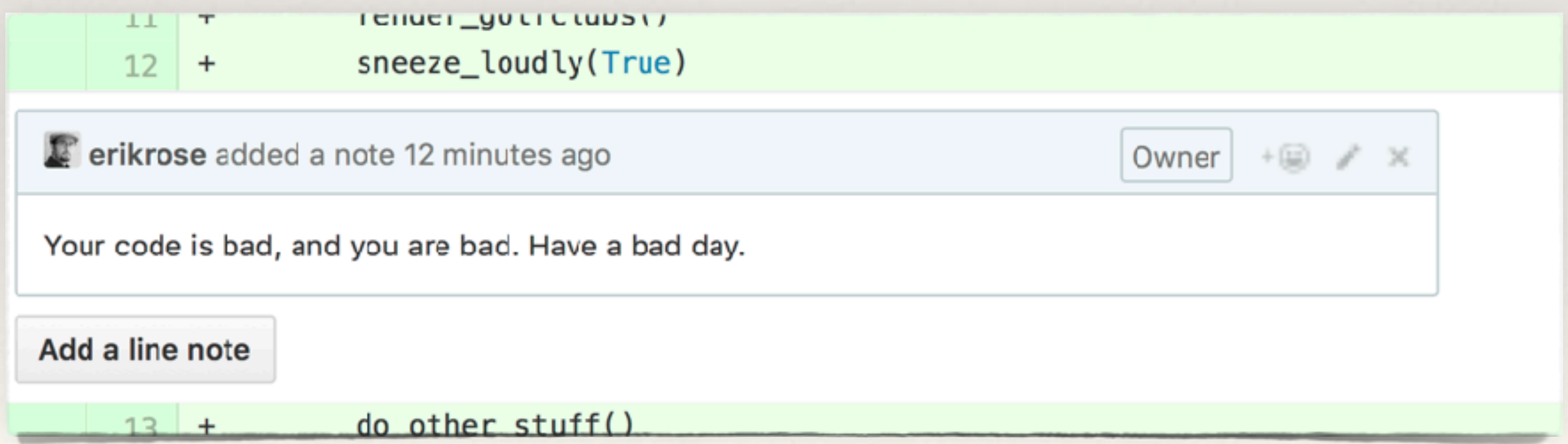
moz://a

erik@mozilla.com • IRC: ErikRose • @ErikRose



moz://a

Constructive Code Review

erik@mozilla.com • IRC: ErikRose • @ErikRose

moz://a

Build an excellent product

Build an excellent product

Build people

Build an excellent product

Build people

Build yourself*

* Assumes you are not a person

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Creative work
is powered by
enthusiasm.

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enthusiasm.

Truth

Nature cannot
be fooled.

Kindness

We are made
of meat.

Clarity of Explanation

```
13  +         do_other_stuff()
14  +
15  +     if thing == 5:
16  +         stir('B')
```

erikrose added a note 18 seconds ago — Owner

This isn’t great.

Add a line note

```
17  +         print "Flibbety jibbet!"
18  +         render_golfclubs()
19  +         sneeze_loudly(True)
20  +         do_other_stuff()
21  +
22  +     if thing == 7:
```

Clarity of Explanation

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13  +         do_other_stuff()
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erikrose added a note 18 seconds ago Owner

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```
13  +         do_other_stuff()
14  +
15  +     if thing == 5:
16  +         stir('B')
```

erikrose added a note 6 minutes ago Owner

If we pass "B" to `stir` here, it will cause a mem leak as we allocate the whatzit, since the two loops of the B will get caught on adjacent gear teeth.

Add a line note

```
17  +         print "Flibbety jibbet!"
18  +         render_golfclubs()
```

Clarity of Explanation

Clarity of Explanation

Code

Clarity of Explanation

Code

Links

Clarity of Explanation

Code

Links

Higher-bandwidth communications

Clarity of Explanation

Code

Links

Higher-bandwidth communications

Write down the result!

Clarity of Expectation

```
1  +def do_stuff(thing):
2  +    if thing == 2:
3  +        print "Flibbety jibbet!"
```

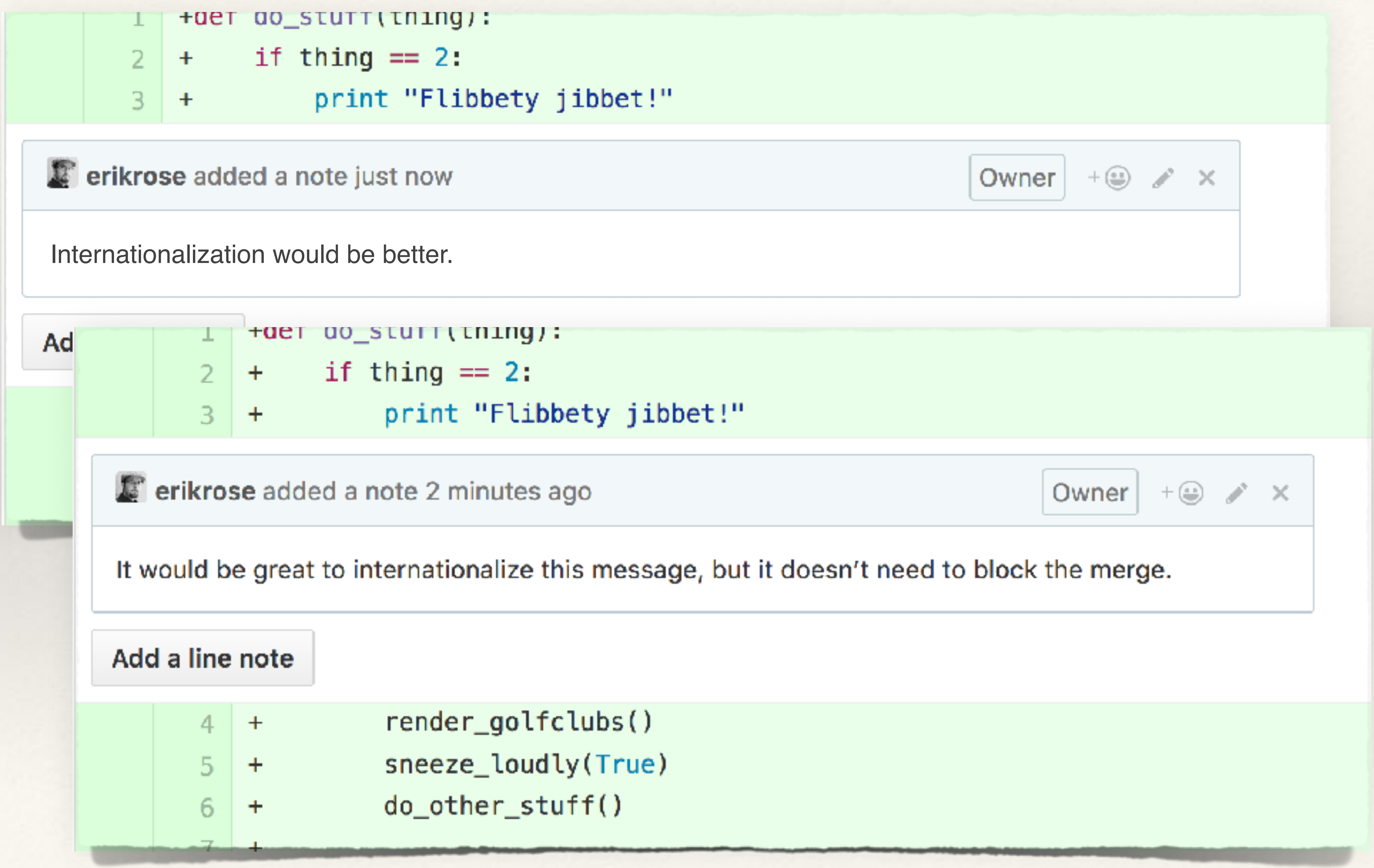
erikrose added a note just now   Owner

Internationalization would be better.

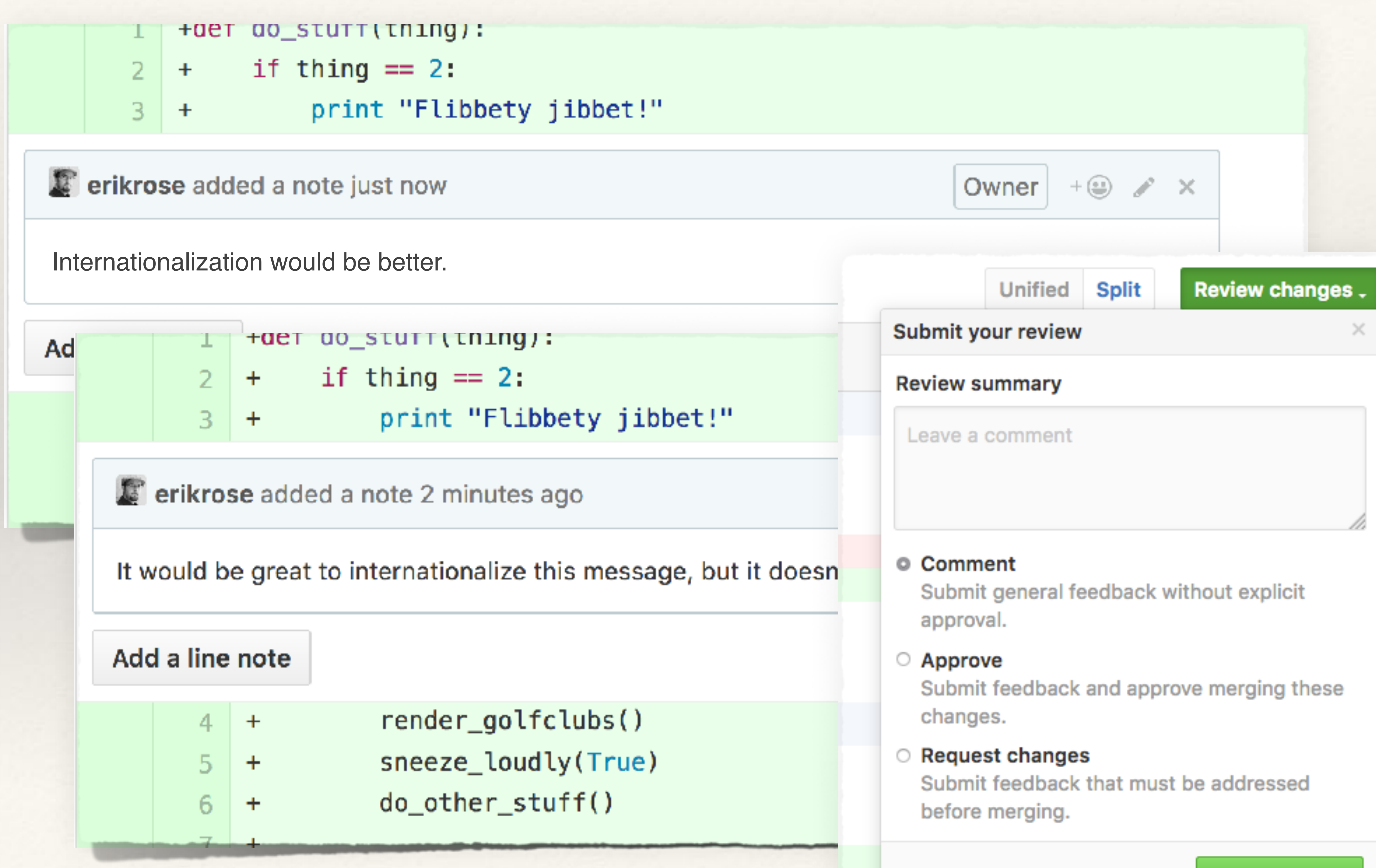
Add a line note

```
4  +        render_golfclubs()
5  +        sneeze_loudly(True)
6  +        do_other_stuff()
```

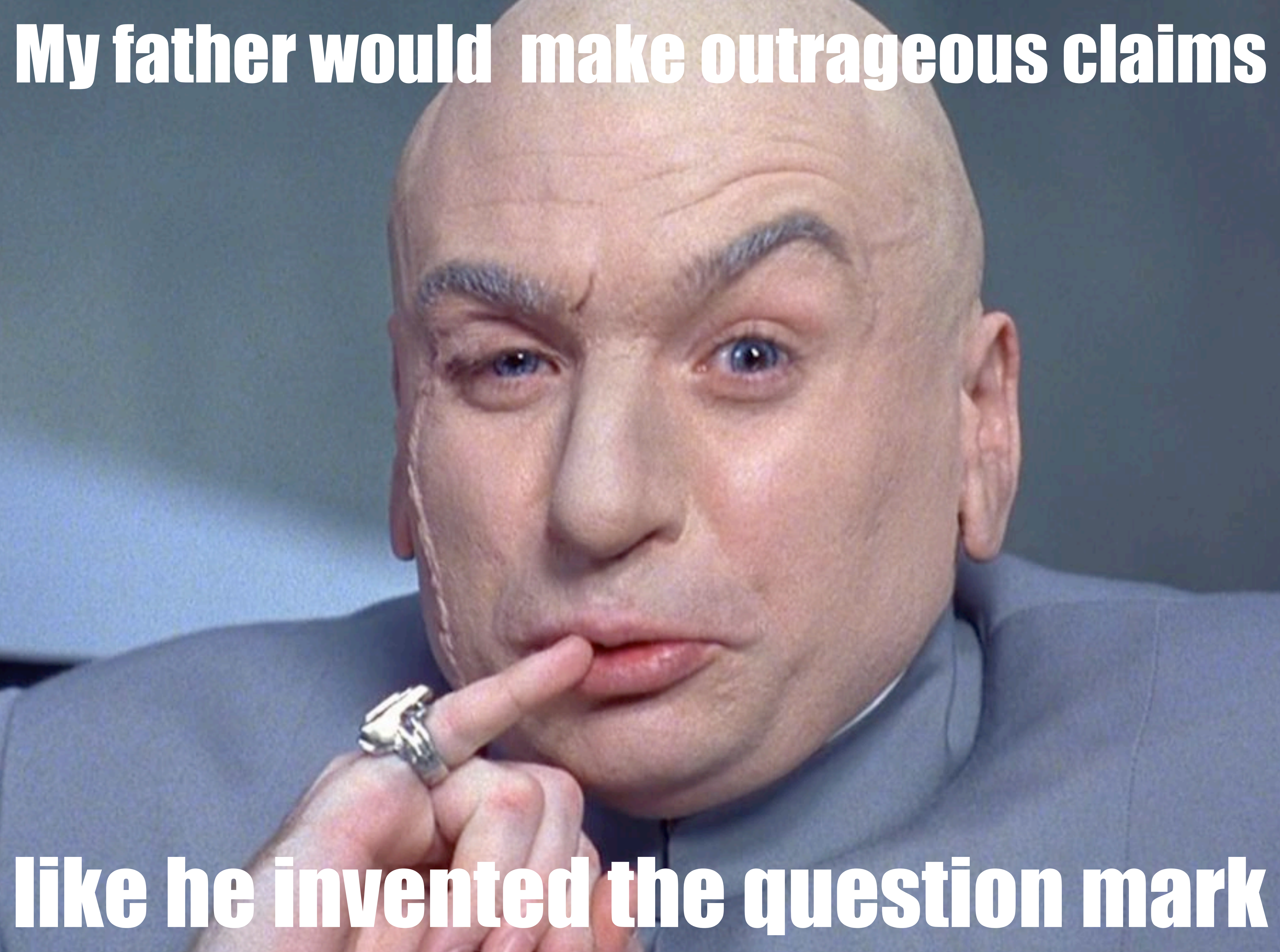
Clarity of Expectation



Clarity of Expectation



Tact Hacks


My father would make outrageous claims
like he invented the question mark

The Question Mark

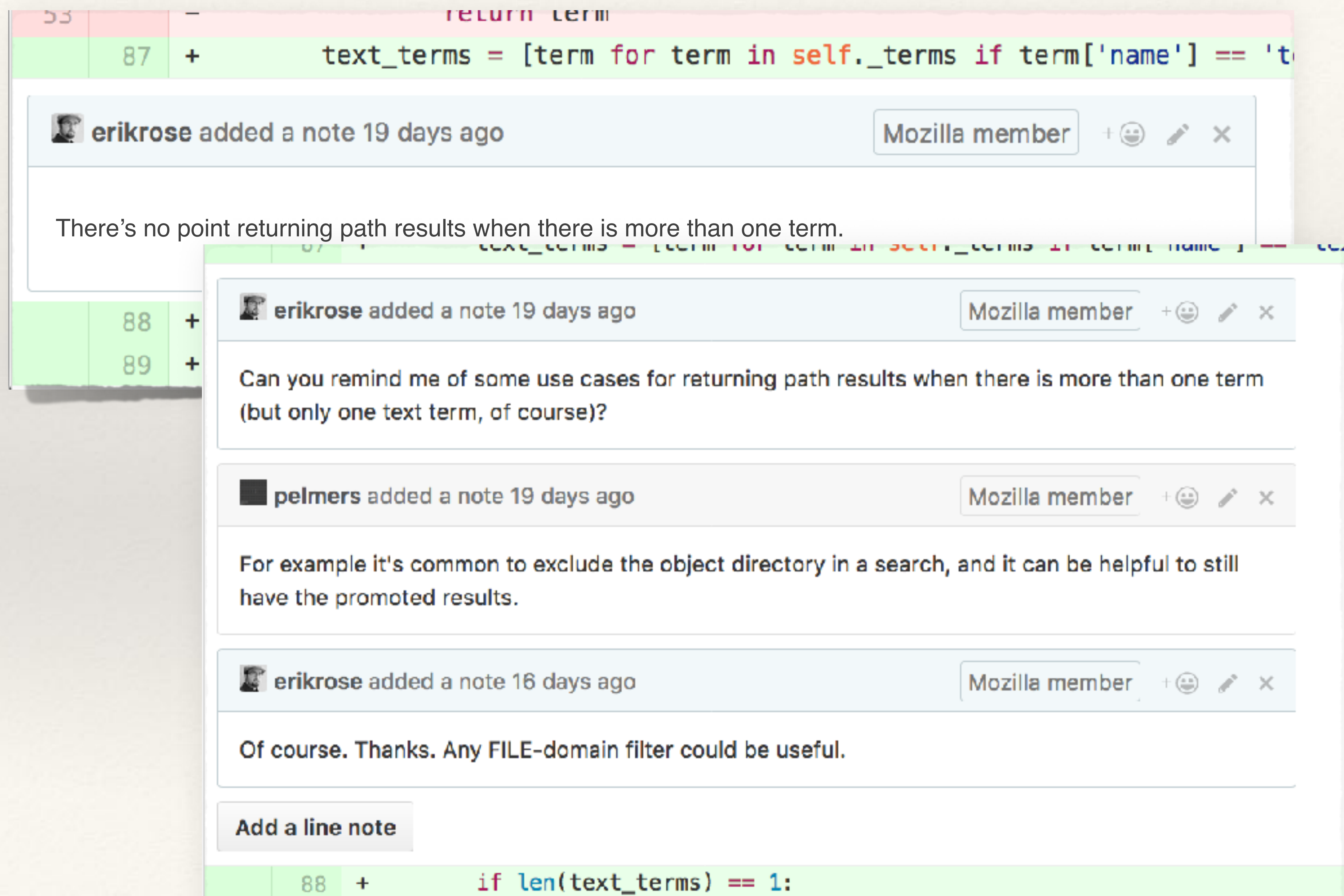
```
53      -                 return term
   87   +         text_terms = [term for term in self._terms if term['name'] == 't
```

erikrose added a note 19 days ago — Mozilla member

There's no point returning path results when there is more than one term.

```
   88   +         if len(text_terms) == 1:
   89   +             return text_terms[0]
```

The Question Mark



You, We, & This

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erikrose added a note 19 days ago   Mozilla member

If you do it this way, you'll break Unicode queries

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erikrose added a note 19 days ago — Mozilla member

This casting will break Unicode queries [as a matter of fact]

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```

Compliments

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```
1  +def do_stuff(thing):
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erikrose added a note just now — Owner

Thank you for refactoring this scary mess!

Add a line note

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Compliments

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Add a line note

```
4  +
5  +
6  +
```

pelmers added a note 19 days ago — Mozilla member

I think this is an off-by-one on the end of the list.

erikrose added a note 16 days ago — Mozilla member

Yikes, nice catch!

Add a line note

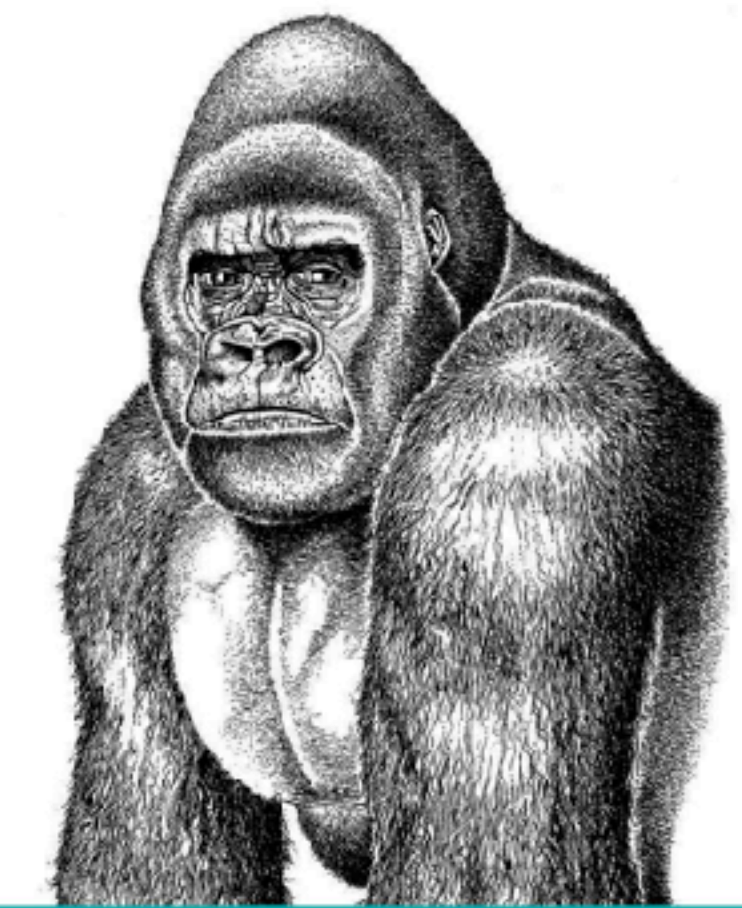
```
88  +        if len(text_terms) == 1:
89  +            return text_terms[0]
```

Humor

Humor

HIDE AND SEEK

I WANT A PONY



┬──┬ ¯_(ツ)

Antipatterns

TL;DR;LGTM

```python
from __future__ import print_function

from collections import Counter, defaultdict, deque
from functools import partial, wraps
from heapq import merge
from itertools import chain, count, groupby, islice, r
from operator import itemgetter
from sys import version_info

from six import binary_type, string_types, text_type
from six.moves import filter, map, zip, zip_longest

from .recipes import flatten, take

__all__ = [
    'adjacent',
    'always_iterable',
    'bucket',
    'chunked',
    'collapse',
    'collate',
    'consumer',
    'distinct_permutations',
    'distribute',
    'divide',
    'first',
    'groupby_transform',
    'ilen',
    'interleave_longest',
    'interleave',
    'intersperse',
    'iterate',
    'one',
    'padded',
    'peekable',
    'side_effect',
    'sliced',
    'sort_together',
    'split_after',
    'split_before',
    'spy',
    'stagger',
    'unique_to_each',
    'windowed',
    'with_iter',
    'zip_offset',
]

_marker = object()


def chunked(iterable, n):
    """Break an iterable into lists of a given length:

        >>> list(chunked([1, 2, 3, 4, 5, 6, 7], 3))
        [[1, 2, 3], [4, 5, 6], [7]]

    If the length of ``iterable`` is not evenly divisi
    returned list will be shorter.

    This is useful for splitting up a computation on a
    into batches, to be pickled and sent off to worker
    is operations on rows in MySQL, which does not imp
    cursors properly and would otherwise load the enti
    the client.

    """
    return iter(partial(take, n, iter(iterable)), [])


def first(iterable, default=_marker):
    """Return the first item of an iterable, ``default

        >>> first([0, 1, 2, 3])
        0
        >>> first([], 'some default')
        'some default'

    If ``default`` is not provided and there are no it
    raise ``ValueError``.

    ``first()`` is useful when you have a generator of
    values and want any arbitrary one. It is marginall
    ``next(iter(...), default)``.

    """
    try:
        return next(iter(iterable))
    except StopIteration:
        # I'm on the edge about raising ValueError ins
        # the moment, ValueError wins, because the cal
        # want to do something different with flow cor
        # exception, and it's weird to explicitly catc
        if default is _marker:
            raise ValueError('first() was called on an
                             'default value was provic
        return default


class peekable(object):
    """Wrap an iterator to allow lookahead and prepend

    Call ``peek()`` on the result to get the value tha
    ``next()``, without advancing the iterator:

        >>> p = peekable(['a', 'b'])
        >>> p.peek()
        'a'
        >>> next(p)
```

```python
class peekable(object):
    """Wrap an iterator to allow lookahead and prepending elements.

    Call ``peek()`` on the result to get the value that will next pop out of
    ``next()``, without advancing the iterator:

        >>> p = peekable(['a', 'b'])
        >>> p.peek()
        'a'
        >>> next(p)
        'a'

    Pass ``peek()`` a default value to
    ``StopIteration`` when the iterato

        >>> p = peekable([])
        >>> p.peek('hi')
        'hi'

    peekables also offer a ``prepend()
    the remaining part of the underlyi

        >>> p = peekable([1, 2, 3])
        >>> p.prepend(10, 11, 12)
        >>> next(p)
        10
        >>> p.peek()
        11
        >>> list(p)
        [11, 12, 1, 2, 3]

    Prepended items are treated by oth
    had come from the source iterator.

    You may index the peekable to look
    The values up to the index you spe
    Index 0 is the item that will be r
    item after that, and so on:

        >>> p = peekable(['a', 'b', 'c
        >>> p[0]
        'a'
        >>> p[1]
        'b'
        >>> next(p)
        'a'
        >>> p.prepend('x')
        >>> p[1]
        'b'
        >>> next(p)
        'x'
        >>> next(p)
        'b'

    Negative indexes are supported, bu
    remaining items in the source iter
    storage.

    To test whether there are more ite
    peekable's truth value. If it is t
    have been prepended or obtained fr

        >>> assert peekable([1])
        >>> p = peekable([])
        >>> assert not p
        >>> p.prepend(1)
        >>> assert p

    """
    def __init__(self, iterable):
        self._it = iter(iterable)
        self._cache = deque()

    def __iter__(self):
        return self

    def __bool__(self):
        try:
            self.peek()
        except StopIteration:
            return False
        return True

    def __nonzero__(self):
        # For Python 2 compatibility
        return self.__bool__()

    def peek(self, default=_marker):
        """Return the item that will b

        Return ``default`` if there ar
        provided, raise ``StopIteratio

        """
        if not self._cache:
            try:
                self._cache.append(nex
            except StopIteration:
                if default is _marker:
                    raise
                return default
        return self._cache[0]

    def prepend(self, *items):
        """Stack up items to be the ne
        ``self.peek()``. The items wil
        first in, first out order::

            >>> p = peekable([1, 2, 3]
            >>> p.prepend(10, 11, 12)
            >>> next(p)
            10
```

```python
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        self._it = iter(iterable)
        self._cache = deque()

    def __iter__(self):
        return self

    def __bool__(self):
        try:
            self.peek()
        except StopIteration:
            return False
        return True

    def __nonzero__(self):
        # For Python 2 compatibility
        return self.__bool__()

    def peek(self, default=_marker):
        """Return the item that will be next returned from ``next()``

        Return ``default`` if there are no items left. If ``default``
        provided, raise ``StopIteration``.

        """
        if not self._cache:
            try:
                self._cache.append(next(self._it))
            except StopIteration:
                if default is _marker:
                    raise
                return default
        return self._cache[0]

    def prepend(self, *items):
        """Stack up items to be the next ones returned from ``next()``
        ``self.peek()``. The items will be returned in
        first in, first out order::

            >>> p = peekable([1, 2, 3])
            >>> p.prepend(10, 11, 12)
            >>> next(p)
            10
            >>> list(p)
            [11, 12, 1, 2, 3]

        It is possible, by prepending items, to "resurrect" a peekabl
        previously raised ``StopIteration``.

            >>> p = peekable([])
            >>> next(p)
            Traceback (most recent call last):
              ...
            StopIteration
            >>> p.prepend(1)
            >>> next(p)
            1
            >>> next(p)
            Traceback (most recent call last):
              ...
            StopIteration

        """
        self._cache.extendleft(reversed(items))

    def __next__(self):
        if self._cache:
            return self._cache.popleft()

        return next(self._it)

    def next(self):
        # For Python 2 compatibility
        return self.__next__()

    def _get_slice(self, index):
        start = index.start
        stop = index.stop

        if (
            ((start is not None) and (start < 0)) or
            ((stop is not None) and (stop < 0))
        ):
            stop = None
        elif (
            (start is not None) and (stop is not None) and (start > s
        ):
            stop = start + 1

        cache_len = len(self._cache)
        if stop is None:
            self._cache.extend(self._it)
        elif stop >= cache_len:
            self._cache.extend(islice(self._it, stop - cache_len))

        return list(self._cache)[index]

    def __getitem__(self, index):
        if isinstance(index, slice):
            return self._get_slice(index)

        cache_len = len(self._cache)
        if index < 0:
```

```python
def _collate(*iterables, **kwargs):
    """Helper for ``collate()``, called when the user is using the ``reverse``
    or ``key`` keyword arguments on Python versions below 3.5.

    """
    key = kwargs.pop('key', lambda a: a)
    reverse = kwargs.pop('reverse', False)

    min_or_max = partial(max if reverse else min, key=lambda a_b: a_b[0])
    peekables = [peekable(it) for it in iterables]
    peekables = [p for p in peekables if p]  # Kill empties.
    while peekables:
        _, p = min_or_max((key(p.peek()), p) for p in peekables)
        yield next(p)
        peekables = [x for x in peekables if x]


def collate(*iterables, **kwargs):
    """Return a sorted merge of the items from each of several already-sorted
    ``iterables``.

        >>> list(collate('ACDZ', 'AZ', 'JKL'))
        ['A', 'A', 'C', 'D', 'J', 'K', 'L', 'Z', 'Z']

    Works lazily, keeping only the next value from each iterable in memory. Use
    ``collate()`` to, for example, perform a n-way mergesort of items that
    don't fit in memory.

    :arg key: A function that returns a comparison value for an item. Defaults
        to the identity function.
    :arg reverse: If ``reverse=True``, yield results in descending order
        rather than ascending. ``iterables`` must also yield their elements in
        descending order.

    If the elements of the passed-in iterables are out of order, you might get
    unexpected results.

    If neither of the keyword arguments are specified, this function delegates
    to ``heapq.merge()``.

    """
    if not kwargs:
        return merge(*iterables)

    return _collate(*iterables, **kwargs)


# If using Python version 3.5 or greater, heapq.merge() will be faster than
# collate - use that instead.
if version_info >= (3, 5, 0):
    collate = merge


def consumer(func):
    """Decorator that automatically advances a PEP-342-style "reverse iterator"
    to its first yield point so you don't have to call ``next()`` on it
    manually.

        >>> @consumer
        ... def tally():
        ...     i = 0
        ...     while True:
        ...         print('Thing number %s is %s.' % (i, (yield)))
        ...         i += 1
        ...
        >>> t = tally()
        >>> t.send('red')
        Thing number 0 is red.
        >>> t.send('fish')
        Thing number 1 is fish.

    Without the decorator, you would have to call ``next(t)`` before
    ``t.send()`` could be used.

    """
    @wraps(func)
    def wrapper(*args, **kwargs):
        gen = func(*args, **kwargs)
        next(gen)
        return gen
    return wrapper


def ilen(iterable):
    """Return the number of items in ``iterable``.

        >>> ilen(x for x in range(1000000) if x % 3 == 0)
        333334

    This consumes the iterable, so handle with care.

    """
    d = deque(enumerate(iterable, 1), maxlen=1)
    return d[0][0] if d else 0


def iterate(func, start):
    """Return ``start``, ``func(start)``, ``func(func(start))``, ...

        >>> from itertools import islice
        >>> list(islice(iterate(lambda x: 2*x, 1), 10))
        [1, 2, 4, 8, 16, 32, 64, 128, 256, 512]

    """
    while True:
        yield start
        start = func(start)


def with_iter(context_manager):
```

TL;DR;LGTM

```
from __future__ import print_function

from collections import Counter, defaultdict, deque
from functools import partial, wraps
from heapq import merge
from itertools import chain, count, groupby, islice, r
from operator import itemgetter
from sys import version_info

from six import binary_type, string_types, text_type
from six.moves import filter, map, zip, zip_longest

from .recipes import flatten, take

__all__ = [
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    'divide',
    'first',
    'groupby_transform',
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    'interleave',
    'intersperse',
    'iterate',
    'one',
    'padded',
    'peekable',
    'side_effect',
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    'sort_together',
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_marker = object()


def chunked(iterable, n):
    """Break an iterable into lists of a given length:

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        [[1, 2, 3], [4, 5, 6], [7]]

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    return iter(partial(take, n, iter(iterable)), [])


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    """Return the first item of an iterable, ``default

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    If ``default`` is not provided and there are no it
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        'a'
        >>> p[1]
        'b'
        >>> next(p)
        'a'
        >>> p.prepend('x')
        >>> p[1]
        'b'
        >>> next(p)
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        >>> p = peekable([])
        >>> assert not p
        >>> p.prepend(1)
        >>> assert p

    """
    def __init__(self, iterable):
        self._it = iter(iterable)
        self._cache = deque()

    def __iter__(self):
        return self

    def __bool__(self):
        try:
            self.peek()
        except StopIteration:
            return False
        return True

    def __nonzero__(self):
        # For Python 2 compatibility
        return self.__bool__()

    def peek(self, default=_marker):
        """Return the item that will b

        Return ``default`` if there ar
        provided, raise ``StopIteratic

        """
        if not self._cache:
            try:
                self._cache.append(nex
            except StopIteration:
                if default is _marker:
                    raise
                return default
        return self._cache[0]

    def prepend(self, *items):
        """Stack up items to be the ne
        ``self.peek()``. The items wil
        first in, first out order::

            >>> p = peekable([1, 2, 3]
            >>> p.prepend(10, 11, 12)
            >>> next(p)
            10
```

```
    def __init__(self, iterable):
        self._it = iter(iterable)
        self._cache = deque()

    def __iter__(self):
        return self

    def __bool__(self):
        try:
            self.peek()
        except StopIteration:
            return False
        return True

    def __nonzero__(self):
        # For Python 2 compatibility
        return self.__bool__()

    def peek(self, default=_marker):
        """Return the item that will be next returned from ``next()``

        Return ``default`` if there are no items left. If ``default``
        provided, raise ``StopIteration``.

        """
        if not self._cache:
            try:
                self._cache.append(next(self._it))
            except StopIteration:
                if default is _marker:
                    raise
                return default
        return self._cache[0]

    def prepend(self, *items):
        """Stack up items to be the next ones returned from ``next()``
        ``self.peek()``. The items will be returned in
        first in, first out order::

            >>> p = peekable([1, 2, 3])
            >>> p.prepend(10, 11, 12)
            >>> next(p)
            10
            >>> list(p)
            [11, 12, 1, 2, 3]

        It is possible, by prepending items, to "resurrect" a peekabl
        previously raised ``StopIteration``.

            >>> p = peekable([])
            >>> next(p)
            Traceback (most recent call last):
              ...
            StopIteration
            >>> p.prepend(1)
            >>> next(p)
            1
            >>> next(p)
            Traceback (most recent call last):
              ...
            StopIteration

        """
        self._cache.extendleft(reversed(items))

    def __next__(self):
        if self._cache:
            return self._cache.popleft()

        return next(self._it)

    def next(self):
        # For Python 2 compatibility
        return self.__next__()

    def _get_slice(self, index):
        start = index.start
        stop = index.stop

        if (
            ((start is not None) and (start < 0)) or
            ((stop is not None) and (stop < 0))
        ):
            stop = None
        elif (
            (start is not None) and (stop is not None) and (start > s
        ):
            stop = start + 1

        cache_len = len(self._cache)
        if stop is None:
            self._cache.extend(self._it)
        elif stop >= cache_len:
            self._cache.extend(islice(self._it, stop - cache_len))

        return list(self._cache)[index]

    def __getitem__(self, index):
        if isinstance(index, slice):
            return self._get_slice(index)

        cache_len = len(self._cache)
        if index < 0:
```

```
def _collate(*iterables, **kwargs):
    """Helper for ``collate()``, called when the user is using the ``reverse``
    or ``key`` keyword arguments on Python versions below 3.5.

    """
    key = kwargs.pop('key', lambda a: a)
    reverse = kwargs.pop('reverse', False)

    min_or_max = partial(max if reverse else min, key=lambda a_b: a_b[0])
    peekables = [peekable(it) for it in iterables]
    peekables = [p for p in peekables if p]  # Kill empties.
    while peekables:
        _, p = min_or_max((key(p.peek()), p) for p in peekables)
        yield next(p)
        peekables = [x for x in peekables if x]


def collate(*iterables, **kwargs):
    """Return a sorted merge of the items from each of several already-sorted
    ``iterables``.

        >>> list(collate('ACDZ', 'AZ', 'JKL'))
        ['A', 'A', 'C', 'D', 'J', 'K', 'L', 'Z', 'Z']

    Works lazily, keeping only the next value from each iterable in memory. Use
    ``collate()`` to, for example, perform a n-way mergesort of items that
    don't fit in memory.

    :arg key: A function that returns a comparison value for an item. Defaults
        to the identity function.
    :arg reverse: If ``reverse=True``, yield results in descending order
        rather than ascending. ``iterables`` must also yield their elements in
        descending order.

    If the elements of the passed-in iterables are out of order, you might get
    unexpected results.

    If neither of the keyword arguments are specified, this function delegates
    to ``heapq.merge()``.

    """
    if not kwargs:
        return merge(*iterables)

    return _collate(*iterables, **kwargs)


# If using Python version 3.5 or greater, heapq.merge() will be faster than
# collate - use that instead.
if version_info >= (3, 5, 0):
    collate = merge


def consumer(func):
    """Decorator that automatically advances a PEP-342-style "reverse iterator"
    to its first yield point so you don't have to call ``next()`` on it
    manually.

        >>> @consumer
        ... def tally():
        ...     i = 0
        ...     while True:
        ...         print('Thing number %s is %s.' % (i, (yield)))
        ...         i += 1
        ...
        >>> t = tally()
        >>> t.send('red')
        Thing number 0 is red.
        >>> t.send('fish')
        Thing number 1 is fish.

    Without the decorator, you would have to call ``next(t)`` before
    ``t.send()`` could be used.

    """
    @wraps(func)
    def wrapper(*args, **kwargs):
        gen = func(*args, **kwargs)
        next(gen)
        return gen
    return wrapper


def ilen(iterable):
    """Return the number of items in ``iterable``.

        >>> ilen(x for x in range(1000000) if x % 3 == 0)
        333334

    This consumes the iterable, so handle with care.

    """
    d = deque(enumerate(iterable, 1), maxlen=1)
    return d[0][0] if d else 0


def iterate(func, start):
    """Return ``start``, ``func(start)``, ``func(func(start))``, ...

        >>> from itertools import islice
        >>> list(islice(iterate(lambda x: 2*x, 1), 10))
        [1, 2, 4, 8, 16, 32, 64, 128, 256, 512]

    """
    while True:
        yield start
        start = func(start)


def with_iter(context_manager):
```

LGTM!
:-D

TL;DR;LGTM

TL;DR;LGTM

prose overview of patch

TL;DR;LGTM

prose overview of patch

long commit messages

TL;DR;LGTM

prose overview of patch

long commit messages

small commits

TL;DR;LGTM

prose overview of patch

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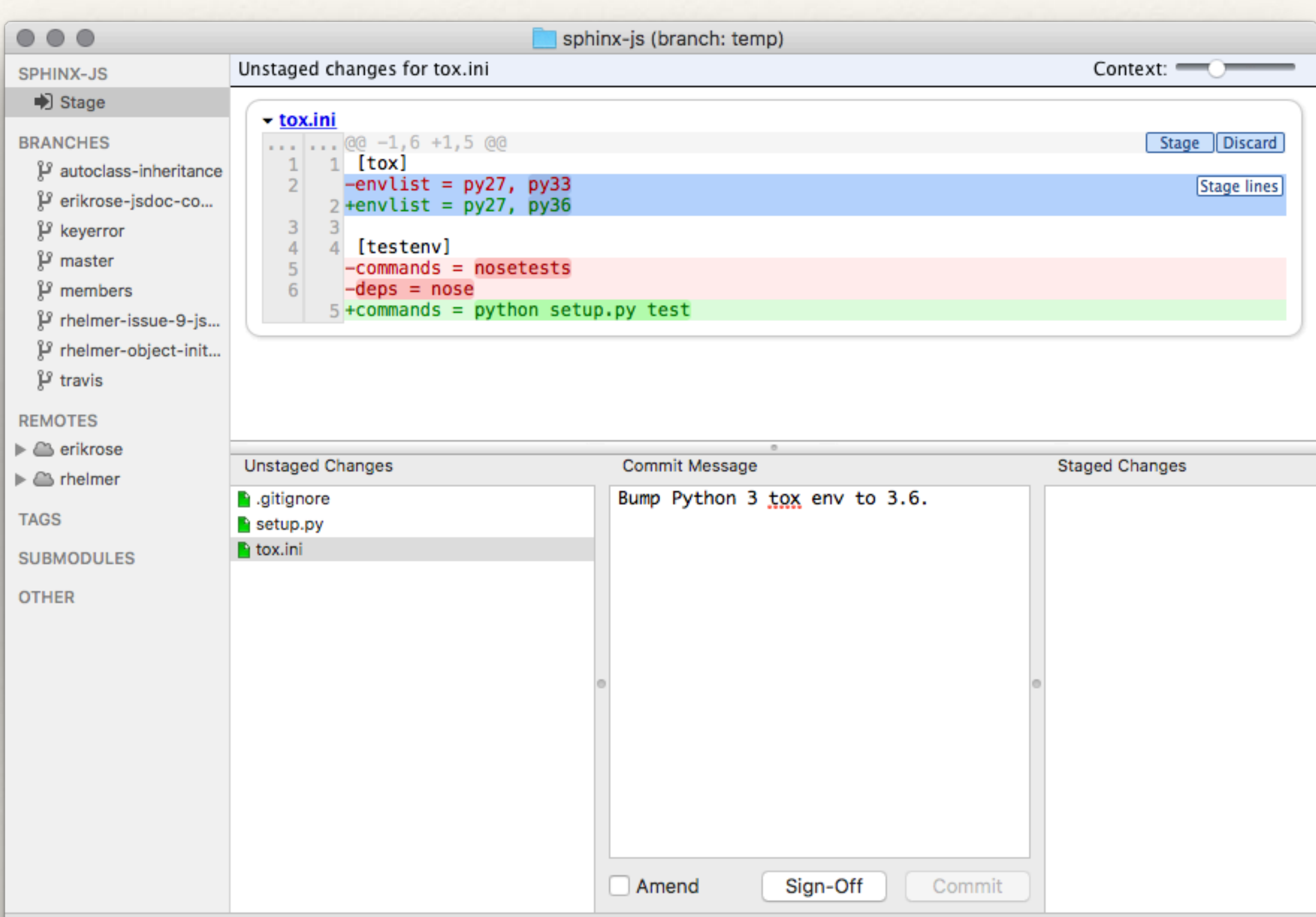
small commits

comments, docstrings, naming

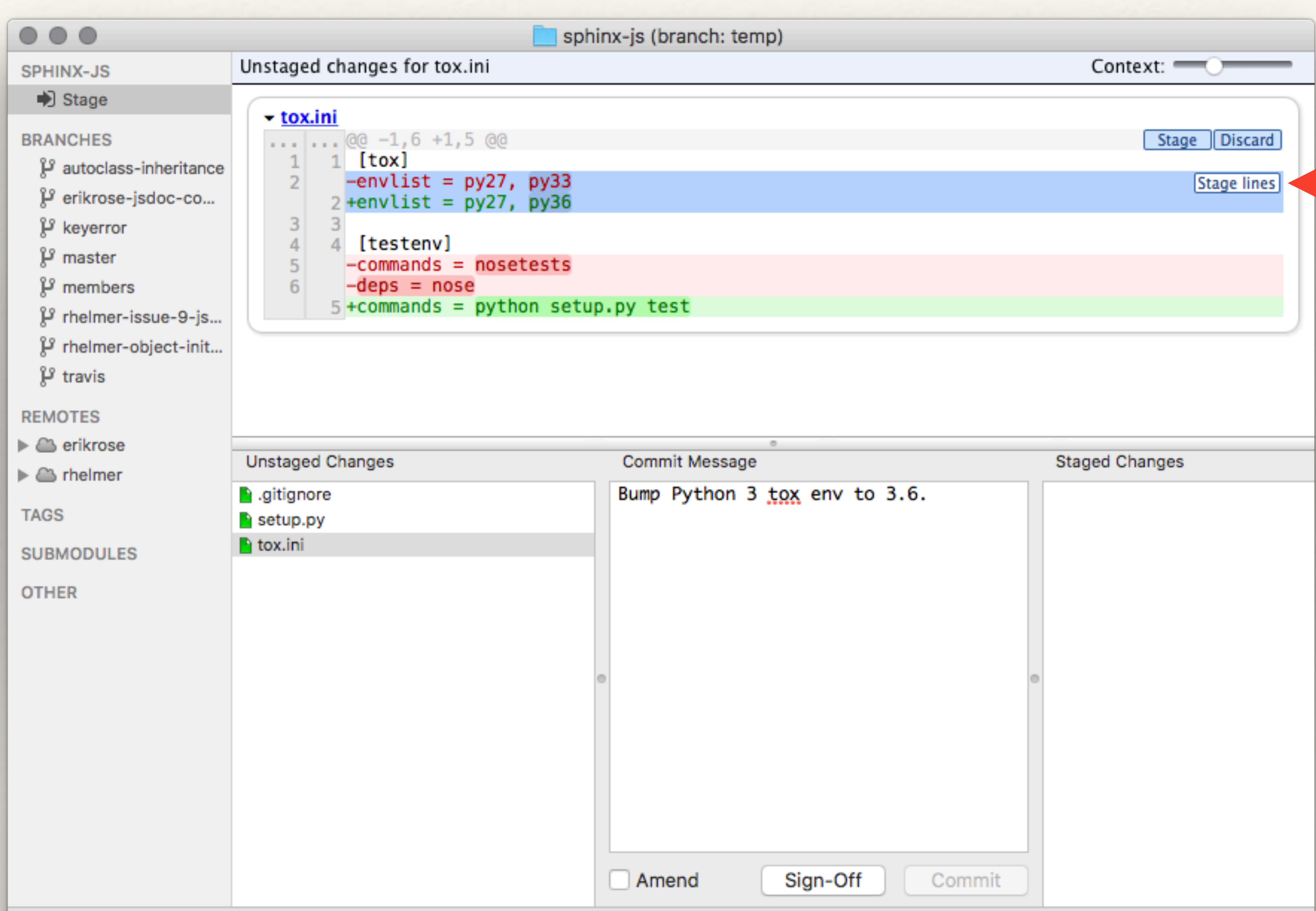
TL;DR:LGTM

GitX



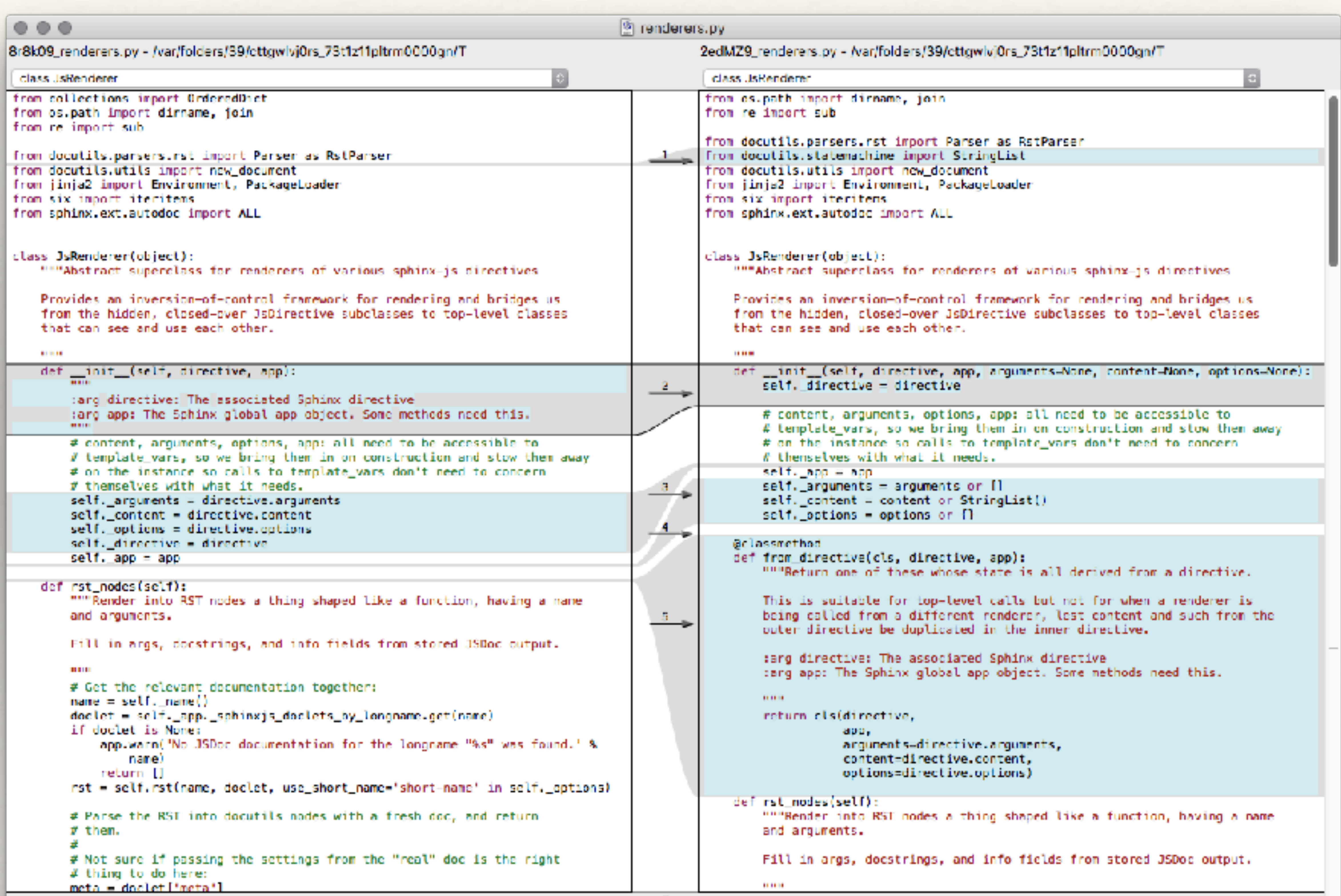
TL;DR:LGTM

GitX



TL;DR;LGTM

FileMerge



Nitpicks

```
print 'Hello'
```

Nitpicks

Lowercase please.

Should we be using the Python-3-style parentheses via import future?

```
print 'Hello'
```

If we use a logging framework, we have the advantage of levels.

Too intimate a greeting, I think

i18n?

Nitpicks

```
# Group lines into files:
for path, lines in groupby(results, lambda r: r['path'][0]):  # noqa: E234
    lines = list(lines)
    highlit_path = highlight(  # noqa: E234
        path,
        chain.from_iterable((h(lines[0]) for h in  # noqa: E123
                           path_highlighters)))
    here_is_some_new(code, that.is_ridiculously_longer_than(the_surrounding_code)).and_thus(really).distracting("isn't it?")
    icon_for_path = icon(path)
    yield (icon_for_path,
           highlit_path,
           [(line['number'][0],
             highlight(line['content'][0].rstrip('\n\r'),
                       chain.from_iterable(h(line) for h in
                                           contentHighlighters)))
            for line in lines])
print 'Hello'
```

Nitpicks

Should be aligned with “h” above

Line too long

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PEP 8, PEP 257, Pocoo style guide, Sphinx

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            for line in lines])
print 'Hello'
```

PEP 8, PEP 257, Pocoo style guide, Sphinx
flake8

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            for line in lines])
print 'Hello'
```

PEP 8, PEP 257, Pocoo style guide, Sphinx
flake8

While you're at it…

While you're at it…

HaHaOnlySerious

While you're at it…

~~HaHaOnlySerious~~

While you're at it…

HaHa~~OnlySerious~~

GettingBetter

While you're at it...

HaHa~~OnlySerious~~

GettingBetter

~~BeingPerfect~~

Slow Turnarounds

Slow Turnarounds

Energizing

Slow Turnarounds

Energizing

Comprehensiveness not required.

Slow Turnarounds

Energizing

Comprehensiveness not required.

Respect working memory.

Slow Turnarounds

Energizing

Comprehensiveness not required.

Respect working memory.

Quick “no”s

Those Pesky Human Emotions

Insecurity

Insecurity

Insecurity == fear.

Insecurity

Insecurity == fear.

Everybody is wrapped up in themselves.

Insecurity

Insecurity == fear.

Everybody is wrapped up in themselves.

When someone corrects you,
that means you just got smarter.

Insecurity

Insecurity == fear.

Everybody is wrapped up in themselves.

When someone corrects you,
that means you just got smarter.

What are you so afraid of?
What’s the worst that can happen?

Feeling Short on Time

Feeling Short on Time

Lower standards.

Feeling Short on Time

Lower standards.

Never sleep.

Feeling Short on Time

Lower standards.

Never sleep.

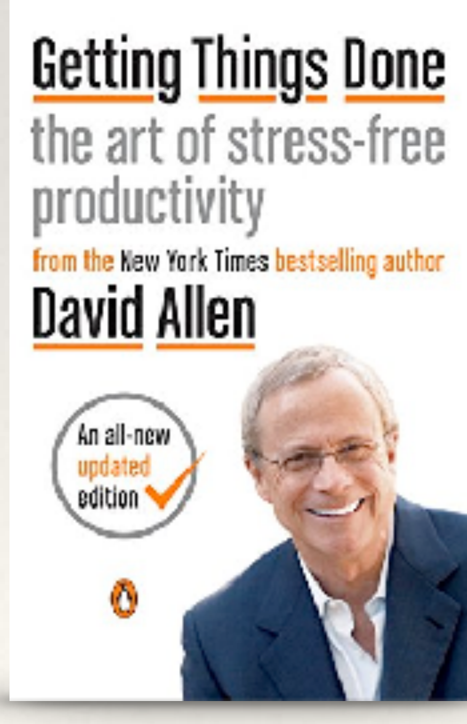
Or pace, prioritize, and peace.

Feeling Short on Time

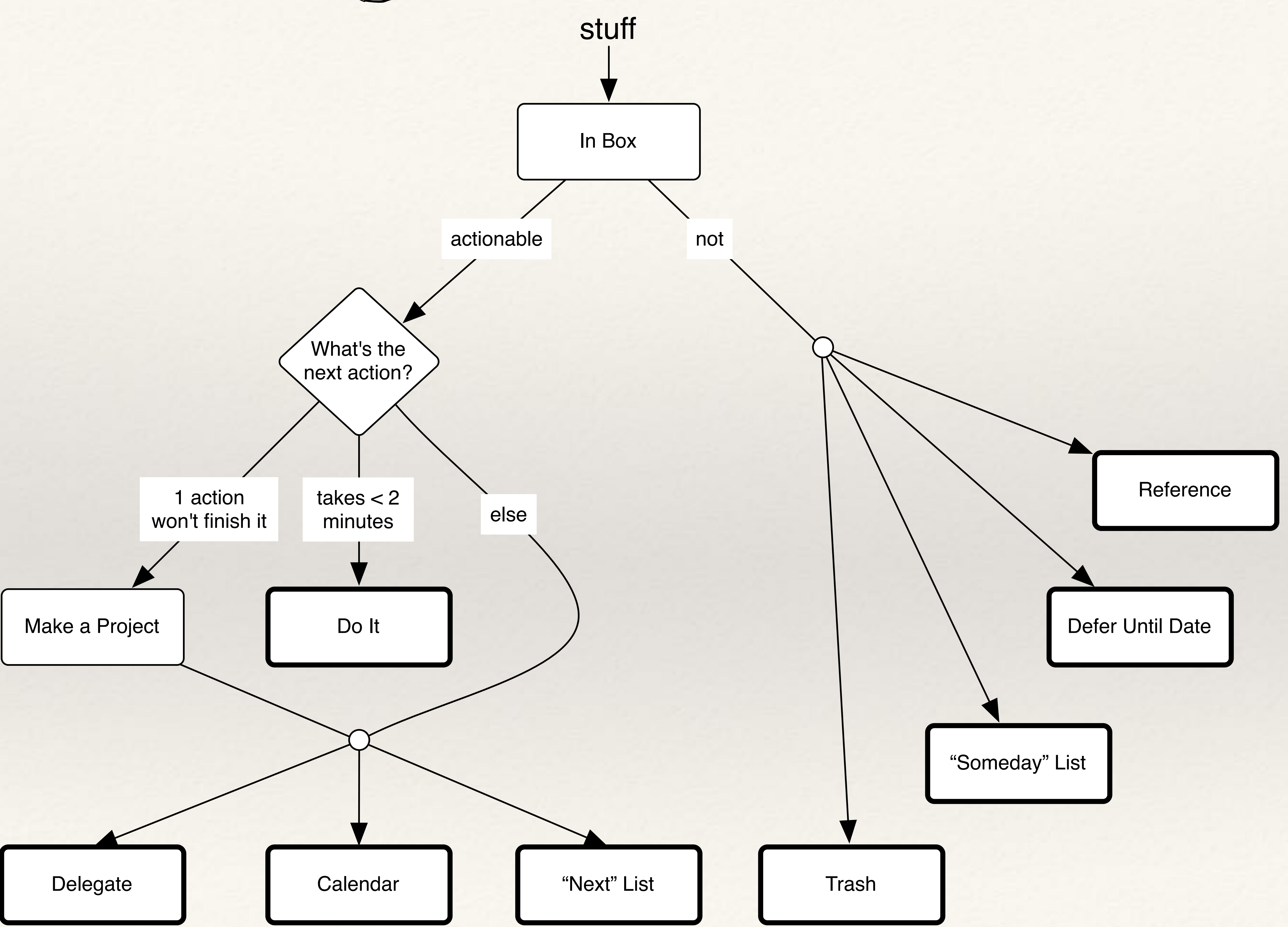
Lower standards.

Never sleep.

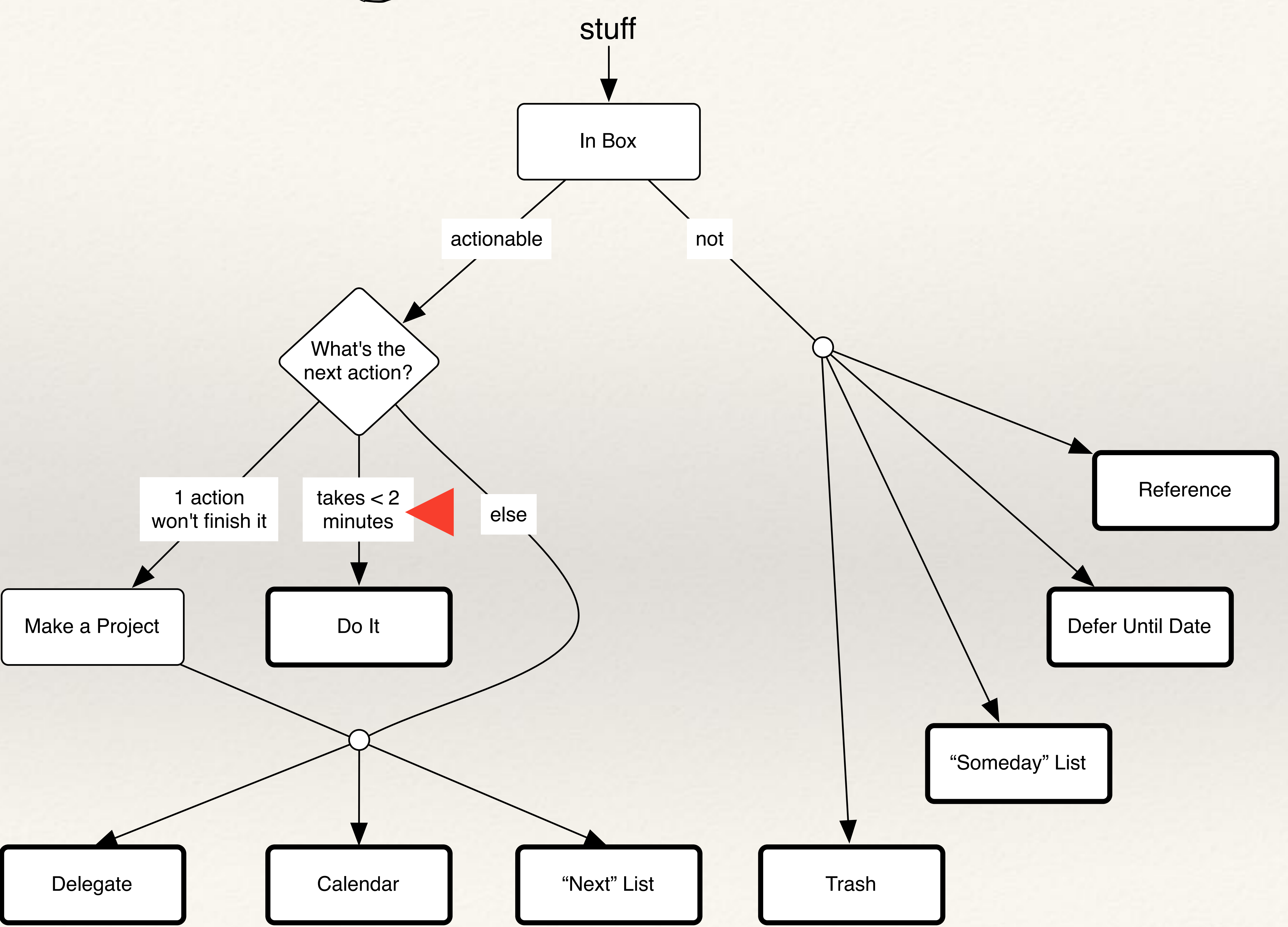
Or pace, prioritize, and peace.



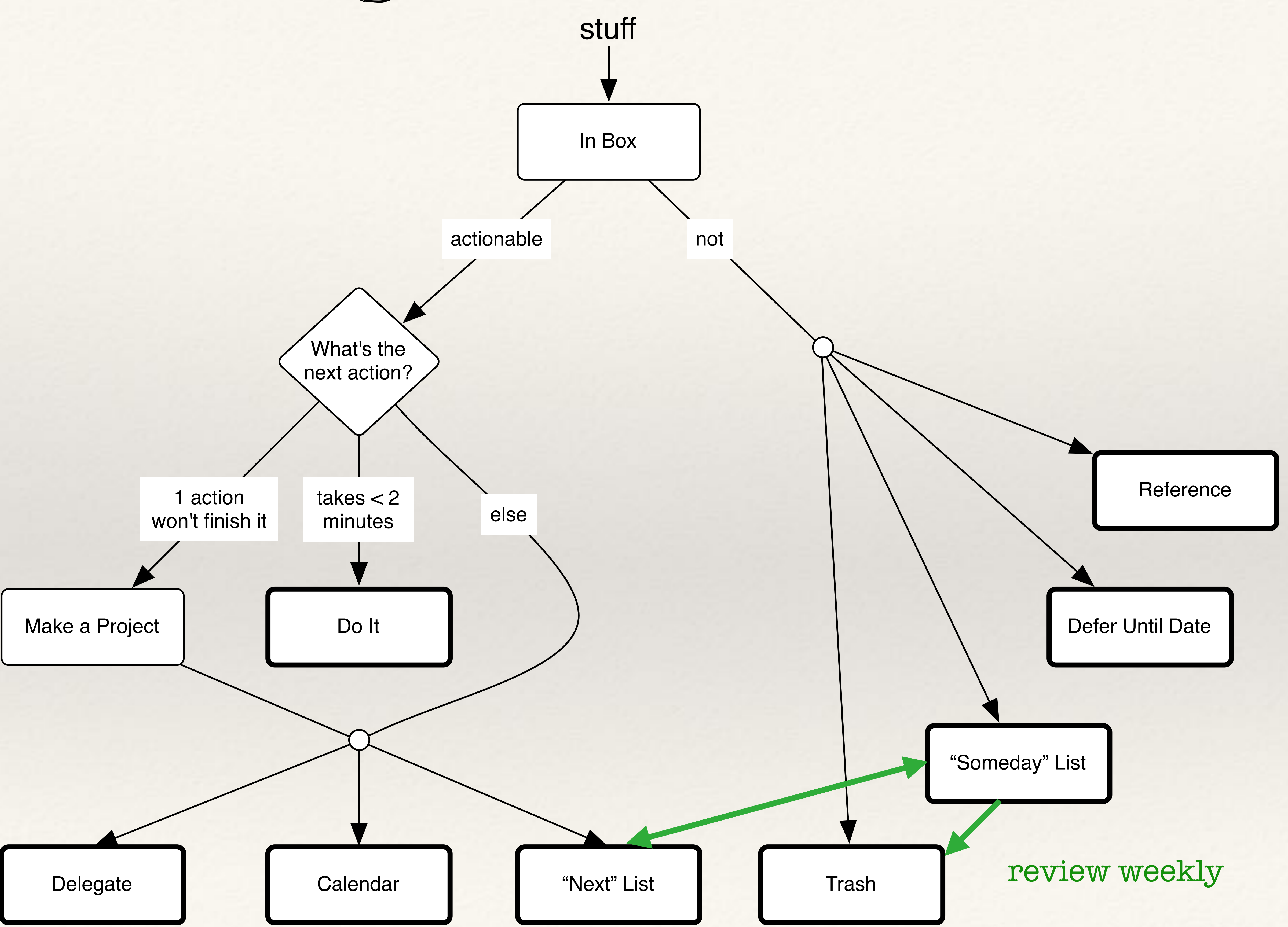
Feeling Short on Time



Feeling Short on Time



Feeling Short on Time



Feeling Short on Time

Feeling Short on Time

Patch-batching

Feeling Short on Time

Patch-batching

Leveling up newcomers

Feeling Short on Time

Patch-batching

Leveling up newcomers **1**

Feeling Short on Time

Patch-batching

Leveling up newcomers 1 2

Feeling Short on Time

Patch-batching

Leveling up newcomers **1 2 3**

The Trust Bank

Never eat lunch alone.

When all else fails…

When all else fails…

Say what you feel.

When all else fails…

Say what you feel.

Invite people into the decision.

Review Checklist

- ☐ Tact hacks
  - ☐ Question mark
  - ☐ You → we/this
  - ☐ Compliments
  - ☐ Humor
- ☐ Antipatterns
  - ☐ TL;DR;LGTM
  - ☐ Nitpicks
  - ☐ While you're at it…
  - ☐ Slow Turnarounds
- ☐ Clarity of explanation
- ☐ Clarity of expectation
- ☐ Pesky Emotions
  - ☐ Insecurity
  - ☐ Feeling short on time
    - ☐ Pace & peace
    - ☐ Getting Things Done
    - ☐ Patch-batching
    - ☐ Leveling up newcomers
  - ☐ The trust bank
  - ☐ Articulate emotions

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