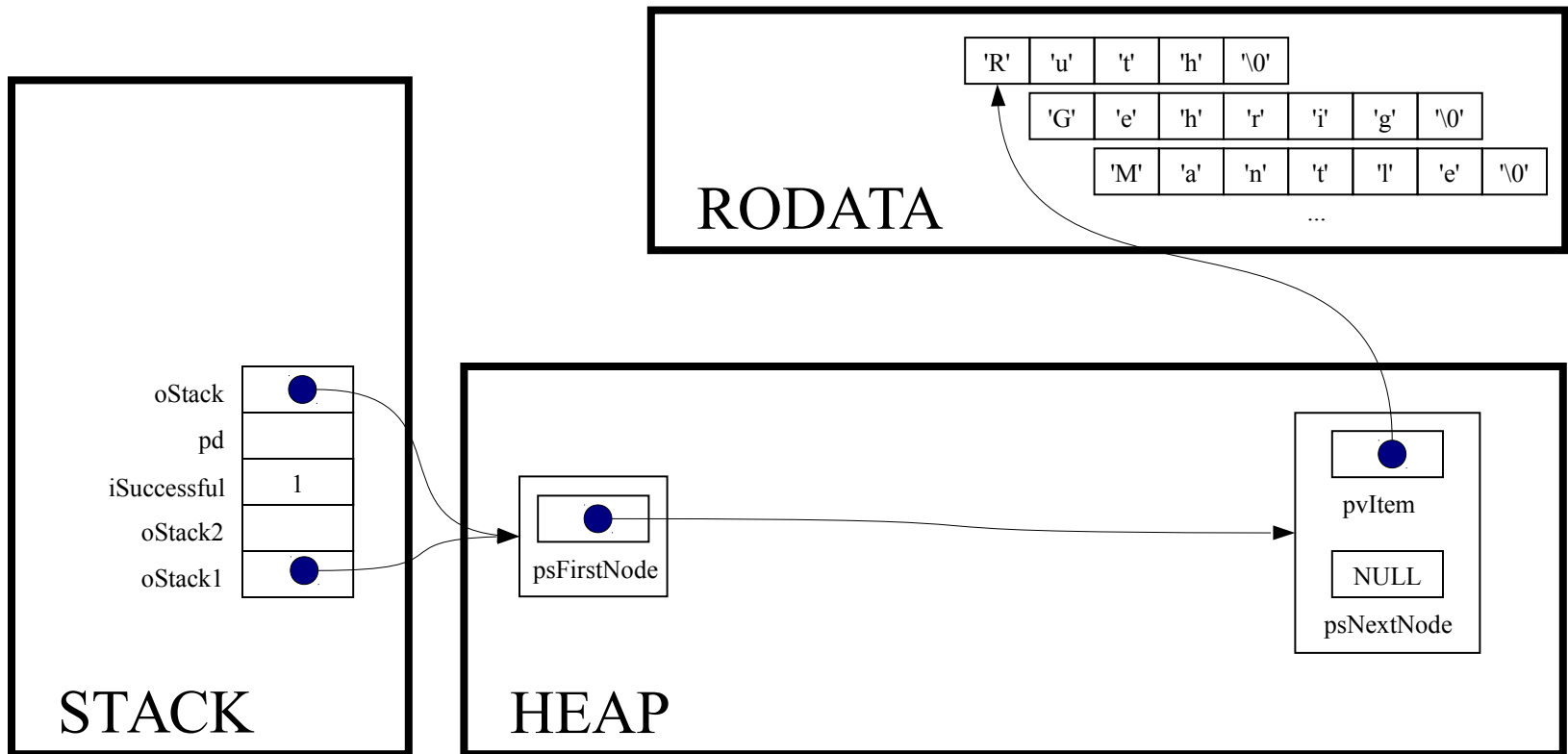
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```
int Stack_isEmpty(Stack_T oStack)
```



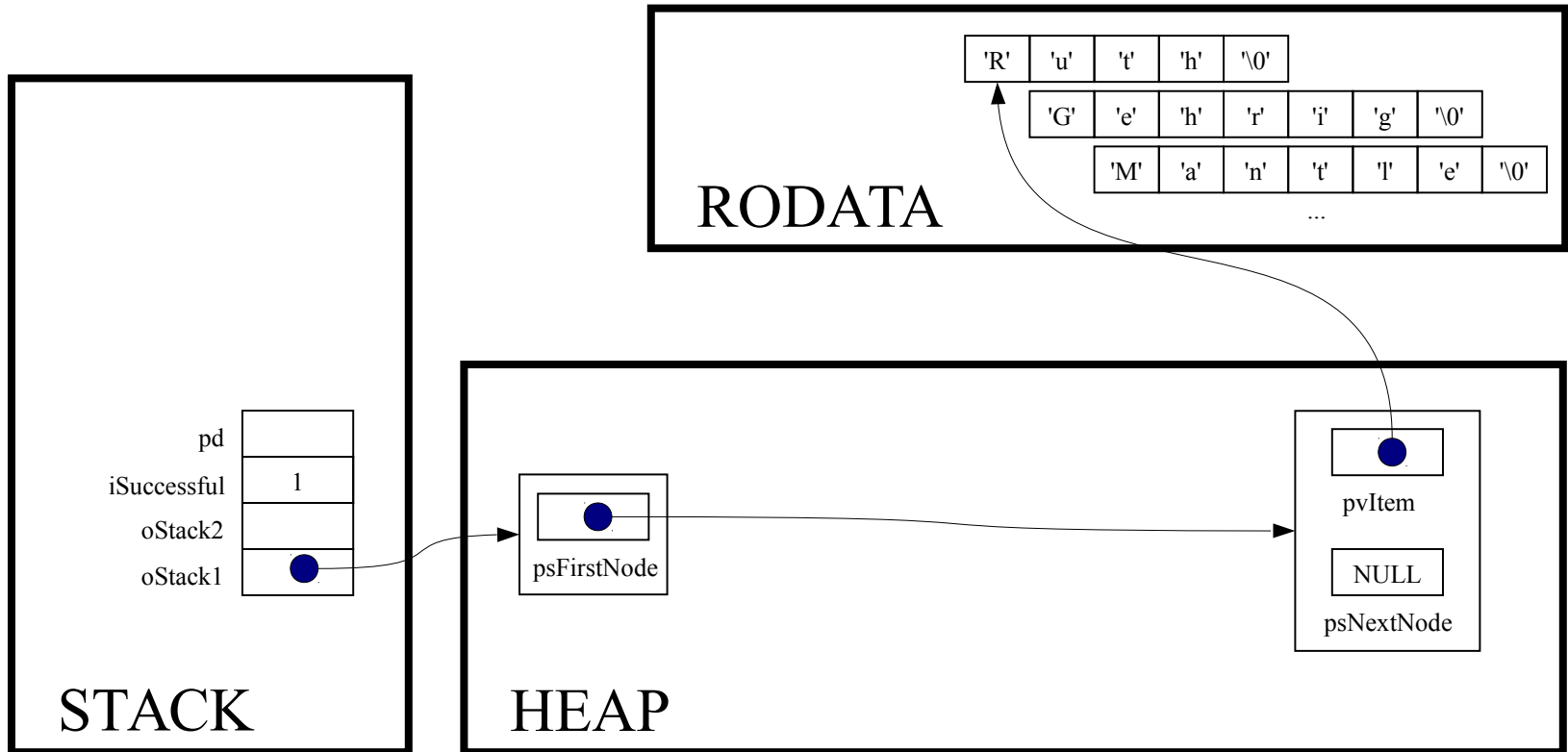
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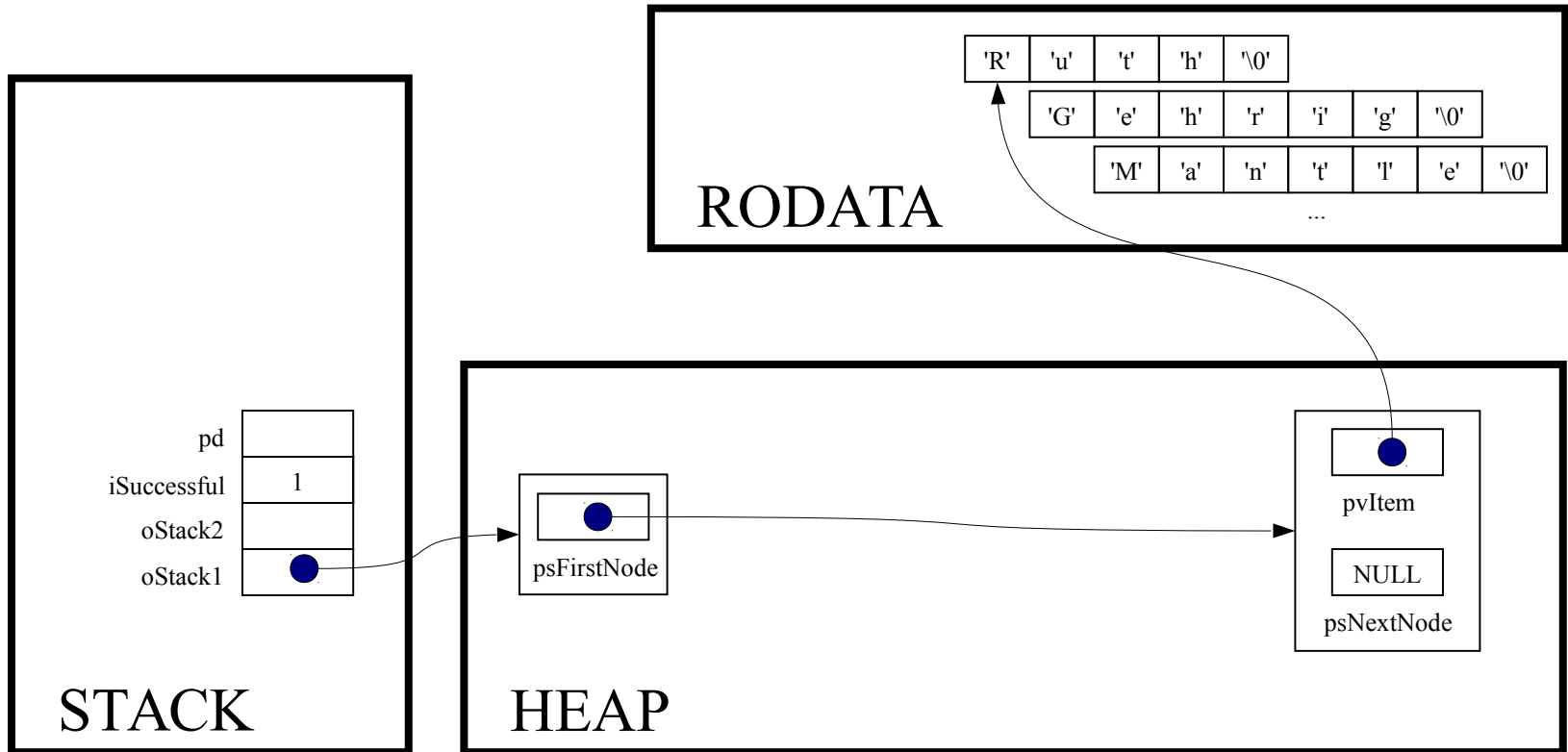
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Trace of teststack (Version 5)

```
return oStack->psFirstNode == NULL;
```



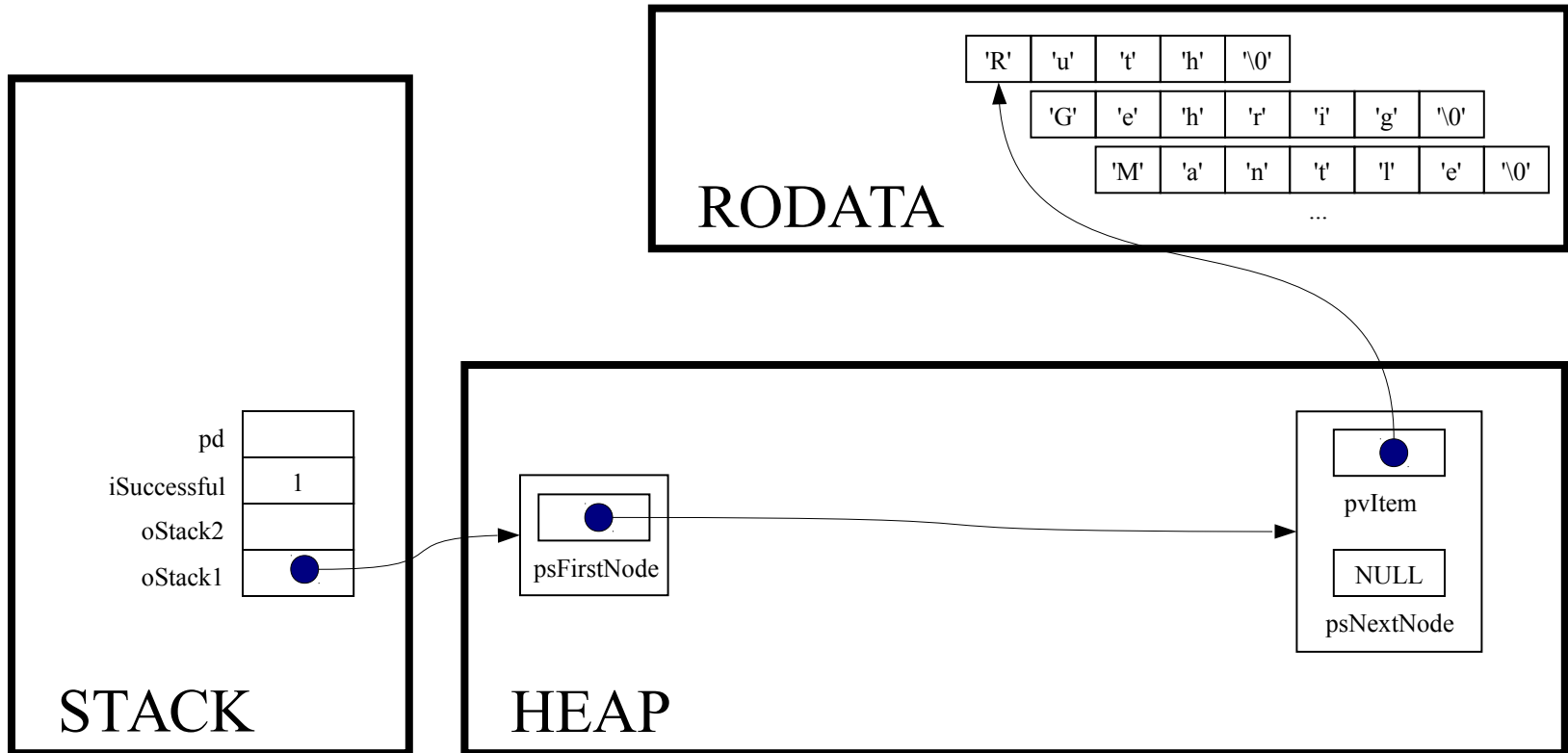
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```
while (! Stack_isEmpty(oStack1))
```



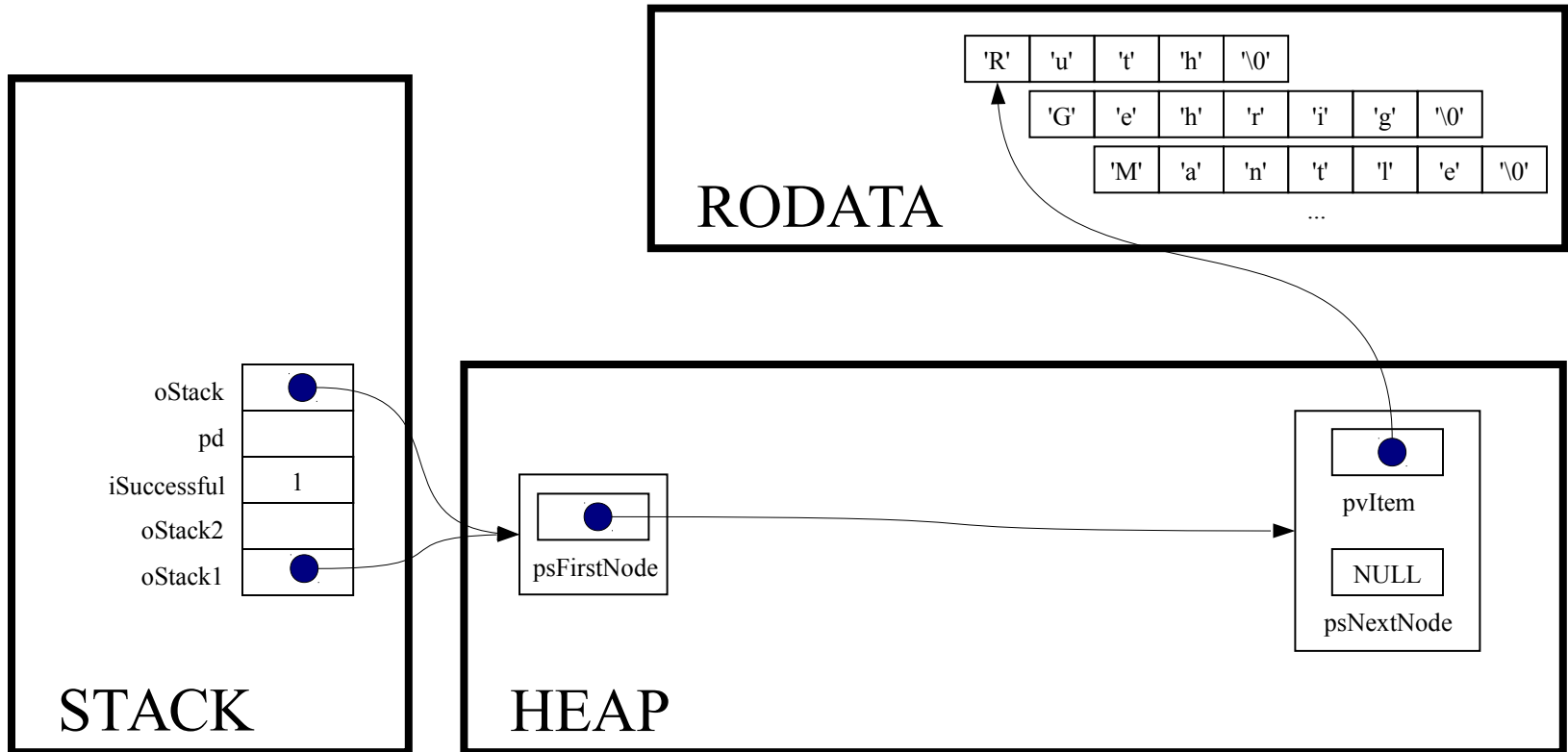
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```
printf("%s\n", (char*) Stack_pop(oStack1));
```



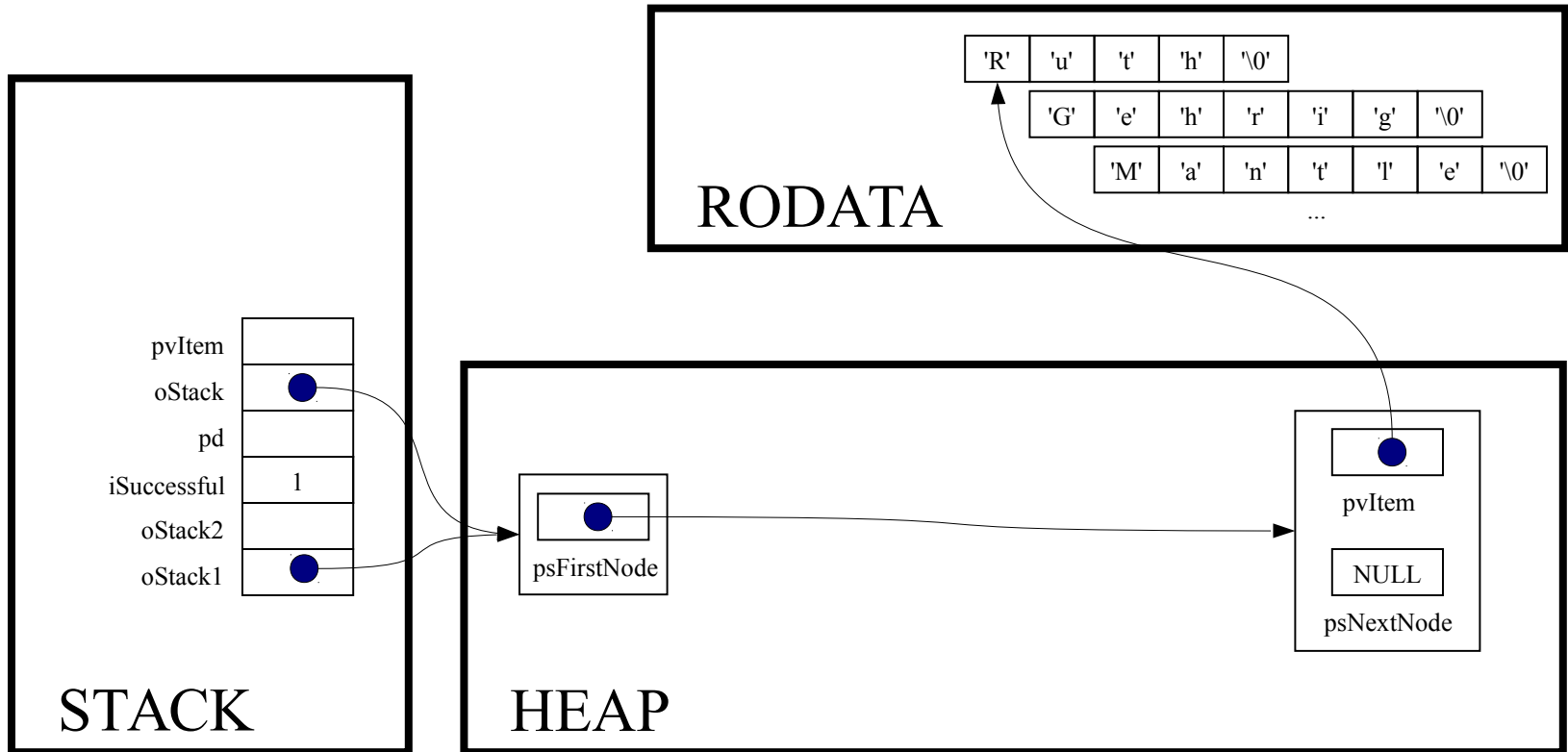
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```
void *Stack_pop(Stack_T oStack)
```



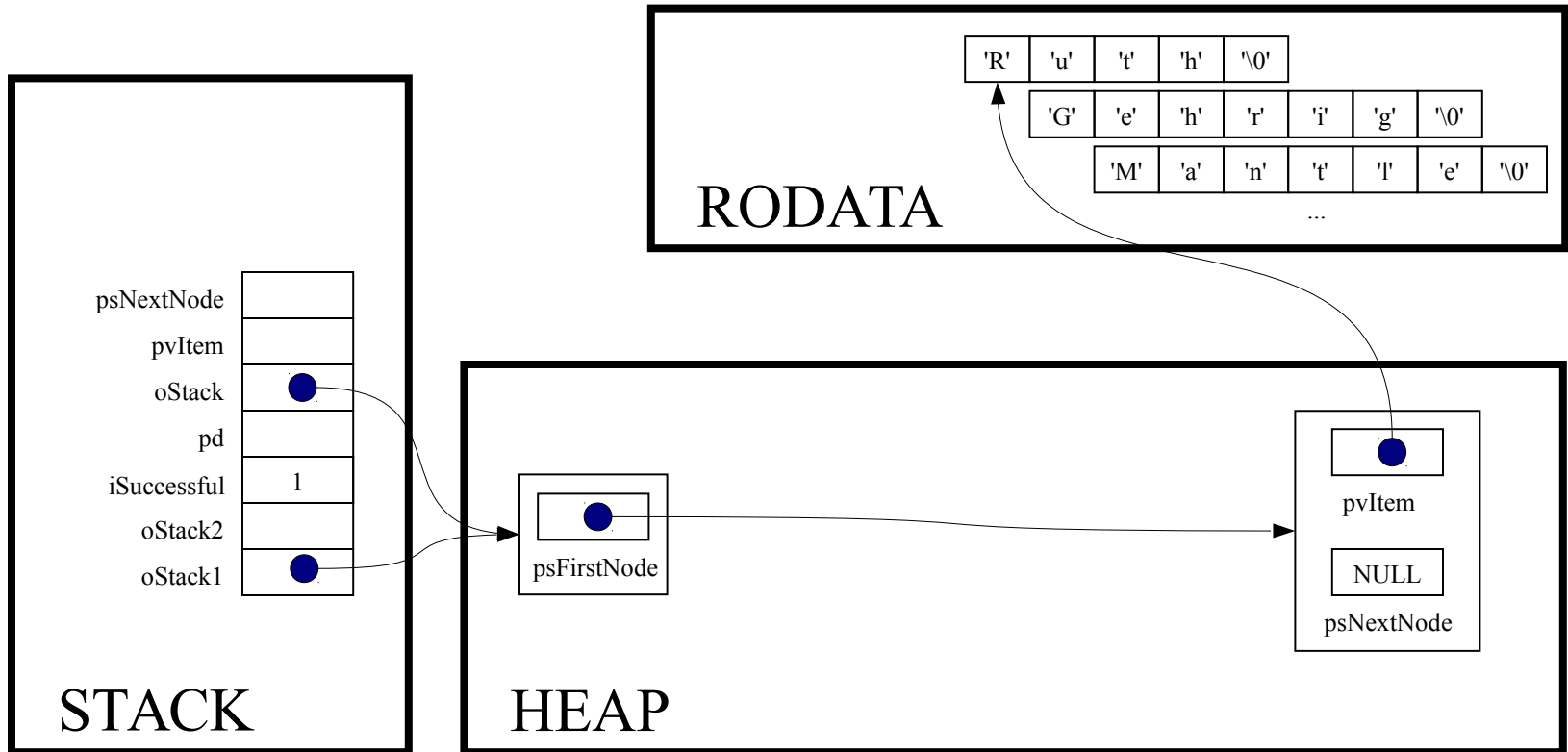
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Trace of teststack (Version 5)

```
const void *pvItem;
```



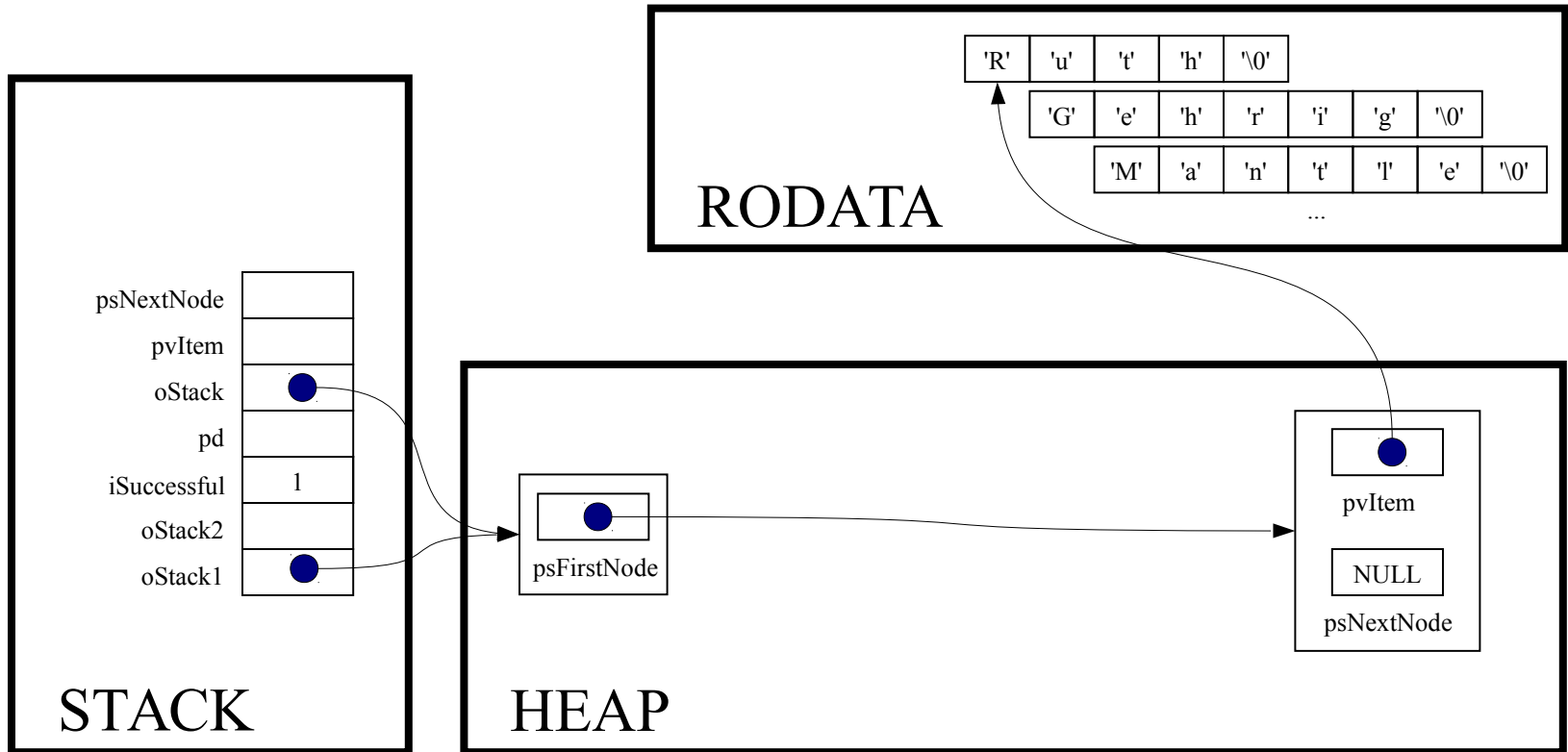
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```
struct StackNode *psNextNode;
```



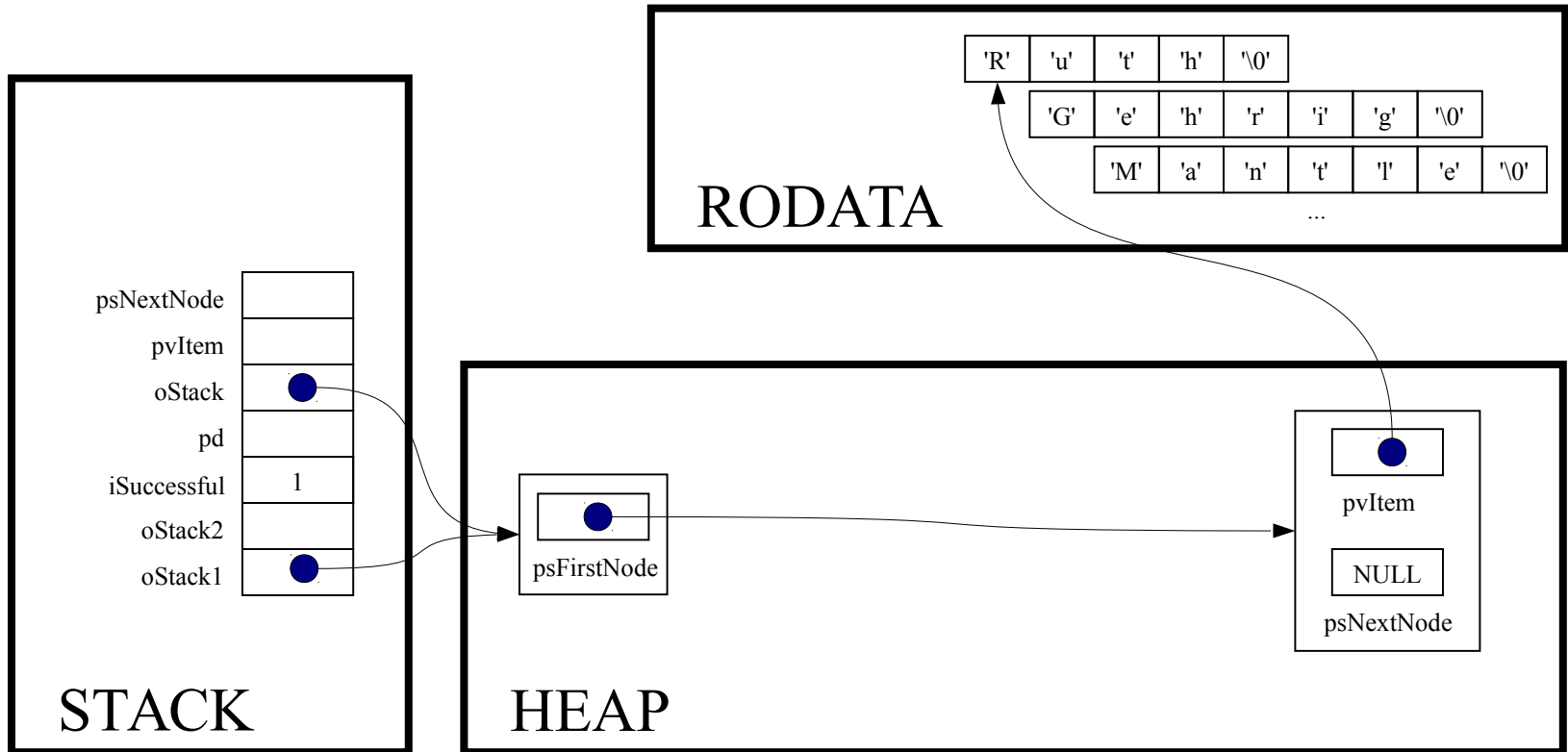
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```
assert(oStack != NULL);
```



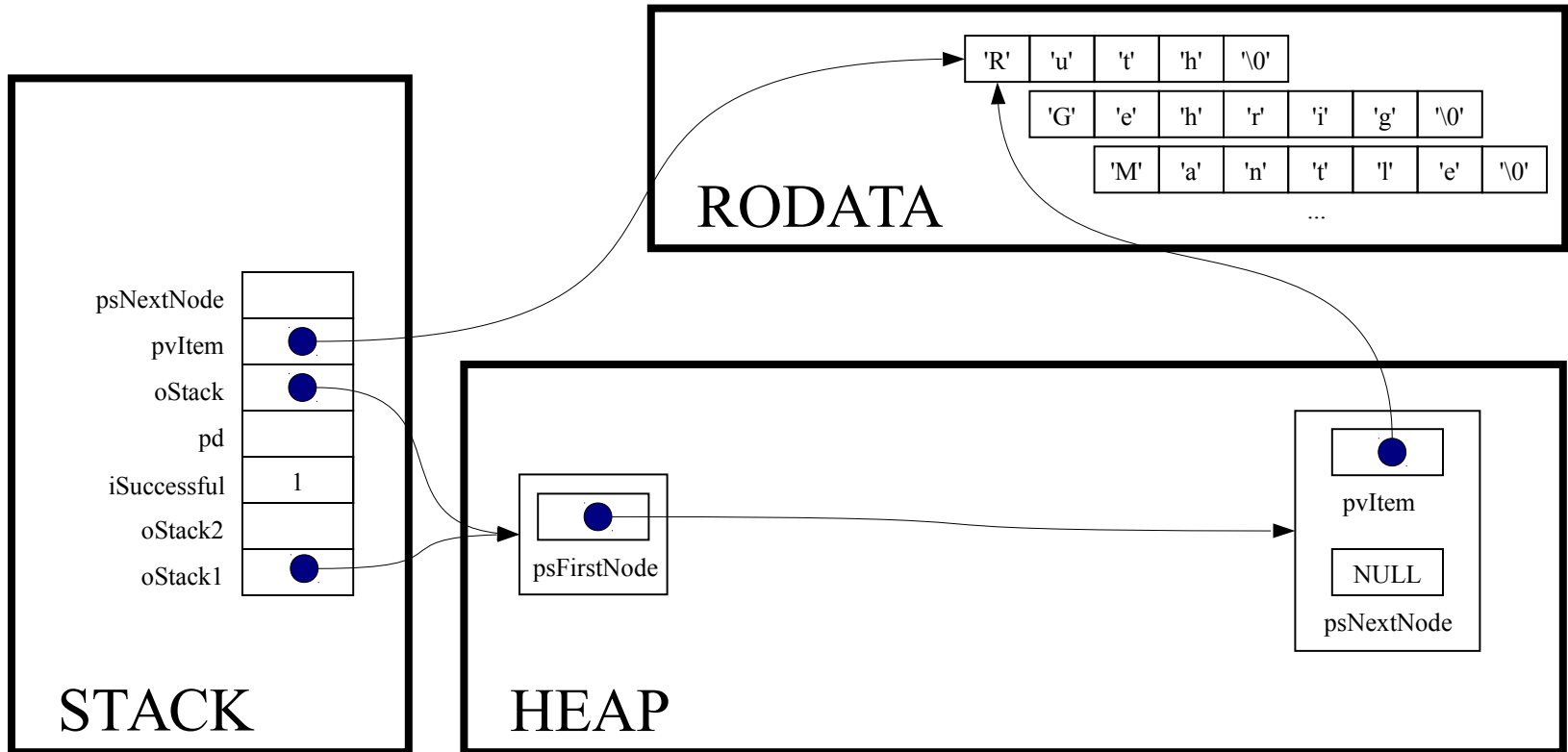
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```
assert(oStack->psFirstNode != NULL);
```



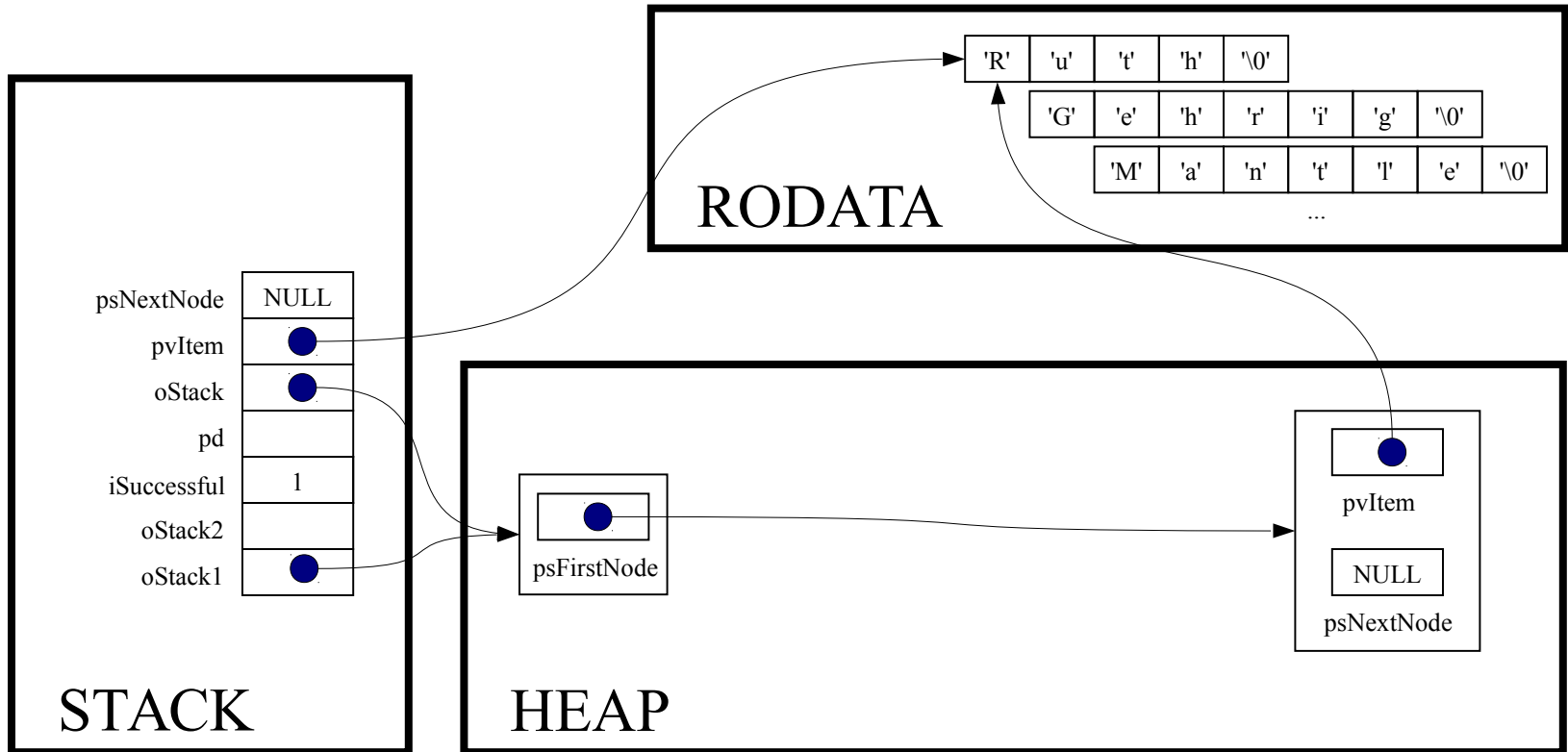
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```
pvItem = oStack->psFirstNode->pvItem;
```



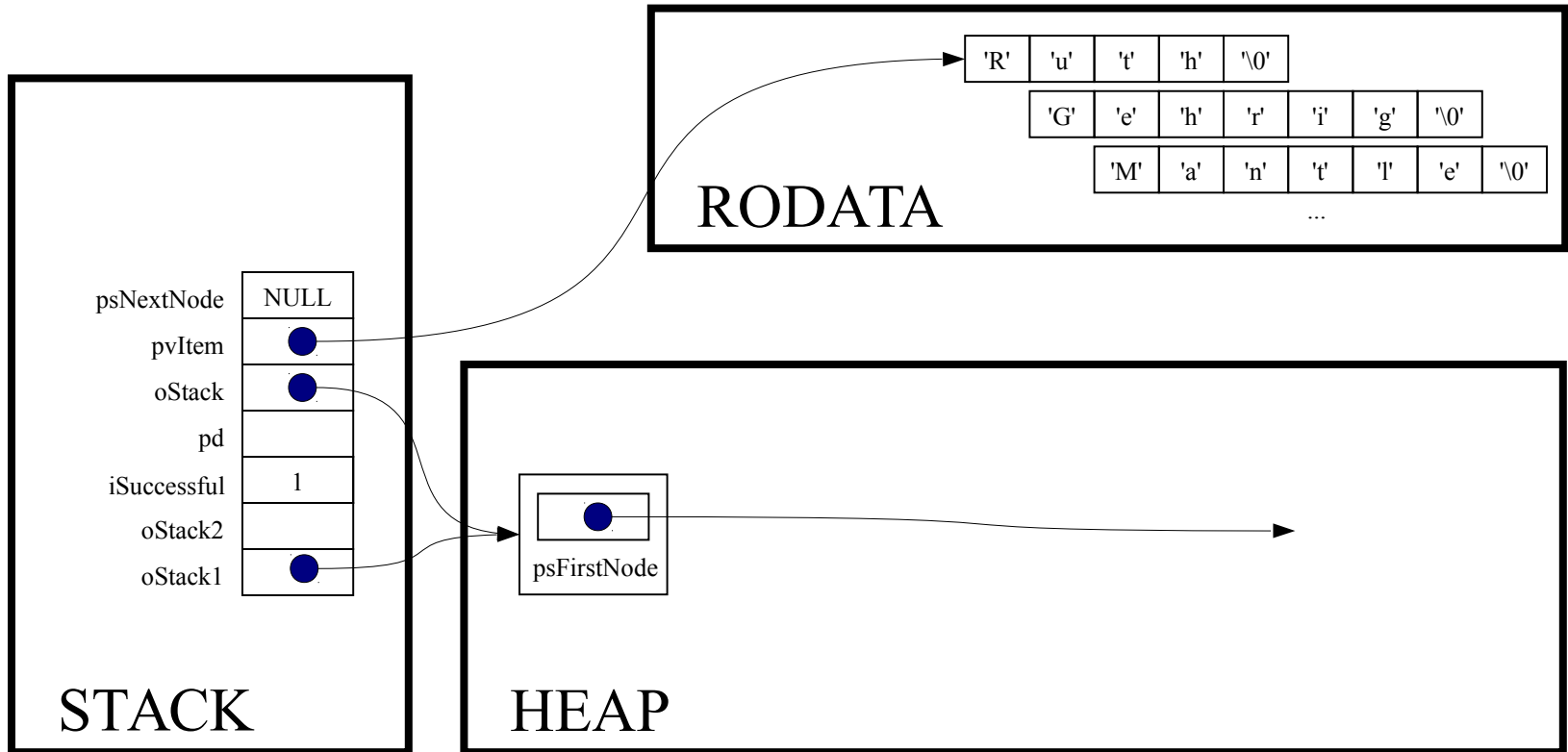
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```
psNextNode = oStack->psFirstNode->psNextNode;
```



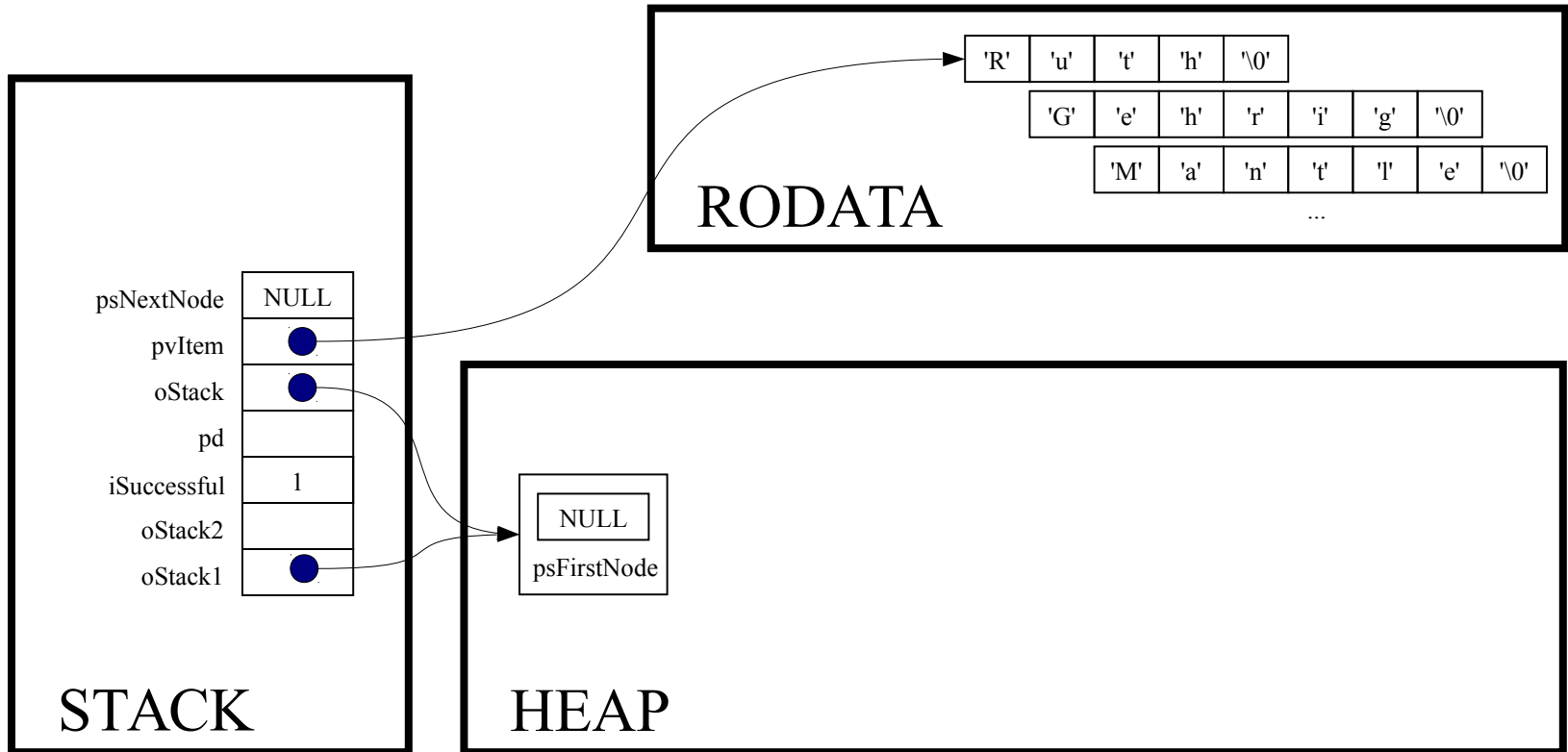
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```
free(oStack->psFirstNode);
```



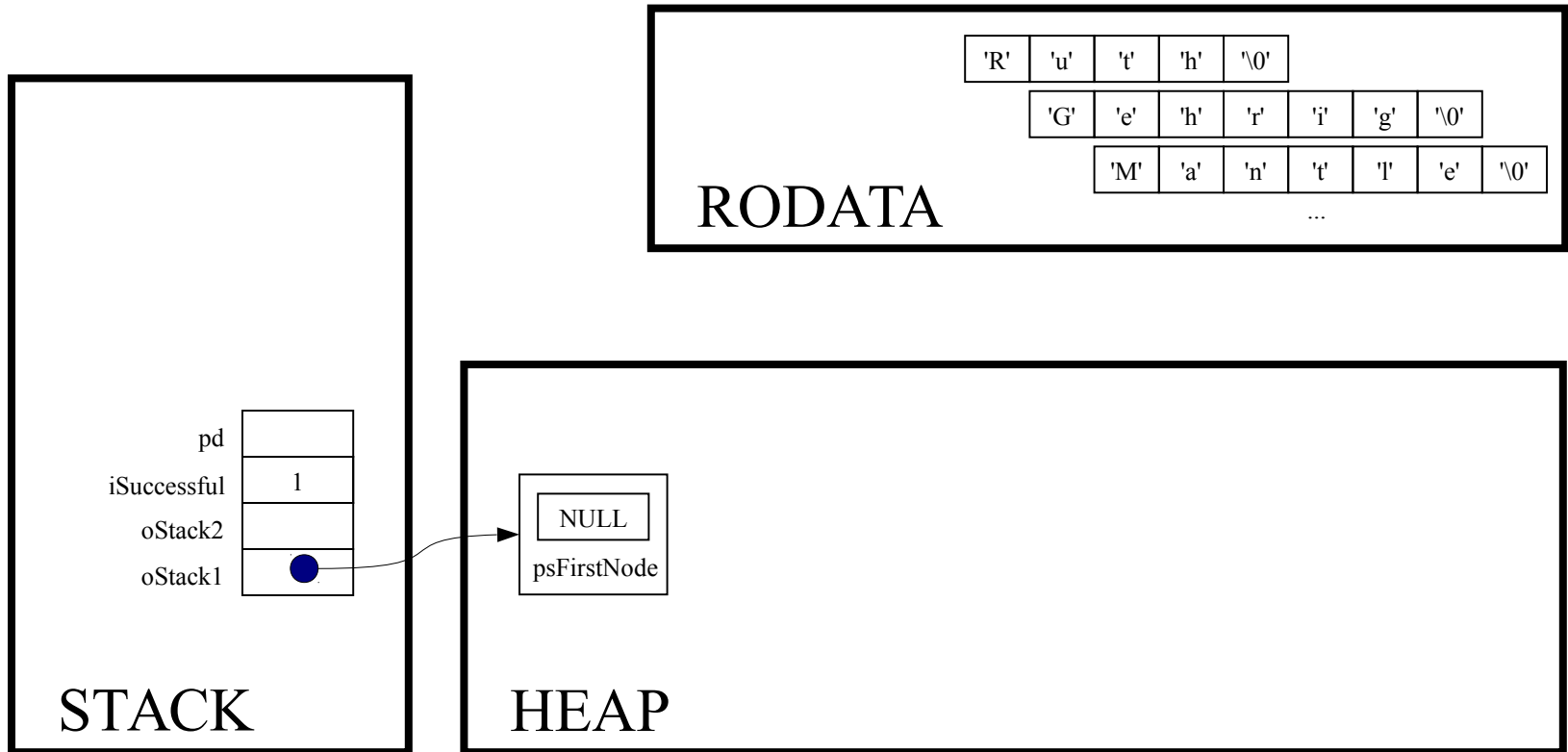
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```
oStack->psFirstNode = psNextNode;
```



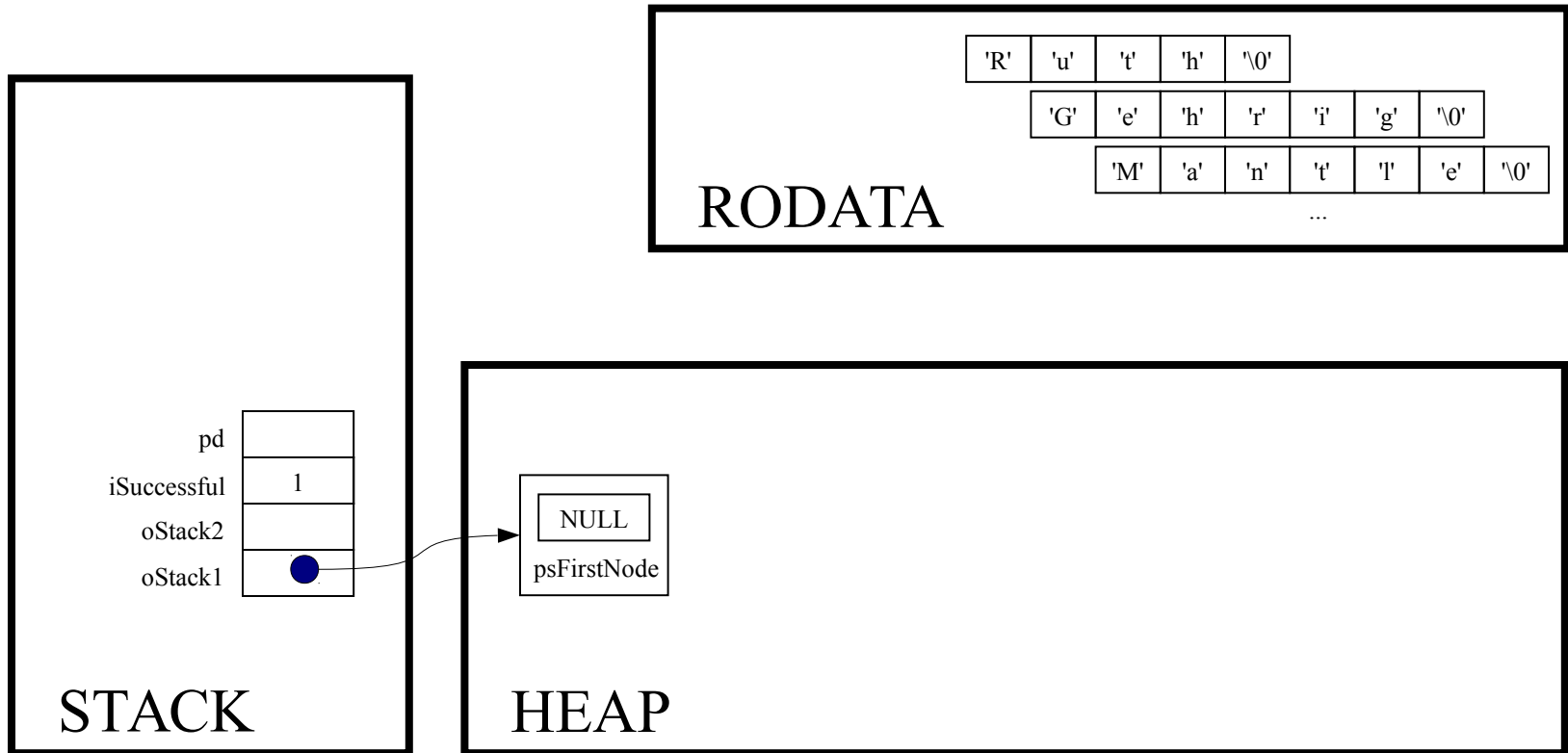
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```
return (void*)pvItem;
```



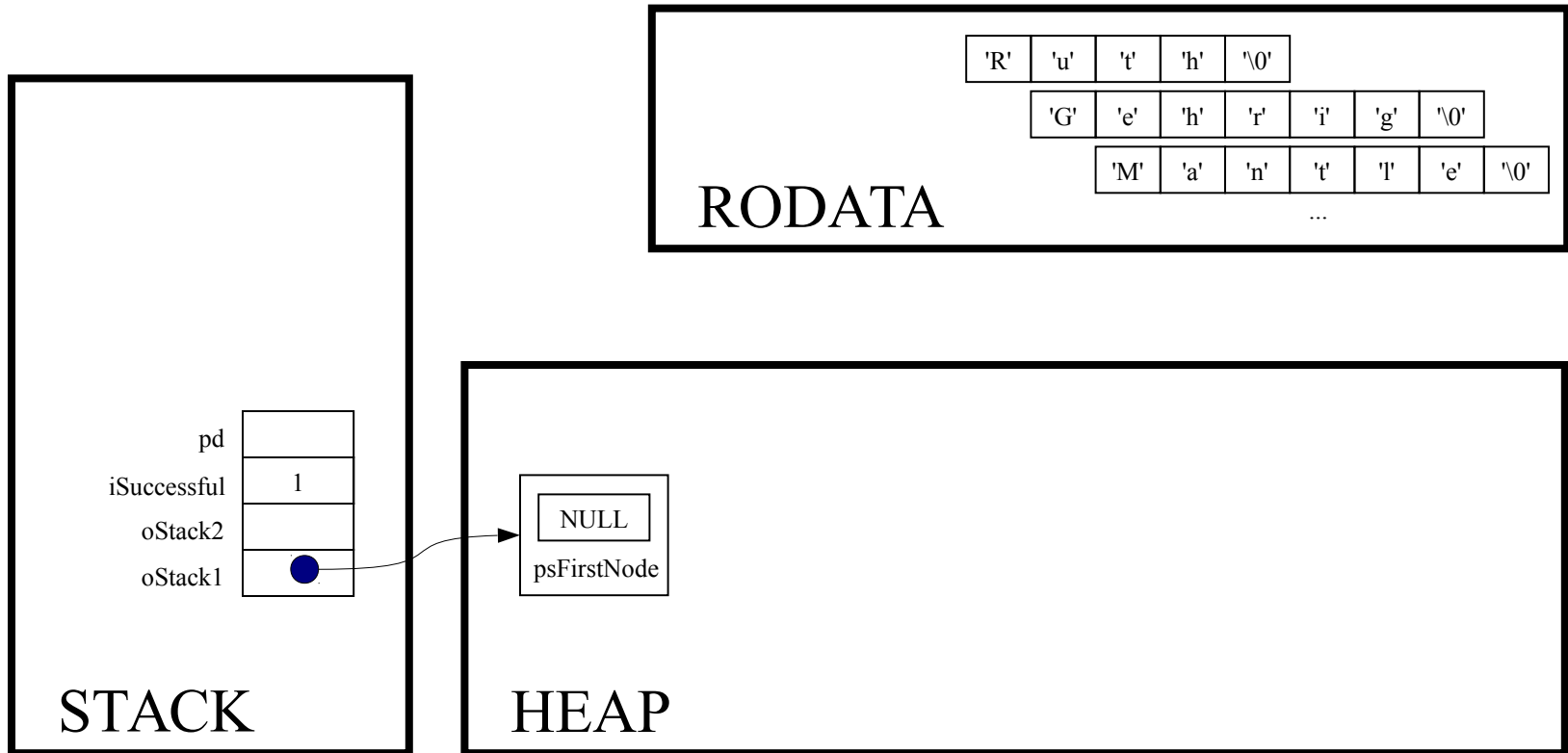
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```
printf("%s\n", (char*)Stack_pop(oStack1));
```



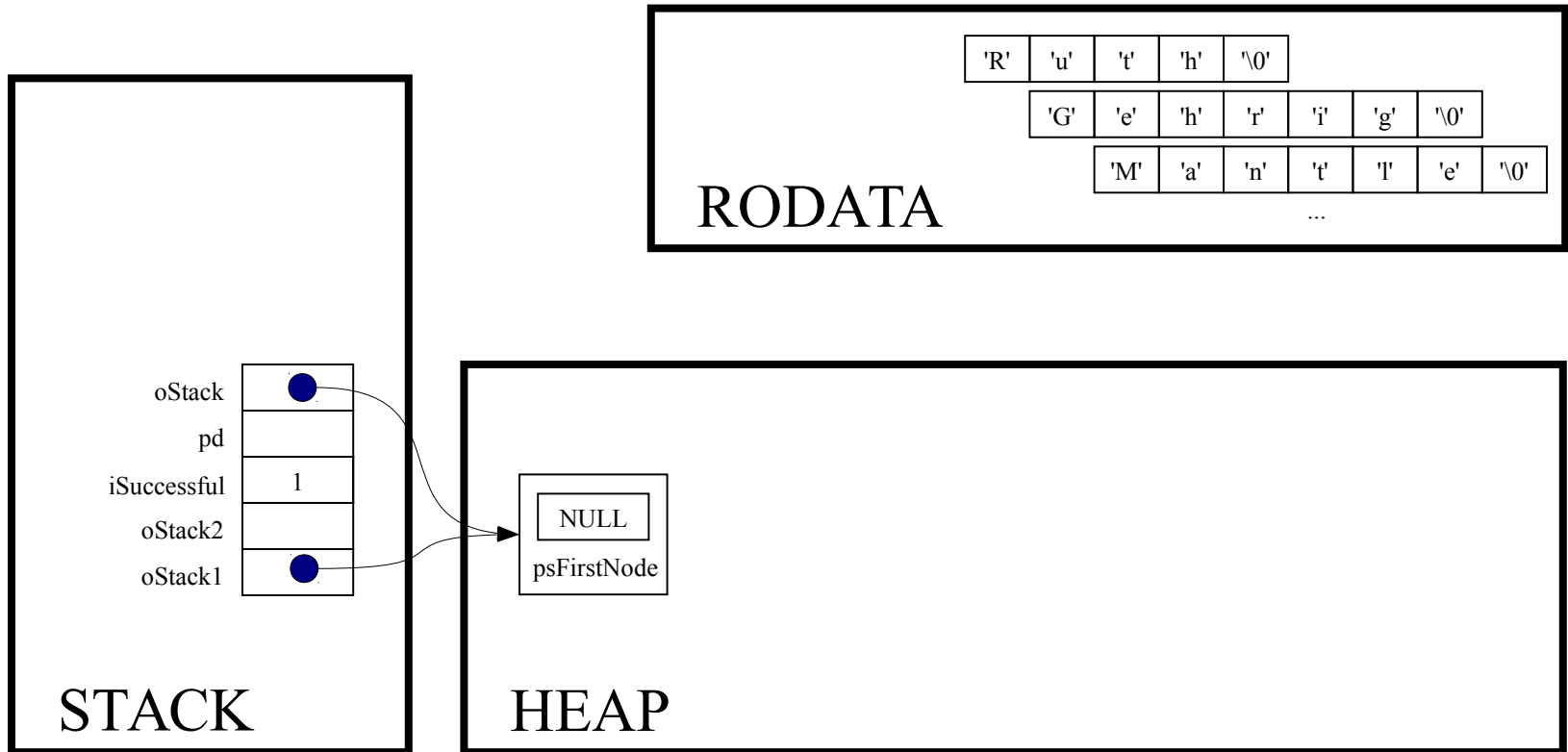
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```
while (! Stack_isEmpty(oStack1))
```



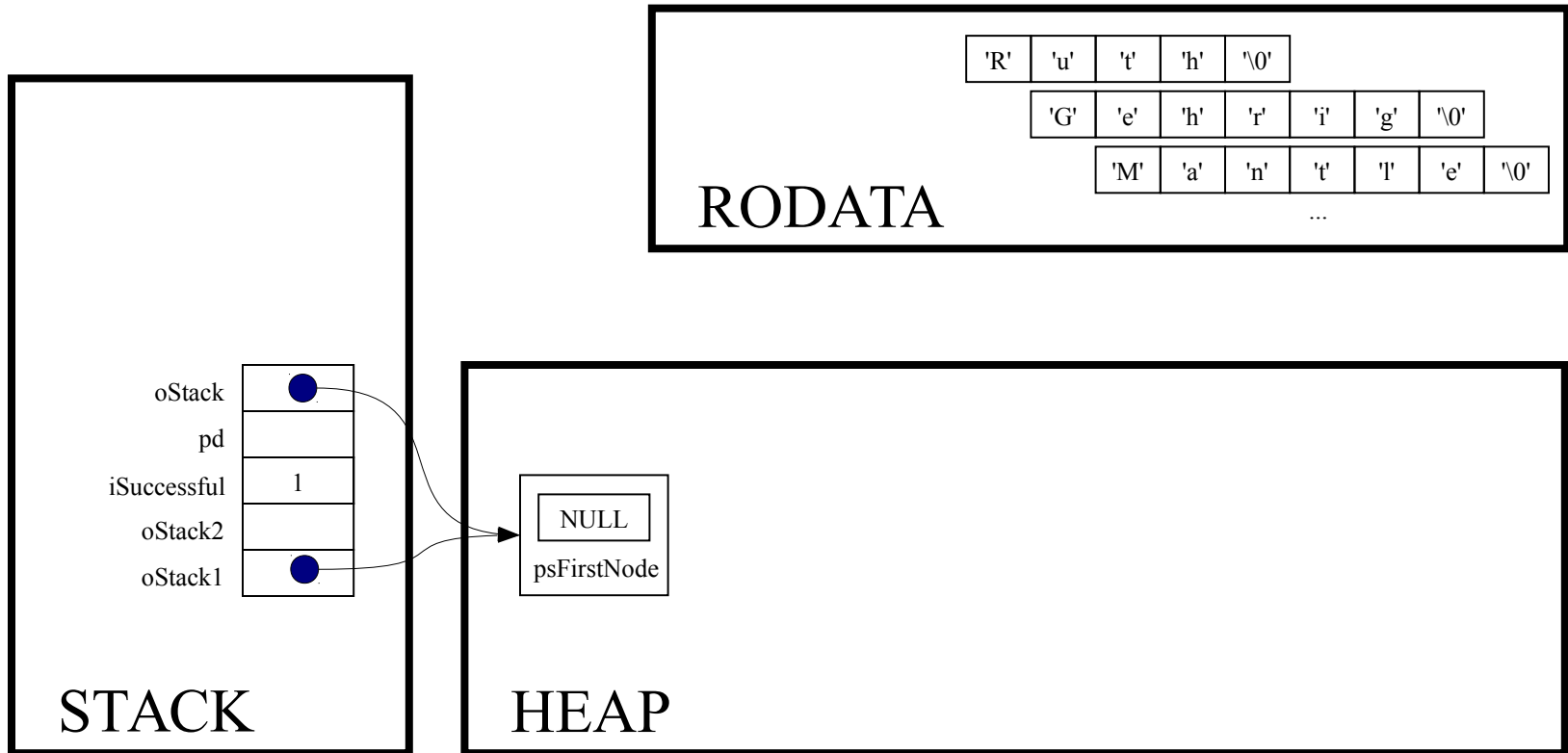
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```
int Stack_isEmpty(Stack_T oStack)
```



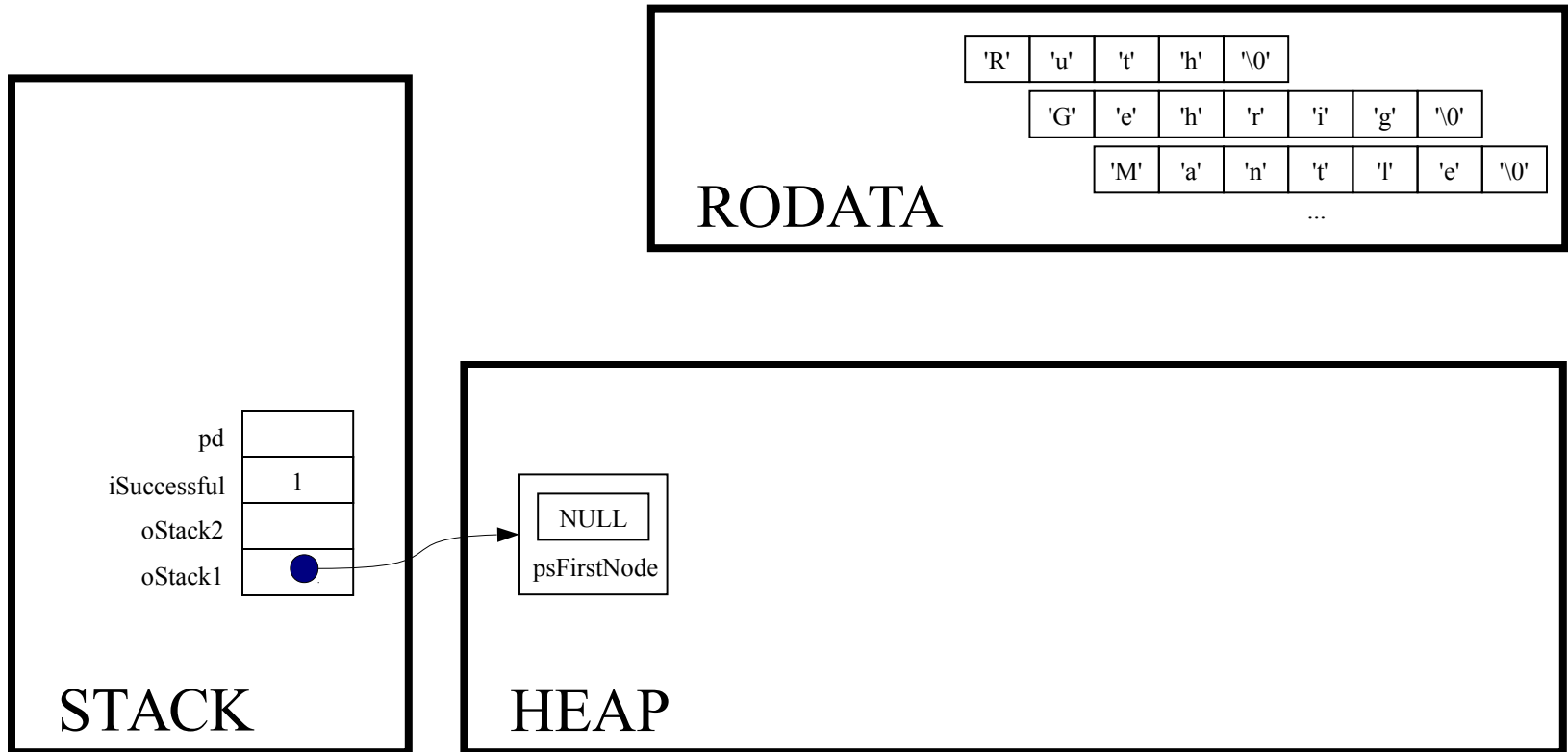
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```
assert(oStack != NULL);
```



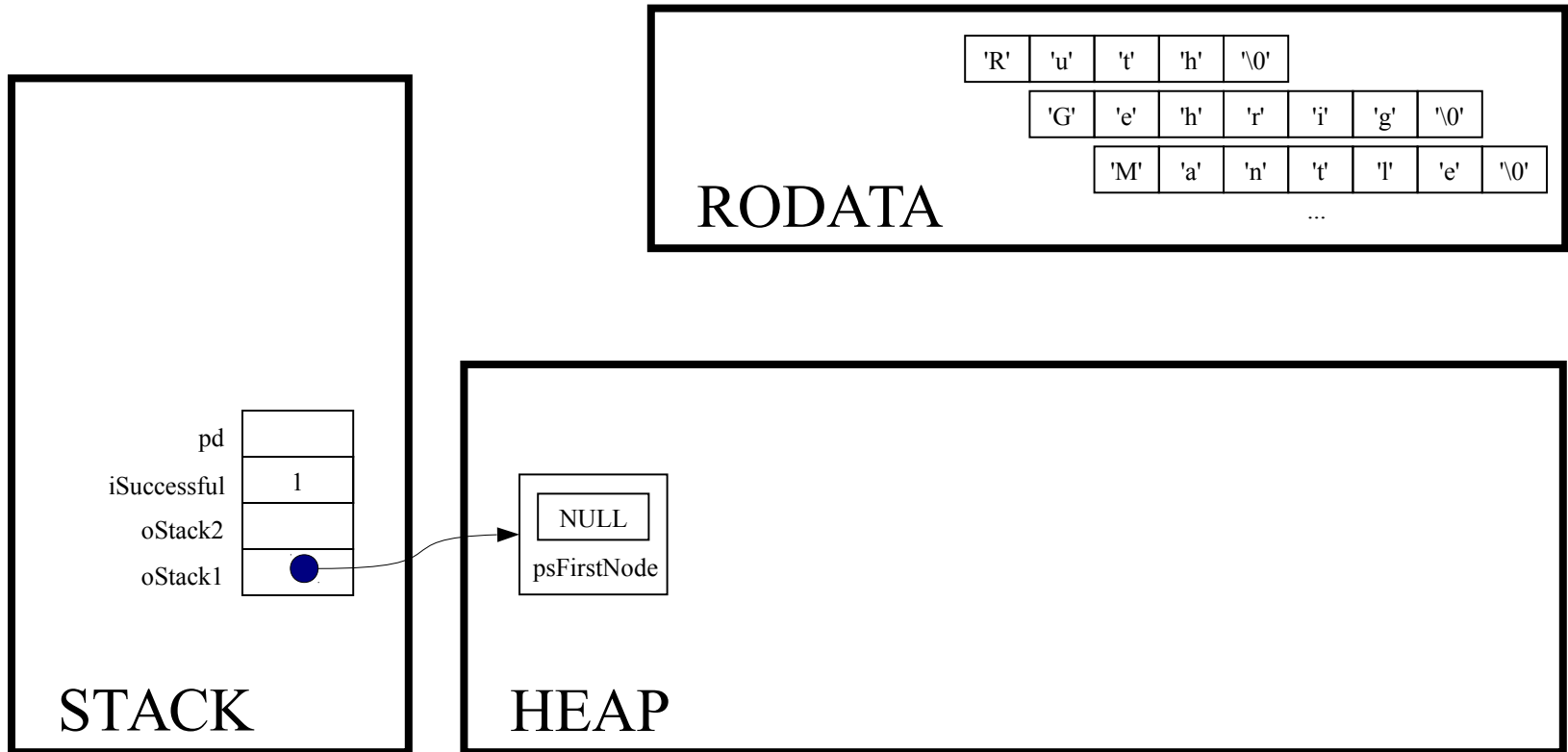
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```
return oStack->psFirstNode == NULL;
```



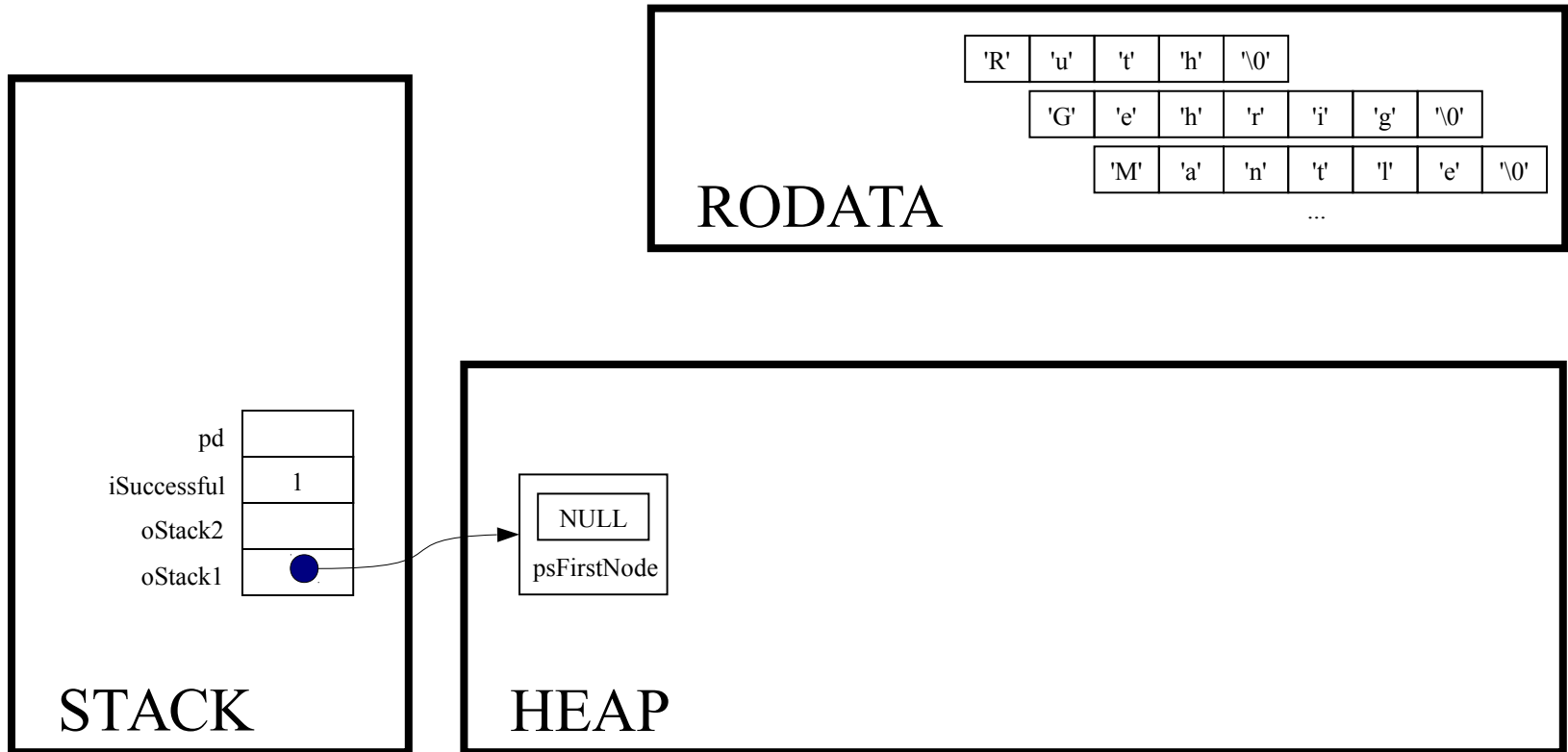
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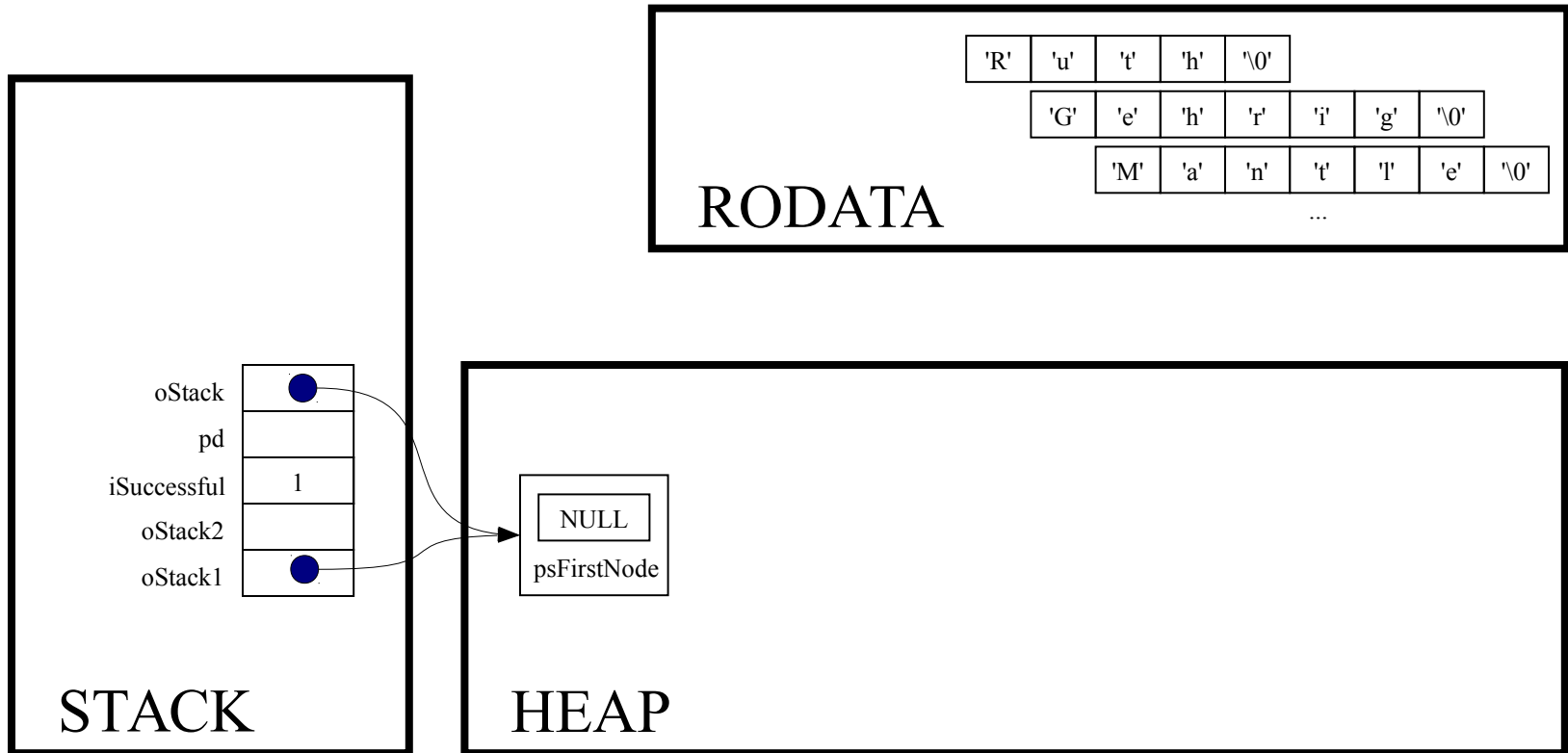
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```
Stack_free(oStack1);
```



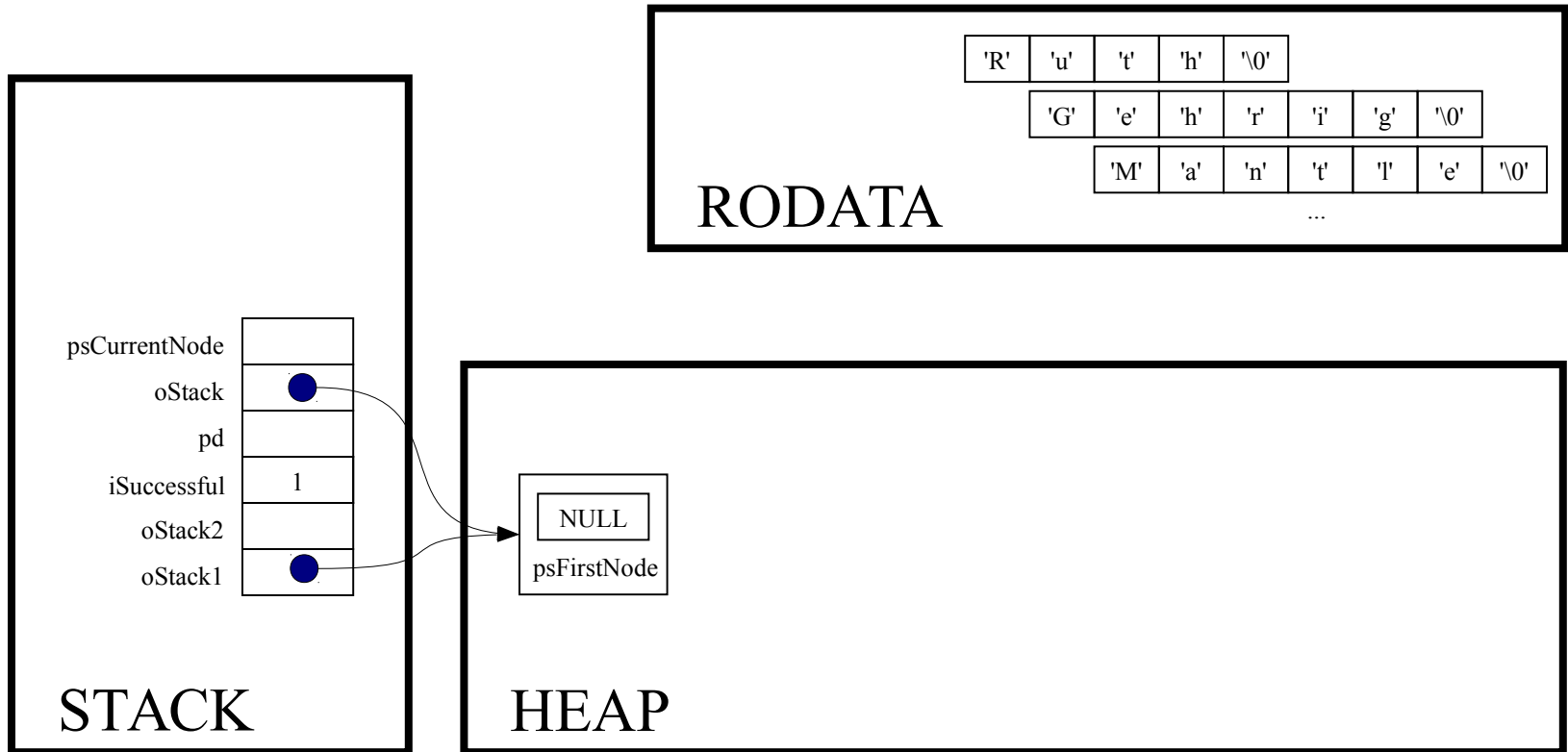
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```
void Stack_free(Stack_T oStack)
```



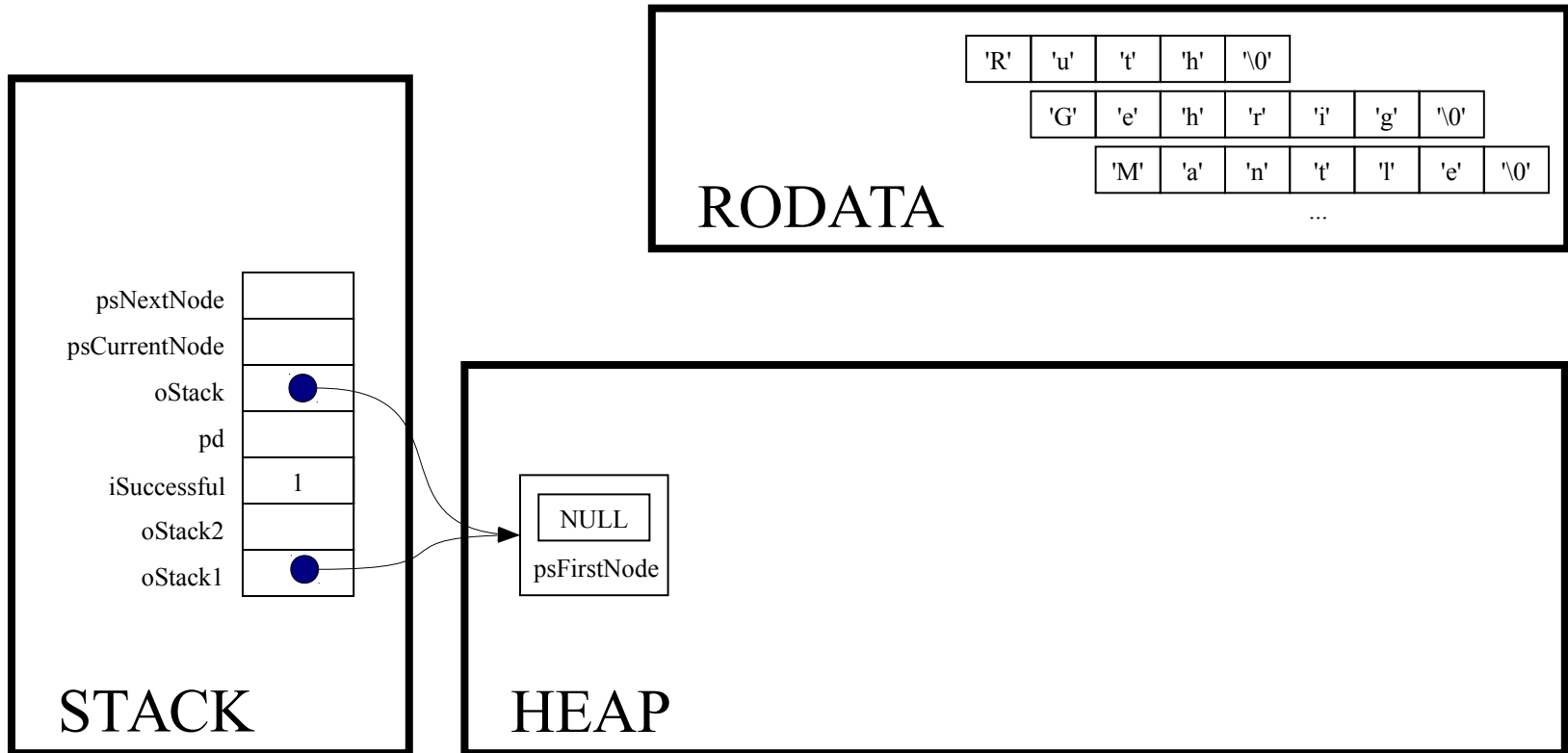
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```
struct StackNode *psCurrentNode;
```



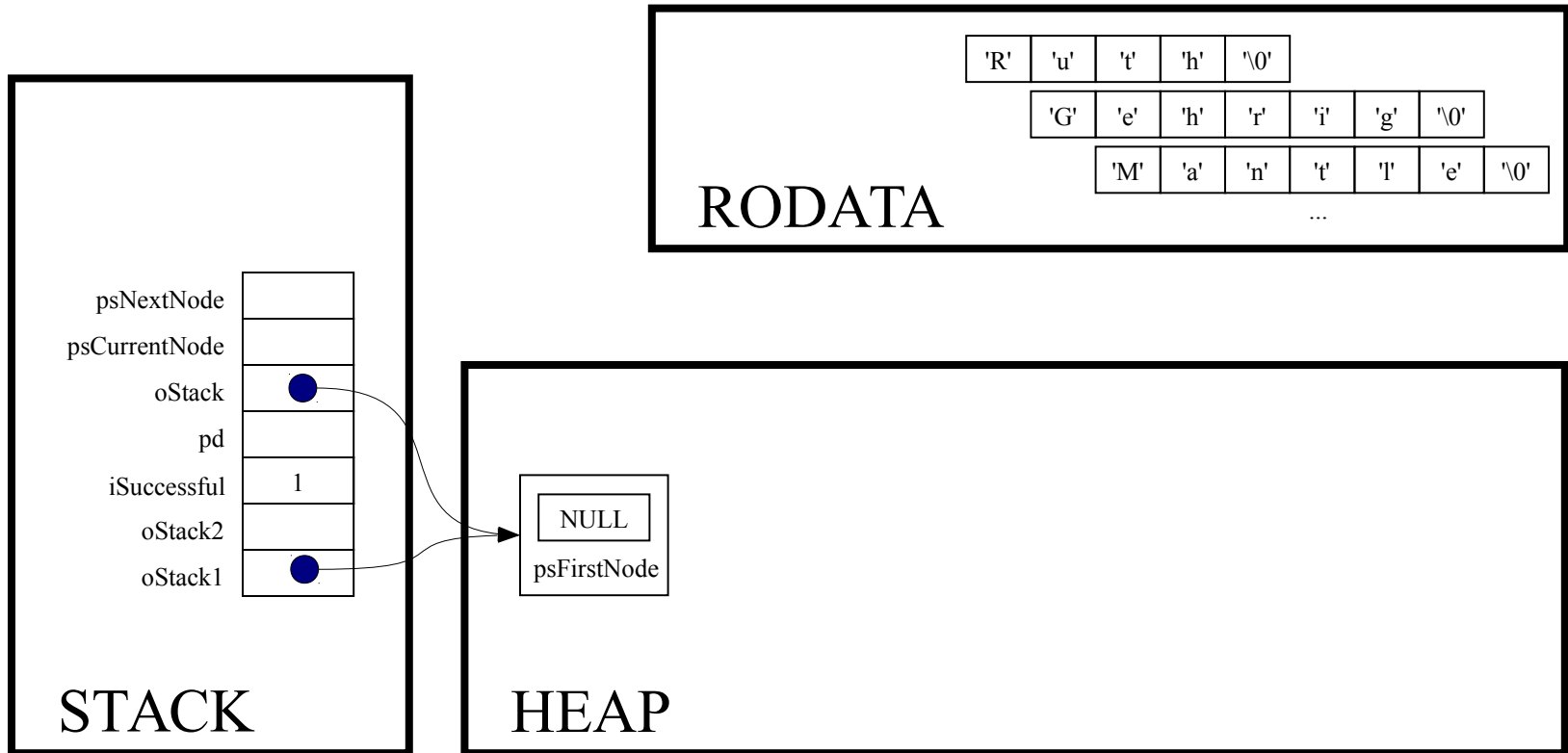
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```
struct StackNode *psNextNode;
```



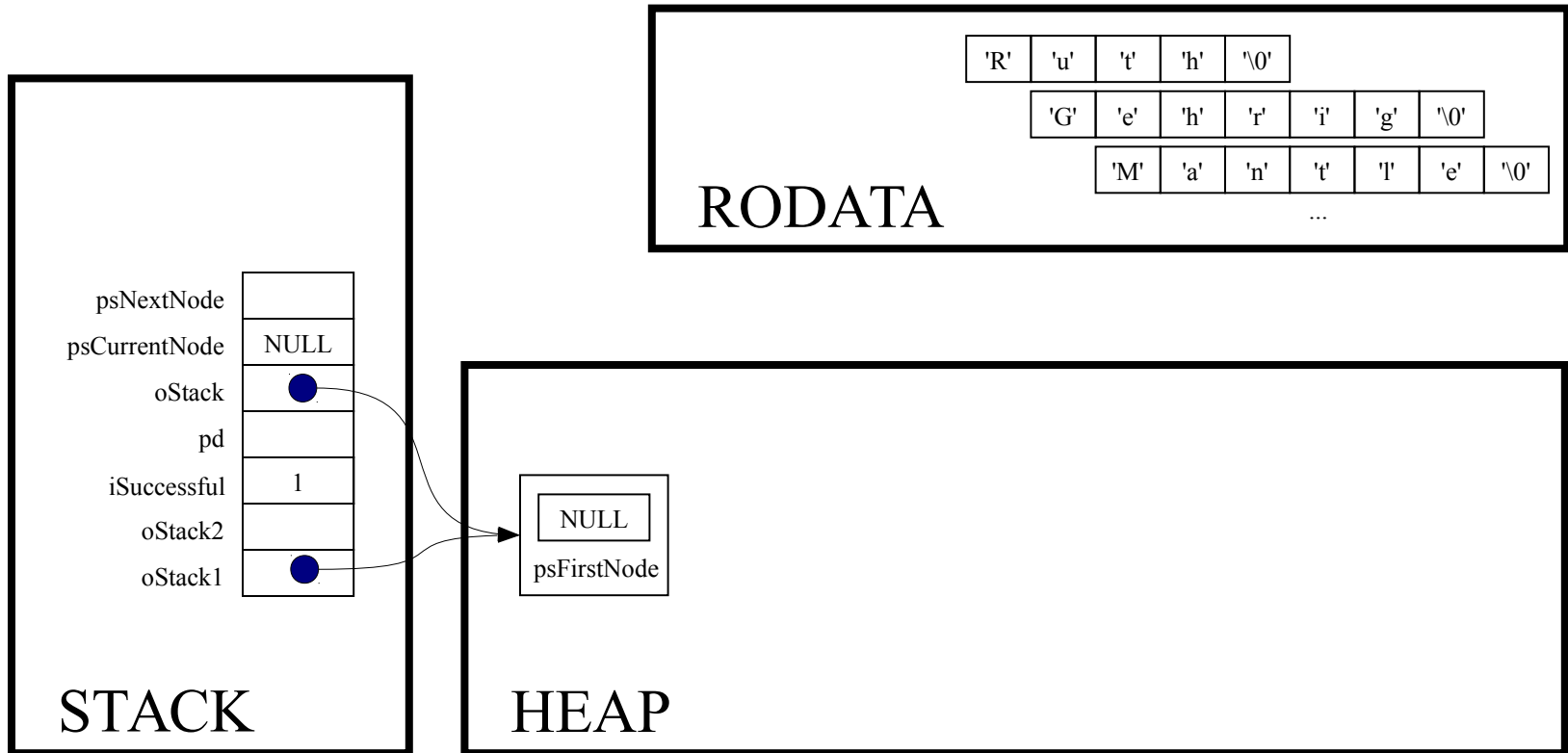
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```
assert(oStack != NULL);
```



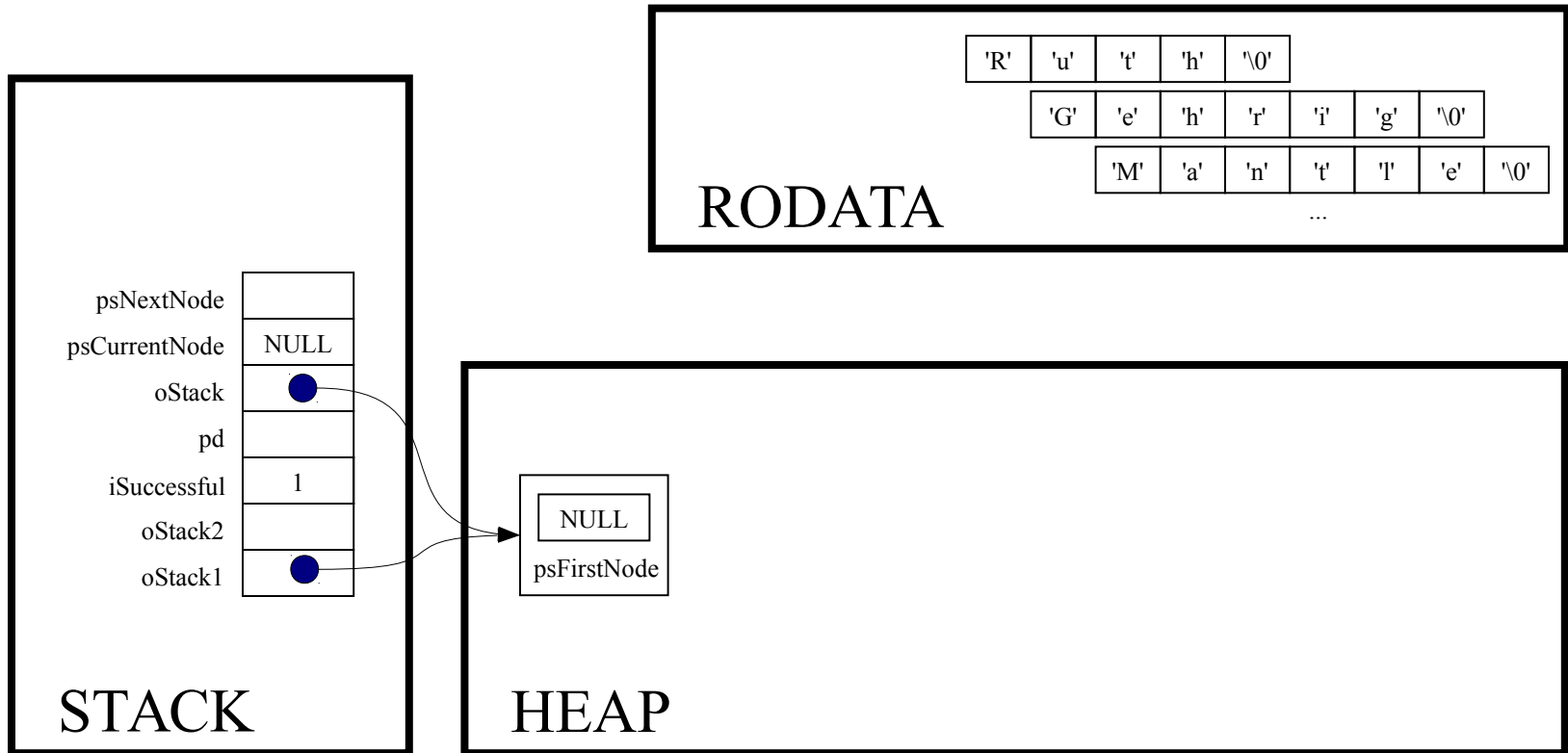
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```
for (psCurrentNode = oStack->psFirstNode;  
    psCurrentNode != NULL;  
    psCurrentNode = psNextNode)
```



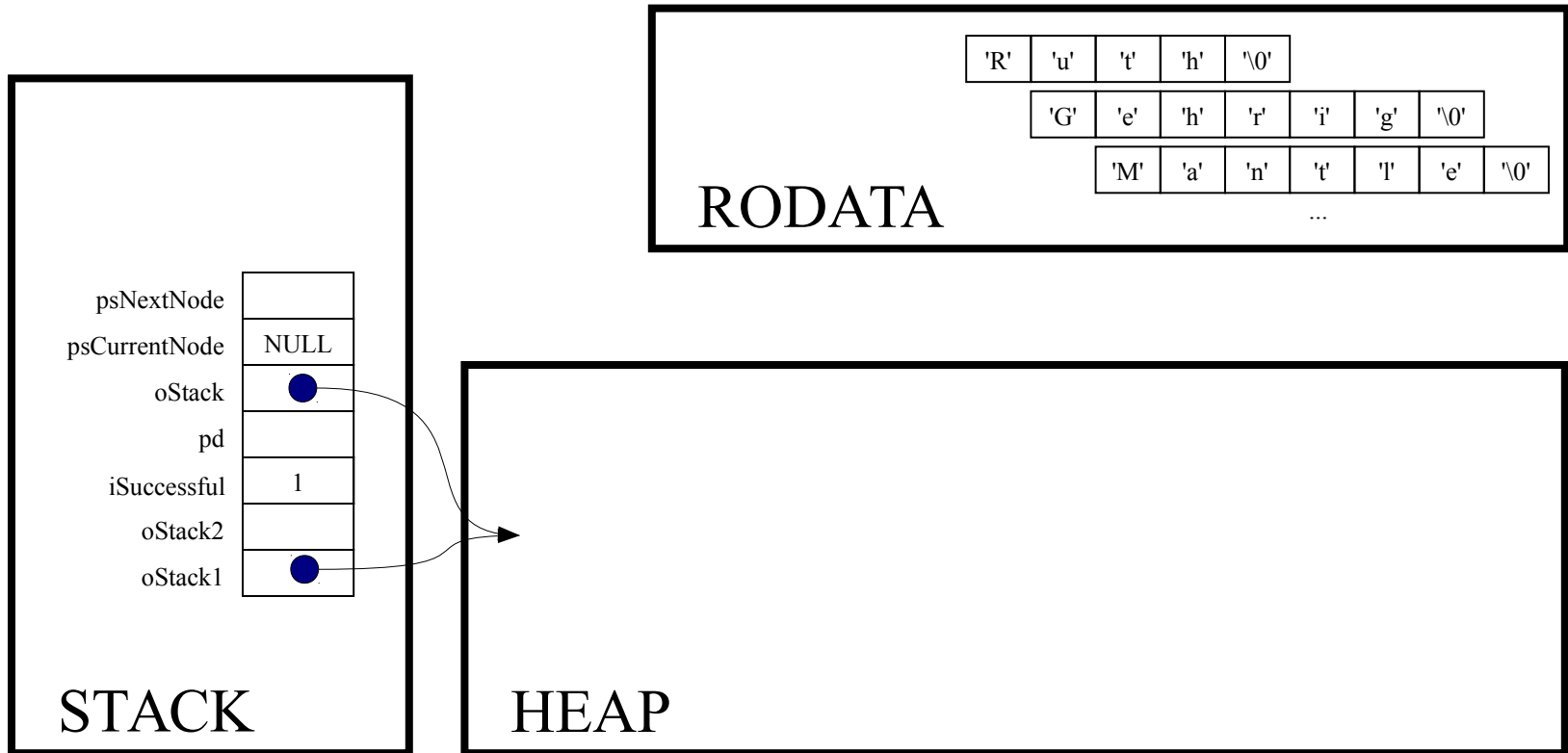
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Trace of teststack (Version 5)

```
for (psCurrentNode = oStack->psFirstNode;  
    psCurrentNode != NULL;  
    psCurrentNode = psNextNode)
```



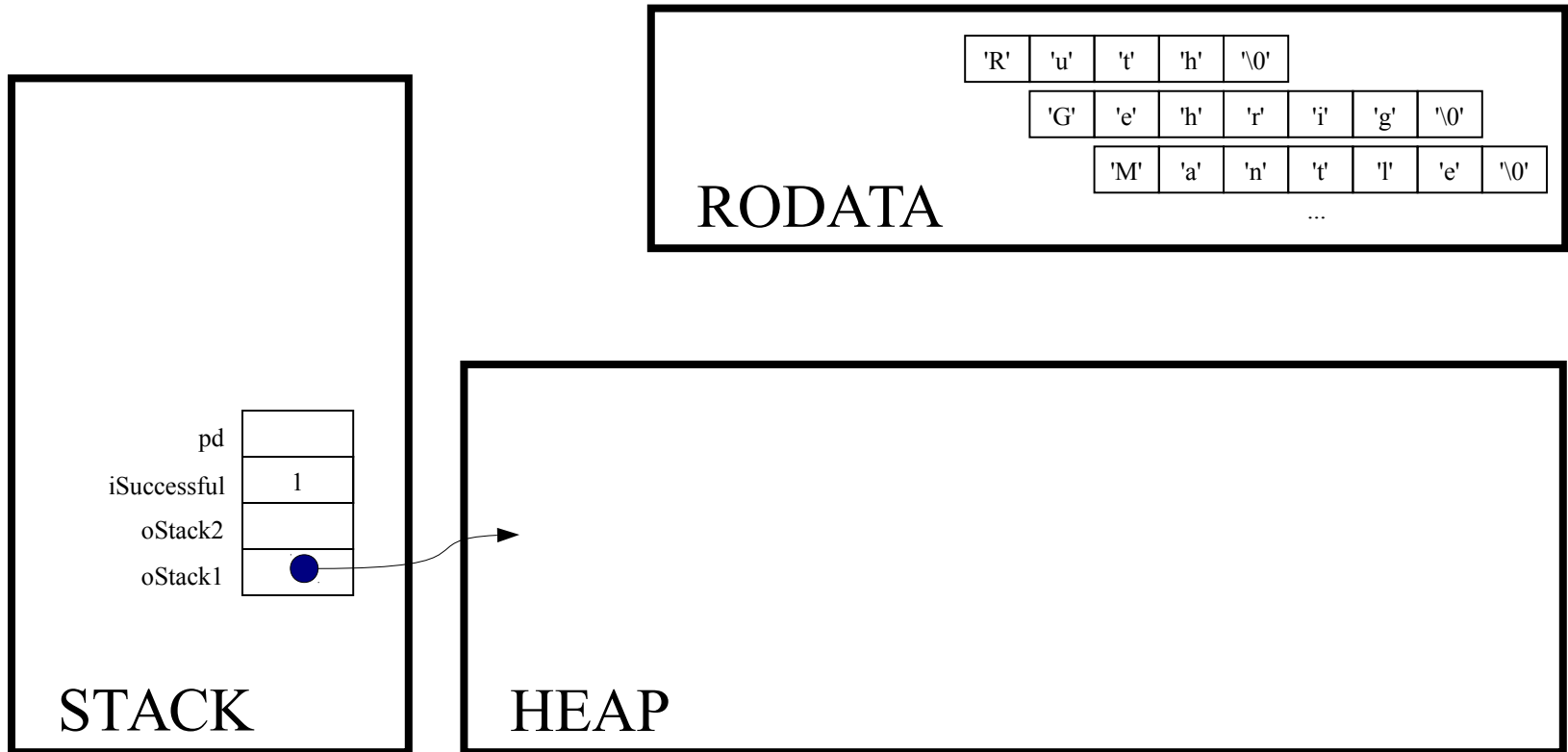
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```
free(oStack);
```



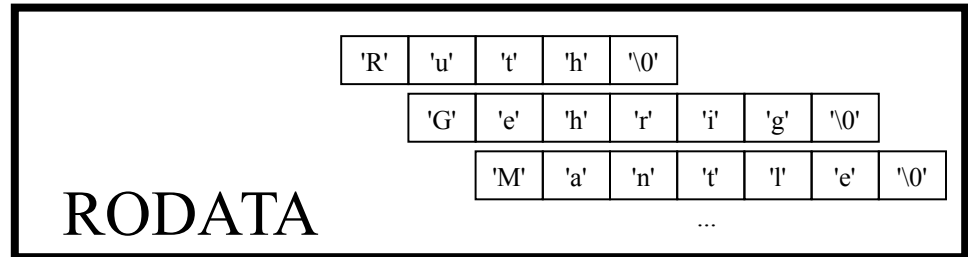
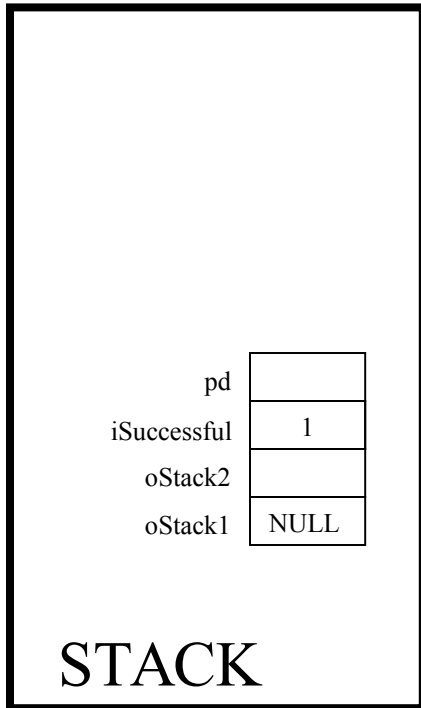
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Implicit return



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```
oStack1 = NULL;
```

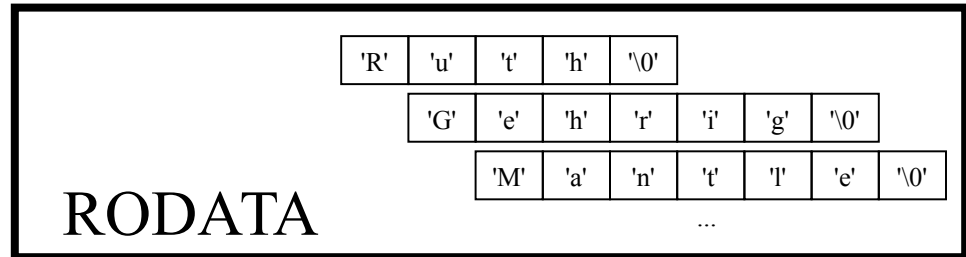
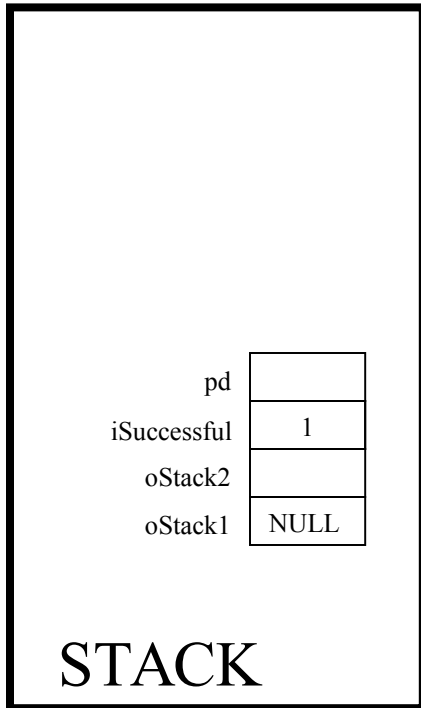


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Intermission!

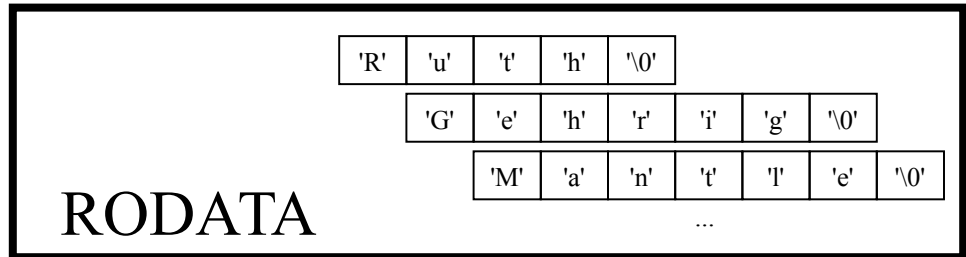
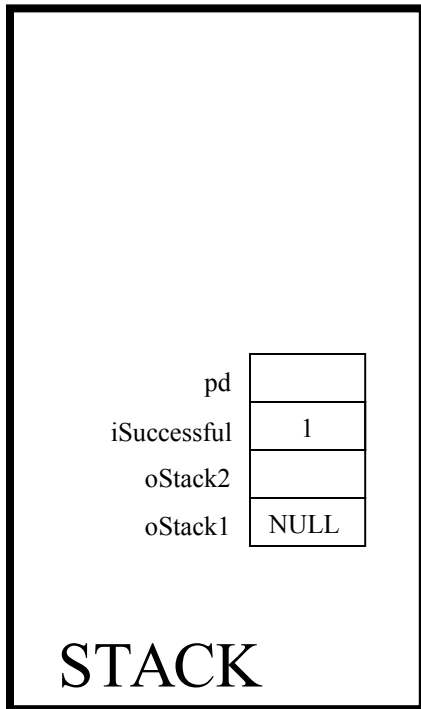
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```
oStack2 = Stack_new();
```



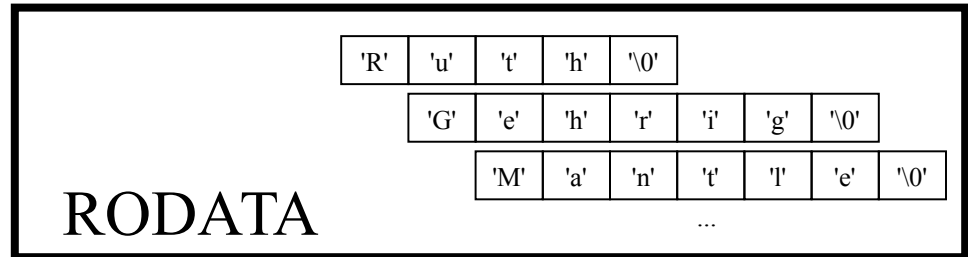
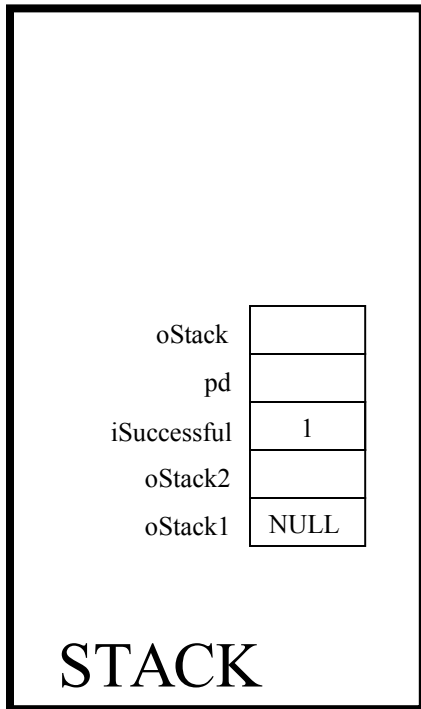
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```
Stack_T Stack_new(void)
```



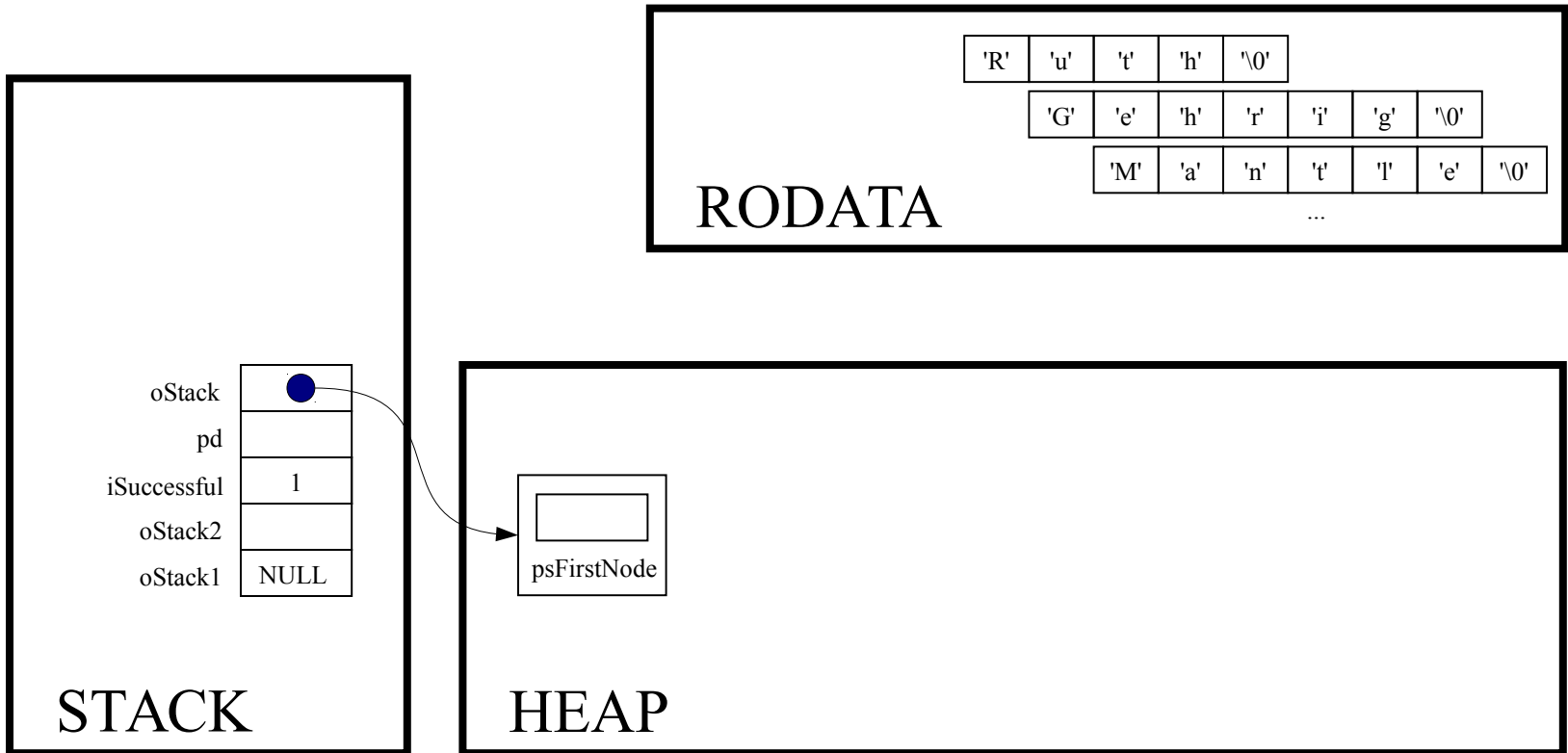
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```
Stack_T oStack;
```



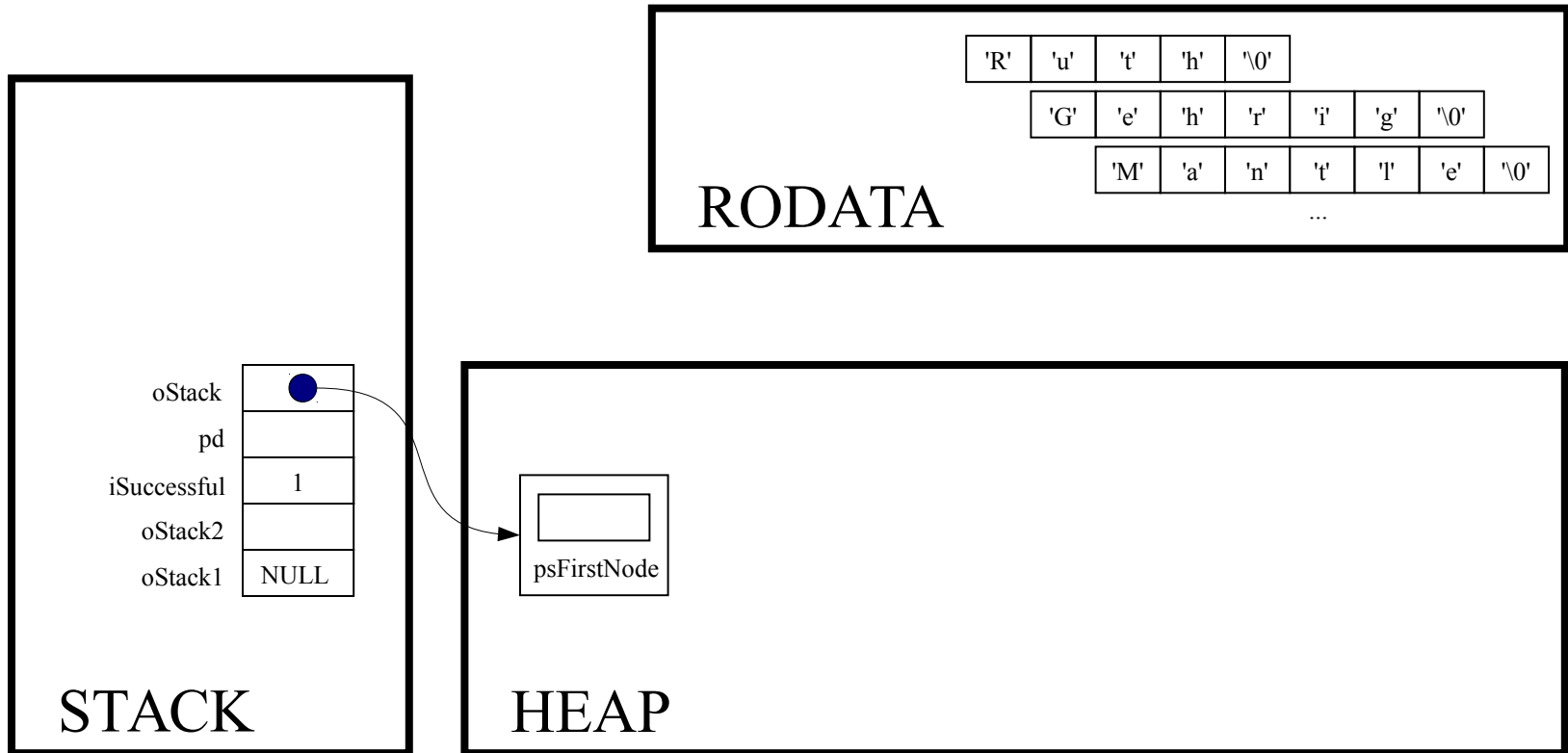
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```
oStack = (Stack_T)malloc(sizeof(struct Stack));
```



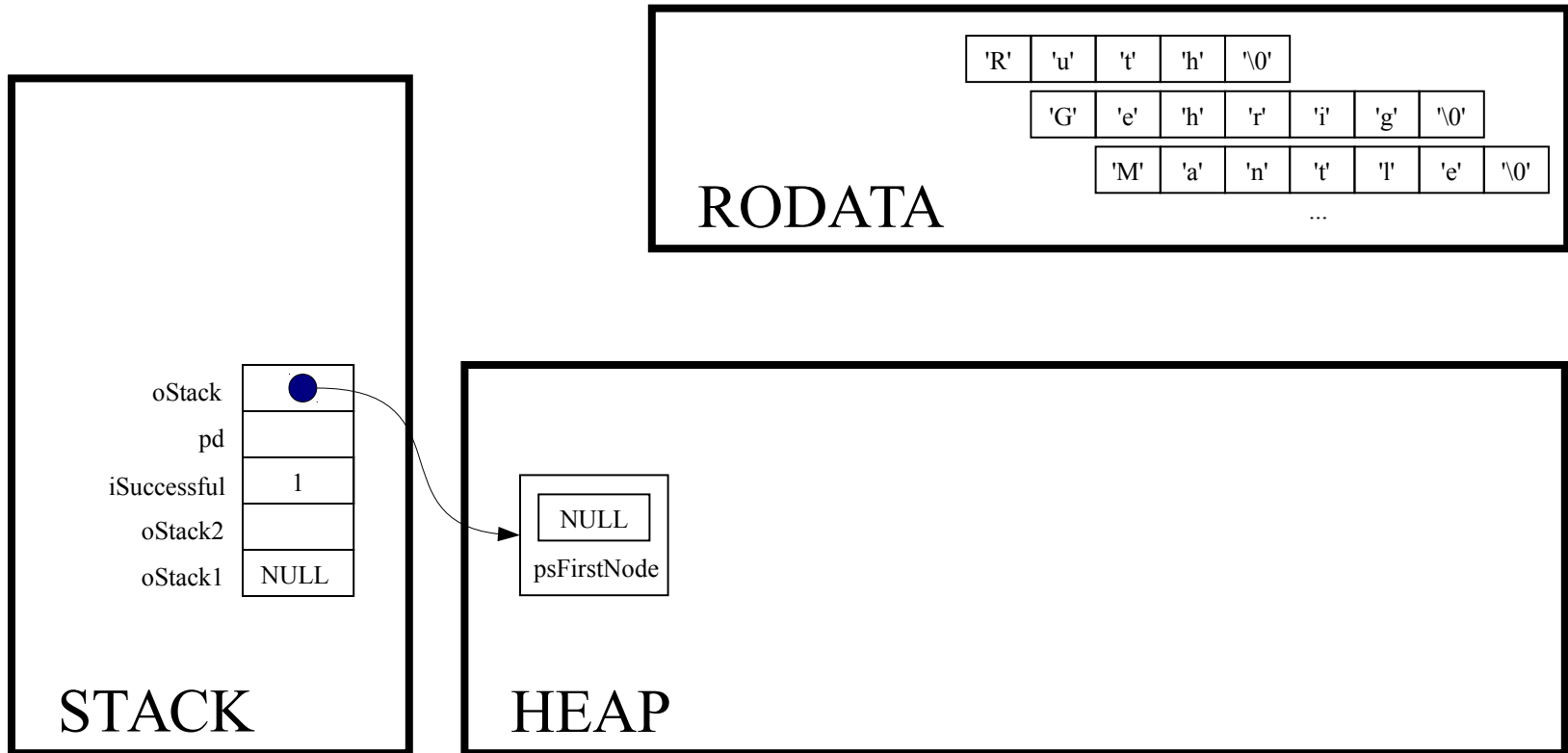
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```
if (oStack == NULL)
    return NULL;
```



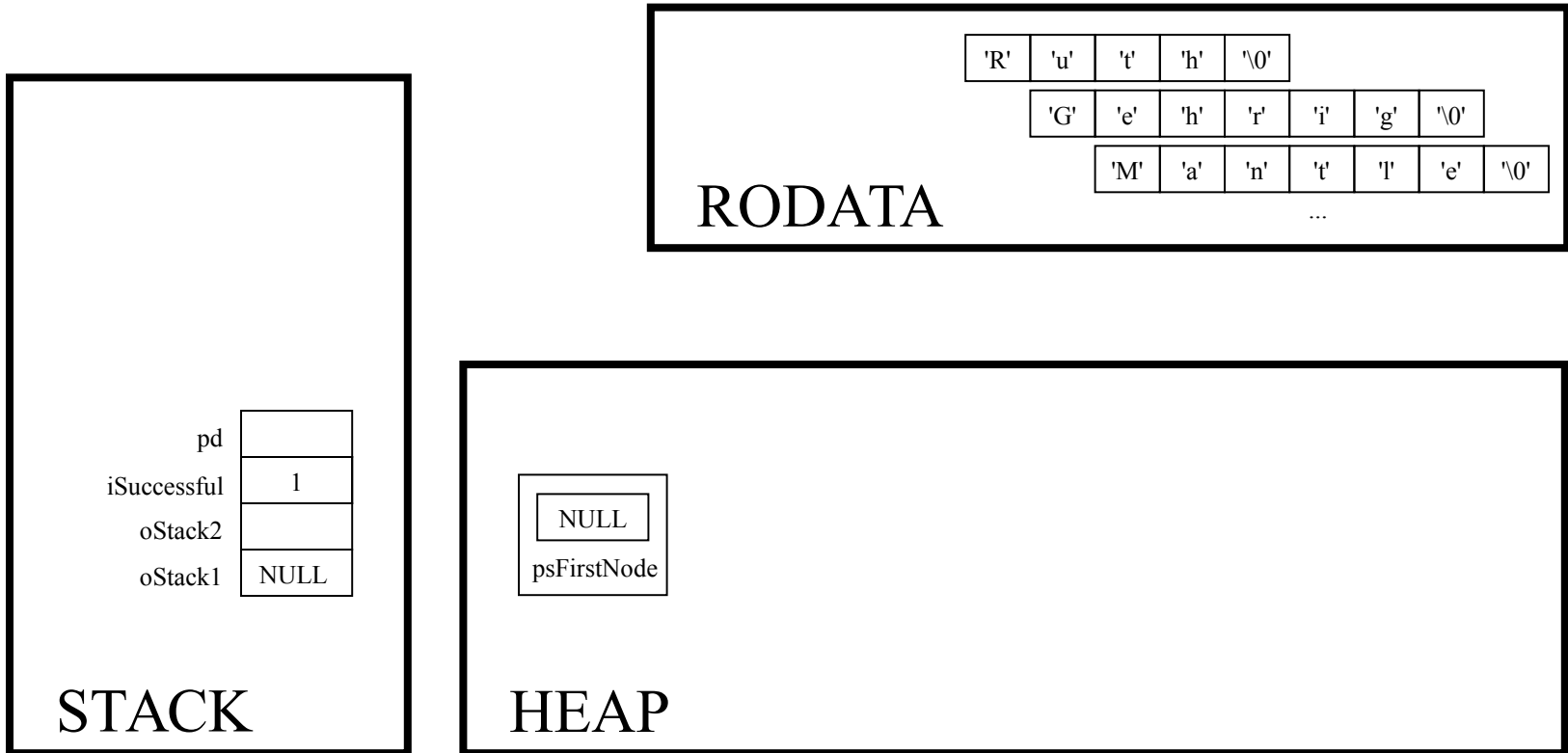
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```
oStack->psFirstNode = NULL;
```



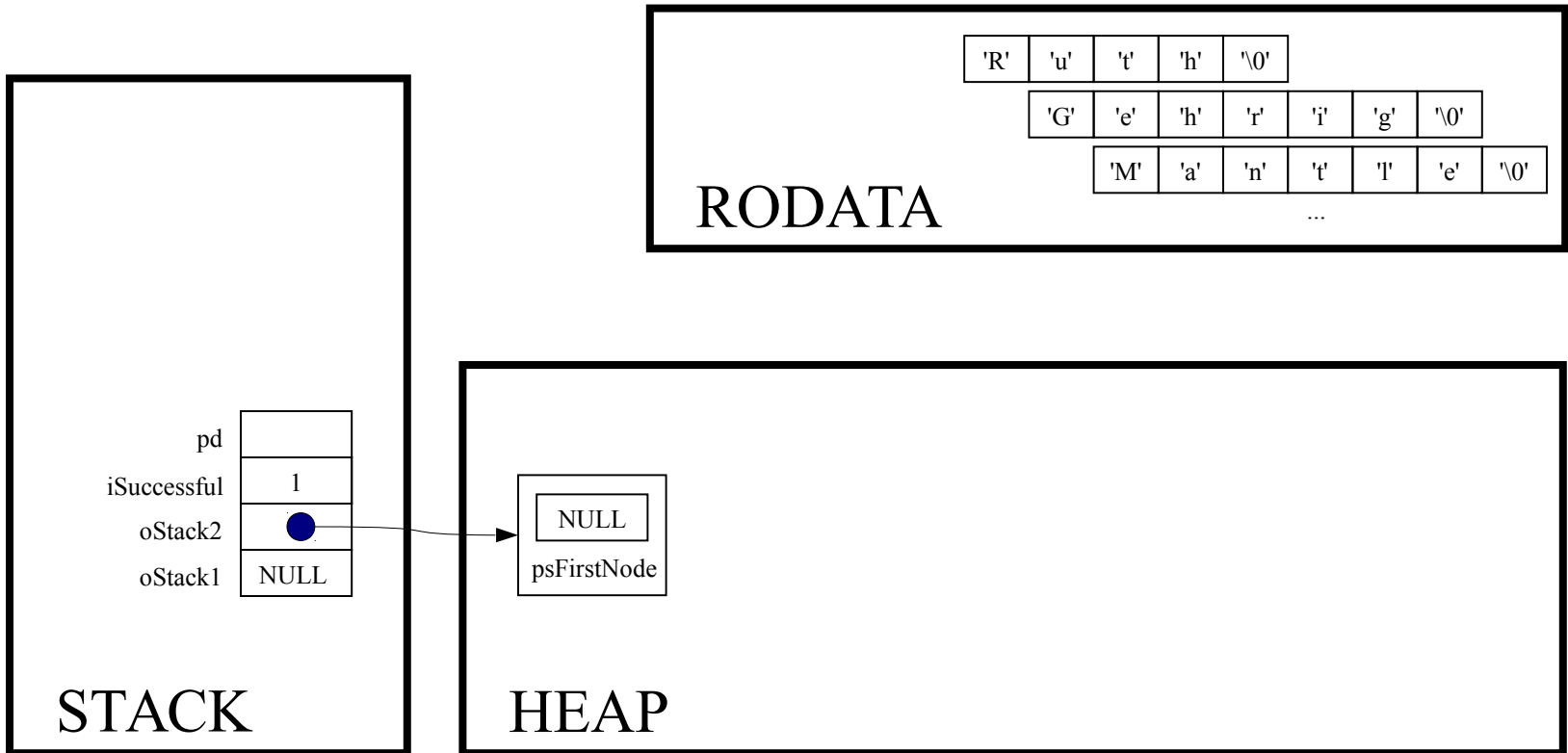
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```
return oStack;
```



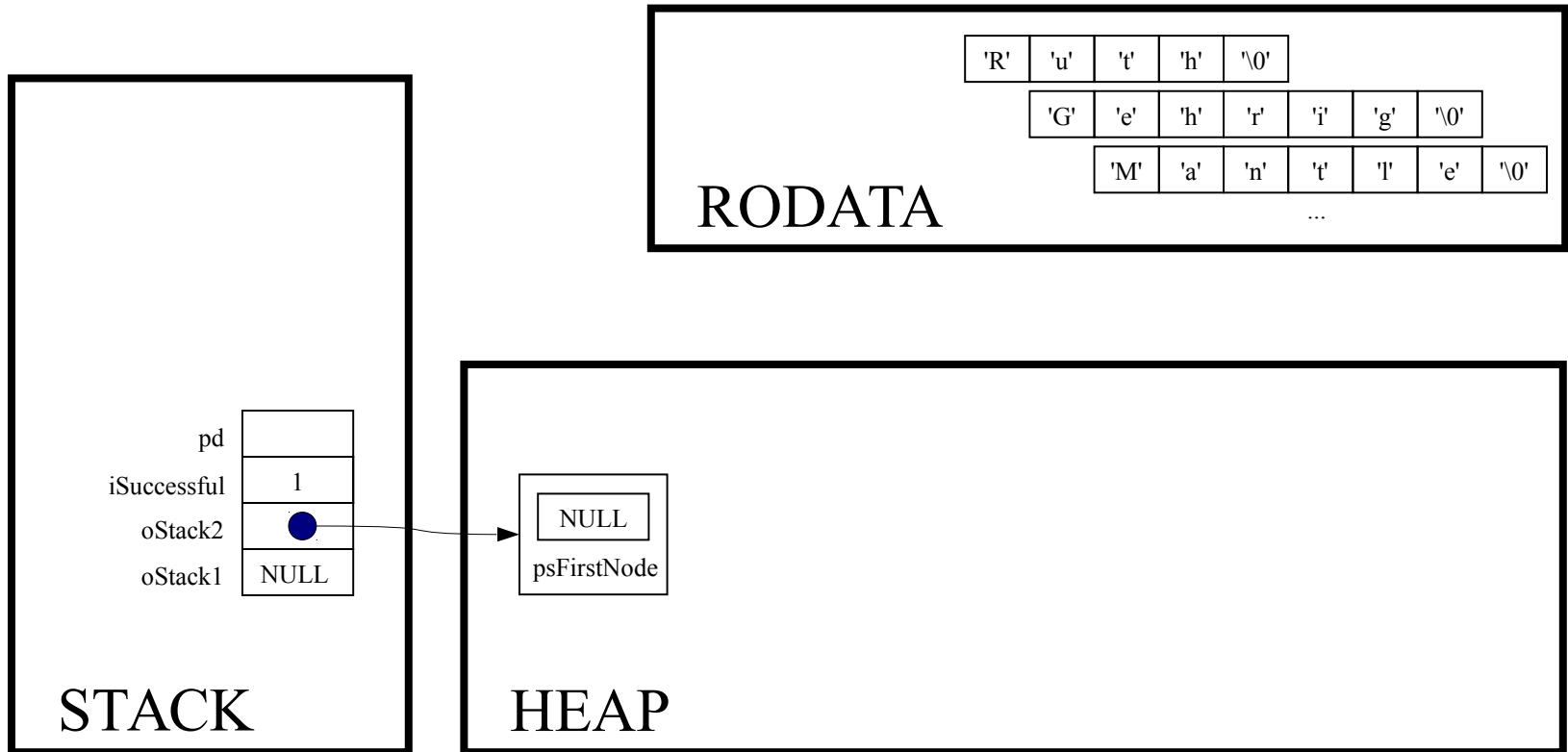
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```
oStack2 = Stack_new();
```



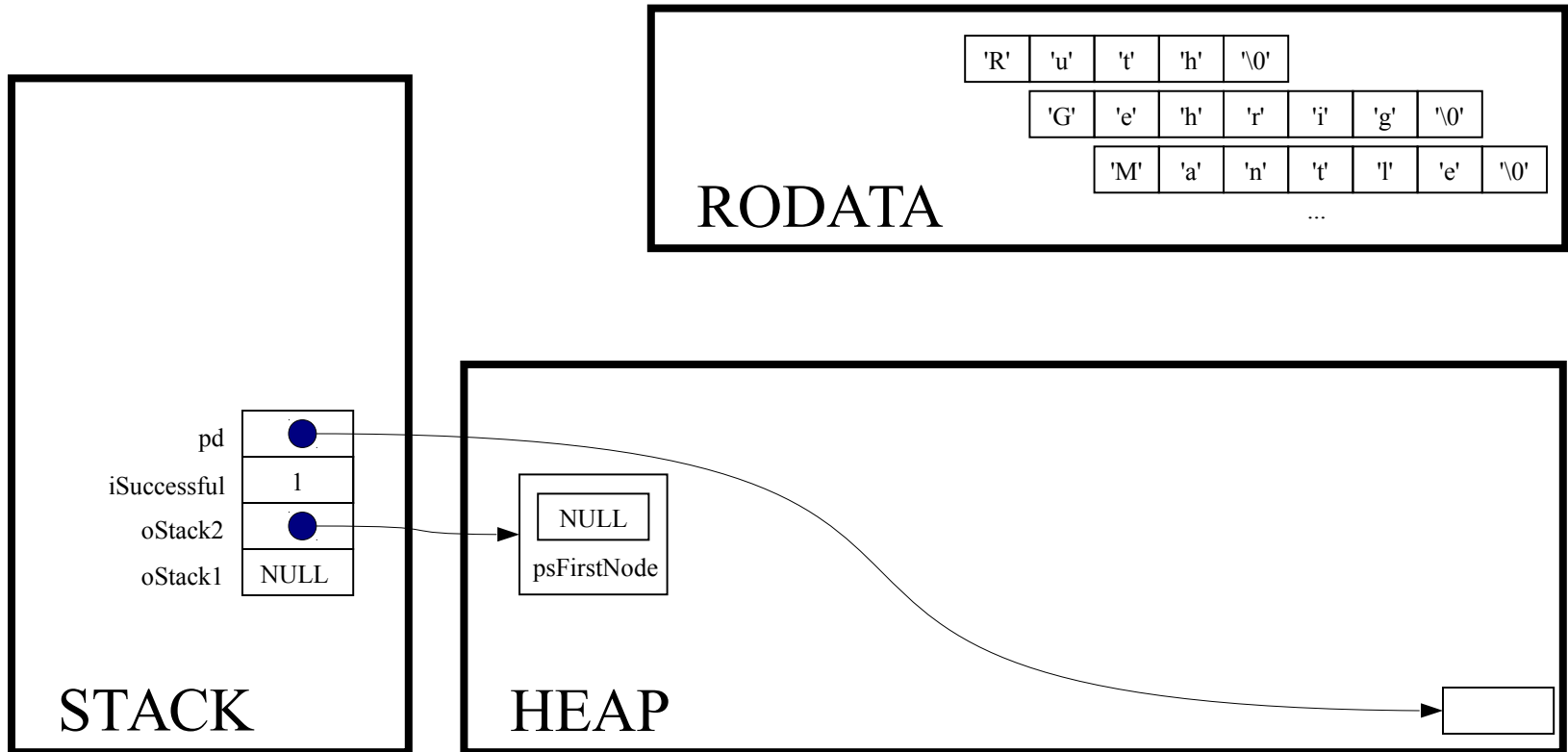
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```
if (oStack2 == NULL) handleMemoryError();
```



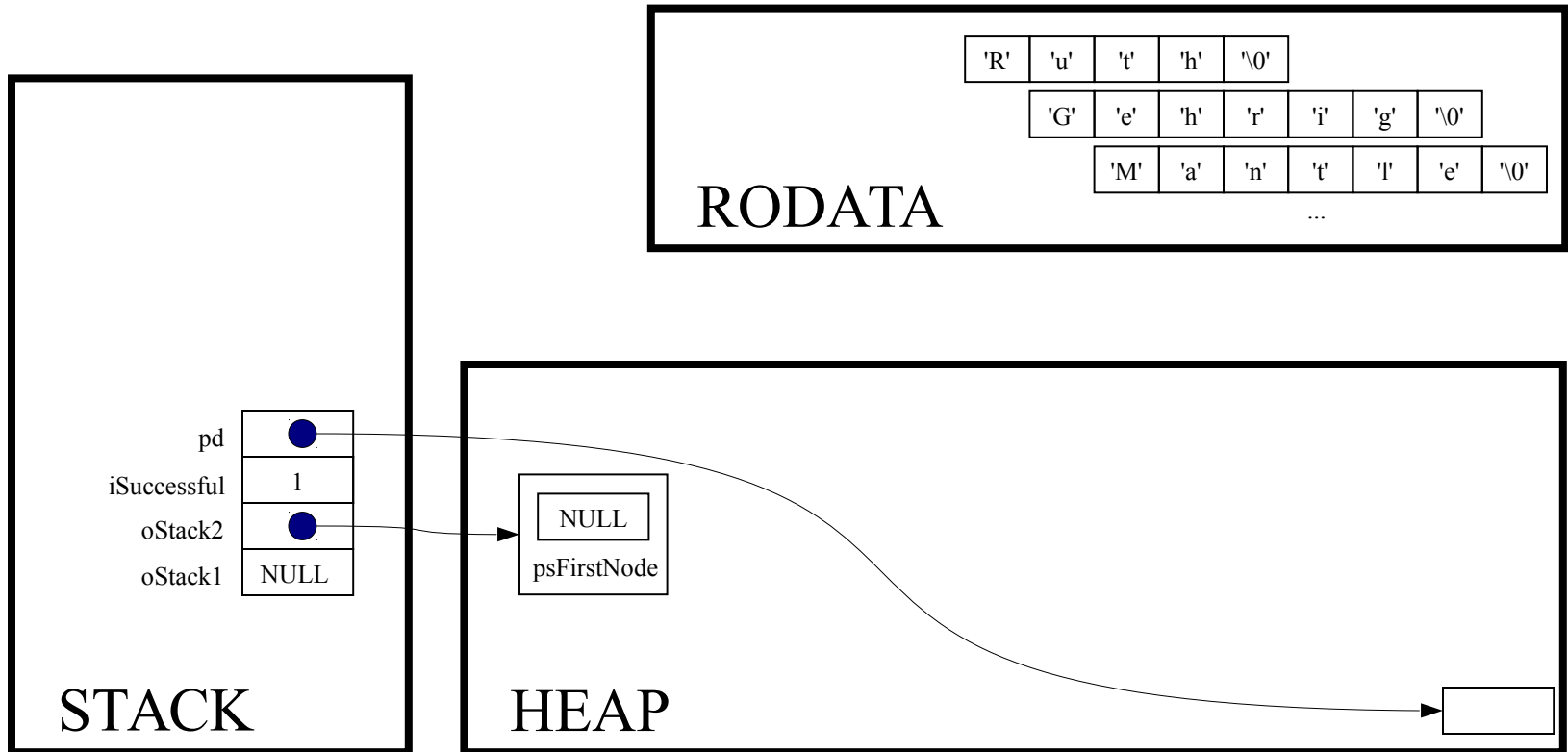
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```
pd = (double*)malloc(sizeof(double));
```



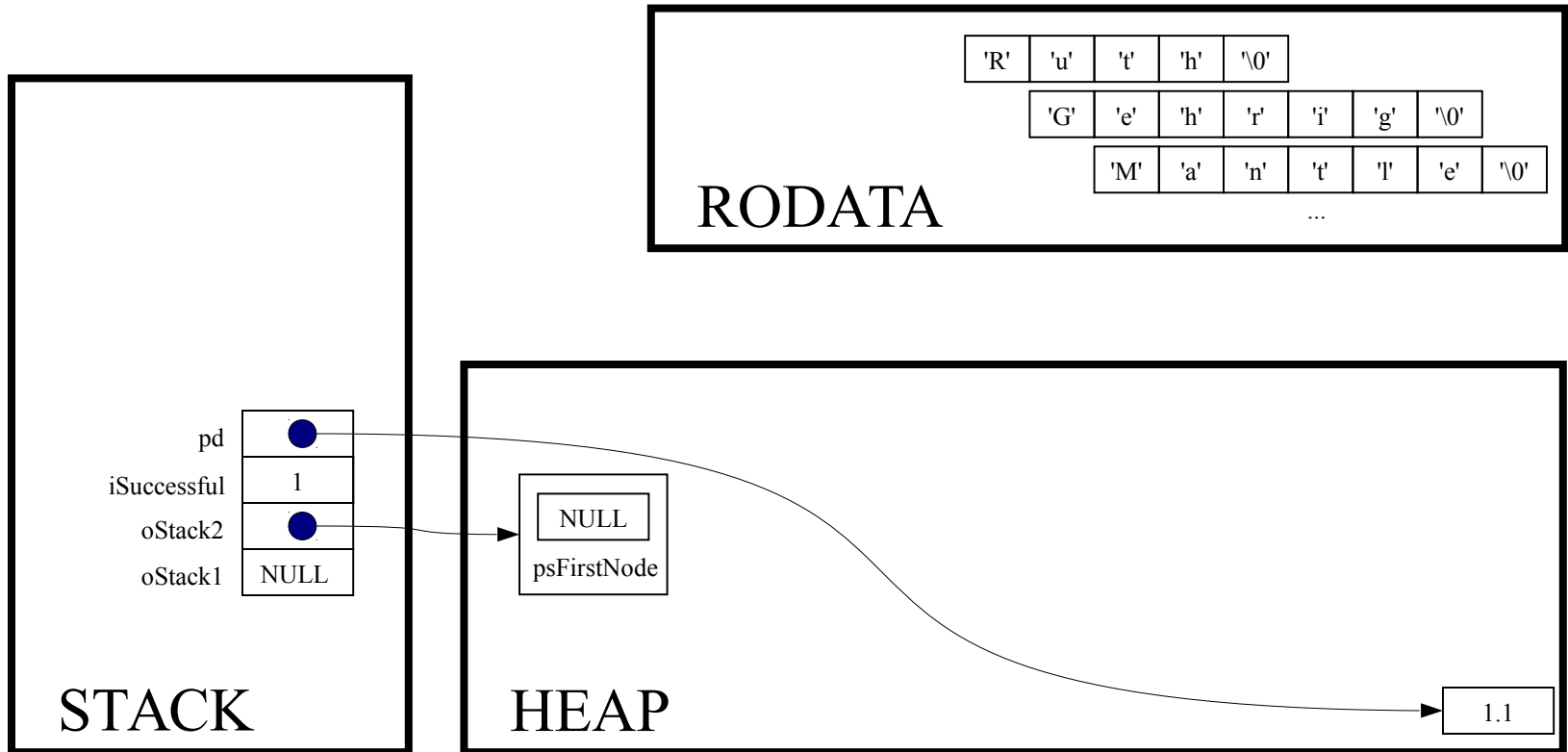
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```
if (pd == NULL) handleMemoryError();
```



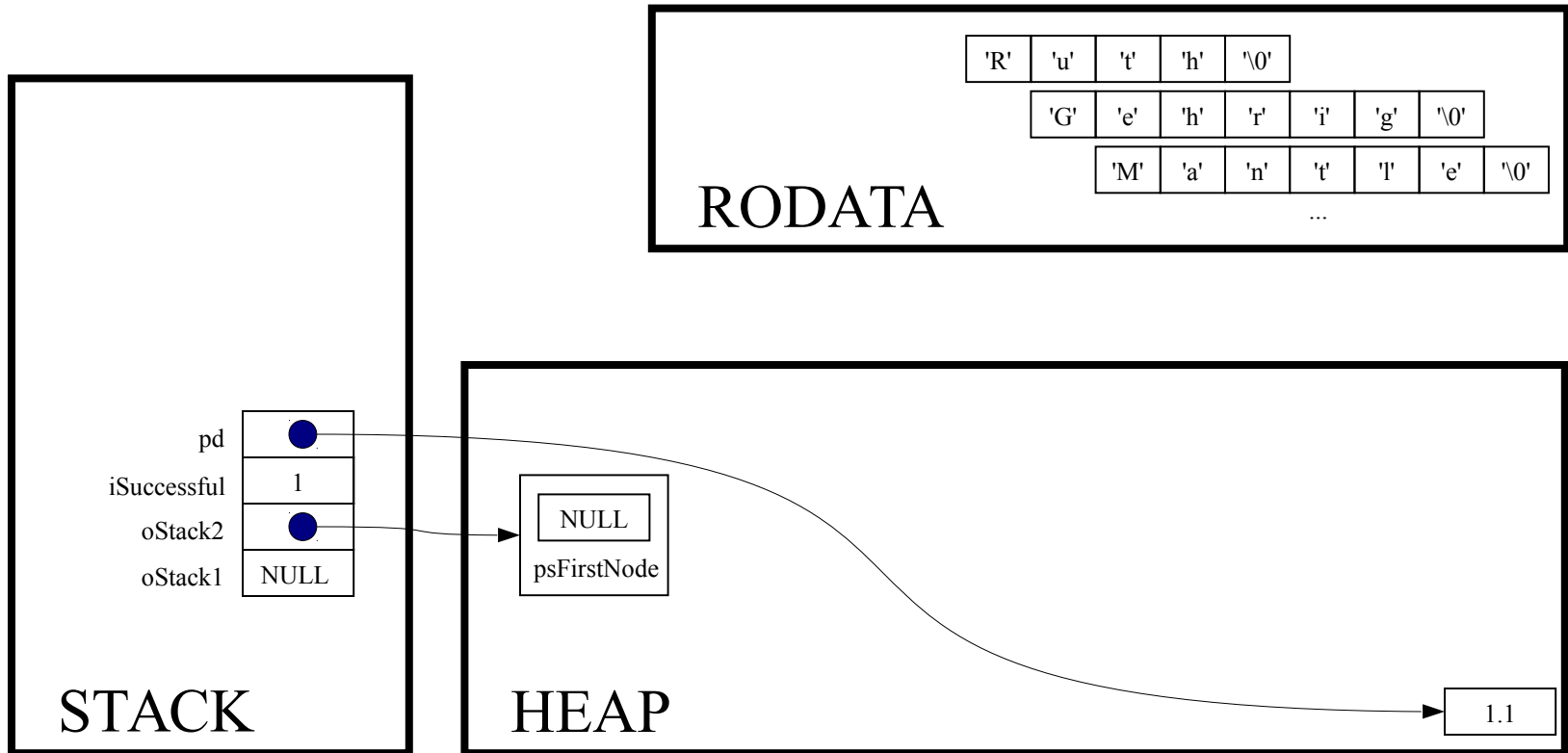
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```
*pd = 1.1;
```



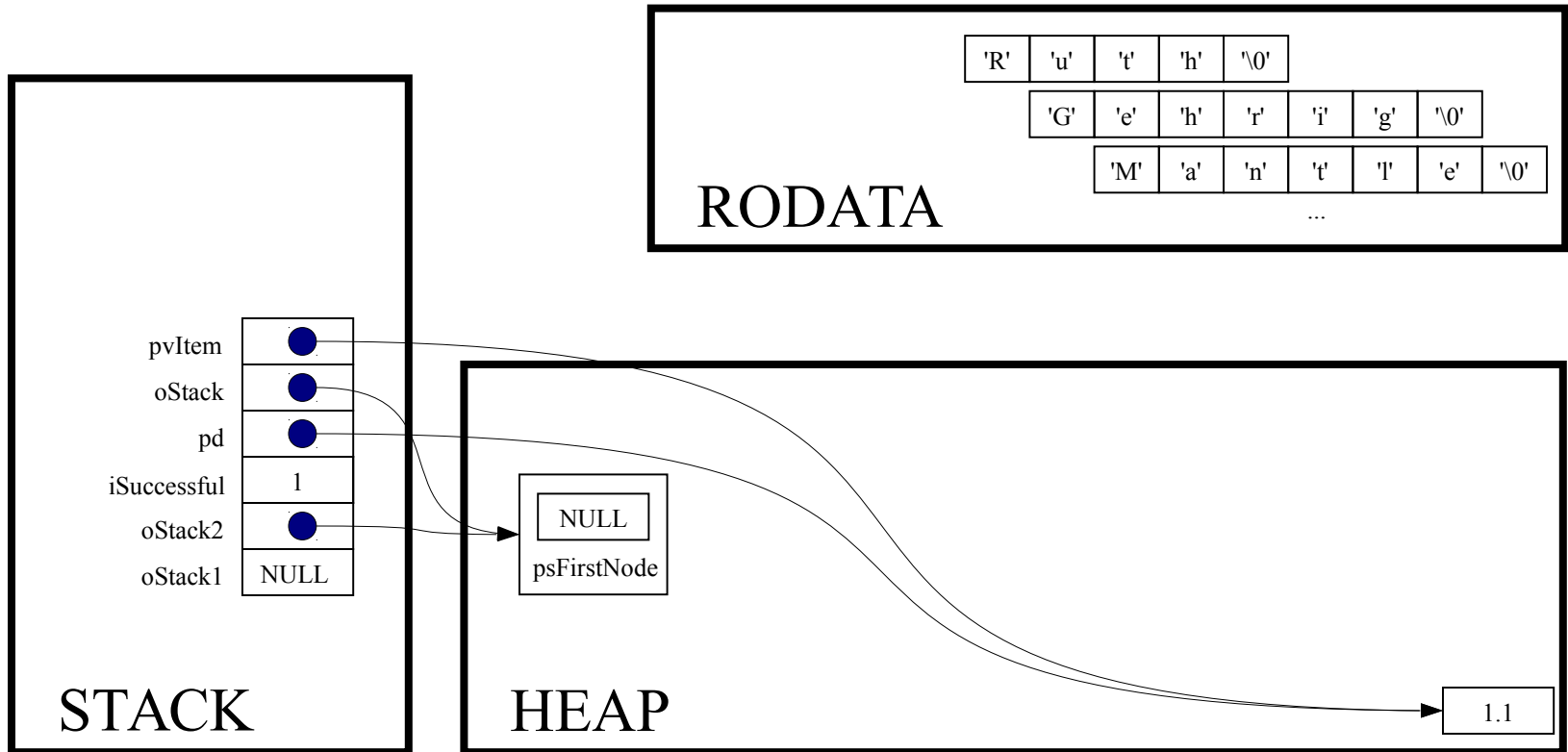
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```
iSuccessful = Stack_push(oStack2, pd);
```



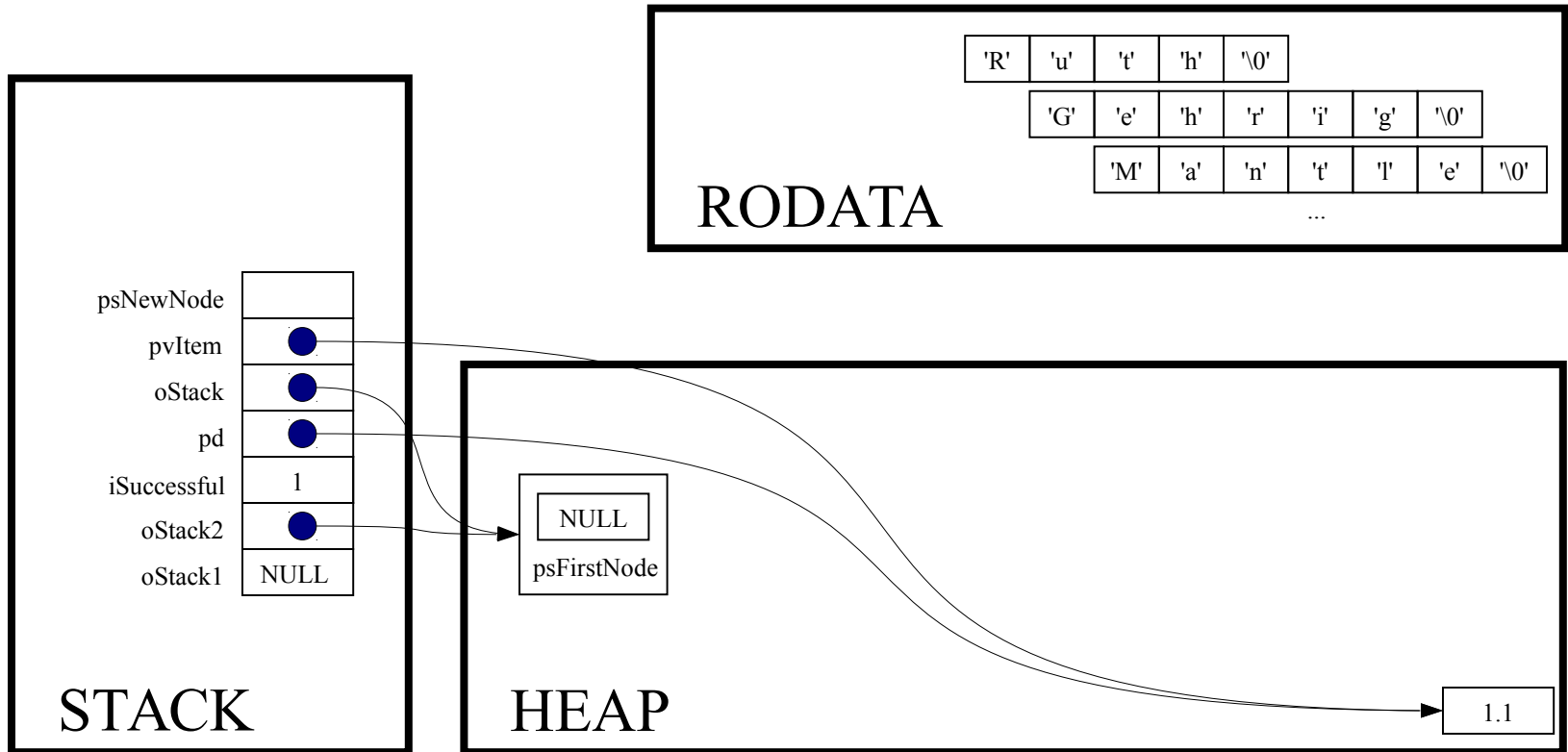
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```
int Stack_push(Stack_T oStack, const void *pvItem)
```



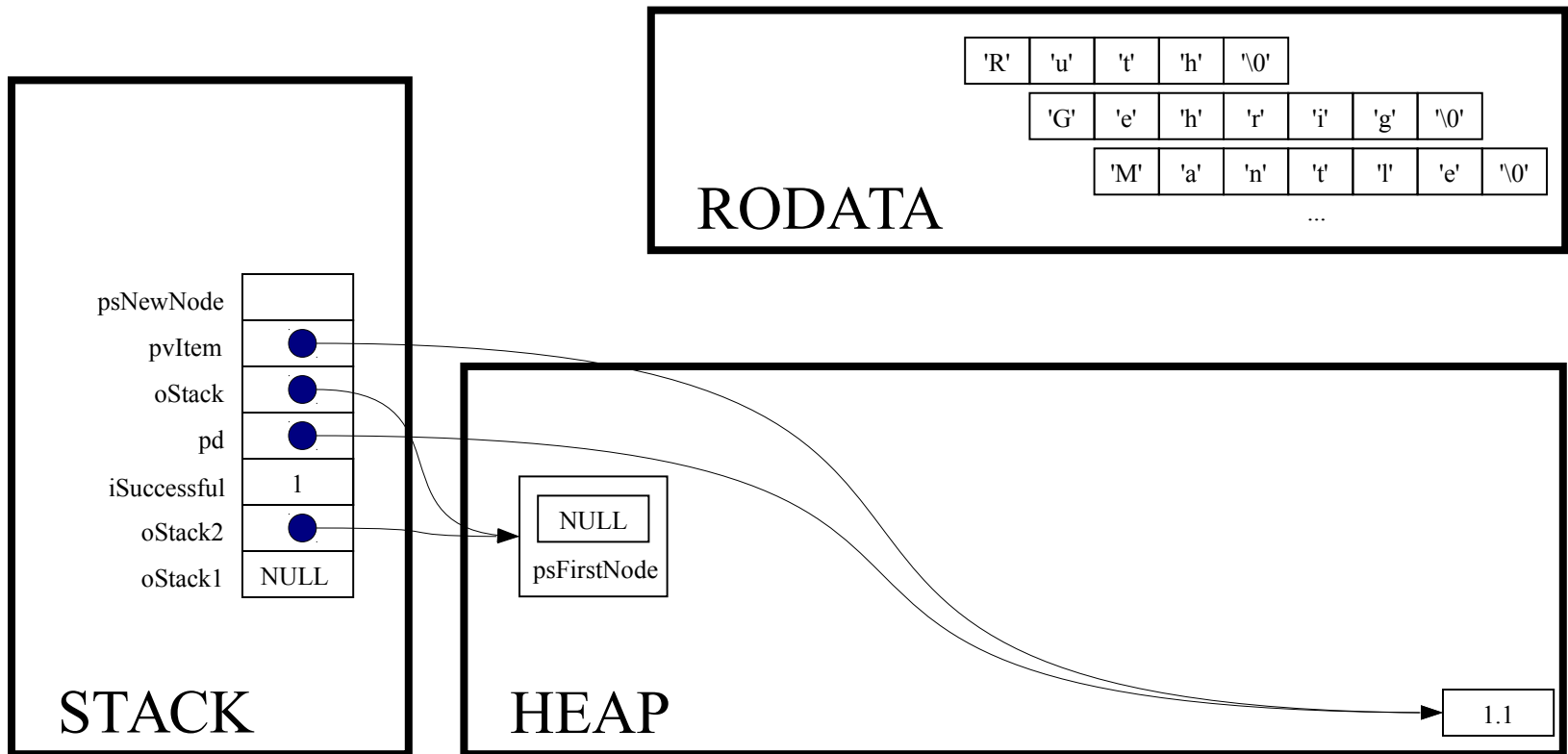
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```
struct StackNode *psNewNode;
```



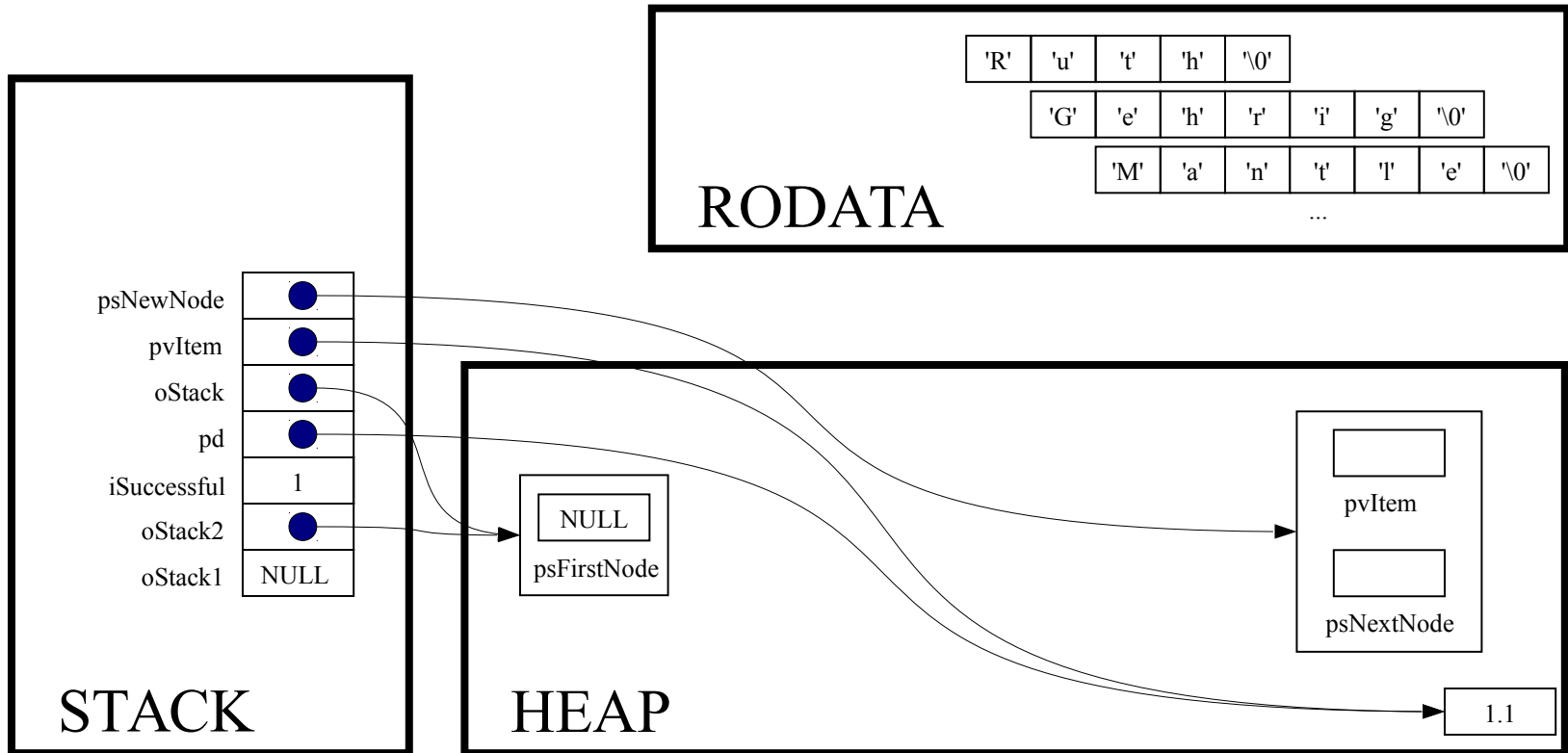
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```
assert(oStack != NULL);
```



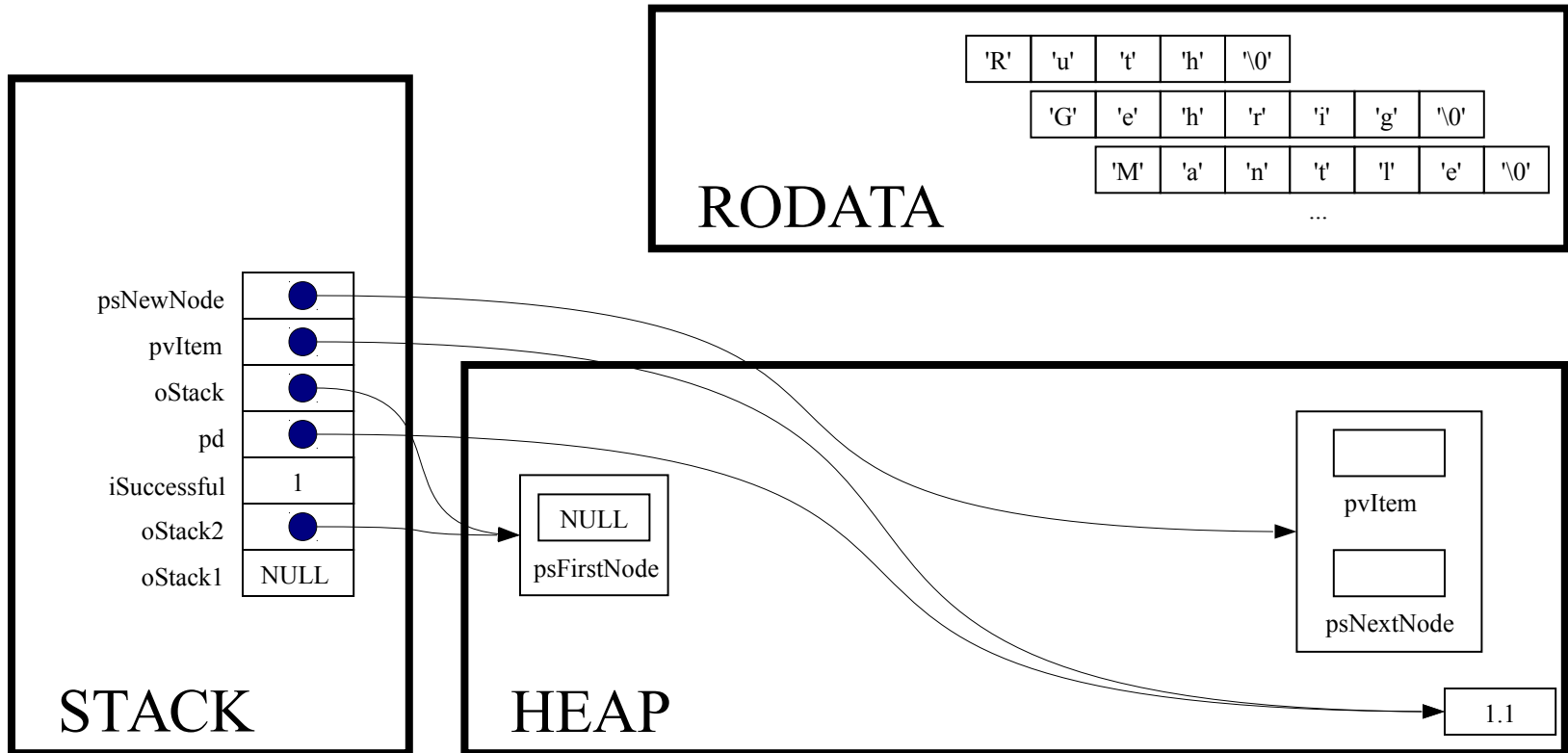
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```
psNewNode = (struct StackNode*)malloc(sizeof(struct StackNode));
```



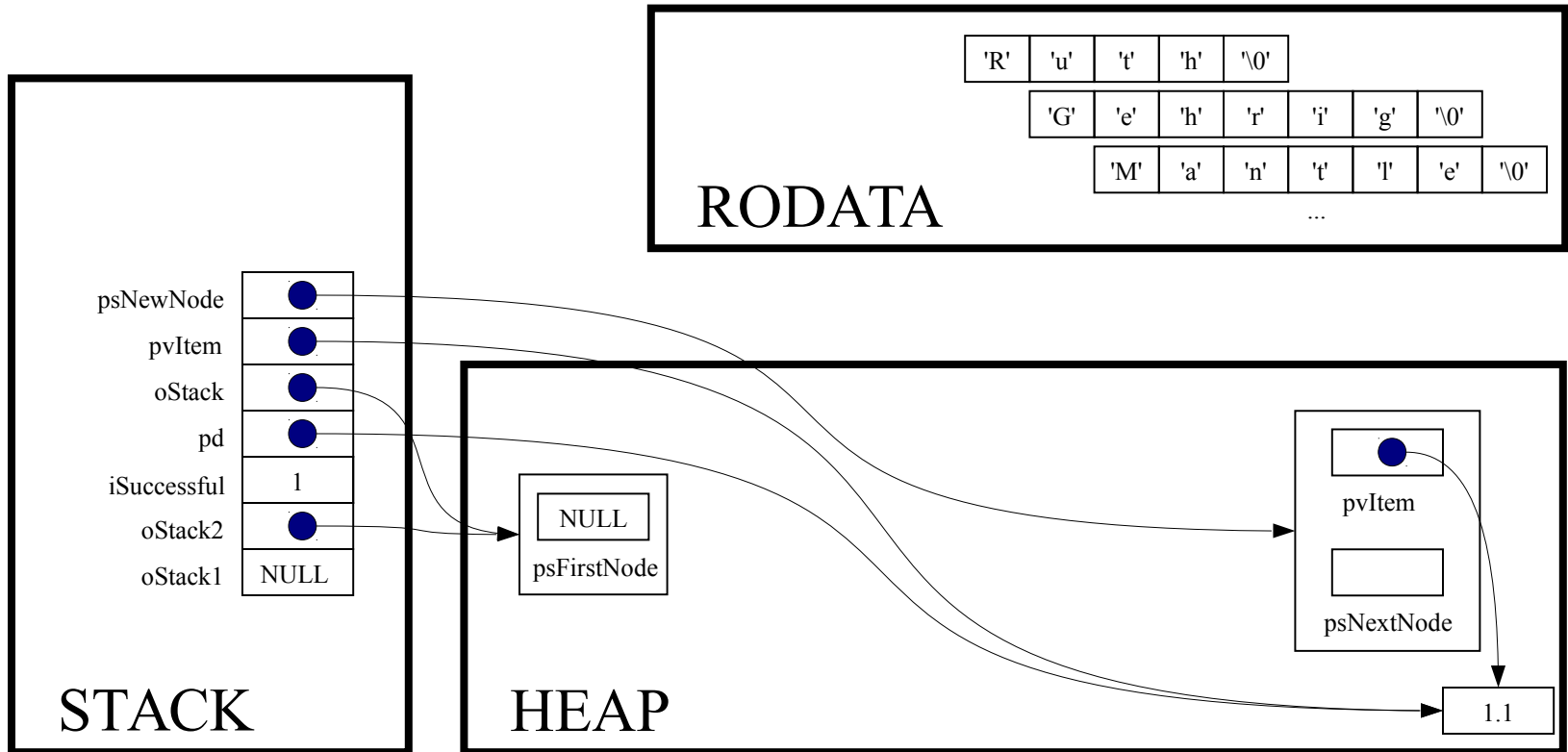
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```
if (psNewNode == NULL)  
    return 0;
```



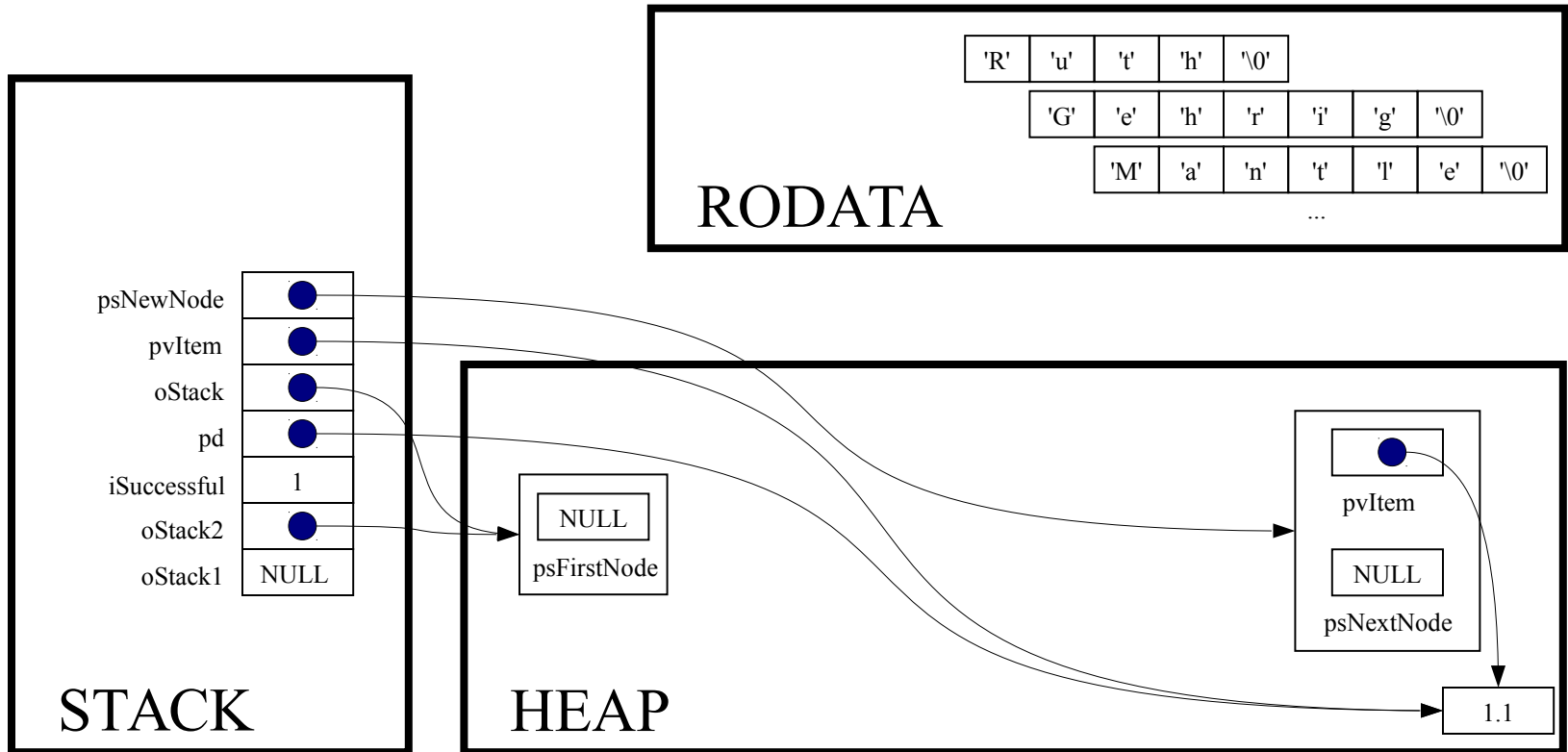
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```
psNewNode->pvItem = pvItem;
```



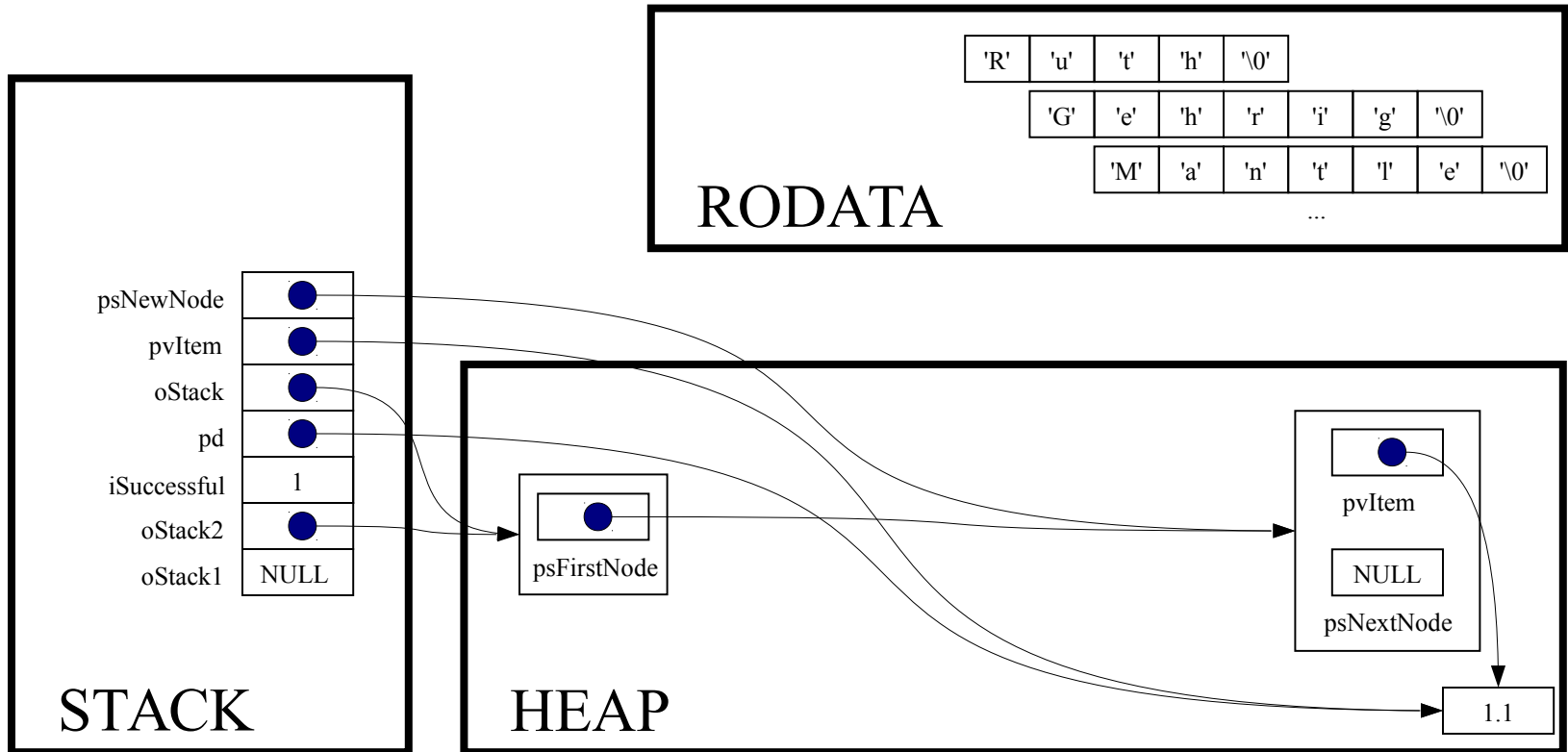
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```
psNewNode->psNextNode = oStack->psFirstNode;
```



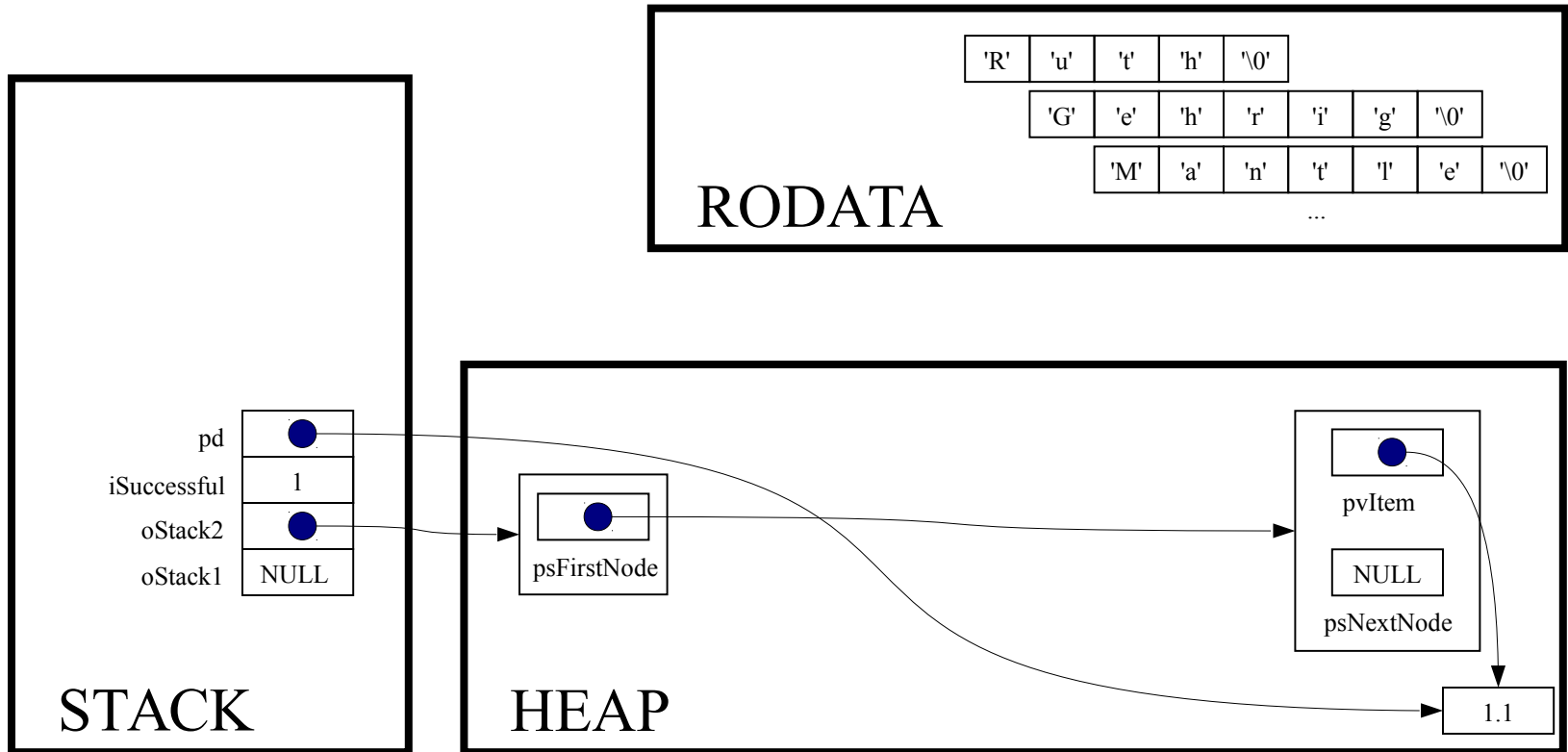
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```
oStack->psFirstNode = psNewNode;
```



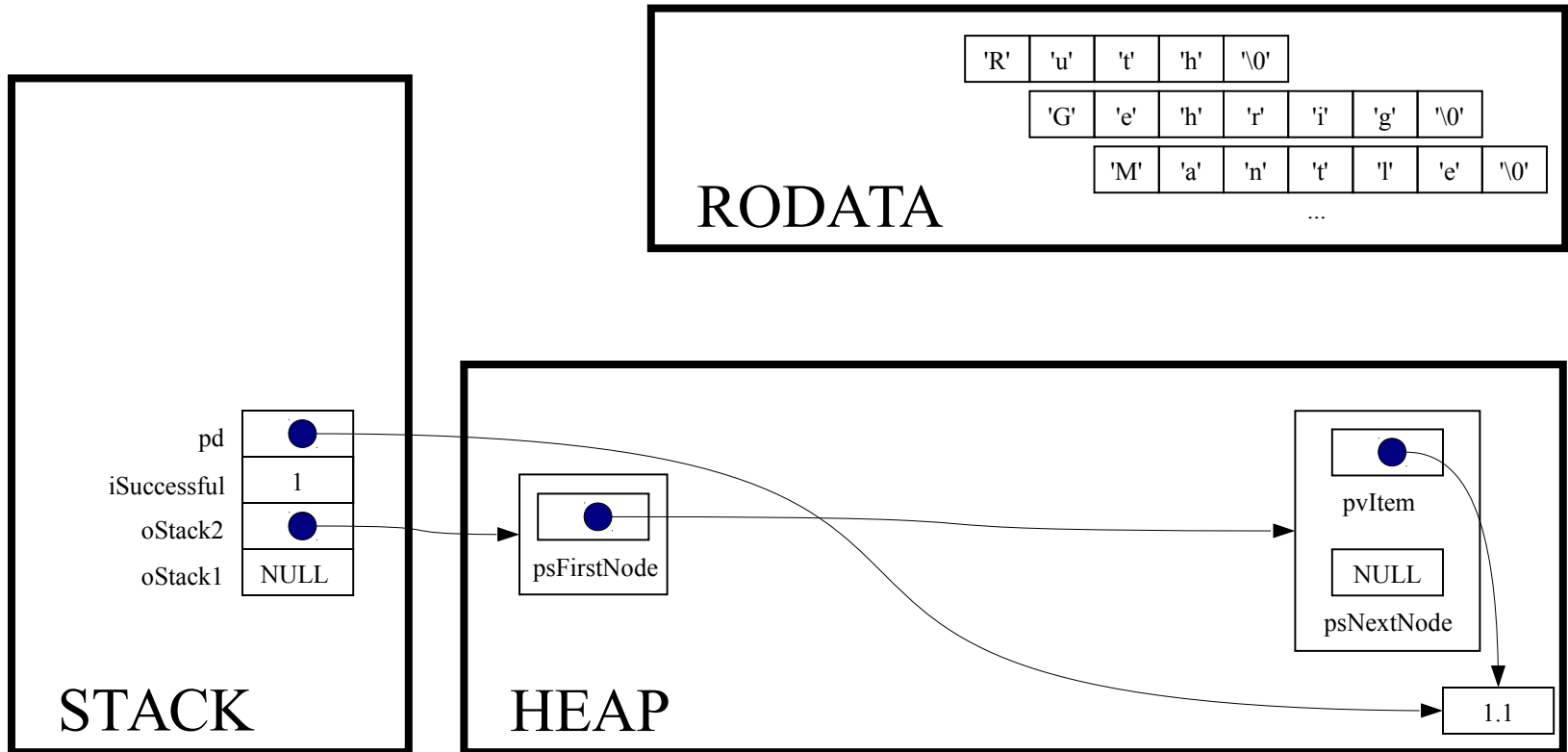
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```
return 1;
```



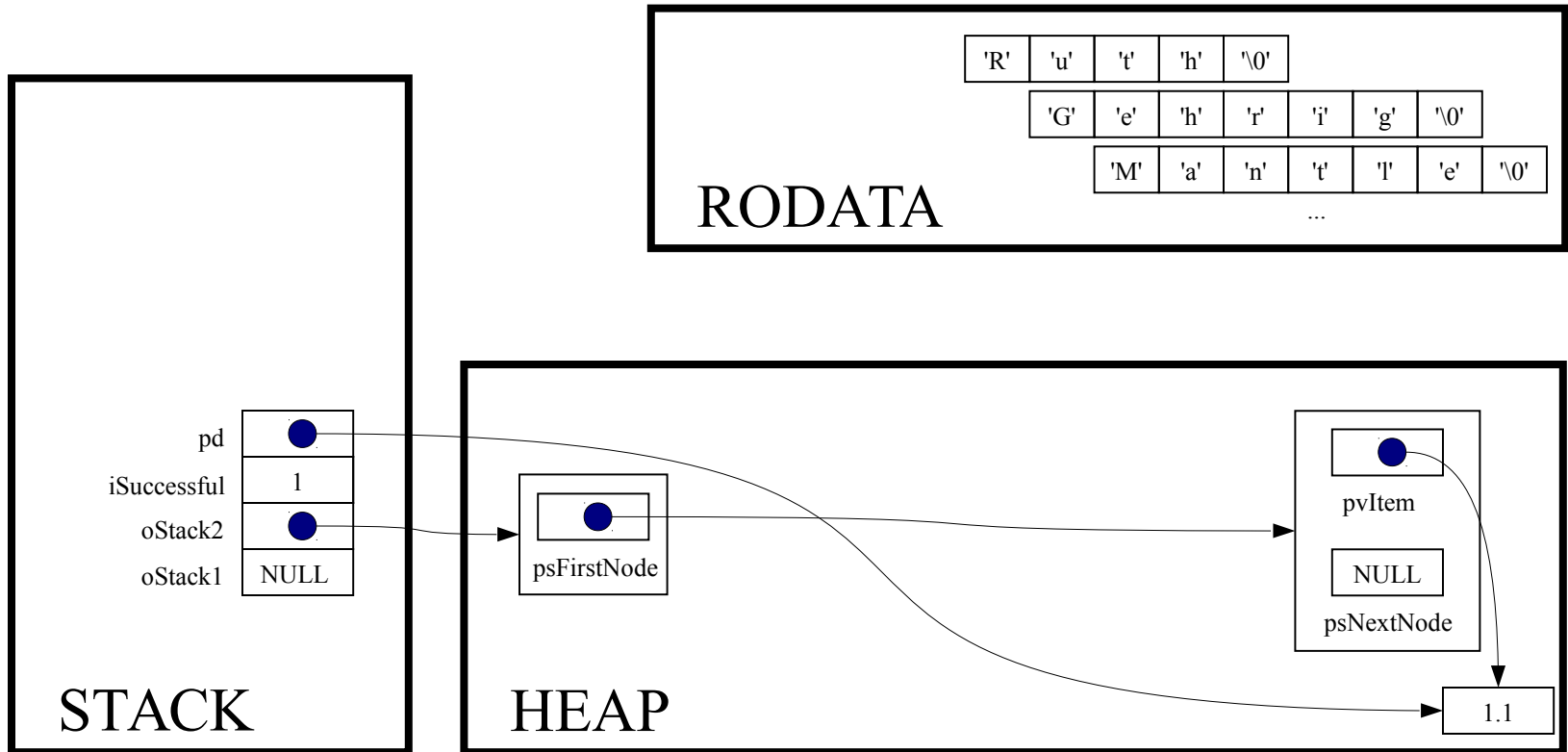
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```
iSuccessful = Stack_push(oStack2, pd);
```



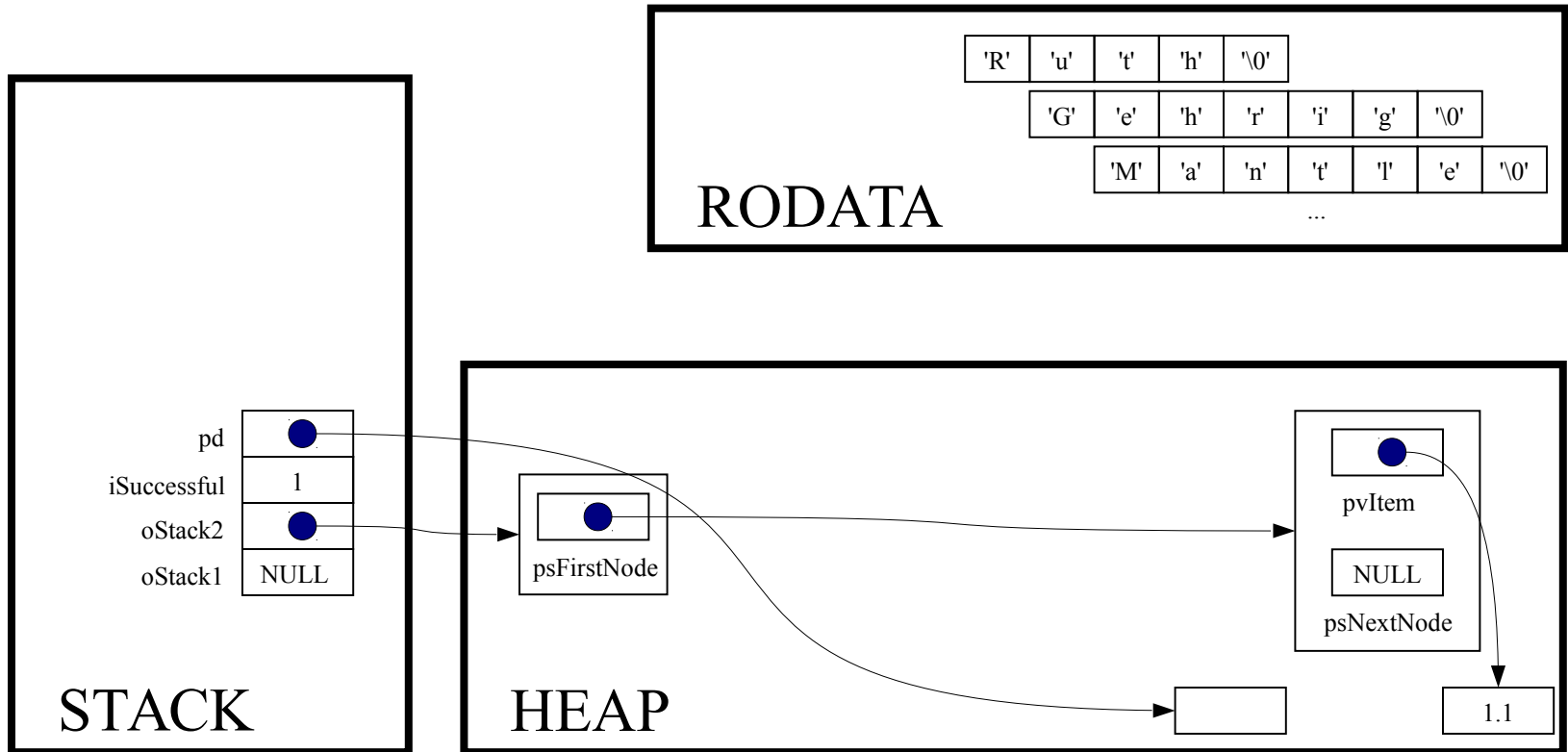
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```
if (! iSuccessful) handleMemoryError();
```



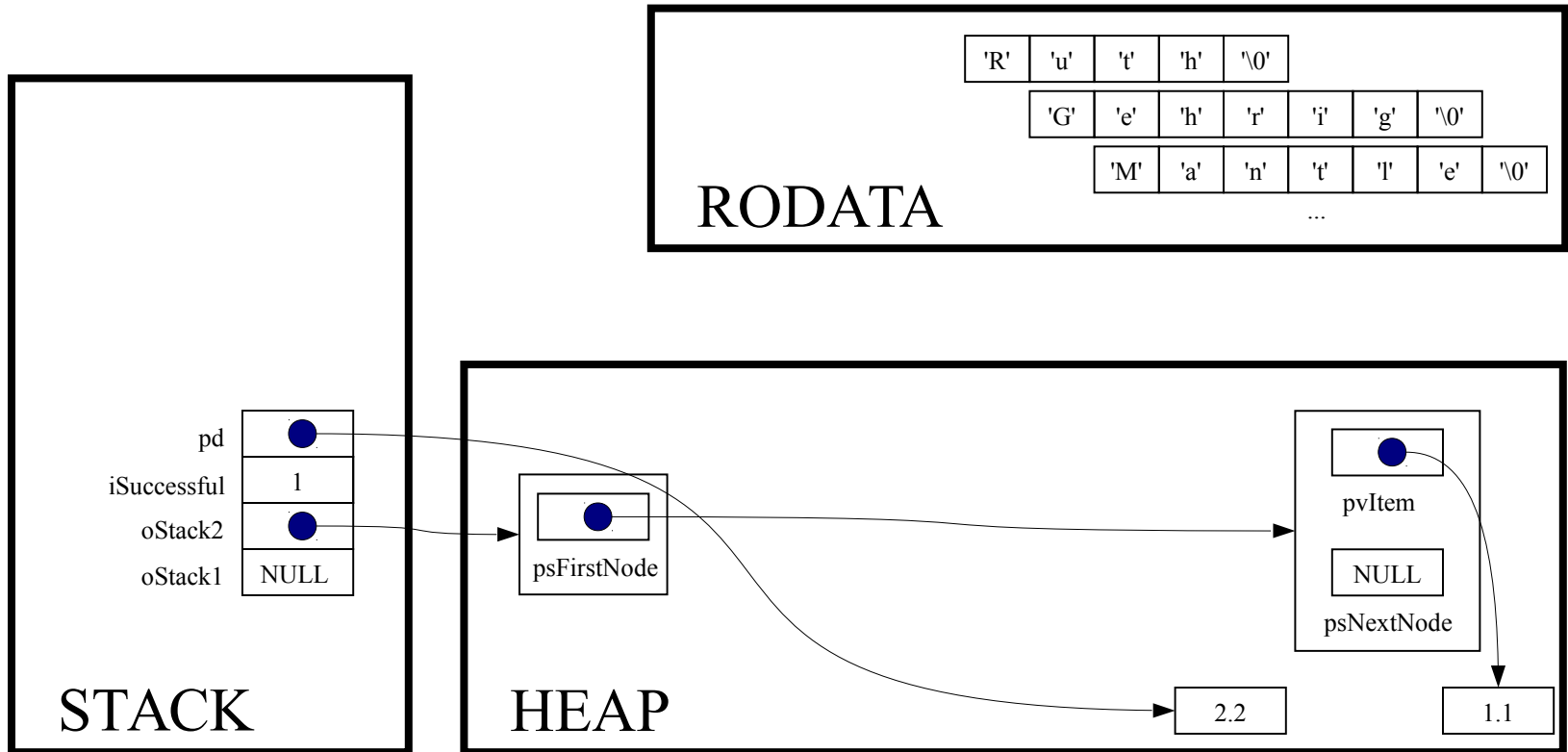
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Trace of teststack (Version 5)

```
pd = (double*)malloc(sizeof(double));
```



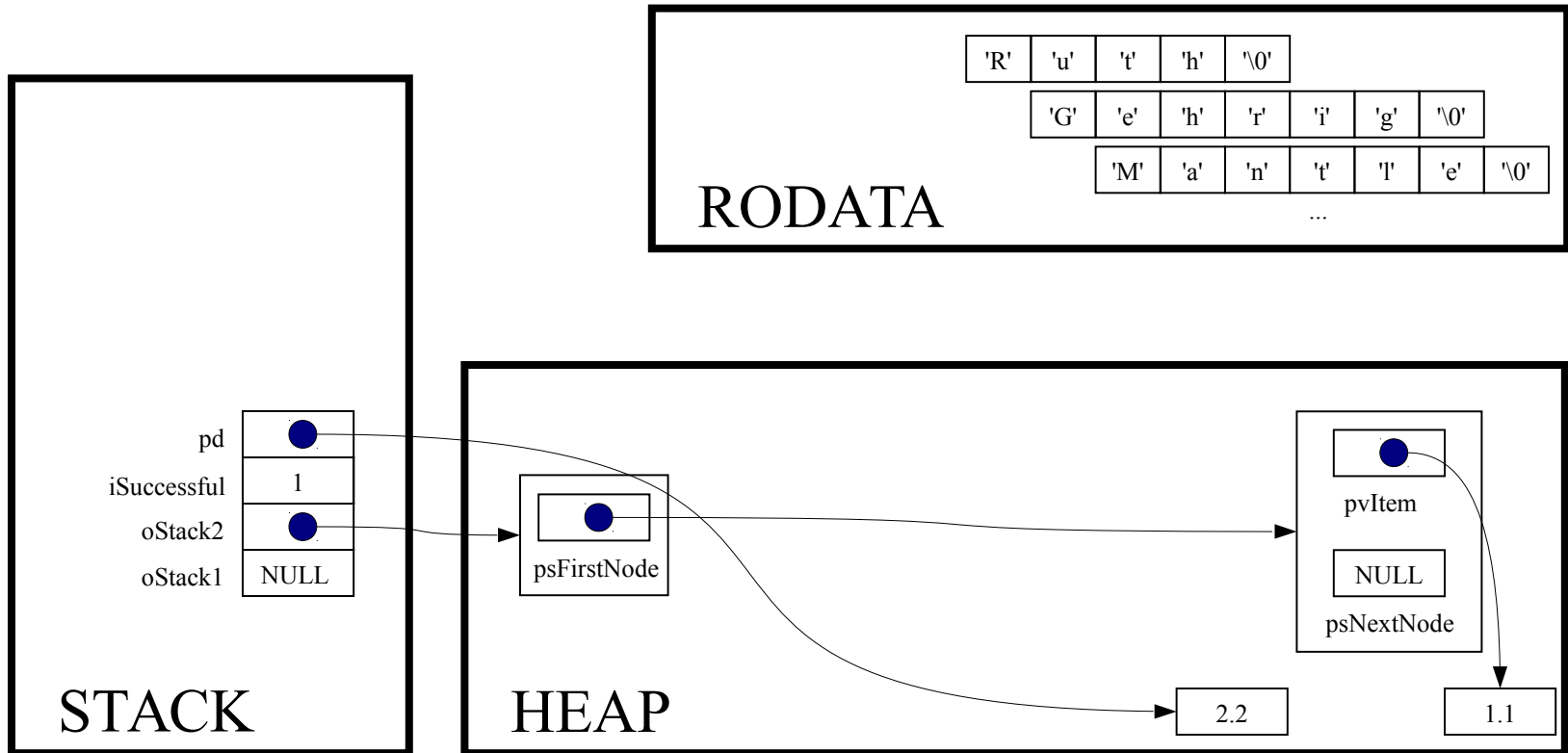
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*pd = 2.2;



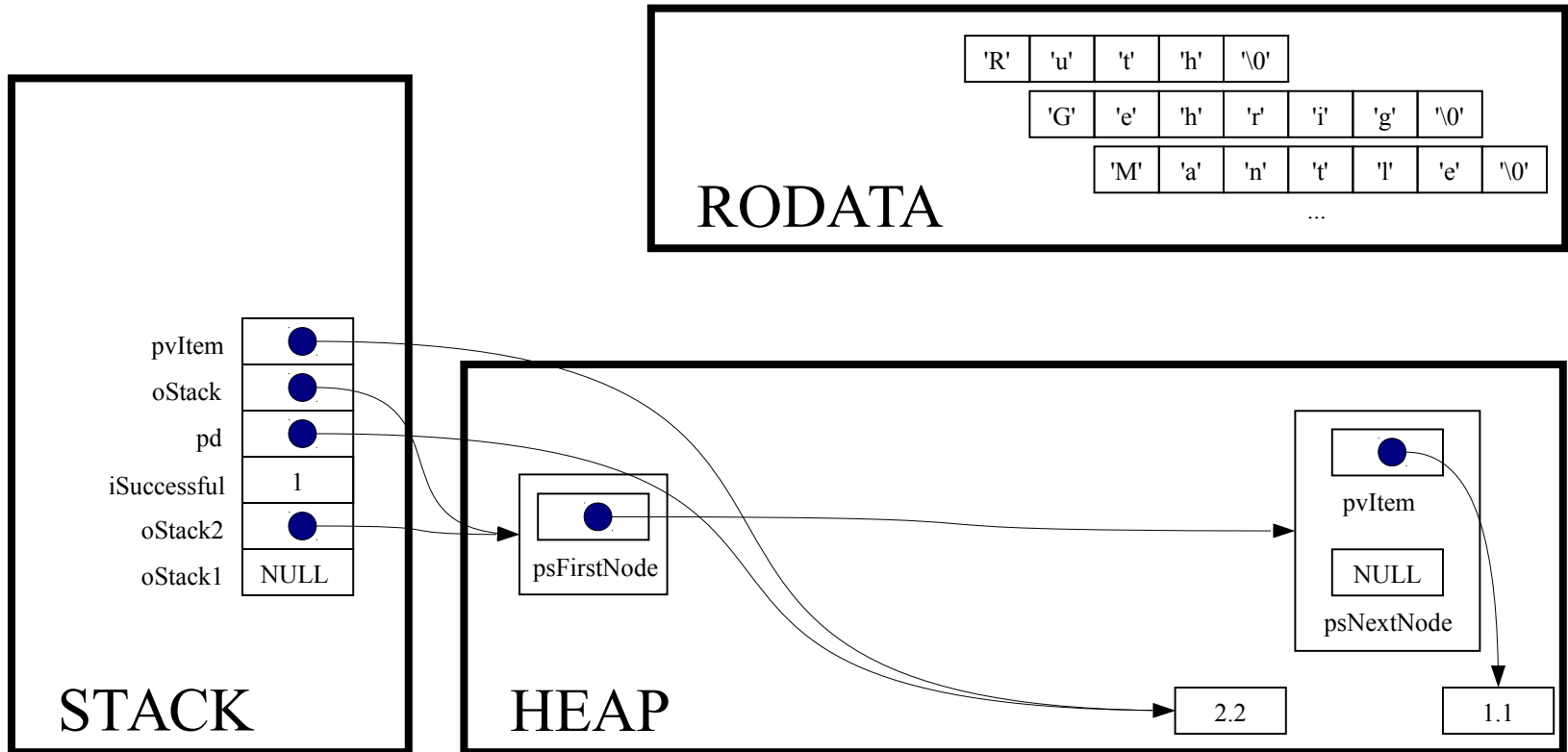
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```
iSuccessful = Stack_push(oStack2, pd);
```



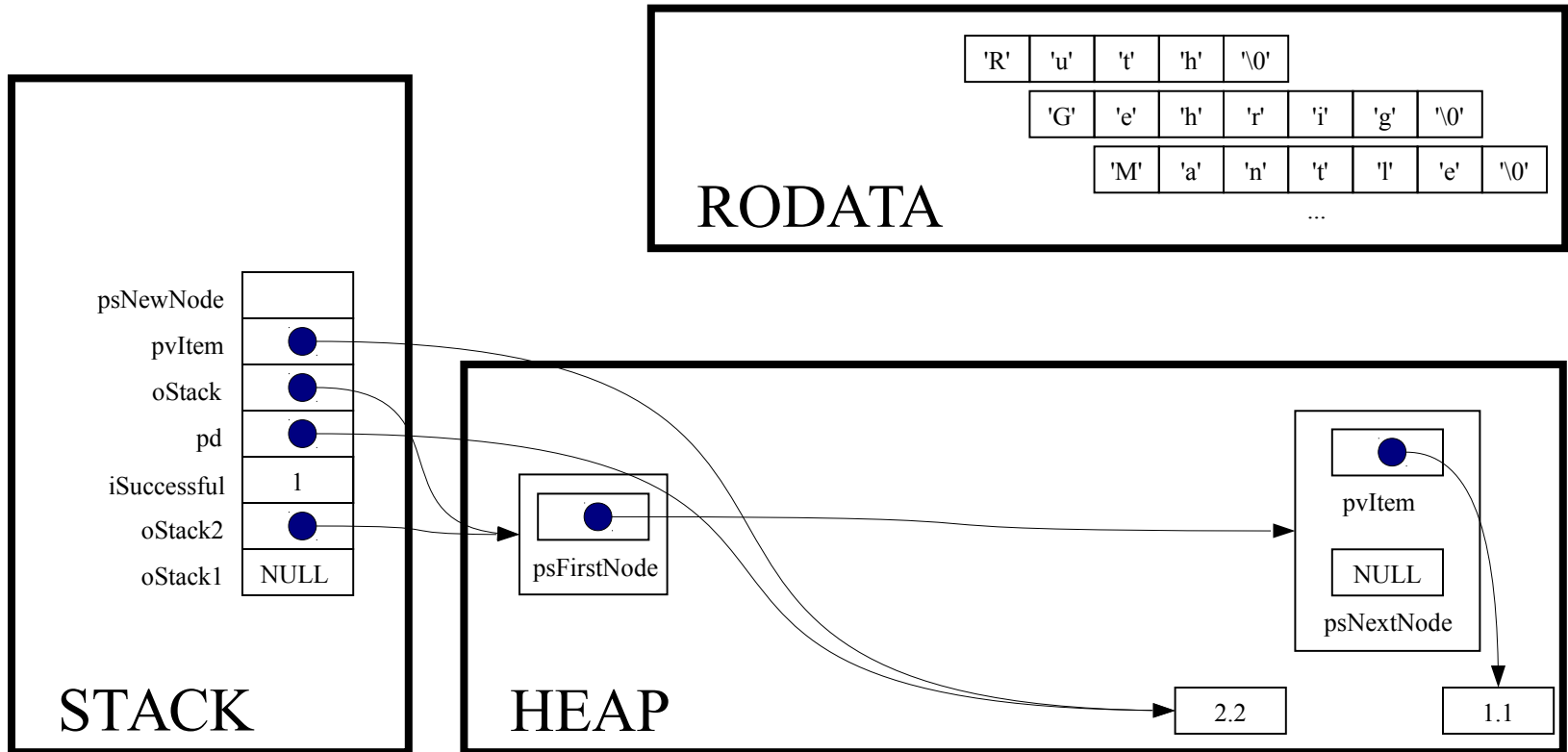
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```
int Stack_push(Stack_T oStack, const void *pvItem);
```



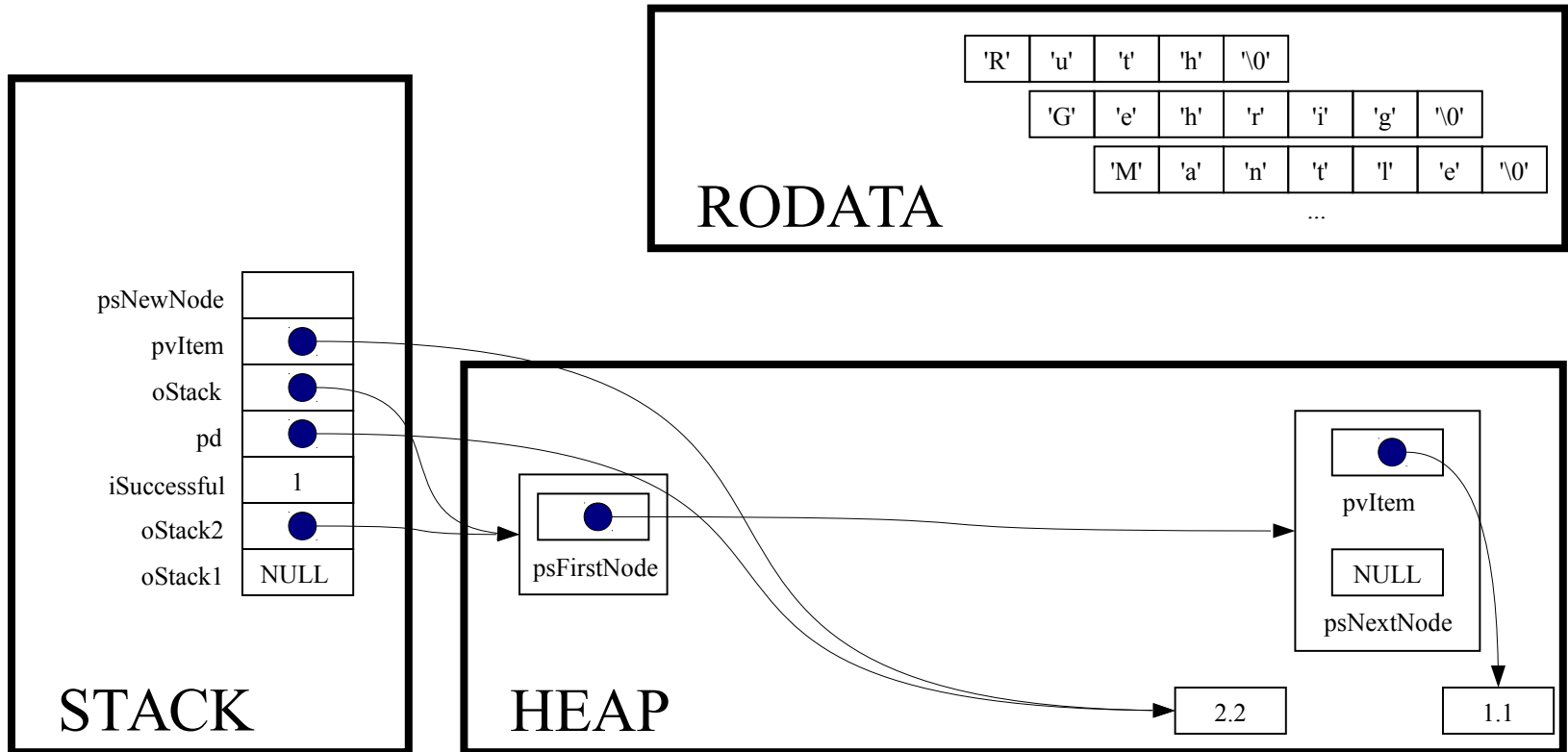
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```
struct StackNode *psNewNode;
```



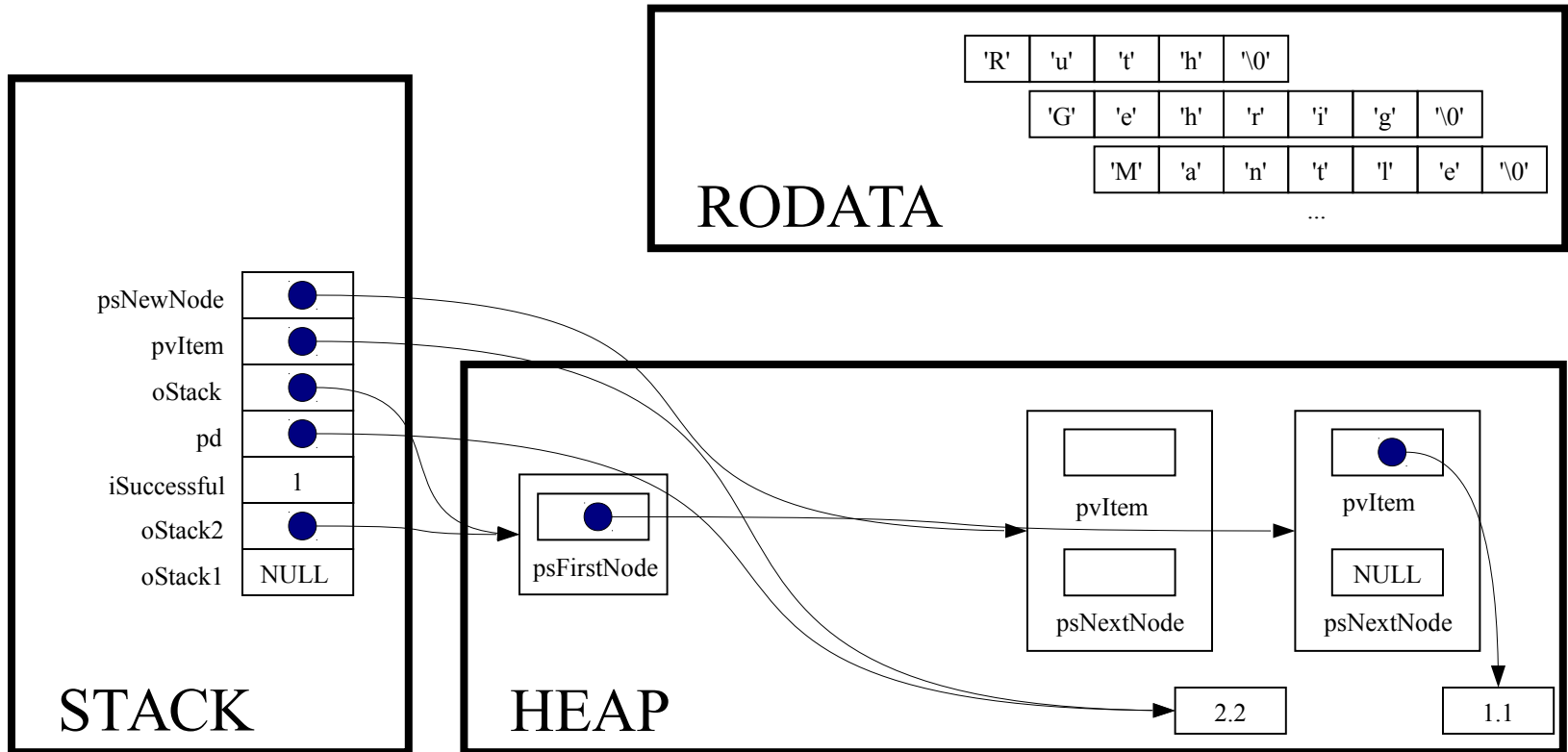
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```
assert(oStack != NULL);
```



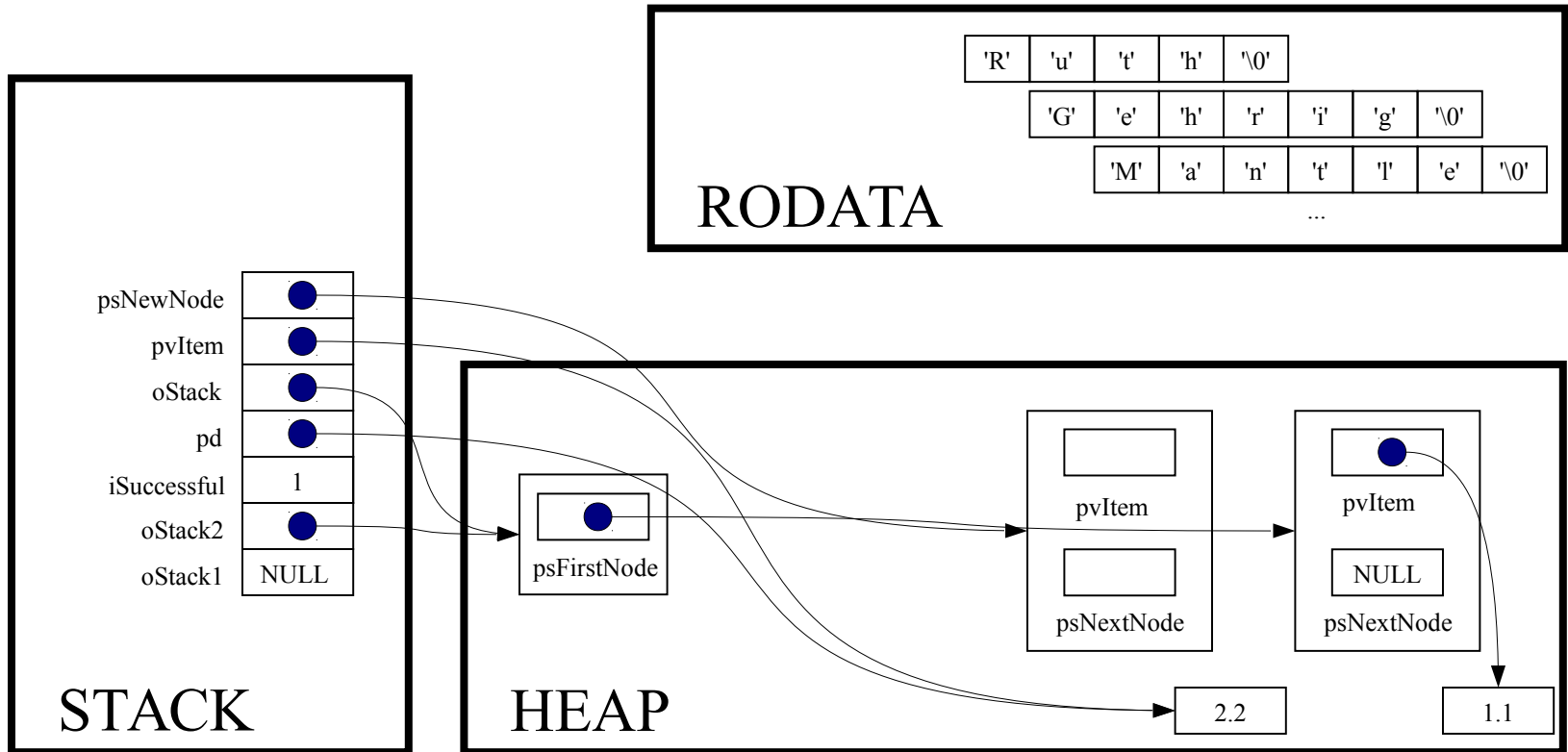
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```
psNewNode = (struct StackNode*)malloc(sizeof(struct StackNode));
```



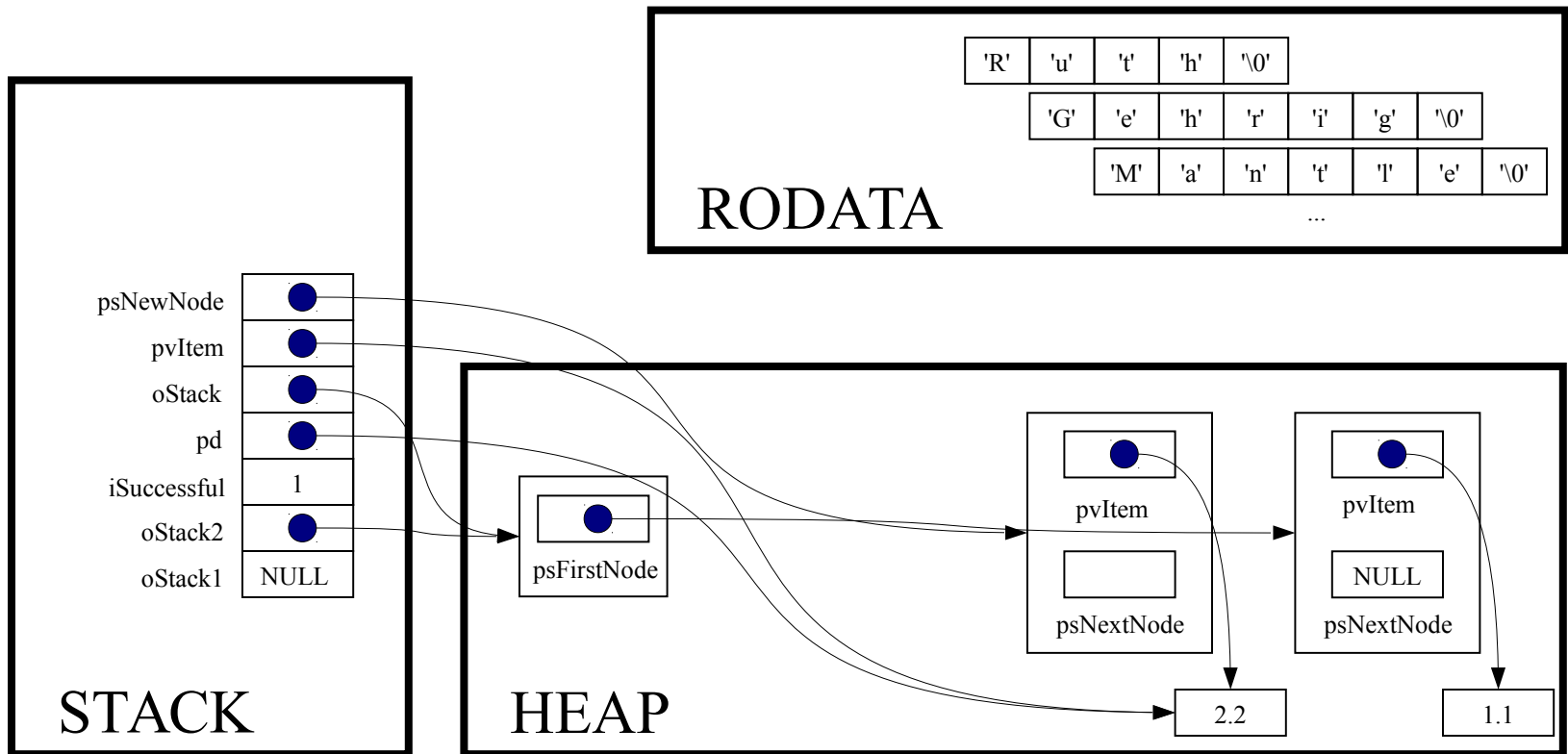
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```
if (psNewNode == NULL)
    return 0;
```



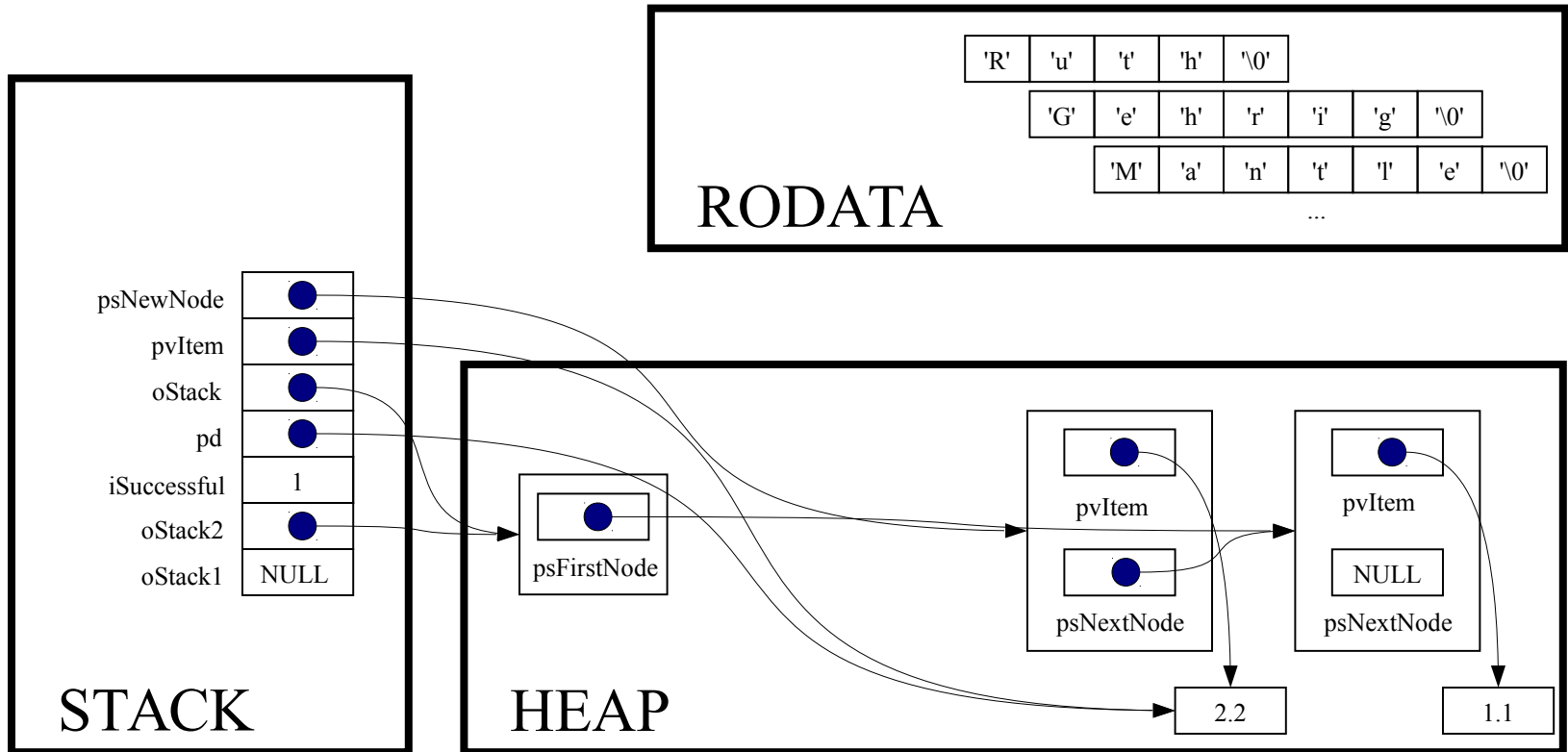
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```
psNewNode->pvItem = pvItem;
```



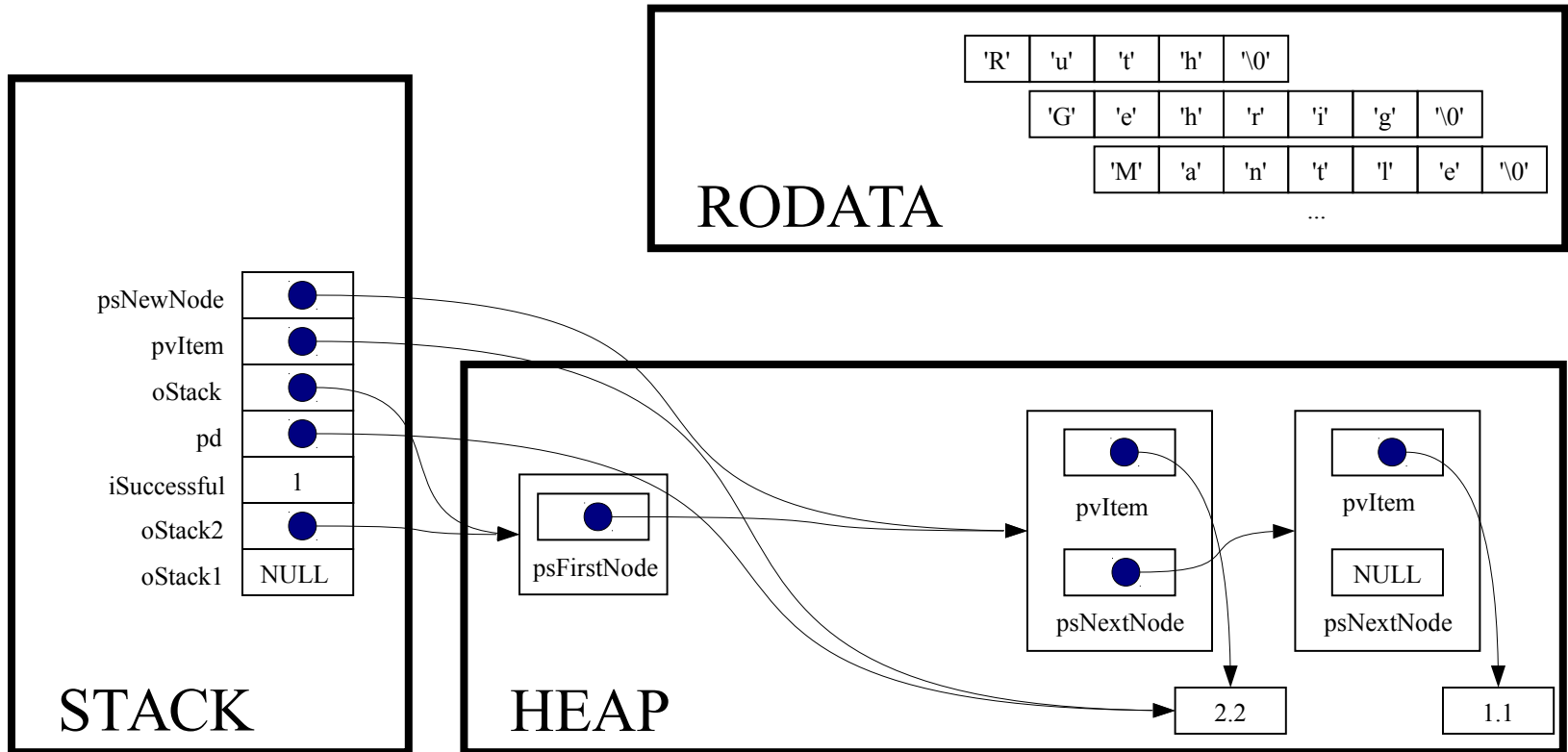
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```
psNewNode->psNextNode = oStack->psFirstNode;
```



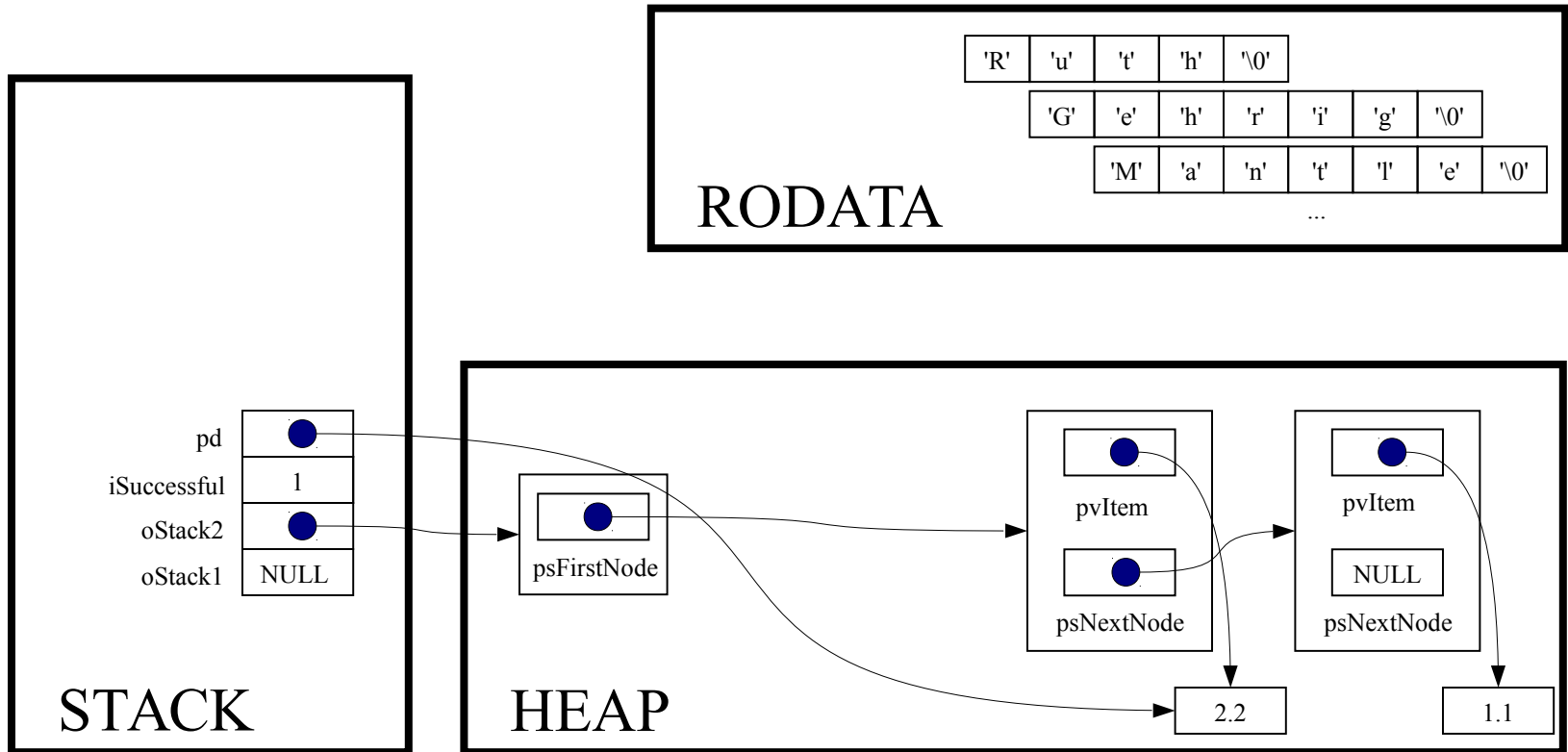
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```
oStack->psFirstNode = psNewNode;
```



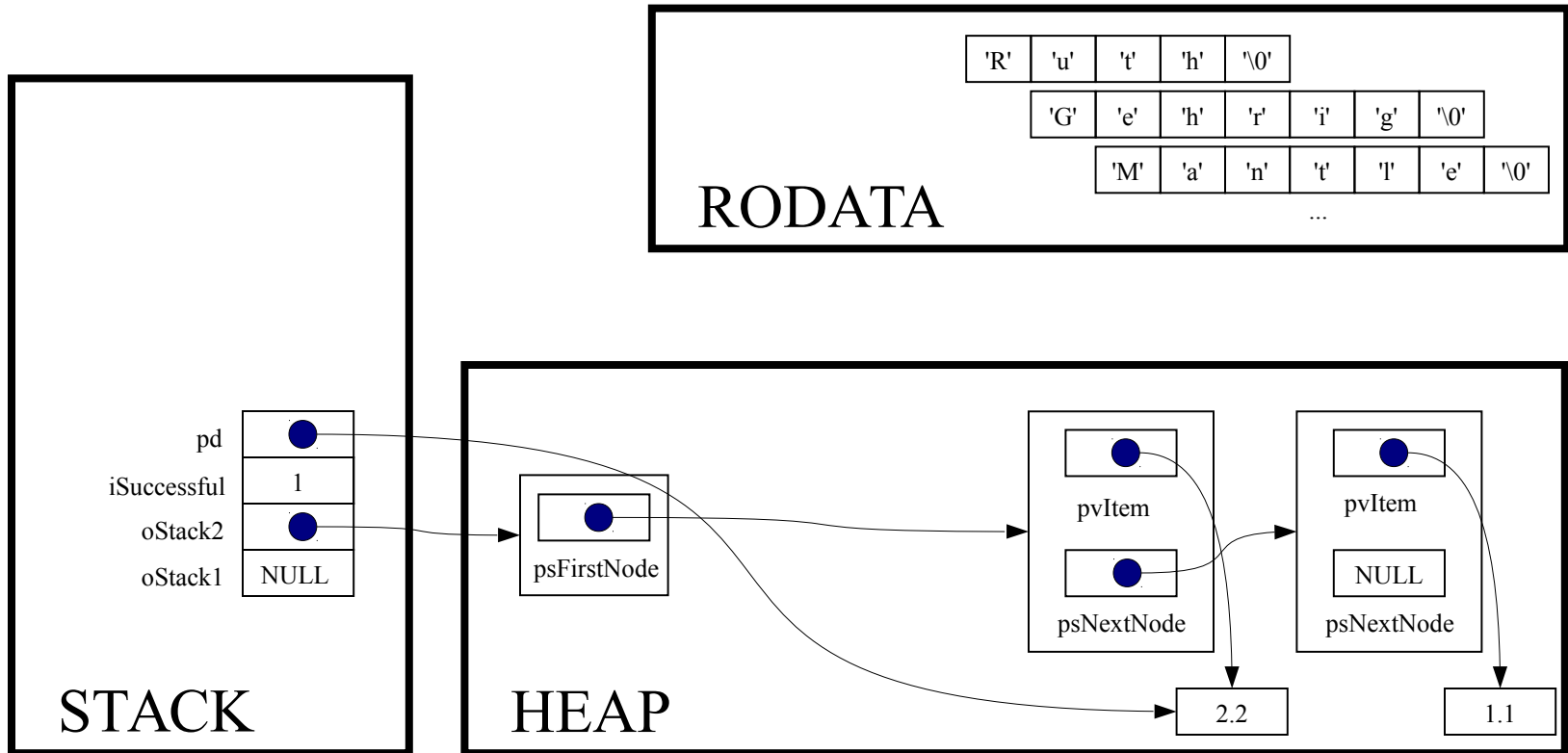
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```
return 1;
```



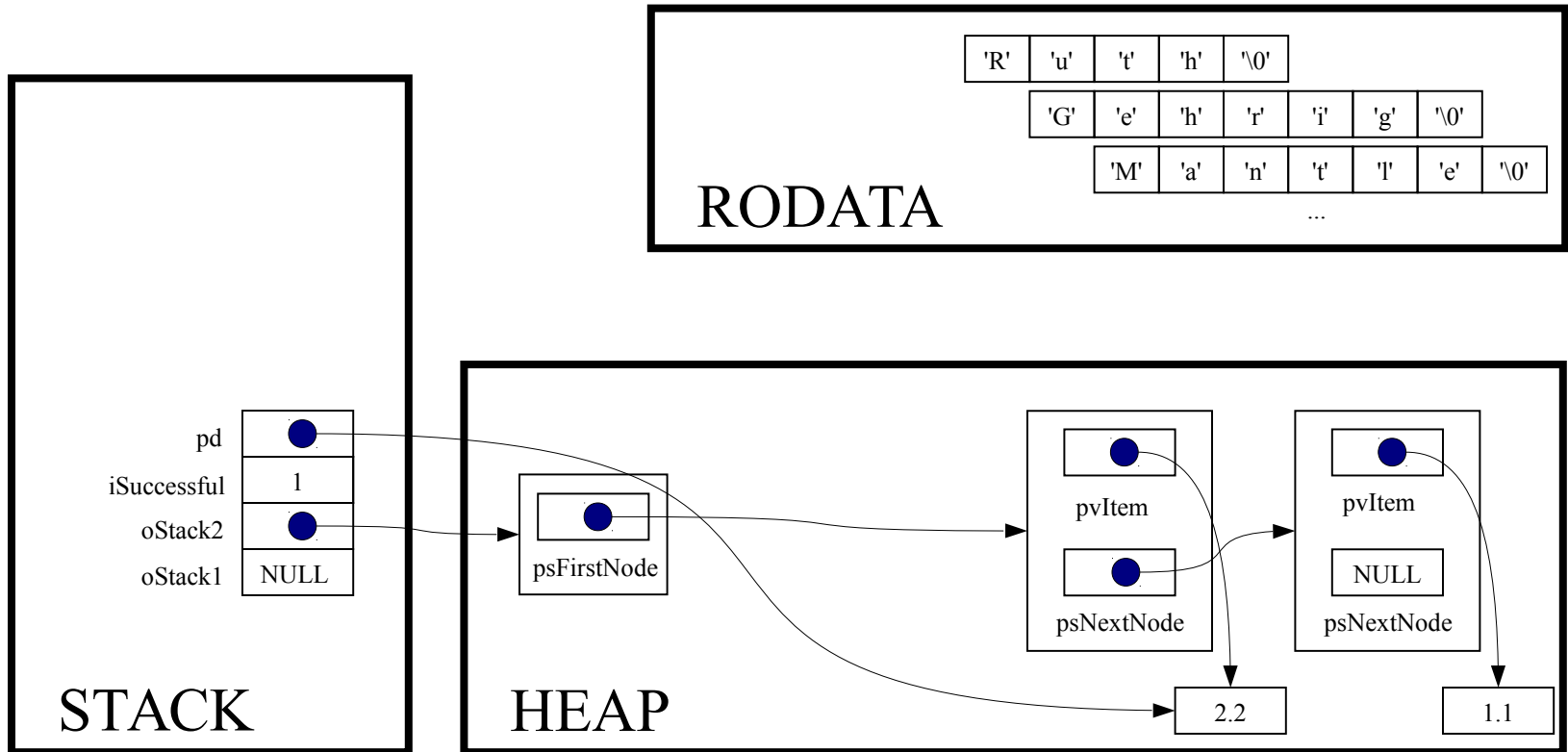
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```
iSuccessful = Stack_push(oStack2, pd);
```



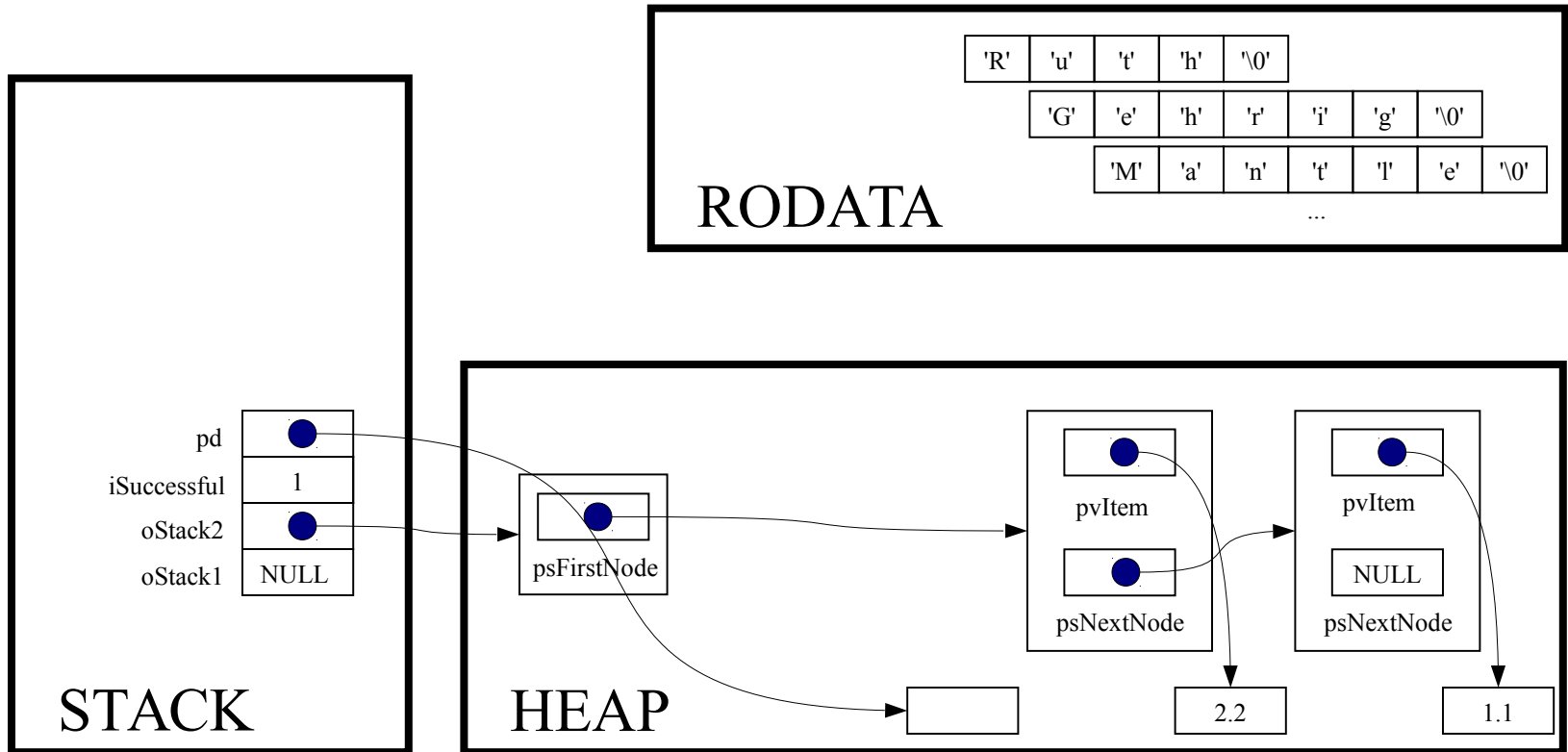
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```
if (! iSuccessful) handleMemoryError();
```



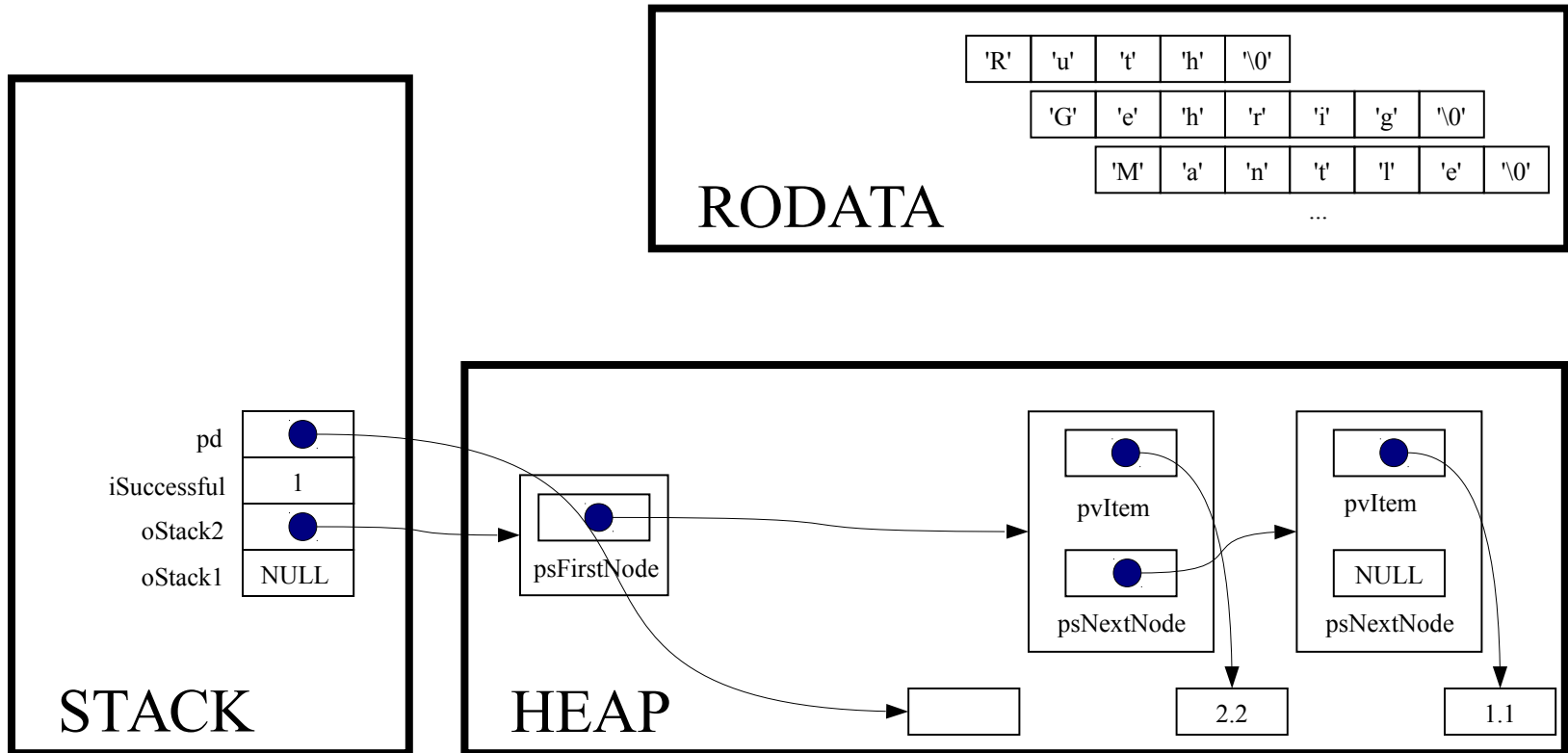
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```
pd = (double*)malloc(sizeof(double));
```



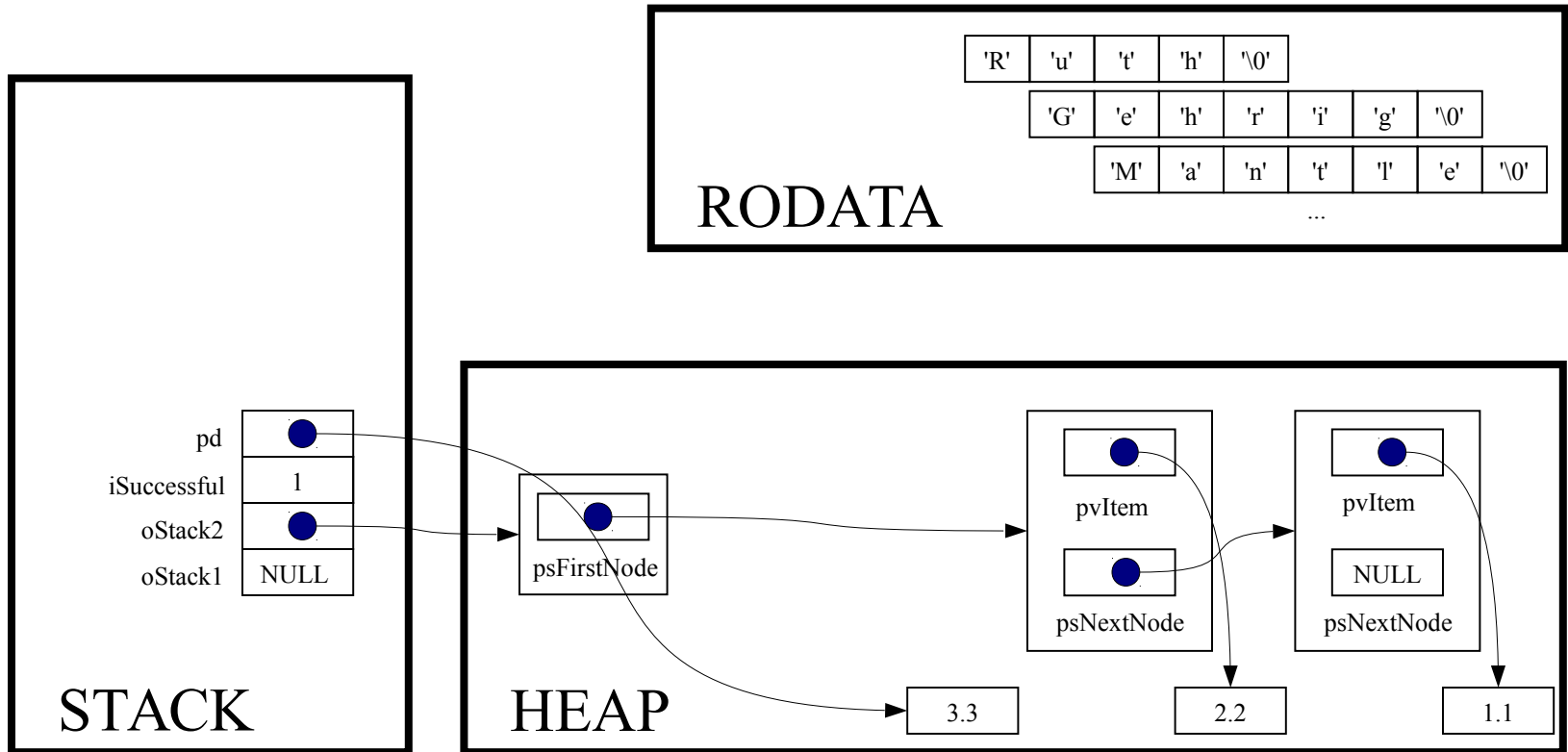
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```
if (pd == NULL) handleMemoryError();
```



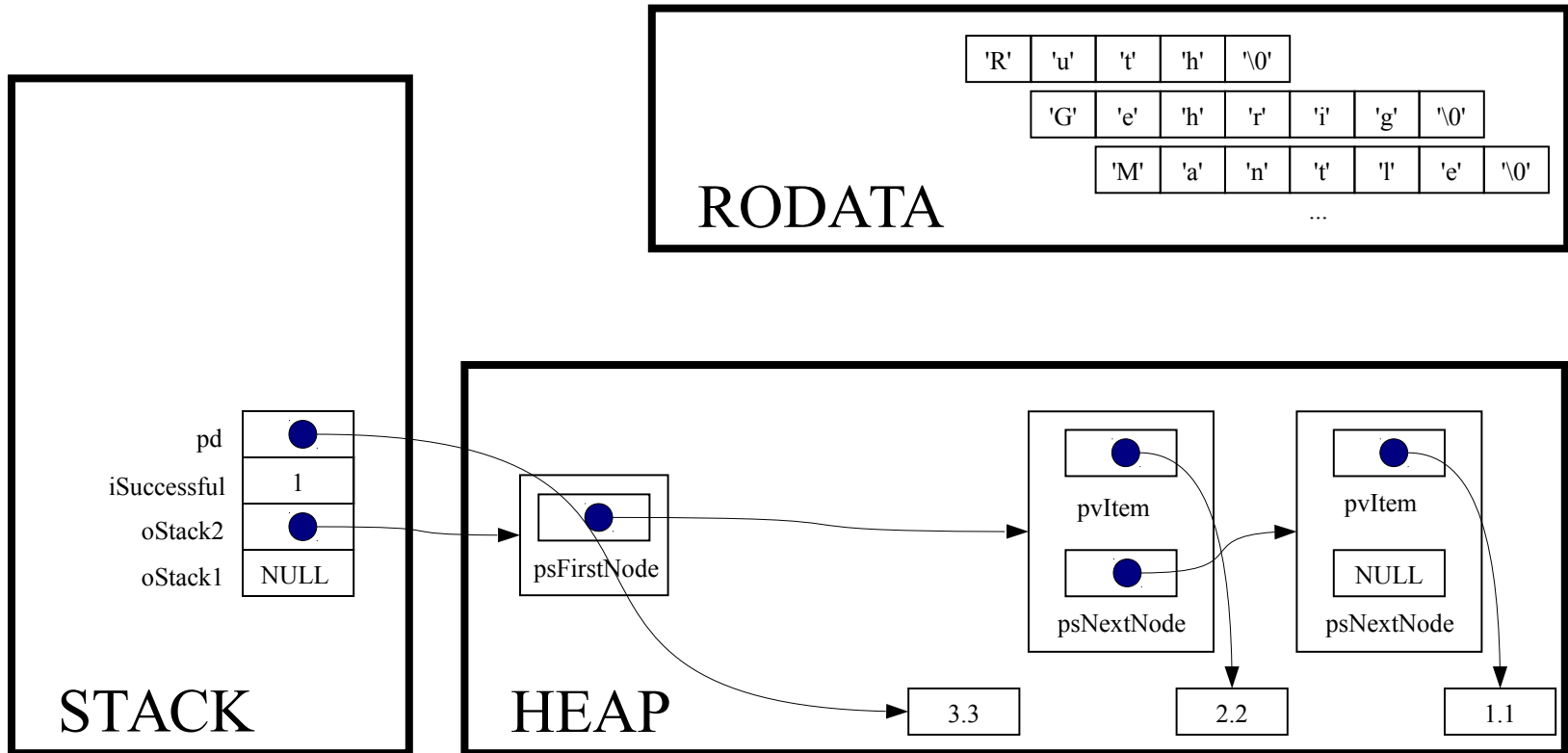
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*pd = 3.3;



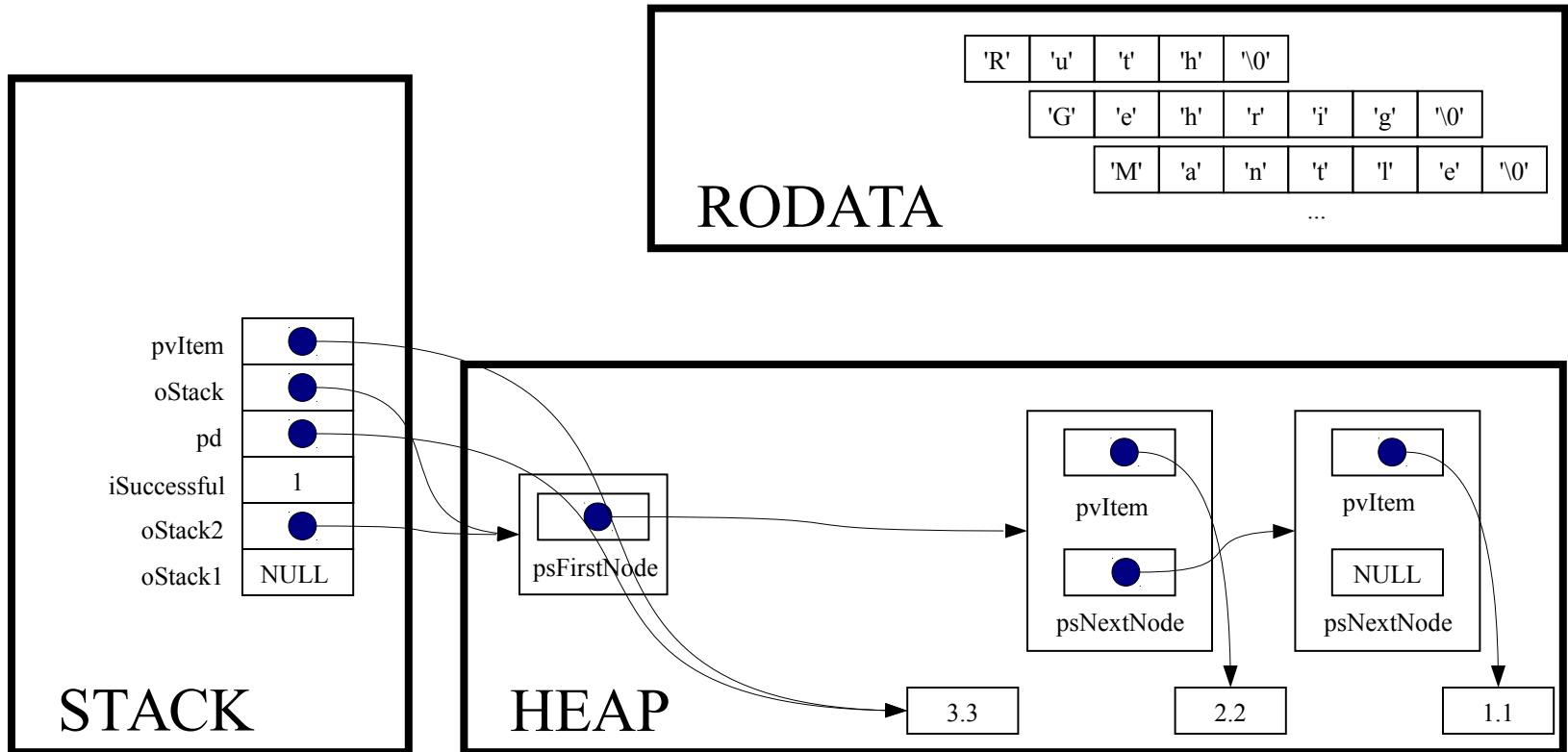
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```
iSuccessful = Stack_push(oStack2, pd);
```



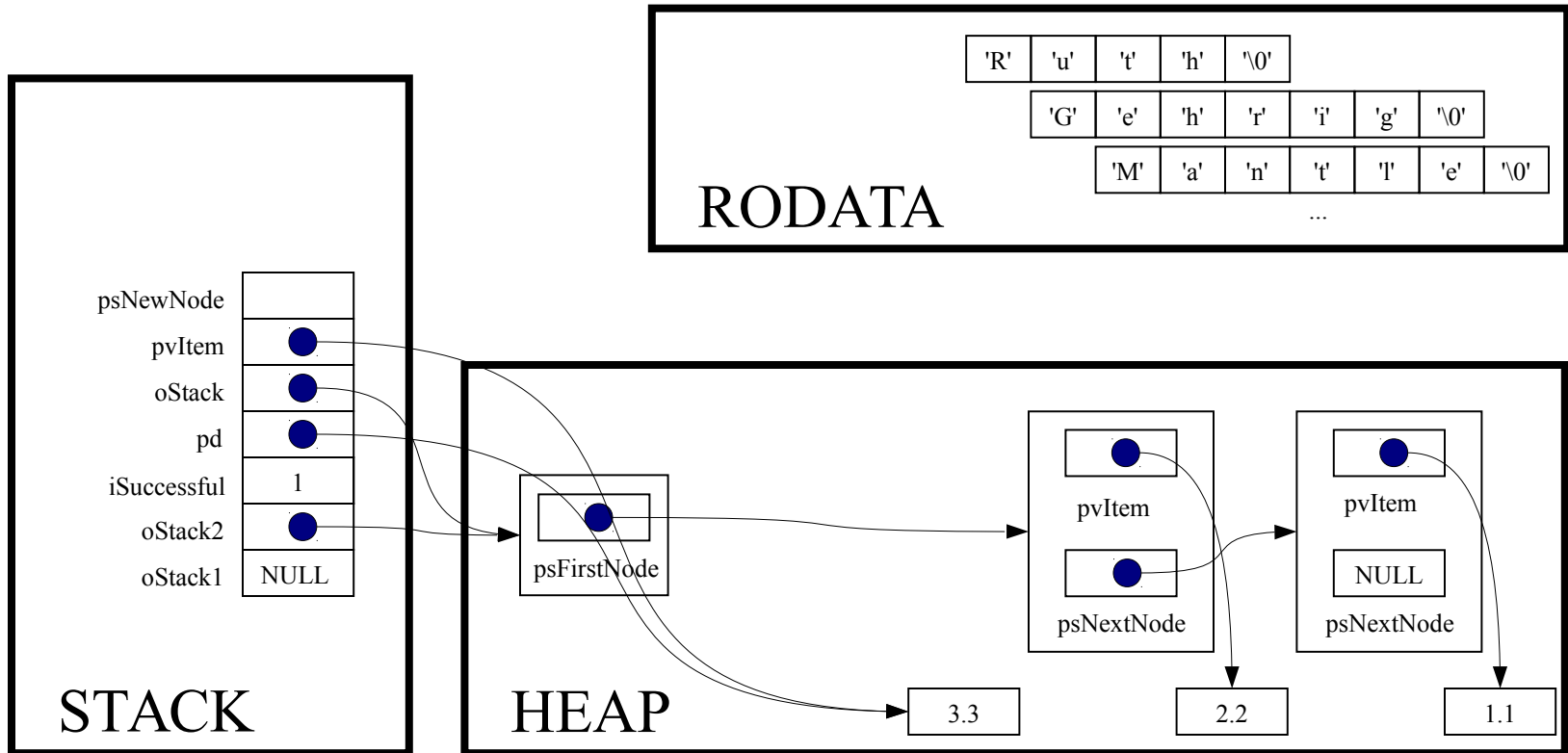
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```
int Stack_push(Stack_T oStack, const void *pvItem)
```



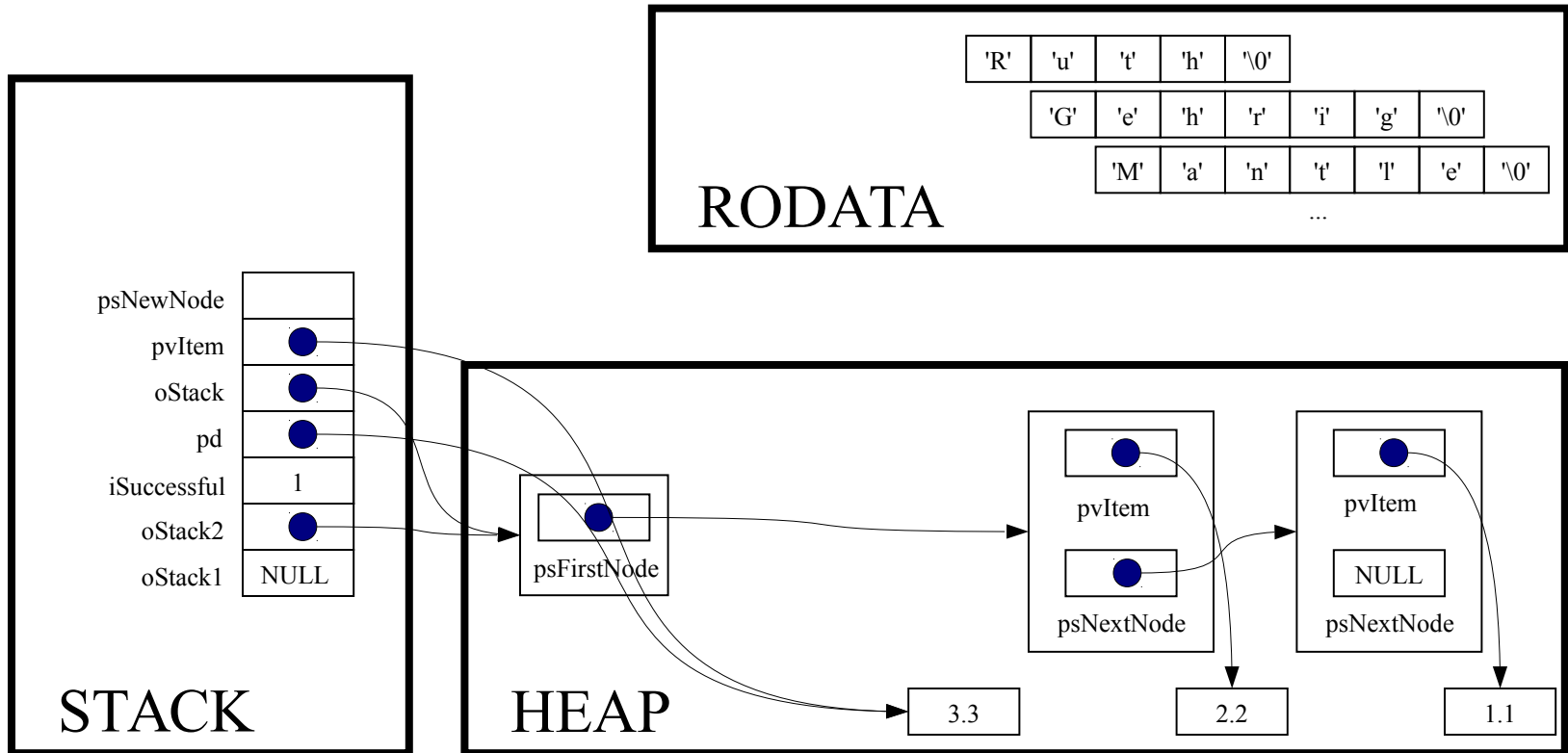
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```
struct StackNode *psNewNode;
```



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```
assert(oStack != NULL);
```

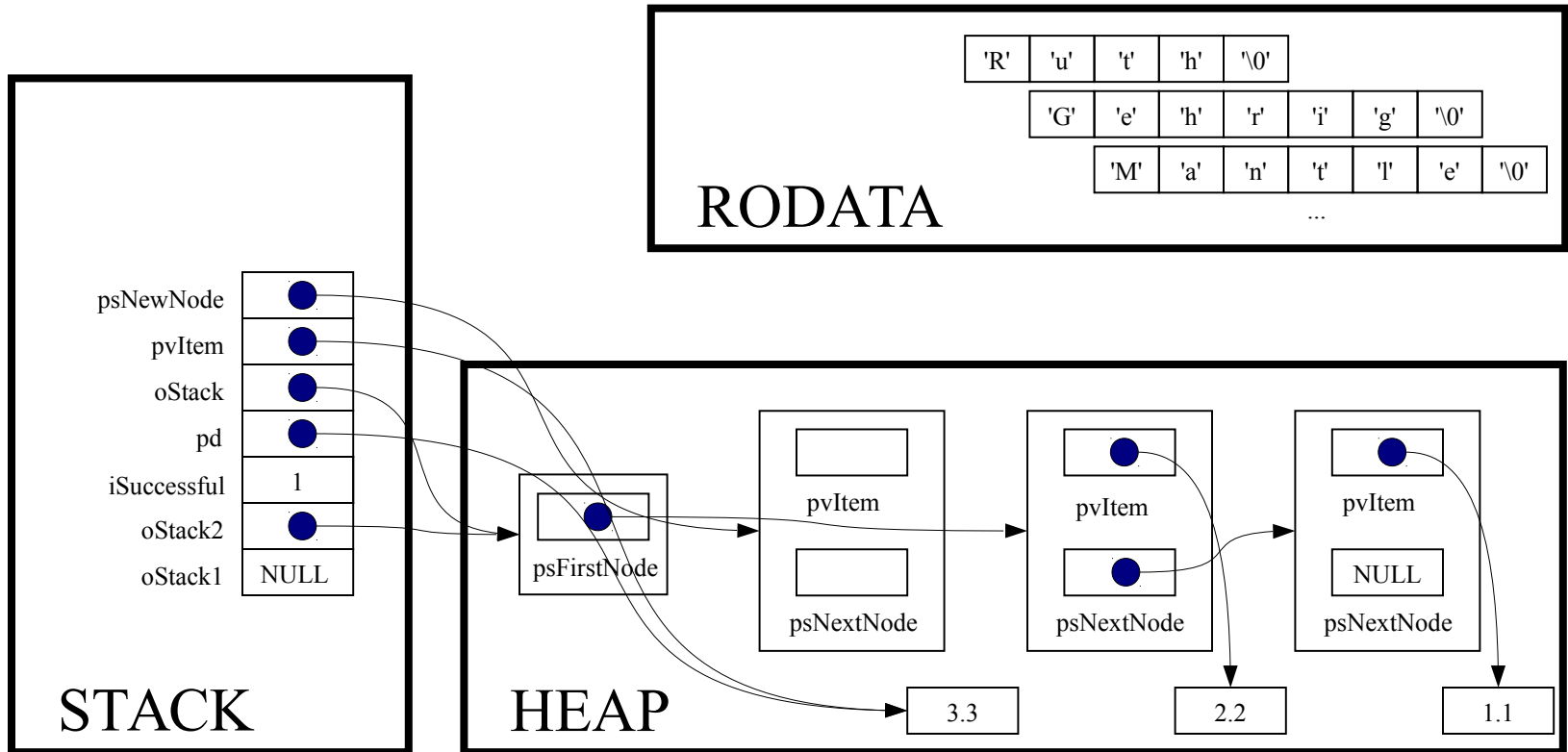


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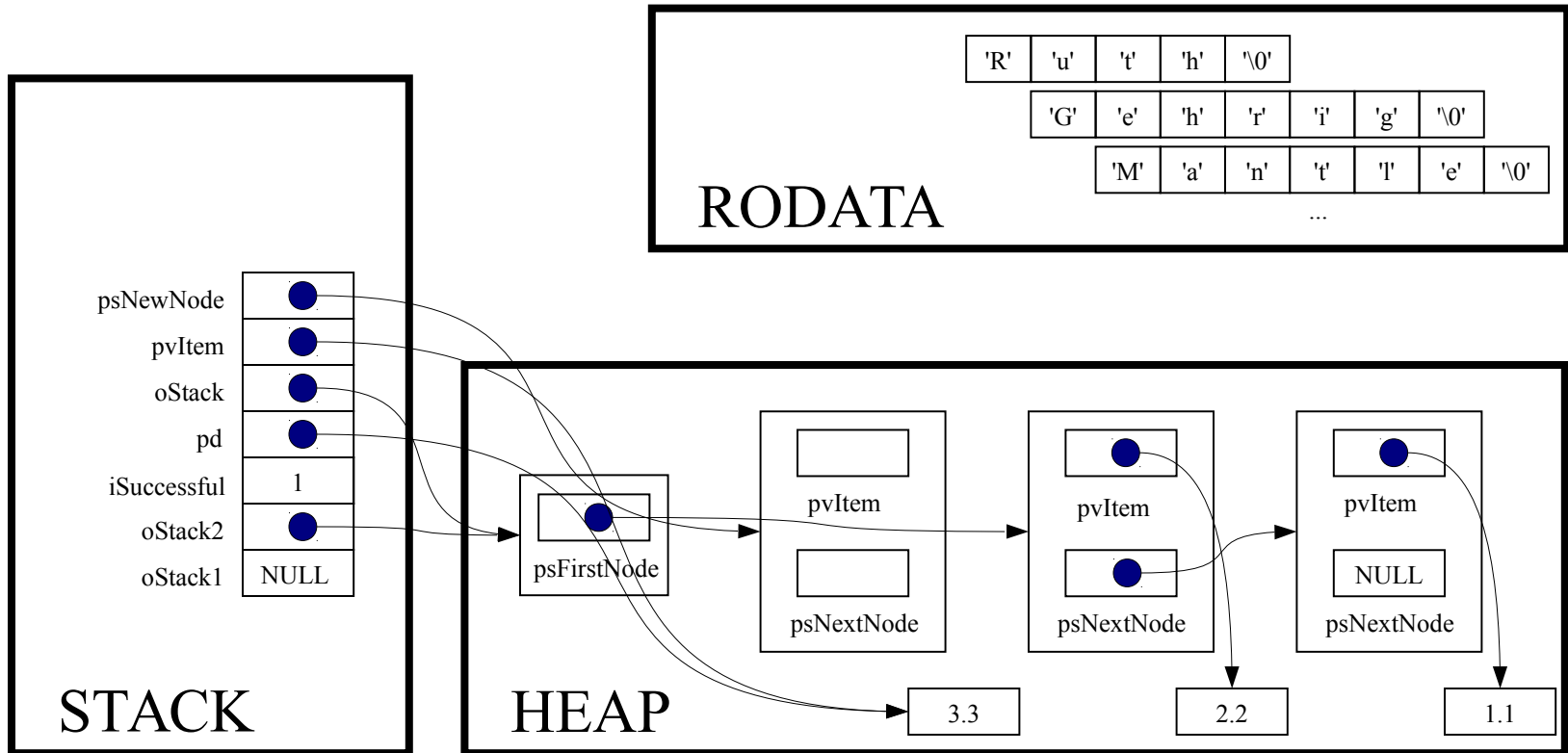
Trace of teststack (Version 5)

```
psNewNode = (struct StackNode*)malloc(sizeof(struct StackNode));
```



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```
if (psNewNode == NULL)
  return 0;
```

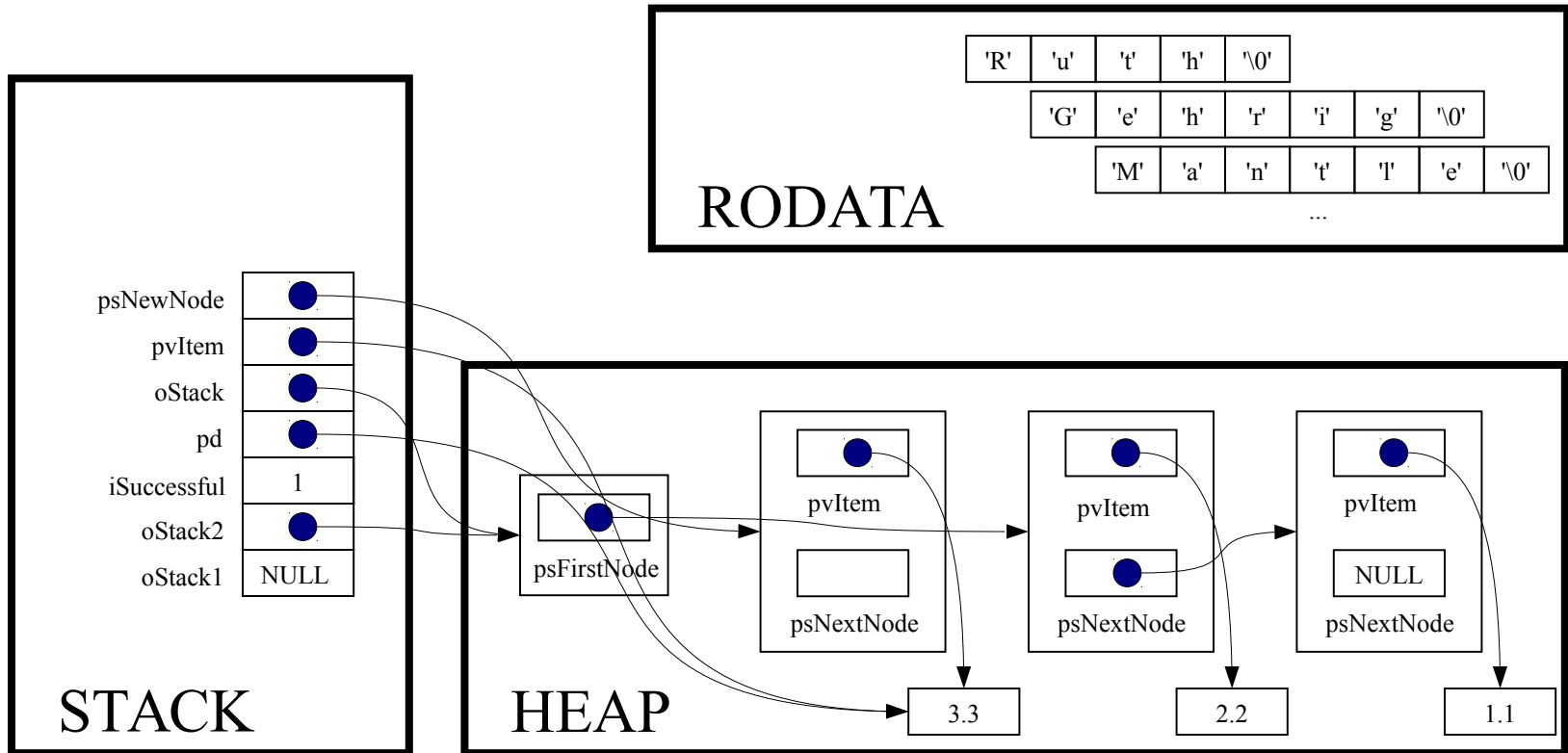


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```
psNewNode->pvItem = pvItem;
```

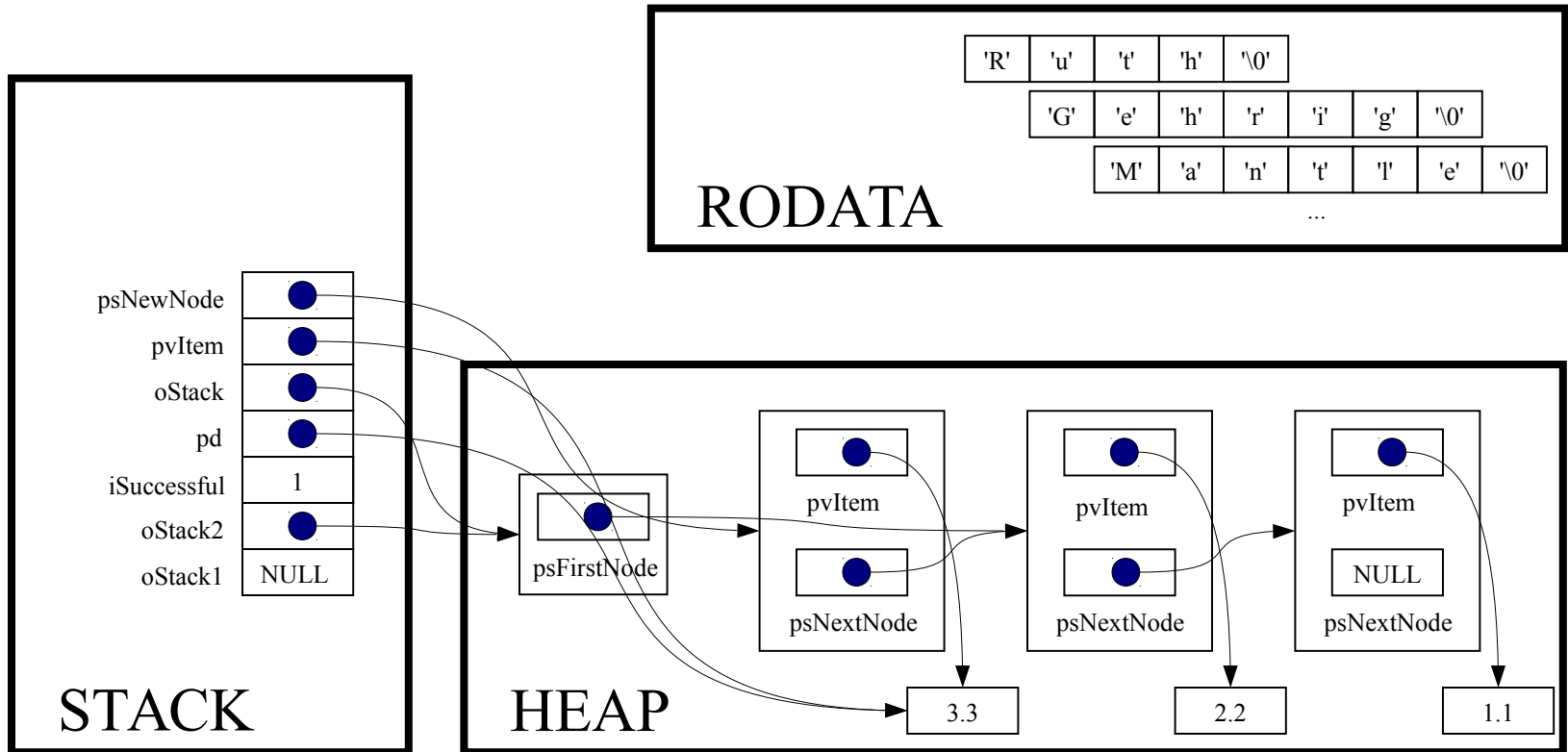


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```
psNewNode->psNextNode = oStack->psFirstNode;
```

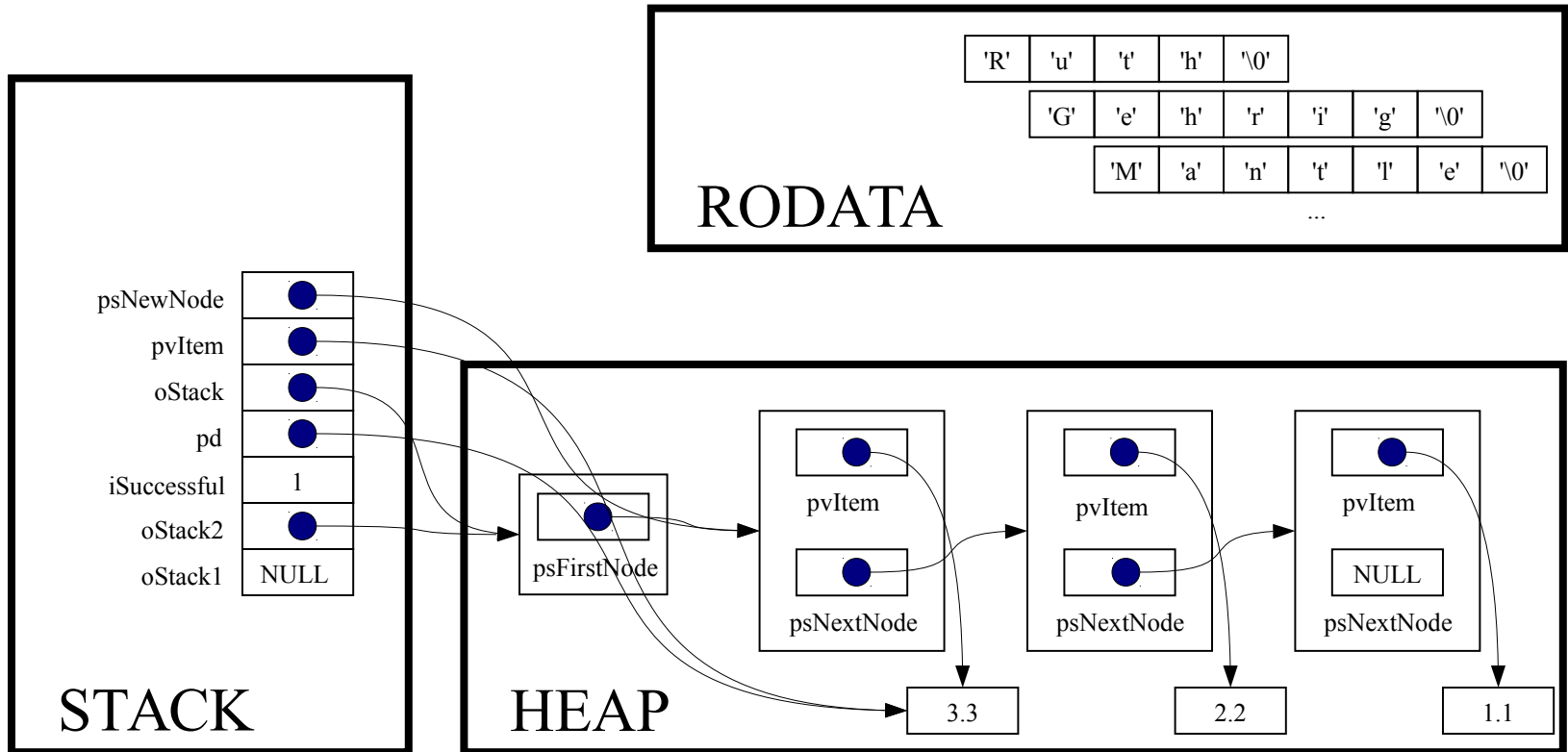


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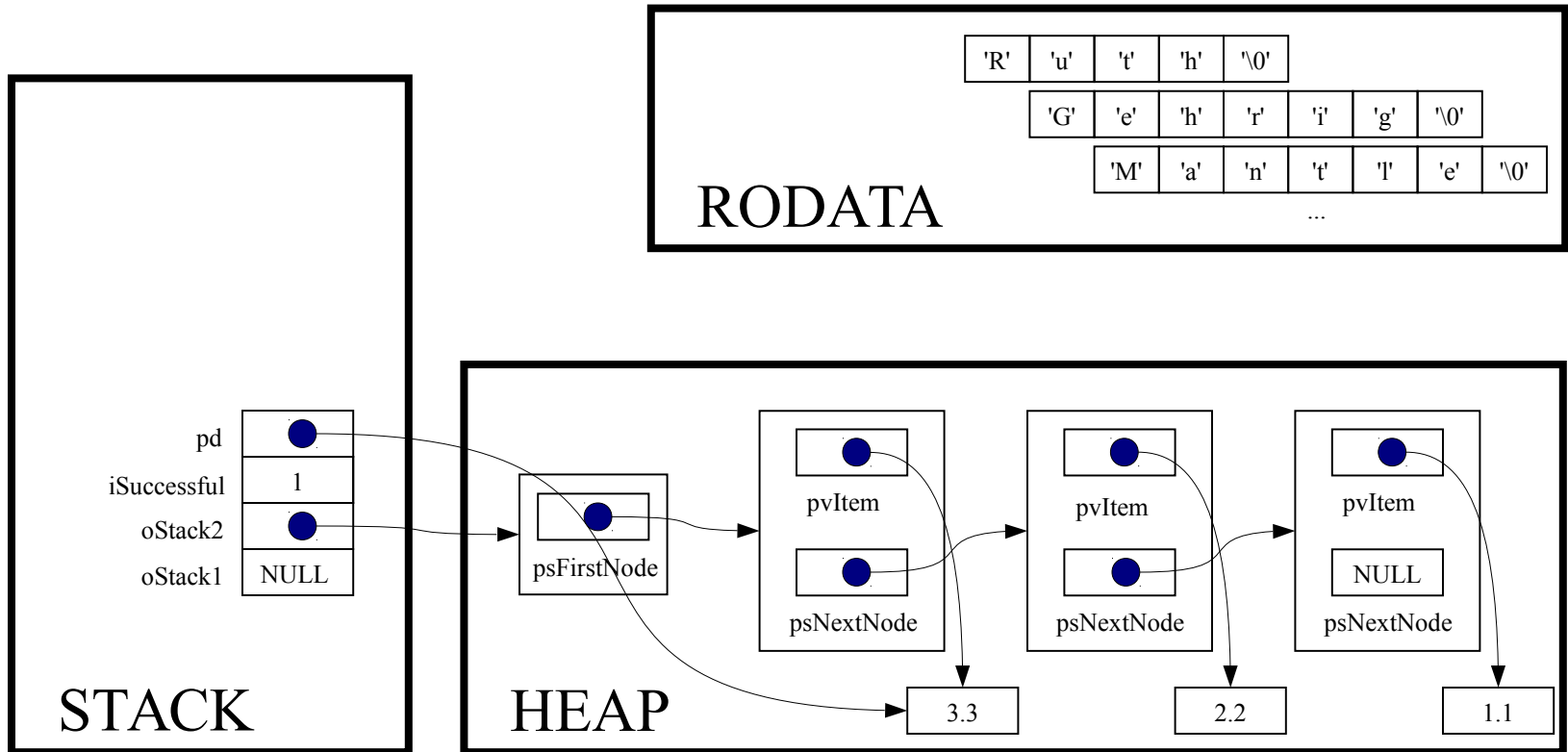
Trace of teststack (Version 5)

```
oStack->psFirstNode = psNewNode;
```



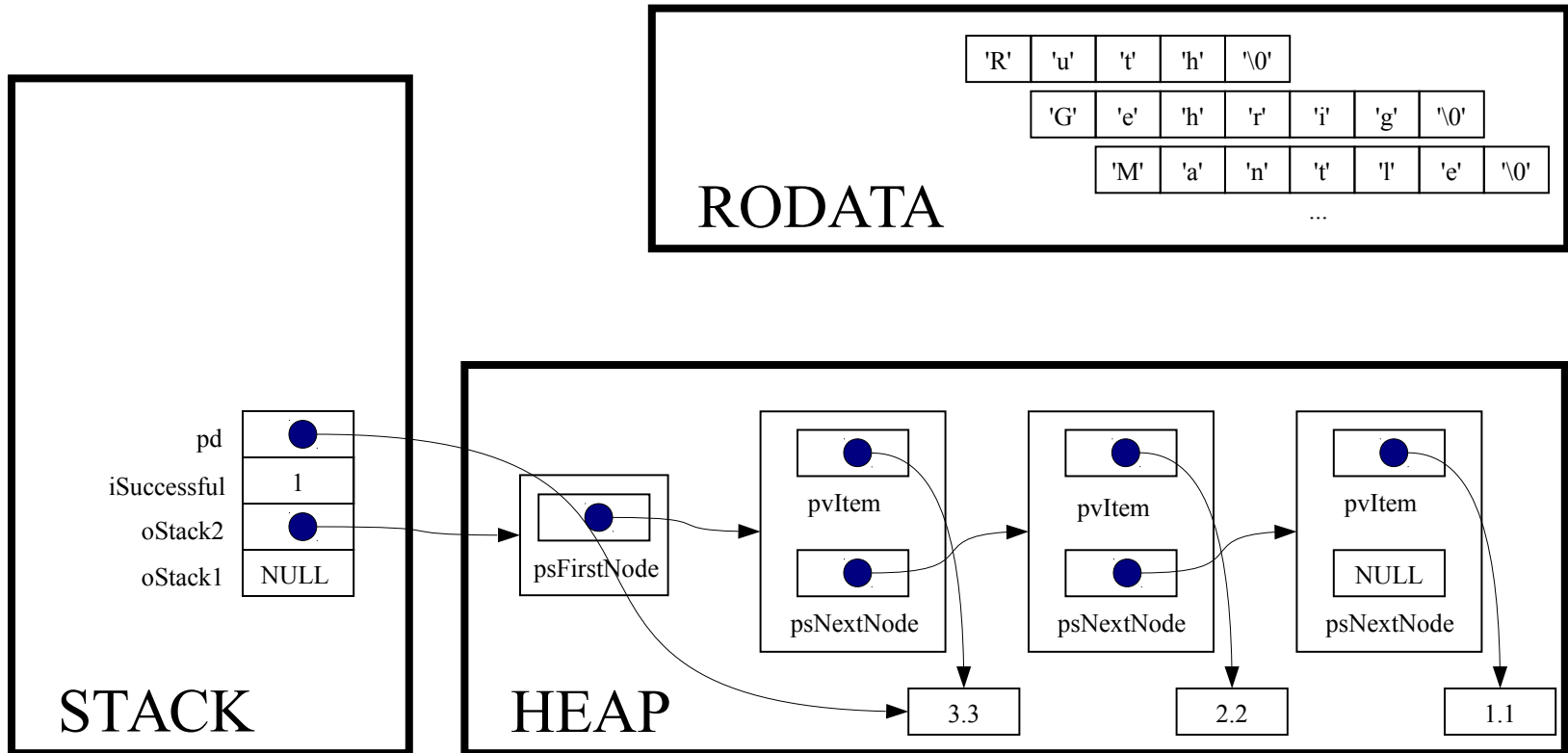
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```
return 1;
```



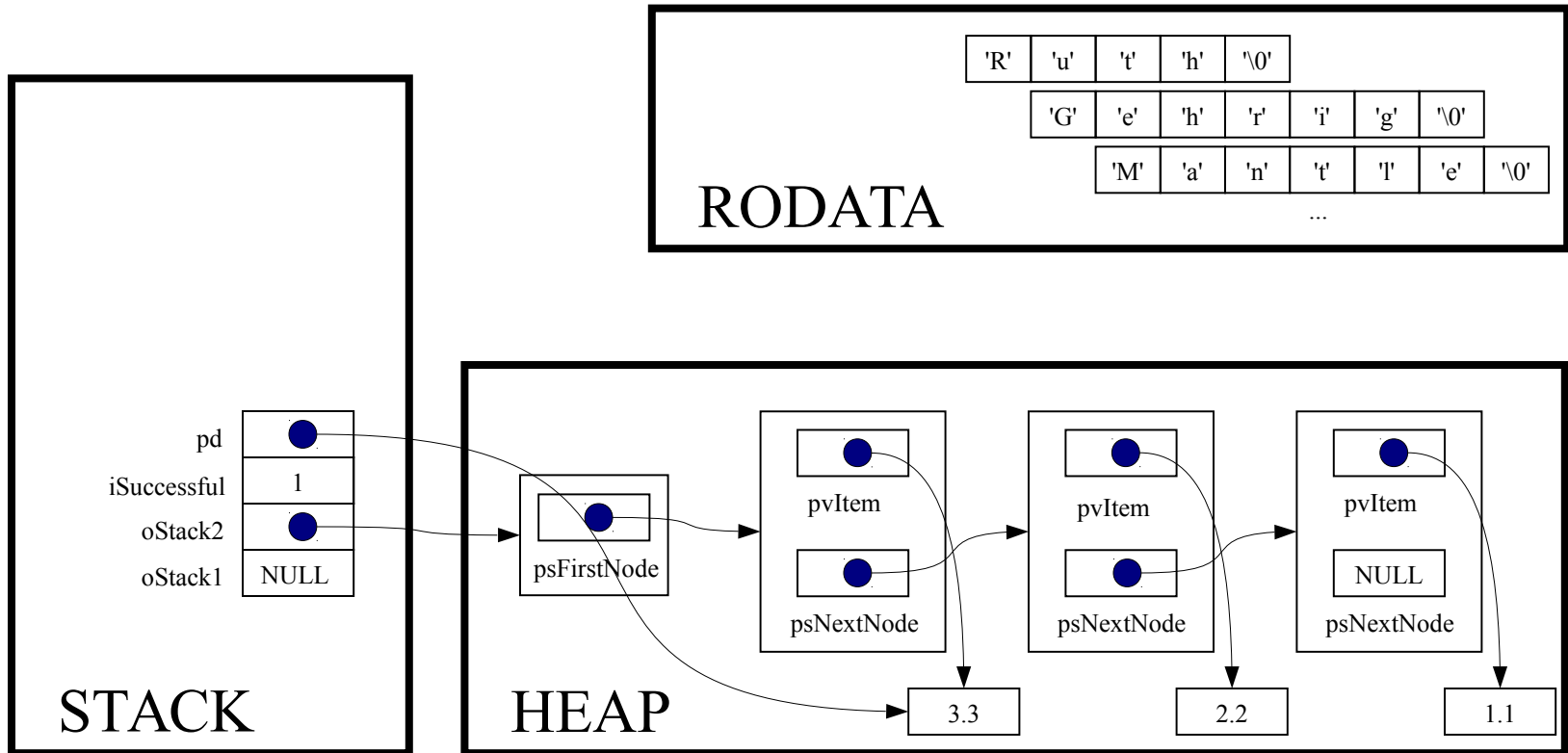
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```
iSuccessful = Stack_push(oStack2, pd);
```



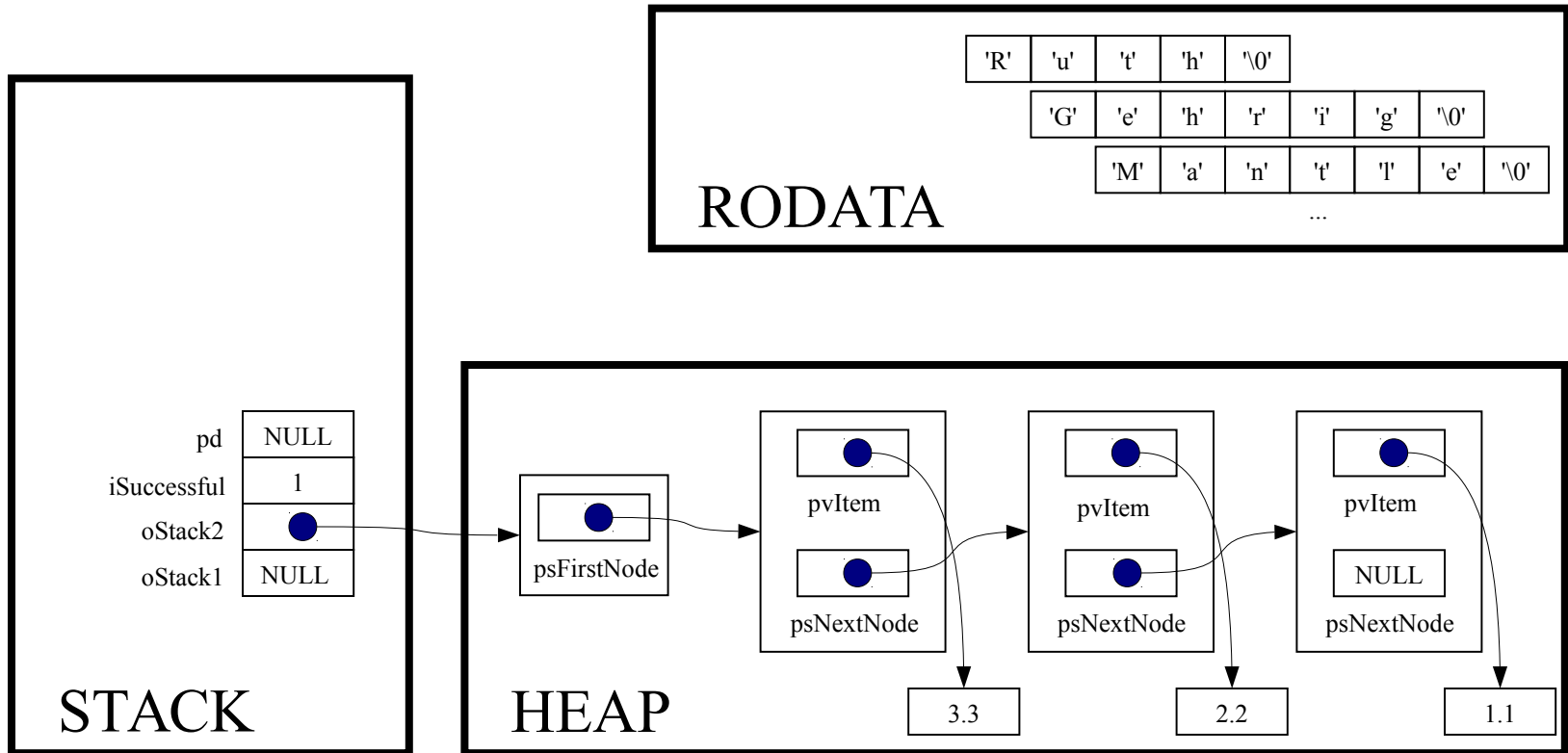
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```
if (! iSuccessful) handleMemoryError();
```



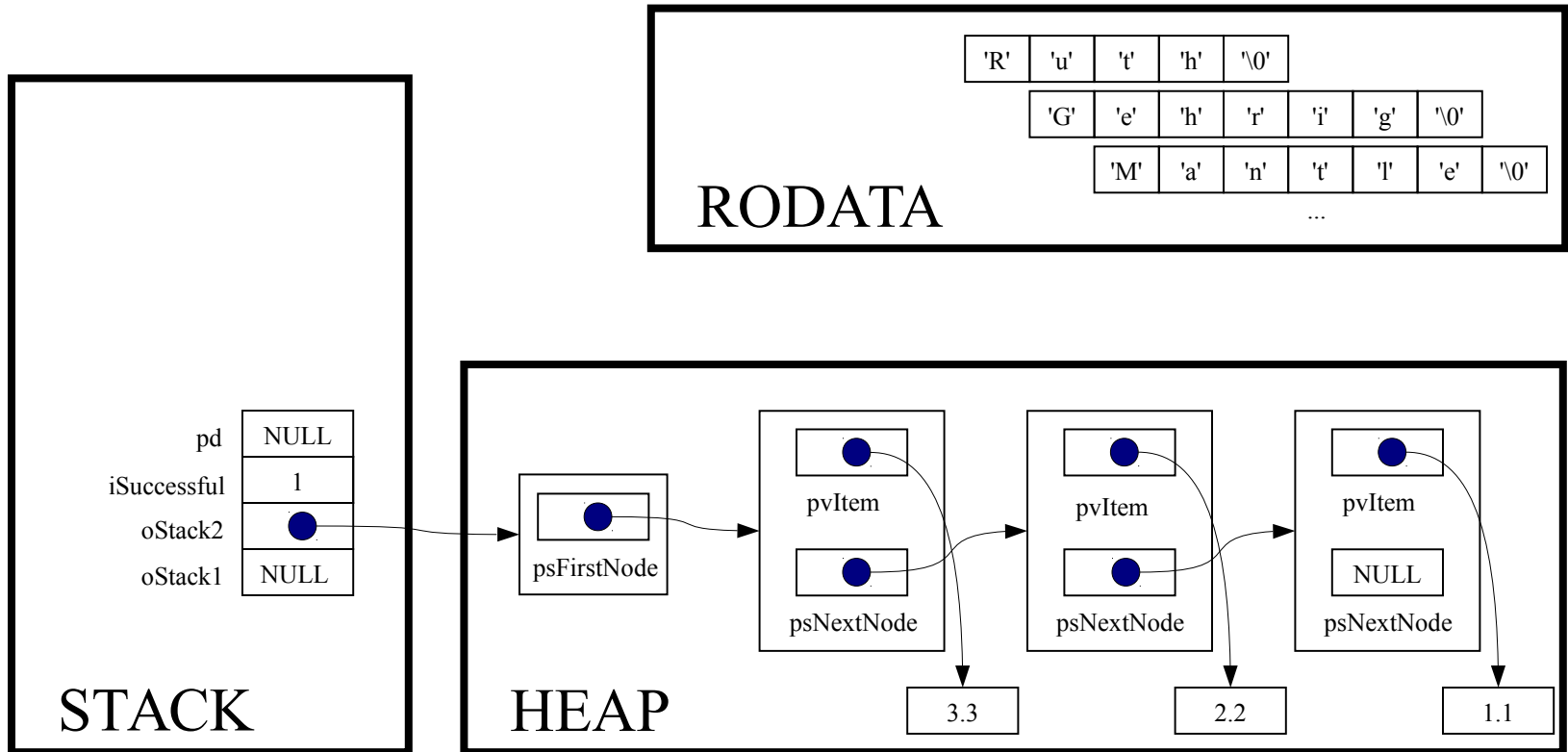
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pd = NULL;



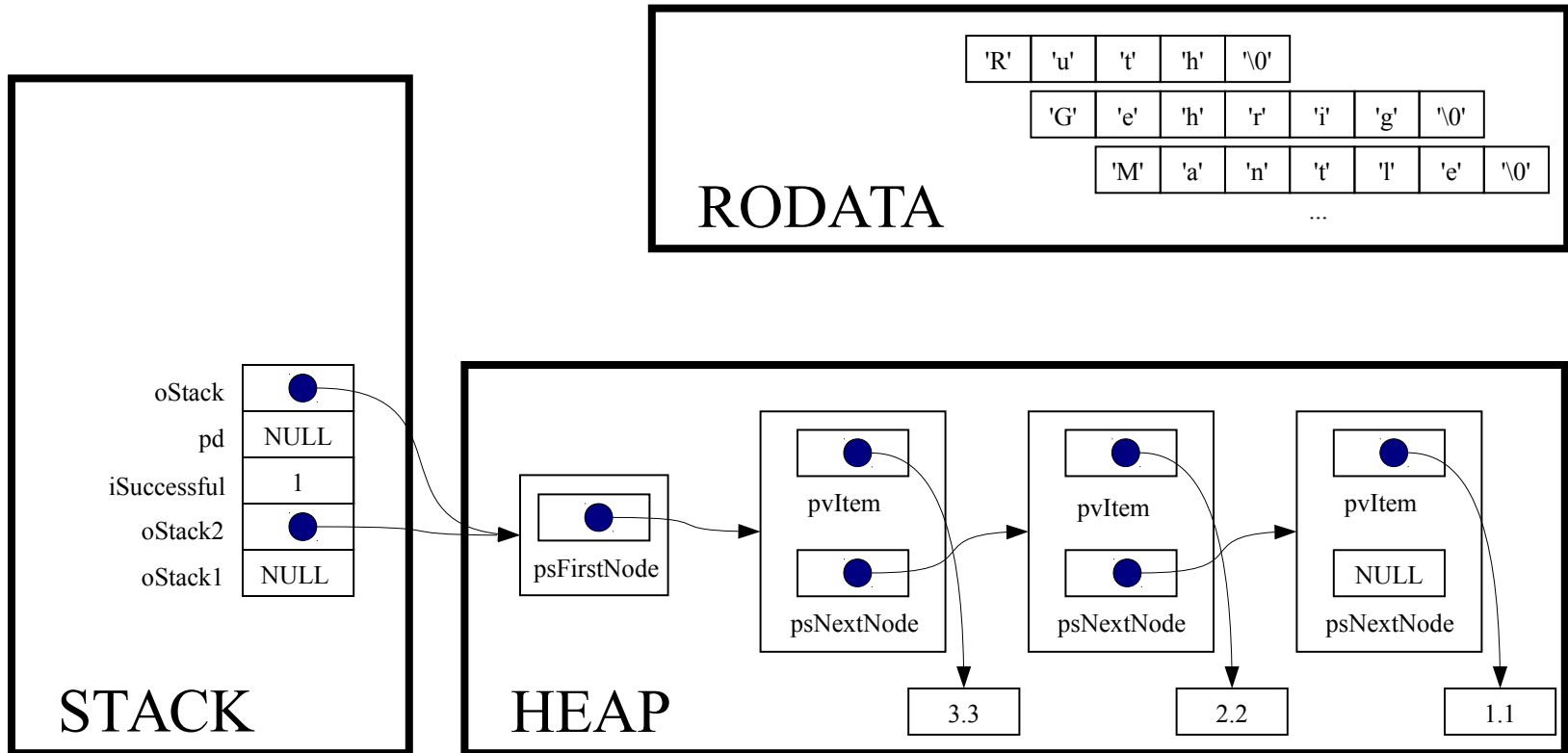
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```
while (! Stack_isEmpty(oStack2))
```



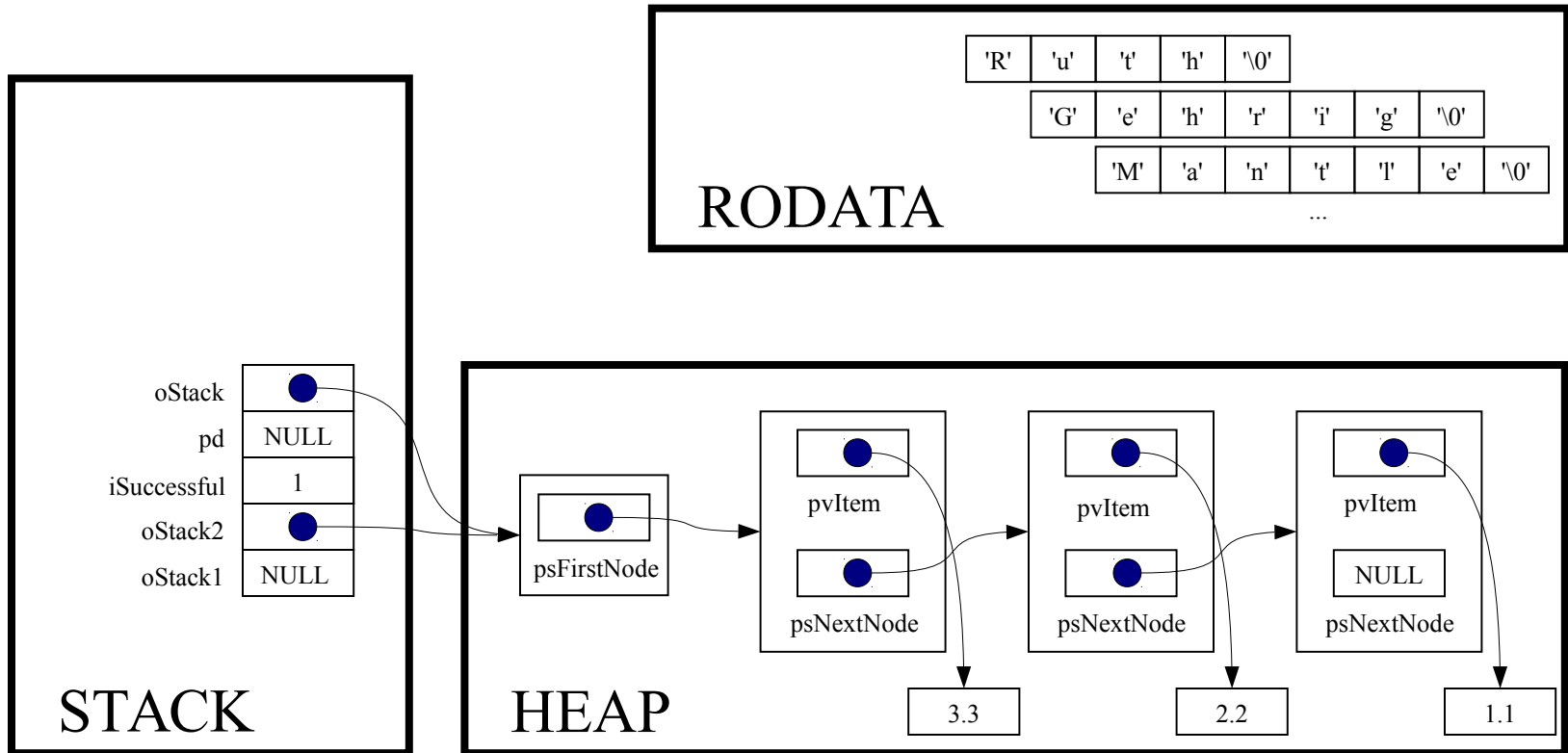
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```
int Stack_isEmpty(Stack_T oStack)
```



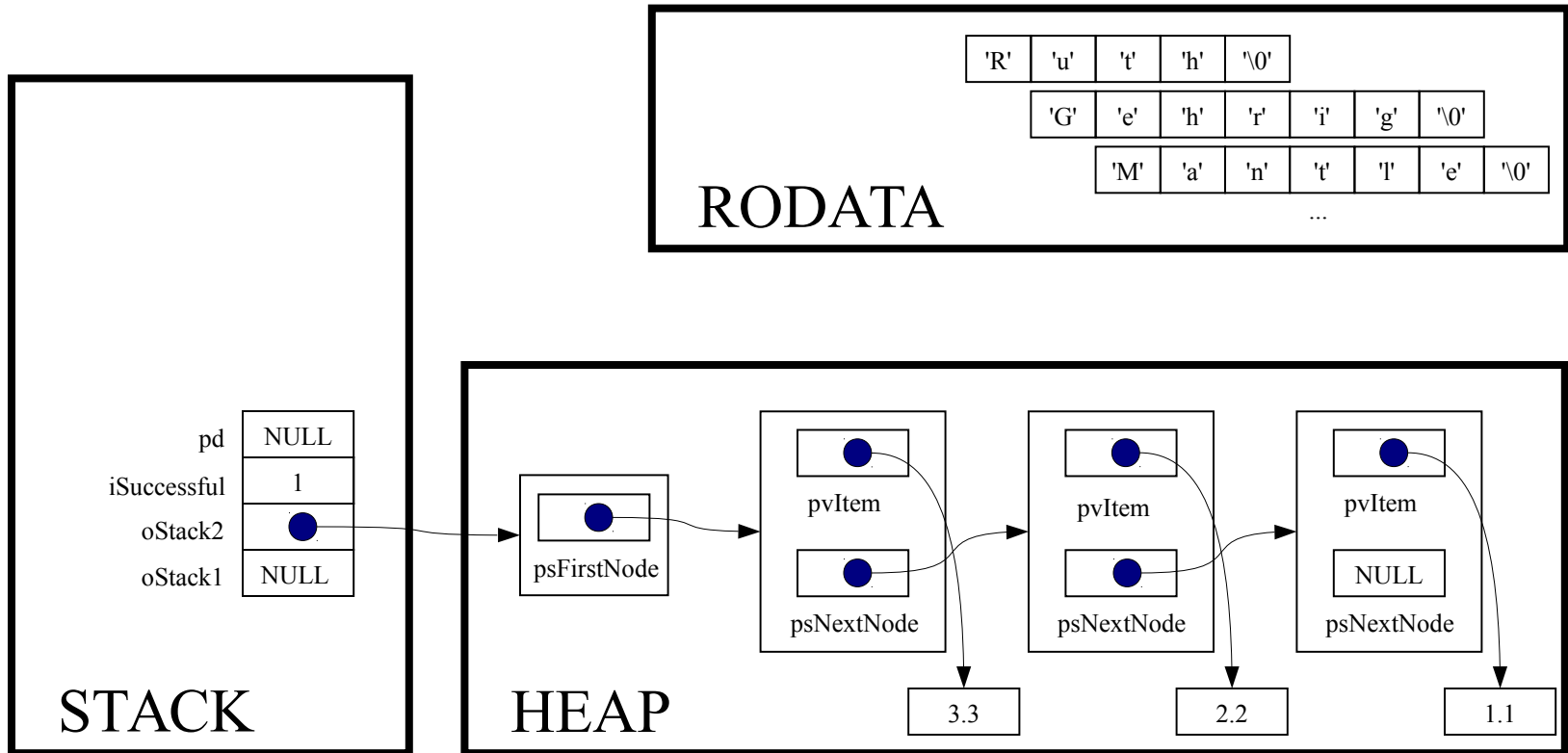
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```
assert(oStack != NULL);
```



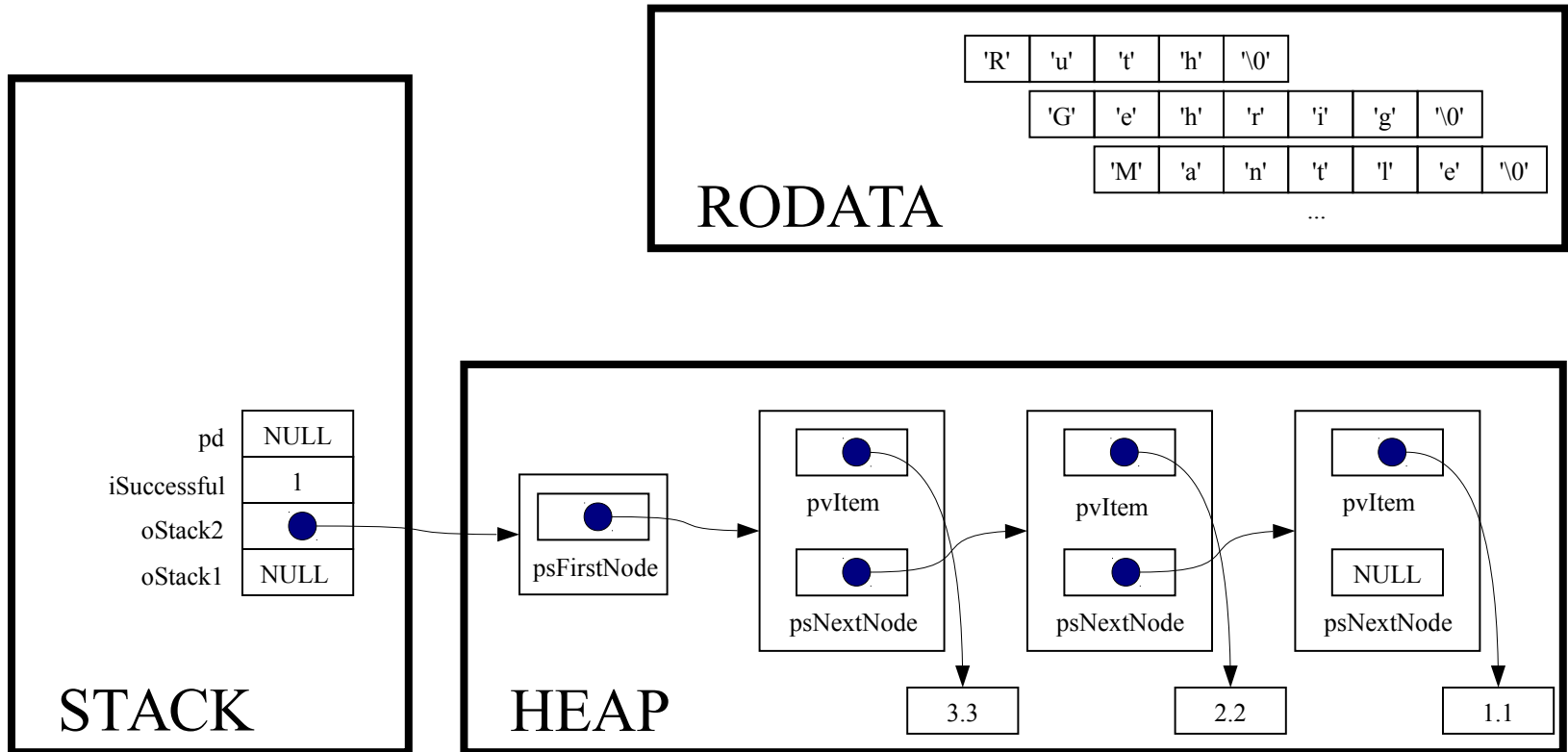
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```
return oStack->psFirstNode == NULL;
```



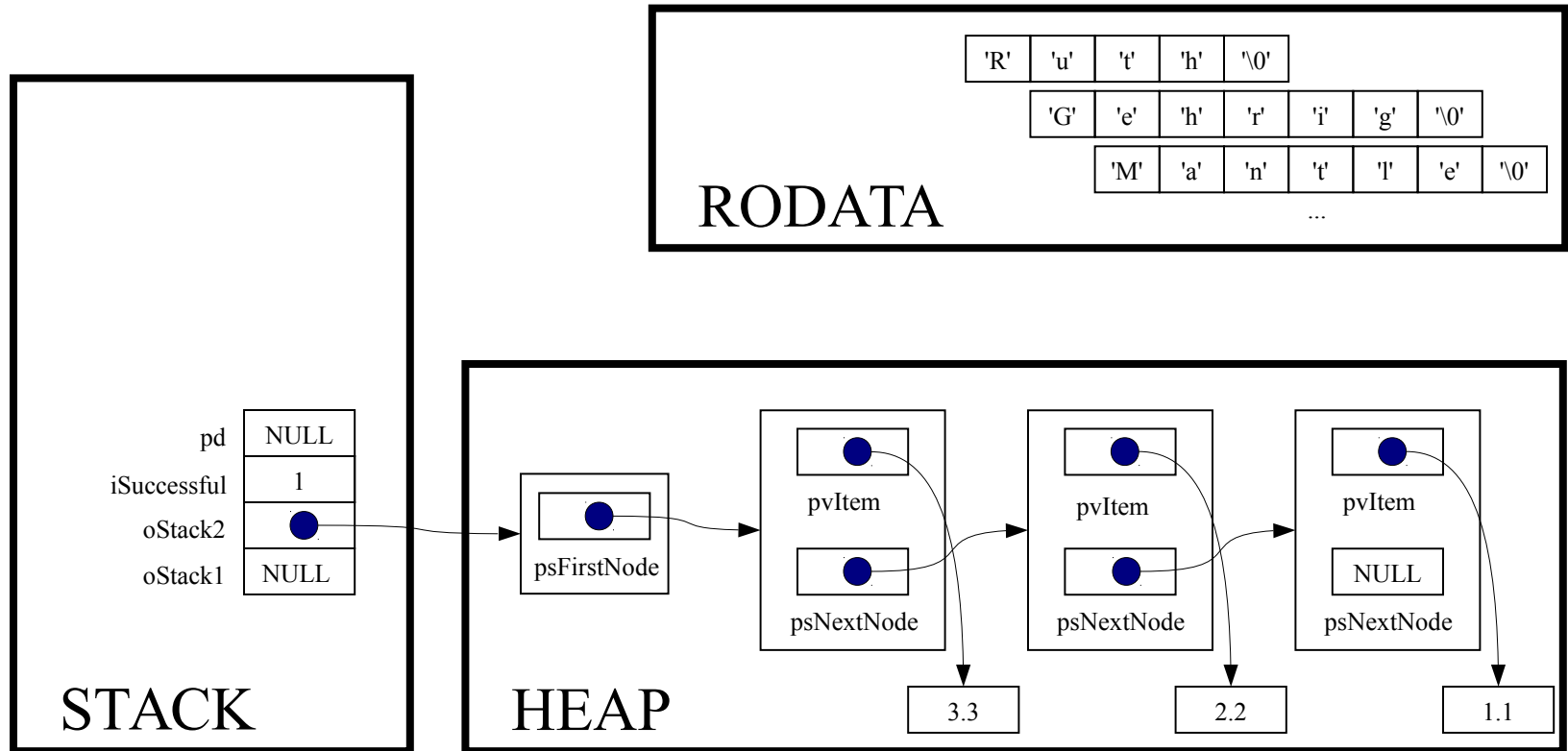
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```
while (! Stack_isEmpty(oStack2))
```



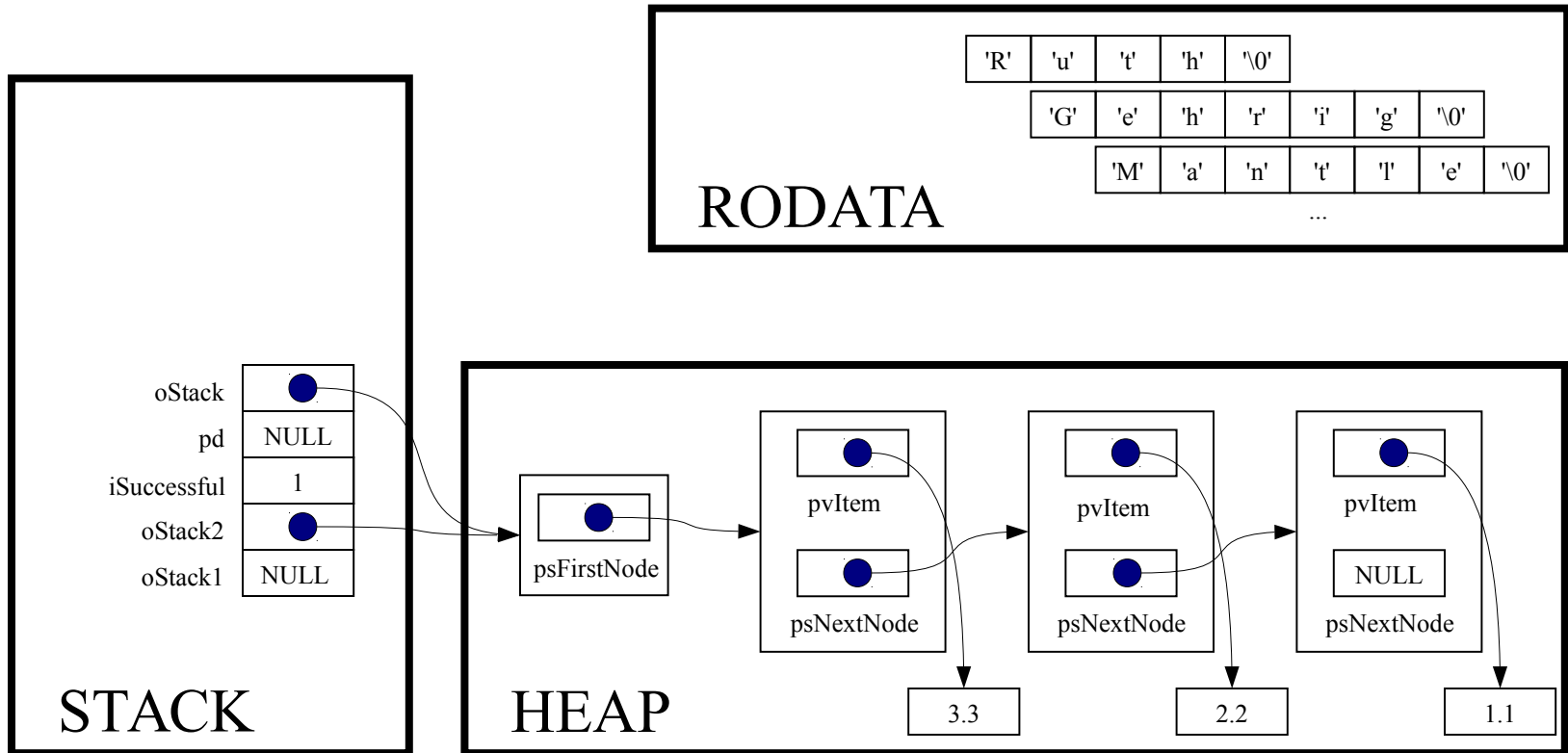
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```
pd = (double*) Stack_pop(oStack2);
```



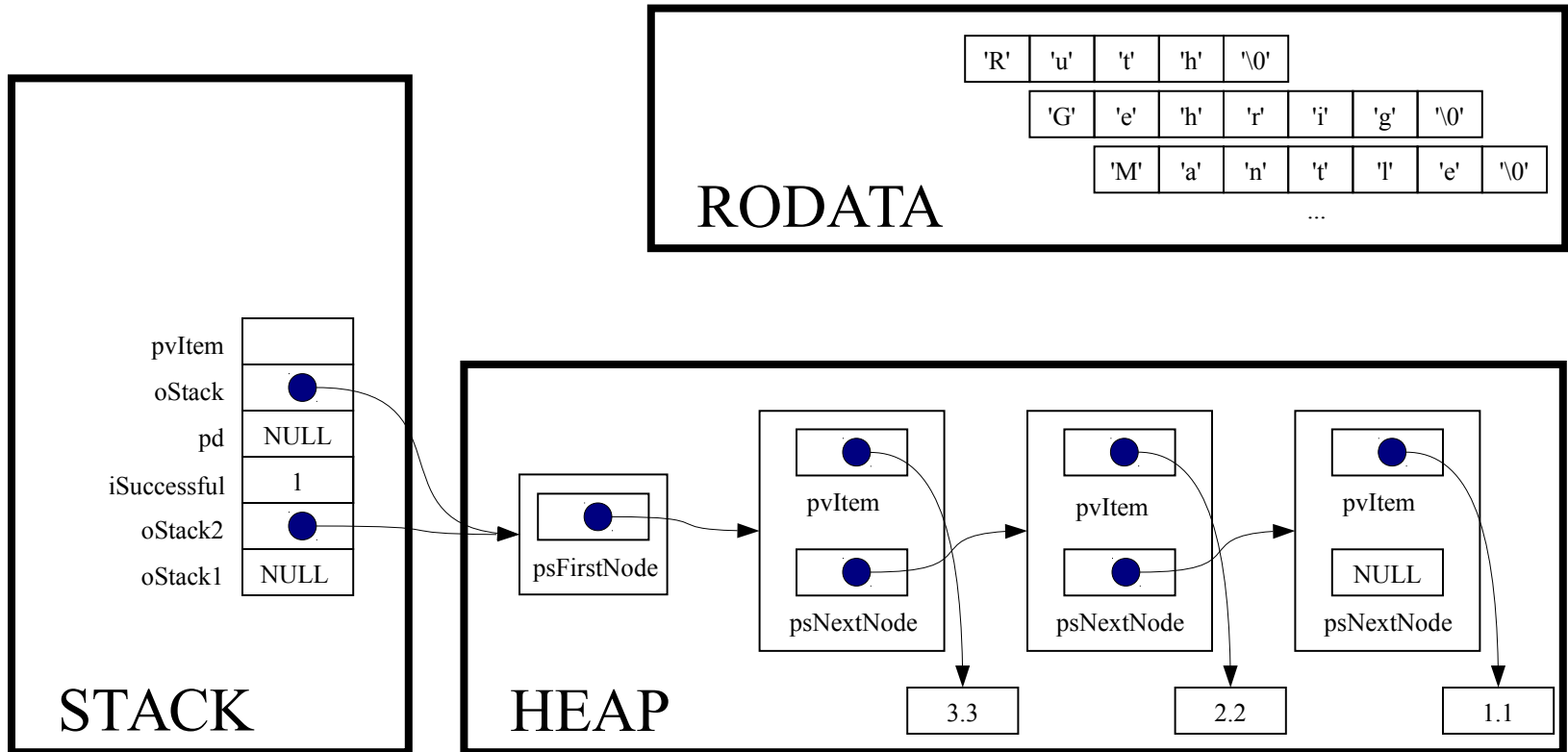
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```
void *Stack_pop(Stack_T oStack)
```



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```
const void *pvItem;
```

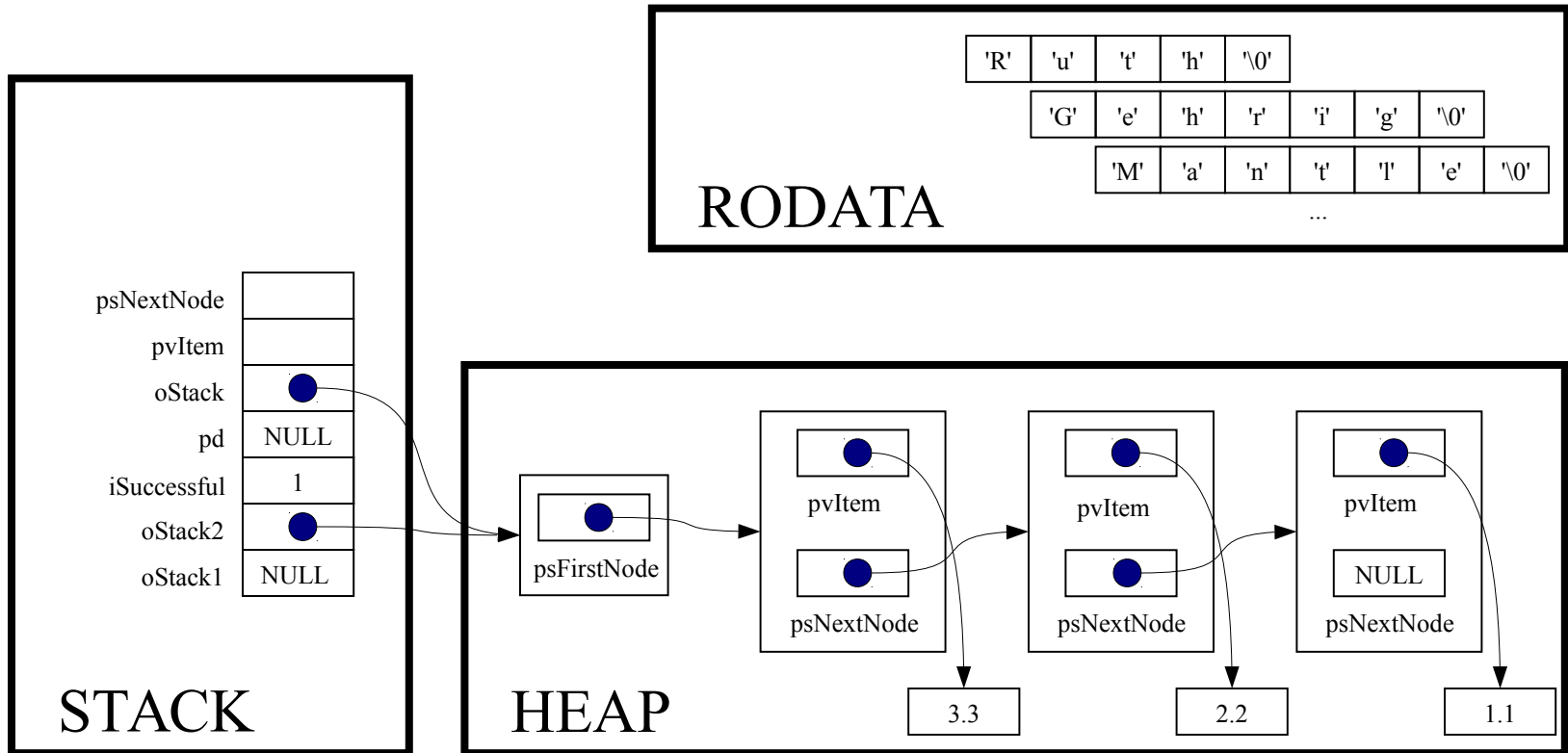


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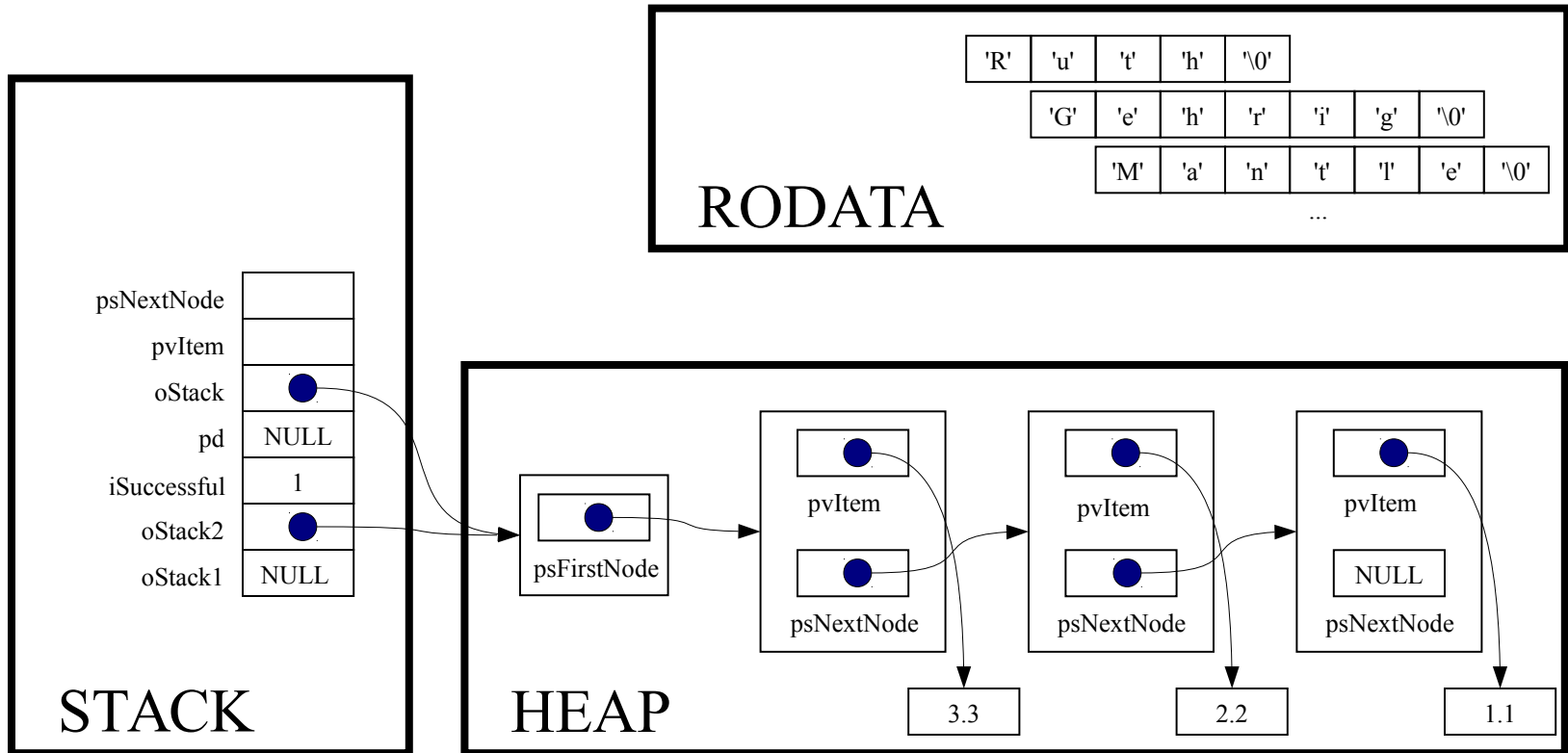
Trace of teststack (Version 5)

```
struct StackNode *psNextNode;
```



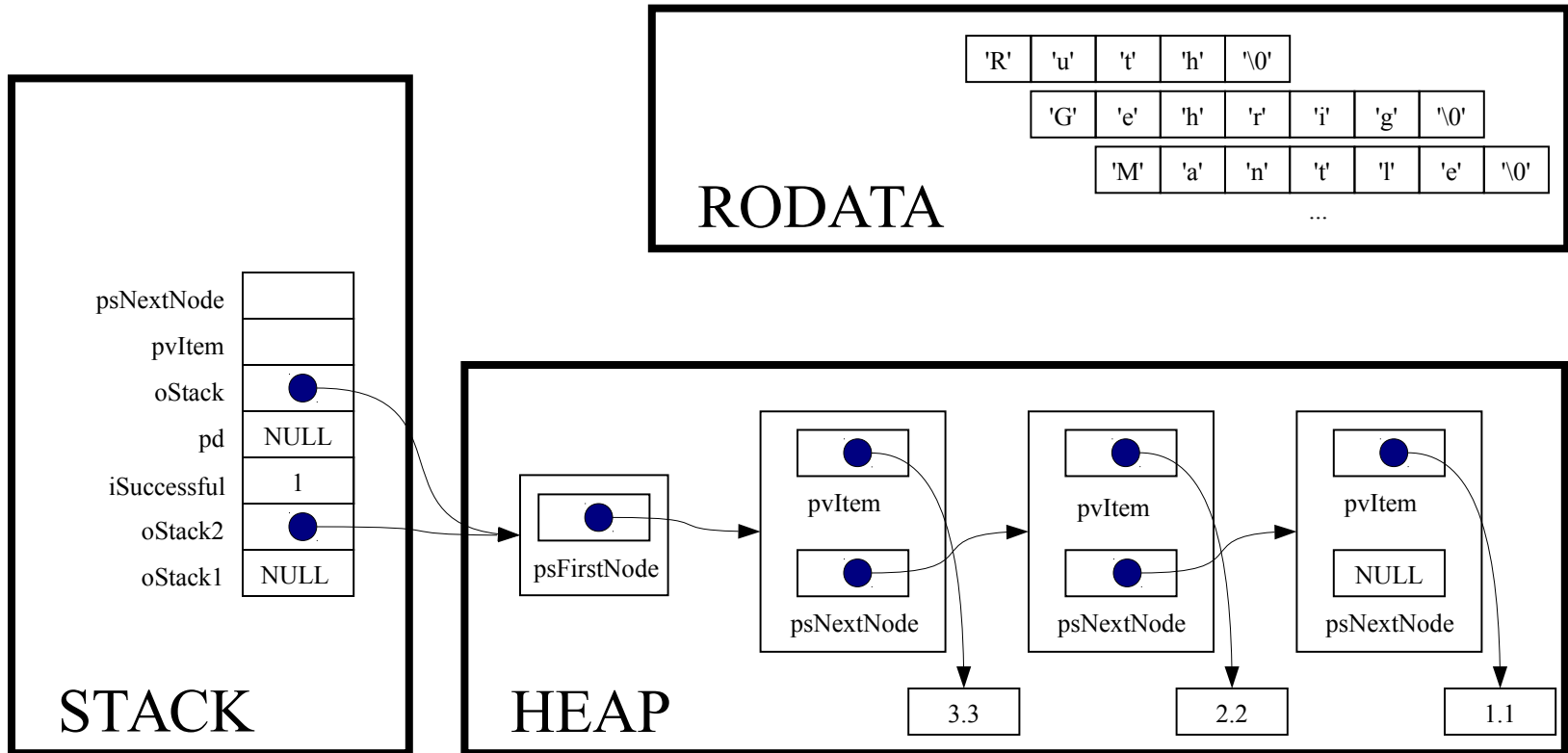
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```
assert(oStack != NULL);
```



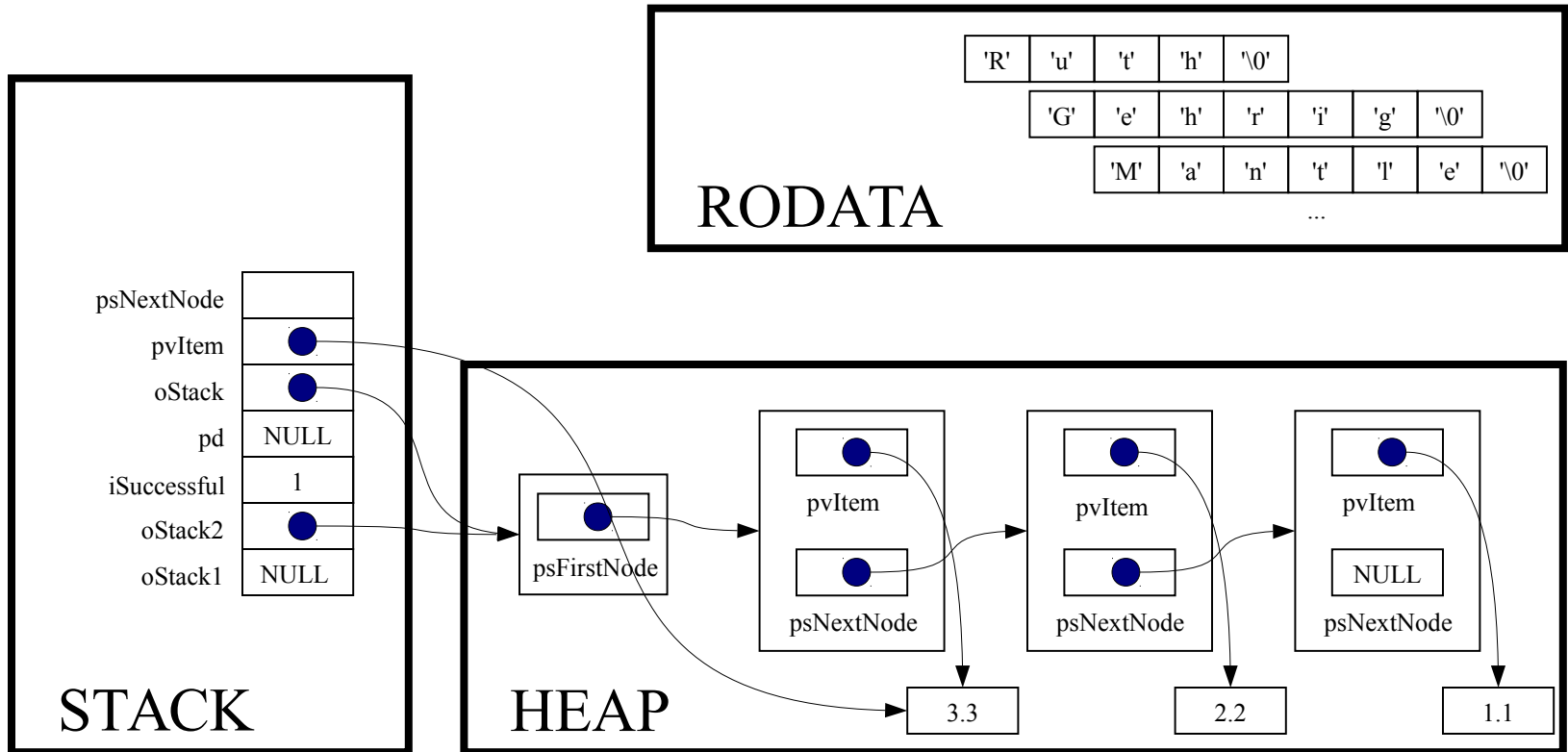
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```
assert(oStack->psFirstNode != NULL);
```



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```
pvItem = oStack->psFirstNode->pvItem;
```

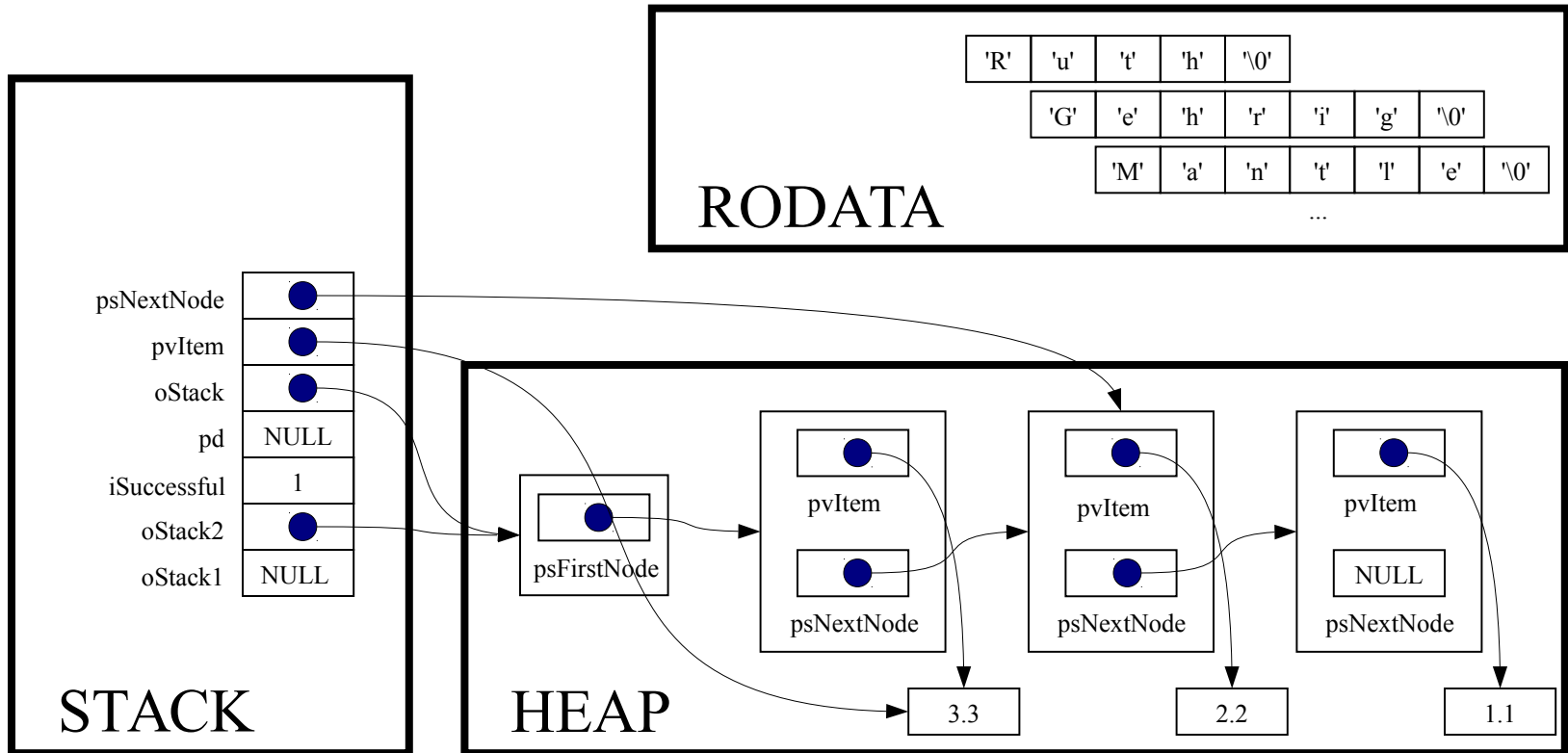


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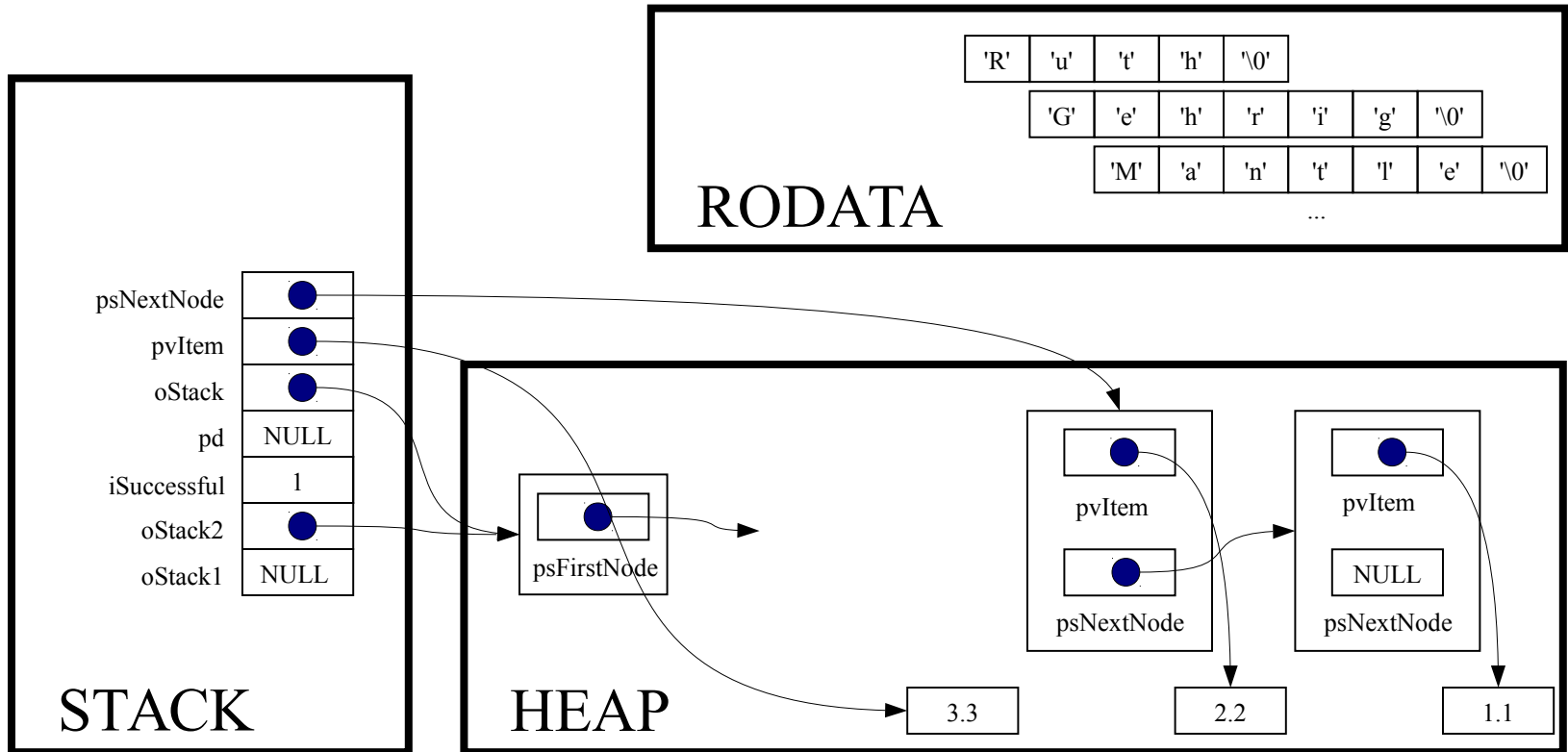
Trace of teststack (Version 5)

```
psNextNode = oStack->psFirstNode->psNextNode;
```



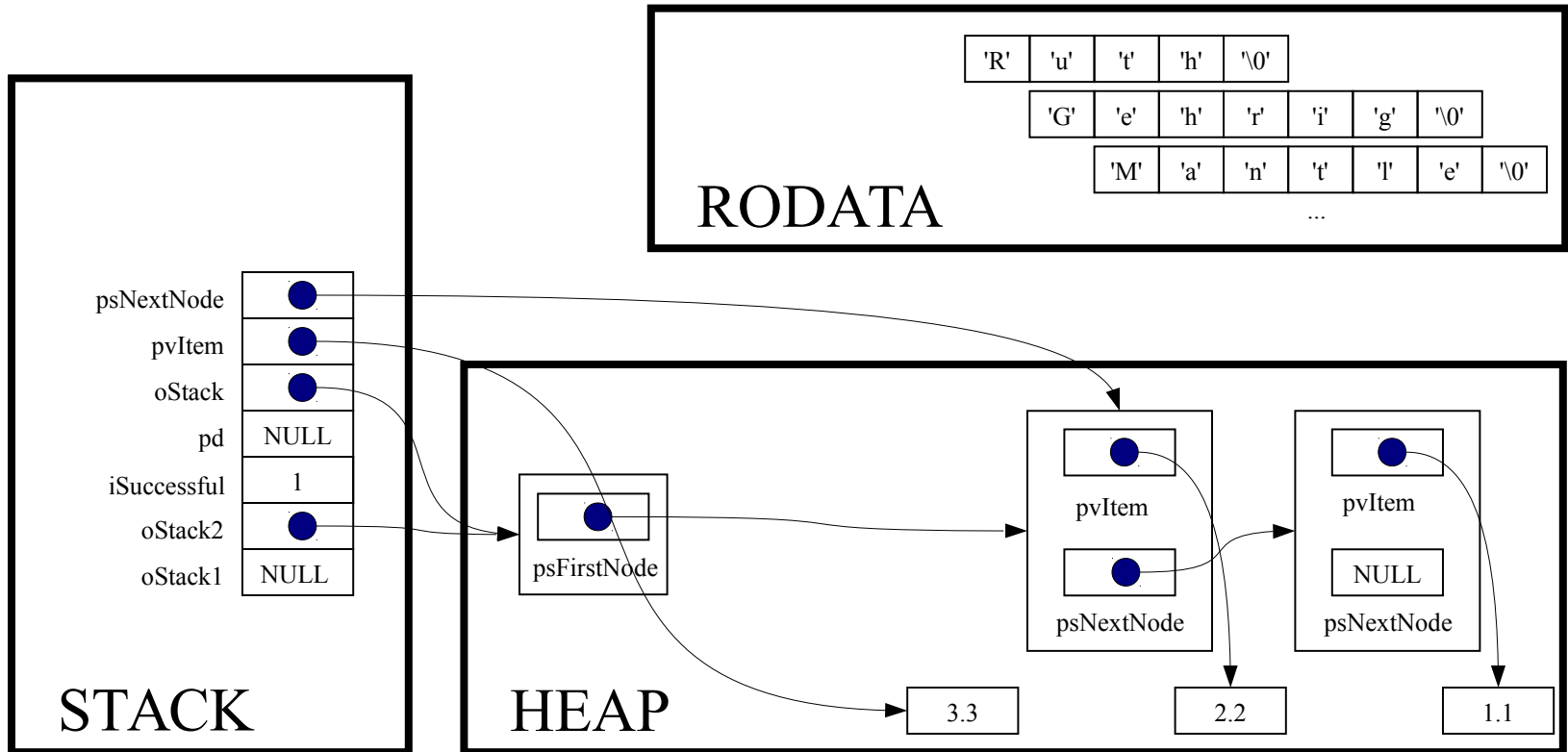
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```
free(oStack->psFirstNode);
```



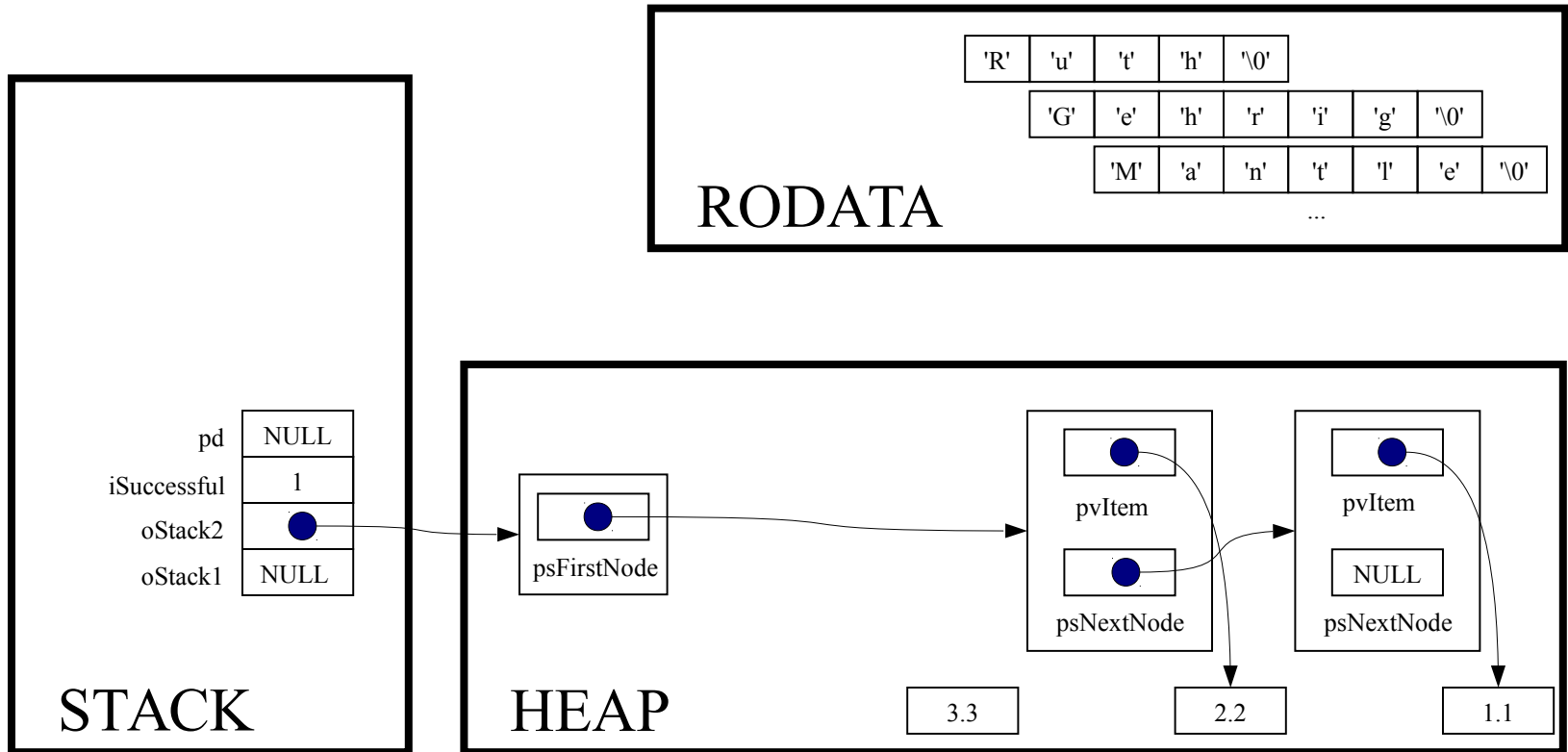
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```
oStack->psFirstNode = psNextNode;
```



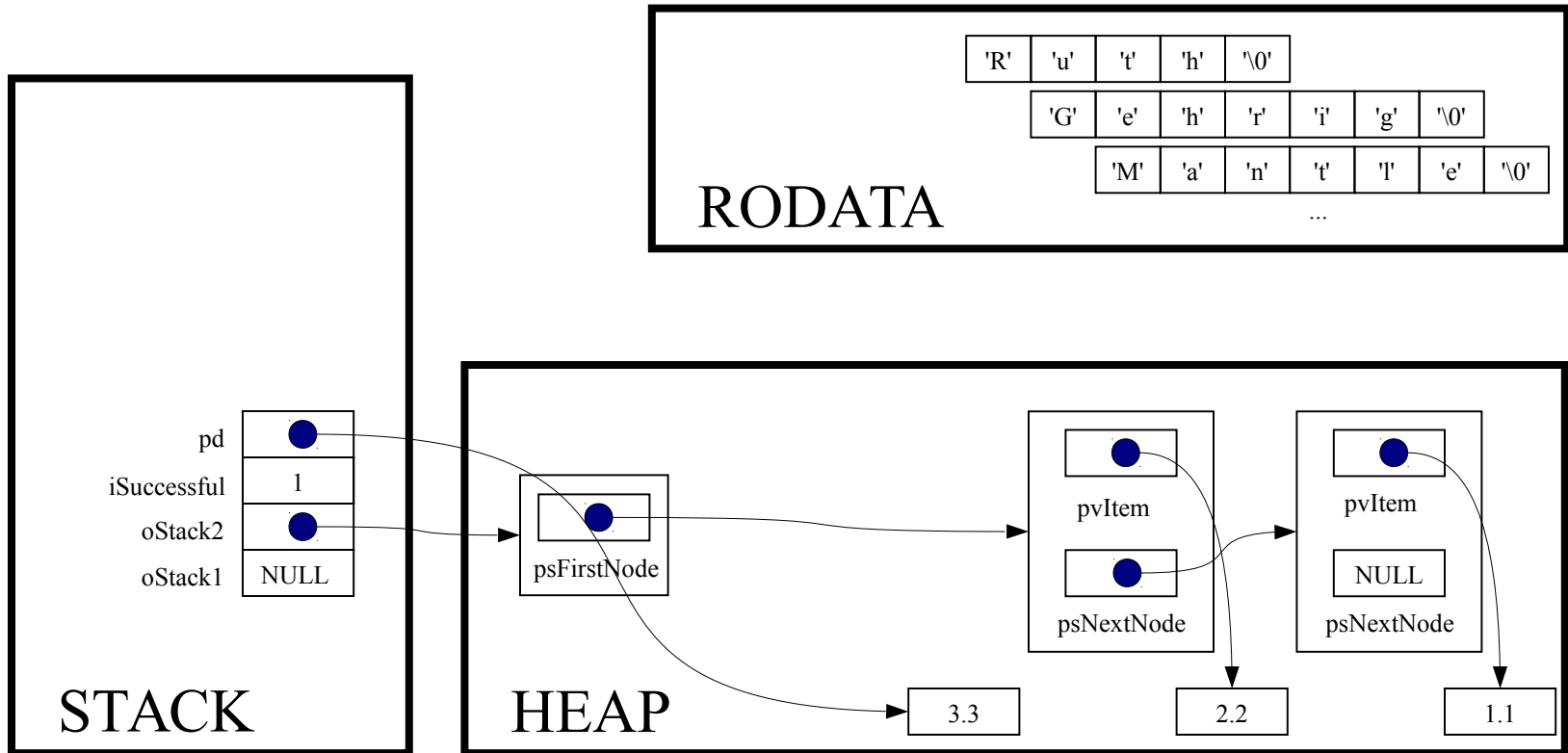
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```
return (void*)pvItem;
```



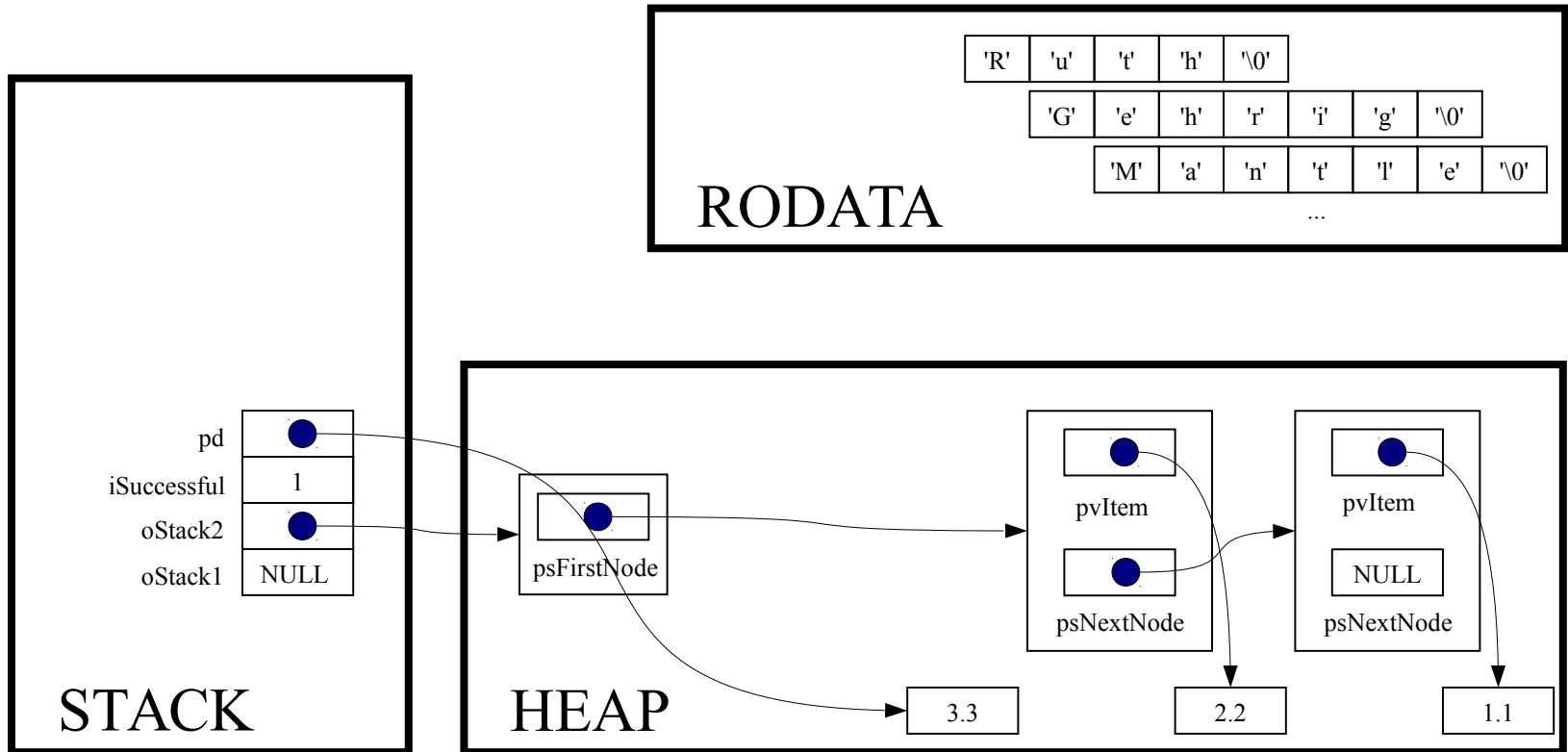
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```
pd = (double*)Stack_pop(oStack2);
```



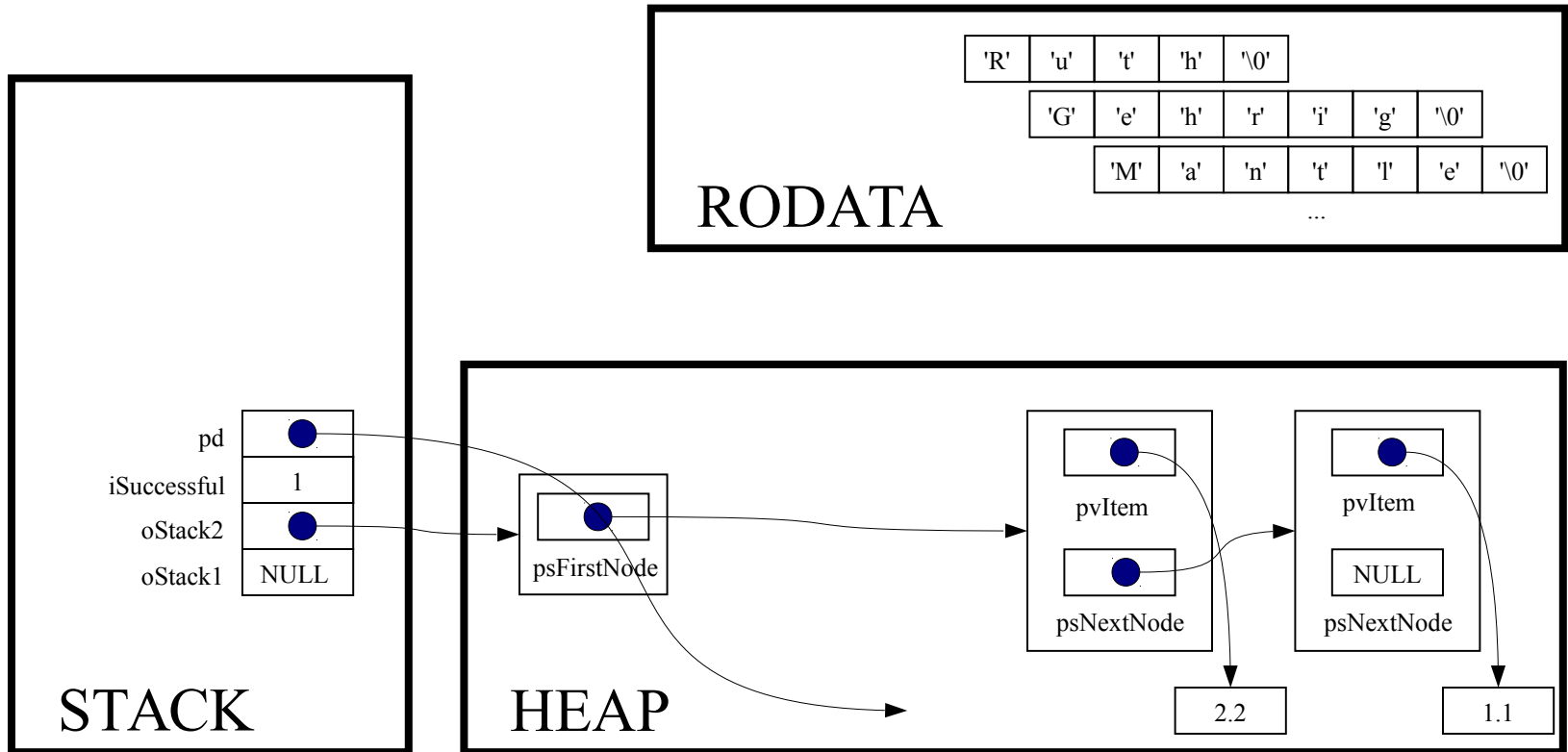
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```
printf("%g\n", *pd);
```



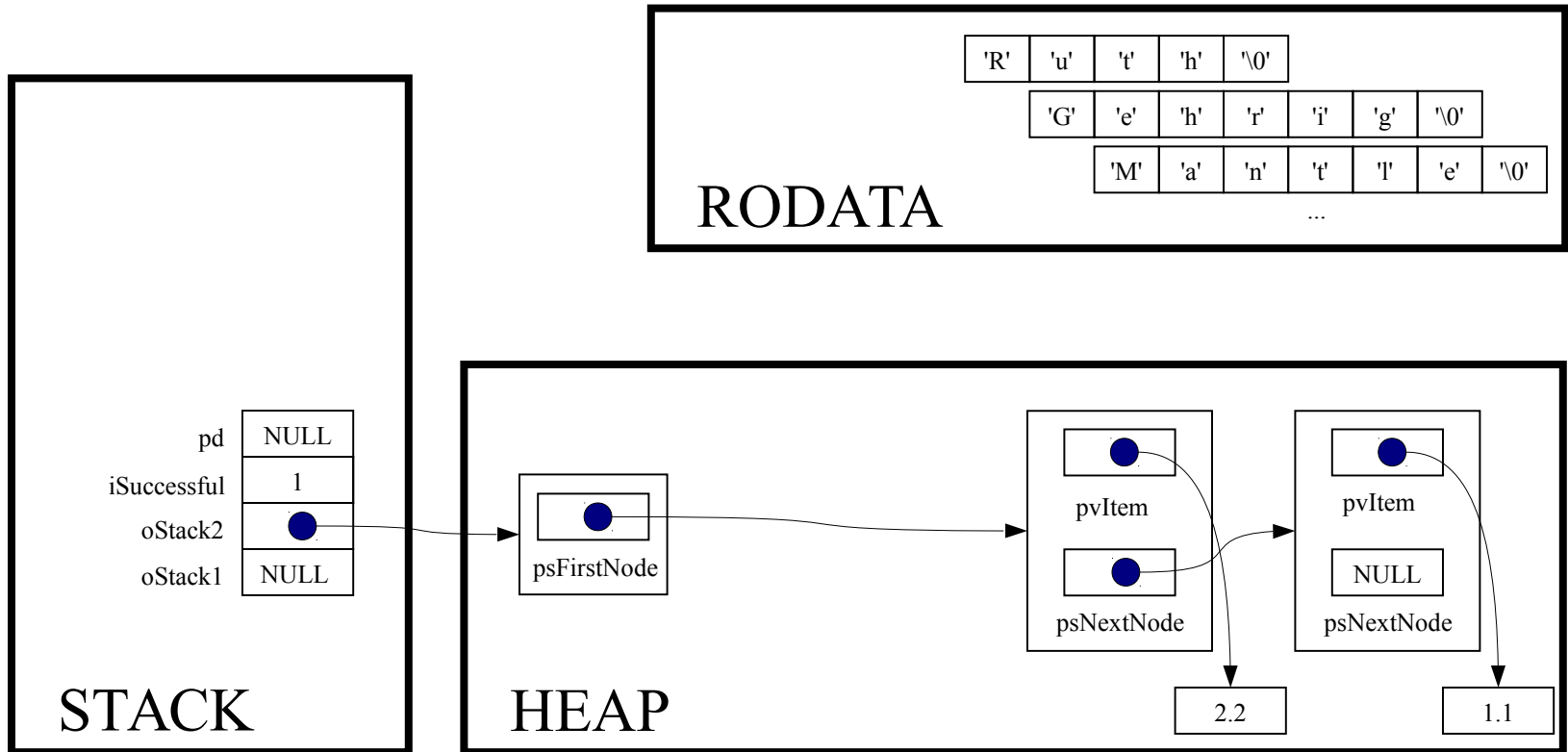
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```
free(pd);
```



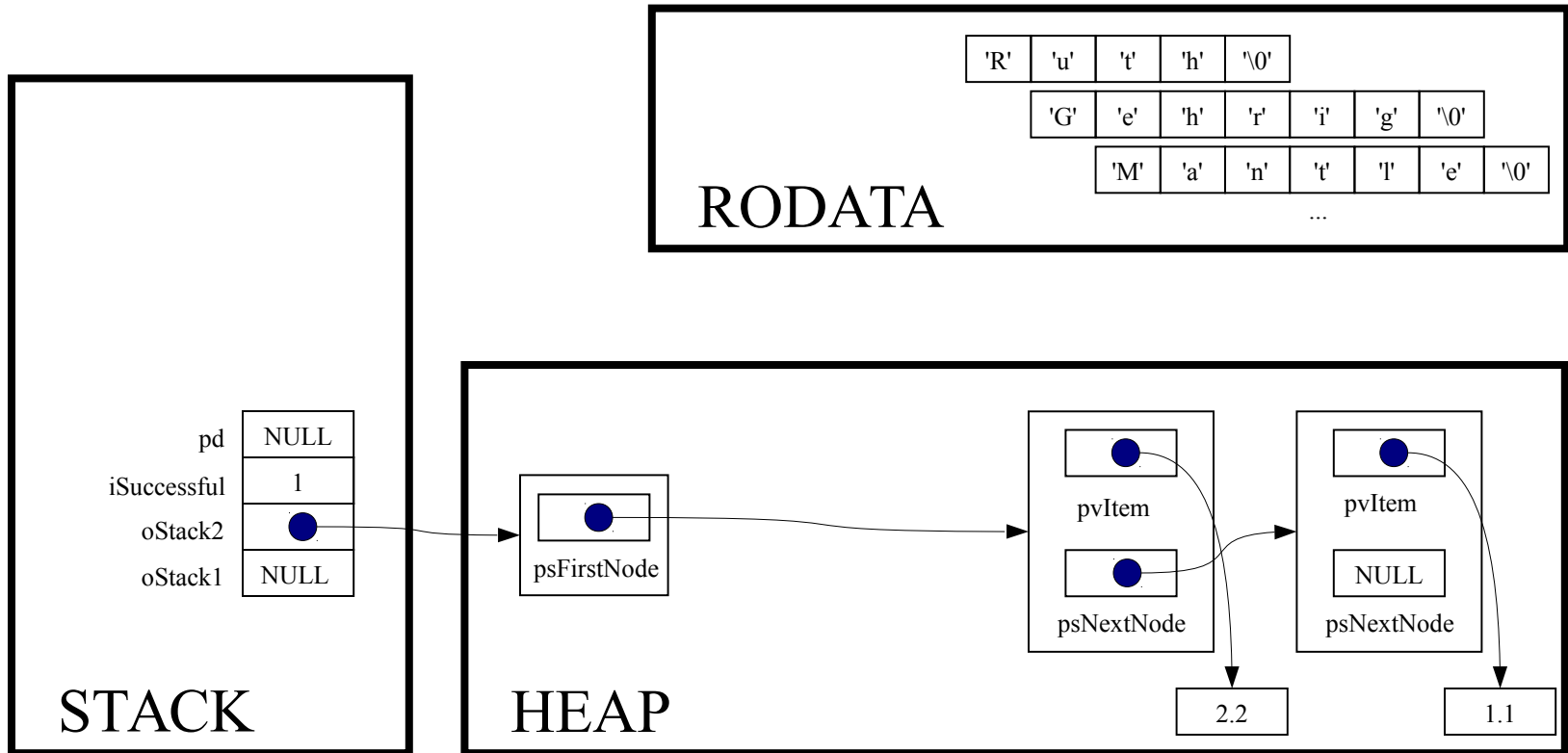
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```
pd = NULL;
```



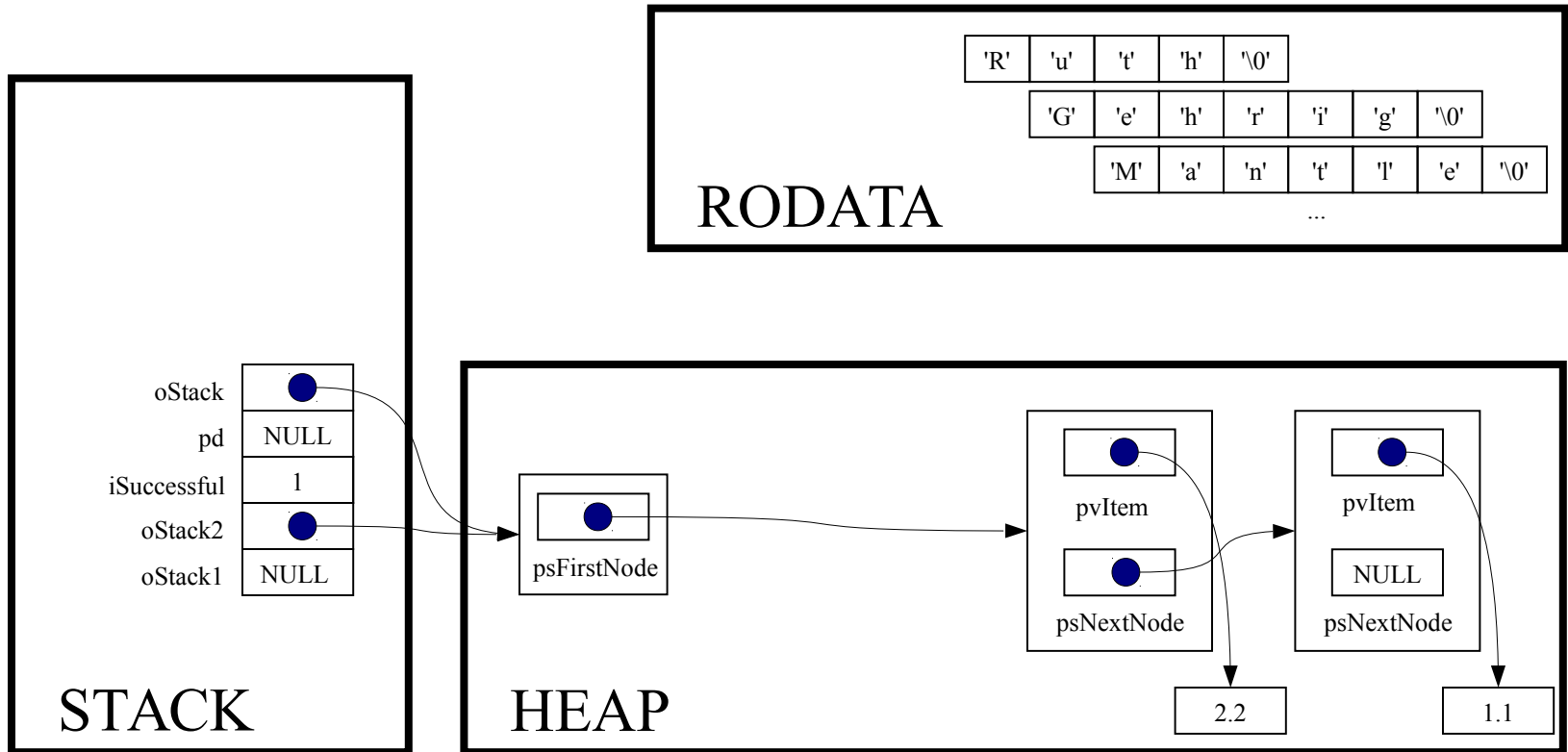
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```
while (! Stack_isEmpty(oStack2))
```



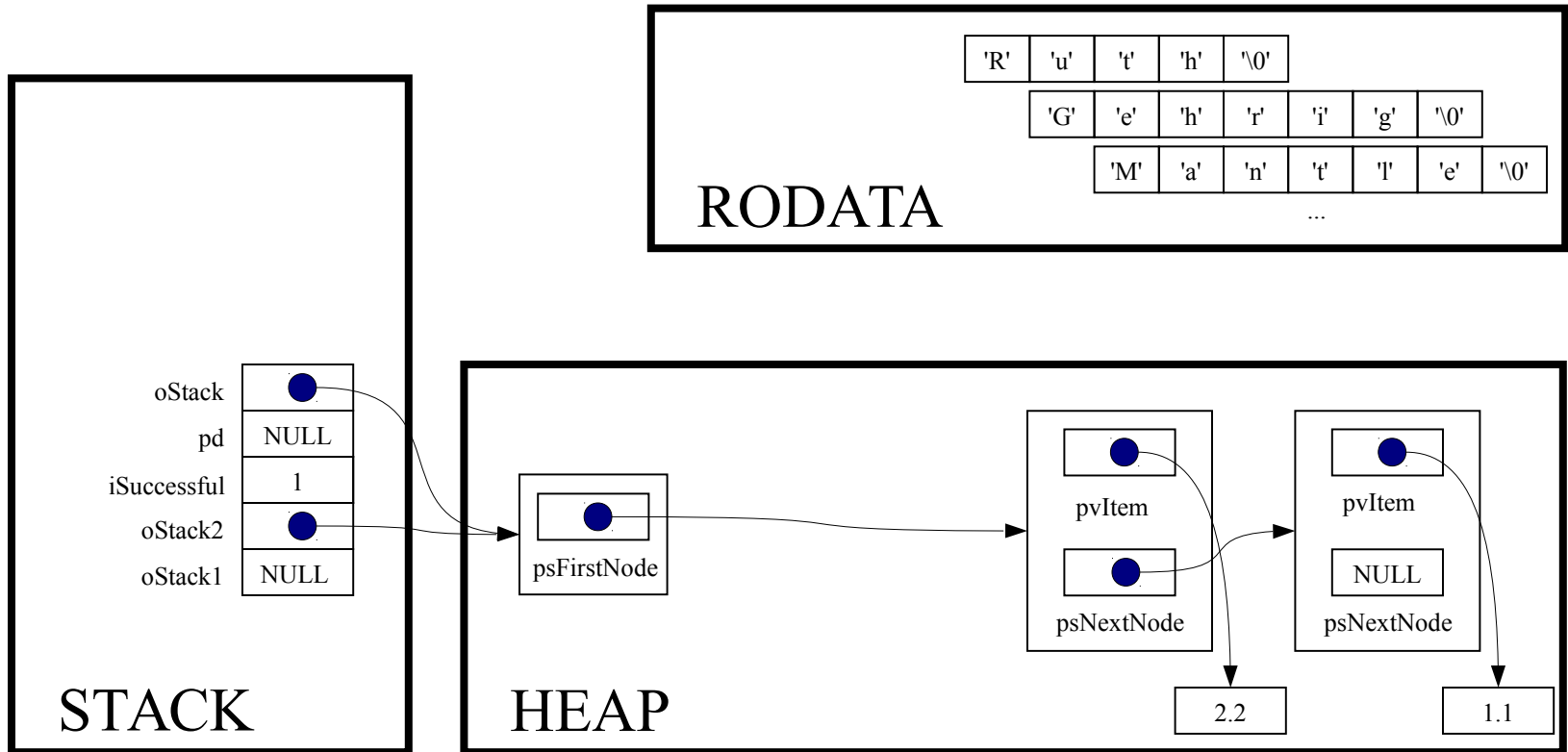
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```
int Stack_isEmpty(Stack_T oStack)
```



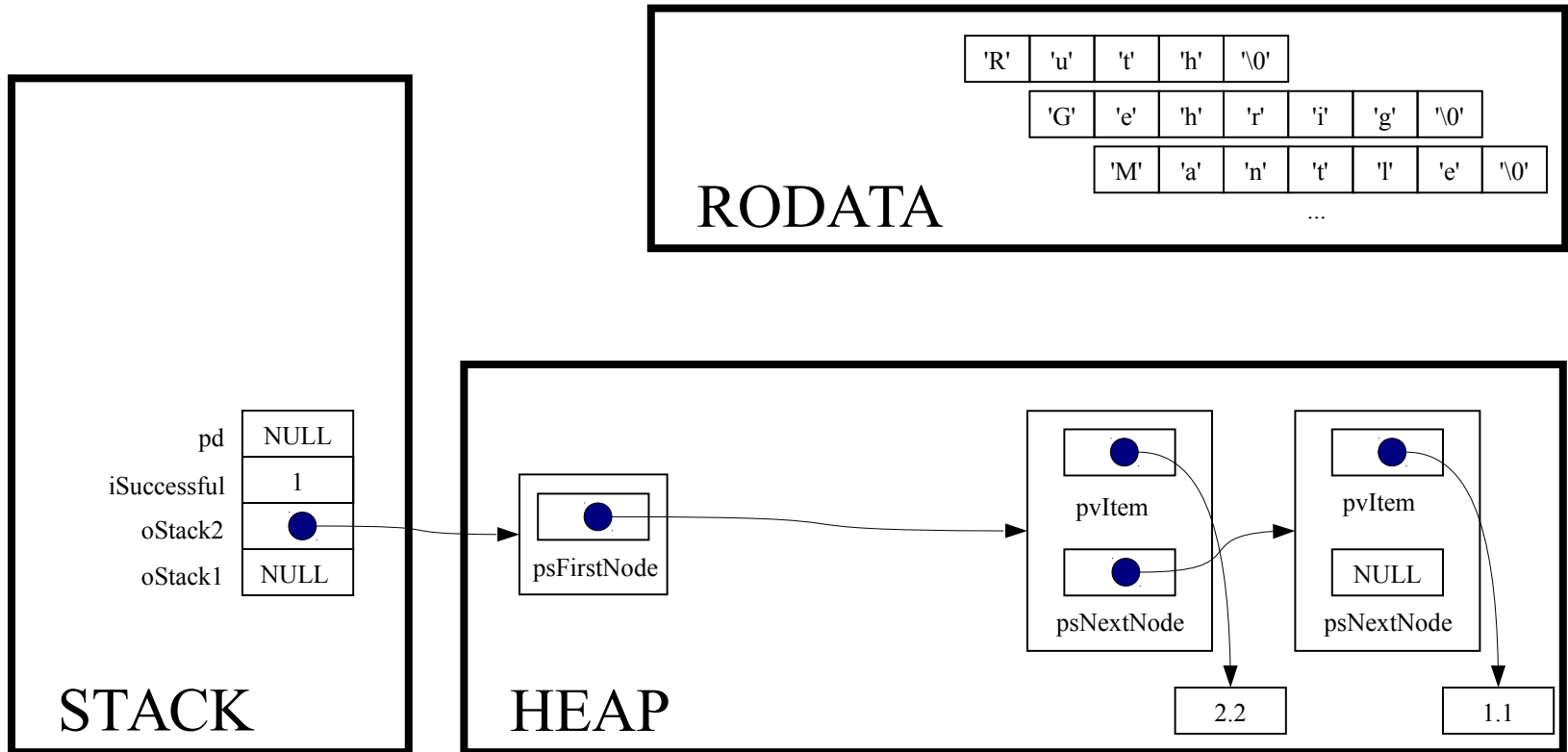
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```
assert(oStack != NULL);
```



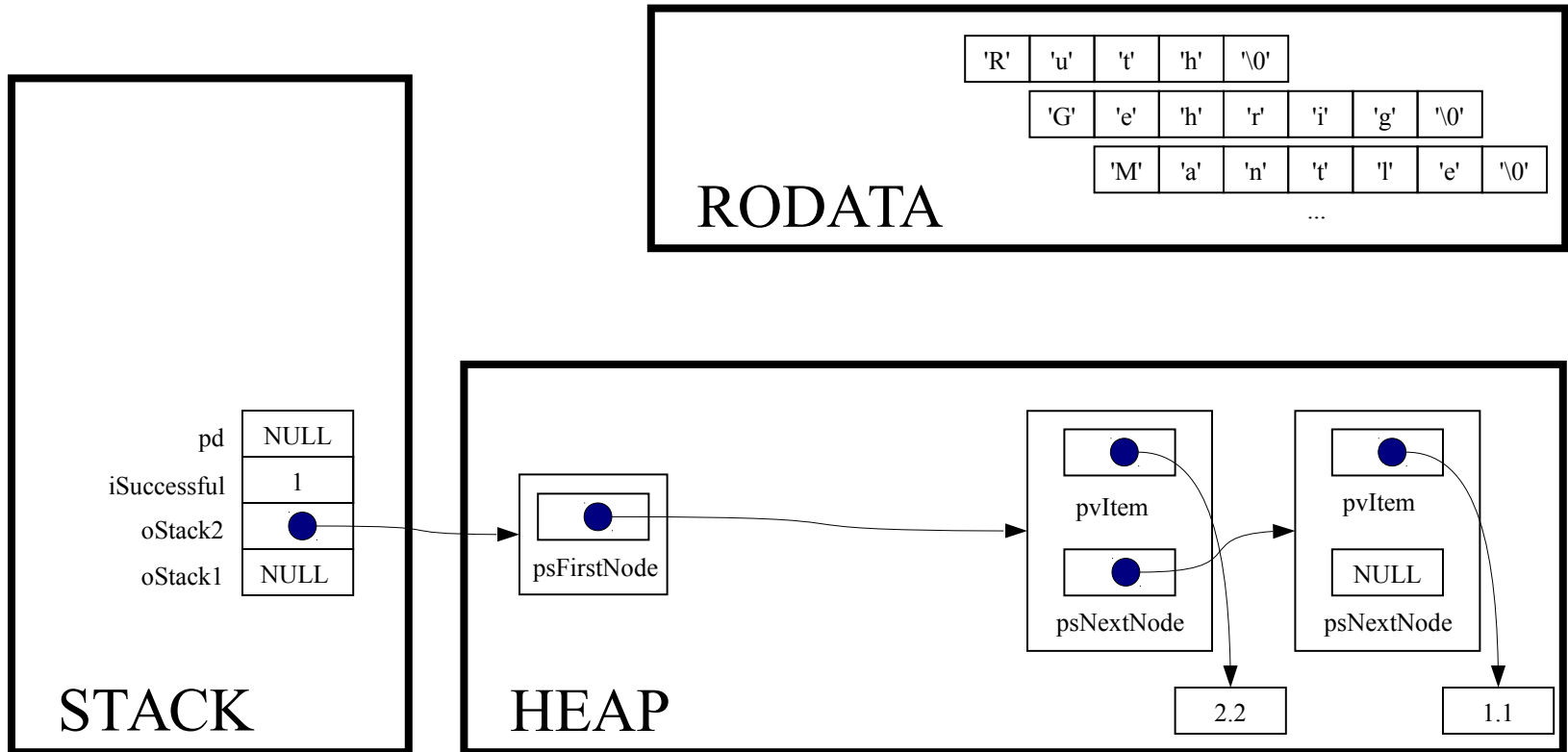
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```
return oStack->psFirstNode == NULL;
```



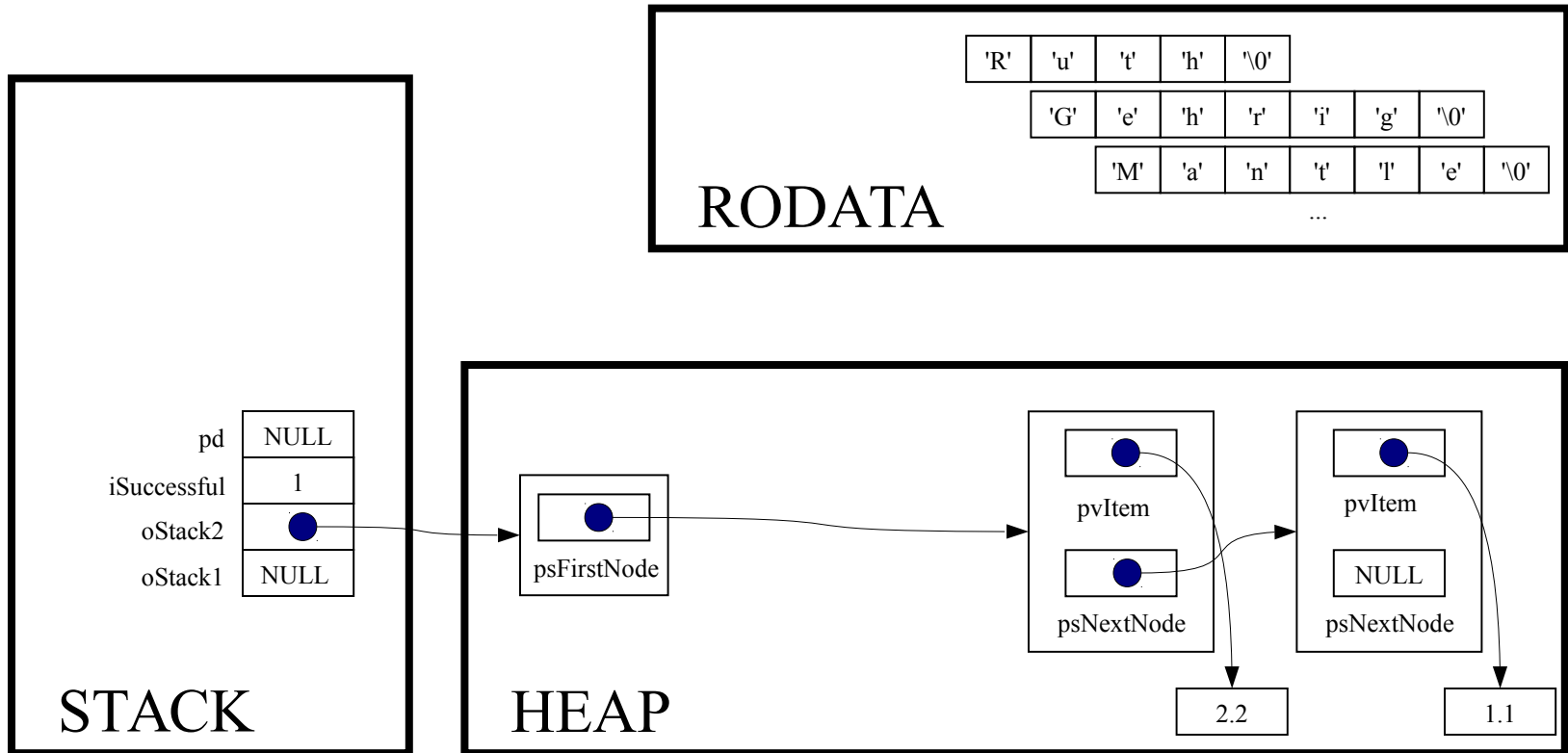
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```
while (! Stack_isEmpty(oStack2))
```



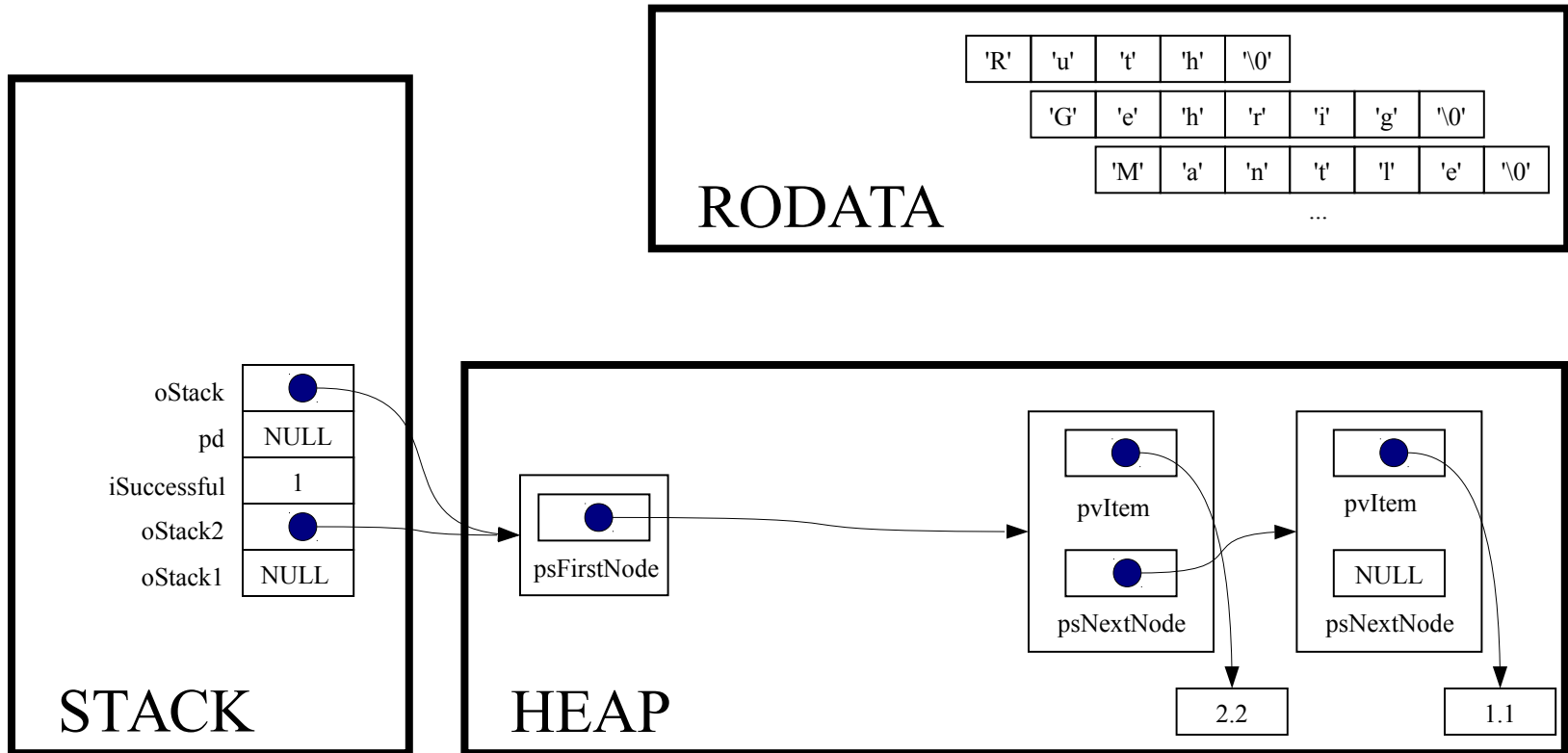
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```
pd = (double*) Stack_pop(oStack2);
```



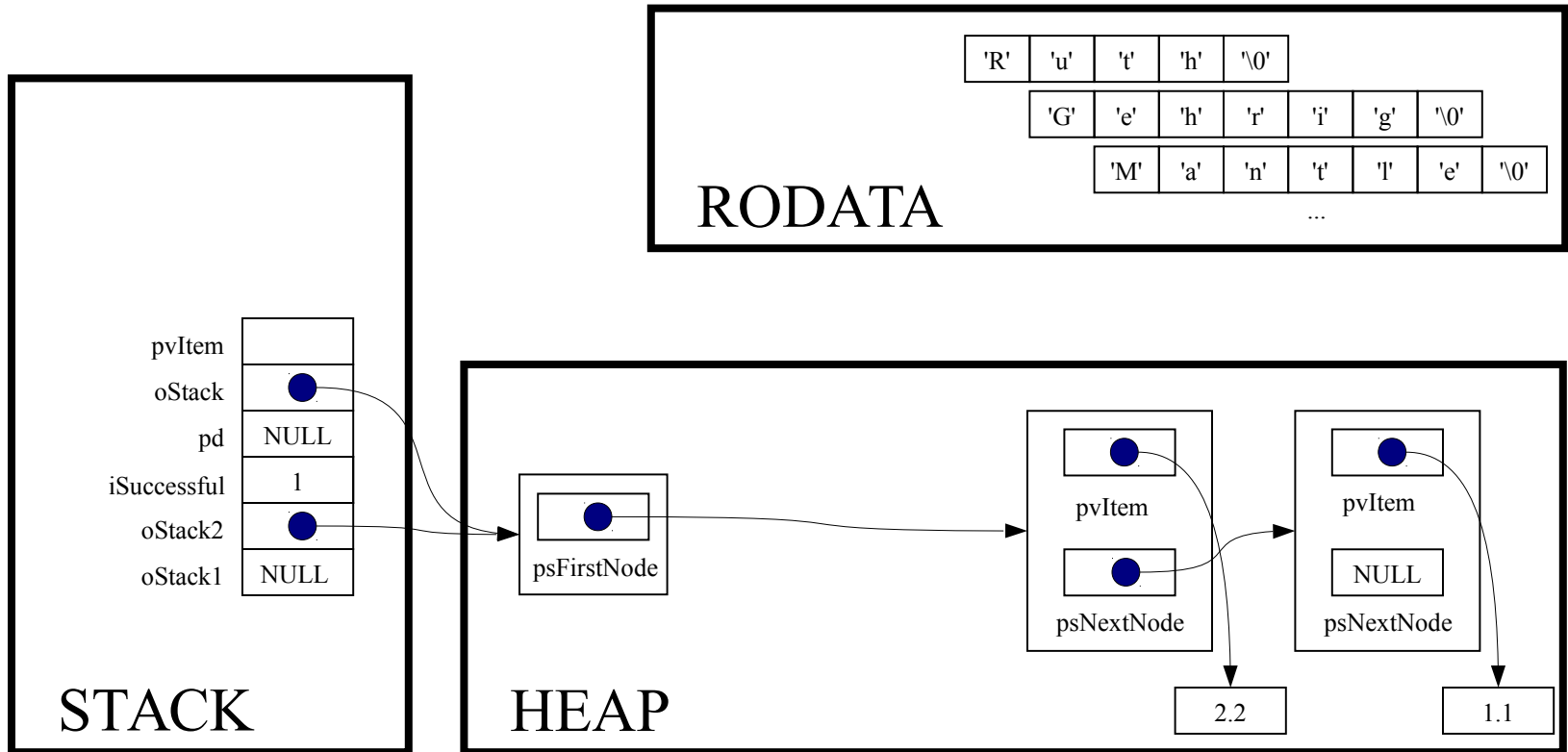
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```
void *Stack_pop(Stack_T oStack)
```



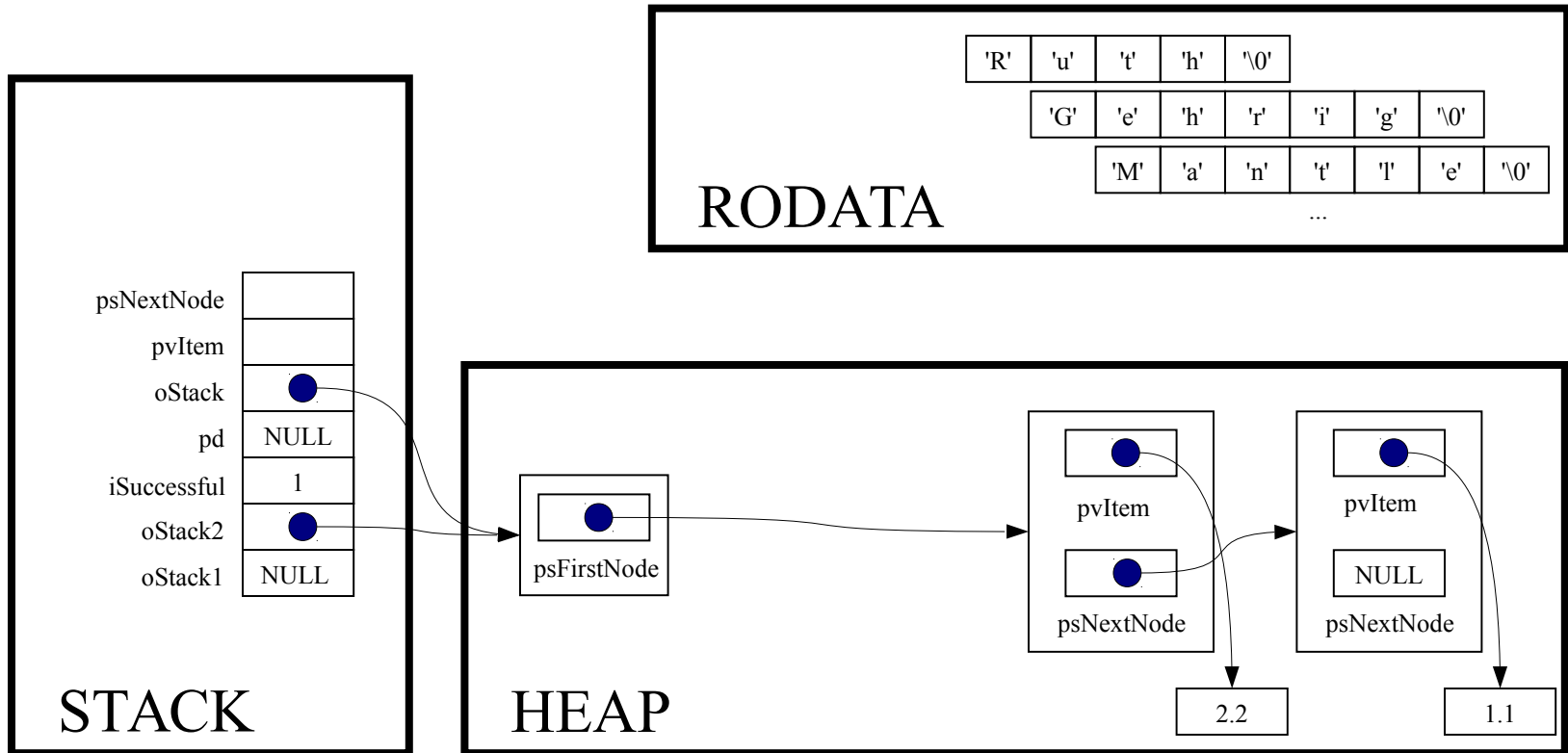
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```
const void *pvItem;
```



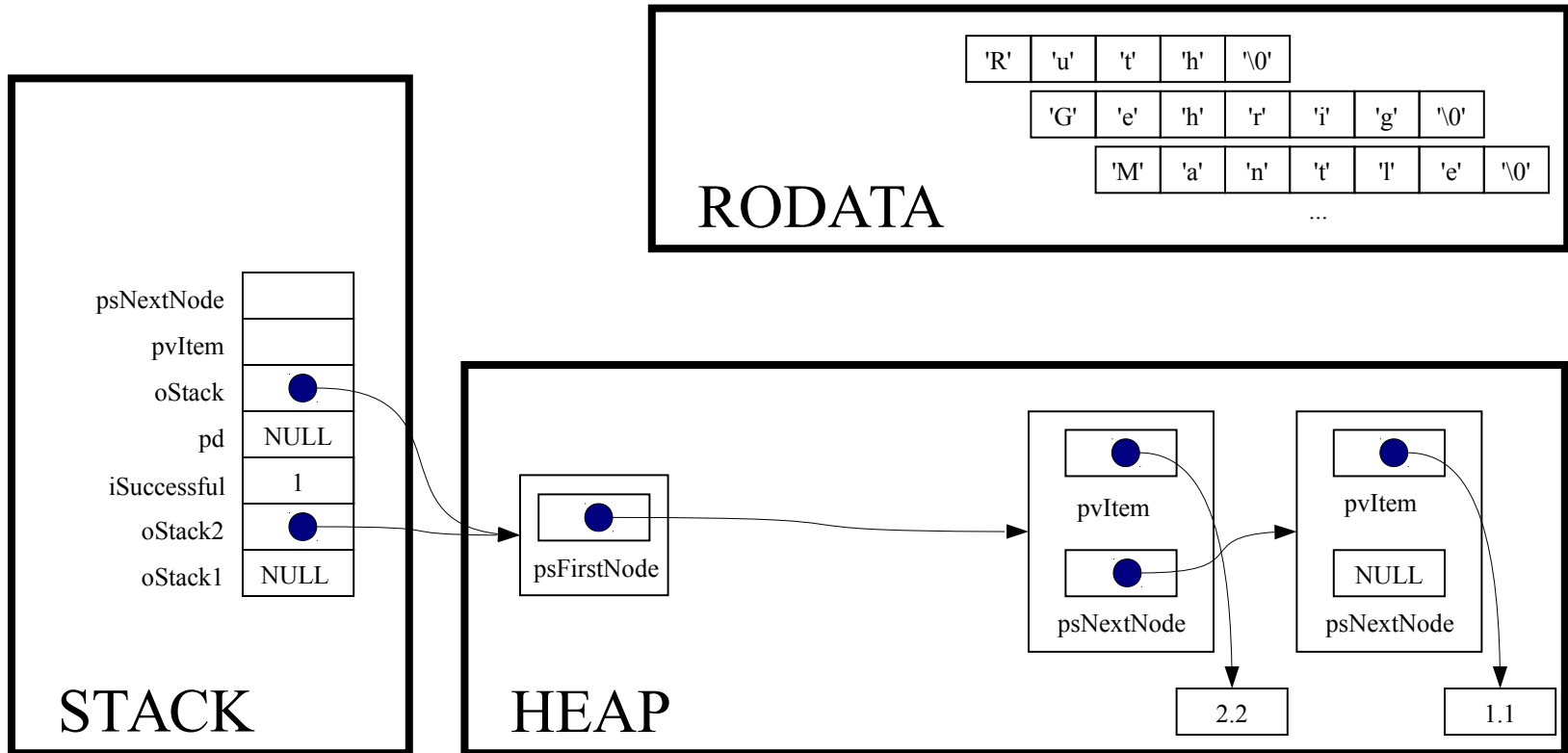
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```
struct StackNode *psNextNode;
```



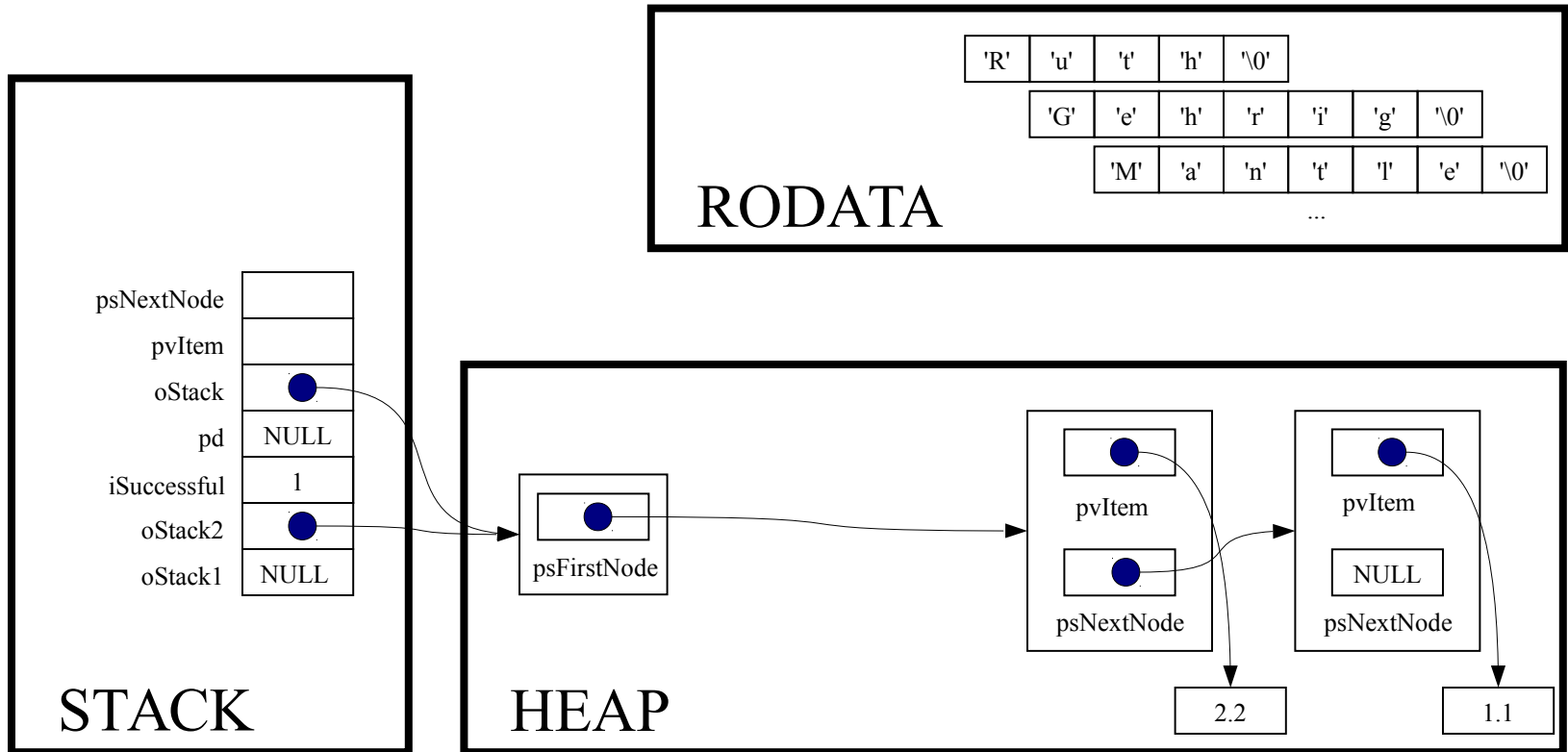
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```
assert(oStack != NULL);
```



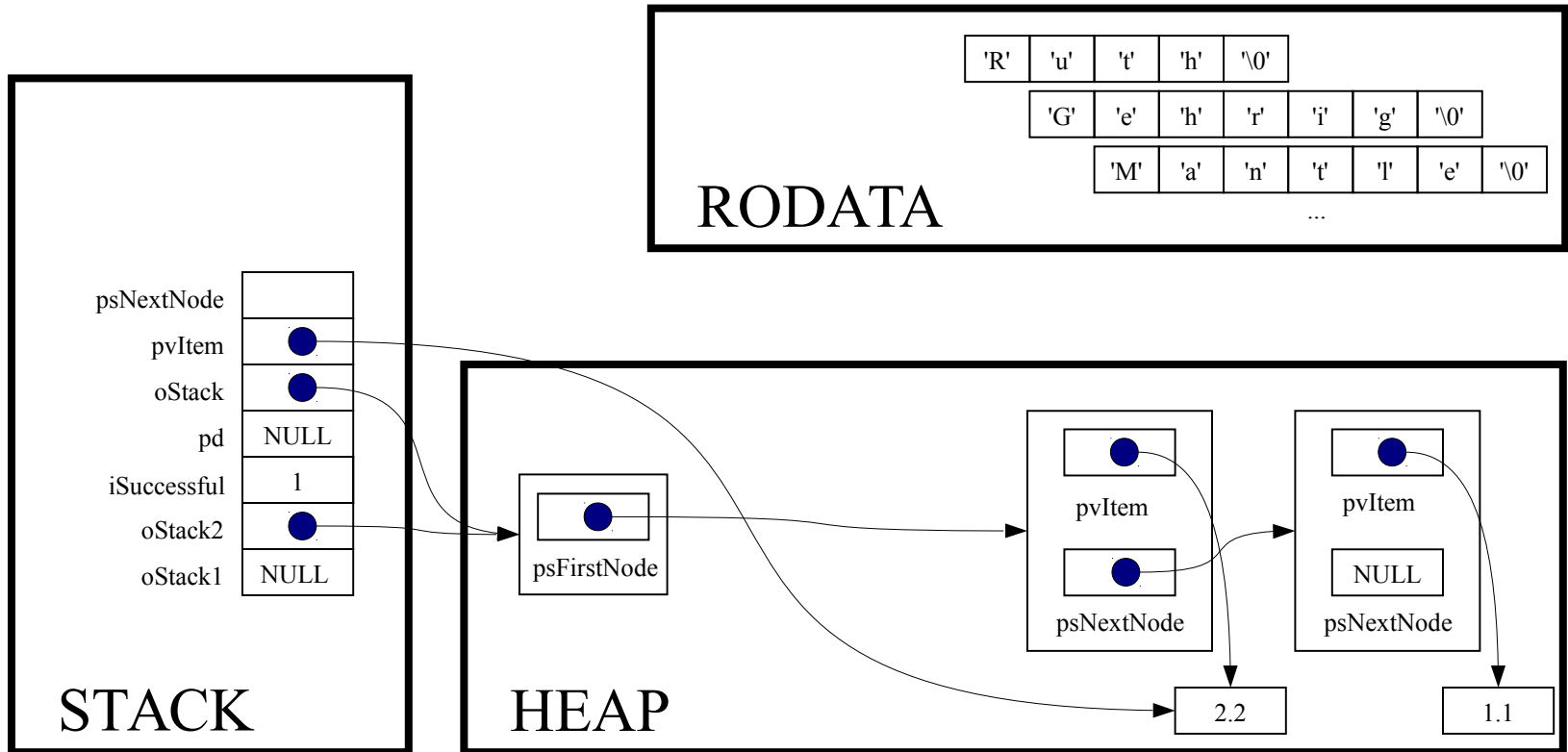
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```
assert(oStack->psFirstNode != NULL);
```



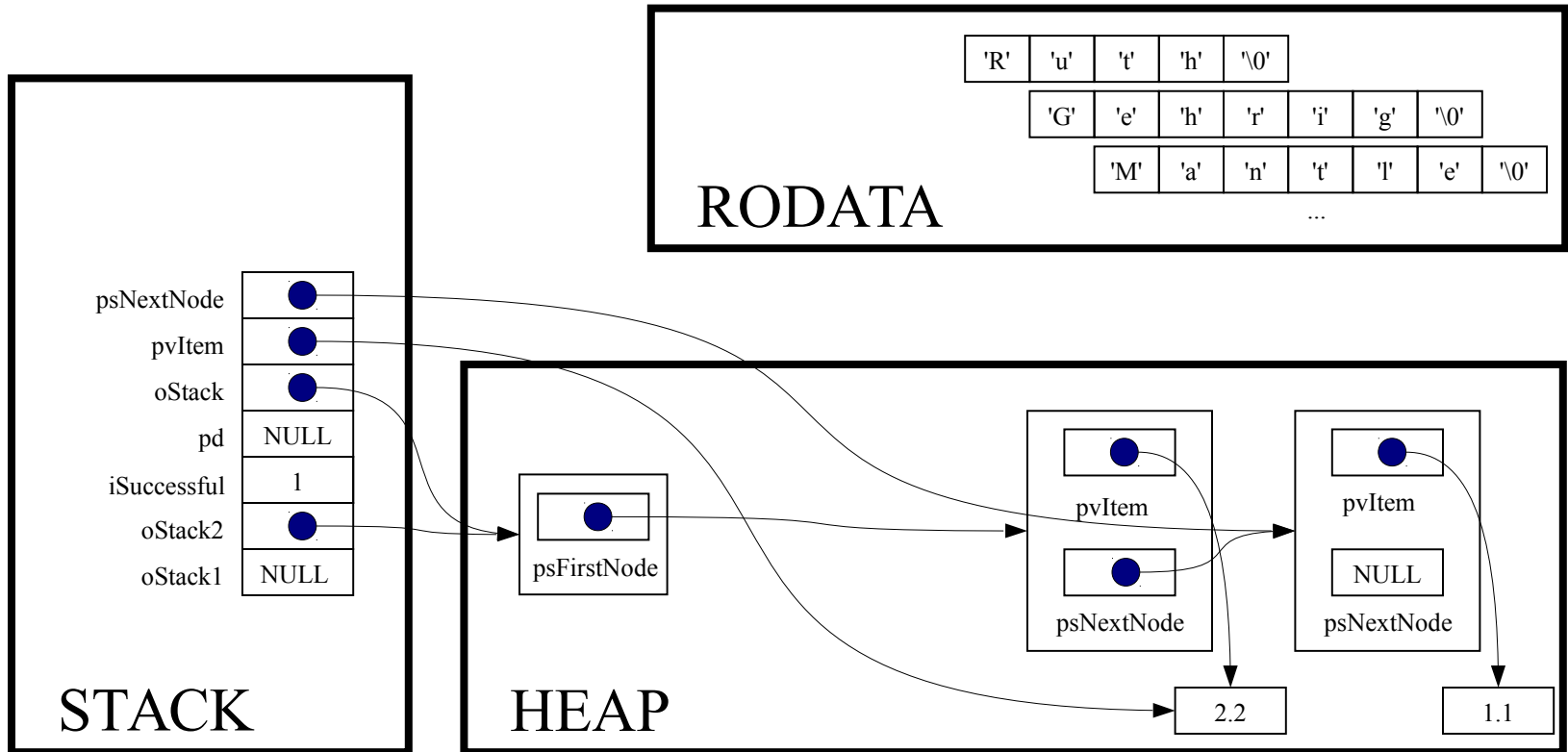
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```
pvItem = oStack->psFirstNode->pvItem;
```



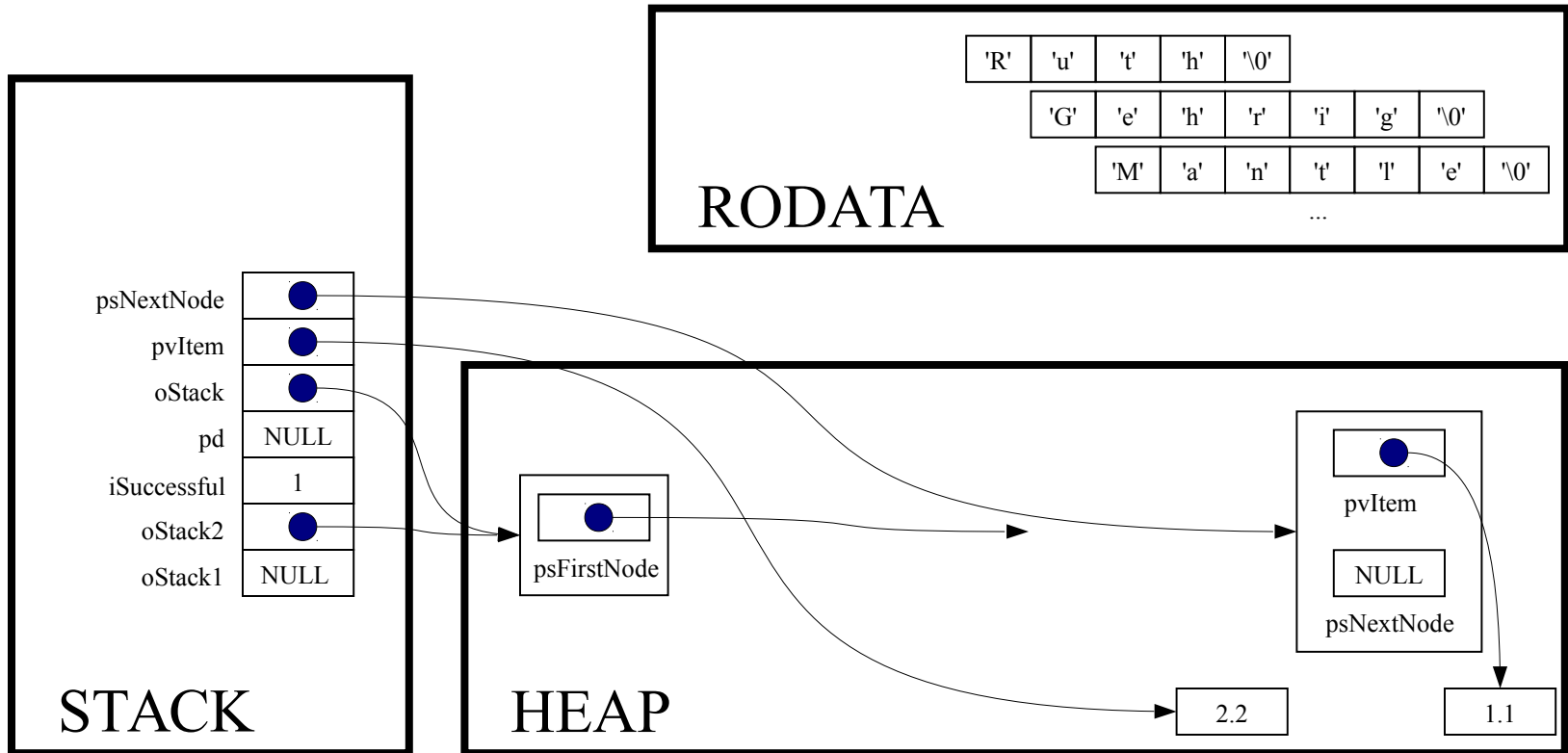
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```
psNextNode = oStack->psFirstNode->psNextNode;
```



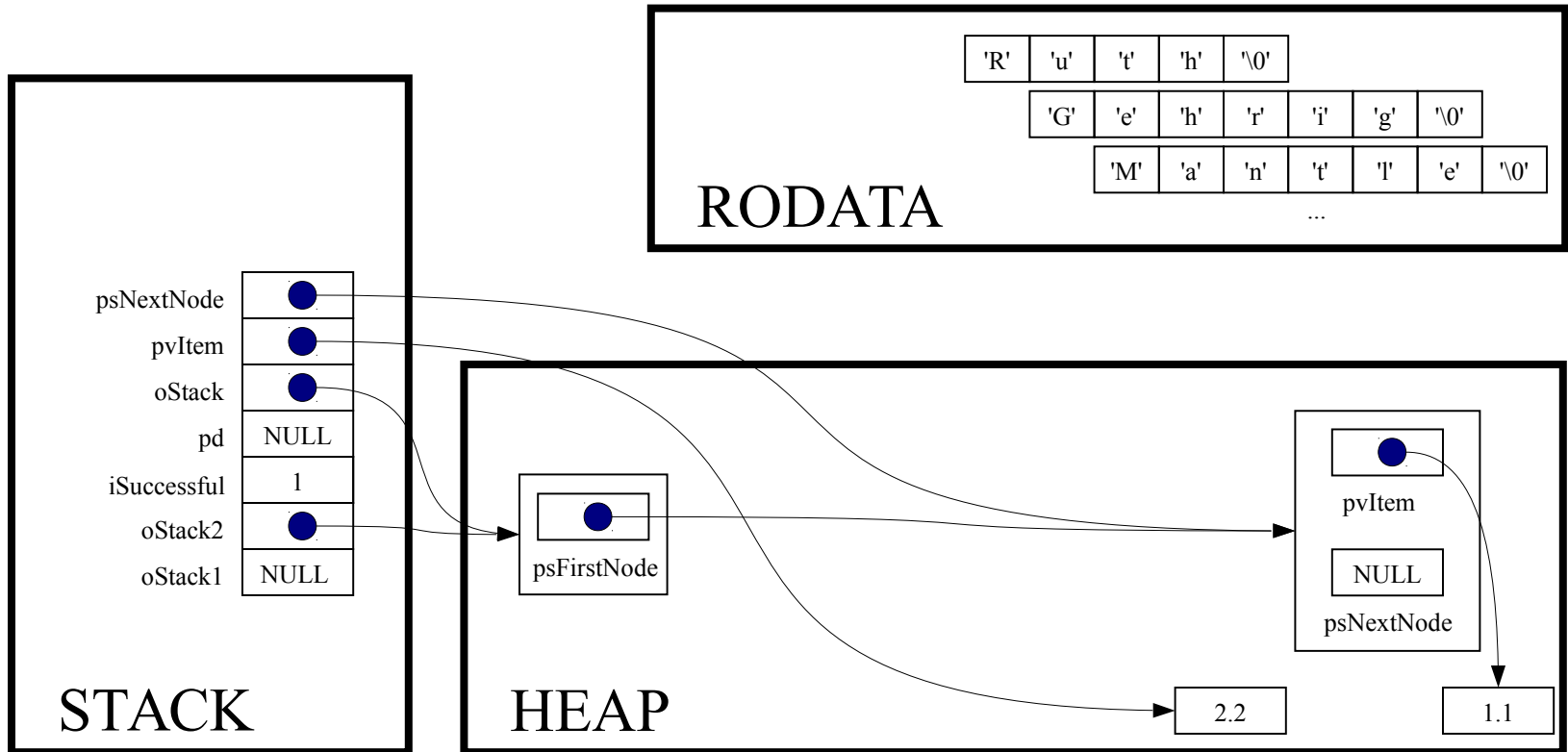
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```
free(oStack->psFirstNode);
```



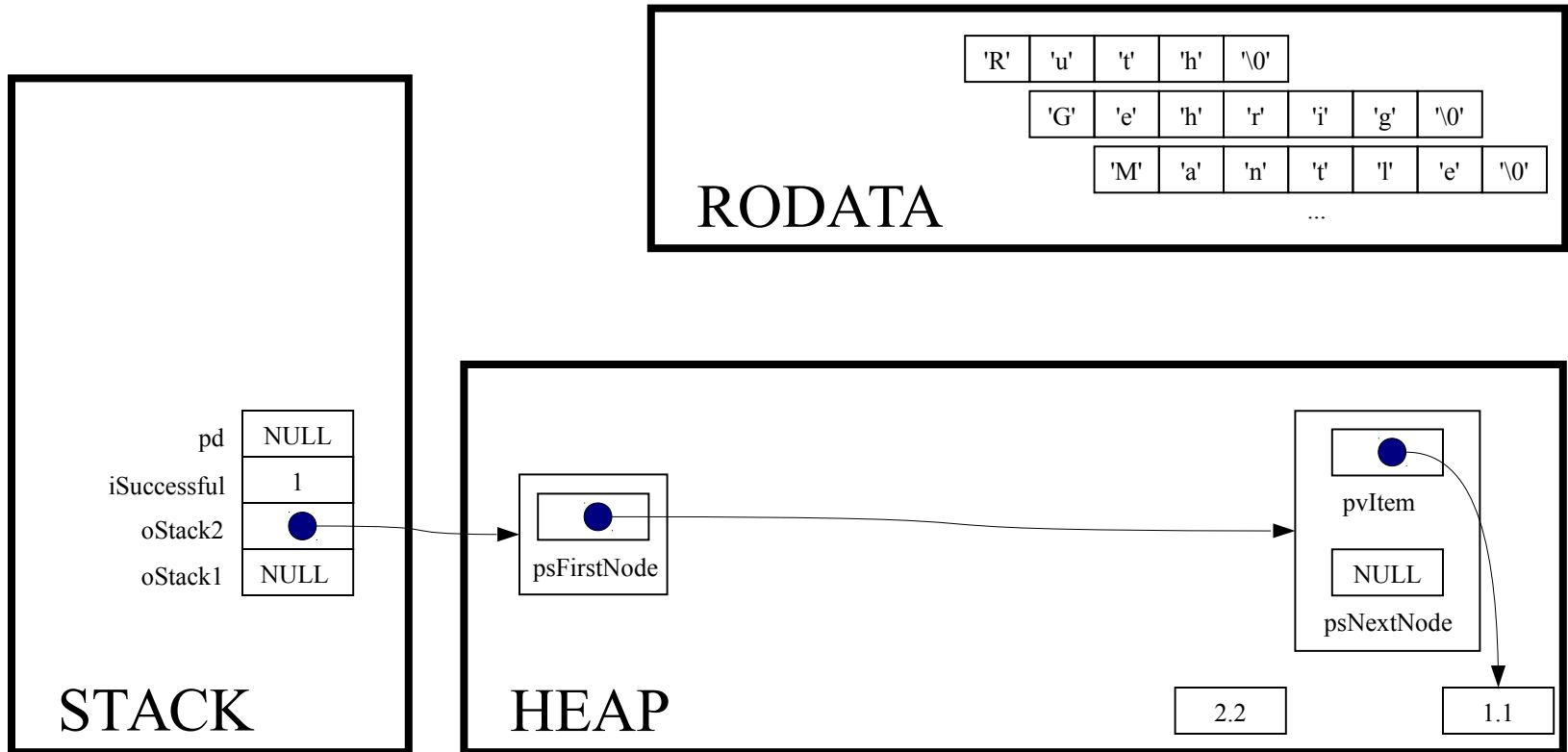
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```
oStack->psFirstNode = psNextNode;
```



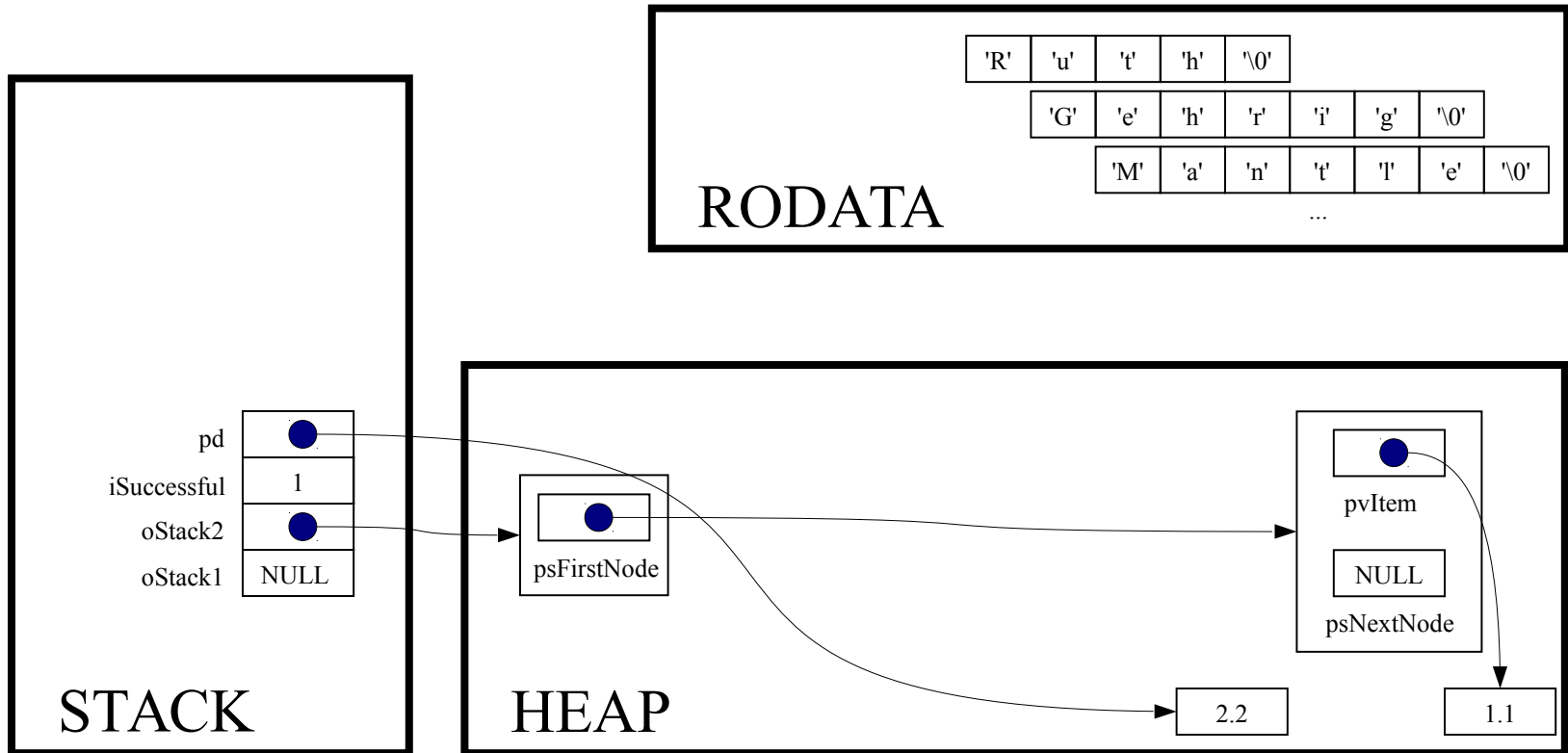
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```
return (void*)pvItem;
```



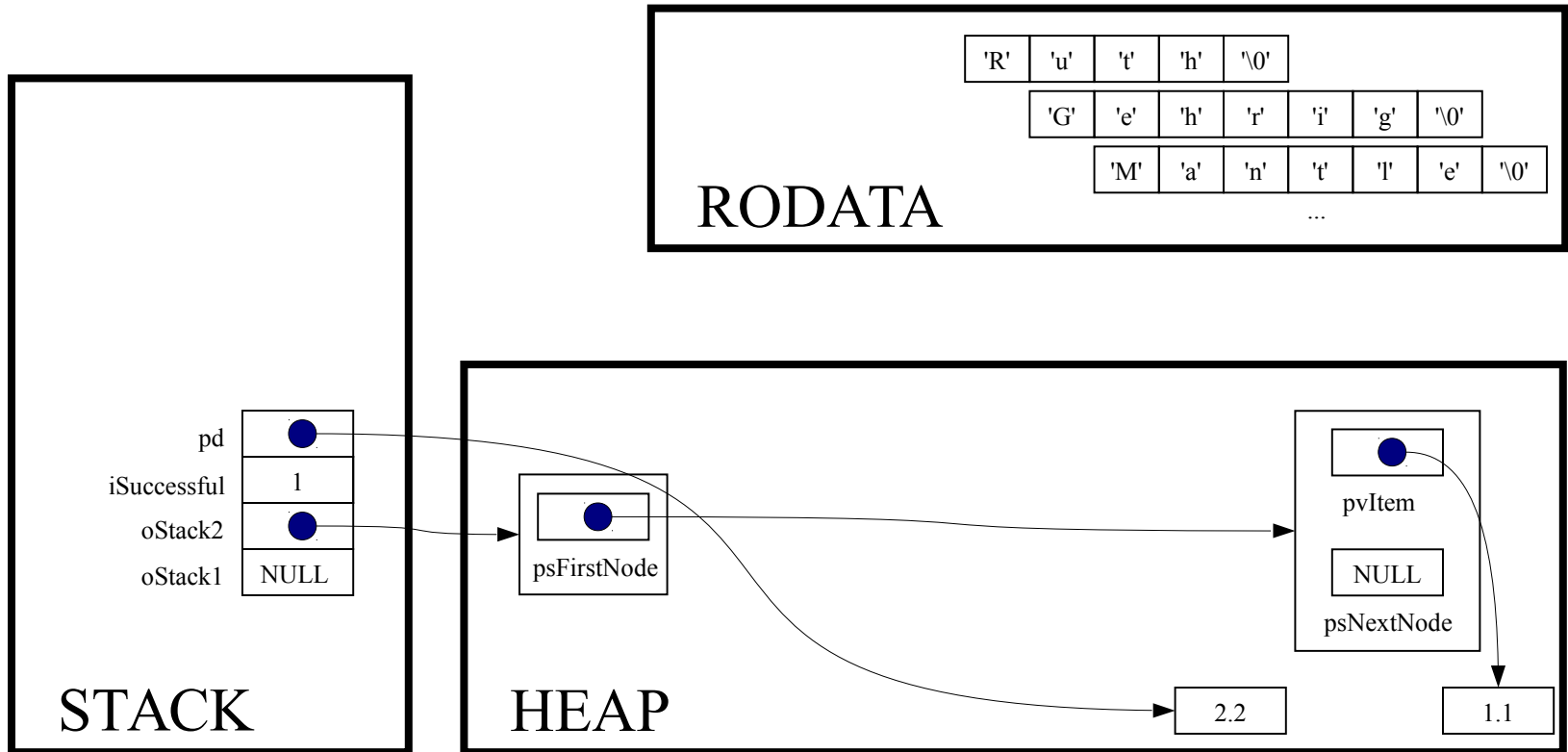
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```
pd = (double*)Stack_pop(oStack2);
```



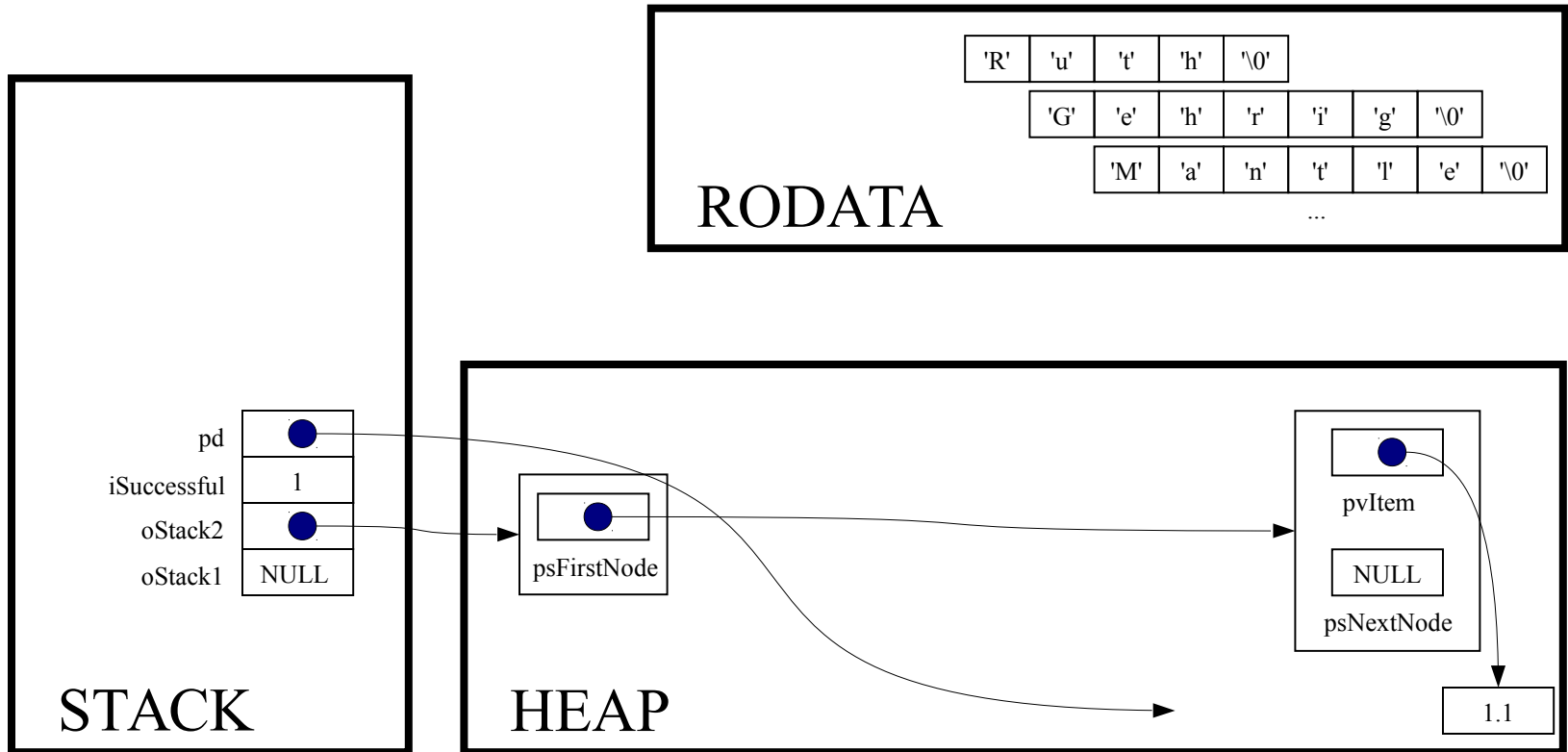
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```
printf("%g\n", *pd);
```



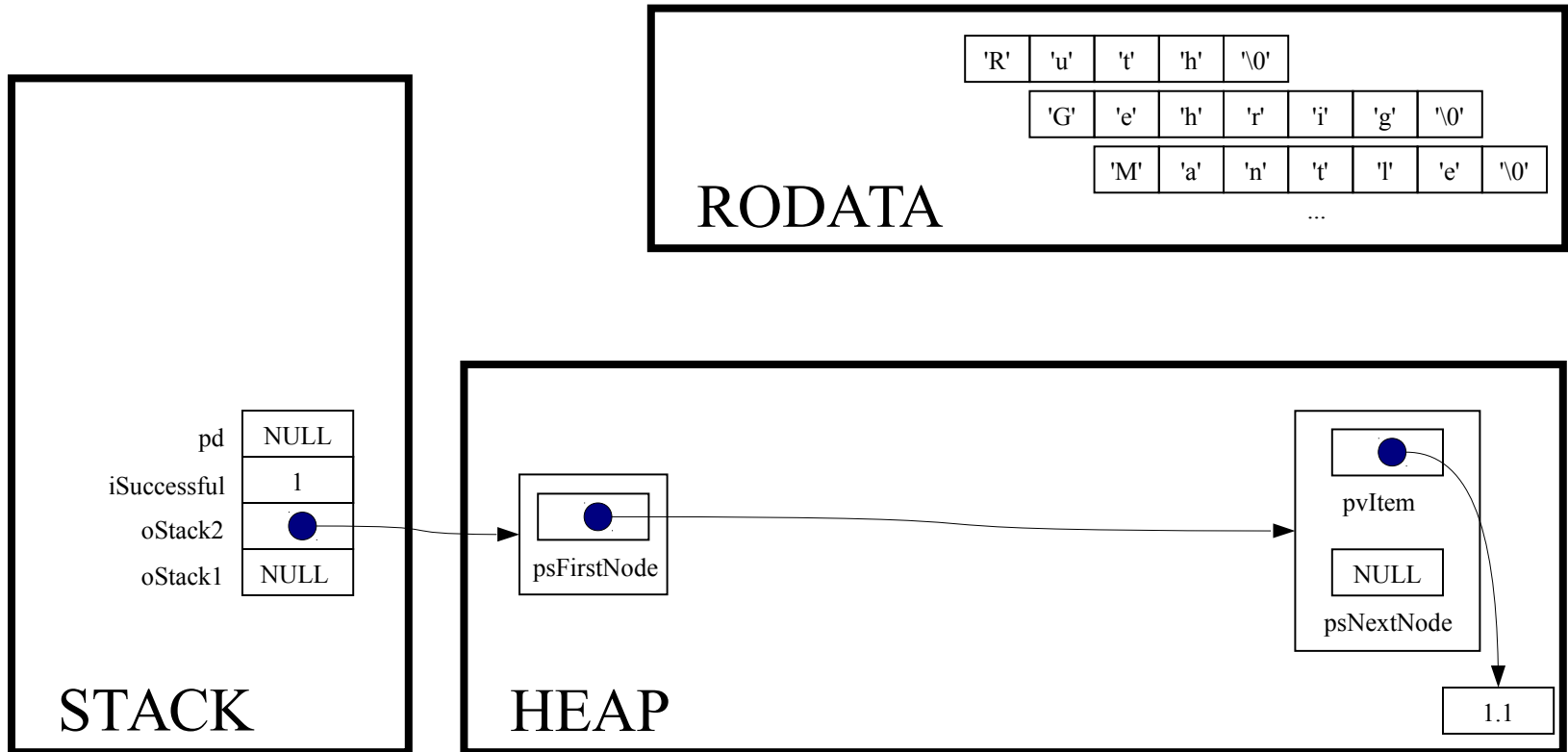
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```
free(pd);
```



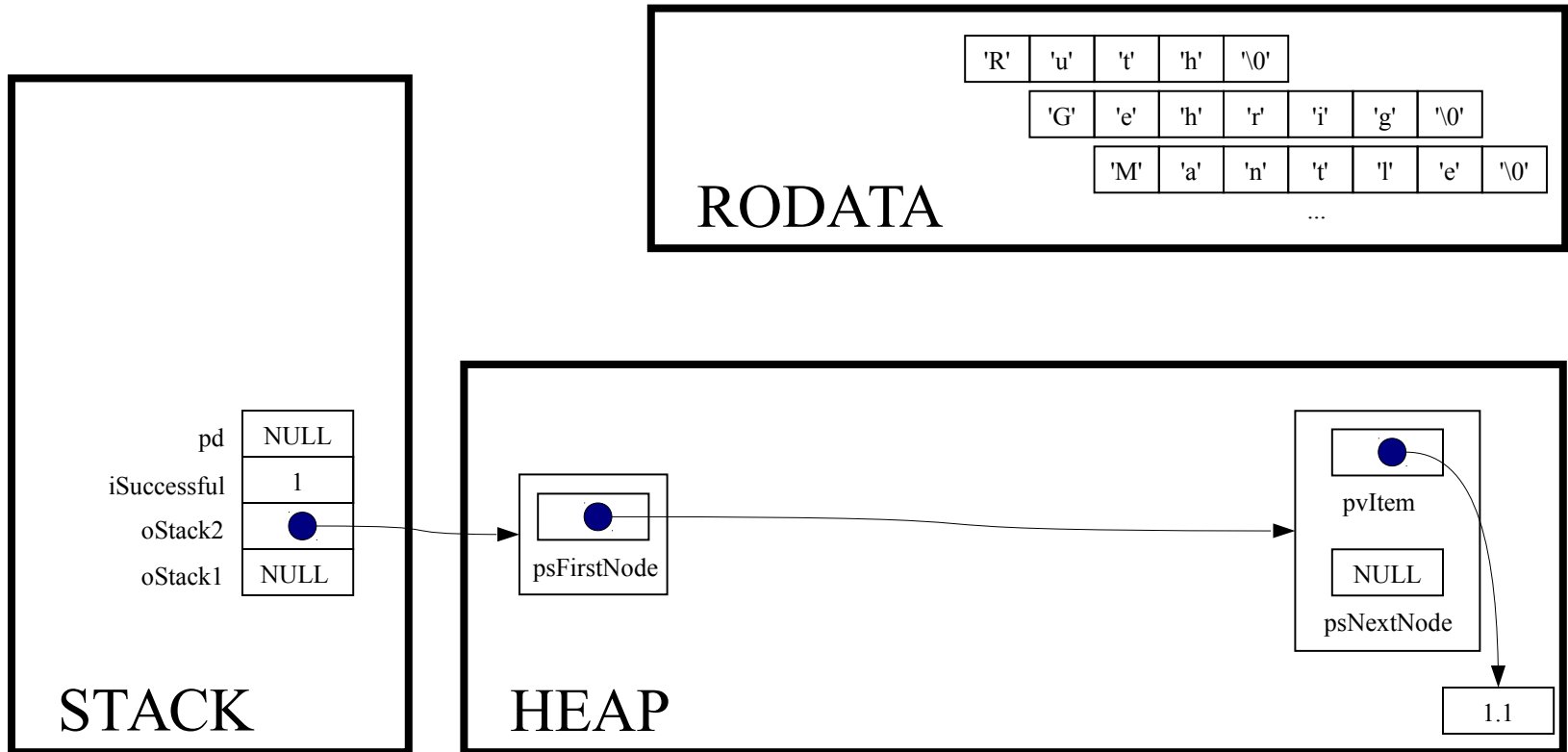
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```
pd = NULL;
```



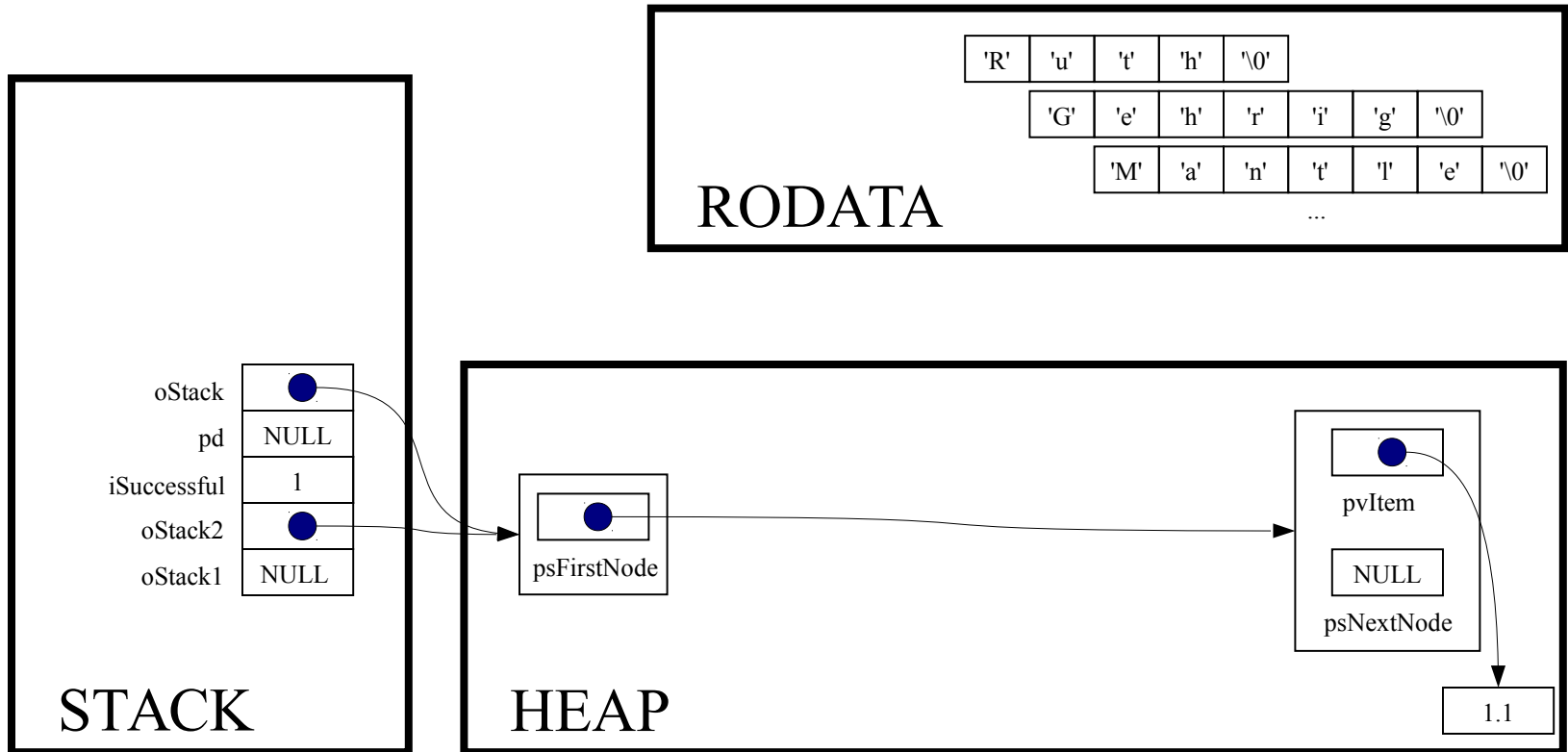
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```
while (! Stack_isEmpty(oStack2))
```



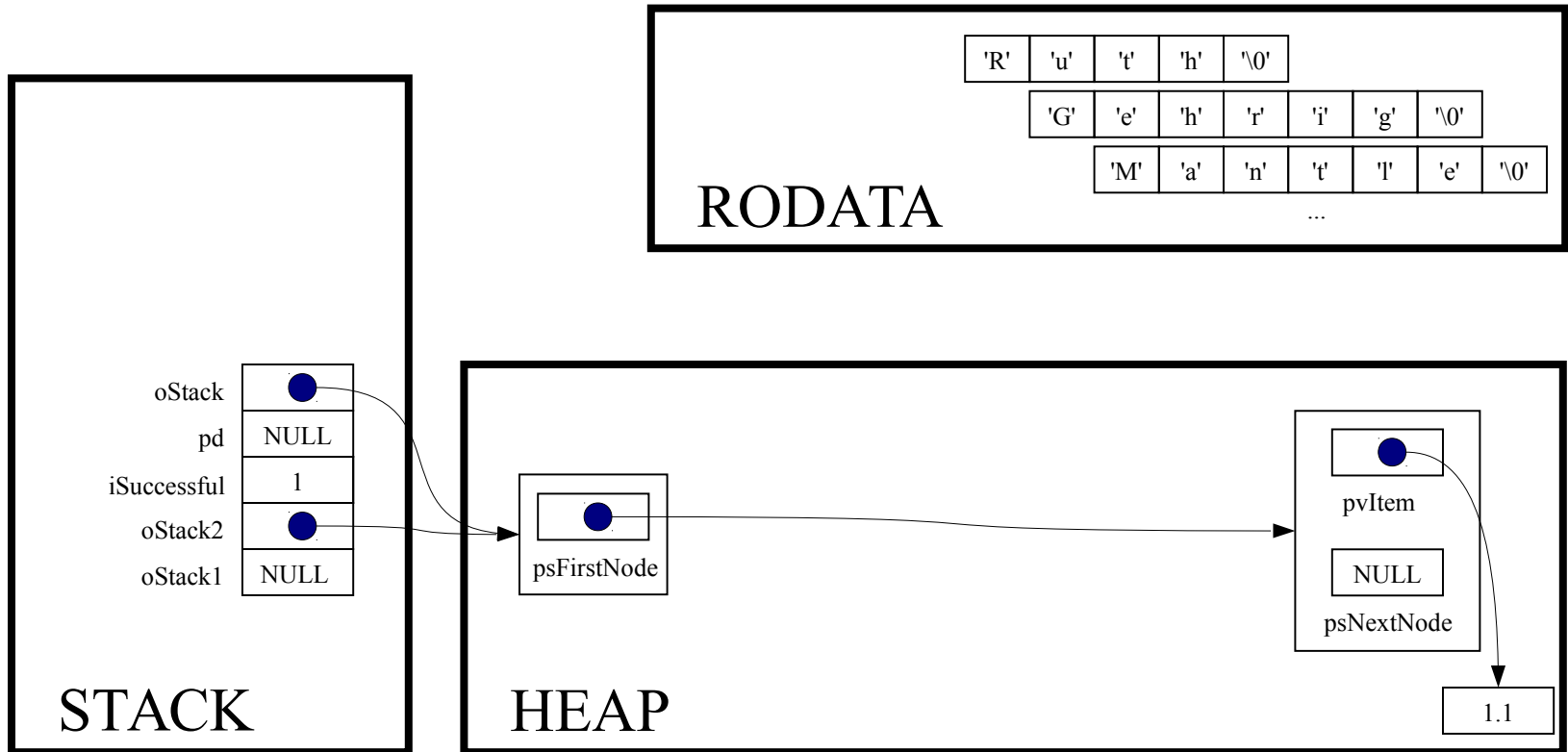
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Trace of teststack (Version 5)

```
int Stack_isEmpty(Stack_T oStack)
```



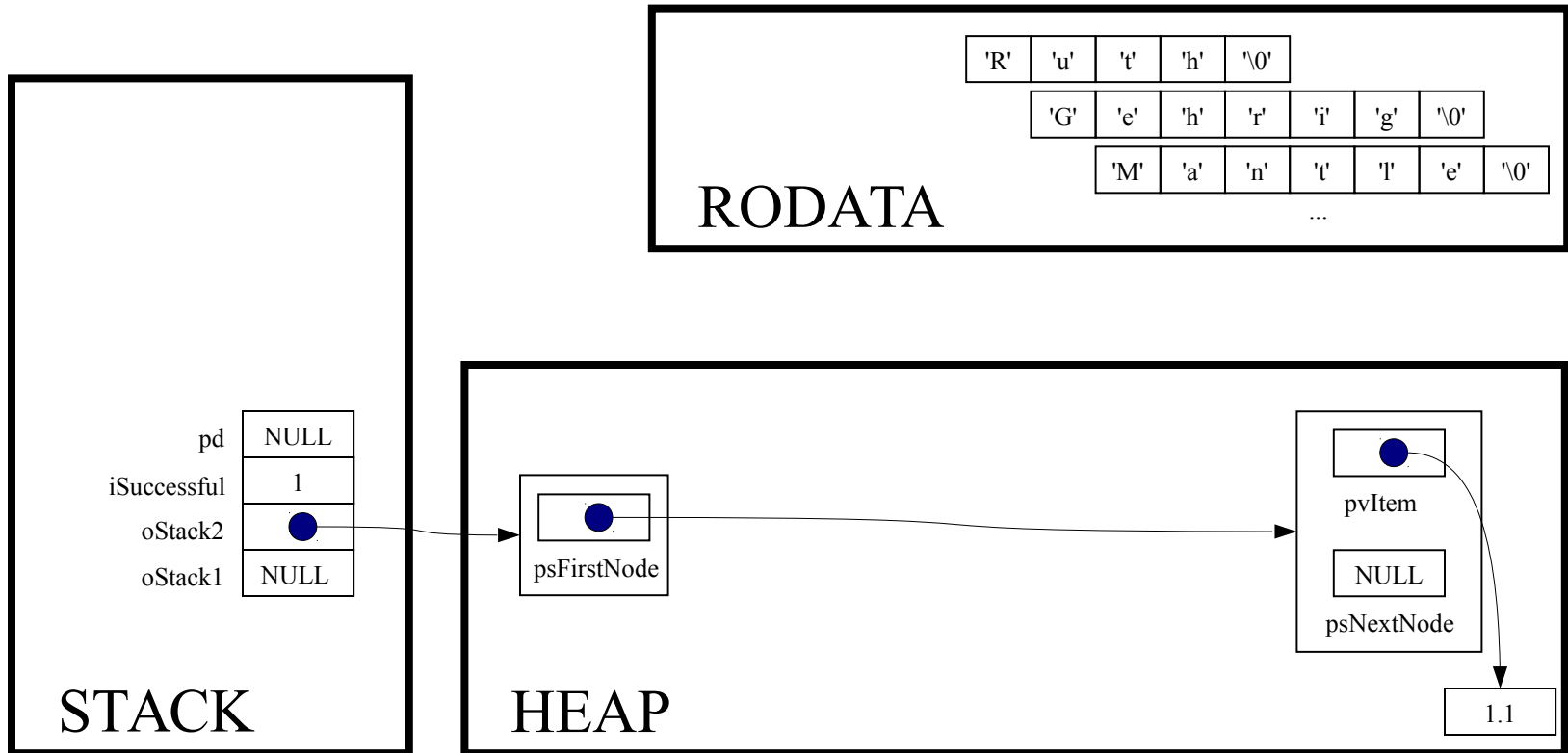
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```
assert(oStack != NULL);
```



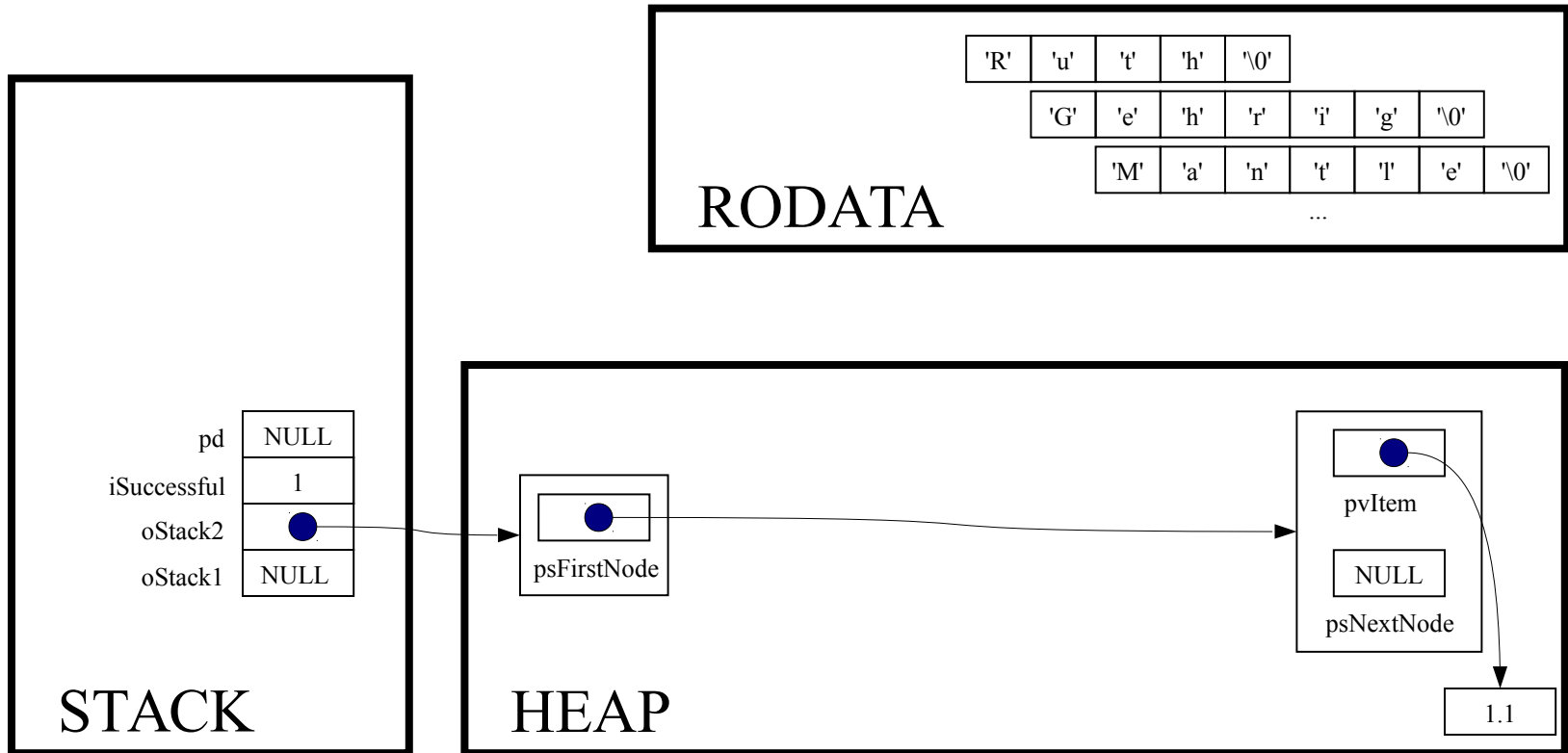
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```
return oStack->psFirstNode == NULL;
```



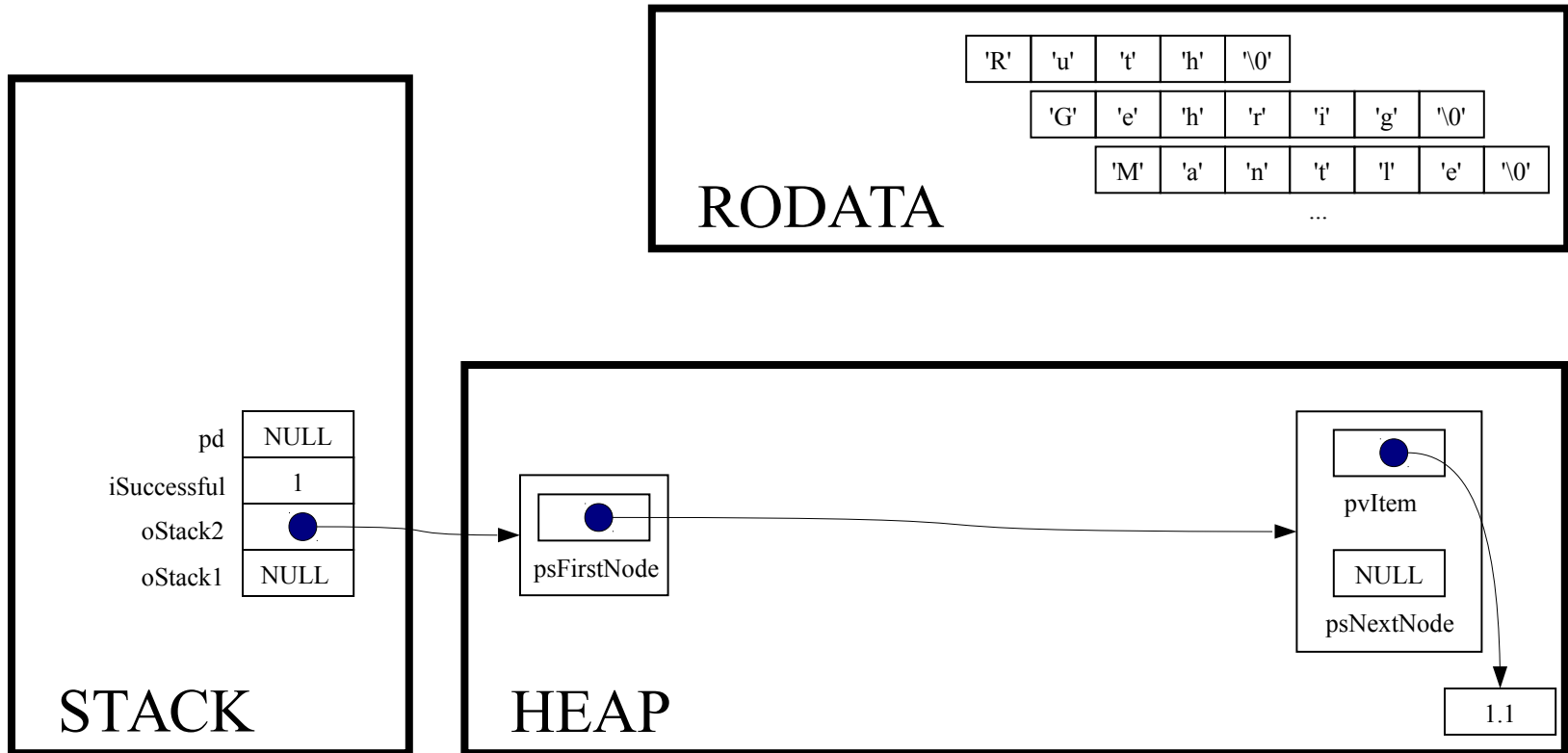
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```
while (! Stack_isEmpty(oStack2))
```



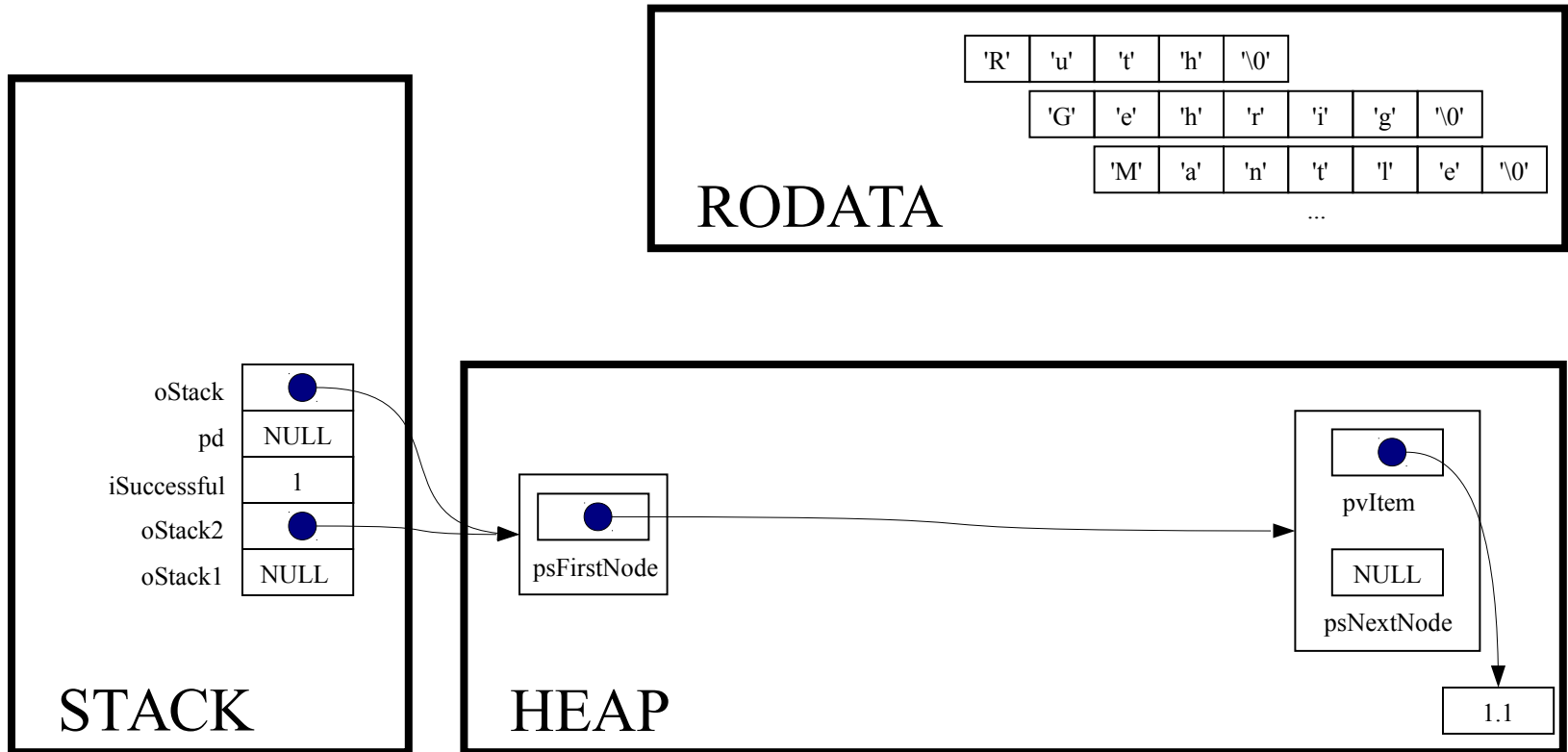
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Trace of teststack (Version 5)

```
pd = (double*) Stack_pop(oStack2);
```



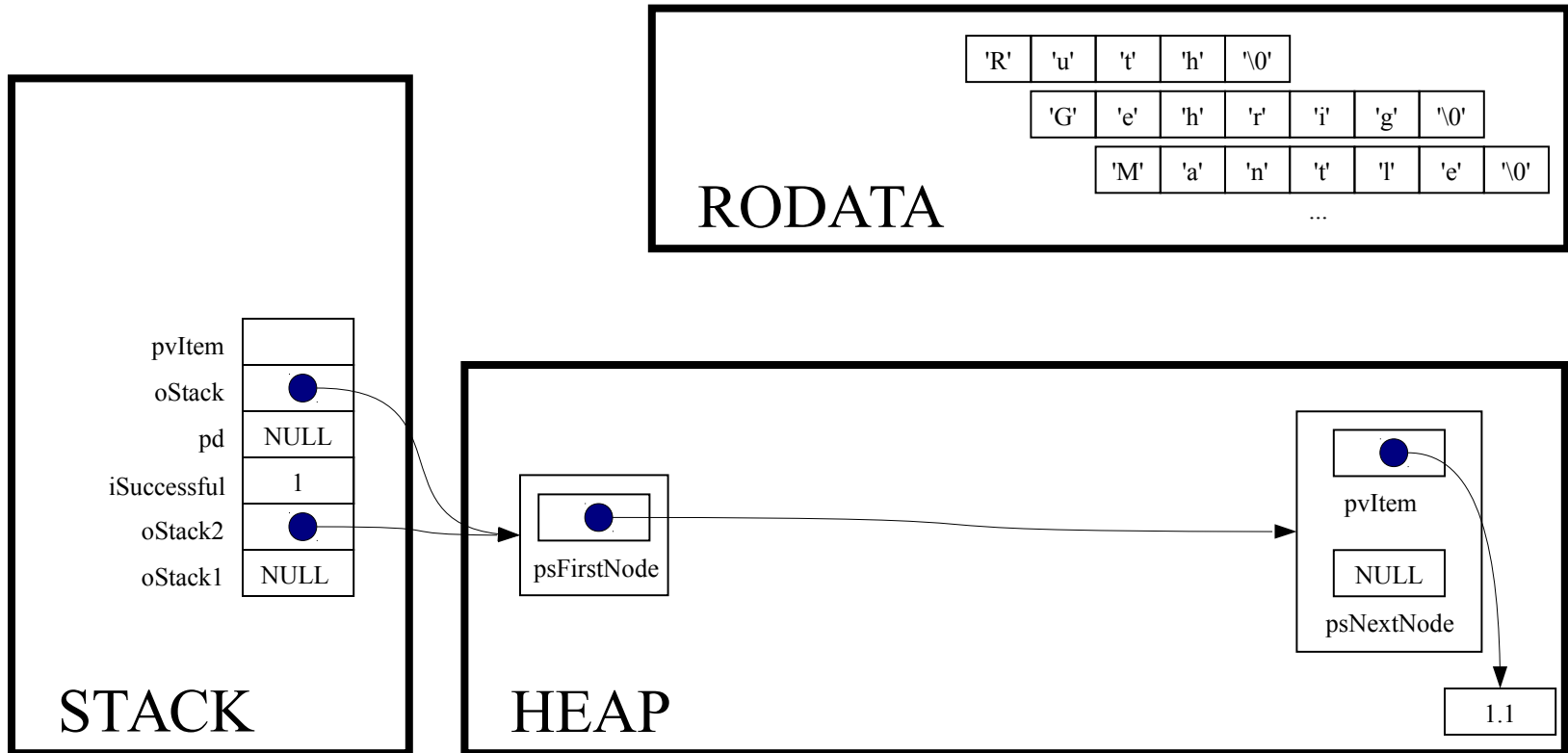
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Trace of teststack (Version 5)

```
void *Stack_pop(Stack_T oStack)
```



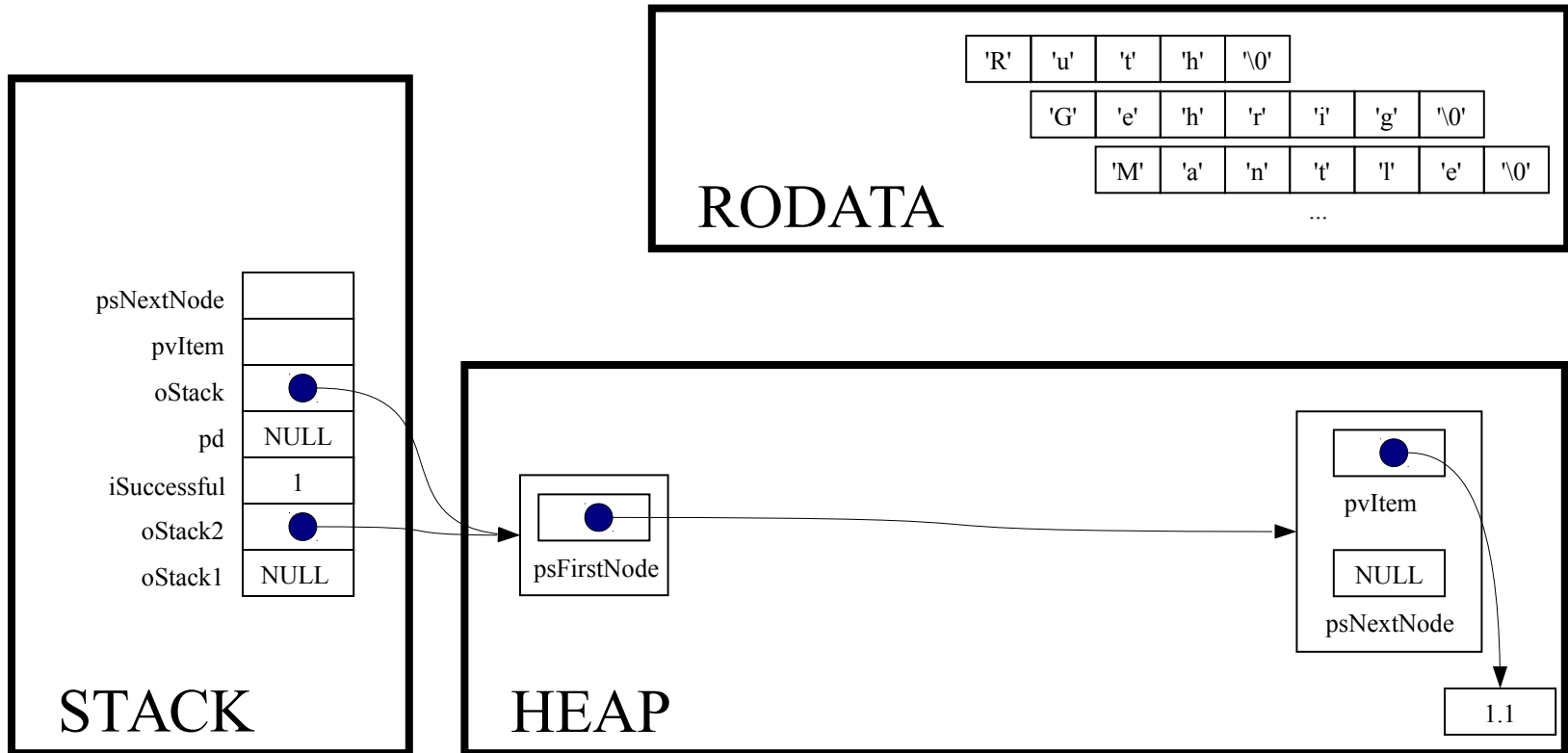
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```
const void *pvItem;
```



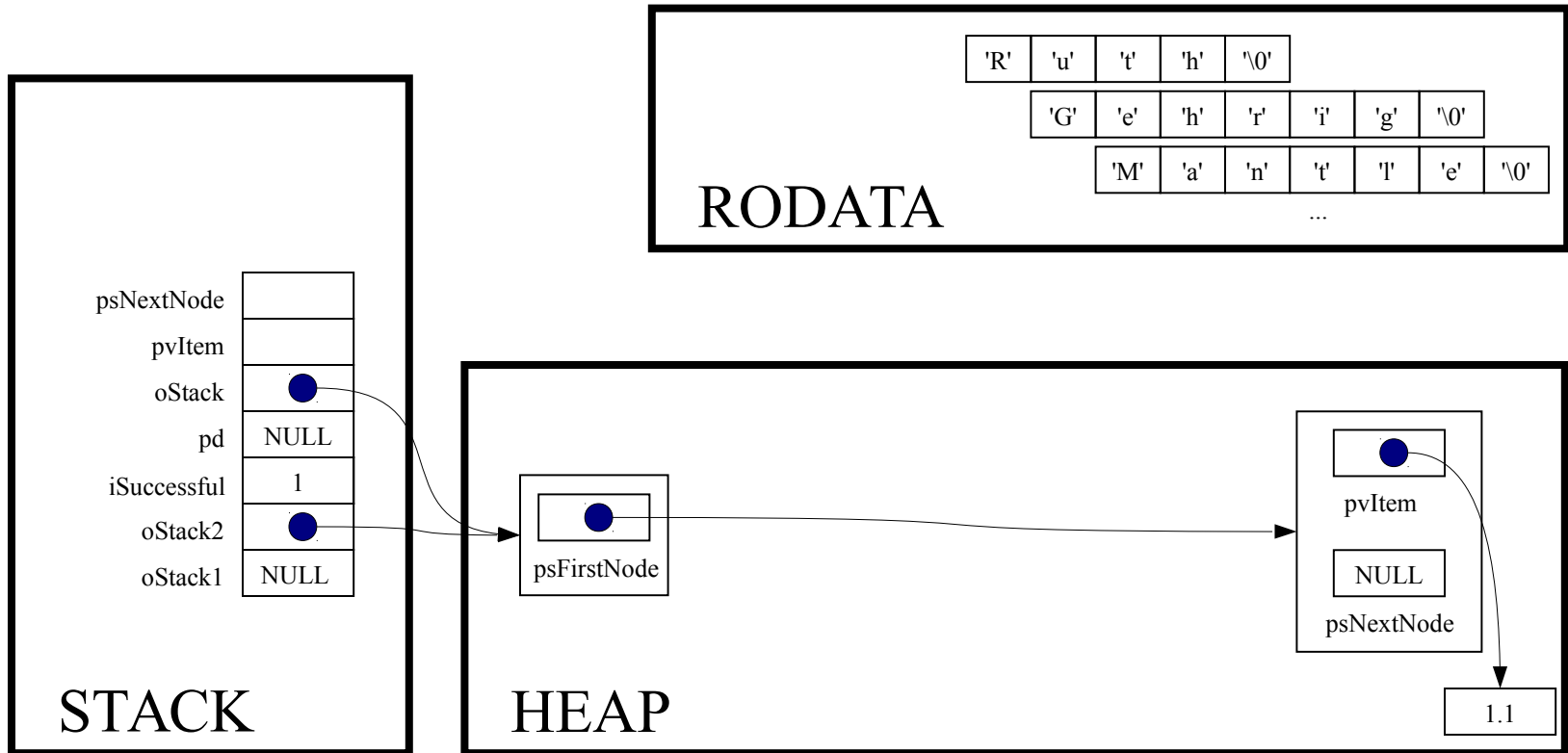
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```
struct StackNode *psNextNode;
```



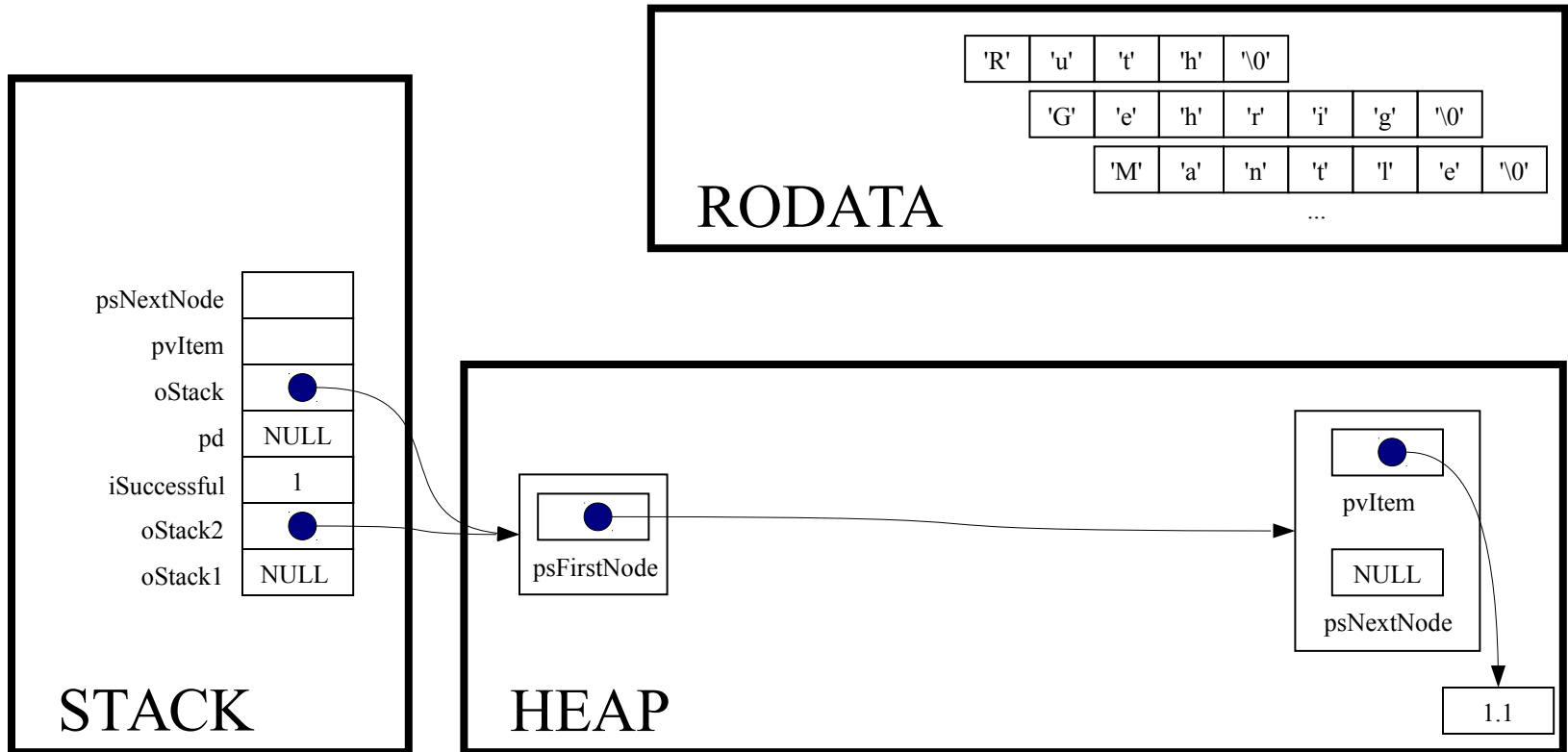
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```
assert(oStack != NULL);
```



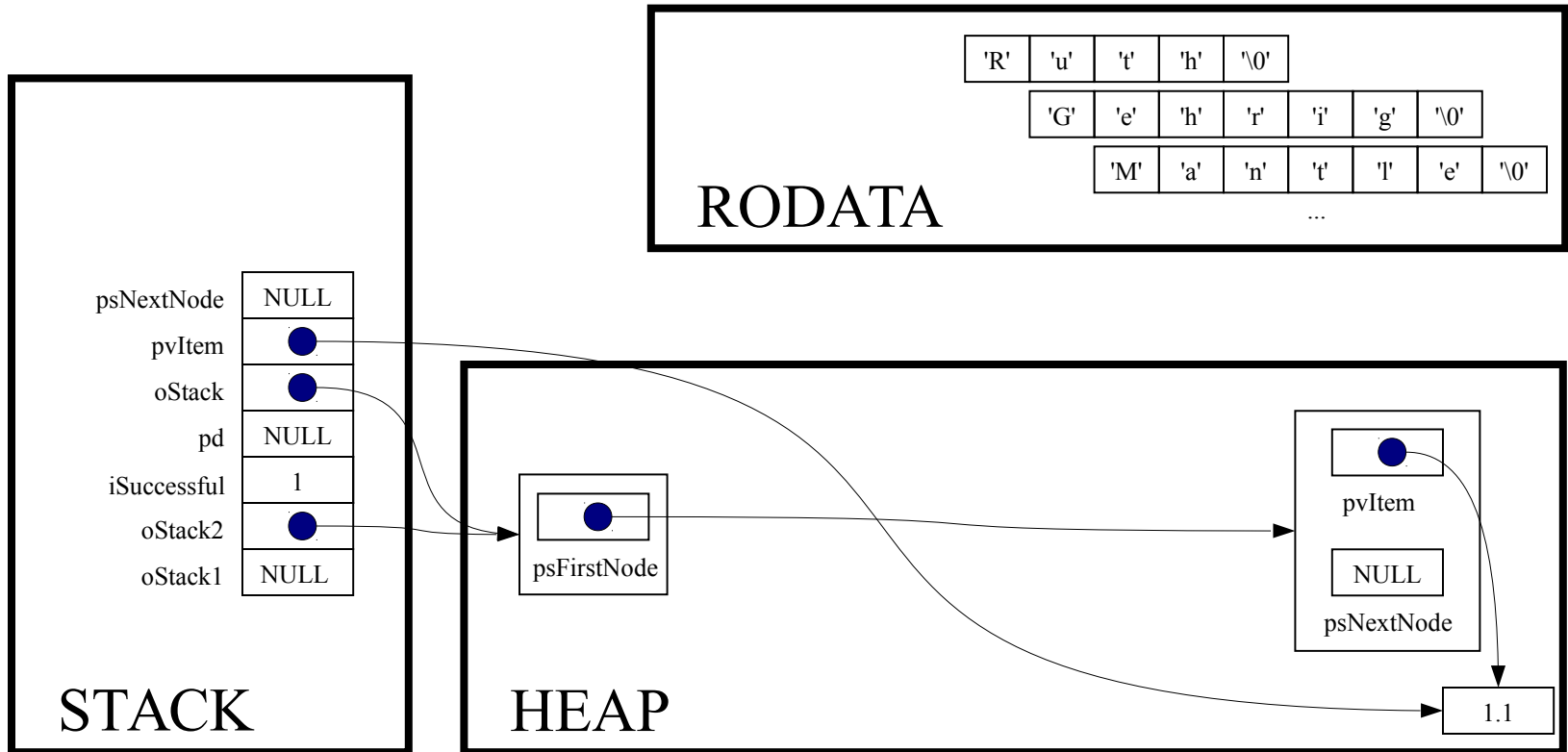
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```
assert(oStack->psFirstNode != NULL);
```



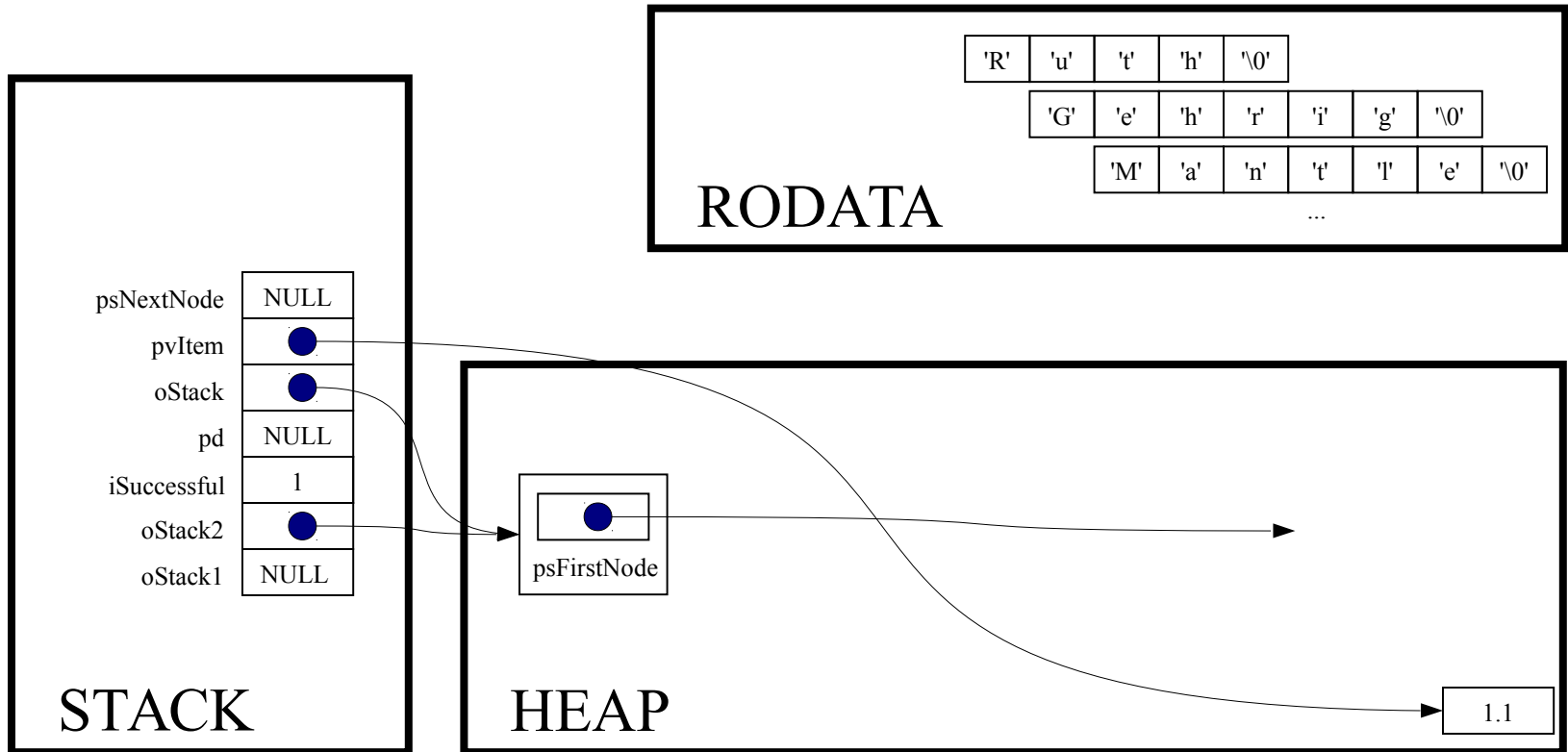
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```
psNextNode = oStack->psFirstNode->psNextNode;
```



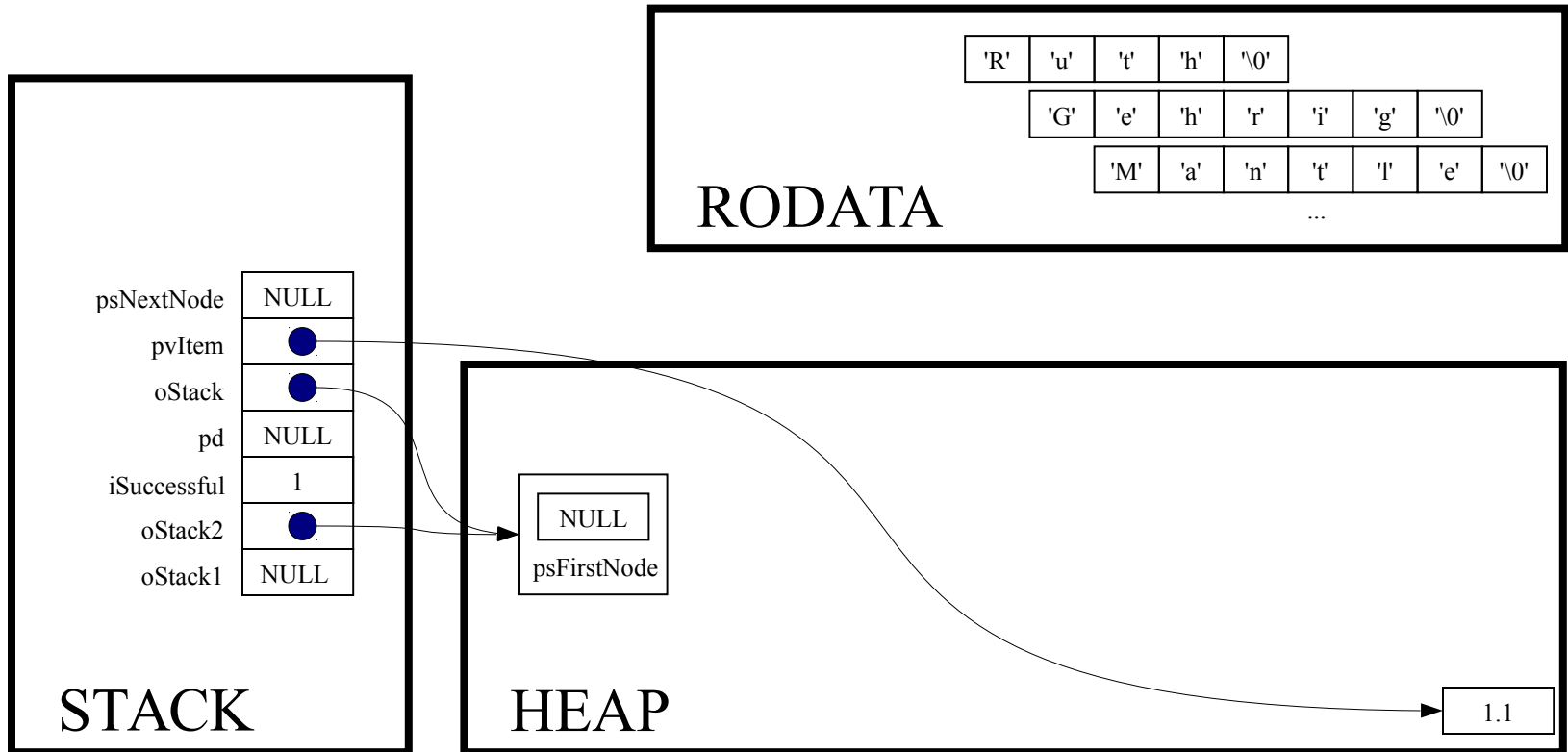
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```
free(oStack->psFirstNode);
```



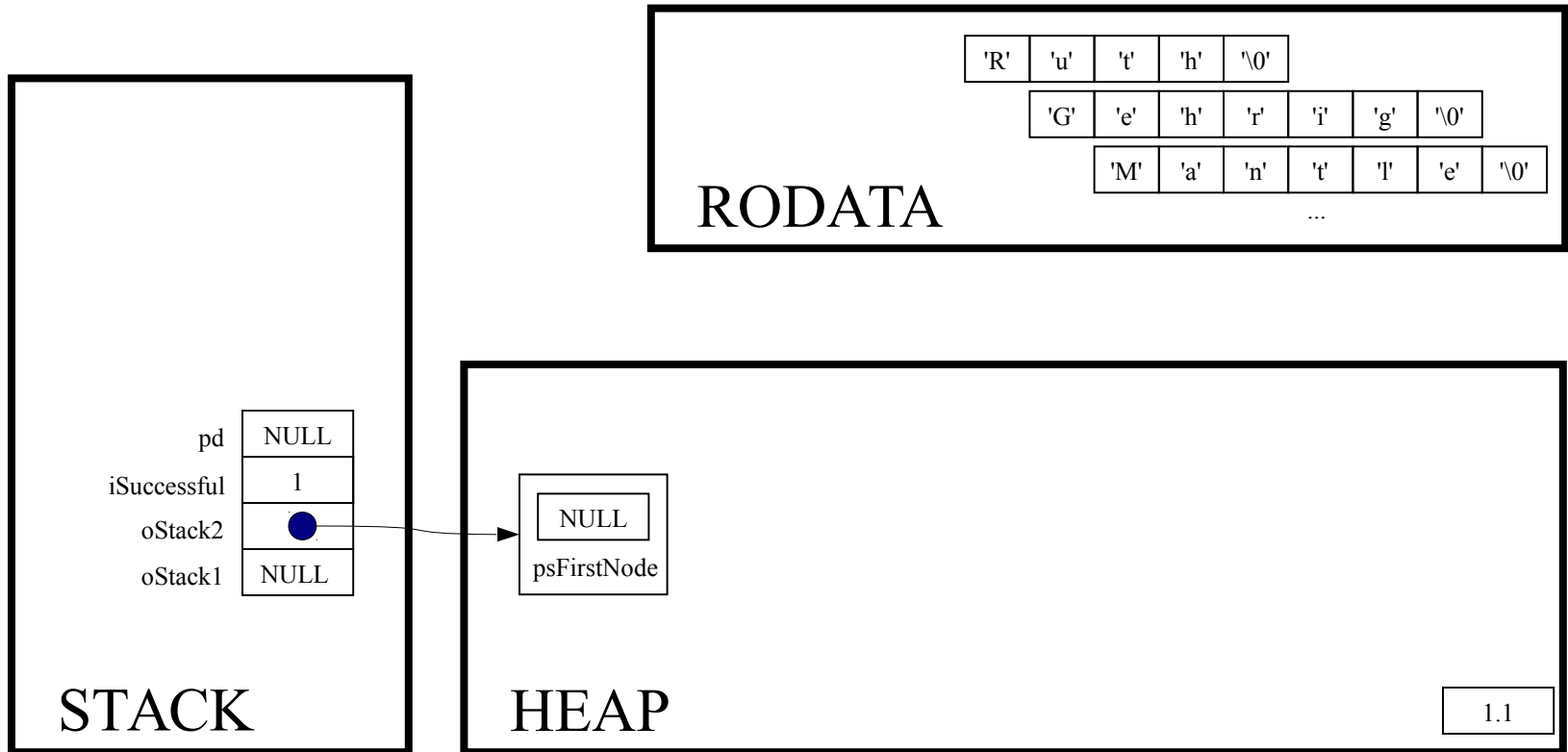
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```
free(oStack->psFirstNode);
```



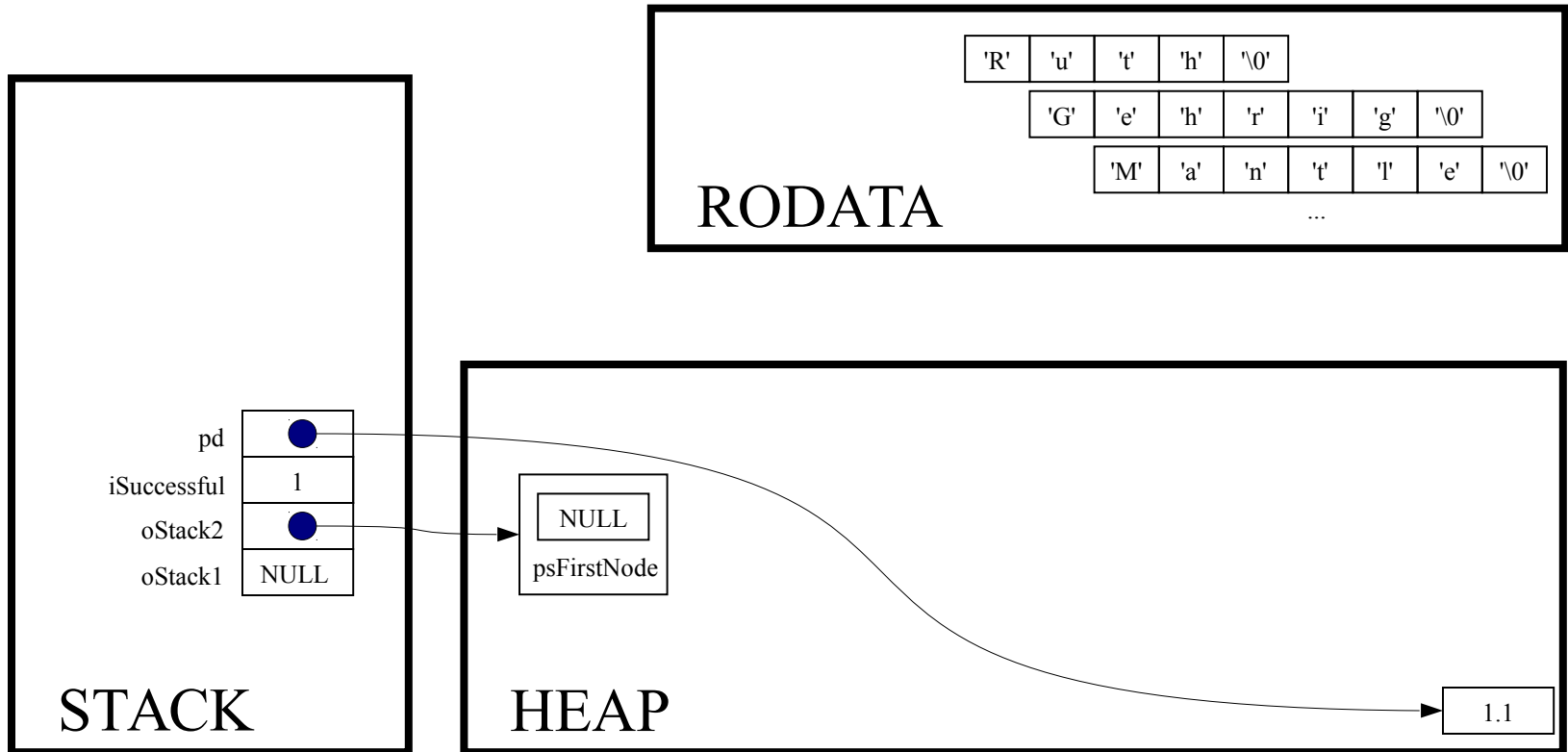
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```
return (void*)pvItem;
```



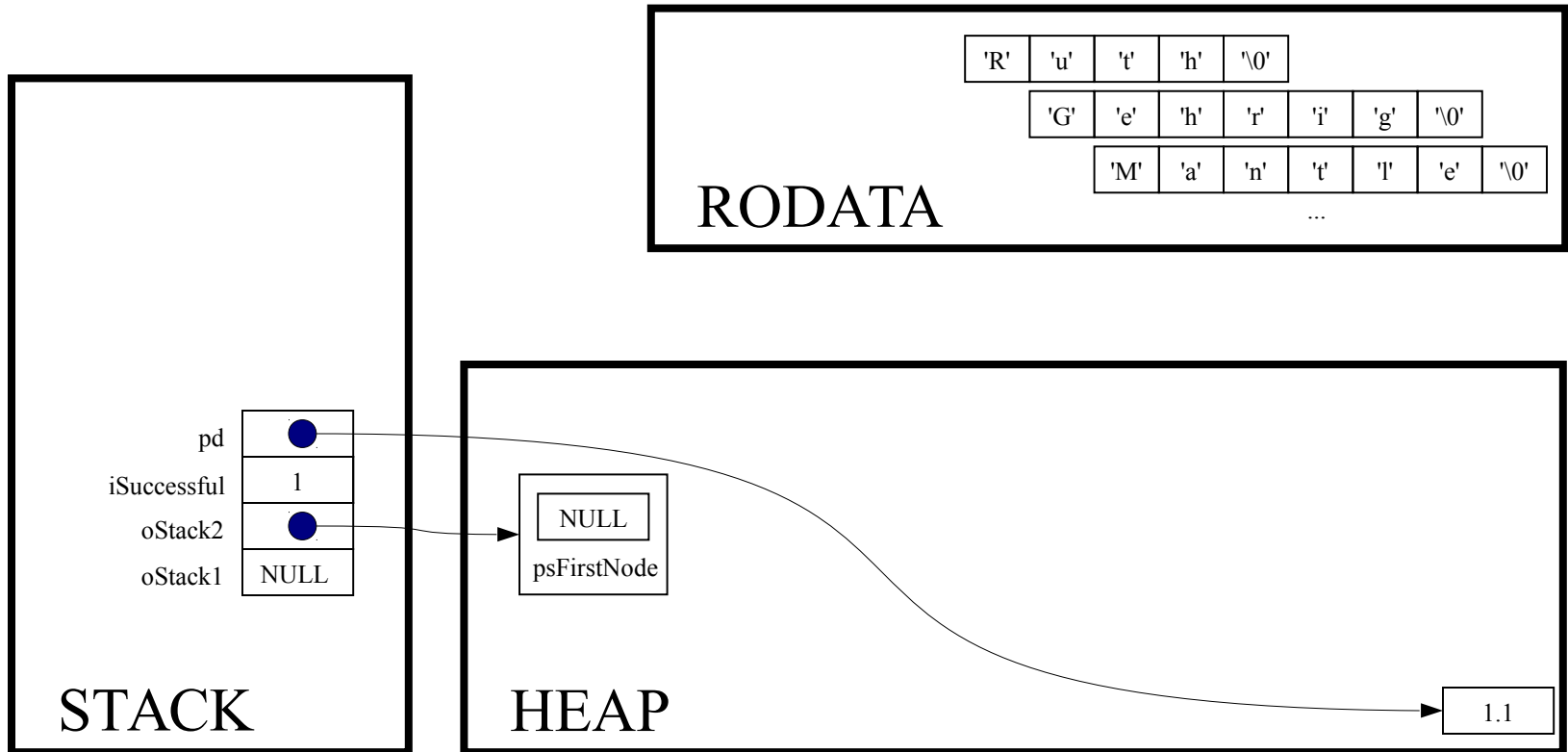
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```
pd = (double*)Stack_pop(oStack2);
```



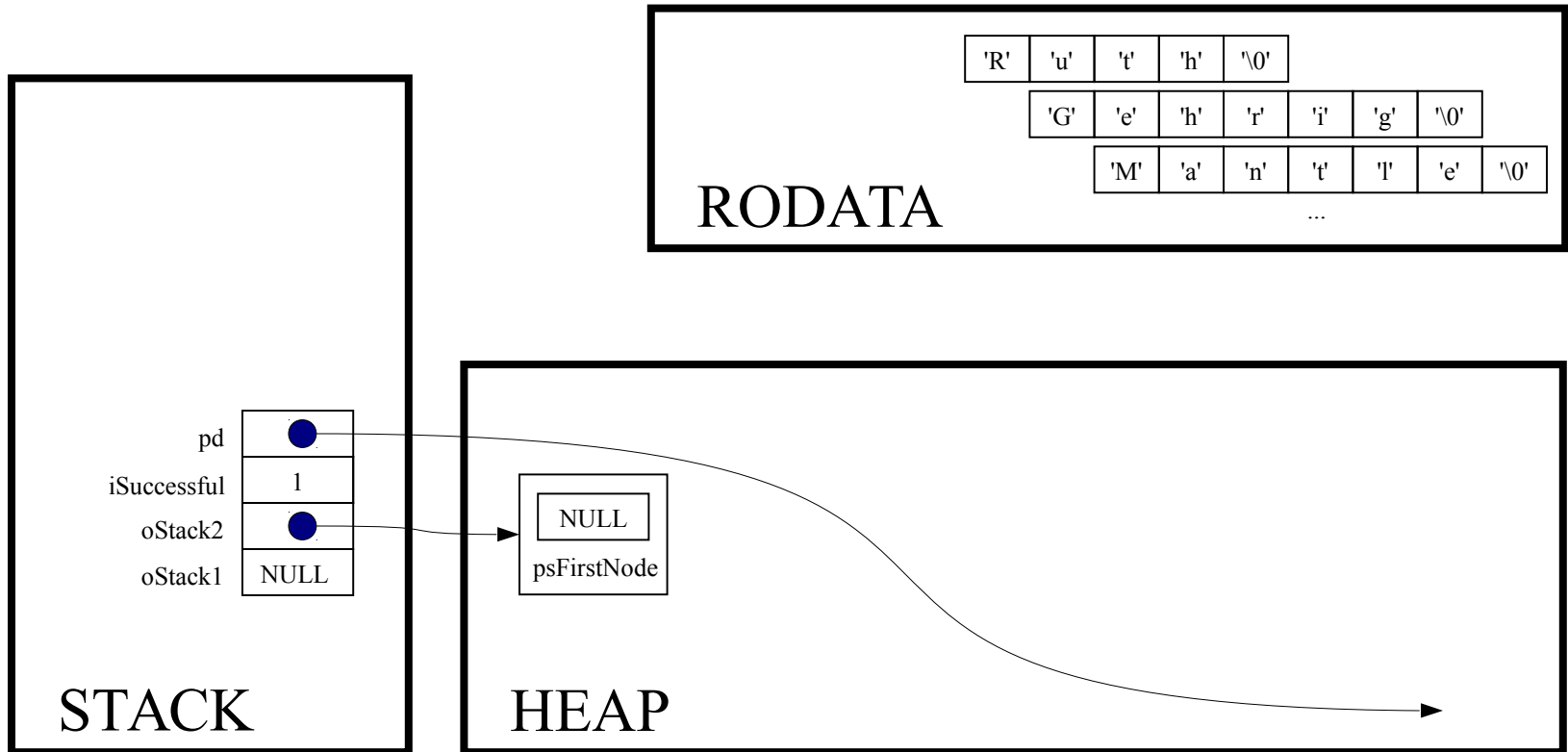
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```
printf("%g\n", *pd);
```



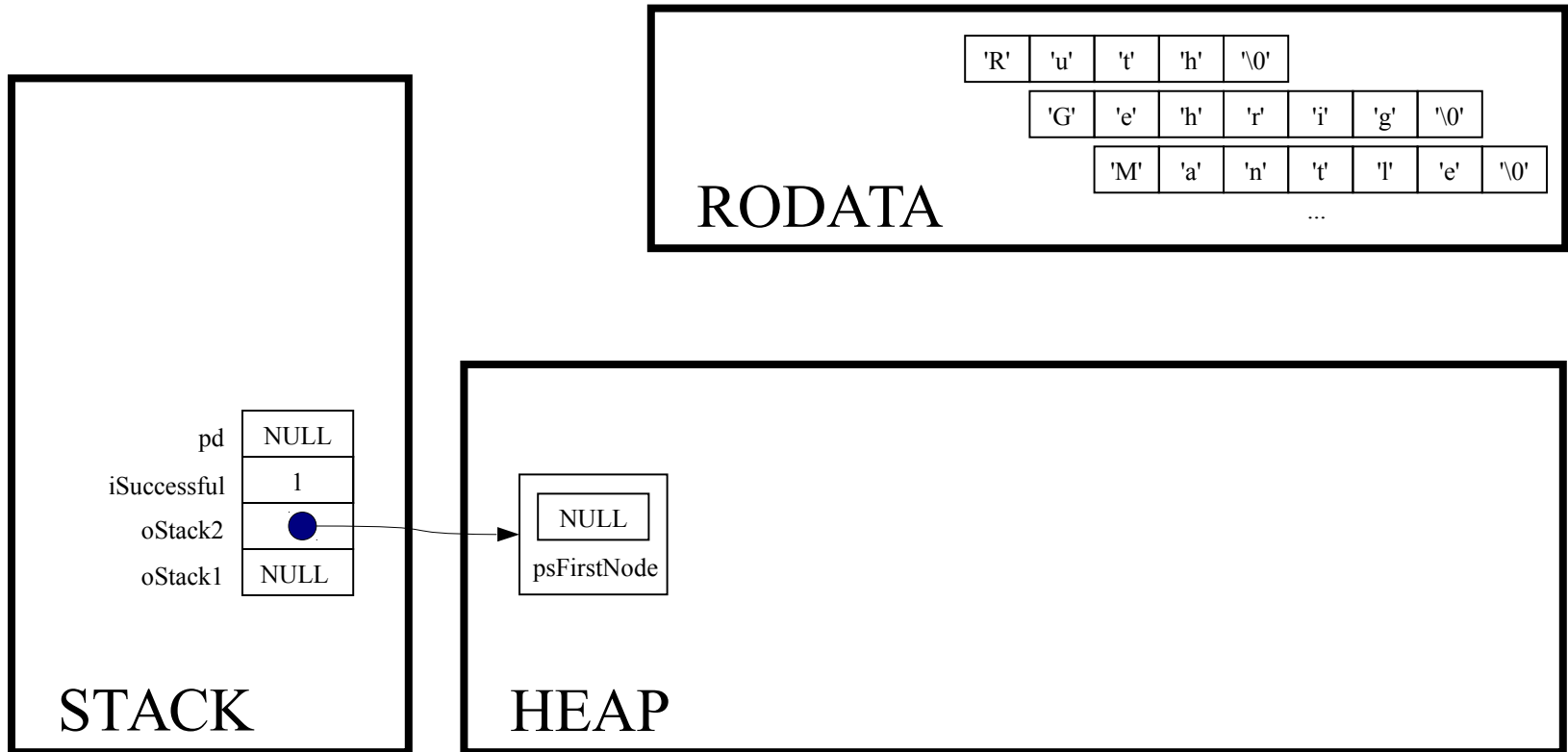
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```
free(pd);
```



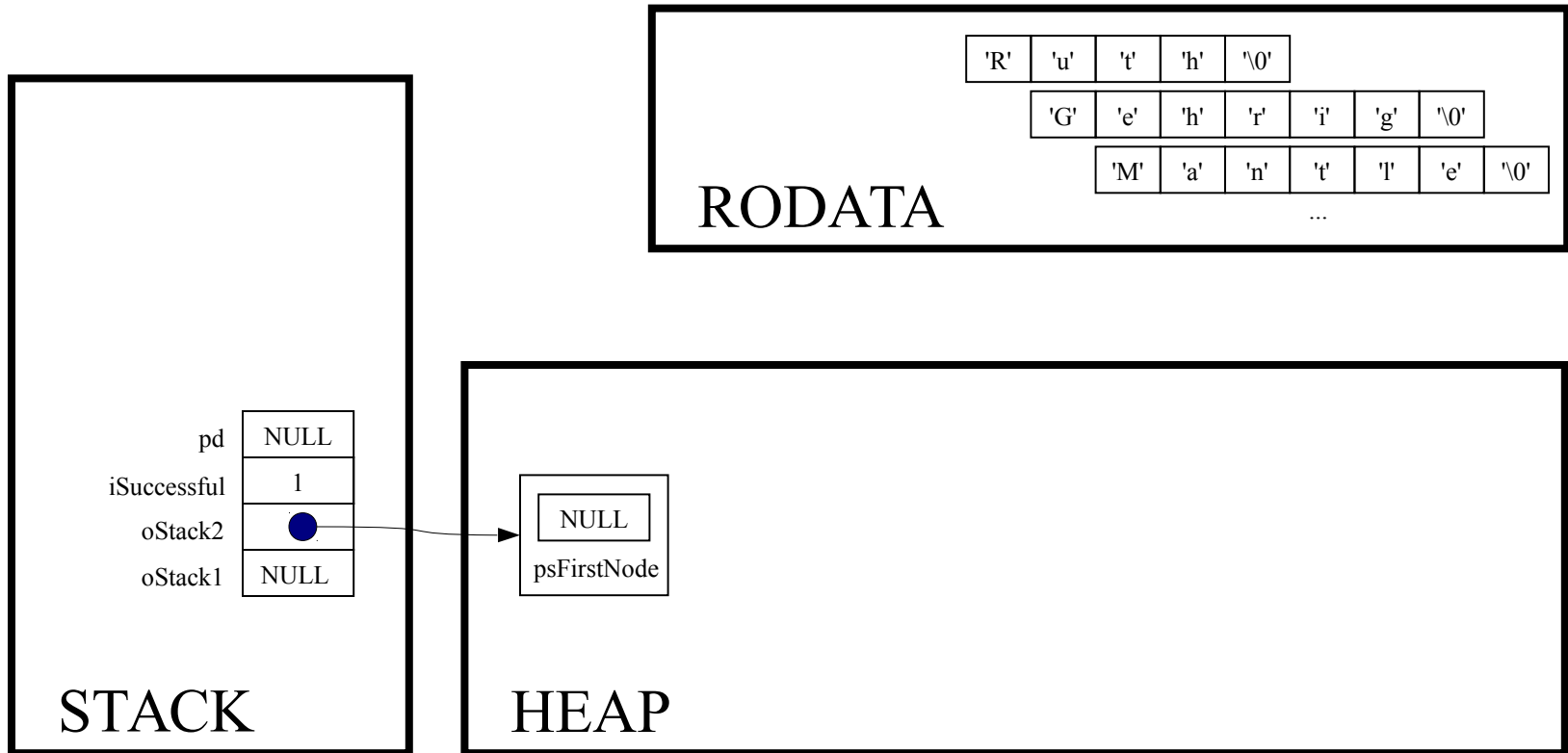
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```
pd = NULL;
```



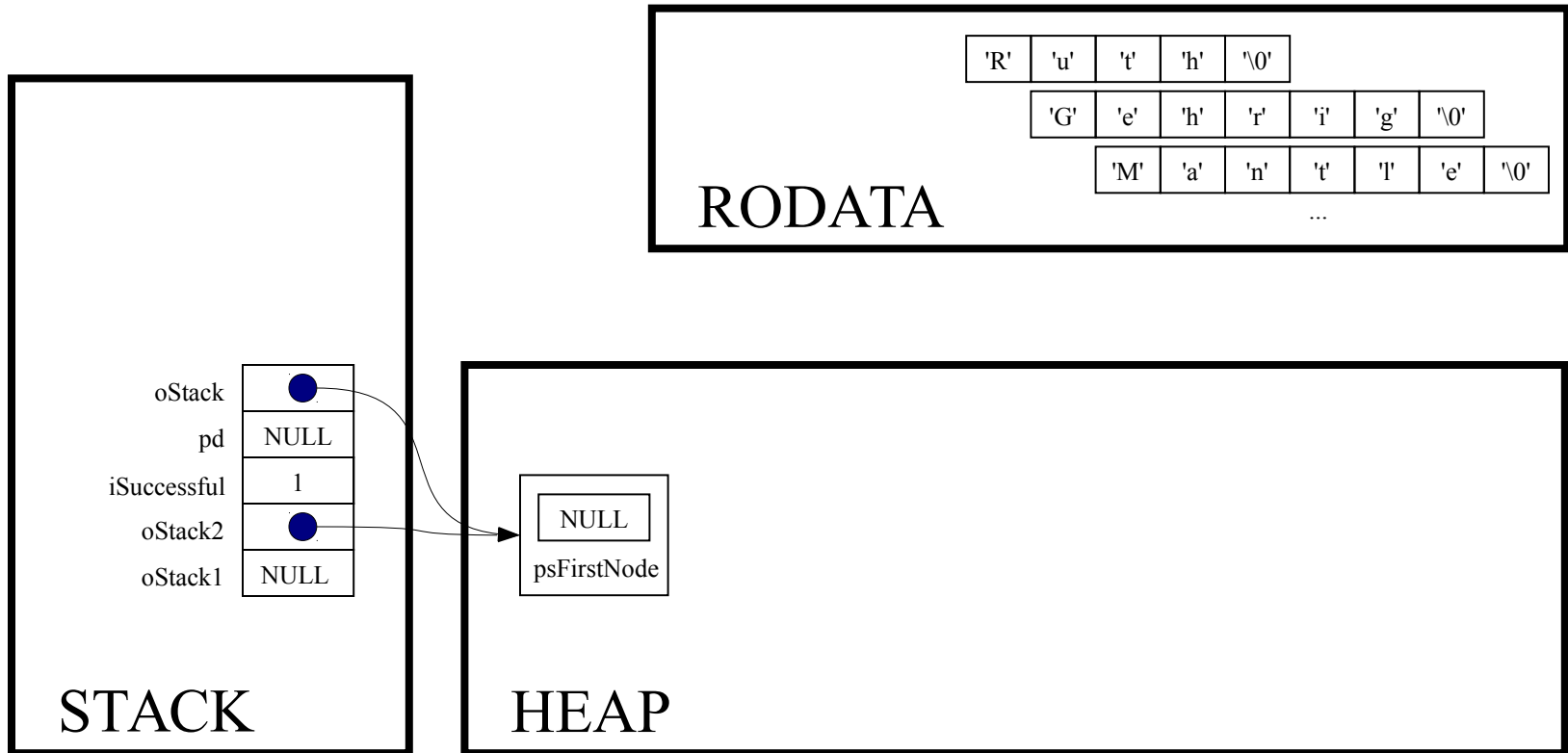
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```
while (! Stack_isEmpty(oStack2))
```



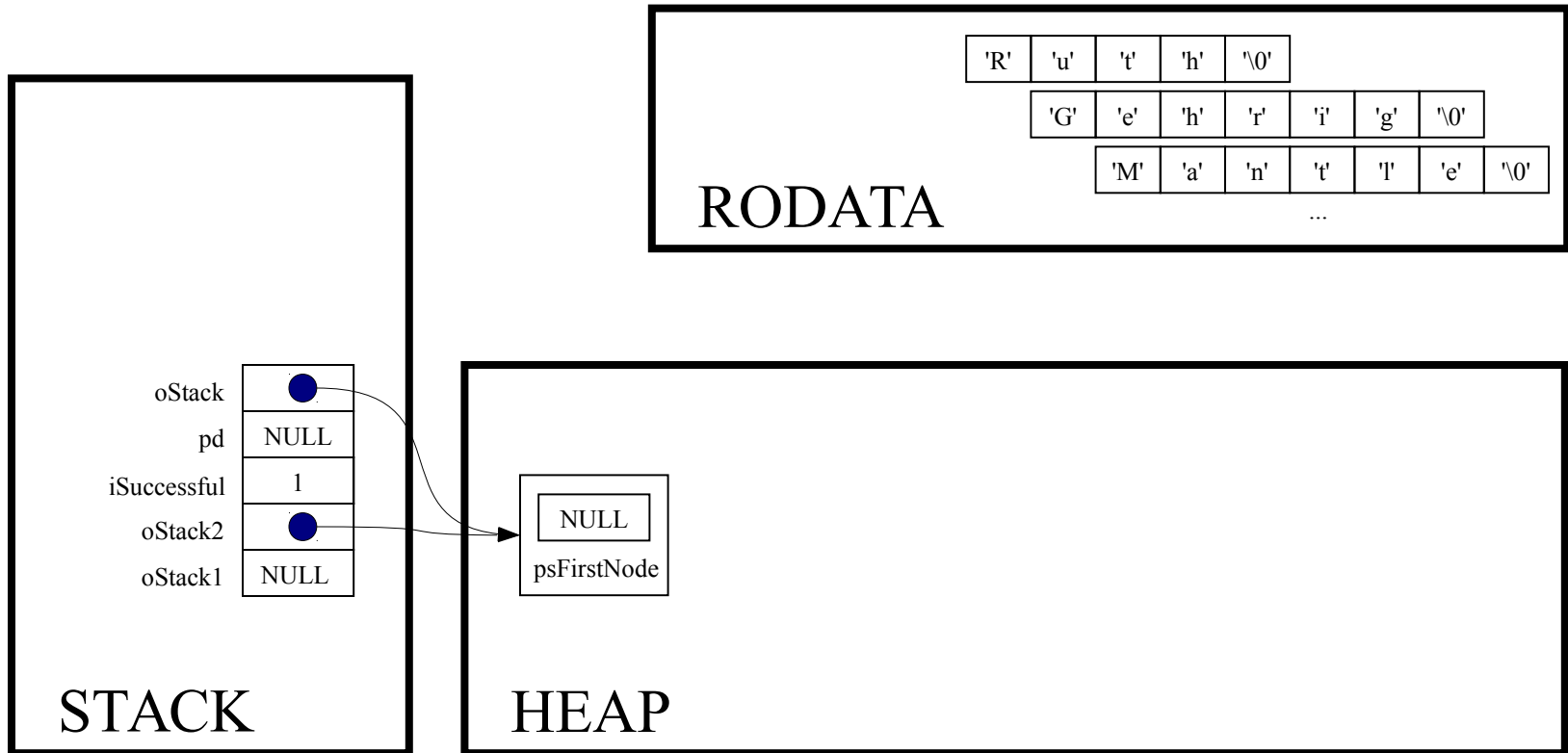
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```
int Stack_isEmpty(Stack_T oStack)
```



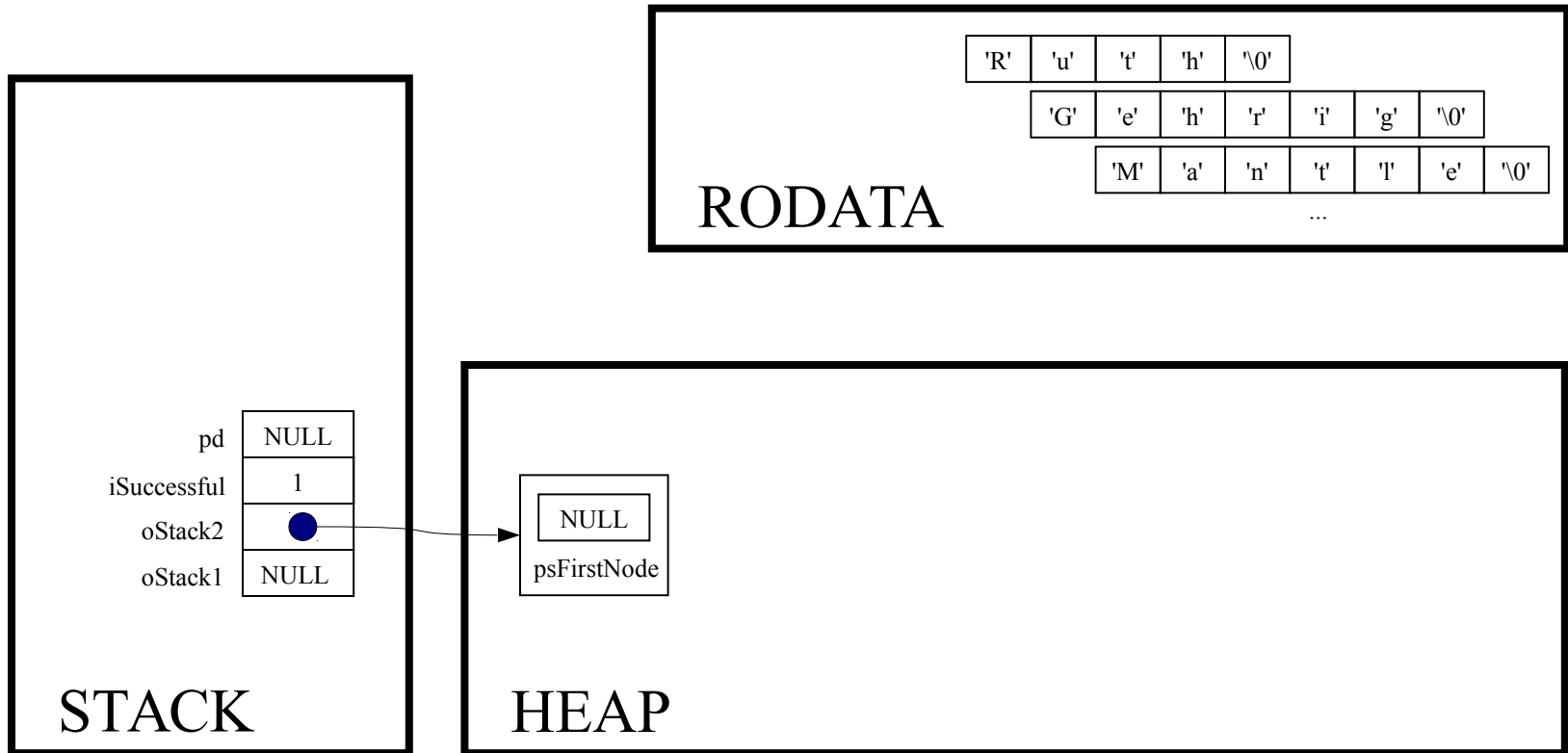
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```
assert(oStack != NULL);
```



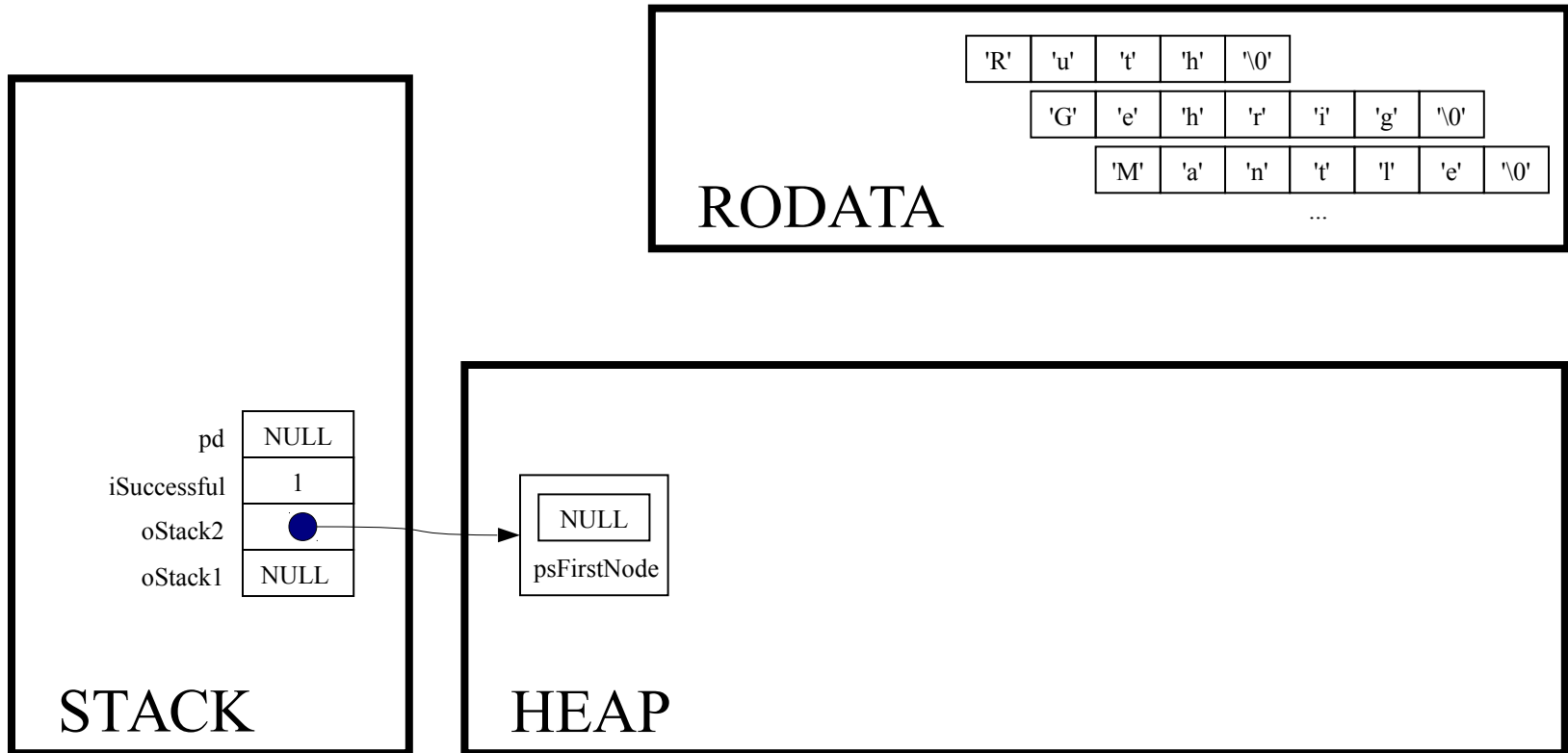
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```
return oStack->psFirstNode == NULL;
```



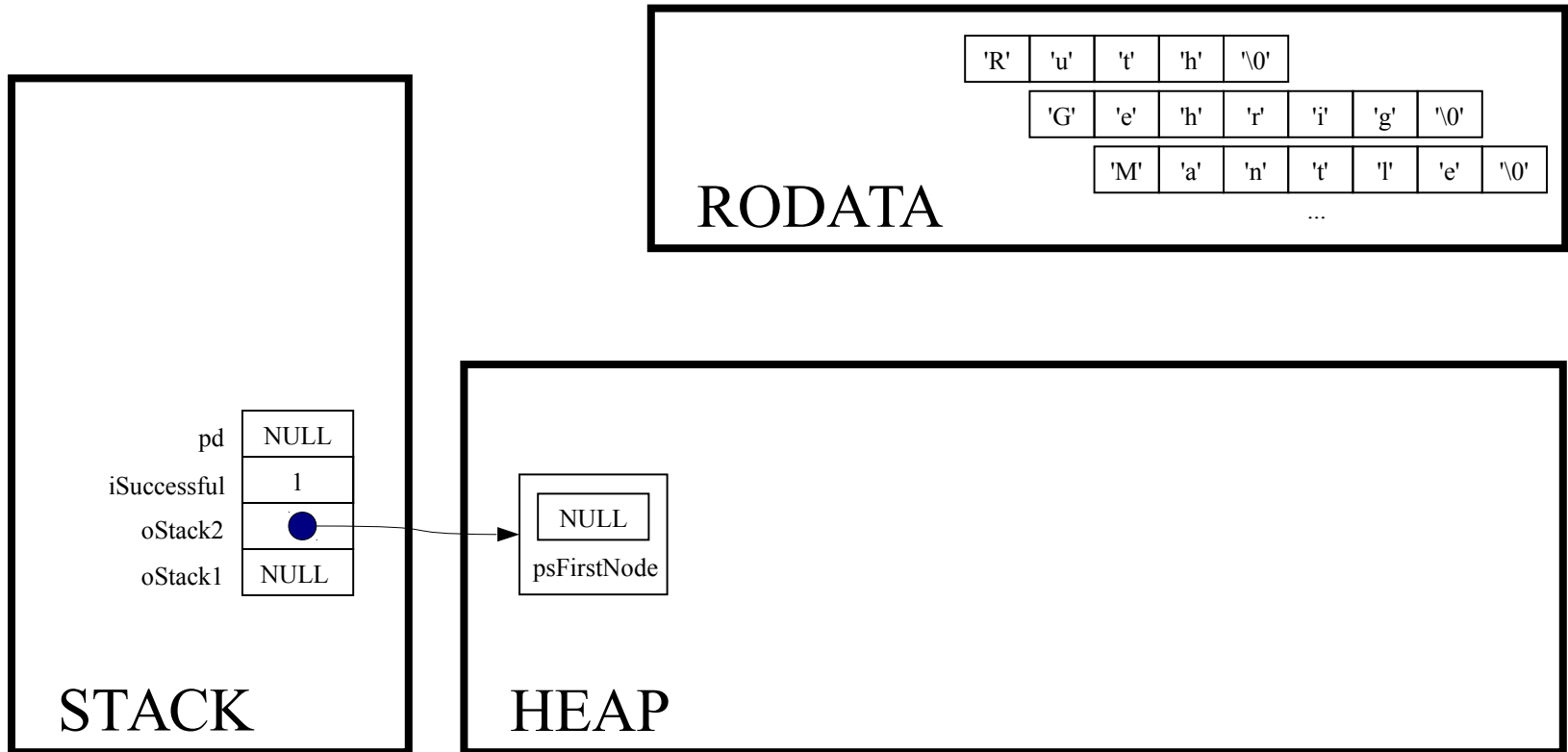
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```
while (! Stack_isEmpty(oStack2))
```



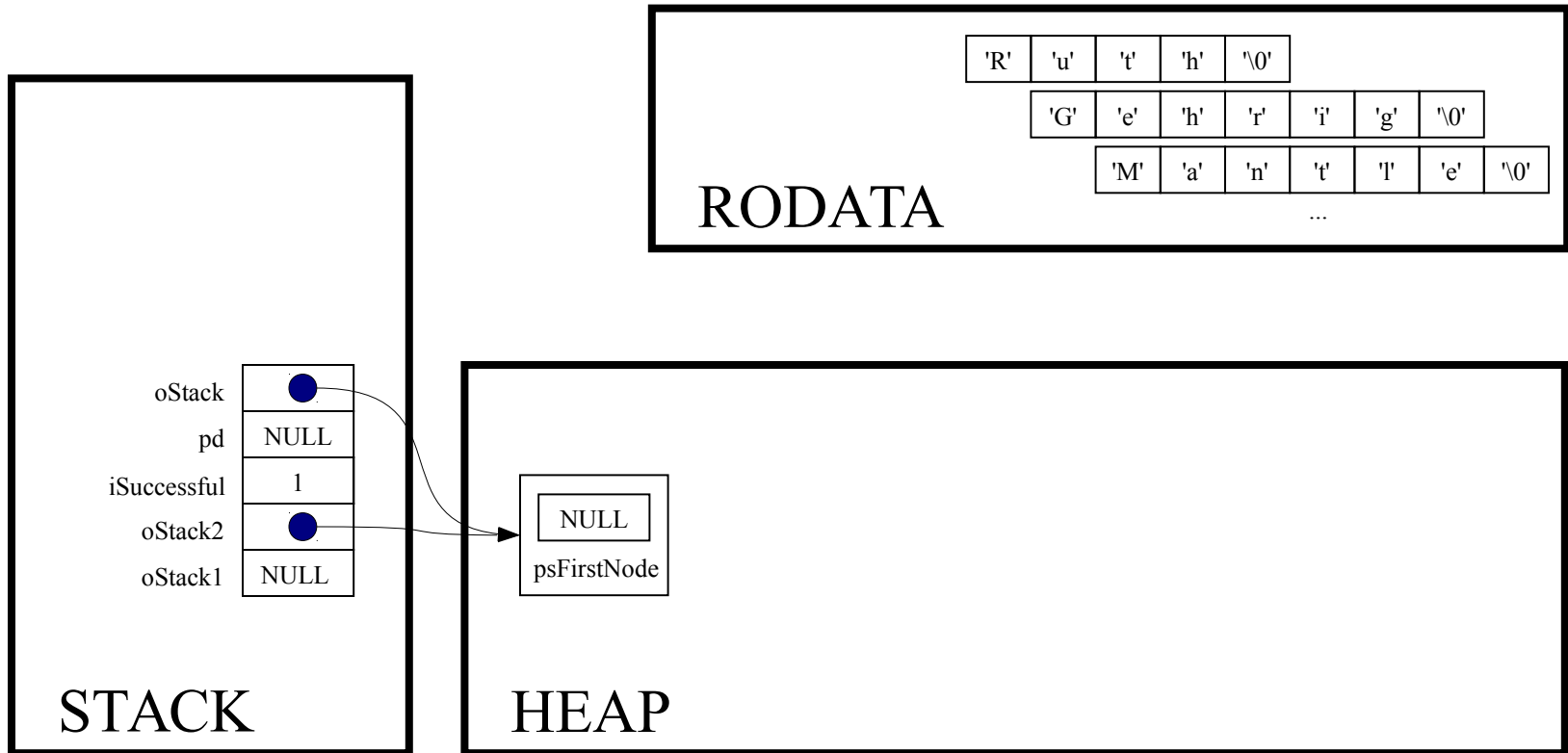
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```
Stack_free(oStack2);
```



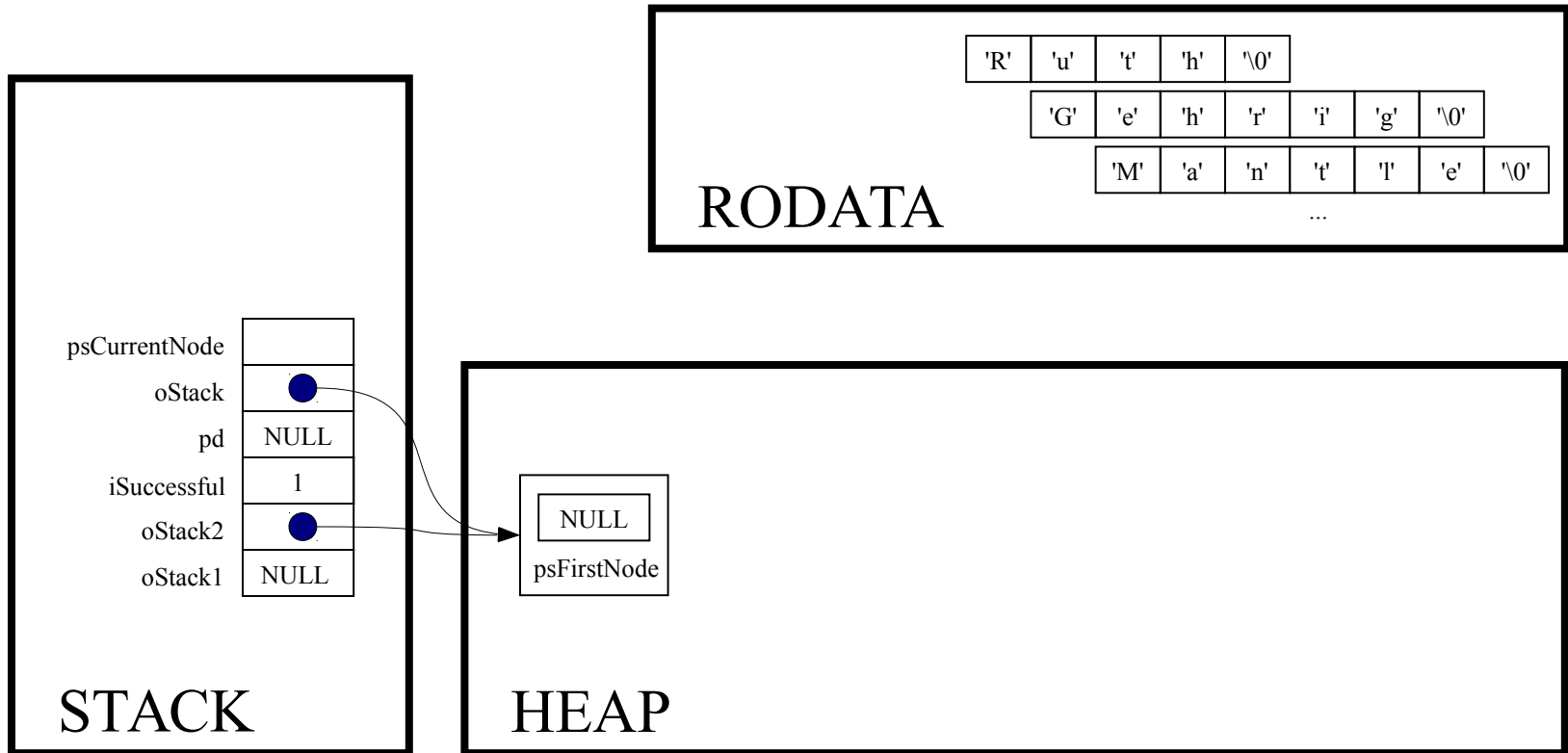
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```
void Stack_free(Stack_T oStack)
```



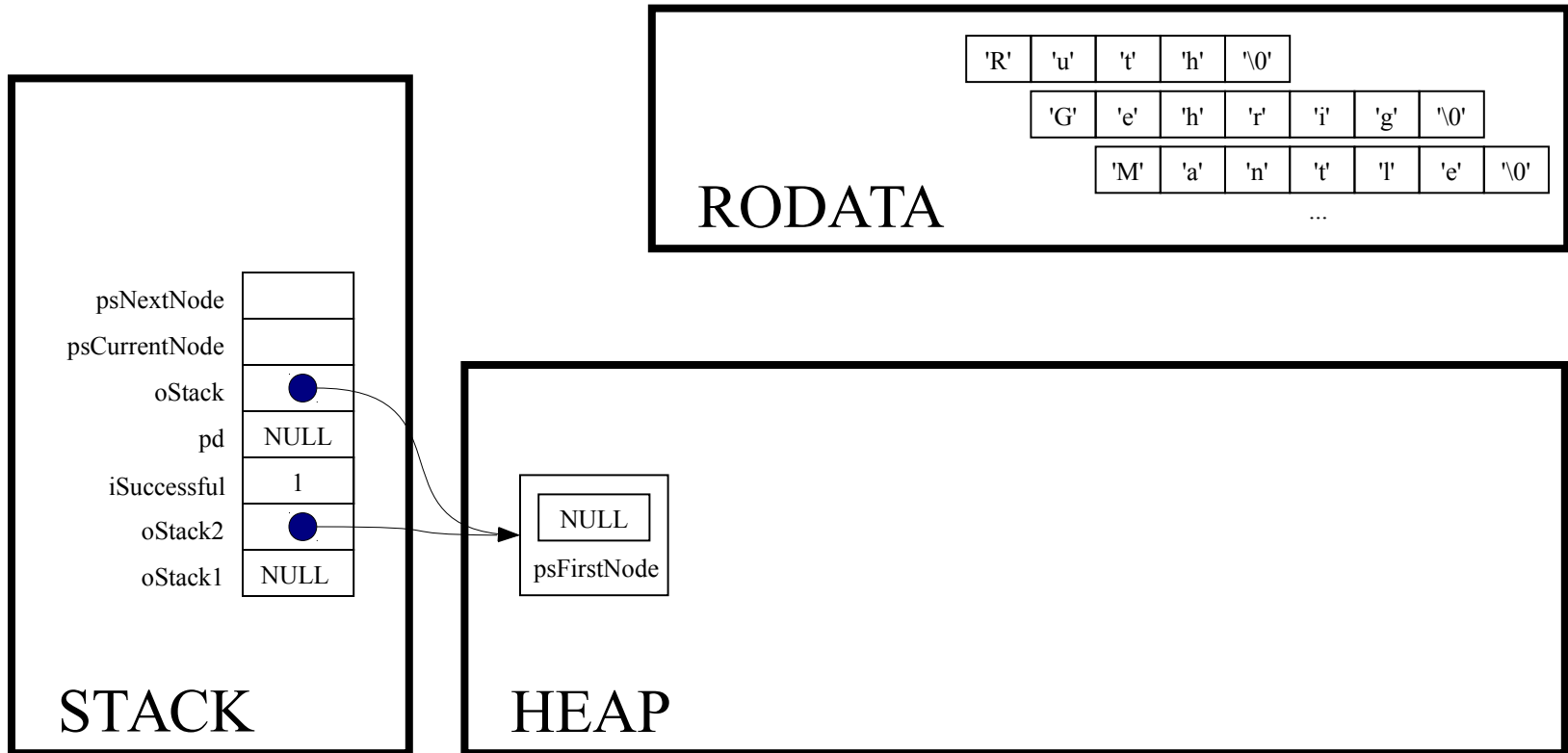
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```
struct StackNode *psCurrentNode;
```



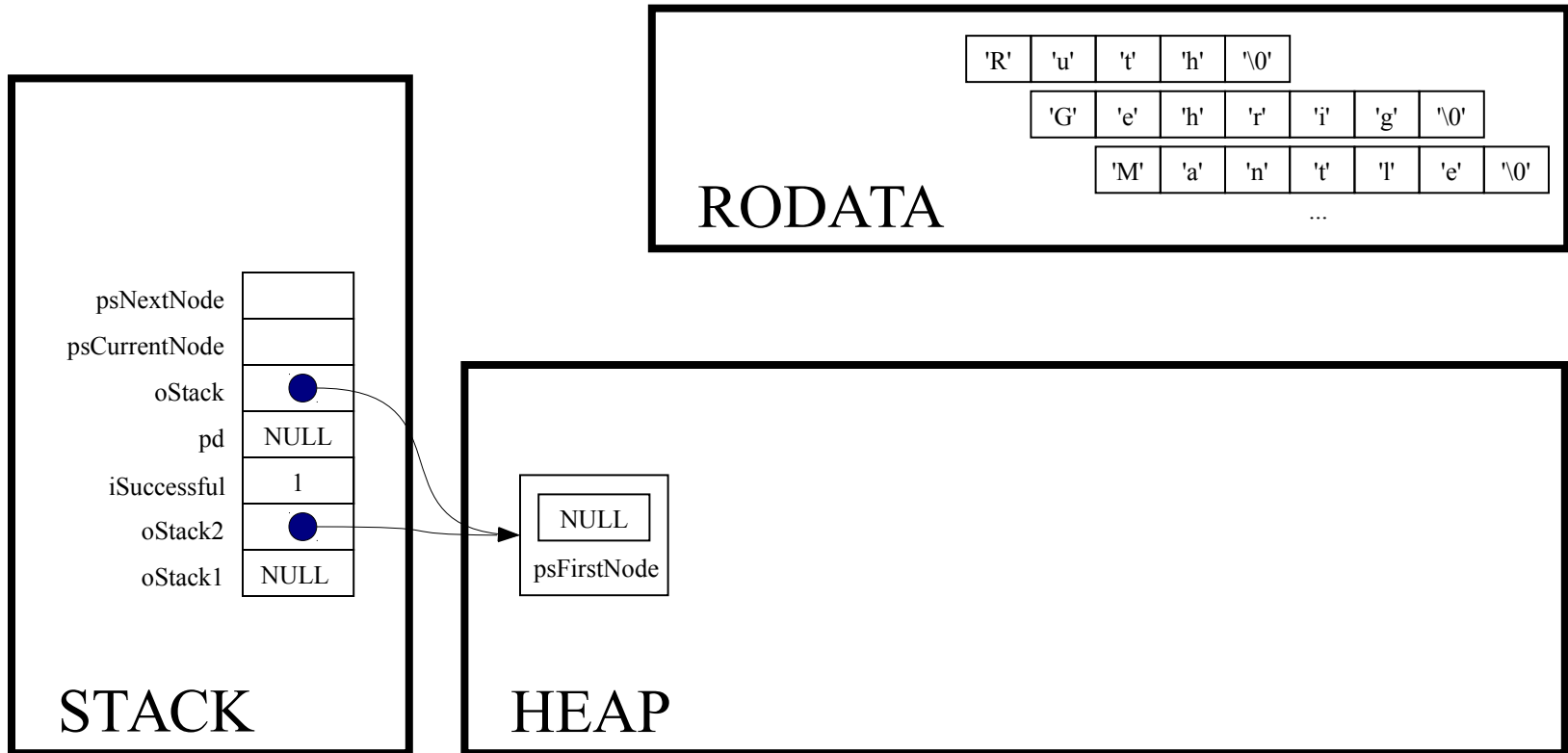
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```
struct StackNode *psNextNode;
```



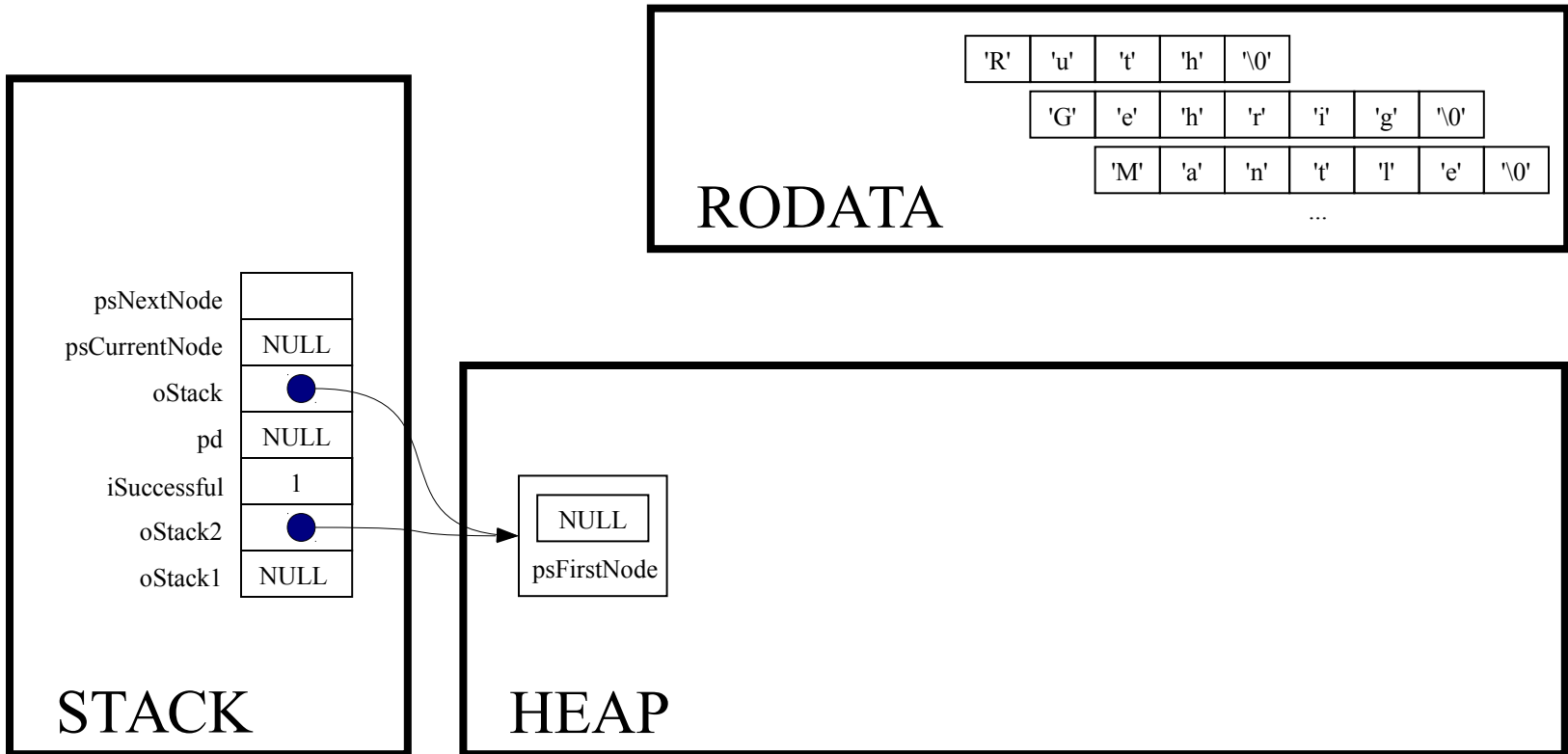
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```
assert(oStack != NULL);
```



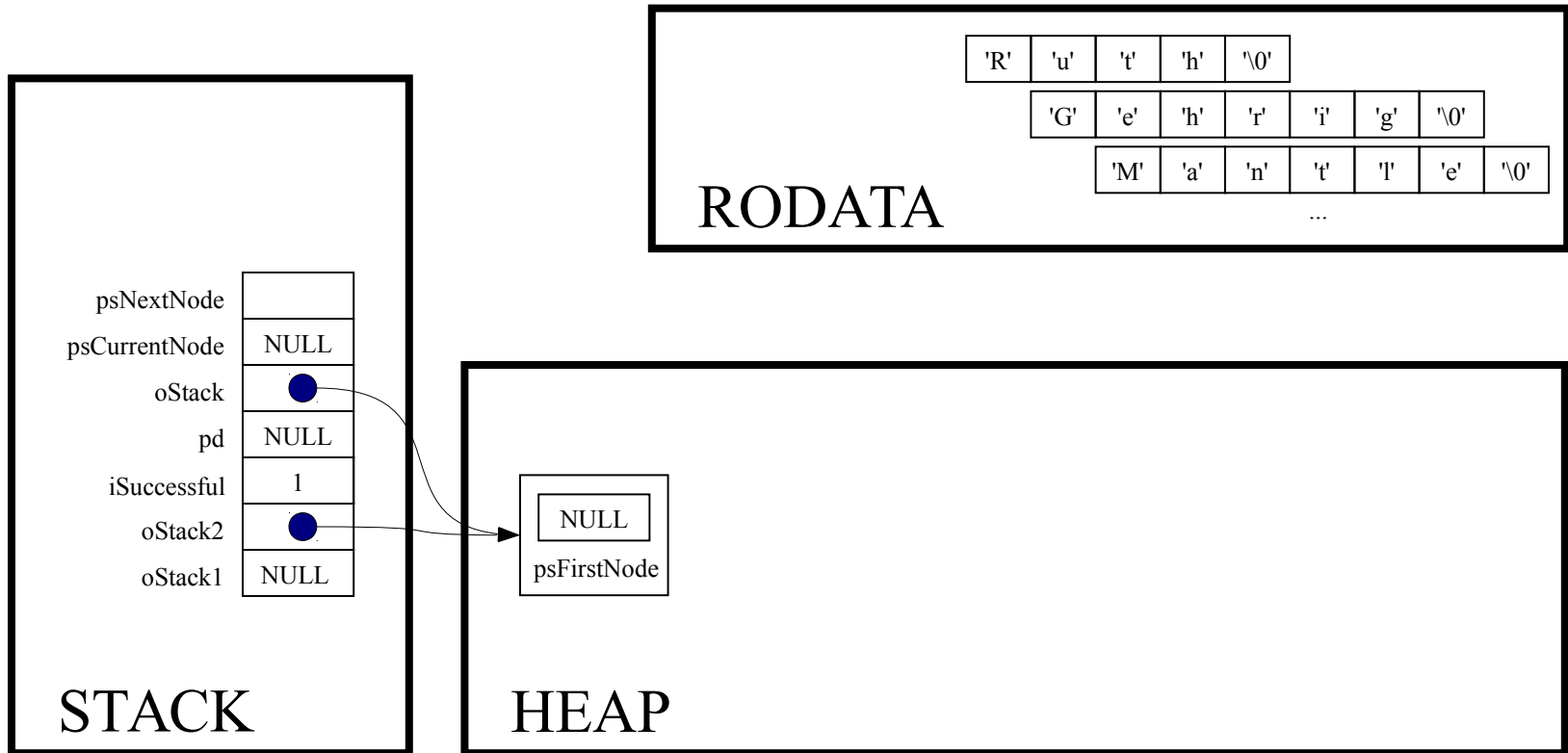
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```
for (psCurrentNode = oStack->psFirstNode;  
    psCurrentNode != NULL;  
    psCurrentNode = psNextNode)
```



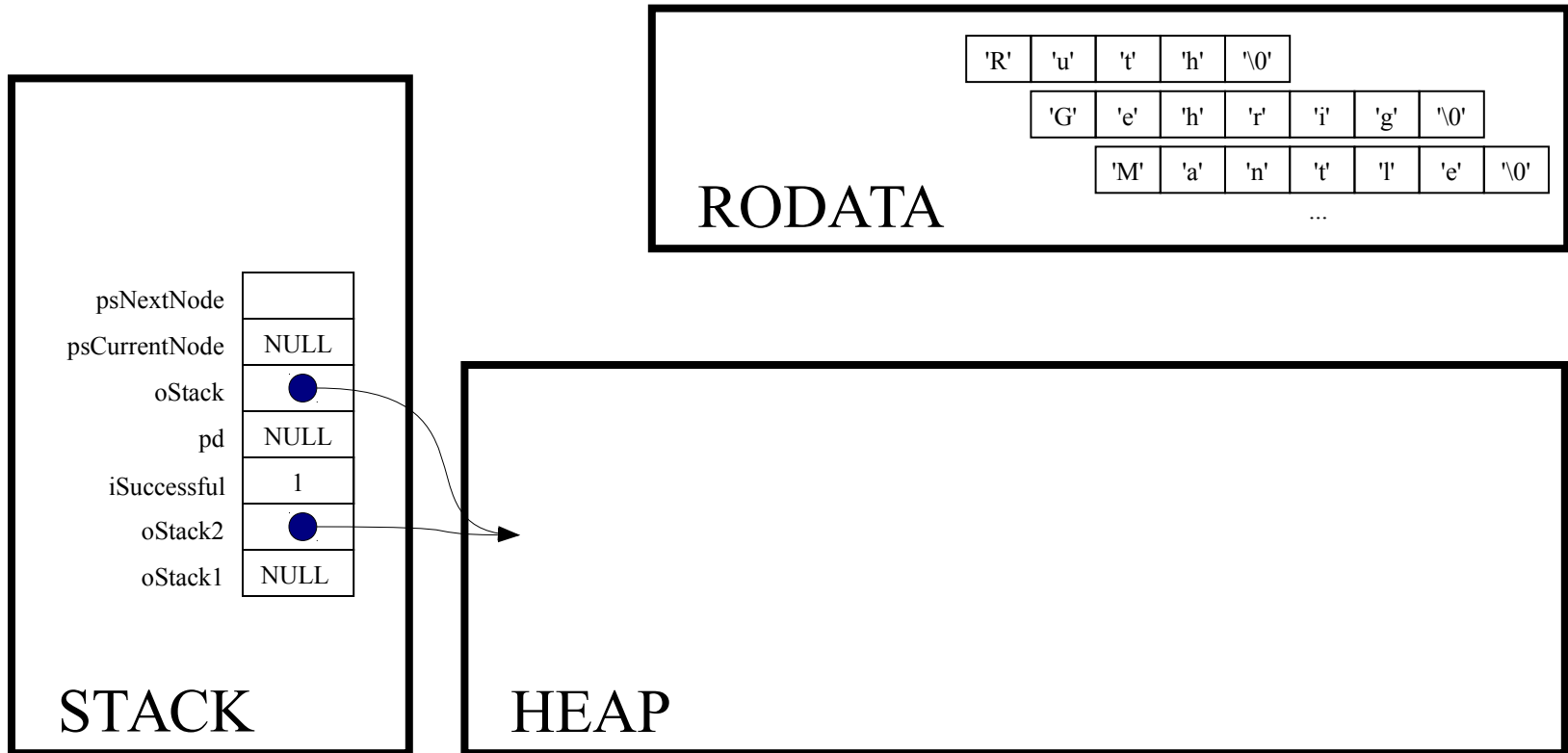
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```
for (psCurrentNode = oStack->psFirstNode;  
    psCurrentNode != NULL;  
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```



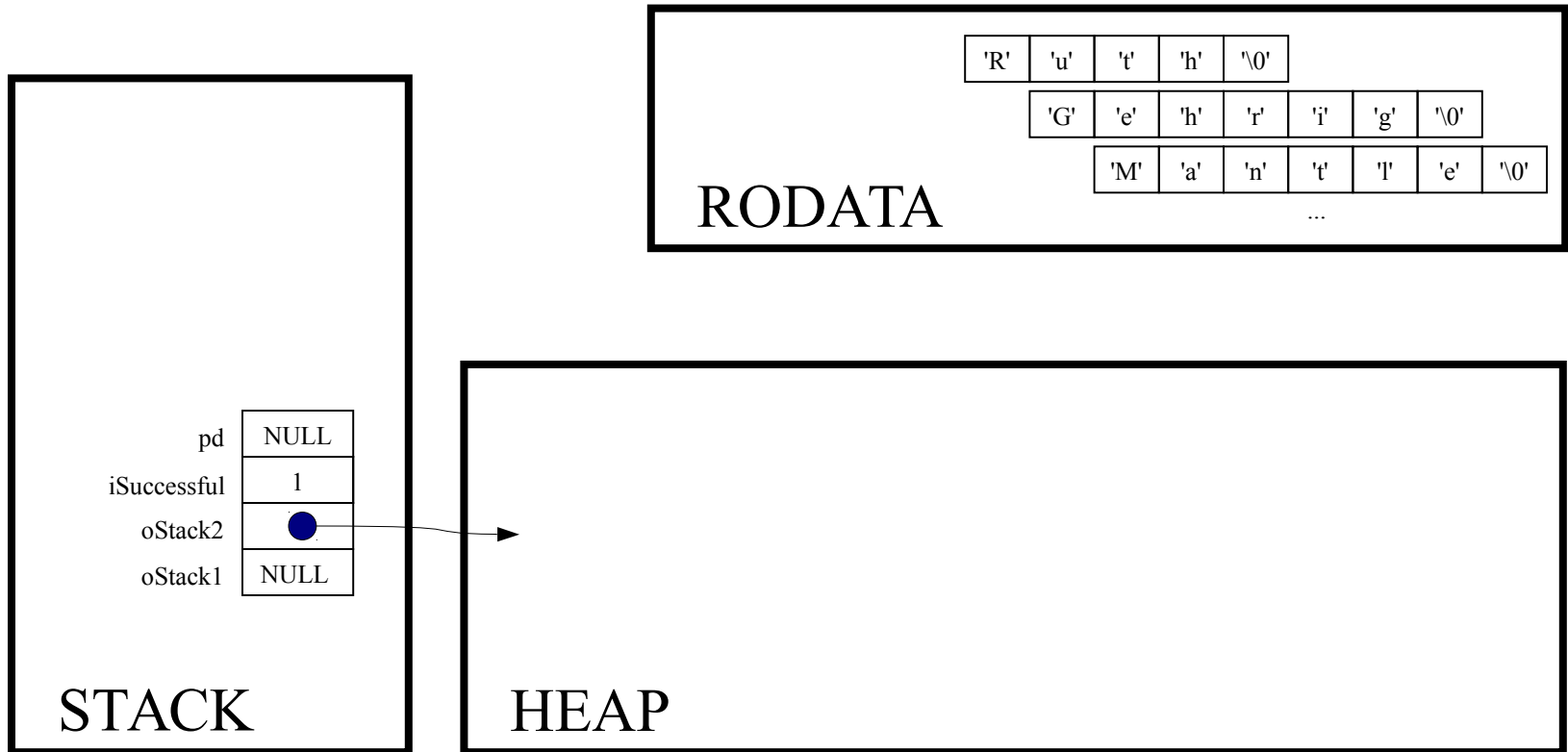
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```
free(oStack);
```



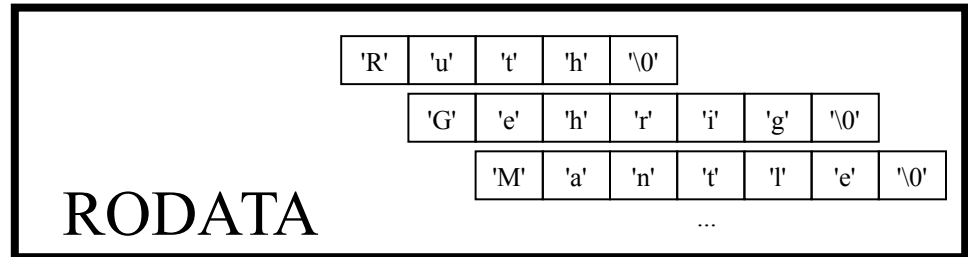
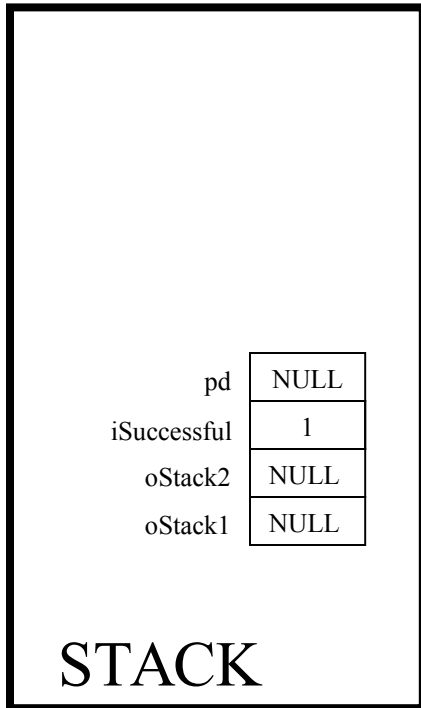
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Implicit return



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```
oStack2 = NULL;
```



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```
return 0;
```

