```
        B                           O             @T

        B     F  G                  O               T  U

        B  C  F  G        K     M  O     Q          T  U  W     Z

     A  B  C  F  G  I  J  K  L  M  O  P  Q  R  S  T  U  W  X  Z
     4  3  1  8  6  7  0  2  9  0  8  4  6  3  5  6  3  4  2  0
```

SkipMap rFind (recursive find) is called with the "top" element (@), which can be any entry in the top list.

It returns the entry in the bottom list with the key, if it is there, or null, if it isn’t.

I will name the methods rFind1, rFind2, rFind3, rFind4. rFind1 is the first call. It calls rFind2 recursively and so forth. They are all actually named rFind, but the numbering will help you understand which call we are talking about (I hope).

```
        B                       O            *T

        B     F  G              O             T  U

        B  C  F  G        K     M  O     Q        T  U  W     Z

     A  B  C  F  G  I  J  K  L  M  O  P  Q  R  S  T  U  W  X  Z
     4  3  1  8  6  7  0  2  9  0  8  4  6  3  5  6  3  4  2  0
```

rFind1(@, K) is called by containsKey or get or put.

```
       *B                          O              T

        B     F  G                 O              T  U

        B  C  F  G        K     M  O     Q        T  U  W     Z

     A  B  C  F  G  I  J  K  L  M  O  P  Q  R  S  T  U  W  X  Z
     4  3  1  8  6  7  0  2  9  0  8  4  6  3  5  6  3  4  2  0
```

rFind1(*, K) first calls find(*, K) on the current list and gets B.

```
        B                       O             T

       *B     F  G              O             T  U

        B  C  F  G        K     M  O     Q        T  U  W     Z

     A  B  C  F  G  I  J  K  L  M  O  P  Q  R  S  T  U  W  X  Z
     4  3  1  8  6  7  0  2  9  0  8  4  6  3  5  6  3  4  2  0
```

rFind1(*, K) then calls rFind2(*, K) recursively on the value (getEntry) of B.

```
        B                       O             T

        B     F  G              *O            T  U

        B  C  F  G        K     M  O     Q        T  U  W     Z

     A  B  C  F  G  I  J  K  L  M  O  P  Q  R  S  T  U  W  X  Z
     4  3  1  8  6  7  0  2  9  0  8  4  6  3  5  6  3  4  2  0
```

rFind2(*, K) (the recursive call) calls find(*, K) and gets O.

```
        B                       O             T

        B     F  G              O             T  U

        B  C  F  G        K     M *O     Q        T  U  W     Z

     A  B  C  F  G  I  J  K  L  M  O  P  Q  R  S  T  U  W  X  Z
     4  3  1  8  6  7  0  2  9  0  8  4  6  3  5  6  3  4  2  0
```

rFind2(*, K) then calls rFind3(*, K) on the value of O.

```
        B                       O             T

        B     F  G              O             T  U

        B  C  F  G       *K     M  O     Q        T  U  W     Z

     A  B  C  F  G  I  J  K  L  M  O  P  Q  R  S  T  U  W  X  Z
     4  3  1  8  6  7  0  2  9  0  8  4  6  3  5  6  3  4  2  0
```

rFind3(*, K) calls find(*, K) and gets K on this level.

```
        B                       O             T

        B     F  G              O             T  U

        B  C  F  G        K     M  O     Q        T  U  W     Z

     A  B  C  F  G  I  J *K  L  M  O  P  Q  R  S  T  U  W  X  Z
     4  3  1  8  6  7  0  2  9  0  8  4  6  3  5  6  3  4  2  0
```

rFind3(*, K) then calls rFind4(*, K) on the value of K.

```
        B                       O             T

        B     F  G              O             T  U

        B  C  F  G        K     M  O     Q        T  U  W     Z

     A  B  C  F  G  I  J *K  L  M  O  P  Q  R  S  T  U  W  X  Z
     4  3  1  8  6  7  0  2  9  0  8  4  6  3  5  6  3  4  2  0
```

rFind4(*, K) calls find4(*, K).

```
        B                       O             T

        B     F  G              O             T  U

        B  C  F  G        K     M  O     Q        T  U  W     Z

     A  B  C  F  G  I  J *K  L  M  O  P  Q  R  S  T  U  W  X  Z
     4  3  1  8  6  7  0  2  9  0  8  4  6  3  5  6  3  4  2  0
```

rFind4(*, K) tests that this entry is not a skip entry (isSkipEntry() is false) so it is on the bottom and that it has the key K.  So it returns it.

If it was on the bottom but had the WRONG key, it would have returned null.

```
        B                       O             T

        B     F  G              O             T  U

        B  C  F  G        K     M  O     Q        T  U  W     Z

     A  B  C  F  G  I  J *K  L  M  O  P  Q  R  S  T  U  W  X  Z
     4  3  1  8  6  7  0  2  9  0  8  4  6  3  5  6  3  4  2  0
```

rFind3 returns the entry returned by its call to rFind4.

```
        B                       O             T

        B     F  G              O             T  U

        B  C  F  G        K     M  O     Q        T  U  W     Z

     A  B  C  F  G  I  J *K  L  M  O  P  Q  R  S  T  U  W  X  Z
     4  3  1  8  6  7  0  2  9  0  8  4  6  3  5  6  3  4  2  0
```

rFind2 returns the entry returned by its call to rFind3.

```
        B                       O             T

        B     F  G              O             T  U

        B  C  F  G        K     M  O     Q        T  U  W     Z

     A  B  C  F  G  I  J *K  L  M  O  P  Q  R  S  T  U  W  X  Z
     4  3  1  8  6  7  0  2  9  0  8  4  6  3  5  6  3  4  2  0
```

rFind1 returns the entry returned by its call to rFind2.