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### [Move mutable reference out of mutable object](#)

[Ask Question](#)

Asked 8 years, 5 months ago

Modified [8 years, 4 months ago](#)

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I have an iterator over an `enum` that has a mutable reference in one of its variants. Now I want to move this reference out `self` and return it. To avoid having two mutable references to the same object at the same time, I want to change the enum variant of `self` to one that does not have the reference. Below is a code example:

```
enum Test<'a> {
    A(&'a mut usize),
    B,
}

impl<'a> Iterator for Test<'a> {
    type Item = &'a mut usize;

    fn next(&mut self) -> Option<Self::Item> {
        match *self {
            Test::A(r) => Some(r), // TODO: return mutable reference and change self to B
            Test::B => None,
        }
    }
}

fn main() {
    let mut v = 1;
    let mut it = Test::A(&mut v);
    it.next();
}
```

The question is related to [Change selector in match when selector is a mutable reference](#), but that solution does not work here.

- [rust](#)

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asked Jul 4, 2017 at 15:43

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I would use a [swap](#):

```
fn next(&mut self) -> Option<Self::Item> {
    if let Test::A(_) = *self {
        let mut to_swap = Test::B;

        std::mem::swap(self, &mut to_swap);
        match to_swap {
            Test::A(r) => Some(r),
            _              => unreachable!(), // never reached
        }
    } else {
        None
    }
}
```

You can use an helper function as follow:

```
impl<'a> Iterator for Test<'a> {
    type Item = &'a mut usize;

    fn next(&mut self) -> Option<Self::Item> {
        if let Test::A(_) = *self {
            let mut to_swap = Test::B;

            std::mem::swap(self, &mut to_swap);
            to_swap.consume_as_a()
        } else {
            None
        }
    }
}

impl<'a> Test<'a> {
    fn consume_as_a(self) -> Option<&'a mut usize> {
        match self {
            Test::A(r) => Some(r),
            _ => None,
        }
    }
}
```

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[edited Jul 12, 2017 at 9:07](#)

answered Jul 4, 2017 at 15:56

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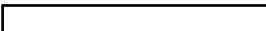
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