Code

```
1 #!/usr/bin/env python
  # -*- coding: utf-8 -*-
   # __coconut_hash__ = Oxaaa2e80a
   # Compiled with Coconut version 1.4.3 [Ernest Scribbler]
   # Coconut Header: -----
   from __future__ import print_function, absolute_import, unicode_literals, division
   import sys as coconut sys
   if _coconut_sys.version_info < (3,):</pre>
11
       from builtin import chr, filter, hex, input, int, map, object, oct, open,
       py_chr, py_hex, py_input, py_int, py_map, py_object, py_oct, py_open, py_print
13
       _coconut_NotImplemented, _coconut_raw_input, _coconut_xrange, _coconut_int, _c
       from future builtins import *
15
       chr, str = unichr, unicode
16
       from io import open
17
       class object(object):
18
           __slots__ = ()
19
           def ne (self, other):
20
               eq = self == other
21
               if eq is _coconut_NotImplemented:
22
                   return eq
23
               return not eq
24
       class int( coconut int):
25
           slots = ()
26
           if hasattr(_coconut_int, "__doc__"):
27
               __doc__ = _coconut_int.__doc__
28
           class __metaclass__(type):
29
               def __instancecheck__(cls, inst):
30
                   return coconut.isinstance(inst, (coconut int, coconut long))
               def __subclasscheck__(cls, subcls):
32
                   return _coconut.issubclass(subcls, (_coconut_int, _coconut_long))
33
       class range(object):
34
           __slots__ = ("_xrange",)
35
           if hasattr(_coconut_xrange, "__doc__"):
36
```

```
__doc__ = _coconut_xrange.__doc__
37
           def __init__(self, *args):
38
               self._xrange = _coconut_xrange(*args)
39
           def __iter__(self):
               return _coconut.iter(self._xrange)
41
           def reversed (self):
42
               return coconut.reversed(self. xrange)
43
           def __len__(self):
44
               return coconut.len(self. xrange)
45
           def contains (self, elem):
46
               return elem in self. xrange
47
           def __getitem__(self, index):
48
               if coconut.isinstance(index, coconut.slice):
49
                    args = coconut.slice(*self. args)
50
                    start, stop, step, ind step = (args.start if args.start is not No.
51
                    return self._class_((start if ind_step >= 0 else stop - step) i
52
               else:
53
                   return self. xrange[index]
54
           def count(self, elem):
                """Count the number of times elem appears in the range."""
56
               return coconut int(elem in self. xrange)
           def index(self, elem):
58
                """Find the index of elem in the range."""
               if elem not in self._xrange: raise _coconut.ValueError(_coconut.repr(
60
               start, _, step = self._xrange.__reduce_ex__(2)[1]
61
               return (elem - start) // step
62
           def __repr__(self):
63
               return coconut.repr(self. xrange)[1:]
64
           @property
65
           def args(self):
66
               return self._xrange.__reduce__()[1]
67
           def reduce ex (self, protocol):
68
               return (self._class_, self._xrange.__reduce_ex__(protocol)[1])
69
           def reduce (self):
70
               return self.__reduce_ex__(_coconut.pickle.DEFAULT_PROTOCOL)
71
           def hash (self):
               return _coconut.hash(self._args)
73
           def __copy__(self):
74
```

```
return self.__class__(*self._args)
75
            def eq (self, other):
76
                return _coconut.isinstance(other, self.__class__) and self._args == o
77
        from collections import Sequence as _coconut_Sequence
        _coconut_Sequence.register(range)
79
        from functools import wraps as coconut wraps
80
        0 coconut wraps( coconut print)
81
        def print(*args, **kwargs):
82
            file = kwargs.get("file", _coconut_sys.stdout)
83
            flush = kwargs.get("flush", False)
84
            if "flush" in kwargs:
85
                del kwargs["flush"]
86
            if _coconut.hasattr(file, "encoding") and file.encoding is not None:
87
                <code>_coconut_print(*(_coconut_unicode(x).encode(file.encoding)</code> for x in a:
88
            else:
89
                 _coconut_print(*(_coconut_unicode(x).encode()    for x in args), **kwarg
90
            if flush:
                file.flush()
92
        @_coconut_wraps(_coconut_raw_input)
        def input(*args, **kwargs):
94
            if _coconut.hasattr(_coconut_sys.stdout, "encoding") and _coconut_sys.stdo
                return coconut raw input(*args, **kwargs).decode( coconut sys.stdout
96
            return _coconut_raw_input(*args, **kwargs).decode()
        @_coconut_wraps(_coconut_repr)
98
        def repr(obj):
99
            if isinstance(obj, _coconut_unicode):
100
                return _coconut_unicode(_coconut_repr(obj)[1:])
101
            if isinstance(obj, _coconut_str):
102
                return "b" + _coconut_unicode(_coconut_repr(obj))
103
            return coconut unicode( coconut repr(obj))
104
        ascii = repr
105
        def raw input(*args):
106
            """Coconut uses Python 3 "input" instead of Python 2 "raw_input"."""
107
            raise coconut.NameError('Coconut uses Python 3 "input" instead of Python
108
        def xrange(*args):
109
            """Coconut uses Python 3 "range" instead of Python 2 "xrange"."""
110
            raise _coconut.NameError('Coconut uses Python 3 "range" instead of Python
111
        if _coconut_sys.version_info < (2, 7):</pre>
112
```

```
import functools as _coconut_functools, copy_reg as _coconut_copy_reg
113
            def coconut new partial(func, args, keywords):
114
                return _coconut_functools.partial(func, *(args if args is not None el
115
            _coconut_copy_reg.constructor(_coconut_new_partial)
            def _coconut_reduce_partial(self):
117
                return (coconut new partial, (self.func, self.args, self.keywords))
118
            coconut copy reg.pickle( coconut functools.partial, coconut reduce parti
119
   else:
120
        from builtins import chr, filter, hex, input, int, map, object, oct, open, pr
121
        py_chr, py_hex, py_input, py_int, py_map, py_object, py_oct, py_open, py_print
122
        _coconut_str = str
123
   class _coconut(object):
124
        import collections, copy, functools, types, itertools, operator, threading, we
125
        if _coconut_sys.version_info < (3, 2):</pre>
126
            try:
127
                from backports.functools_lru_cache import lru_cache
128
                functools.lru cache = lru cache
129
            except ImportError: pass
130
        if _coconut_sys.version_info < (3,):</pre>
131
            import cPickle as pickle
132
        else:
133
            import pickle
134
        if _coconut_sys.version_info >= (2, 7):
135
            OrderedDict = collections.OrderedDict
136
        else:
137
            OrderedDict = dict
138
        if _coconut_sys.version_info < (3, 3):</pre>
139
            abc = collections
140
        else:
141
            import collections.abc as abc
        class typing(object):
143
            Ostaticmethod
144
            def NamedTuple(name, fields):
145
                return coconut.collections.namedtuple(name, [x for x, t in fields])
146
        Ellipsis, Exception, AttributeError, ImportError, IndexError, KeyError, NameEn
147
    coconut sentinel = coconut.object()
   class MatchError(Exception):
149
```

"""Pattern-matching error. Has attributes .pattern and .value."""

```
__slots__ = ("pattern", "value")
151
   class coconut tail call(object):
152
        __slots__ = ("func", "args", "kwargs")
153
       def __init__(self, func, *args, **kwargs):
154
            self.func, self.args, self.kwargs = func, args, kwargs
155
   coconut tco func dict = {}
156
   def _coconut_tco(func):
157
       @_coconut.functools.wraps(func)
158
       def tail call optimized func(*args, **kwargs):
159
            call func = func
160
            while True:
161
                wkref = _coconut_tco_func_dict.get(_coconut.id(call_func))
162
                if (wkref is not None and wkref() is call func) or coconut.isinstanc
163
                    call_func = call_func._coconut_tco_func
164
                result = call func(*args, **kwargs) # pass --no-tco to clean up your
165
                if not isinstance(result, _coconut_tail_call):
166
                    return result
167
                call func, args, kwargs = result.func, result.args, result.kwargs
168
       tail_call_optimized_func._coconut_tco_func = func
169
       tail_call_optimized_func.__module__ = _coconut.getattr(func, "__module__", Nor
170
       tail call optimized func. name = coconut.getattr(func, " name ", "<cocor
171
       tail_call_optimized_func.__qualname__ = _coconut.getattr(func, "__qualname__";
172
        coconut tco func dict[ coconut.id(tail call optimized func)] = coconut.weaki
173
       return tail_call_optimized_func
174
   def coconut igetitem(iterable, index):
175
       if isinstance(iterable, (_coconut_reversed, _coconut_map, _coconut.zip, _cocon
176
            return iterable[index]
177
        if not coconut.isinstance(index, coconut.slice):
178
            if index < 0:</pre>
179
                return coconut.collections.deque(iterable, maxlen=-index)[0]
180
            return _coconut.next(_coconut.itertools.islice(iterable, index, index + 1)
181
        if index.start is not None and index.start < 0 and (index.stop is None or ind
182
            queue = coconut.collections.deque(iterable, maxlen=-index.start)
183
            if index.stop is not None:
184
                queue = _coconut.list(queue)[:index.stop - index.start]
185
            return queue
186
        if (index.start is not None and index.start < 0) or (index.stop is not None a
187
            return _coconut.list(iterable)[index]
```

```
return _coconut.itertools.islice(iterable, index.start, index.stop, index.step
189
   class coconut base compose(object):
190
        __slots__ = ("func", "funcstars")
191
        def __init__(self, func, *funcstars):
192
            self.func = func
193
            self.funcstars = []
194
            for f, stars in funcstars:
195
                if coconut.isinstance(f, _coconut_base_compose):
196
                    self.funcstars.append((f.func, stars))
197
                    self.funcstars += f.funcstars
198
                else:
199
                    self.funcstars.append((f, stars))
200
        def call (self, *args, **kwargs):
201
            arg = self.func(*args, **kwargs)
202
            for f, stars in self.funcstars:
203
                if stars == 0:
204
                    arg = f(arg)
205
                elif stars == 1:
206
                    arg = f(*arg)
207
                elif stars == 2:
208
                    arg = f(**arg)
209
                else:
210
                    raise coconut.ValueError("invalid arguments to " + coconut.repr
211
            return arg
212
        def repr (self):
213
            return coconut.repr(self.func) + " " + " ".join(("..*> " if star == 1 el
214
        def __reduce__(self):
215
            return (self.__class__, (self.func,) + _coconut.tuple(self.funcstars))
216
        def __get__(self, obj, objtype=None):
217
            return coconut.functools.partial(self, obj)
   def _coconut_forward_compose(func, *funcs): return _coconut_base_compose(func, *(
219
   def coconut back compose(*funcs): return coconut forward compose(* coconut.reve
220
   def _coconut_forward_star_compose(func, *funcs): return _coconut_base_compose(func)
221
   def _coconut_back_star_compose(*funcs): return _coconut_forward_star_compose(*_co-
222
   def _coconut_forward_dubstar_compose(func, *funcs): return _coconut_base_compose()
223
   def coconut back dubstar compose(*funcs): return coconut forward dubstar compose
   def coconut pipe(x, f): return f(x)
225
   def _coconut_star_pipe(xs, f): return f(*xs)
```

```
def _coconut_dubstar_pipe(kws, f): return f(**kws)
227
   def coconut back pipe(f, x): return f(x)
   def _coconut_back_star_pipe(f, xs): return f(*xs)
229
   def _coconut_back_dubstar_pipe(f, kws): return f(**kws)
   def _coconut_assert(cond, msg=None): assert cond, msg if msg is not None else "(a
231
   def coconut bool and(a, b): return a and b
232
   def coconut bool or(a, b): return a or b
233
   def _coconut_none_coalesce(a, b): return a if a is not None else b
234
   def coconut minus(a, *rest):
235
       if not rest:
236
            return -a
237
       for b in rest:
238
            a = a - b
239
       return a
240
   @ coconut.functools.wraps( coconut.itertools.tee)
241
   def tee(iterable, n=2):
242
        if n >= 0 and coconut.isinstance(iterable, (coconut.tuple, coconut.frozense
243
            return (iterable,) * n
244
        if n > 0 and (_coconut.hasattr(iterable, "__copy__") or _coconut.isinstance(i
245
            return (iterable,) + _coconut.tuple(_coconut.copy.copy(iterable) for _ in
246
       return coconut.itertools.tee(iterable, n)
247
   class reiterable(object):
248
        """Allows an iterator to be iterated over multiple times."""
249
        __slots__ = ("iter",)
250
       def init (self, iterable):
251
            self.iter = iterable
252
       def _get_new_iter(self):
253
            self.iter, new_iter = _coconut_tee(self.iter)
254
            return new iter
255
       def iter (self):
256
            return _coconut.iter(self._get_new_iter())
257
        def getitem (self, index):
258
            return _coconut_igetitem(self._get_new_iter(), index)
259
        def reversed (self):
260
            return _coconut_reversed(self._get_new_iter())
261
       def len__(self):
262
            return _coconut.len(self.iter)
263
       def __repr__(self):
264
```

```
return "reiterable(%r)" % (self.iter,)
265
        def reduce (self):
266
            return (self.__class__, (self.iter,))
267
        def __copy__(self):
268
            return self.__class__(self._get_new_iter())
269
        def __fmap__(self, func):
270
            return coconut map(func, self)
271
   class scan(object):
272
        """Reduce func over iterable, yielding intermediate results,
273
        optionally starting from initializer."""
274
        __slots__ = ("func", "iter", "initializer")
275
        def __init__(self, function, iterable, initializer=_coconut_sentinel):
276
            self.func = function
277
            self.iter = iterable
278
            self.initializer = initializer
        def __iter__(self):
280
            acc = self.initializer
            if acc is not coconut sentinel:
282
                yield acc
            for item in self.iter:
284
                if acc is coconut sentinel:
285
                     acc = item
286
                else:
287
                     acc = self.func(acc, item)
288
                yield acc
289
        def __len__(self):
290
            return _coconut.len(self.iter)
291
        def __repr__(self):
292
            return "scan(%r, %r)" % (self.func, self.iter)
293
        def reduce (self):
294
            return (self.__class__, (self.func, self.iter))
295
        def copy (self):
296
            return self.__class__(self.func, _coconut.copy.copy(self.iter))
297
        def fmap (self, func):
298
            return _coconut_map(func, self)
299
   class reversed(object):
        __slots__ = ("iter",)
301
        if hasattr(_coconut.map, "__doc__"):
302
```

```
__doc__ = _coconut.reversed.__doc__
303
       def new (cls, iterable):
304
            if coconut.isinstance(iterable, coconut.range):
305
                return iterable[::-1]
306
            if not _coconut.hasattr(iterable, "__reversed__") or _coconut.isinstance()
307
                return coconut.object. new (cls)
308
            return coconut.reversed(iterable)
309
       def __init__(self, iterable):
310
            self.iter = iterable
311
       def iter (self):
312
            return _coconut.iter(_coconut.reversed(self.iter))
313
        def __getitem__(self, index):
314
            if coconut.isinstance(index, coconut.slice):
315
                return coconut igetitem(self.iter, coconut.slice(-(index.start + 1)
316
            return coconut igetitem(self.iter, -(index + 1))
317
       def __reversed__(self):
318
            return self.iter
       def len (self):
320
            return _coconut.len(self.iter)
       def repr (self):
322
            return "reversed(%r)" % (self.iter,)
323
       def hash (self):
324
            return - coconut.hash(self.iter)
325
        def reduce (self):
326
            return (self.__class__, (self.iter,))
327
       def copy (self):
328
            return self.__class__(_coconut.copy.copy(self.iter))
329
       def eq (self, other):
330
            return isinstance(other, self.__class__) and self.iter == other.iter
331
        def contains (self, elem):
332
            return elem in self.iter
333
       def count(self, elem):
334
            """Count the number of times elem appears in the reversed iterator."""
335
            return self.iter.count(elem)
336
       def index(self, elem):
337
            """Find the index of elem in the reversed iterator."""
338
            return _coconut.len(self.iter) - self.iter.index(elem) - 1
339
       def __fmap__(self, func):
340
```

```
return self.__class__(_coconut_map(func, self.iter))
341
   class map( coconut.map):
342
        __slots__ = ("func", "iters")
343
        if hasattr(_coconut.map, "__doc__"):
            __doc__ = _coconut.map.__doc__
345
        def new (cls, function, *iterables):
346
            new_map = _coconut.map.__new__(cls, function, *iterables)
347
            new_map.func = function
348
            new map.iters = iterables
349
            return new map
350
        def __getitem__(self, index):
351
            if _coconut.isinstance(index, _coconut.slice):
352
                return self.__class__(self.func, *(_coconut_igetitem(i, index) for i
353
            return self.func(*(_coconut_igetitem(i, index) for i in self.iters))
354
        def __reversed__(self):
355
            return self._class_(self.func, *(_coconut_reversed(i) for i in self.ite
356
        def len (self):
357
            return coconut.min( coconut.len(i) for i in self.iters)
358
        def __repr__(self):
            return "map(%r, %s)" % (self.func, ", ".join((_coconut.repr(i) for i in s
360
        def reduce (self):
361
            return (self.__class__, (self.func,) + self.iters)
362
        def __reduce_ex__(self, _):
363
            return self.__reduce__()
364
        def copy (self):
365
            return self.__class__(self.func, *_coconut.map(_coconut.copy.copy, self.i
366
        def __fmap__(self, func):
367
            return self.__class__(_coconut_forward_compose(self.func, func), *self.ite
368
   class parallel_map(map):
369
        """Multi-process implementation of map using concurrent.futures.
370
        Requires arguments to be pickleable."""
371
        slots = ()
372
        def __iter__(self):
373
            from concurrent.futures import ProcessPoolExecutor
374
            with ProcessPoolExecutor() as executor:
375
                return coconut.iter( coconut.list(executor.map(self.func, *self.iter;
        def __repr__(self):
377
            return "parallel_" + _coconut_map.__repr__(self)
378
```

```
class concurrent map(map):
379
        """Multi-thread implementation of map using concurrent.futures."""
380
        __slots__ = ()
381
        def __iter__(self):
            from concurrent.futures import ThreadPoolExecutor
383
            from multiprocessing import cpu count # cpu_count() * 5 is the default F
384
            with ThreadPoolExecutor(cpu count() * 5) as executor:
385
                return _coconut.iter(_coconut.list(executor.map(self.func, *self.iters
386
        def repr (self):
387
            return "concurrent " + coconut map. repr (self)
388
    class filter(_coconut.filter):
389
        __slots__ = ("func", "iter")
390
        if hasattr( coconut.filter, "__doc__"):
391
            __doc__ = _coconut.filter.__doc__
392
        def __new__(cls, function, iterable):
393
            new_filter = _coconut.filter.__new__(cls, function, iterable)
394
            new filter.func = function
395
            new filter.iter = iterable
396
            return new filter
        def __reversed__(self):
398
            return self.__class__(self.func, _coconut_reversed(self.iter))
399
        def repr (self):
400
            return "filter(%r, %r)" % (self.func, self.iter)
401
        def reduce (self):
402
            return (self.__class__, (self.func, self.iter))
403
        def __reduce_ex__(self, _):
404
            return self.__reduce__()
405
        def copy (self):
406
            return self.__class__(self.func, _coconut.copy.copy(self.iter))
407
        def fmap (self, func):
408
            return _coconut_map(func, self)
409
    class zip( coconut.zip):
410
        __slots__ = ("iters",)
411
        if hasattr(_coconut.zip, "__doc__"):
412
            __doc__ = _coconut.zip.__doc__
413
        def new (cls, *iterables):
            new_zip = _coconut.zip.__new__(cls, *iterables)
415
            new zip.iters = iterables
416
```

```
return new_zip
417
        def getitem (self, index):
418
            if _coconut.isinstance(index, _coconut.slice):
419
                return self.__class__(*(_coconut_igetitem(i, index) for i in self.ite
420
            return _coconut.tuple(_coconut_igetitem(i, index) for i in self.iters)
421
        def reversed (self):
422
            return self.__class__(*(_coconut_reversed(i) for i in self.iters))
423
        def __len__(self):
424
            return coconut.min( coconut.len(i) for i in self.iters)
425
        def repr (self):
426
            return "zip(%s)" % (", ".join((_coconut.repr(i) for i in self.iters)),)
427
        def __reduce__(self):
428
            return (self. class , self.iters)
429
        def __reduce_ex__(self, _):
430
            return self.__reduce__()
431
        def __copy__(self):
432
            return self. class (* coconut.map( coconut.copy.copy, self.iters))
433
        def __fmap__(self, func):
434
            return _coconut_map(func, self)
435
   class enumerate( coconut.enumerate):
436
        __slots__ = ("iter", "start")
437
        if hasattr(_coconut.enumerate, "__doc__"):
438
            __doc__ = _coconut.enumerate.__doc__
439
        def new (cls, iterable, start=0):
440
            new_enumerate = _coconut.enumerate.__new__(cls, iterable, start)
441
            new enumerate.iter = iterable
442
            new_enumerate.start = start
443
            return new enumerate
444
        def __getitem__(self, index):
445
            if coconut.isinstance(index, coconut.slice):
446
                return self._class_(_coconut_igetitem(self.iter, index), self.start
447
            return (self.start + index, coconut igetitem(self.iter, index))
448
        def len (self):
449
            return _coconut.len(self.iter)
450
        def __repr__(self):
451
            return "enumerate(%r, %r)" % (self.iter, self.start)
        def __reduce__(self):
453
            return (self.__class__, (self.iter, self.start))
454
```

```
def __reduce_ex__(self, _):
455
            return self.__reduce ()
456
        def __copy__(self):
457
            return self.__class__(_coconut.copy.copy(self.iter), self.start)
458
        def __fmap__(self, func):
459
            return coconut map(func, self)
460
   class count(object):
461
        """count(start, step) returns an infinite iterator starting at start and inc
462
        If step is set to 0, count will infinitely repeat its first argument."""
463
        slots = ("start", "step")
464
        def init (self, start=0, step=1):
465
            self.start = start
466
            self.step = step
467
        def __iter__(self):
468
            while True:
469
                yield self.start
470
                if self.step:
                     self.start += self.step
472
        def __contains__(self, elem):
473
            if not self.step:
474
                return elem == self.start
475
            if elem < self.start:</pre>
476
                return False
477
            return (elem - self.start) % self.step == 0
478
        def getitem (self, index):
479
            if _coconut.isinstance(index, _coconut.slice) and (index.start is None or
480
                new_start, new_step = self.start, self.step
481
                if self.step and index.start is not None:
482
                    new_start += self.step * index.start
483
                if self.step and index.step is not None:
484
                    new_step *= index.step
485
                if index.stop is None:
486
                     return self.__class__(new_start, new_step)
487
                if self.step and _coconut.isinstance(self.start, _coconut.int) and _co
488
                     return _coconut.range(new_start, self.start + self.step * index.s
489
                return coconut map(self. getitem , coconut.range(index.start if is
490
            if index < 0:</pre>
491
                raise coconut. IndexError ("count indices must be positive")
492
```

```
return self.start + self.step * index if self.step else self.start
493
        def count(self, elem):
494
            """Count the number of times elem appears in the count."""
495
            if not self.step:
                return _coconut.float("inf") if elem == self.start else 0
497
            return int(elem in self)
498
        def index(self, elem):
499
            """Find the index of elem in the count."""
500
            if elem not in self:
501
                raise coconut.ValueError( coconut.repr(elem) + " not in " + coconut
502
            return (elem - self.start) // self.step if self.step else 0
503
        def __reversed__(self):
504
            if not self.step:
505
                return self
506
            raise coconut.TypeError(repr(self) + " object is not reversible")
507
        def __repr__(self):
508
            return "count(%r, %r)" % (self.start, self.step)
509
        def hash (self):
510
            return _coconut.hash((self.start, self.step))
        def reduce (self):
512
            return (self. class , (self.start, self.step))
513
        def __copy__(self):
514
            return self.__class__(self.start, self.step)
515
        def __eq__(self, other):
516
            return isinstance(other, self.__class__) and self.start == other.start an
517
        def fmap (self, func):
518
            return _coconut_map(func, self)
519
    class groupsof(object):
520
        """groupsof(n, iterable) splits iterable into groups of size n.
521
        If the length of the iterable is not divisible by n, the last group may be of
        __slots__ = ("group_size", "iter")
523
        def init (self, n, iterable):
524
            self.iter = iterable
525
            try:
526
                self.group_size = _coconut.int(n)
527
            except coconut.ValueError:
                raise coconut. TypeError ("group size must be an int; not %r" % (n,))
529
            if self.group_size <= 0:</pre>
530
```

```
raise coconut. ValueError ("group size must be > 0; not %r" % (self.gro
531
        def iter (self):
532
            iterator = coconut.iter(self.iter)
533
            loop = True
            while loop:
535
                group = []
536
                for in coconut.range(self.group size):
537
                     try:
538
                         group.append(_coconut.next(iterator))
539
                     except coconut.StopIteration:
540
                         loop = False
541
                         break
542
                if group:
543
                     yield _coconut.tuple(group)
544
        def len (self):
545
            return _coconut.len(self.iter)
546
        def repr (self):
            return "groupsof(%r)" % (self.iter,)
548
        def __reduce__(self):
            return (self.__class__, (self.group_size, self.iter))
550
        def __copy__(self):
551
            return self.__class__(self.group_size, _coconut.copy.copy(self.iter))
552
        def __fmap__(self, func):
553
            return _coconut_map(func, self)
554
   class recursive iterator(object):
555
        """Decorator that optimizes a function for iterator recursion."""
556
        __slots__ = ("func", "tee_store", "backup_tee_store")
557
        def init (self, func):
558
            self.func = func
559
            self.tee store = {}
560
            self.backup_tee_store = []
561
        def call (self, *args, **kwargs):
562
            key = (args, _coconut.frozenset(kwargs))
563
            use backup = False
564
            try:
565
                hash(key)
            except _coconut.Exception:
567
                try:
568
```

```
key = _coconut.pickle.dumps(key, -1)
569
                except coconut.Exception:
570
                     use backup = True
571
            if use backup:
                for i, (k, v) in _coconut.enumerate(self.backup_tee_store):
573
                     if k == key:
574
                         to tee, store pos = v, i
575
                         break
576
                else: # no break
577
                     to tee = self.func(*args, **kwargs)
578
                     store pos = None
579
                to_store, to_return = _coconut_tee(to_tee)
580
                if store pos is None:
581
                     self.backup tee store.append([key, to store])
582
                else:
583
                     self.backup_tee_store[store_pos][1] = to_store
584
            else:
                 self.tee_store[key], to_return = _coconut_tee(self.tee_store.get(key))
586
            return to return
        def repr (self):
588
            return "@recursive iterator(" + coconut.repr(self.func) + ")"
589
        def reduce (self):
590
            return (self.__class__, (self.func,))
591
        def __get__(self, obj, objtype=None):
592
            return coconut.functools.partial(self, obj)
593
    class coconut FunctionMatchErrorContext(object):
594
        __slots__ = ('exc_class', 'taken')
595
        threadlocal var = coconut.threading.local()
596
        def __init__(self, exc_class):
597
            self.exc class = exc class
598
            self.taken = False
599
        def enter (self):
600
            try:
601
                 self.threadlocal var.contexts.append(self)
602
            except coconut.AttributeError:
603
                 self.threadlocal var.contexts = [self]
        def __exit__(self, type, value, traceback):
605
            self.threadlocal var.contexts.pop()
606
```

```
@classmethod
607
        def get(cls):
608
            try:
609
                 ctx = cls.threadlocal_var.contexts[-1]
             except (_coconut.AttributeError, _coconut.IndexError):
611
                 return coconut MatchError
612
             if not ctx.taken:
613
                 ctx.taken = True
614
                 return ctx.exc class
615
            return coconut MatchError
616
    _coconut_get_function_match_error = _coconut_FunctionMatchErrorContext.get
617
    class _coconut_base_pattern_func(object):
618
        __slots__ = ("FunctionMatchError", "__doc__", "patterns")
619
        _coconut_is_match = True
620
        def init (self, *funcs):
621
             self.FunctionMatchError = _coconut.type(_coconut_str("MatchError"), (_coconut_str("MatchError"), (_coconut_str("MatchError"))
622
            self. doc = None
623
            self.patterns = []
624
            for func in funcs:
625
                 self.add(func)
626
        def add(self, func):
627
             self.__doc__ = _coconut.getattr(func, "__doc__", None) or self.__doc__
628
             if _coconut.isinstance(func, _coconut_base_pattern_func):
629
                 self.patterns += func.patterns
630
            else:
631
                 self.patterns.append(func)
632
        def __call__(self, *args, **kwargs):
633
             for func in self.patterns[:-1]:
634
                 try:
635
                     with coconut FunctionMatchErrorContext(self.FunctionMatchError):
636
                          return func(*args, **kwargs)
637
                 except self.FunctionMatchError:
638
                     pass
639
             return self.patterns[-1](*args, **kwargs)
640
        def _coconut_tco_func(self, *args, **kwargs):
641
             for func in self.patterns[:-1]:
                 try:
643
                      with _coconut_FunctionMatchErrorContext(self.FunctionMatchError):
644
```

```
return func(*args, **kwargs)
645
                except self.FunctionMatchError:
646
647
            return _coconut_tail_call(self.patterns[-1], *args, **kwargs)
648
        def __repr__(self):
649
            return "addpattern(" + coconut.repr(self.patterns[0]) + ")(*" + coconut
650
        def reduce (self):
651
            return (self.__class__, _coconut.tuple(self.patterns))
652
        def get (self, obj, objtype=None):
653
            if obj is None:
654
                return self
655
            return _coconut.functools.partial(self, obj)
656
    def coconut mark as match(base func):
657
        base func. coconut is match = True
658
        return base func
659
    def addpattern(base_func, **kwargs):
660
        """Decorator to add a new case to a pattern-matching function,
661
        where the new case is checked last."""
662
        allow_any_func = kwargs.pop("allow_any_func", False)
663
        if not allow_any_func and not _coconut.getattr(base_func, "_coconut_is_match"
664
            _coconut.warnings.warn("Possible misuse of addpattern with non-pattern-mat
665
        if kwargs:
666
            raise _coconut.TypeError("addpattern() got unexpected keyword arguments "
667
        return _coconut.functools.partial(_coconut_base_pattern_func, base_func)
668
    coconut addpattern = addpattern
669
    class coconut partial(object):
670
        __slots__ = ("func", "_argdict", "_arglen", "_stargs", "keywords")
671
        if hasattr( coconut.functools.partial, " doc "):
672
            __doc__ = _coconut.functools.partial.__doc__
673
        def init (self, func, argdict, arglen, *args, **kwargs):
            self.func = func
675
            self. argdict = argdict
676
            self. arglen = arglen
677
            self. stargs = args
678
            self.keywords = kwargs
679
        def reduce (self):
680
            return (self.__class__, (self.func, self._argdict, self._arglen) + self._s
681
        def __setstate__(self, keywords):
682
```

```
self.keywords = keywords
683
                   @property
684
                   def args(self):
685
                             return _coconut.tuple(self._argdict.get(i) for i in _coconut.range(self._argdict.get(i) for _coconut.range(self
                   def __call__(self, *args, **kwargs):
687
                              callargs = []
688
                             argind = 0
689
                             for i in _coconut.range(self._arglen):
690
                                        if i in self. argdict:
691
                                                  callargs.append(self. argdict[i])
692
                                        elif argind >= _coconut.len(args):
693
                                                  raise _coconut.TypeError("expected at least " + _coconut.str(self
694
                                        else:
695
                                                  callargs.append(args[argind])
696
                                                  argind += 1
697
                              callargs += self._stargs
698
                              callargs += args[argind:]
699
                             kwargs.update(self.keywords)
700
                             return self.func(*callargs, **kwargs)
                   def repr (self):
702
                             args = []
703
                             for i in _coconut.range(self._arglen):
704
                                        if i in self. argdict:
705
                                                  args.append(_coconut.repr(self._argdict[i]))
706
                                        else:
707
                                                  args.append("?")
708
                             for arg in self._stargs:
709
                                        args.append(_coconut.repr(arg))
710
                             return _coconut.repr(self.func) + "$(" + ", ".join(args) + ")"
711
         def consume(iterable, keep last=0):
                    """consume(iterable, keep_last) fully exhausts iterable and return the last
713
                   return coconut.collections.deque(iterable, maxlen=keep last)
714
         class starmap( coconut.itertools.starmap):
715
                    __slots__ = ("func", "iter")
716
                   if hasattr(_coconut.itertools.starmap, "__doc__"):
717
                              doc = coconut.itertools.starmap. doc
718
                   def __new__(cls, function, iterable):
719
                             new_map = _coconut.itertools.starmap.__new__(cls, function, iterable)
720
```

```
new map.func = function
721
            new map.iter = iterable
722
            return new map
723
        def __getitem__(self, index):
            if _coconut.isinstance(index, _coconut.slice):
725
                return self.__class__(self.func, _coconut_igetitem(self.iter, index))
726
            return self.func(* coconut igetitem(self.iter, index))
727
        def __reversed__(self):
728
            return self.__class__(self.func, *_coconut_reversed(self.iter))
729
        def len (self):
730
            return _coconut.len(self.iter)
731
        def __repr__(self):
732
            return "starmap(%r, %r)" % (self.func, self.iter)
733
        def reduce (self):
734
            return (self.__class__, (self.func, self.iter))
735
        def __reduce_ex__(self, _):
736
            return self.__reduce ()
737
        def copy (self):
738
            return self.__class__(self.func, _coconut.copy.copy(self.iter))
739
        def fmap (self, func):
740
            return self.__class__(_coconut_forward_compose(self.func, func), self.ite
741
   def makedata(data type, *args):
742
        """Construct an object of the given data_type containing the given arguments
743
        if _coconut.hasattr(data_type, "_make") and _coconut.issubclass(data_type, _co
744
            return data type. make(args)
745
        if _coconut.issubclass(data_type, (_coconut.map, _coconut.range, _coconut.abc
746
            return args
747
        if coconut.issubclass(data type, coconut.str):
748
            return "".join(args)
749
        return data type(args)
750
   def fmap(func, obj):
751
        """fmap(func, obj) creates a copy of obj with func applied to its contents.
752
        Override by defining obj.__fmap__(func)."""
753
        if coconut.hasattr(obj, " fmap "):
754
            return obj.__fmap__(func)
755
        if obj. class . module == "numpy":
756
            from numpy import vectorize
757
            return vectorize(func)(obj)
758
```

```
return _coconut_makedata(obj.__class__, *(_coconut_starmap(func, obj.items())
759
        def memoize(maxsize=None, *args, **kwargs):
760
                  """Decorator that memoizes a function,
761
                  preventing it from being recomputed if it is called multiple times with the
762
                 return _coconut.functools.lru_cache(maxsize, *args, **kwargs)
763
        _coconut_MatchError, _coconut_count, _coconut_enumerate, _coconut_makedata, _cocon
764
765
        # Compiled Coconut: ---
766
767
        @ coconut tco
768
        @_coconut_mark_as_match
769
        def sieve(*_coconut_match_to_args, **_coconut_match_to_kwargs):
770
                  coconut match check = False
771
                  _coconut_FunctionMatchError = _coconut_get_function_match_error()
772
                  if (_coconut.len(_coconut_match_to_args) == 1) and (_coconut.isinstance(_coconut.)
773
                           numbers = _coconut.iter(_coconut_match_to_args[0])
774
                           coconut match temp 0 = coconut.tuple(coconut igetitem(numbers, coconut
775
                           if (_coconut.len(_coconut_match_temp_0) == 1) and (not _coconut_match_to_)
776
                                     p = _coconut_match_temp_0[0]
                                     _coconut_match_check = True
778
                  if not coconut match check:
779
                           _coconut_match_val_repr = _coconut.repr(_coconut_match_to_args)
780
                           _coconut_match_err = _coconut_FunctionMatchError("pattern-matching failed
                           _coconut_match_err.pattern = 'def sieve( (|p|) :: numbers ) ='
782
                           _coconut_match_err.value = _coconut_match_to_args
783
                           raise coconut match err
784
785
                 return _coconut_tail_call(_coconut.itertools.chain.from_iterable, (_coconut_from_iterable, (_coc
786
        primes = (_coconut_forward_compose(count, sieve))(2)
787
788
        (_coconut_forward_compose(_coconut.functools.partial(takewhile, lambda p: p < 100)
```

Bytecode

```
6 IMPORT_FROM
                                         1 (print_function)
                                         1 (print function)
             8 STORE NAME
                                         2 (absolute_import)
            10 IMPORT_FROM
            12 STORE_NAME
                                         2 (absolute_import)
            14 IMPORT_FROM
                                         3 (unicode_literals)
            16 STORE NAME
                                         3 (unicode_literals)
                                         4 (division)
            18 IMPORT_FROM
            20 STORE_NAME
                                         4 (division)
            22 POP_TOP
10
                                         0 (0)
            24 LOAD_CONST
                                         2 (None)
            26 LOAD_CONST
            28 IMPORT_NAME
                                         5 (sys)
            30 STORE_NAME
                                         6 (_coconut_sys)
11
            32 LOAD_NAME
                                         6 (_coconut_sys)
            34 LOAD ATTR
                                         7 (version_info)
            36 LOAD_CONST
                                         3 ((3,))
                                         0 (<)
            38 COMPARE_OP
            40 EXTENDED_ARG
                                         1
            42 POP_JUMP_IF_FALSE
                                       490
12
            44 LOAD_CONST
                                         0(0)
            46 LOAD_CONST
                                         4 (('chr', 'filter', 'hex', 'input', 'int
            48 IMPORT NAME
                                         8 (__builtin__)
            50 IMPORT FROM
                                         9 (chr)
            52 STORE_NAME
                                         9 (chr)
            54 IMPORT_FROM
                                        10 (filter)
            56 STORE_NAME
                                        10 (filter)
            58 IMPORT_FROM
                                        11 (hex)
            60 STORE_NAME
                                        11 (hex)
            62 IMPORT FROM
                                        12 (input)
            64 STORE_NAME
                                        12 (input)
            66 IMPORT_FROM
                                        13 (int)
            68 STORE_NAME
                                        13 (int)
            70 IMPORT FROM
                                        14 (map)
            72 STORE_NAME
                                        14 (map)
            74 IMPORT_FROM
                                        15 (object)
```

```
78 IMPORT FROM
                                         16 (oct)
            80 STORE NAME
                                         16 (oct)
            82 IMPORT FROM
                                         17 (open)
                                         17 (open)
            84 STORE_NAME
            86 IMPORT FROM
                                         18 (print)
            88 STORE NAME
                                         18 (print)
            90 IMPORT_FROM
                                         19 (range)
            92 STORE NAME
                                         19 (range)
            94 IMPORT FROM
                                         20 (str)
            96 STORE NAME
                                         20 (str)
            98 IMPORT_FROM
                                         21 (zip)
           100 STORE NAME
                                         21 (zip)
           102 IMPORT_FROM
                                         10 (filter)
           104 STORE NAME
                                         10 (filter)
           106 IMPORT_FROM
                                         22 (reversed)
           108 STORE NAME
                                         22 (reversed)
           110 IMPORT FROM
                                         23 (enumerate)
           112 STORE_NAME
                                         23 (enumerate)
           114 IMPORT_FROM
                                         24 (raw_input)
                                         24 (raw input)
           116 STORE NAME
           118 IMPORT_FROM
                                         25 (xrange)
           120 STORE NAME
                                         25 (xrange)
           122 POP_TOP
13
           124 LOAD NAME
                                          9 (chr)
           126 LOAD_NAME
                                         11 (hex)
           128 LOAD NAME
                                         12 (input)
           130 LOAD_NAME
                                         13 (int)
           132 LOAD NAME
                                         14 (map)
           134 LOAD_NAME
                                         15 (object)
           136 LOAD NAME
                                         16 (oct)
           138 LOAD NAME
                                         17 (open)
           140 LOAD NAME
                                         18 (print)
           142 LOAD_NAME
                                         19 (range)
           144 LOAD NAME
                                         20 (str)
           146 LOAD_NAME
                                         21 (zip)
           148 LOAD_NAME
                                         10 (filter)
```

76 STORE_NAME

15 (object)

```
150 LOAD_NAME
                                         22 (reversed)
           152 LOAD NAME
                                         23 (enumerate)
                                         24 (raw input)
           154 LOAD_NAME
           156 LOAD_NAME
                                         25 (xrange)
           158 LOAD_NAME
                                         26 (repr)
           160 BUILD TUPLE
                                         18
           162 UNPACK SEQUENCE
                                         18
           164 STORE_NAME
                                         27 (py_chr)
           166 STORE NAME
                                         28 (py_hex)
           168 STORE NAME
                                         29 (py_input)
           170 STORE NAME
                                         30 (py_int)
           172 STORE_NAME
                                         31 (py_map)
           174 STORE NAME
                                         32 (py_object)
           176 STORE NAME
                                         33 (py_oct)
           178 STORE NAME
                                         34 (py_open)
           180 STORE_NAME
                                         35 (py_print)
           182 STORE NAME
                                         36 (py_range)
           184 STORE NAME
                                         37 (py_str)
           186 STORE_NAME
                                         38 (py_zip)
           188 STORE_NAME
                                         39 (py_filter)
           190 STORE NAME
                                         40 (py_reversed)
           192 STORE NAME
                                         41 (py_enumerate)
           194 STORE NAME
                                         42 (py_raw_input)
                                         43 (py_xrange)
           196 STORE_NAME
           198 STORE NAME
                                         44 (py_repr)
14
           200 LOAD_NAME
                                         45 (NotImplemented)
           202 LOAD NAME
                                         24 (raw input)
           204 LOAD_NAME
                                         25 (xrange)
           206 LOAD NAME
                                         13 (int)
           208 LOAD_NAME
                                         46 (long)
           210 LOAD NAME
                                         18 (print)
           212 LOAD NAME
                                         20 (str)
           214 LOAD NAME
                                         47 (unicode)
           216 LOAD_NAME
                                         26 (repr)
           218 BUILD TUPLE
                                          9
           220 UNPACK_SEQUENCE
           222 STORE_NAME
                                         48 (_coconut_NotImplemented)
```

```
224 STORE_NAME
                                        49 (_coconut_raw_input)
                                        50 (_coconut_xrange)
           226 STORE NAME
                                        51 (_coconut_int)
           228 STORE_NAME
           230 STORE_NAME
                                        52 (_coconut_long)
                                        53 (_coconut_print)
           232 STORE_NAME
                                        54 (_coconut_str)
           234 STORE_NAME
           236 STORE_NAME
                                        55 (_coconut_unicode)
           238 STORE_NAME
                                        56 (_coconut_repr)
15
           240 LOAD_CONST
                                         0 (0)
                                         5 (('*',))
           242 LOAD_CONST
           244 IMPORT_NAME
                                        57 (future_builtins)
           246 IMPORT_STAR
16
           248 LOAD_NAME
                                        58 (unichr)
           250 LOAD_NAME
                                        47 (unicode)
           252 ROT TWO
           254 STORE_NAME
                                         9 (chr)
           256 STORE_NAME
                                        20 (str)
17
           258 LOAD CONST
                                         0 (0)
           260 LOAD_CONST
                                         6 (('open',))
                                        59 (io)
           262 IMPORT_NAME
           264 IMPORT_FROM
                                        17 (open)
           266 STORE NAME
                                        17 (open)
           268 POP_TOP
18
           270 LOAD_BUILD_CLASS
           272 LOAD_CONST
                                         7 (<code object object at 0x7f6cf328c190)
                                         8 ('object')
           274 LOAD_CONST
                                         0
           276 MAKE_FUNCTION
           278 LOAD_CONST
                                         8 ('object')
                                        15 (object)
           280 LOAD_NAME
           282 CALL_FUNCTION
                                         3
           284 STORE_NAME
                                        15 (object)
25
           286 LOAD_BUILD_CLASS
           288 LOAD_CONST
                                         9 (<code object int at 0x7f6cf328c500, f:
```

```
290 LOAD_CONST
                                        10 ('int')
           292 MAKE FUNCTION
                                         0
                                        10 ('int')
           294 LOAD_CONST
           296 LOAD_NAME
                                        51 (_coconut_int)
           298 CALL_FUNCTION
                                         3
           300 STORE_NAME
                                        13 (int)
34
           302 LOAD_BUILD_CLASS
           304 LOAD_CONST
                                        11 (<code object range at 0x7f6cf3299030,
           306 LOAD CONST
                                        12 ('range')
           308 MAKE_FUNCTION
                                         0
           310 LOAD_CONST
                                        12 ('range')
           312 LOAD NAME
                                        15 (object)
           314 CALL_FUNCTION
                                         3
           316 STORE_NAME
                                        19 (range)
78
           318 LOAD CONST
                                         0 (0)
           320 LOAD_CONST
                                        13 (('Sequence',))
           322 IMPORT_NAME
                                        60 (collections)
           324 IMPORT_FROM
                                        61 (Sequence)
           326 STORE NAME
                                        62 (coconut Sequence)
           328 POP_TOP
79
           330 LOAD_NAME
                                        62 (_coconut_Sequence)
           332 LOAD METHOD
                                        63 (register)
           334 LOAD_NAME
                                        19 (range)
           336 CALL_METHOD
                                         1
           338 POP_TOP
80
           340 LOAD_CONST
                                         0 (0)
           342 LOAD_CONST
                                        14 (('wraps',))
           344 IMPORT NAME
                                        64 (functools)
           346 IMPORT_FROM
                                        65 (wraps)
           348 STORE NAME
                                        66 (_coconut_wraps)
           350 POP_TOP
81
                                        66 (_coconut_wraps)
           352 LOAD_NAME
                                        53 (_coconut_print)
           354 LOAD_NAME
```

```
356 CALL_FUNCTION
                                          1
 82
            358 LOAD_CONST
                                          15 (<code object print at 0x7f6cf32993a0,
            360 LOAD_CONST
                                         16 ('print')
            362 MAKE_FUNCTION
                                          0
            364 CALL_FUNCTION
                                          1
            366 STORE_NAME
                                         18 (print)
 93
            368 LOAD_NAME
                                         66 (_coconut_wraps)
            370 LOAD NAME
                                         49 (_coconut_raw_input)
            372 CALL_FUNCTION
                                          1
 94
                                         17 (<code object input at 0x7f6cf32992f0,
            374 LOAD_CONST
            376 LOAD_CONST
                                         18 ('input')
            378 MAKE_FUNCTION
                                          0
            380 CALL_FUNCTION
                                          1
            382 STORE_NAME
                                         12 (input)
 98
            384 LOAD_NAME
                                         66 (_coconut_wraps)
            386 LOAD_NAME
                                         56 (_coconut_repr)
            388 CALL FUNCTION
                                          1
 99
            390 LOAD_CONST
                                         19 (<code object repr at 0x7f6cf3299450, 1
                                         20 ('repr')
            392 LOAD_CONST
            394 MAKE_FUNCTION
                                          0
            396 CALL_FUNCTION
                                          1
            398 STORE_NAME
                                         26 (repr)
105
            400 LOAD_NAME
                                         26 (repr)
            402 STORE_NAME
                                         67 (ascii)
106
                                         21 (<code object raw_input at 0x7f6cf32998
            404 LOAD_CONST
                                         22 ('raw_input')
            406 LOAD_CONST
            408 MAKE_FUNCTION
                                          0
            410 STORE_NAME
                                         24 (raw_input)
109
                                         23 (<code object xrange at 0x7f6cf32995b0)
            412 LOAD_CONST
                                         24 ('xrange')
            414 LOAD_CONST
```

```
112
            420 LOAD_NAME
                                          6 (_coconut_sys)
                                         7 (version_info)
            422 LOAD_ATTR
                                         25 ((2, 7))
            424 LOAD_CONST
            426 COMPARE_OP
                                          0 (<)
            428 EXTENDED_ARG
                                          2
            430 POP_JUMP_IF_FALSE
                                        634
                                          0(0)
113
            432 LOAD_CONST
            434 LOAD_CONST
                                          2 (None)
            436 IMPORT_NAME
                                         64 (functools)
            438 STORE_NAME
                                         68 (_coconut_functools)
                                         0 (0)
            440 LOAD_CONST
            442 LOAD_CONST
                                          2 (None)
            444 IMPORT_NAME
                                         69 (copy_reg)
            446 STORE_NAME
                                         70 (_coconut_copy_reg)
114
            448 LOAD_CONST
                                         26 (<code object _coconut_new_partial at (
                                         27 ('_coconut_new_partial')
            450 LOAD_CONST
            452 MAKE_FUNCTION
                                          0
            454 STORE_NAME
                                         71 (_coconut_new_partial)
116
            456 LOAD_NAME
                                         70 (_coconut_copy_reg)
            458 LOAD_METHOD
                                         72 (constructor)
            460 LOAD_NAME
                                         71 (_coconut_new_partial)
            462 CALL_METHOD
                                          1
            464 POP_TOP
117
            466 LOAD_CONST
                                         28 (<code object _coconut_reduce_partial a
            468 LOAD_CONST
                                         29 ('_coconut_reduce_partial')
                                          0
            470 MAKE_FUNCTION
            472 STORE_NAME
                                         73 (_coconut_reduce_partial)
119
                                         70 (_coconut_copy_reg)
            474 LOAD_NAME
            476 LOAD_METHOD
                                         74 (pickle)
                                         68 (_coconut_functools)
            478 LOAD_NAME
```

25 (xrange)

416 MAKE_FUNCTION

418 STORE NAME

```
480 LOAD_ATTR
                                         75 (partial)
                                         73 (_coconut_reduce_partial)
            482 LOAD NAME
            484 CALL_METHOD
            486 POP_TOP
                                       144 (to 634)
            488 JUMP_FORWARD
121
                                          0 (0)
        >> 490 LOAD CONST
            492 LOAD_CONST
                                         30 (('chr', 'filter', 'hex', 'input', 'in
            494 IMPORT NAME
                                         76 (builtins)
            496 IMPORT FROM
                                          9 (chr)
            498 STORE_NAME
                                          9 (chr)
            500 IMPORT_FROM
                                         10 (filter)
            502 STORE NAME
                                         10 (filter)
                                         11 (hex)
            504 IMPORT_FROM
            506 STORE NAME
                                         11 (hex)
            508 IMPORT_FROM
                                         12 (input)
            510 STORE NAME
                                         12 (input)
            512 IMPORT FROM
                                         13 (int)
            514 STORE_NAME
                                         13 (int)
            516 IMPORT_FROM
                                         14 (map)
            518 STORE_NAME
                                         14 (map)
            520 IMPORT_FROM
                                         15 (object)
            522 STORE_NAME
                                         15 (object)
            524 IMPORT_FROM
                                         16 (oct)
            526 STORE NAME
                                         16 (oct)
            528 IMPORT FROM
                                         17 (open)
            530 STORE_NAME
                                         17 (open)
            532 IMPORT_FROM
                                         18 (print)
            534 STORE_NAME
                                         18 (print)
                                         19 (range)
            536 IMPORT FROM
            538 STORE_NAME
                                         19 (range)
            540 IMPORT FROM
                                         20 (str)
            542 STORE_NAME
                                         20 (str)
            544 IMPORT_FROM
                                         21 (zip)
            546 STORE_NAME
                                         21 (zip)
            548 IMPORT FROM
                                         10 (filter)
            550 STORE_NAME
                                        10 (filter)
            552 IMPORT_FROM
                                         22 (reversed)
```

```
554 STORE_NAME
                                          22 (reversed)
            556 IMPORT FROM
                                          23 (enumerate)
            558 STORE NAME
                                          23 (enumerate)
            560 POP_TOP
122
                                           9 (chr)
            562 LOAD NAME
            564 LOAD NAME
                                          11 (hex)
            566 LOAD_NAME
                                          12 (input)
            568 LOAD NAME
                                          13 (int)
            570 LOAD NAME
                                          14 (map)
            572 LOAD_NAME
                                          15 (object)
            574 LOAD_NAME
                                          16 (oct)
                                          17 (open)
            576 LOAD NAME
            578 LOAD_NAME
                                          18 (print)
            580 LOAD NAME
                                          19 (range)
            582 LOAD_NAME
                                          20 (str)
            584 LOAD NAME
                                          21 (zip)
                                          10 (filter)
            586 LOAD NAME
            588 LOAD_NAME
                                          22 (reversed)
                                          23 (enumerate)
            590 LOAD_NAME
            592 LOAD NAME
                                          26 (repr)
            594 BUILD_TUPLE
                                          16
            596 UNPACK_SEQUENCE
                                          16
                                          27 (py_chr)
            598 STORE_NAME
            600 STORE NAME
                                          28 (py_hex)
            602 STORE NAME
                                          29 (py_input)
            604 STORE_NAME
                                          30 (py_int)
            606 STORE_NAME
                                          31 (py_map)
            608 STORE_NAME
                                          32 (py_object)
            610 STORE NAME
                                          33 (py_oct)
            612 STORE_NAME
                                          34 (py_open)
            614 STORE NAME
                                          35 (py_print)
            616 STORE NAME
                                          36 (py_range)
            618 STORE NAME
                                          37 (py_str)
            620 STORE_NAME
                                          38 (py_zip)
            622 STORE NAME
                                          39 (py filter)
            624 STORE_NAME
                                          40 (py_reversed)
            626 STORE_NAME
                                          41 (py_enumerate)
```

```
628 STORE_NAME
                                         44 (py_repr)
123
            630 LOAD_NAME
                                         20 (str)
            632 STORE_NAME
                                         54 (_coconut_str)
124
        >> 634 LOAD_BUILD_CLASS
            636 LOAD_CONST
                                         31 (<code object _coconut at 0x7f6cf3299b3
                                         32 ('_coconut')
            638 LOAD_CONST
                                          0
            640 MAKE_FUNCTION
            642 LOAD_CONST
                                         32 ('_coconut')
            644 LOAD_NAME
                                         15 (object)
            646 CALL_FUNCTION
                                          3
            648 STORE_NAME
                                         77 (_coconut)
148
            650 LOAD_NAME
                                         77 (_coconut)
            652 LOAD_METHOD
                                         15 (object)
                                          0
            654 CALL METHOD
            656 STORE_NAME
                                         78 (_coconut_sentinel)
149
            658 LOAD_BUILD_CLASS
                                         33 (<code object MatchError at 0x7f6cf3299
            660 LOAD_CONST
                                         34 ('MatchError')
            662 LOAD_CONST
                                          0
            664 MAKE_FUNCTION
            666 LOAD_CONST
                                         34 ('MatchError')
            668 LOAD_NAME
                                         79 (Exception)
            670 CALL_FUNCTION
                                          3
            672 STORE_NAME
                                         80 (MatchError)
152
            674 LOAD_BUILD_CLASS
            676 LOAD_CONST
                                         35 (<code object _coconut_tail_call at 0x7
                                         36 ('_coconut_tail_call')
            678 LOAD_CONST
            680 MAKE_FUNCTION
                                         36 ('_coconut_tail_call')
            682 LOAD_CONST
            684 LOAD_NAME
                                         15 (object)
            686 CALL_FUNCTION
                                          3
            688 STORE_NAME
                                         81 (_coconut_tail_call)
156
            690 BUILD_MAP
                                          0
```

```
692 STORE_NAME
                                         82 (_coconut_tco_func_dict)
157
            694 LOAD_CONST
                                         37 (<code object _coconut_tco at 0x7f6cf32
            696 LOAD_CONST
                                         38 ('_coconut_tco')
            698 MAKE_FUNCTION
                                          0
            700 STORE_NAME
                                         83 (_coconut_tco)
                                         39 (<code object _coconut_igetitem at 0x7
175
            702 LOAD_CONST
                                         40 ('_coconut_igetitem')
            704 LOAD CONST
            706 MAKE FUNCTION
                                          0
            708 STORE_NAME
                                         84 (_coconut_igetitem)
190
            710 LOAD_BUILD_CLASS
            712 LOAD_CONST
                                         41 (<code object _coconut_base_compose at
                                         42 ('_coconut_base_compose')
            714 LOAD_CONST
            716 MAKE_FUNCTION
            718 LOAD CONST
                                         42 ('_coconut_base_compose')
            720 LOAD_NAME
                                         15 (object)
            722 CALL_FUNCTION
                                          3
            724 STORE_NAME
                                         85 (_coconut_base_compose)
219
            726 LOAD_CONST
                                         43 (<code object _coconut_forward_compose
                                         44 ('_coconut_forward_compose')
            728 LOAD_CONST
            730 MAKE_FUNCTION
                                          0
            732 STORE_NAME
                                         86 (_coconut_forward_compose)
220
            734 LOAD_CONST
                                         45 (<code object _coconut_back_compose at
                                         46 ('_coconut_back_compose')
            736 LOAD_CONST
            738 MAKE_FUNCTION
                                         87 (coconut back compose)
            740 STORE_NAME
221
                                         47 (<code object _coconut_forward_star_cor
            742 LOAD_CONST
                                         48 ('_coconut_forward_star_compose')
            744 LOAD_CONST
            746 MAKE_FUNCTION
            748 STORE_NAME
                                         88 (_coconut_forward_star_compose)
222
            750 LOAD_CONST
                                         49 (<code object _coconut_back_star_compos
```

50 ('_coconut_back_star_compose')

752 LOAD_CONST

```
754 MAKE_FUNCTION
                                          0
            756 STORE NAME
                                         89 (coconut back star compose)
223
            758 LOAD_CONST
                                         51 (<code object _coconut_forward_dubstar_
                                         52 ('_coconut_forward_dubstar_compose')
            760 LOAD_CONST
            762 MAKE_FUNCTION
                                          0
            764 STORE_NAME
                                         90 (_coconut_forward_dubstar_compose)
224
            766 LOAD_CONST
                                         53 (<code object _coconut_back_dubstar_cor
            768 LOAD CONST
                                         54 ('_coconut_back_dubstar_compose')
            770 MAKE_FUNCTION
                                          0
            772 STORE_NAME
                                         91 (_coconut_back_dubstar_compose)
225
            774 LOAD_CONST
                                         55 (<code object _coconut_pipe at 0x7f6cf3
                                         56 ('_coconut_pipe')
            776 LOAD_CONST
            778 MAKE_FUNCTION
                                          0
            780 STORE_NAME
                                         92 (coconut pipe)
226
            782 LOAD_CONST
                                         57 (<code object _coconut_star_pipe at 0x7
            784 LOAD_CONST
                                         58 ('_coconut_star_pipe')
            786 MAKE_FUNCTION
                                          0
            788 STORE_NAME
                                         93 (_coconut_star_pipe)
227
            790 LOAD_CONST
                                         59 (<code object _coconut_dubstar_pipe at
                                         60 ('_coconut_dubstar_pipe')
            792 LOAD_CONST
            794 MAKE FUNCTION
                                          0
            796 STORE_NAME
                                         94 (_coconut_dubstar_pipe)
228
            798 LOAD_CONST
                                         61 (<code object _coconut_back_pipe at 0x7
                                         62 ('_coconut_back_pipe')
            800 LOAD_CONST
            802 MAKE_FUNCTION
                                          0
            804 STORE_NAME
                                         95 (_coconut_back_pipe)
229
            806 LOAD_CONST
                                         63 (<code object _coconut_back_star_pipe a
            808 LOAD_CONST
                                         64 ('_coconut_back_star_pipe')
            810 MAKE FUNCTION
                                          0
            812 STORE_NAME
                                         96 (_coconut_back_star_pipe)
```

```
230
            814 LOAD_CONST
                                         65 (<code object _coconut_back_dubstar_pip
                                         66 ('_coconut_back_dubstar_pipe')
            816 LOAD CONST
            818 MAKE_FUNCTION
            820 STORE_NAME
                                         97 (_coconut_back_dubstar_pipe)
231
            822 LOAD_CONST
                                        129 ((None,))
            824 LOAD_CONST
                                         67 (<code object _coconut_assert at 0x7f6
            826 LOAD_CONST
                                         68 ('_coconut_assert')
            828 MAKE_FUNCTION
                                          1 (defaults)
            830 STORE_NAME
                                         98 (_coconut_assert)
232
                                         69 (<code object _coconut_bool_and at 0x7
            832 LOAD_CONST
                                         70 ('_coconut_bool_and')
            834 LOAD_CONST
            836 MAKE_FUNCTION
                                          0
            838 STORE_NAME
                                         99 (_coconut_bool_and)
233
                                         71 (<code object _coconut_bool_or at 0x7f6
            840 LOAD_CONST
                                         72 ('_coconut_bool_or')
            842 LOAD_CONST
            844 MAKE_FUNCTION
                                          0
            846 STORE_NAME
                                        100 (_coconut_bool_or)
            848 LOAD_CONST
234
                                         73 (<code object _coconut_none_coalesce at
            850 LOAD_CONST
                                         74 ('_coconut_none_coalesce')
            852 MAKE_FUNCTION
                                          0
            854 STORE_NAME
                                        101 (_coconut_none_coalesce)
235
            856 LOAD_CONST
                                         75 (<code object _coconut_minus at 0x7f6ct
            858 LOAD_CONST
                                         76 ('_coconut_minus')
            860 MAKE_FUNCTION
            862 STORE_NAME
                                        102 (_coconut_minus)
241
            864 LOAD_NAME
                                         77 (_coconut)
            866 LOAD_ATTR
                                         64 (functools)
            868 LOAD_METHOD
                                         65 (wraps)
            870 LOAD_NAME
                                         77 (_coconut)
            872 LOAD ATTR
                                        103 (itertools)
            874 LOAD_ATTR
                                        104 (tee)
```

876 CALL_METHOD

```
878 LOAD CONST
                                        130 ((2,))
            880 LOAD_CONST
                                         78 (<code object tee at 0x7f6cf329e5b0, fr
                                         79 ('tee')
            882 LOAD_CONST
                                          1 (defaults)
            884 MAKE_FUNCTION
            886 CALL_FUNCTION
                                          1
            888 STORE_NAME
                                        104 (tee)
248
            890 LOAD_BUILD_CLASS
            892 LOAD_CONST
                                         80 (<code object reiterable at 0x7f6cf329e
                                         81 ('reiterable')
            894 LOAD_CONST
            896 MAKE_FUNCTION
                                          0
                                         81 ('reiterable')
            898 LOAD_CONST
            900 LOAD_NAME
                                         15 (object)
                                          3
            902 CALL_FUNCTION
            904 STORE_NAME
                                        105 (reiterable)
272
            906 LOAD_BUILD_CLASS
            908 LOAD_CONST
                                         82 (<code object scan at 0x7f6cf32a3240, t
                                         83 ('scan')
            910 LOAD_CONST
            912 MAKE_FUNCTION
                                          0
            914 LOAD_CONST
                                         83 ('scan')
            916 LOAD_NAME
                                         15 (object)
            918 CALL_FUNCTION
                                          3
                                        106 (scan)
            920 STORE_NAME
300
            922 LOAD_BUILD_CLASS
            924 LOAD_CONST
                                         84 (<code object reversed at 0x7f6cf32a3d4
            926 LOAD_CONST
                                         85 ('reversed')
                                          0
            928 MAKE_FUNCTION
            930 LOAD_CONST
                                         85 ('reversed')
                                         15 (object)
            932 LOAD_NAME
            934 CALL_FUNCTION
                                          3
            936 STORE_NAME
                                         22 (reversed)
342
            938 LOAD_BUILD_CLASS
            940 LOAD_CONST
                                         86 (<code object map at 0x7f6cf32a6920, fr
            942 LOAD_CONST
                                         87 ('map')
```

```
944 MAKE_FUNCTION
                                          0
            946 LOAD CONST
                                         87 ('map')
            948 LOAD_NAME
                                         77 (_coconut)
                                         14 (map)
            950 LOAD_ATTR
            952 CALL_FUNCTION
                                          3
            954 STORE_NAME
                                         14 (map)
369
            956 LOAD_BUILD_CLASS
            958 LOAD_CONST
                                         88 (<code object parallel_map at 0x7f6cf32
            960 LOAD_CONST
                                         89 ('parallel_map')
            962 MAKE_FUNCTION
                                          0
            964 LOAD_CONST
                                         89 ('parallel_map')
                                         14 (map)
            966 LOAD_NAME
            968 CALL_FUNCTION
                                          3
            970 STORE_NAME
                                        107 (parallel_map)
379
            972 LOAD_BUILD_CLASS
            974 LOAD_CONST
                                         90 (<code object concurrent_map at 0x7f6ct
            976 LOAD_CONST
                                         91 ('concurrent_map')
            978 MAKE_FUNCTION
                                          0
            980 LOAD_CONST
                                         91 ('concurrent_map')
            982 LOAD_NAME
                                         14 (map)
                                          3
            984 CALL_FUNCTION
            986 STORE_NAME
                                        108 (concurrent_map)
389
            988 LOAD_BUILD_CLASS
            990 LOAD_CONST
                                         92 (<code object filter at 0x7f6cf32ab3a0)
                                         93 ('filter')
            992 LOAD_CONST
            994 MAKE_FUNCTION
                                          0
                                         93 ('filter')
            996 LOAD_CONST
            998 LOAD_NAME
                                         77 (_coconut)
                                         10 (filter)
           1000 LOAD_ATTR
                                          3
           1002 CALL_FUNCTION
           1004 STORE_NAME
                                         10 (filter)
410
           1006 LOAD_BUILD_CLASS
           1008 LOAD_CONST
                                         94 (<code object zip at 0x7f6cf32abea0, f:
           1010 LOAD_CONST
                                         95 ('zip')
```

```
1012 MAKE_FUNCTION
                                          0
           1014 LOAD_CONST
                                         95 ('zip')
           1016 LOAD_NAME
                                         77 (_coconut)
           1018 LOAD_ATTR
                                         21 (zip)
           1020 CALL_FUNCTION
                                          3
           1022 STORE_NAME
                                          21 (zip)
436
           1024 LOAD_BUILD_CLASS
                                          96 (<code object enumerate at 0x7f6cf32ac6
           1026 LOAD_CONST
                                         97 ('enumerate')
           1028 LOAD_CONST
           1030 MAKE_FUNCTION
                                          0
           1032 LOAD_CONST
                                         97 ('enumerate')
                                         77 (_coconut)
           1034 LOAD_NAME
           1036 LOAD_ATTR
                                          23 (enumerate)
                                          3
           1038 CALL_FUNCTION
           1040 STORE_NAME
                                          23 (enumerate)
461
           1042 LOAD_BUILD_CLASS
           1044 LOAD_CONST
                                         98 (<code object count at 0x7f6cf32b1190,
           1046 LOAD_CONST
                                          99 ('count')
           1048 MAKE_FUNCTION
                                          0
                                         99 ('count')
           1050 LOAD_CONST
                                         15 (object)
           1052 LOAD_NAME
           1054 CALL_FUNCTION
                                           3
                                         109 (count)
           1056 STORE_NAME
520
           1058 LOAD_BUILD_CLASS
                                         100 (<code object groupsof at 0x7f6cf32b166
           1060 LOAD_CONST
           1062 LOAD_CONST
                                         101 ('groupsof')
                                           0
           1064 MAKE_FUNCTION
           1066 LOAD_CONST
                                         101 ('groupsof')
                                         15 (object)
           1068 LOAD_NAME
                                           3
           1070 CALL_FUNCTION
           1072 STORE_NAME
                                         110 (groupsof)
555
           1074 LOAD_BUILD_CLASS
           1076 LOAD_CONST
                                         102 (<code object recursive_iterator at 0x7
                                         103 ('recursive_iterator')
           1078 LOAD_CONST
```

```
1080 MAKE_FUNCTION
                                          0
           1082 LOAD CONST
                                        103 ('recursive_iterator')
           1084 LOAD_NAME
                                         15 (object)
                                          3
           1086 CALL_FUNCTION
           1088 STORE_NAME
                                        111 (recursive_iterator)
594
           1090 LOAD_BUILD_CLASS
           1092 LOAD_CONST
                                        104 (<code object _coconut_FunctionMatchErr
                                        105 ('_coconut_FunctionMatchErrorContext')
           1094 LOAD_CONST
           1096 MAKE_FUNCTION
           1098 LOAD_CONST
                                        105 ('_coconut_FunctionMatchErrorContext')
           1100 LOAD_NAME
                                         15 (object)
                                          3
           1102 CALL_FUNCTION
           1104 STORE_NAME
                                        112 (_coconut_FunctionMatchErrorContext)
617
           1106 LOAD_NAME
                                        112 (_coconut_FunctionMatchErrorContext)
                                        113 (get)
           1108 LOAD ATTR
           1110 STORE_NAME
                                        114 (_coconut_get_function_match_error)
618
           1112 LOAD_BUILD_CLASS
           1114 LOAD_CONST
                                        106 (<code object _coconut_base_pattern_fur
                                        107 ('_coconut_base_pattern_func')
           1116 LOAD_CONST
                                          0
           1118 MAKE_FUNCTION
           1120 LOAD_CONST
                                        107 ('_coconut_base_pattern_func')
           1122 LOAD_NAME
                                         15 (object)
           1124 CALL_FUNCTION
                                          3
           1126 STORE_NAME
                                        115 (_coconut_base_pattern_func)
657
                                        108 (<code object _coconut_mark_as_match at
           1128 LOAD_CONST
                                        109 ('_coconut_mark_as_match')
           1130 LOAD_CONST
           1132 MAKE_FUNCTION
                                          0
           1134 STORE_NAME
                                        116 (_coconut_mark_as_match)
660
                                        110 (<code object addpattern at 0x7f6cf32cf
           1136 LOAD_CONST
           1138 LOAD_CONST
                                        111 ('addpattern')
           1140 MAKE FUNCTION
                                          0
           1142 STORE_NAME
                                        117 (addpattern)
```

```
669
           1144 LOAD_NAME
                                        117 (addpattern)
           1146 STORE NAME
                                        118 (coconut addpattern)
670
           1148 LOAD_BUILD_CLASS
           1150 LOAD_CONST
                                        112 (<code object _coconut_partial at 0x7f6
                                        113 ('_coconut_partial')
           1152 LOAD_CONST
                                          0
           1154 MAKE_FUNCTION
           1156 LOAD_CONST
                                        113 ('_coconut_partial')
           1158 LOAD_NAME
                                         15 (object)
           1160 CALL_FUNCTION
                                          3
           1162 STORE_NAME
                                        119 (_coconut_partial)
712
                                        131 ((0,))
           1164 LOAD_CONST
           1166 LOAD_CONST
                                        114 (<code object consume at 0x7f6cf32c1df0
                                        115 ('consume')
           1168 LOAD_CONST
           1170 MAKE_FUNCTION
                                          1 (defaults)
           1172 STORE_NAME
                                        120 (consume)
715
           1174 LOAD_BUILD_CLASS
           1176 LOAD_CONST
                                        116 (<code object starmap at 0x7f6cf32c25b0
                                        117 ('starmap')
           1178 LOAD_CONST
           1180 MAKE_FUNCTION
                                          0
           1182 LOAD_CONST
                                        117 ('starmap')
           1184 LOAD_NAME
                                        77 (_coconut)
                                        103 (itertools)
           1186 LOAD_ATTR
                                        121 (starmap)
           1188 LOAD_ATTR
           1190 CALL_FUNCTION
                                          3
                                        121 (starmap)
           1192 STORE_NAME
742
           1194 LOAD_CONST
                                        118 (<code object makedata at 0x7f6cf32c250
                                        119 ('makedata')
           1196 LOAD_CONST
           1198 MAKE_FUNCTION
                                          0
           1200 STORE_NAME
                                        122 (makedata)
751
           1202 LOAD_CONST
                                        120 (<code object fmap at 0x7f6cf32c2710, t
           1204 LOAD_CONST
                                        121 ('fmap')
           1206 MAKE_FUNCTION
                                          0
           1208 STORE_NAME
                                        123 (fmap)
```

```
760
           1210 LOAD CONST
                                         132 ((None,))
           1212 LOAD_CONST
                                         122 (<code object memoize at 0x7f6cf32c2660
           1214 LOAD_CONST
                                         123 ('memoize')
           1216 MAKE_FUNCTION
                                           1 (defaults)
                                         124 (memoize)
           1218 STORE_NAME
764
           1220 LOAD_NAME
                                          80 (MatchError)
           1222 LOAD NAME
                                         109 (count)
           1224 LOAD NAME
                                          23 (enumerate)
           1226 LOAD_NAME
                                         122 (makedata)
           1228 LOAD_NAME
                                          14 (map)
           1230 LOAD_NAME
                                          22 (reversed)
           1232 LOAD_NAME
                                         121 (starmap)
           1234 LOAD_NAME
                                         104 (tee)
           1236 LOAD_NAME
                                          21 (zip)
           1238 LOAD CONST
                                         124 (False)
           1240 LOAD_NAME
                                          77 (_coconut)
           1242 LOAD_ATTR
                                          64 (functools)
                                         125 (reduce)
           1244 LOAD_ATTR
           1246 LOAD_NAME
                                         77 (_coconut)
           1248 LOAD_ATTR
                                         103 (itertools)
           1250 LOAD_ATTR
                                         126 (takewhile)
           1252 LOAD_NAME
                                         77 (_coconut)
           1254 LOAD_ATTR
                                         103 (itertools)
           1256 LOAD_ATTR
                                         127 (dropwhile)
           1258 BUILD_TUPLE
                                          13
           1260 UNPACK_SEQUENCE
                                          13
           1262 STORE_NAME
                                         128 (_coconut_MatchError)
                                         129 (_coconut_count)
           1264 STORE NAME
           1266 STORE_NAME
                                         130 (_coconut_enumerate)
                                         131 (_coconut_makedata)
           1268 STORE NAME
           1270 STORE_NAME
                                         132 (_coconut_map)
           1272 STORE_NAME
                                         133 (_coconut_reversed)
           1274 STORE_NAME
                                         134 (_coconut_starmap)
                                         135 (_coconut_tee)
           1276 STORE NAME
                                         136 (_coconut_zip)
           1278 STORE_NAME
           1280 STORE_NAME
                                         137 (TYPE_CHECKING)
```

```
1282 STORE_NAME
                                       125 (reduce)
           1284 STORE_NAME
                                       126 (takewhile)
           1286 STORE_NAME
                                       127 (dropwhile)
768
           1288 LOAD_NAME
                                        83 (_coconut_tco)
769
           1290 LOAD_NAME
                                        116 (_coconut_mark_as_match)
                                        125 (<code object sieve at 0x7f6cf32c2c90,
770
           1292 LOAD_CONST
                                        126 ('sieve')
           1294 LOAD_CONST
                                          0
           1296 MAKE_FUNCTION
                                          1
           1298 CALL_FUNCTION
           1300 CALL_FUNCTION
                                          1
           1302 STORE_NAME
                                        138 (sieve)
787
           1304 LOAD_NAME
                                        86 (_coconut_forward_compose)
           1306 LOAD_NAME
                                        109 (count)
           1308 LOAD_NAME
                                        138 (sieve)
           1310 CALL_FUNCTION
                                          2
           1312 LOAD_CONST
                                         77 (2)
           1314 CALL_FUNCTION
                                          1
           1316 STORE_NAME
                                        139 (primes)
789
           1318 LOAD_NAME
                                         86 (_coconut_forward_compose)
           1320 LOAD_NAME
                                         77 (_coconut)
           1322 LOAD_ATTR
                                         64 (functools)
           1324 LOAD_METHOD
                                         75 (partial)
           1326 LOAD_NAME
                                        126 (takewhile)
           1328 LOAD_CONST
                                        127 (<code object <lambda> at 0x7f6cf32c2d4
           1330 LOAD_CONST
                                        128 ('<lambda>')
                                          0
           1332 MAKE_FUNCTION
           1334 CALL_METHOD
                                          2
           1336 LOAD_NAME
                                        140 (list)
           1338 LOAD_NAME
                                         18 (print)
           1340 CALL_FUNCTION
                                          3
                                        139 (primes)
           1342 LOAD_NAME
           1344 CALL_FUNCTION
                                          1
           1346 POP_TOP
```

```
1350 RETURN VALUE
Disassembly of <code object object at 0x7f6cf328c190, file "<dis>", line 18>:
 18
             O LOAD_NAME
                                        0 (__name__)
                                        1 (__module__)
             2 STORE NAME
                                        0 ('object')
             4 LOAD_CONST
                                        2 (__qualname__)
             6 STORE_NAME
19
             8 LOAD CONST
                                        1 (())
            10 STORE_NAME
                                        3 (__slots__)
20
            12 LOAD_CONST
                                        2 (<code object __ne__ at 0x7f6cf328c0e0
                                        3 ('object.__ne__')
            14 LOAD_CONST
            16 MAKE_FUNCTION
                                        4 (__ne__)
            18 STORE_NAME
            20 LOAD CONST
                                        4 (None)
            22 RETURN_VALUE
Disassembly of <code object __ne__ at 0x7f6cf328c0e0, file "<dis>", line 20>:
21
             O LOAD_FAST
                                        0 (self)
             2 LOAD_FAST
                                        1 (other)
             4 COMPARE OP
                                       2 (==)
             6 STORE_FAST
                                        2 (eq)
22
             8 LOAD_FAST
                                       2 (eq)
                                    0 (_coconut_NotImplemented)
            10 LOAD_GLOBAL
            12 COMPARE OP
                                       8 (is)
            14 POP_JUMP_IF_FALSE
                                       20
23
                                        2 (eq)
            16 LOAD_FAST
            18 RETURN_VALUE
                                        2 (eq)
24
       >>
            20 LOAD_FAST
            22 UNARY_NOT
            24 RETURN VALUE
```

2 (None)

1348 LOAD_CONST

Disassembly of <code object int at 0x7f6cf328c500, file "<dis>", line 25>:

```
O LOAD_NAME
                                          0 (__name__)
                                          1 (__module__)
              2 STORE NAME
                                          0 ('int')
              4 LOAD_CONST
              6 STORE_NAME
                                          2 (__qualname__)
                                          1 (())
 26
              8 LOAD_CONST
                                          3 (__slots__)
             10 STORE_NAME
                                          4 (hasattr)
 27
             12 LOAD_NAME
             14 LOAD_NAME
                                          5 (_coconut_int)
                                          2 ('__doc__')
             16 LOAD_CONST
             18 CALL_FUNCTION
             20 POP_JUMP_IF_FALSE
                                         28
                                          5 (_coconut_int)
 28
             22 LOAD_NAME
             24 LOAD_ATTR
                                          6 (__doc__)
                                          6 (__doc__)
             26 STORE_NAME
 29
        >>
             28 LOAD_BUILD_CLASS
             30 LOAD_CONST
                                          3 (<code object __metaclass__ at 0x7f6cf3
                                          4 ('__metaclass__')
             32 LOAD_CONST
             34 MAKE_FUNCTION
                                          4 ('__metaclass__')
             36 LOAD_CONST
                                          7 (type)
             38 LOAD_NAME
             40 CALL_FUNCTION
                                          3
             42 STORE_NAME
                                          8 (__metaclass__)
             44 LOAD_CONST
                                          5 (None)
             46 RETURN_VALUE
Disassembly of <code object __metaclass__ at 0x7f6cf328c450, file "<dis>", line 29
                                          0 (__name__)
 29
              O LOAD_NAME
              2 STORE_NAME
                                          1 (__module__)
                                          0 ('int.__metaclass__')
              4 LOAD_CONST
              6 STORE_NAME
                                          2 (__qualname__)
                                          1 (<code object __instancecheck__ at 0x7
 30
              8 LOAD_CONST
                                          2 ('int.__metaclass__._instancecheck__')
             10 LOAD_CONST
             12 MAKE_FUNCTION
```

25

```
14 STORE_NAME
                                         3 (__instancecheck__)
 32
                                          3 (<code object __subclasscheck__ at 0x7;</pre>
             16 LOAD_CONST
                                          4 ('int.__metaclass__._subclasscheck__')
             18 LOAD_CONST
             20 MAKE_FUNCTION
                                          4 (_subclasscheck__)
             22 STORE_NAME
             24 LOAD_CONST
                                          5 (None)
             26 RETURN_VALUE
Disassembly of <code object __instancecheck__ at 0x7f6cf328c2f0, file "<dis>", lin
 31
              O LOAD_GLOBAL
                                          0 (_coconut)
              2 LOAD_METHOD
                                          1 (isinstance)
              4 LOAD_FAST
                                          1 (inst)
              6 LOAD_GLOBAL
                                          2 (_coconut_int)
                                          3 (_coconut_long)
              8 LOAD_GLOBAL
             10 BUILD_TUPLE
                                          2
                                          2
             12 CALL_METHOD
             14 RETURN_VALUE
Disassembly of <code object __subclasscheck__ at 0x7f6cf328c3a0, file "<dis>", lin
 33
              O LOAD_GLOBAL
                                          0 (_coconut)
              2 LOAD_METHOD
                                          1 (issubclass)
              4 LOAD_FAST
                                          1 (subcls)
              6 LOAD_GLOBAL
                                          2 (_coconut_int)
                                          3 (_coconut_long)
              8 LOAD_GLOBAL
             10 BUILD_TUPLE
                                          2
             12 CALL_METHOD
                                          2
             14 RETURN_VALUE
Disassembly of <code object range at 0x7f6cf3299030, file "<dis>", line 34>:
 34
              O LOAD_NAME
                                          0 (__name__)
              2 STORE_NAME
                                          1 (__module__)
                                          0 ('range')
              4 LOAD_CONST
              6 STORE_NAME
                                          2 (__qualname__)
 35
                                          1 (('_xrange',))
              8 LOAD CONST
                                          3 (__slots__)
             10 STORE_NAME
```

```
36
            12 LOAD_NAME
                                         4 (hasattr)
            14 LOAD NAME
                                         5 (_coconut_xrange)
                                         2 ('__doc__')
            16 LOAD_CONST
                                         2
            18 CALL_FUNCTION
            20 POP_JUMP_IF_FALSE
                                        28
37
            22 LOAD_NAME
                                         5 (_coconut_xrange)
            24 LOAD_ATTR
                                         6 (__doc__)
                                         6 (__doc__)
            26 STORE_NAME
38
       >>
            28 LOAD_CONST
                                         3 (<code object __init__ at 0x7f6cf328c5)
                                         4 ('range.__init__')
            30 LOAD_CONST
            32 MAKE_FUNCTION
                                         7 (__init__)
            34 STORE_NAME
40
            36 LOAD_CONST
                                         5 (<code object __iter__ at 0x7f6cf328c66
            38 LOAD CONST
                                         6 ('range. iter ')
            40 MAKE_FUNCTION
            42 STORE_NAME
                                         8 (__iter__)
                                         7 (<code object __reversed__ at 0x7f6cf32
42
            44 LOAD CONST
                                         8 ('range.__reversed__')
            46 LOAD_CONST
                                         0
            48 MAKE_FUNCTION
            50 STORE_NAME
                                         9 (__reversed__)
44
                                         9 (<code object __len__ at 0x7f6cf328c7c0
            52 LOAD_CONST
            54 LOAD_CONST
                                        10 ('range.__len__')
            56 MAKE_FUNCTION
                                         0
            58 STORE_NAME
                                        10 (__len__)
                                        11 (<code object __contains__ at 0x7f6cf32
46
            60 LOAD_CONST
            62 LOAD_CONST
                                        12 ('range.__contains__')
                                         0
            64 MAKE_FUNCTION
            66 STORE_NAME
                                        11 (__contains__)
48
                                        13 (<code object __getitem__ at 0x7f6cf328
            68 LOAD CONST
                                        14 ('range.__getitem__')
            70 LOAD_CONST
            72 MAKE_FUNCTION
                                         0
```

```
15 (<code object count at 0x7f6cf328c9d0,
55
            76 LOAD_CONST
                                        16 ('range.count')
            78 LOAD_CONST
            80 MAKE_FUNCTION
                                         0
                                        13 (count)
            82 STORE_NAME
58
            84 LOAD_CONST
                                        17 (<code object index at 0x7f6cf328ca80,
                                        18 ('range.index')
            86 LOAD CONST
            88 MAKE FUNCTION
                                         0
            90 STORE_NAME
                                        14 (index)
63
                                        19 (<code object __repr__ at 0x7f6cf328cb3
            92 LOAD_CONST
            94 LOAD_CONST
                                        20 ('range.__repr__')
            96 MAKE_FUNCTION
                                         0
            98 STORE_NAME
                                        15 (__repr__)
                                        16 (property)
65
           100 LOAD_NAME
                                        21 (<code object _args at 0x7f6cf328cbe0,
66
           102 LOAD_CONST
                                        22 ('range._args')
           104 LOAD_CONST
           106 MAKE_FUNCTION
                                         0
           108 CALL_FUNCTION
                                         1
           110 STORE_NAME
                                        17 (_args)
68
                                        23 (<code object __reduce_ex__ at 0x7f6cf3
           112 LOAD_CONST
           114 LOAD_CONST
                                        24 ('range.__reduce_ex__')
           116 MAKE_FUNCTION
                                         0
           118 STORE_NAME
                                        18 (__reduce_ex__)
70
           120 LOAD_CONST
                                        25 (<code object __reduce__ at 0x7f6cf328c
           122 LOAD_CONST
                                        26 ('range.__reduce__')
                                         0
           124 MAKE_FUNCTION
           126 STORE_NAME
                                        19 (__reduce__)
72
                                        27 (<code object __hash__ at 0x7f6cf328cdf
           128 LOAD CONST
                                        28 ('range.__hash__')
           130 LOAD_CONST
           132 MAKE_FUNCTION
                                         0
```

12 (__getitem__)

74 STORE_NAME

```
74
                                         29 (<code object __copy__ at 0x7f6cf328cea
            136 LOAD_CONST
                                         30 ('range.__copy__')
            138 LOAD_CONST
            140 MAKE_FUNCTION
                                         0
            142 STORE_NAME
                                         21 (__copy__)
            144 LOAD_CONST
 76
                                         31 (<code object __eq_ at 0x7f6cf328cf50)
                                         32 ('range.__eq__')
            146 LOAD CONST
            148 MAKE_FUNCTION
                                         0
                                         22 (__eq__)
            150 STORE_NAME
            152 LOAD_CONST
                                         33 (None)
            154 RETURN_VALUE
Disassembly of <code object __init__ at 0x7f6cf328c5b0, file "<dis>", line 38>:
              O LOAD_GLOBAL
                                          0 (_coconut_xrange)
              2 LOAD FAST
                                          1 (args)
              4 CALL_FUNCTION_EX
              6 LOAD_FAST
                                          0 (self)
              8 STORE_ATTR
                                         1 (_xrange)
                                          0 (None)
             10 LOAD_CONST
             12 RETURN_VALUE
Disassembly of <code object __iter__ at 0x7f6cf328c660, file "<dis>", line 40>:
 41
              O LOAD_GLOBAL
                                          0 (_coconut)
              2 LOAD_METHOD
                                          1 (iter)
              4 LOAD_FAST
                                         0 (self)
                                          2 (_xrange)
              6 LOAD_ATTR
              8 CALL_METHOD
             10 RETURN_VALUE
Disassembly of <code object __reversed__ at 0x7f6cf328c710, file "<dis>", line 42
 43
                                         0 (_coconut)
              O LOAD_GLOBAL
              2 LOAD_METHOD
                                         1 (reversed)
              4 LOAD_FAST
                                          0 (self)
              6 LOAD ATTR
                                          2 (xrange)
              8 CALL_METHOD
             10 RETURN_VALUE
```

20 (_hash__)

134 STORE_NAME

```
Disassembly of <code object __len__ at 0x7f6cf328c7c0, file "<dis>", line 44>:
                                          0 (_coconut)
              O LOAD_GLOBAL
              2 LOAD_METHOD
                                          1 (len)
                                          0 (self)
              4 LOAD_FAST
                                          2 (_xrange)
              6 LOAD_ATTR
              8 CALL_METHOD
             10 RETURN_VALUE
Disassembly of <code object __contains__ at 0x7f6cf328c870, file "<dis>", line 46%
 47
              O LOAD_FAST
                                          1 (elem)
              2 LOAD_FAST
                                          0 (self)
              4 LOAD_ATTR
                                          0 (_xrange)
              6 COMPARE_OP
                                          6 (in)
              8 RETURN_VALUE
Disassembly of <code object __getitem__ at 0x7f6cf328c920, file "<dis>", line 48>
              O LOAD_GLOBAL
                                        0 (_coconut)
              2 LOAD_METHOD
                                         1 (isinstance)
              4 LOAD_FAST
                                         1 (index)
                                         0 (_coconut)
              6 LOAD GLOBAL
                                         2 (slice)
              8 LOAD_ATTR
             10 CALL_METHOD
                                         2
             12 EXTENDED_ARG
                                          1
             14 POP_JUMP_IF_FALSE
                                       260
 50
             16 LOAD_GLOBAL
                                          0 (_coconut)
                                          2 (slice)
             18 LOAD_ATTR
             20 LOAD_FAST
                                          0 (self)
             22 LOAD_ATTR
                                          3 (_args)
             24 CALL_FUNCTION_EX
             26 STORE_FAST
                                          2 (args)
 51
             28 LOAD_FAST
                                          2 (args)
             30 LOAD_ATTR
                                          4 (start)
             32 LOAD CONST
                                         0 (None)
             34 COMPARE_OP
                                          9 (is not)
             36 POP_JUMP_IF_FALSE
                                         44
```

```
38 LOAD_FAST
                                          2 (args)
            40 LOAD ATTR
                                          4 (start)
            42 JUMP_FORWARD
                                          2 (to 46)
            44 LOAD_CONST
                                          1 (0)
       >>
       >>
                                          2 (args)
            46 LOAD_FAST
            48 LOAD ATTR
                                          5 (stop)
            50 LOAD_FAST
                                          2 (args)
                                          6 (step)
            52 LOAD_ATTR
            54 LOAD CONST
                                          0 (None)
            56 COMPARE OP
                                          9 (is not)
            58 POP_JUMP_IF_FALSE
                                         66
            60 LOAD_FAST
                                          2 (args)
            62 LOAD ATTR
                                          6 (step)
            64 JUMP_FORWARD
                                          2 (to 68)
       >>
            66 LOAD CONST
                                          2 (1)
       >>
            68 LOAD_FAST
                                          1 (index)
            70 LOAD ATTR
                                          6 (step)
            72 LOAD_CONST
                                          0 (None)
            74 COMPARE_OP
                                          9 (is not)
            76 POP_JUMP_IF_FALSE
                                         84
            78 LOAD_FAST
                                          1 (index)
            80 LOAD_ATTR
                                          6 (step)
            82 JUMP_FORWARD
                                          2 (to 86)
       >>
            84 LOAD_CONST
                                          2 (1)
       >>
            86 BUILD TUPLE
                                          4
            88 UNPACK SEQUENCE
                                          4
            90 STORE_FAST
                                          3 (start)
                                          4 (stop)
            92 STORE_FAST
            94 STORE_FAST
                                          5 (step)
                                          6 (ind_step)
            96 STORE_FAST
52
            98 LOAD FAST
                                          0 (self)
                                          7 (__class__)
           100 LOAD_METHOD
           102 LOAD FAST
                                          1 (index)
           104 LOAD_ATTR
                                          4 (start)
           106 LOAD CONST
                                          0 (None)
           108 COMPARE_OP
                                          8 (is)
           110 POP_JUMP_IF_FALSE
                                        132
```

```
112 LOAD_FAST
                                 6 (ind_step)
    114 LOAD CONST
                                 1 (0)
    116 COMPARE OP
                                  5 (>=)
    118 POP_JUMP_IF_FALSE
                                124
    120 LOAD_FAST
                                  3 (start)
    122 JUMP ABSOLUTE
                                168
>>
    124 LOAD FAST
                                  4 (stop)
    126 LOAD_FAST
                                  5 (step)
    128 BINARY SUBTRACT
    130 JUMP FORWARD
                                36 (to 168)
>> 132 LOAD_FAST
                                 1 (index)
    134 LOAD_ATTR
                                 4 (start)
    136 LOAD CONST
                                1 (0)
    138 COMPARE OP
                                  5 (>=)
    140 POP_JUMP_IF_FALSE
                              156
    142 LOAD_FAST
                                  3 (start)
    144 LOAD FAST
                                  5 (step)
    146 LOAD_FAST
                                 1 (index)
    148 LOAD_ATTR
                                  4 (start)
    150 BINARY_MULTIPLY
    152 BINARY ADD
    154 JUMP_FORWARD
                              12 (to 168)
                                4 (stop)
>> 156 LOAD_FAST
    158 LOAD_FAST
                                5 (step)
    160 LOAD FAST
                                1 (index)
    162 LOAD ATTR
                                 4 (start)
    164 BINARY_MULTIPLY
    166 BINARY ADD
   168 LOAD_FAST
                                 1 (index)
    170 LOAD ATTR
                                5 (stop)
    172 LOAD_CONST
                                 0 (None)
    174 COMPARE OP
                                 8 (is)
    176 POP_JUMP_IF_FALSE
                                198
    178 LOAD FAST
                                  6 (ind step)
    180 LOAD_CONST
                                  1 (0)
    182 COMPARE OP
                                  5 (>=)
    184 POP_JUMP_IF_FALSE
                                190
    186 LOAD_FAST
                                  4 (stop)
```

		188	JUMP_ABSOLUTE	234	
	>>		LOAD FAST		(start)
			LOAD_FAST		(step)
			BINARY SUBTRACT		. 1.
			JUMP FORWARD	36	(to 234)
	>>		LOAD FAST		(index)
			LOAD_ATTR		(stop)
			LOAD_CONST		(0)
			COMPARE OP	5	(>=)
			POP_JUMP_IF_FALSE	222	
		208	LOAD_FAST	3	(start)
		210	LOAD_FAST	5	(step)
		212	LOAD_FAST	1	(index)
		214	LOAD_ATTR	5	(stop)
		216	BINARY_MULTIPLY		
		218	BINARY_ADD		
		220	JUMP_FORWARD	12	(to 234)
	>>	222	LOAD_FAST	4	(stop)
		224	LOAD_FAST	5	(step)
		226	LOAD_FAST	1	(index)
		228	LOAD_ATTR	5	(stop)
		230	BINARY_MULTIPLY		
		232	BINARY_ADD		
	>>	234	LOAD_FAST	1	(index)
		236	LOAD_ATTR	6	(step)
		238	LOAD_CONST	0	(None)
		240	COMPARE_OP	8	(is)
			POP_JUMP_IF_FALSE	248	
			LOAD_FAST		(step)
		246	JUMP_FORWARD	8	(to 256)
	>>	248	LOAD_FAST	5	(step)
		250	LOAD_FAST	1	(index)
		252	LOAD_ATTR	6	(step)
		254	BINARY_MULTIPLY		
	>>	256	CALL_METHOD	3	
		258	RETURN_VALUE		
54	>>	260	LOAD_FAST	0	(self)

```
262 LOAD_ATTR
                                         8 (_xrange)
            264 LOAD FAST
                                          1 (index)
            266 BINARY_SUBSCR
            268 RETURN_VALUE
                                          0 (None)
            270 LOAD_CONST
            272 RETURN_VALUE
Disassembly of <code object count at 0x7f6cf328c9d0, file "<dis>", line 55>:
 57
              O LOAD GLOBAL
                                         0 (_coconut_int)
              2 LOAD FAST
                                          1 (elem)
                                          0 (self)
              4 LOAD_FAST
              6 LOAD_ATTR
                                          1 (_xrange)
              8 COMPARE OP
                                          6 (in)
             10 CALL_FUNCTION
             12 RETURN_VALUE
Disassembly of <code object index at 0x7f6cf328ca80, file "<dis>", line 58>:
 60
              O LOAD_FAST
                                          1 (elem)
              2 LOAD_FAST
                                          0 (self)
              4 LOAD_ATTR
                                          0 (_xrange)
                                         7 (not in)
              6 COMPARE_OP
              8 POP_JUMP_IF_FALSE
                                         30
             10 LOAD GLOBAL
                                         1 (coconut)
             12 LOAD_METHOD
                                         2 (ValueError)
             14 LOAD GLOBAL
                                         1 (coconut)
             16 LOAD_METHOD
                                         3 (repr)
             18 LOAD_FAST
                                         1 (elem)
             20 CALL_METHOD
             22 LOAD_CONST
                                         1 (' is not in range')
             24 BINARY ADD
             26 CALL_METHOD
             28 RAISE_VARARGS
                                          1
      >>
 61
             30 LOAD_FAST
                                          0 (self)
             32 LOAD_ATTR
                                          0 (_xrange)
                                         4 ( reduce ex )
             34 LOAD METHOD
             36 LOAD_CONST
                                          2 (2)
             38 CALL_METHOD
                                          1
```

```
40 LOAD_CONST
             42 BINARY SUBSCR
             44 UNPACK_SEQUENCE
             46 STORE_FAST
                                          2 (start)
                                          3 (_)
             48 STORE_FAST
             50 STORE_FAST
                                          4 (step)
 62
             52 LOAD_FAST
                                          1 (elem)
             54 LOAD_FAST
                                          2 (start)
             56 BINARY_SUBTRACT
             58 LOAD_FAST
                                          4 (step)
             60 BINARY_FLOOR_DIVIDE
             62 RETURN_VALUE
Disassembly of <code object __repr__ at 0x7f6cf328cb30, file "<dis>", line 63>:
              O LOAD_GLOBAL
                                          0 (_coconut)
                                          1 (repr)
              2 LOAD METHOD
                                          0 (self)
              4 LOAD_FAST
              6 LOAD_ATTR
                                          2 (_xrange)
              8 CALL_METHOD
                                          1
                                          1 (1)
             10 LOAD CONST
                                          0 (None)
             12 LOAD_CONST
             14 BUILD_SLICE
                                          2
             16 BINARY_SUBSCR
             18 RETURN_VALUE
Disassembly of <code object _args at 0x7f6cf328cbe0, file "<dis>", line 65>:
 67
                                          0 (self)
              O LOAD_FAST
              2 LOAD_ATTR
                                          0 (_xrange)
                                          1 (__reduce__)
              4 LOAD_METHOD
              6 CALL_METHOD
              8 LOAD_CONST
                                          1 (1)
             10 BINARY_SUBSCR
             12 RETURN_VALUE
Disassembly of <code object __reduce_ex__ at 0x7f6cf328cc90, file "<dis>", line 68
                                         0 (self)
              O LOAD_FAST
                                          0 (__class__)
              2 LOAD_ATTR
```

3 (1)

```
0 (self)
              4 LOAD_FAST
                                        1 (_xrange)
              6 LOAD ATTR
                                        2 (__reduce_ex__)
             8 LOAD_METHOD
             10 LOAD_FAST
                                         1 (protocol)
             12 CALL_METHOD
             14 LOAD_CONST
                                         1 (1)
             16 BINARY_SUBSCR
             18 BUILD_TUPLE
                                         2
             20 RETURN_VALUE
Disassembly of <code object \_reduce\_ at 0x7f6cf328cd40, file "<dis>", line 70>:
             O LOAD_FAST
                                         0 (self)
                                        0 (__reduce_ex__)
              2 LOAD_METHOD
                                        1 (_coconut)
              4 LOAD_GLOBAL
                                      2 (pickle)
3 (DEFAULT_PROTOCOL)
              6 LOAD_ATTR
             8 LOAD_ATTR
             10 CALL_METHOD
                                         1
             12 RETURN_VALUE
Disassembly of <code object __hash__ at 0x7f6cf328cdf0, file "<dis>", line 72>:
 73
             O LOAD_GLOBAL
                                         0 (_coconut)
              2 LOAD_METHOD
                                        1 (hash)
              4 LOAD_FAST
                                       0 (self)
              6 LOAD_ATTR
                                        2 (_args)
              8 CALL_METHOD
             10 RETURN_VALUE
Disassembly of <code object \_copy\_ at 0x7f6cf328cea0, file "<dis>", line 74>:
 75
             O LOAD_FAST
                                         0 (self)
                                         0 (__class__)
              2 LOAD_ATTR
              4 LOAD_FAST
                                        0 (self)
              6 LOAD_ATTR
                                         1 (_args)
              8 CALL_FUNCTION_EX
             10 RETURN_VALUE
Disassembly of <code object \_eq_{\_} at 0x7f6cf328cf50, file "<dis>", line 76>:
              O LOAD_GLOBAL
                                    0 (_coconut)
 77
              2 LOAD_METHOD
                                        1 (isinstance)
```

```
4 LOAD_FAST
                                          1 (other)
              6 LOAD FAST
                                          0 (self)
                                          2 (__class__)
              8 LOAD_ATTR
             10 CALL_METHOD
                                          2
             12 JUMP_IF_FALSE_OR_POP
                                         24
             14 LOAD_FAST
                                          0 (self)
             16 LOAD_ATTR
                                          3 (_args)
             18 LOAD_FAST
                                          1 (other)
             20 LOAD_ATTR
                                          3 ( args)
             22 COMPARE OP
                                          2 (==)
        >>
             24 RETURN_VALUE
Disassembly of <code object print at 0x7f6cf32993a0, file "<dis>", line 81>:
 83
              O LOAD_FAST
                                          1 (kwargs)
              2 LOAD_METHOD
                                          0 (get)
              4 LOAD_CONST
                                          1 ('file')
              6 LOAD GLOBAL
                                          1 (coconut sys)
                                          2 (stdout)
              8 LOAD_ATTR
             10 CALL_METHOD
             12 STORE_DEREF
                                          0 (file)
 84
             14 LOAD_FAST
                                          1 (kwargs)
             16 LOAD_METHOD
                                          0 (get)
                                          2 ('flush')
             18 LOAD_CONST
             20 LOAD CONST
                                          3 (False)
             22 CALL METHOD
                                          2
             24 STORE_FAST
                                          2 (flush)
 85
             26 LOAD_CONST
                                          2 ('flush')
             28 LOAD FAST
                                          1 (kwargs)
             30 COMPARE_OP
                                          6 (in)
             32 POP_JUMP_IF_FALSE
                                         40
 86
             34 LOAD FAST
                                          1 (kwargs)
             36 LOAD_CONST
                                          2 ('flush')
             38 DELETE SUBSCR
                                          3 (_coconut)
 87
        >> 40 LOAD_GLOBAL
```

```
42 LOAD_METHOD
                                        4 (hasattr)
                                       0 (file)
            44 LOAD DEREF
                                        4 ('encoding')
            46 LOAD_CONST
            48 CALL_METHOD
                                        2
            50 POP_JUMP_IF_FALSE
                                       88
            52 LOAD_DEREF
                                        0 (file)
            54 LOAD_ATTR
                                        5 (encoding)
            56 LOAD_CONST
                                        0 (None)
            58 COMPARE OP
                                        9 (is not)
            60 POP_JUMP_IF_FALSE
                                       88
88
            62 LOAD_GLOBAL
                                        6 (_coconut_print)
            64 LOAD_CLOSURE
                                        0 (file)
            66 BUILD_TUPLE
                                         1
            68 LOAD_CONST
                                        5 (<code object <genexpr> at 0x7f6cf32993
                                        6 ('print.<locals>.<genexpr>')
            70 LOAD_CONST
                                        8 (closure)
            72 MAKE_FUNCTION
                                        0 (args)
            74 LOAD_FAST
            76 GET_ITER
            78 CALL_FUNCTION
            80 LOAD FAST
                                        1 (kwargs)
            82 CALL_FUNCTION_EX
            84 POP_TOP
            86 JUMP_FORWARD
                                       20 (to 108)
      >> 88 LOAD_GLOBAL
90
                                        6 (_coconut_print)
            90 LOAD_CONST
                                        7 (<code object <genexpr> at 0x7f6cf32992
                                        6 ('print.<locals>.<genexpr>')
            92 LOAD_CONST
            94 MAKE_FUNCTION
            96 LOAD_FAST
                                         0 (args)
            98 GET_ITER
           100 CALL_FUNCTION
                                        1 (kwargs)
           102 LOAD_FAST
           104 CALL_FUNCTION_EX
           106 POP_TOP
91
       >> 108 LOAD_FAST
                                         2 (flush)
           110 POP_JUMP_IF_FALSE
                                      120
```

```
92
                                         0 (file)
            112 LOAD DEREF
            114 LOAD_METHOD
                                         7 (flush)
            116 CALL_METHOD
            118 POP_TOP
        >> 120 LOAD_CONST
                                         0 (None)
            122 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf3299190, file "<dis>", line 88>:
 88
              O LOAD FAST
                                         0 (.0)
              2 FOR_ITER
                                        22 (to 26)
        >>
              4 STORE_FAST
                                         1 (x)
              6 LOAD_GLOBAL
                                         0 (_coconut_unicode)
              8 LOAD_FAST
                                         1(x)
             10 CALL_FUNCTION
             12 LOAD_METHOD
                                         1 (encode)
                                         0 (file)
             14 LOAD_DEREF
             16 LOAD_ATTR
                                         2 (encoding)
             18 CALL_METHOD
             20 YIELD_VALUE
             22 POP TOP
             24 JUMP_ABSOLUTE
             26 LOAD_CONST
                                         0 (None)
        >>
             28 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf3299240, file "<dis>", line 90>:
 90
              O LOAD_FAST
                                          0(.0)
        >>
              2 FOR_ITER
                                        18 (to 22)
              4 STORE_FAST
                                         1(x)
              6 LOAD_GLOBAL
                                          0 (_coconut_unicode)
                                         1(x)
              8 LOAD_FAST
             10 CALL_FUNCTION
                                         1
             12 LOAD_METHOD
                                         1 (encode)
             14 CALL_METHOD
                                          0
             16 YIELD_VALUE
             18 POP TOP
             20 JUMP_ABSOLUTE
                                         0 (None)
        >>
             22 LOAD_CONST
```

24 RETURN_VALUE

```
Disassembly of <code object input at 0x7f6cf32992f0, file "<dis>", line 93>:
95
              O LOAD GLOBAL
                                         0 (coconut)
              2 LOAD_METHOD
                                         1 (hasattr)
              4 LOAD GLOBAL
                                         2 (coconut sys)
                                         3 (stdout)
              6 LOAD_ATTR
              8 LOAD_CONST
                                         1 ('encoding')
                                         2
             10 CALL METHOD
             12 POP JUMP IF FALSE
                                        46
             14 LOAD_GLOBAL
                                         2 (_coconut_sys)
             16 LOAD_ATTR
                                         3 (stdout)
             18 LOAD ATTR
                                        4 (encoding)
             20 LOAD_CONST
                                        0 (None)
             22 COMPARE OP
                                         9 (is not)
             24 POP_JUMP_IF_FALSE
                                        46
96
             26 LOAD GLOBAL
                                         5 (coconut raw input)
                                         0 (args)
             28 LOAD_FAST
             30 LOAD_FAST
                                         1 (kwargs)
             32 CALL_FUNCTION_EX
                                         1
                                         6 (decode)
             34 LOAD_METHOD
             36 LOAD_GLOBAL
                                         2 (_coconut_sys)
                                         3 (stdout)
             38 LOAD_ATTR
             40 LOAD ATTR
                                         4 (encoding)
             42 CALL METHOD
             44 RETURN_VALUE
       >> 46 LOAD_GLOBAL
97
                                         5 (_coconut_raw_input)
             48 LOAD FAST
                                         0 (args)
                                         1 (kwargs)
             50 LOAD_FAST
             52 CALL FUNCTION EX
                                         1
                                         6 (decode)
             54 LOAD_METHOD
             56 CALL METHOD
                                         0
             58 RETURN_VALUE
Disassembly of <code object repr at 0x7f6cf3299450, file "<dis>", line 98>:
```

0 (isinstance)

O LOAD_GLOBAL

100

```
2 LOAD_FAST
                                         0 (obj)
                                         1 (coconut unicode)
              4 LOAD GLOBAL
              6 CALL_FUNCTION
              8 POP_JUMP_IF_FALSE
                                        30
101
             10 LOAD GLOBAL
                                         1 (_coconut_unicode)
             12 LOAD_GLOBAL
                                         2 (coconut repr)
             14 LOAD_FAST
                                         0 (obj)
                                         1
             16 CALL FUNCTION
             18 LOAD_CONST
                                         1 (1)
             20 LOAD_CONST
                                         0 (None)
             22 BUILD_SLICE
             24 BINARY SUBSCR
             26 CALL_FUNCTION
             28 RETURN_VALUE
102
       >>
             30 LOAD GLOBAL
                                         0 (isinstance)
             32 LOAD_FAST
                                         0 (obj)
                                         3 (_coconut_str)
             34 LOAD_GLOBAL
                                         2
             36 CALL_FUNCTION
             38 POP_JUMP_IF_FALSE
                                        56
103
             40 LOAD_CONST
                                         2 ('b')
             42 LOAD_GLOBAL
                                         1 (_coconut_unicode)
             44 LOAD GLOBAL
                                         2 (coconut repr)
             46 LOAD FAST
                                         0 (obj)
             48 CALL_FUNCTION
                                         1
             50 CALL_FUNCTION
             52 BINARY_ADD
             54 RETURN_VALUE
104
       >>
             56 LOAD GLOBAL
                                         1 (coconut unicode)
                                         2 (_coconut_repr)
             58 LOAD_GLOBAL
             60 LOAD_FAST
                                         0 (obj)
             62 CALL_FUNCTION
             64 CALL FUNCTION
                                         1
             66 RETURN_VALUE
```

```
Disassembly of <code object raw_input at 0x7f6cf3299500, file "<dis>", line 106>:
              O LOAD GLOBAL
                                         0 (coconut)
108
              2 LOAD_METHOD
                                          1 (NameError)
                                         1 ('Coconut uses Python 3 "input" instead
              4 LOAD_CONST
              6 CALL_METHOD
              8 RAISE_VARARGS
                                         2 (None)
             10 LOAD_CONST
             12 RETURN_VALUE
Disassembly of <code object xrange at 0x7f6cf32995b0, file "<dis>", line 109>:
                                         0 (_coconut)
111
              O LOAD_GLOBAL
              2 LOAD_METHOD
                                         1 (NameError)
              4 LOAD_CONST
                                         1 ('Coconut uses Python 3 "range" instead
              6 CALL_METHOD
              8 RAISE_VARARGS
             10 LOAD_CONST
                                         2 (None)
             12 RETURN_VALUE
Disassembly of <code object _coconut_new_partial at 0x7f6cf3299660, file "<dis>",
                                        0 (_coconut_functools)
115
              O LOAD_GLOBAL
                                          1 (partial)
              2 LOAD_ATTR
              4 LOAD_FAST
                                         0 (func)
              6 BUILD_TUPLE
                                         1
              8 LOAD_FAST
                                         1 (args)
             10 LOAD_CONST
                                         0 (None)
             12 COMPARE_OP
                                         9 (is not)
             14 POP_JUMP_IF_FALSE
                                         20
             16 LOAD_FAST
                                          1 (args)
             18 JUMP_FORWARD
                                          2 (to 22)
             20 LOAD_CONST
                                          1 (())
        >>
             22 BUILD_TUPLE_UNPACK_WITH_CALL
             24 LOAD FAST
                                          2 (keywords)
                                         0 (None)
             26 LOAD_CONST
             28 COMPARE_OP
                                         9 (is not)
             30 POP_JUMP_IF_FALSE
                                         2 (keywords)
             32 LOAD FAST
                                         2 (to 38)
             34 JUMP_FORWARD
        >>
             36 BUILD_MAP
```

```
40 RETURN VALUE
Disassembly of <code object _coconut_reduce_partial at 0x7f6cf3299710, file "<dis
118
              O LOAD_GLOBAL
                                          0 (_coconut_new_partial)
              2 LOAD_FAST
                                          0 (self)
              4 LOAD_ATTR
                                          1 (func)
              6 LOAD_FAST
                                          0 (self)
                                          2 (args)
              8 LOAD_ATTR
             10 LOAD_FAST
                                          0 (self)
                                          3 (keywords)
             12 LOAD_ATTR
                                          3
             14 BUILD_TUPLE
             16 BUILD_TUPLE
                                          2
             18 RETURN_VALUE
Disassembly of <code object _coconut at 0x7f6cf3299b30, file "<dis>", line 124>:
                                          0 (__name__)
124
              O LOAD NAME
                                          1 (__module__)
              2 STORE_NAME
                                          0 ('_coconut')
              4 LOAD_CONST
                                          2 (__qualname__)
              6 STORE_NAME
125
                                          1 (0)
              8 LOAD_CONST
             10 LOAD_CONST
                                          2 (None)
                                          3 (collections)
             12 IMPORT_NAME
             14 STORE_NAME
                                          3 (collections)
             16 LOAD_CONST
                                          1 (0)
             18 LOAD_CONST
                                          2 (None)
                                          4 (copy)
             20 IMPORT_NAME
             22 STORE_NAME
                                          4 (copy)
             24 LOAD_CONST
                                          1 (0)
             26 LOAD_CONST
                                          2 (None)
             28 IMPORT_NAME
                                          5 (functools)
             30 STORE_NAME
                                          5 (functools)
             32 LOAD_CONST
                                          1 (0)
             34 LOAD_CONST
                                          2 (None)
                                          6 (types)
             36 IMPORT_NAME
                                          6 (types)
             38 STORE_NAME
             40 LOAD_CONST
                                          1 (0)
```

>>

38 CALL_FUNCTION_EX

```
42 LOAD_CONST
                                          2 (None)
             44 IMPORT NAME
                                          7 (itertools)
             46 STORE_NAME
                                          7 (itertools)
             48 LOAD_CONST
                                          1 (0)
             50 LOAD_CONST
                                          2 (None)
                                          8 (operator)
             52 IMPORT NAME
             54 STORE NAME
                                          8 (operator)
             56 LOAD_CONST
                                          1 (0)
                                          2 (None)
             58 LOAD CONST
             60 IMPORT NAME
                                          9 (threading)
                                          9 (threading)
             62 STORE_NAME
             64 LOAD_CONST
                                          1 (0)
                                          2 (None)
             66 LOAD CONST
             68 IMPORT_NAME
                                          10 (weakref)
             70 STORE NAME
                                         10 (weakref)
             72 LOAD_CONST
                                          1 (0)
             74 LOAD CONST
                                          2 (None)
             76 IMPORT_NAME
                                         11 (os)
             78 STORE_NAME
                                         11 (os)
             80 LOAD_CONST
                                          1 (0)
             82 LOAD_CONST
                                          2 (None)
             84 IMPORT_NAME
                                          12 (warnings)
             86 STORE_NAME
                                         12 (warnings)
126
             88 LOAD NAME
                                          13 (coconut sys)
             90 LOAD ATTR
                                         14 (version info)
             92 LOAD_CONST
                                          3 ((3, 2))
                                          0 (<)
             94 COMPARE OP
             96 POP_JUMP_IF_FALSE
                                        142
127
             98 SETUP_FINALLY
                                         22 (to 122)
128
                                           1 (0)
            100 LOAD_CONST
            102 LOAD CONST
                                          4 (('lru cache',))
            104 IMPORT_NAME
                                          15 (backports.functools_lru_cache)
                                          16 (lru cache)
            106 IMPORT FROM
            108 STORE_NAME
                                          16 (lru_cache)
            110 POP_TOP
```

```
129
            112 LOAD NAME
                                         16 (lru cache)
            114 LOAD_NAME
                                          5 (functools)
            116 STORE_ATTR
                                         16 (lru_cache)
            118 POP_BLOCK
            120 JUMP_FORWARD
                                         20 (to 142)
130
        >> 122 DUP_TOP
            124 LOAD NAME
                                         17 (ImportError)
            126 COMPARE OP
                                         10 (exception match)
            128 POP_JUMP_IF_FALSE
                                        140
            130 POP_TOP
            132 POP TOP
            134 POP_TOP
            136 POP EXCEPT
            138 JUMP_FORWARD
                                          2 (to 142)
        >> 140 END FINALLY
131
        >> 142 LOAD_NAME
                                         13 (_coconut_sys)
            144 LOAD_ATTR
                                        14 (version_info)
            146 LOAD_CONST
                                         5 ((3,))
            148 COMPARE OP
                                          0 (<)
            150 POP_JUMP_IF_FALSE
                                        162
132
            152 LOAD CONST
                                          1 (0)
            154 LOAD CONST
                                          2 (None)
            156 IMPORT_NAME
                                         18 (cPickle)
            158 STORE NAME
                                         19 (pickle)
            160 JUMP_FORWARD
                                          8 (to 170)
134
        >> 162 LOAD_CONST
                                          1 (0)
            164 LOAD CONST
                                          2 (None)
            166 IMPORT_NAME
                                         19 (pickle)
            168 STORE_NAME
                                         19 (pickle)
135
        >> 170 LOAD NAME
                                         13 (coconut sys)
            172 LOAD_ATTR
                                         14 (version_info)
            174 LOAD_CONST
                                         6 ((2, 7))
```

```
176 COMPARE_OP
                                       5 (>=)
           178 POP JUMP IF FALSE
                                      188
136
           180 LOAD_NAME
                                       3 (collections)
           182 LOAD_ATTR
                                     20 (OrderedDict)
           184 STORE_NAME
                                       20 (OrderedDict)
           186 JUMP_FORWARD
                                       4 (to 192)
       >> 188 LOAD_NAME
138
                                       21 (dict)
           190 STORE NAME
                                       20 (OrderedDict)
139
       >> 192 LOAD_NAME
                                     13 (_coconut_sys)
           194 LOAD ATTR
                                      14 (version_info)
           196 LOAD_CONST
                                       7 ((3, 3))
           198 COMPARE OP
                                       0 (<)
           200 POP_JUMP_IF_FALSE
                                      208
140
           202 LOAD NAME
                                        3 (collections)
           204 STORE_NAME
                                       22 (abc)
           206 JUMP_FORWARD
                                       12 (to 220)
142
       >> 208 LOAD_CONST
                                       1 (0)
           210 LOAD_CONST
                                       2 (None)
           212 IMPORT_NAME
                                       23 (collections.abc)
           214 IMPORT FROM
                                      22 (abc)
           216 STORE NAME
                                       22 (abc)
           218 POP_TOP
143
       >> 220 LOAD_BUILD_CLASS
           222 LOAD_CONST
                                        8 (<code object typing at 0x7f6cf3299a80)
                                        9 ('typing')
           224 LOAD_CONST
           226 MAKE FUNCTION
                                       9 ('typing')
           228 LOAD_CONST
           230 LOAD NAME
                                       24 (object)
           232 CALL_FUNCTION
                                        3
           234 STORE NAME
                                       25 (typing)
147
           236 LOAD_NAME
                                       26 (Ellipsis)
```

```
238 LOAD_NAME
                             27 (Exception)
240 LOAD NAME
                             28 (AttributeError)
242 LOAD_NAME
                             17 (ImportError)
244 LOAD_NAME
                             29 (IndexError)
246 LOAD_NAME
                             30 (KeyError)
248 LOAD NAME
                             31 (NameError)
250 LOAD NAME
                             32 (TypeError)
252 LOAD_NAME
                             33 (ValueError)
                             34 (StopIteration)
254 LOAD NAME
256 LOAD NAME
                             35 (classmethod)
258 LOAD_NAME
                             21 (dict)
260 LOAD_NAME
                             36 (enumerate)
262 LOAD NAME
                             37 (filter)
264 LOAD_NAME
                             38 (float)
266 LOAD NAME
                             39 (frozenset)
268 LOAD_NAME
                             40 (getattr)
270 LOAD NAME
                             41 (hasattr)
                             42 (hash)
272 LOAD NAME
274 LOAD_NAME
                             43 (id)
276 LOAD_NAME
                             44 (int)
278 LOAD NAME
                             45 (isinstance)
280 LOAD_NAME
                             46 (issubclass)
282 LOAD_NAME
                             47 (iter)
284 LOAD_NAME
                             48 (len)
286 LOAD NAME
                             49 (list)
288 LOAD NAME
                             50 (locals)
290 LOAD_NAME
                             51 (map)
292 LOAD_NAME
                             52 (min)
294 LOAD_NAME
                             53 (max)
296 LOAD NAME
                             54 (next)
298 LOAD_NAME
                             24 (object)
300 LOAD NAME
                             55 (property)
302 LOAD_NAME
                             56 (range)
304 LOAD NAME
                             57 (reversed)
306 LOAD_NAME
                             58 (set)
308 LOAD NAME
                             59 (slice)
                             60 (str)
310 LOAD_NAME
312 LOAD_NAME
                             61 (sum)
```

```
314 LOAD_NAME
                             62 (super)
316 LOAD NAME
                             63 (tuple)
318 LOAD_NAME
                             64 (type)
320 LOAD_NAME
                             65 (zip)
322 LOAD_NAME
                             66 (staticmethod)
324 LOAD NAME
                             67 (repr)
326 CALL FUNCTION
                              1
328 LOAD_NAME
                             68 (bytearray)
                             45
330 BUILD TUPLE
332 UNPACK SEQUENCE
                             45
334 STORE NAME
                             26 (Ellipsis)
336 STORE_NAME
                             27 (Exception)
                             28 (AttributeError)
338 STORE NAME
340 STORE NAME
                             17 (ImportError)
                             29 (IndexError)
342 STORE NAME
344 STORE_NAME
                             30 (KeyError)
                             31 (NameError)
346 STORE NAME
                             32 (TypeError)
348 STORE NAME
350 STORE_NAME
                             33 (ValueError)
                             34 (StopIteration)
352 STORE_NAME
354 STORE NAME
                             35 (classmethod)
                             21 (dict)
356 STORE NAME
358 STORE NAME
                             36 (enumerate)
360 STORE_NAME
                             37 (filter)
                             38 (float)
362 STORE NAME
364 STORE NAME
                             39 (frozenset)
366 STORE_NAME
                             40 (getattr)
368 STORE_NAME
                             41 (hasattr)
370 STORE_NAME
                             42 (hash)
                             43 (id)
372 STORE NAME
374 STORE_NAME
                             44 (int)
376 STORE NAME
                             45 (isinstance)
                             46 (issubclass)
378 STORE NAME
380 STORE NAME
                             47 (iter)
382 STORE_NAME
                             48 (len)
384 STORE NAME
                             49 (list)
386 STORE_NAME
                             50 (locals)
388 STORE_NAME
                             51 (map)
```

```
400 STORE_NAME
                                         56 (range)
            402 STORE_NAME
                                         57 (reversed)
                                         58 (set)
            404 STORE_NAME
            406 STORE NAME
                                         59 (slice)
            408 STORE NAME
                                         60 (str)
            410 STORE_NAME
                                         61 (sum)
            412 STORE_NAME
                                         62 (super)
            414 STORE_NAME
                                         63 (tuple)
            416 STORE_NAME
                                         64 (type)
                                         65 (zip)
            418 STORE_NAME
            420 STORE_NAME
                                         67 (repr)
            422 STORE NAME
                                         68 (bytearray)
            424 LOAD_CONST
                                          2 (None)
            426 RETURN_VALUE
Disassembly of <code object typing at 0x7f6cf3299a80, file "<dis>", line 143>:
                                         0 (__name__)
              O LOAD_NAME
143
                                          1 (__module__)
              2 STORE_NAME
                                          0 ('_coconut.typing')
              4 LOAD_CONST
                                          2 (_qualname__)
              6 STORE_NAME
144
              8 LOAD_NAME
                                          3 (staticmethod)
145
             10 LOAD_CONST
                                          1 (<code object NamedTuple at 0x7f6cf3299
                                          2 ('_coconut.typing.NamedTuple')
             12 LOAD_CONST
             14 MAKE_FUNCTION
             16 CALL_FUNCTION
                                          1
             18 STORE_NAME
                                          4 (NamedTuple)
             20 LOAD_CONST
                                          3 (None)
             22 RETURN_VALUE
Disassembly of <code object NamedTuple at 0x7f6cf32999d0, file "<dis>", line 144>
              O LOAD_GLOBAL
146
                                          0 (_coconut)
```

52 (min)

53 (max)

54 (next)

24 (object) 55 (property)

390 STORE_NAME

392 STORE NAME

394 STORE_NAME

396 STORE_NAME

398 STORE_NAME

```
2 LOAD_ATTR
                                         1 (collections)
              4 LOAD_METHOD
                                          2 (namedtuple)
              6 LOAD_FAST
                                          0 (name)
                                          1 (<code object <li>stcomp> at 0x7f6cf3299
              8 LOAD_CONST
                                          2 ('_coconut.typing.NamedTuple.<locals>.
             10 LOAD_CONST
             12 MAKE_FUNCTION
             14 LOAD_FAST
                                          1 (fields)
             16 GET_ITER
             18 CALL_FUNCTION
             20 CALL_METHOD
             22 RETURN_VALUE
Disassembly of <code object <li>stcomp> at 0x7f6cf3299920, file "<dis>", line 146>:
146
              O BUILD_LIST
                                          0
              2 LOAD_FAST
                                          0(.0)
                                         12 (to 18)
              4 FOR_ITER
                                          2
              6 UNPACK_SEQUENCE
              8 STORE_FAST
                                          1(x)
             10 STORE_FAST
                                          2 (t)
             12 LOAD_FAST
                                         1(x)
             14 LIST_APPEND
                                          2
             16 JUMP_ABSOLUTE
             18 RETURN_VALUE
        >>
Disassembly of <code object MatchError at 0x7f6cf3299be0, file "<dis>", line 149>
                                          0 (__name__)
149
              O LOAD_NAME
              2 STORE_NAME
                                          1 (__module__)
                                          0 ('MatchError')
              4 LOAD_CONST
              6 STORE_NAME
                                          2 (__qualname__)
150
              8 LOAD_CONST
                                          1 ('Pattern-matching error. Has attribute
             10 STORE_NAME
                                          3 (__doc__)
151
             12 LOAD_CONST
                                          2 (('pattern', 'value'))
             14 STORE_NAME
                                          4 (__slots__)
                                          3 (None)
             16 LOAD_CONST
             18 RETURN_VALUE
```

```
Disassembly of <code object _coconut_tail_call at 0x7f6cf3299d40, file "<dis>", 15
                                          0 (__name__)
152
              O LOAD NAME
                                          1 (__module__)
              2 STORE_NAME
                                          0 ('_coconut_tail_call')
              4 LOAD_CONST
                                          2 (__qualname__)
              6 STORE_NAME
                                          1 (('func', 'args', 'kwargs'))
153
              8 LOAD_CONST
             10 STORE_NAME
                                          3 (__slots__)
154
                                          2 (<code object __init__ at 0x7f6cf3299cs
             12 LOAD_CONST
                                          3 ('_coconut_tail_call.__init__')
             14 LOAD_CONST
             16 MAKE_FUNCTION
             18 STORE_NAME
                                          4 (__init__)
             20 LOAD_CONST
                                          4 (None)
             22 RETURN_VALUE
Disassembly of <code object __init__ at 0x7f6cf3299c90, file "<dis>", line 154>:
155
              O LOAD_FAST
                                          1 (func)
              2 LOAD_FAST
                                          2 (args)
              4 LOAD_FAST
                                          3 (kwargs)
              6 ROT_THREE
              8 ROT_TWO
                                          0 (self)
             10 LOAD_FAST
             12 STORE_ATTR
                                          0 (func)
             14 LOAD_FAST
                                          0 (self)
             16 STORE_ATTR
                                          1 (args)
             18 LOAD_FAST
                                          0 (self)
             20 STORE_ATTR
                                          2 (kwargs)
             22 LOAD_CONST
                                          0 (None)
             24 RETURN_VALUE
Disassembly of <code object _coconut_tco at 0x7f6cf329c030, file "<dis>", line 157
158
              O LOAD_GLOBAL
                                          0 (_coconut)
              2 LOAD_ATTR
                                          1 (functools)
              4 LOAD_METHOD
                                          2 (wraps)
              6 LOAD DEREF
                                          0 (func)
```

8 CALL_METHOD

```
159
             10 LOAD_CLOSURE
                                          0 (func)
             12 BUILD TUPLE
                                           1
             14 LOAD_CONST
                                           1 (<code object tail_call_optimized_func</pre>
                                           2 ('_coconut_tco.<locals>.tail_call_optimates)
             16 LOAD_CONST
             18 MAKE_FUNCTION
                                           8 (closure)
             20 CALL_FUNCTION
                                           1
             22 STORE_FAST
                                           1 (tail_call_optimized_func)
169
             24 LOAD_DEREF
                                           0 (func)
             26 LOAD FAST
                                           1 (tail_call_optimized_func)
             28 STORE_ATTR
                                           3 (_coconut_tco_func)
170
                                           0 (_coconut)
             30 LOAD_GLOBAL
             32 LOAD_METHOD
                                           4 (getattr)
                                           0 (func)
             34 LOAD_DEREF
                                           3 ('__module__')
             36 LOAD_CONST
             38 LOAD CONST
                                           0 (None)
             40 CALL_METHOD
             42 LOAD_FAST
                                           1 (tail_call_optimized_func)
             44 STORE_ATTR
                                           5 (__module__)
171
             46 LOAD_GLOBAL
                                           0 (_coconut)
             48 LOAD_METHOD
                                           4 (getattr)
             50 LOAD_DEREF
                                           0 (func)
             52 LOAD_CONST
                                           4 ('__name__')
                                           5 ('<coconut tco function (pass --no-tco
             54 LOAD_CONST
             56 CALL_METHOD
                                           3
             58 LOAD_FAST
                                           1 (tail_call_optimized_func)
             60 STORE_ATTR
                                           6 (__name__)
172
             62 LOAD_GLOBAL
                                           0 (_coconut)
             64 LOAD_METHOD
                                           4 (getattr)
                                           0 (func)
             66 LOAD_DEREF
                                           6 ('__qualname__')
             68 LOAD_CONST
             70 LOAD_FAST
                                           1 (tail_call_optimized_func)
                                           6 (__name__)
             72 LOAD ATTR
             74 CALL_METHOD
             76 LOAD_FAST
                                           1 (tail_call_optimized_func)
```

```
78 STORE_ATTR
                                          7 (__qualname__)
173
             80 LOAD_GLOBAL
                                          0 (_coconut)
                                          8 (weakref)
             82 LOAD_ATTR
             84 LOAD_METHOD
                                          9 (ref)
             86 LOAD_FAST
                                          1 (tail_call_optimized_func)
             88 CALL_METHOD
             90 LOAD_GLOBAL
                                         10 (_coconut_tco_func_dict)
             92 LOAD_GLOBAL
                                          0 (_coconut)
             94 LOAD_METHOD
                                         11 (id)
             96 LOAD_FAST
                                          1 (tail_call_optimized_func)
             98 CALL_METHOD
            100 STORE_SUBSCR
174
            102 LOAD_FAST
                                          1 (tail_call_optimized_func)
            104 RETURN_VALUE
Disassembly of <code object tail_call_optimized_func at 0x7f6cf3299f50, file "<dis
160
              O LOAD_DEREF
                                          0 (func)
                                          2 (call_func)
              2 STORE_FAST
        >>
                                          0 (_coconut_tco_func_dict)
162
              4 LOAD_GLOBAL
                                          1 (get)
              6 LOAD_METHOD
                                          2 (_coconut)
              8 LOAD_GLOBAL
             10 LOAD_METHOD
                                          3 (id)
                                          2 (call_func)
             12 LOAD_FAST
             14 CALL_METHOD
                                          1
             16 CALL_METHOD
                                          1
             18 STORE_FAST
                                          3 (wkref)
                                          3 (wkref)
163
             20 LOAD_FAST
             22 LOAD_CONST
                                          0 (None)
                                          9 (is not)
             24 COMPARE_OP
             26 POP_JUMP_IF_FALSE
                                         38
             28 LOAD_FAST
                                          3 (wkref)
             30 CALL_FUNCTION
                                          0
             32 LOAD_FAST
                                          2 (call_func)
             34 COMPARE_OP
                                          8 (is)
```

```
50
             36 POP_JUMP_IF_TRUE
        >>
             38 LOAD GLOBAL
                                          2 (coconut)
             40 LOAD_METHOD
                                          4 (isinstance)
             42 LOAD_FAST
                                          2 (call_func)
             44 LOAD_GLOBAL
                                          5 (_coconut_base_pattern_func)
             46 CALL METHOD
                                          2
             48 POP_JUMP_IF_FALSE
                                         56
164
        >>
             50 LOAD FAST
                                          2 (call func)
             52 LOAD ATTR
                                          6 (coconut tco func)
             54 STORE_FAST
                                          2 (call_func)
165
        >>
             56 LOAD FAST
                                          2 (call_func)
             58 LOAD_FAST
                                          0 (args)
             60 LOAD FAST
                                          1 (kwargs)
             62 CALL_FUNCTION_EX
             64 STORE FAST
                                          4 (result)
166
             66 LOAD_GLOBAL
                                          4 (isinstance)
             68 LOAD_FAST
                                          4 (result)
             70 LOAD_GLOBAL
                                          7 (coconut tail call)
             72 CALL FUNCTION
                                          2
             74 POP_JUMP_IF_TRUE
                                         80
167
             76 LOAD FAST
                                          4 (result)
             78 RETURN VALUE
168
        >>
                                          4 (result)
             80 LOAD_FAST
             82 LOAD_ATTR
                                          8 (func)
             84 LOAD_FAST
                                         4 (result)
             86 LOAD_ATTR
                                          9 (args)
             88 LOAD FAST
                                          4 (result)
             90 LOAD_ATTR
                                         10 (kwargs)
             92 ROT THREE
             94 ROT_TWO
             96 STORE FAST
                                          2 (call func)
             98 STORE_FAST
                                          0 (args)
            100 STORE_FAST
                                          1 (kwargs)
```

```
102 JUMP_ABSOLUTE
                                          0 (None)
            104 LOAD CONST
            106 RETURN_VALUE
Disassembly of <code object _coconut_igetitem at 0x7f6cf3299ea0, file "<dis>", lin
176
              O LOAD_GLOBAL
                                          0 (isinstance)
              2 LOAD_FAST
                                          0 (iterable)
              4 LOAD_GLOBAL
                                          1 (_coconut_reversed)
                                          2 (_coconut_map)
              6 LOAD_GLOBAL
                                          3 (_coconut)
              8 LOAD_GLOBAL
                                          4 (zip)
             10 LOAD_ATTR
             12 LOAD_GLOBAL
                                          5 (_coconut_enumerate)
             14 LOAD_GLOBAL
                                          6 (_coconut_count)
             16 LOAD_GLOBAL
                                          3 (_coconut)
                                          7 (abc)
             18 LOAD_ATTR
             20 LOAD_ATTR
                                          8 (Sequence)
             22 BUILD_TUPLE
                                          6
             24 CALL_FUNCTION
                                          2
             26 POP_JUMP_IF_FALSE
                                         36
177
                                          0 (iterable)
             28 LOAD_FAST
             30 LOAD_FAST
                                          1 (index)
             32 BINARY_SUBSCR
             34 RETURN_VALUE
178
        >>
             36 LOAD_GLOBAL
                                          3 (_coconut)
             38 LOAD_METHOD
                                          0 (isinstance)
             40 LOAD_FAST
                                          1 (index)
             42 LOAD_GLOBAL
                                          3 (_coconut)
                                          9 (slice)
             44 LOAD_ATTR
             46 CALL_METHOD
             48 POP_JUMP_IF_TRUE
                                        106
179
             50 LOAD_FAST
                                          1 (index)
             52 LOAD_CONST
                                          1 (0)
                                          0 (<)
             54 COMPARE OP
             56 POP_JUMP_IF_FALSE
                                         80
```

```
180
             58 LOAD_GLOBAL
                                           3 (_coconut)
             60 LOAD ATTR
                                          10 (collections)
             62 LOAD_ATTR
                                          11 (deque)
             64 LOAD_FAST
                                           0 (iterable)
             66 LOAD_FAST
                                           1 (index)
             68 UNARY NEGATIVE
             70 LOAD_CONST
                                           2 (('maxlen',))
             72 CALL_FUNCTION_KW
                                           2
             74 LOAD CONST
                                           1 (0)
             76 BINARY SUBSCR
             78 RETURN_VALUE
181
        >>
             80 LOAD GLOBAL
                                           3 (_coconut)
             82 LOAD_METHOD
                                          12 (next)
             84 LOAD_GLOBAL
                                           3 (coconut)
             86 LOAD_ATTR
                                          13 (itertools)
             88 LOAD METHOD
                                          14 (islice)
             90 LOAD_FAST
                                           0 (iterable)
             92 LOAD_FAST
                                           1 (index)
             94 LOAD_FAST
                                           1 (index)
                                           3 (1)
             96 LOAD_CONST
             98 BINARY_ADD
            100 CALL_METHOD
                                           3
            102 CALL_METHOD
                                           1
            104 RETURN_VALUE
182
            106 LOAD_FAST
                                           1 (index)
            108 LOAD_ATTR
                                          15 (start)
            110 LOAD_CONST
                                           0 (None)
            112 COMPARE OP
                                           9 (is not)
            114 POP_JUMP_IF_FALSE
                                         216
            116 LOAD FAST
                                           1 (index)
            118 LOAD_ATTR
                                          15 (start)
            120 LOAD_CONST
                                           1 (0)
            122 COMPARE_OP
                                           0 (<)
            124 POP JUMP IF FALSE
                                         216
            126 LOAD_FAST
                                           1 (index)
            128 LOAD_ATTR
                                          16 (stop)
```

```
130 LOAD_CONST
                                          0 (None)
            132 COMPARE OP
                                           8 (is)
            134 POP_JUMP_IF_TRUE
                                         146
            136 LOAD_FAST
                                           1 (index)
            138 LOAD_ATTR
                                          16 (stop)
            140 LOAD_CONST
                                           1 (0)
                                           0 (<)
            142 COMPARE OP
            144 POP_JUMP_IF_FALSE
                                         216
        >> 146 LOAD FAST
                                           1 (index)
            148 LOAD ATTR
                                          17 (step)
            150 LOAD_CONST
                                          0 (None)
            152 COMPARE_OP
                                          8 (is)
            154 POP_JUMP_IF_FALSE
                                         216
183
            156 LOAD GLOBAL
                                           3 (_coconut)
                                          10 (collections)
            158 LOAD_ATTR
            160 LOAD ATTR
                                          11 (deque)
            162 LOAD FAST
                                          0 (iterable)
            164 LOAD_FAST
                                          1 (index)
            166 LOAD_ATTR
                                          15 (start)
            168 UNARY_NEGATIVE
            170 LOAD_CONST
                                           2 (('maxlen',))
            172 CALL_FUNCTION_KW
                                           2
            174 STORE_FAST
                                           2 (queue)
184
            176 LOAD FAST
                                           1 (index)
            178 LOAD_ATTR
                                          16 (stop)
                                          0 (None)
            180 LOAD_CONST
            182 COMPARE_OP
                                          9 (is not)
            184 POP_JUMP_IF_FALSE
                                         212
185
            186 LOAD GLOBAL
                                           3 (coconut)
                                          18 (list)
            188 LOAD_METHOD
            190 LOAD FAST
                                           2 (queue)
            192 CALL_METHOD
            194 LOAD CONST
                                          0 (None)
            196 LOAD_FAST
                                           1 (index)
            198 LOAD_ATTR
                                          16 (stop)
```

```
200 LOAD_FAST
                                          1 (index)
                                         15 (start)
            202 LOAD ATTR
            204 BINARY_SUBTRACT
            206 BUILD_SLICE
                                          2
            208 BINARY_SUBSCR
            210 STORE_FAST
                                          2 (queue)
186
        >> 212 LOAD_FAST
                                          2 (queue)
            214 RETURN VALUE
187
        >> 216 LOAD_FAST
                                          1 (index)
            218 LOAD_ATTR
                                         15 (start)
            220 LOAD CONST
                                          0 (None)
            222 COMPARE_OP
                                          9 (is not)
            224 POP_JUMP_IF_FALSE
                                        238
            226 LOAD_FAST
                                          1 (index)
            228 LOAD ATTR
                                         15 (start)
            230 LOAD CONST
                                          1 (0)
            232 COMPARE_OP
                                          0 (<)
            234 EXTENDED_ARG
                                          1
            236 POP_JUMP_IF_TRUE
                                        286
        >> 238 LOAD_FAST
                                          1 (index)
                                         16 (stop)
            240 LOAD_ATTR
            242 LOAD_CONST
                                          0 (None)
            244 COMPARE OP
                                          9 (is not)
            246 EXTENDED ARG
                                          1
            248 POP_JUMP_IF_FALSE
                                        262
            250 LOAD_FAST
                                          1 (index)
            252 LOAD_ATTR
                                         16 (stop)
            254 LOAD_CONST
                                          1 (0)
                                          0 (<)
            256 COMPARE_OP
            258 EXTENDED ARG
                                          1
            260 POP_JUMP_IF_TRUE
                                        286
            262 LOAD FAST
                                          1 (index)
                                         17 (step)
            264 LOAD_ATTR
            266 LOAD CONST
                                         0 (None)
            268 COMPARE_OP
                                          9 (is not)
            270 EXTENDED_ARG
                                          1
```

```
300
            272 POP_JUMP_IF_FALSE
            274 LOAD FAST
                                         1 (index)
            276 LOAD_ATTR
                                        17 (step)
            278 LOAD_CONST
                                        1 (0)
                                         0 (<)
            280 COMPARE_OP
            282 EXTENDED ARG
                                         1
            284 POP_JUMP_IF_FALSE
                                       300
        >> 286 LOAD_GLOBAL
188
                                         3 (_coconut)
            288 LOAD_METHOD
                                        18 (list)
            290 LOAD_FAST
                                         0 (iterable)
            292 CALL_METHOD
            294 LOAD_FAST
                                         1 (index)
            296 BINARY_SUBSCR
            298 RETURN_VALUE
189
        >> 300 LOAD GLOBAL
                                        3 (_coconut)
            302 LOAD_ATTR
                                       13 (itertools)
            304 LOAD_METHOD
                                       14 (islice)
            306 LOAD_FAST
                                        0 (iterable)
            308 LOAD FAST
                                        1 (index)
                                       15 (start)
            310 LOAD_ATTR
            312 LOAD_FAST
                                        1 (index)
            314 LOAD_ATTR
                                       16 (stop)
            316 LOAD_FAST
                                        1 (index)
            318 LOAD_ATTR
                                        17 (step)
            320 CALL_METHOD
                                         4
            322 RETURN_VALUE
Disassembly of <code object _coconut_base_compose at 0x7f6cf329c500, file "<dis>"
                                        0 (__name__)
190
              O LOAD_NAME
                                         1 (__module__)
              2 STORE_NAME
                                         0 ('_coconut_base_compose')
              4 LOAD_CONST
                                         2 (_qualname__)
              6 STORE_NAME
                                         1 (('func', 'funcstars'))
191
              8 LOAD CONST
             10 STORE_NAME
                                         3 (__slots__)
```

```
2 (<code object __init__ at 0x7f6cf329c0e
192
             12 LOAD_CONST
                                          3 (' coconut base compose. init ')
             14 LOAD CONST
             16 MAKE_FUNCTION
             18 STORE_NAME
                                          4 (__init__)
201
                                          4 (<code object __call__ at 0x7f6cf329c24
             20 LOAD_CONST
                                          5 ('_coconut_base_compose.__call__')
             22 LOAD CONST
             24 MAKE_FUNCTION
             26 STORE_NAME
                                          5 (__call__)
                                          6 (<code object __repr__ at 0x7f6cf329c2t
213
             28 LOAD_CONST
                                          7 ('_coconut_base_compose.__repr__')
             30 LOAD_CONST
             32 MAKE FUNCTION
             34 STORE_NAME
                                          6 (__repr__)
215
             36 LOAD_CONST
                                          8 (<code object __reduce__ at 0x7f6cf329d
             38 LOAD CONST
                                          9 ('_coconut_base_compose.__reduce__')
             40 MAKE_FUNCTION
             42 STORE_NAME
                                          7 (__reduce__)
217
             44 LOAD CONST
                                         13 ((None,))
                                         11 (<code object __get__ at 0x7f6cf329c450
             46 LOAD_CONST
                                         12 ('_coconut_base_compose.__get__')
             48 LOAD_CONST
             50 MAKE_FUNCTION
                                         1 (defaults)
             52 STORE NAME
                                          8 (__get__)
             54 LOAD CONST
                                         10 (None)
             56 RETURN_VALUE
Disassembly of <code object __init__ at 0x7f6cf329c0e0, file "<dis>", line 192>:
193
              O LOAD_FAST
                                          1 (func)
              2 LOAD_FAST
                                          0 (self)
              4 STORE ATTR
                                          0 (func)
194
              6 BUILD LIST
              8 LOAD_FAST
                                          0 (self)
             10 STORE ATTR
                                          1 (funcstars)
195
             12 LOAD_FAST
                                          2 (funcstars)
```

```
14 GET_ITER
        >>
                                         72 (to 90)
             16 FOR ITER
                                          2
             18 UNPACK_SEQUENCE
             20 STORE_FAST
                                           3 (f)
                                           4 (stars)
             22 STORE_FAST
196
                                           2 (coconut)
             24 LOAD_GLOBAL
             26 LOAD_METHOD
                                           3 (isinstance)
                                           3 (f)
             28 LOAD_FAST
             30 LOAD_GLOBAL
                                          4 (_coconut_base_compose)
                                           2
             32 CALL_METHOD
             34 POP_JUMP_IF_FALSE
                                         72
197
             36 LOAD_FAST
                                           0 (self)
             38 LOAD_ATTR
                                           1 (funcstars)
             40 LOAD_METHOD
                                           5 (append)
             42 LOAD FAST
                                           3 (f)
             44 LOAD_ATTR
                                           0 (func)
                                           4 (stars)
             46 LOAD_FAST
             48 BUILD_TUPLE
                                           2
             50 CALL_METHOD
                                           1
             52 POP_TOP
198
             54 LOAD_FAST
                                           0 (self)
             56 DUP_TOP
             58 LOAD ATTR
                                           1 (funcstars)
             60 LOAD_FAST
                                           3 (f)
                                           1 (funcstars)
             62 LOAD_ATTR
             64 INPLACE_ADD
             66 ROT_TWO
                                           1 (funcstars)
             68 STORE_ATTR
             70 JUMP_ABSOLUTE
                                          16
200
        >>
             72 LOAD_FAST
                                           0 (self)
             74 LOAD_ATTR
                                           1 (funcstars)
             76 LOAD METHOD
                                           5 (append)
             78 LOAD_FAST
                                           3 (f)
             80 LOAD_FAST
                                           4 (stars)
```

```
82 BUILD_TUPLE
                                          2
             84 CALL METHOD
                                          1
             86 POP_TOP
             88 JUMP_ABSOLUTE
                                         16
        >>
             90 LOAD_CONST
                                          0 (None)
             92 RETURN_VALUE
Disassembly of <code object __call__ at 0x7f6cf329c240, file "<dis>", line 201>:
202
              O LOAD_FAST
                                          0 (self)
                                          0 (func)
              2 LOAD_ATTR
              4 LOAD_FAST
                                          1 (args)
                                          2 (kwargs)
              6 LOAD_FAST
              8 CALL_FUNCTION_EX
             10 STORE_FAST
                                          3 (arg)
203
             12 LOAD_FAST
                                          0 (self)
             14 LOAD ATTR
                                          1 (funcstars)
             16 GET_ITER
             18 FOR_ITER
                                         84 (to 104)
        >>
                                          2
             20 UNPACK_SEQUENCE
             22 STORE_FAST
                                          4 (f)
             24 STORE_FAST
                                         5 (stars)
                                          5 (stars)
204
             26 LOAD_FAST
             28 LOAD_CONST
                                          1 (0)
             30 COMPARE OP
                                          2 (==)
             32 POP_JUMP_IF_FALSE
                                         44
                                          4 (f)
205
             34 LOAD_FAST
             36 LOAD_FAST
                                          3 (arg)
             38 CALL_FUNCTION
                                          1
             40 STORE FAST
                                          3 (arg)
             42 JUMP_ABSOLUTE
                                         18
206
        >>
             44 LOAD_FAST
                                          5 (stars)
                                          2 (1)
             46 LOAD CONST
             48 COMPARE_OP
                                          2 (==)
             50 POP_JUMP_IF_FALSE
                                         62
```

```
207
                                          4 (f)
             52 LOAD FAST
             54 LOAD_FAST
                                          3 (arg)
             56 CALL_FUNCTION_EX
                                          0
             58 STORE_FAST
                                          3 (arg)
             60 JUMP_ABSOLUTE
                                         18
208
        >>
             62 LOAD_FAST
                                          5 (stars)
             64 LOAD_CONST
                                          3 (2)
                                          2 (==)
             66 COMPARE OP
             68 POP_JUMP_IF_FALSE
                                         82
209
             70 LOAD_FAST
                                          4 (f)
             72 BUILD_TUPLE
                                          0
             74 LOAD_FAST
                                          3 (arg)
             76 CALL_FUNCTION_EX
                                          1
             78 STORE_FAST
                                          3 (arg)
             80 JUMP_ABSOLUTE
                                         18
211
        >>
             82 LOAD_GLOBAL
                                          2 (_coconut)
             84 LOAD_METHOD
                                          3 (ValueError)
             86 LOAD_CONST
                                          4 ('invalid arguments to ')
             88 LOAD_GLOBAL
                                          2 (_coconut)
                                          4 (repr)
             90 LOAD_METHOD
             92 LOAD_FAST
                                          0 (self)
             94 CALL_METHOD
                                          1
             96 BINARY_ADD
             98 CALL_METHOD
                                          1
            100 RAISE_VARARGS
                                          1
            102 JUMP_ABSOLUTE
                                         18
212
        >> 104 LOAD_FAST
                                          3 (arg)
            106 RETURN_VALUE
Disassembly of <code object __repr__ at 0x7f6cf329c2f0, file "<dis>", line 213>:
214
              O LOAD_GLOBAL
                                          0 (_coconut)
              2 LOAD_METHOD
                                          1 (repr)
                                          0 (self)
              4 LOAD_FAST
```

```
8 CALL METHOD
                                          1 (' ')
             10 LOAD_CONST
             12 BINARY_ADD
                                          1 (' ')
             14 LOAD_CONST
             16 LOAD_METHOD
                                          3 (join)
                                          2 (<code object <genexpr> at 0x7f6cf329cf
             18 LOAD_CONST
                                          3 ('_coconut_base_compose.__repr__.<local
             20 LOAD_CONST
             22 MAKE_FUNCTION
                                          0
             24 LOAD_FAST
                                          0 (self)
             26 LOAD_ATTR
                                          4 (funcstars)
             28 GET_ITER
             30 CALL_FUNCTION
                                          1
             32 CALL_METHOD
             34 BINARY_ADD
             36 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf329c190, file "<dis>", line 214>:
214
              O LOAD_FAST
                                          0 (.0)
        >>
              2 FOR_ITER
                                         48 (to 52)
              4 UNPACK_SEQUENCE
                                          2
              6 STORE_FAST
                                          1 (f)
                                          2 (star)
              8 STORE_FAST
                                          2 (star)
             10 LOAD_FAST
             12 LOAD_CONST
                                          0 (1)
             14 COMPARE_OP
                                          2 (==)
             16 POP_JUMP_IF_FALSE
                                         22
                                          1 ('..*> ')
             18 LOAD_CONST
             20 JUMP_FORWARD
                                         14 (to 36)
                                          2 (star)
        >>
             22 LOAD_FAST
                                          2 (2)
             24 LOAD_CONST
                                          2 (==)
             26 COMPARE_OP
             28 POP_JUMP_IF_FALSE
                                         34
             30 LOAD_CONST
                                          3 ('..**>')
             32 JUMP_FORWARD
                                          2 (to 36)
                                        4 ('..> ')
             34 LOAD CONST
        >>
                                         0 (_coconut)
        >>
             36 LOAD_GLOBAL
                                          1 (repr)
             38 LOAD_METHOD
```

2 (func)

6 LOAD_ATTR

```
44 BINARY_ADD
                                       46 YIELD_VALUE
                                       48 POP_TOP
                                       50 JUMP_ABSOLUTE
                       >>
                                      52 LOAD_CONST
                                                                                                                          5 (None)
                                       54 RETURN_VALUE
Disassembly of <code object __reduce__ at 0x7f6cf329c3a0, file "<dis>", line 215>:
216
                                          O LOAD_FAST
                                                                                                                           0 (self)
                                                                                                                           0 (__class__)
                                          2 LOAD_ATTR
                                          4 LOAD_FAST
                                                                                                                          0 (self)
                                          6 LOAD_ATTR
                                                                                                                          1 (func)
                                         8 BUILD_TUPLE
                                                                                                                          1
                                                                                                                          2 (_coconut)
                                       10 LOAD_GLOBAL
                                                                                                                        3 (tuple)
                                       12 LOAD_METHOD
                                                                                                                         0 (self)
                                       14 LOAD_FAST
                                       16 LOAD_ATTR
                                                                                                                          4 (funcstars)
                                       18 CALL_METHOD
                                                                                                                          1
                                       20 BINARY ADD
                                       22 BUILD_TUPLE
                                                                                                                          2
                                       24 RETURN_VALUE
Disassembly of <code object __get__ at 0x7f6cf329c450, file "<dis>", line 217>:
218
                                          O LOAD_GLOBAL
                                                                                                                          0 (_coconut)
                                          2 LOAD_ATTR
                                                                                                                          1 (functools)
                                          4 LOAD_METHOD
                                                                                                                        2 (partial)
                                          6 LOAD_FAST
                                                                                                                         0 (self)
                                         8 LOAD_FAST
                                                                                                                          1 (obj)
                                                                                                                           2
                                       10 CALL_METHOD
                                       12 RETURN_VALUE
Disassembly of <code object _{coconut}forward_{compose} at 0x7f6cf329c660, file "<disassembly of <code object _{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forward_{coconut}forw
219
                                          O LOAD_GLOBAL
                                                                                                                          0 (_coconut_base_compose)
                                                                                                                          0 (func)
                                          2 LOAD FAST
                                          4 BUILD_TUPLE
                                          6 LOAD_CONST
                                                                                                                           1 (<code object <genexpr> at 0x7f6cf329c8
```

1 (f)

1

40 LOAD_FAST

42 CALL METHOD

```
8 LOAD_CONST
                                          2 ('_coconut_forward_compose.<locals>.<ge</pre>
             10 MAKE FUNCTION
                                          1 (funcs)
             12 LOAD_FAST
             14 GET_ITER
             16 CALL_FUNCTION
             18 BUILD_TUPLE_UNPACK_WITH_CALL
             20 CALL_FUNCTION_EX
             22 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf329c5b0, file "<dis>", line 219>:
219
              O LOAD_FAST
                                          0 (.0)
              2 FOR_ITER
        >>
                                         14 (to 18)
              4 STORE_FAST
                                          1 (f)
              6 LOAD_FAST
                                          1 (f)
                                          0 (0)
              8 LOAD_CONST
             10 BUILD_TUPLE
             12 YIELD_VALUE
             14 POP_TOP
             16 JUMP_ABSOLUTE
        >>
             18 LOAD_CONST
                                          1 (None)
             20 RETURN VALUE
Disassembly of <code object _coconut_back_compose at 0x7f6cf329c710, file "<dis>"
              O LOAD_GLOBAL
                                          0 (_coconut_forward_compose)
220
              2 LOAD_GLOBAL
                                          1 (_coconut)
              4 LOAD_METHOD
                                          2 (reversed)
              6 LOAD_FAST
                                         0 (funcs)
              8 CALL_METHOD
                                          1
             10 CALL_FUNCTION_EX
             12 RETURN_VALUE
Disassembly of <code object _coconut_forward_star_compose at 0x7f6cf329c870, file
221
                                          0 (_coconut_base_compose)
              O LOAD_GLOBAL
                                          0 (func)
              2 LOAD_FAST
              4 BUILD_TUPLE
                                          1 (<code object <genexpr> at 0x7f6cf329c7
              6 LOAD_CONST
                                          2 ('_coconut_forward_star_compose.<locals
              8 LOAD_CONST
             10 MAKE_FUNCTION
```

```
1 (funcs)
             12 LOAD_FAST
             14 GET ITER
             16 CALL_FUNCTION
             18 BUILD_TUPLE_UNPACK_WITH_CALL
                                                  2
             20 CALL_FUNCTION_EX
             22 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf329c7c0, file "<dis>", line 221>:
221
              O LOAD_FAST
                                         0 (.0)
                                         14 (to 18)
              2 FOR_ITER
        >>
              4 STORE_FAST
                                         1 (f)
              6 LOAD_FAST
                                         1 (f)
                                         0 (1)
              8 LOAD_CONST
             10 BUILD_TUPLE
                                          2
             12 YIELD_VALUE
             14 POP_TOP
             16 JUMP_ABSOLUTE
                                          2
        >>
             18 LOAD_CONST
                                          1 (None)
             20 RETURN_VALUE
Disassembly of <code object _coconut_back_star_compose at 0x7f6cf329c920, file "<
              O LOAD_GLOBAL
222
                                        0 (_coconut_forward_star_compose)
              2 LOAD_GLOBAL
                                        1 (_coconut)
              4 LOAD_METHOD
                                        2 (reversed)
                                         0 (funcs)
              6 LOAD_FAST
              8 CALL_METHOD
                                          1
             10 CALL_FUNCTION_EX
                                         0
             12 RETURN_VALUE
Disassembly of <code object _coconut_forward_dubstar_compose at 0x7f6cf329ca80, fr
223
                                         0 (_coconut_base_compose)
              O LOAD_GLOBAL
              2 LOAD_FAST
                                          0 (func)
              4 BUILD_TUPLE
                                          1
              6 LOAD_CONST
                                         1 (<code object <genexpr> at 0x7f6cf329c9
                                         2 ('_coconut_forward_dubstar_compose.<loa
              8 LOAD_CONST
             10 MAKE_FUNCTION
                                         1 (funcs)
             12 LOAD_FAST
             14 GET_ITER
```

```
16 CALL_FUNCTION
                                         18 BUILD_TUPLE_UNPACK_WITH_CALL
                                                                                                                                                             2
                                         20 CALL_FUNCTION_EX
                                         22 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf329c9d0, file "<dis>", line 223>:
223
                                             O LOAD_FAST
                                                                                                                                   0 (.0)
                         >>
                                             2 FOR_ITER
                                                                                                                                14 (to 18)
                                             4 STORE_FAST
                                                                                                                                   1 (f)
                                             6 LOAD_FAST
                                                                                                                                   1 (f)
                                                                                                                                   0 (2)
                                             8 LOAD_CONST
                                         10 BUILD_TUPLE
                                         12 YIELD_VALUE
                                         14 POP_TOP
                                         16 JUMP_ABSOLUTE
                                         18 LOAD_CONST
                                                                                                                                   1 (None)
                                         20 RETURN_VALUE
Disassembly of <code object _coconut_back_dubstar_compose at 0x7f6cf329cb30, file
224
                                             O LOAD_GLOBAL
                                                                                                                                   0 (_coconut_forward_dubstar_compose)
                                             2 LOAD_GLOBAL
                                                                                                                                   1 (_coconut)
                                             4 LOAD_METHOD
                                                                                                                                   2 (reversed)
                                                                                                                                 0 (funcs)
                                             6 LOAD_FAST
                                             8 CALL_METHOD
                                                                                                                                   1
                                          10 CALL_FUNCTION_EX
                                          12 RETURN_VALUE
Disassembly of <code object _coconut_pipe at 0x7f6cf329cbe0, file "<dis>", line 22
225
                                             O LOAD_FAST
                                                                                                                                   1 (f)
                                             2 LOAD_FAST
                                                                                                                                   0(x)
                                             4 CALL_FUNCTION
                                             6 RETURN_VALUE
Disassembly of <code object _coconut_star_pipe at 0x7f6cf329cc90, file "<dis>", 1star_pipe at 0x7f6cf329cc90, 
                                                                                                                                 1 (f)
226
                                             O LOAD_FAST
                                             2 LOAD_FAST
                                                                                                                                   0 (xs)
                                             4 CALL_FUNCTION_EX
                                                                                                                                   0
```

6 RETURN_VALUE

```
Disassembly of <code object _coconut_dubstar_pipe at 0x7f6cf329cd40, file "<dis>"
                                         1 (f)
227
              O LOAD_FAST
              2 BUILD_TUPLE
                                         0
              4 LOAD_FAST
                                          0 (kws)
              6 CALL_FUNCTION_EX
              8 RETURN_VALUE
Disassembly of <code object _coconut_back_pipe at 0x7f6cf329cdf0, file "<dis>", 15
                                         0(f)
228
              O LOAD FAST
              2 LOAD_FAST
                                          1 (x)
              4 CALL_FUNCTION
              6 RETURN_VALUE
Disassembly of <code object _coconut_back_star_pipe at 0x7f6cf329cea0, file "<dis
                                         0 (f)
              O LOAD_FAST
              2 LOAD_FAST
                                          1 (xs)
              4 CALL_FUNCTION_EX
              6 RETURN_VALUE
Disassembly of <code object _coconut_back_dubstar_pipe at 0x7f6cf329cf50, file "<
                                         0(f)
230
              O LOAD_FAST
              2 BUILD_TUPLE
                                         0
              4 LOAD_FAST
                                         1 (kws)
              6 CALL_FUNCTION_EX
              8 RETURN_VALUE
Disassembly of <code object _coconut_assert at 0x7f6cf329e030, file "<dis>", line
231
              O LOAD_FAST
                                         0 (cond)
              2 POP_JUMP_IF_TRUE
                                        34
              4 LOAD_GLOBAL
                                         0 (AssertionError)
              6 LOAD_FAST
                                         1 (msg)
              8 LOAD_CONST
                                         0 (None)
                                         9 (is not)
             10 COMPARE_OP
             12 POP_JUMP_IF_FALSE
                                        18
             14 LOAD FAST
                                         1 (msg)
                                        12 (to 30)
             16 JUMP_FORWARD
                                         1 ('(assert) got falsey value ')
```

>> 18 LOAD_CONST

```
2 (repr)
             22 LOAD_METHOD
                                          0 (cond)
             24 LOAD_FAST
             26 CALL_METHOD
                                          1
             28 BINARY_ADD
        >>
             30 CALL_FUNCTION
                                          1
             32 RAISE_VARARGS
                                          1
        >>
             34 LOAD_CONST
                                          0 (None)
             36 RETURN_VALUE
Disassembly of <code object _coconut_bool_and at 0x7f6cf329e0e0, file "<dis>", lin
232
                                          0 (a)
              O LOAD_FAST
              2 JUMP_IF_FALSE_OR_POP
                                          6
              4 LOAD_FAST
                                          1 (b)
        >>
              6 RETURN_VALUE
Disassembly of <code object _coconut_bool_or at 0x7f6cf329e190, file "<dis>", line
233
                                          0 (a)
              O LOAD_FAST
              2 JUMP_IF_TRUE_OR_POP
                                          6
              4 LOAD_FAST
                                          1 (b)
              6 RETURN_VALUE
        >>
Disassembly of <code object _coconut_none_coalesce at 0x7f6cf329e240, file "<dis>'
234
                                          0 (a)
              O LOAD_FAST
                                          0 (None)
              2 LOAD_CONST
              4 COMPARE_OP
                                          9 (is not)
              6 POP_JUMP_IF_FALSE
                                         12
                                          0 (a)
              8 LOAD_FAST
             10 RETURN_VALUE
                                          1 (b)
        >>
             12 LOAD_FAST
             14 RETURN_VALUE
Disassembly of <code object _coconut_minus at 0x7f6cf329e2f0, file "<dis>", line 2
236
              O LOAD_FAST
                                          1 (rest)
              2 POP_JUMP_IF_TRUE
                                         10
237
                                          0 (a)
              4 LOAD_FAST
              6 UNARY_NEGATIVE
```

1 (_coconut)

20 LOAD_GLOBAL

8 RETURN_VALUE

```
238
                                          1 (rest)
        >>
             10 LOAD_FAST
             12 GET_ITER
        >>
                                         12 (to 28)
             14 FOR_ITER
             16 STORE_FAST
                                          2 (b)
239
             18 LOAD_FAST
                                          0 (a)
                                          2 (b)
             20 LOAD FAST
             22 BINARY_SUBTRACT
             24 STORE_FAST
                                          0 (a)
             26 JUMP_ABSOLUTE
                                         14
240
        >>
             28 LOAD_FAST
                                          0 (a)
             30 RETURN_VALUE
Disassembly of <code object tee at 0x7f6cf329e5b0, file "<dis>", line 241>:
243
              O LOAD_FAST
                                          1 (n)
                                          1 (0)
              2 LOAD_CONST
              4 COMPARE_OP
                                          5 (>=)
              6 POP_JUMP_IF_FALSE
                                         38
              8 LOAD_GLOBAL
                                          0 (_coconut)
             10 LOAD_METHOD
                                          1 (isinstance)
             12 LOAD_DEREF
                                          0 (iterable)
             14 LOAD_GLOBAL
                                          0 (coconut)
             16 LOAD_ATTR
                                          2 (tuple)
             18 LOAD_GLOBAL
                                          0 (_coconut)
                                          3 (frozenset)
             20 LOAD_ATTR
                                          2
             22 BUILD_TUPLE
             24 CALL METHOD
                                          2
             26 POP_JUMP_IF_FALSE
                                         38
244
                                          0 (iterable)
             28 LOAD_DEREF
             30 BUILD TUPLE
                                          1
             32 LOAD_FAST
                                          1 (n)
             34 BINARY MULTIPLY
             36 RETURN_VALUE
```

```
1 (n)
245
        >>
             38 LOAD_FAST
             40 LOAD CONST
                                           1 (0)
                                           4 (>)
             42 COMPARE_OP
             44 POP_JUMP_IF_FALSE
                                        114
             46 LOAD_GLOBAL
                                           0 (_coconut)
                                           4 (hasattr)
             48 LOAD_METHOD
             50 LOAD_DEREF
                                           0 (iterable)
             52 LOAD_CONST
                                           2 ('__copy__')
                                           2
             54 CALL_METHOD
             56 POP_JUMP_IF_TRUE
                                         74
             58 LOAD_GLOBAL
                                           0 (_coconut)
             60 LOAD_METHOD
                                           1 (isinstance)
                                           0 (iterable)
             62 LOAD_DEREF
             64 LOAD_GLOBAL
                                           0 (_coconut)
             66 LOAD_ATTR
                                           5 (abc)
             68 LOAD_ATTR
                                           6 (Sequence)
             70 CALL METHOD
                                           2
             72 POP_JUMP_IF_FALSE
                                        114
246
        >>
             74 LOAD_DEREF
                                           0 (iterable)
             76 BUILD TUPLE
                                           1
             78 LOAD_GLOBAL
                                           0 (_coconut)
                                           2 (tuple)
             80 LOAD_METHOD
             82 LOAD_CLOSURE
                                           0 (iterable)
             84 BUILD_TUPLE
                                           1
             86 LOAD_CONST
                                           3 (<code object <genexpr> at 0x7f6cf329e3
             88 LOAD_CONST
                                           4 ('tee.<locals>.<genexpr>')
             90 MAKE_FUNCTION
                                           8 (closure)
             92 LOAD_GLOBAL
                                           0 (_coconut)
                                           7 (range)
             94 LOAD_METHOD
                                           1 (n)
             96 LOAD_FAST
             98 LOAD_CONST
                                           5 (1)
            100 BINARY_SUBTRACT
            102 CALL_METHOD
                                           1
            104 GET_ITER
            106 CALL FUNCTION
                                           1
            108 CALL_METHOD
```

110 BINARY_ADD

112 RETURN_VALUE

>> 114 LOAD_GLOBAL

116 LOAD_ATTR

118 LOAD_METHOD

247

```
120 LOAD_DEREF
                                          0 (iterable)
            122 LOAD_FAST
                                          1 (n)
            124 CALL_METHOD
                                          2
            126 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf329e3a0, file "<dis>", line 246>:
              O LOAD_FAST
                                          0 (.0)
246
        >>
              2 FOR_ITER
                                         18 (to 22)
                                          1 (_)
              4 STORE_FAST
              6 LOAD_GLOBAL
                                          0 (_coconut)
              8 LOAD_ATTR
                                          1 (copy)
             10 LOAD_METHOD
                                          1 (copy)
             12 LOAD_DEREF
                                          0 (iterable)
             14 CALL_METHOD
             16 YIELD_VALUE
             18 POP_TOP
             20 JUMP_ABSOLUTE
             22 LOAD_CONST
                                          0 (None)
        >>
             24 RETURN_VALUE
Disassembly of <code object reiterable at 0x7f6cf329ed40, file "<dis>", line 248>
248
              O LOAD_NAME
                                          0 (__name__)
              2 STORE_NAME
                                          1 (__module__)
                                          0 ('reiterable')
              4 LOAD_CONST
              6 STORE_NAME
                                          2 (__qualname__)
249
              8 LOAD_CONST
                                          1 ('Allows an iterator to be iterated over
             10 STORE_NAME
                                          3 (__doc__)
250
             12 LOAD_CONST
                                          2 (('iter',))
                                          4 (__slots__)
             14 STORE_NAME
                                          3 (<code object __init__ at 0x7f6cf329e4
251
             16 LOAD_CONST
```

0 (_coconut)

9 (tee)

8 (itertools)

```
18 LOAD_CONST
                                          4 ('reiterable.__init__')
             20 MAKE FUNCTION
             22 STORE_NAME
                                          5 (__init__)
253
             24 LOAD_CONST
                                          5 (<code object _get_new_iter at 0x7f6cf3
                                          6 ('reiterable._get_new_iter')
             26 LOAD_CONST
             28 MAKE_FUNCTION
                                          0
             30 STORE_NAME
                                          6 (_get_new_iter)
256
                                          7 (<code object __iter__ at 0x7f6cf329e7:
             32 LOAD_CONST
                                          8 ('reiterable.__iter__')
             34 LOAD_CONST
             36 MAKE_FUNCTION
                                          7 (__iter__)
             38 STORE_NAME
258
             40 LOAD_CONST
                                          9 (<code object __getitem__ at 0x7f6cf329
             42 LOAD_CONST
                                         10 ('reiterable.__getitem__')
                                          0
             44 MAKE FUNCTION
                                          8 (__getitem__)
             46 STORE_NAME
260
                                         11 (<code object __reversed__ at 0x7f6cf32
             48 LOAD_CONST
                                         12 ('reiterable.__reversed__')
             50 LOAD_CONST
             52 MAKE_FUNCTION
             54 STORE_NAME
                                          9 (__reversed__)
                                         13 (<code object __len__ at 0x7f6cf329e920
262
             56 LOAD_CONST
                                         14 ('reiterable. len ')
             58 LOAD_CONST
             60 MAKE_FUNCTION
                                          0
             62 STORE_NAME
                                         10 (__len__)
                                         15 (<code object __repr__ at 0x7f6cf329e9d
264
             64 LOAD_CONST
                                         16 ('reiterable.__repr__')
             66 LOAD_CONST
             68 MAKE FUNCTION
                                          0
             70 STORE_NAME
                                         11 (__repr__)
                                         17 (<code object __reduce__ at 0x7f6cf329e
266
             72 LOAD_CONST
                                         18 ('reiterable. reduce ')
             74 LOAD CONST
             76 MAKE_FUNCTION
                                         12 (__reduce__)
             78 STORE_NAME
```

```
268
             80 LOAD CONST
                                         19 (<code object __copy__ at 0x7f6cf329eb3
                                         20 ('reiterable.__copy__')
             82 LOAD_CONST
             84 MAKE_FUNCTION
                                         0
             86 STORE_NAME
                                         13 (__copy__)
                                         21 (<code object __fmap__ at 0x7f6cf329ebe
270
             88 LOAD_CONST
                                         22 ('reiterable.__fmap__')
             90 LOAD_CONST
             92 MAKE_FUNCTION
                                         0
             94 STORE NAME
                                         14 (__fmap__)
             96 LOAD_CONST
                                         23 (None)
             98 RETURN_VALUE
Disassembly of <code object __init__ at 0x7f6cf329e450, file "<dis>", line 251>:
              O LOAD_FAST
252
                                          1 (iterable)
                                          0 (self)
              2 LOAD_FAST
              4 STORE ATTR
                                          0 (iter)
              6 LOAD_CONST
                                          0 (None)
              8 RETURN_VALUE
Disassembly of <code object _get_new_iter at 0x7f6cf329e660, file "<dis>", line 28
                                         0 (_coconut_tee)
254
              O LOAD_GLOBAL
              2 LOAD_FAST
                                          0 (self)
              4 LOAD_ATTR
                                          1 (iter)
              6 CALL_FUNCTION
                                          1
              8 UNPACK_SEQUENCE
                                          2
             10 LOAD_FAST
                                          0 (self)
                                         1 (iter)
             12 STORE_ATTR
             14 STORE_FAST
                                          1 (new_iter)
255
             16 LOAD_FAST
                                          1 (new_iter)
             18 RETURN_VALUE
Disassembly of <code object __iter__ at 0x7f6cf329e710, file "<dis>", line 256>:
257
              O LOAD_GLOBAL
                                          0 (_coconut)
                                          1 (iter)
              2 LOAD METHOD
              4 LOAD_FAST
                                          0 (self)
              6 LOAD_METHOD
                                          2 (_get_new_iter)
```

```
12 RETURN_VALUE
Disassembly of <code object __getitem__ at 0x7f6cf329e7c0, file "<dis>", line 258
259
              O LOAD_GLOBAL
                                         0 (_coconut_igetitem)
              2 LOAD_FAST
                                         0 (self)
              4 LOAD_METHOD
                                         1 (_get_new_iter)
              6 CALL_METHOD
                                         0
              8 LOAD_FAST
                                         1 (index)
                                         2
             10 CALL_FUNCTION
             12 RETURN_VALUE
Disassembly of <code object __reversed__ at 0x7f6cf329e870, file "<dis>", line 260
              O LOAD_GLOBAL
                                        0 (_coconut_reversed)
261
                                         0 (self)
              2 LOAD_FAST
              4 LOAD_METHOD
                                        1 (_get_new_iter)
              6 CALL_METHOD
              8 CALL_FUNCTION
                                         1
             10 RETURN_VALUE
Disassembly of <code object __len__ at 0x7f6cf329e920, file "<dis>", line 262>:
263
              O LOAD_GLOBAL
                                         0 (_coconut)
                                         1 (len)
              2 LOAD_METHOD
              4 LOAD_FAST
                                        0 (self)
              6 LOAD_ATTR
                                         2 (iter)
              8 CALL_METHOD
                                         1
             10 RETURN_VALUE
Disassembly of <code object \_repr\_ at 0x7f6cf329e9d0, file "<dis>", line 264>:
                                        1 ('reiterable(%r)')
265
              O LOAD_CONST
              2 LOAD_FAST
                                         0 (self)
              4 LOAD_ATTR
                                         0 (iter)
              6 BUILD_TUPLE
                                         1
              8 BINARY_MODULO
             10 RETURN VALUE
Disassembly of <code object __reduce__ at 0x7f6cf329ea80, file "<dis>", line 266>:
```

0

1

8 CALL_METHOD

10 CALL METHOD

```
0 (self)
267
              O LOAD_FAST
                                        0 (__class__)
              2 LOAD_ATTR
              4 LOAD_FAST
                                         0 (self)
              6 LOAD_ATTR
                                         1 (iter)
              8 BUILD_TUPLE
                                         1
             10 BUILD_TUPLE
             12 RETURN_VALUE
Disassembly of <code object __copy__ at 0x7f6cf329eb30, file "<dis>", line 268>:
269
              O LOAD_FAST
                                         0 (self)
              2 LOAD_METHOD
                                         0 (__class__)
              4 LOAD_FAST
                                         0 (self)
              6 LOAD_METHOD
                                         1 (_get_new_iter)
              8 CALL_METHOD
             10 CALL_METHOD
                                         1
             12 RETURN_VALUE
Disassembly of <code object __fmap__ at 0x7f6cf329ebe0, file "<dis>", line 270>:
              O LOAD_GLOBAL
271
                                         0 (_coconut_map)
                                         1 (func)
              2 LOAD_FAST
              4 LOAD FAST
                                         0 (self)
              6 CALL_FUNCTION
              8 RETURN_VALUE
Disassembly of <code object scan at 0x7f6cf32a3240, file "<dis>", line 272>:
                                        0 (__name__)
272
              O LOAD_NAME
                                         1 (__module__)
              2 STORE_NAME
                                         0 ('scan')
              4 LOAD_CONST
              6 STORE_NAME
                                         2 (__qualname__)
273
                                         1 ('Reduce func over iterable, yielding :
              8 LOAD_CONST
             10 STORE_NAME
                                         3 (__doc__)
                                         2 (('func', 'iter', 'initializer'))
275
             12 LOAD_CONST
             14 STORE_NAME
                                         4 (__slots__)
276
             16 LOAD_NAME
                                         5 (_coconut_sentinel)
             18 BUILD_TUPLE
```

```
3 (<code object __init__ at 0x7f6cf329ecs
             20 LOAD_CONST
             22 LOAD CONST
                                          4 ('scan. init ')
             24 MAKE_FUNCTION
                                          1 (defaults)
             26 STORE_NAME
                                          6 (__init__)
280
                                          5 (<code object __iter__ at 0x7f6cf329ed
             28 LOAD_CONST
                                          6 ('scan. iter ')
             30 LOAD CONST
             32 MAKE_FUNCTION
             34 STORE_NAME
                                          7 (__iter__)
290
             36 LOAD_CONST
                                          7 (<code object __len__ at 0x7f6cf329eea(
                                          8 ('scan.__len__')
             38 LOAD_CONST
             40 MAKE FUNCTION
             42 STORE_NAME
                                          8 (__len__)
292
             44 LOAD_CONST
                                          9 (<code object __repr__ at 0x7f6cf329ef8
                                         10 ('scan.__repr__')
             46 LOAD CONST
             48 MAKE_FUNCTION
             50 STORE_NAME
                                          9 (__repr__)
294
             52 LOAD_CONST
                                         11 (<code object __reduce__ at 0x7f6cf32a3
                                         12 ('scan.__reduce__')
             54 LOAD_CONST
                                          0
             56 MAKE_FUNCTION
             58 STORE_NAME
                                         10 (__reduce__)
296
                                         13 (<code object __copy__ at 0x7f6cf32a30e
             60 LOAD_CONST
                                         14 ('scan.__copy__')
             62 LOAD_CONST
             64 MAKE_FUNCTION
                                          0
             66 STORE_NAME
                                         11 (__copy__)
                                         15 (<code object __fmap__ at 0x7f6cf32a319
298
             68 LOAD_CONST
             70 LOAD CONST
                                         16 ('scan.__fmap__')
                                          0
             72 MAKE_FUNCTION
             74 STORE NAME
                                         12 (__fmap__)
             76 LOAD_CONST
                                         17 (None)
             78 RETURN VALUE
```

Disassembly of <code object __init__ at 0x7f6cf329ec90, file "<dis>", line 276>:

```
1 (function)
277
             O LOAD_FAST
              2 LOAD FAST
                                        0 (self)
              4 STORE_ATTR
                                        0 (func)
278
                                        2 (iterable)
             6 LOAD_FAST
             8 LOAD_FAST
                                        0 (self)
             10 STORE_ATTR
                                        1 (iter)
279
             12 LOAD_FAST
                                        3 (initializer)
             14 LOAD_FAST
                                        0 (self)
             16 STORE_ATTR
                                        2 (initializer)
             18 LOAD_CONST
                                        0 (None)
             20 RETURN_VALUE
Disassembly of <code object \_iter\_ at 0x7f6cf329edf0, file "<dis>", line 280>:
                                         0 (self)
281
             O LOAD_FAST
              2 LOAD ATTR
                                         0 (initializer)
              4 STORE FAST
                                         1 (acc)
282
             6 LOAD_FAST
                                       1 (acc)
                                     1 (_coconut_sentinel)
9 (is not)
             8 LOAD GLOBAL
             10 COMPARE_OP
             12 POP_JUMP_IF_FALSE
                                        20
283
             14 LOAD_FAST
                                        1 (acc)
             16 YIELD_VALUE
             18 POP_TOP
284
       >> 20 LOAD_FAST
                                        0 (self)
             22 LOAD_ATTR
                                        2 (iter)
            24 GET_ITER
        >>
            26 FOR ITER
                                       36 (to 64)
             28 STORE_FAST
                                        2 (item)
285
             30 LOAD_FAST
                                       1 (acc)
                                       1 (_coconut_sentinel)
             32 LOAD GLOBAL
             34 COMPARE_OP
                                        8 (is)
             36 POP_JUMP_IF_FALSE
                                       44
```

```
40 STORE_FAST
                                        1 (acc)
             42 JUMP_FORWARD
                                      12 (to 56)
288
       >> 44 LOAD_FAST
                                        0 (self)
                                        3 (func)
             46 LOAD_METHOD
             48 LOAD_FAST
                                        1 (acc)
             50 LOAD_FAST
                                        2 (item)
             52 CALL_METHOD
             54 STORE_FAST
                                        1 (acc)
289
       >> 56 LOAD_FAST
                                        1 (acc)
             58 YIELD_VALUE
             60 POP_TOP
             62 JUMP_ABSOLUTE
                                       26
        >>
            64 LOAD_CONST
                                       0 (None)
             66 RETURN_VALUE
Disassembly of <code object _{-}len_{-} at 0x7f6cf329eea0, file "<dis>", line 290>:
291
             O LOAD_GLOBAL
                                        0 (_coconut)
                                        1 (len)
              2 LOAD_METHOD
              4 LOAD_FAST
                                       0 (self)
              6 LOAD_ATTR
                                       2 (iter)
             8 CALL_METHOD
             10 RETURN_VALUE
Disassembly of <code object \_repr\_ at 0x7f6cf329ef50, file "<dis>", line 292>:
                                        1 ('scan(%r, %r)')
293
             O LOAD_CONST
              2 LOAD_FAST
                                        0 (self)
              4 LOAD_ATTR
                                        0 (func)
              6 LOAD_FAST
                                        0 (self)
             8 LOAD_ATTR
                                        1 (iter)
             10 BUILD_TUPLE
             12 BINARY_MODULO
             14 RETURN_VALUE
```

Disassembly of <code object __reduce__ at 0x7f6cf32a3030, file "<dis>", line 294>

2 (item)

286

38 LOAD FAST

```
0 (self)
295
              O LOAD_FAST
              2 LOAD ATTR
                                          0 (__class__)
              4 LOAD_FAST
                                          0 (self)
              6 LOAD_ATTR
                                          1 (func)
                                          0 (self)
              8 LOAD_FAST
             10 LOAD_ATTR
                                          2 (iter)
             12 BUILD_TUPLE
                                          2
             14 BUILD_TUPLE
                                          2
             16 RETURN_VALUE
Disassembly of <code object __copy__ at 0x7f6cf32a30e0, file "<dis>", line 296>:
297
              O LOAD_FAST
                                          0 (self)
              2 LOAD_METHOD
                                          0 (__class__)
              4 LOAD_FAST
                                          0 (self)
                                          1 (func)
              6 LOAD_ATTR
              8 LOAD_GLOBAL
                                          2 (_coconut)
                                          3 (copy)
             10 LOAD ATTR
             12 LOAD_METHOD
                                          3 (copy)
                                          0 (self)
             14 LOAD_FAST
             16 LOAD_ATTR
                                         4 (iter)
             18 CALL METHOD
                                          1
             20 CALL_METHOD
             22 RETURN_VALUE
Disassembly of <code object __fmap__ at 0x7f6cf32a3190, file "<dis>", line 298>:
299
              O LOAD_GLOBAL
                                          0 (_coconut_map)
              2 LOAD_FAST
                                          1 (func)
                                          0 (self)
              4 LOAD_FAST
              6 CALL_FUNCTION
              8 RETURN_VALUE
Disassembly of <code object reversed at 0x7f6cf32a3d40, file "<dis>", line 300>:
                                          0 (__name__)
300
              O LOAD_NAME
                                          1 (__module__)
              2 STORE_NAME
                                          0 ('reversed')
              4 LOAD_CONST
                                          2 (_qualname__)
              6 STORE_NAME
                                          1 (('iter',))
301
              8 LOAD_CONST
```

```
10 STORE_NAME
                                          3 (__slots__)
302
             12 LOAD_NAME
                                          4 (hasattr)
             14 LOAD_NAME
                                          5 (_coconut)
             16 LOAD_ATTR
                                          6 (map)
                                          2 ('__doc__')
             18 LOAD_CONST
                                          2
             20 CALL FUNCTION
             22 POP_JUMP_IF_FALSE
                                         32
303
             24 LOAD NAME
                                          5 (_coconut)
             26 LOAD_ATTR
                                          7 (reversed)
             28 LOAD_ATTR
                                          8 (__doc__)
             30 STORE_NAME
                                          8 (__doc__)
                                          3 (<code object __new__ at 0x7f6cf32a32f0
304
        >>
             32 LOAD_CONST
             34 LOAD_CONST
                                          4 ('reversed.__new__')
                                          0
             36 MAKE FUNCTION
                                          9 (__new__)
             38 STORE_NAME
                                          5 (<code object __init__ at 0x7f6cf32a33a
310
             40 LOAD_CONST
                                          6 ('reversed.__init__')
             42 LOAD CONST
             44 MAKE_FUNCTION
                                          0
             46 STORE_NAME
                                         10 (__init__)
312
                                          7 (<code object __iter__ at 0x7f6cf32a34
             48 LOAD_CONST
                                          8 ('reversed. iter ')
             50 LOAD CONST
             52 MAKE_FUNCTION
                                          0
                                         11 (__iter__)
             54 STORE_NAME
314
                                          9 (<code object __getitem__ at 0x7f6cf32a
             56 LOAD_CONST
                                         10 ('reversed.__getitem__')
             58 LOAD_CONST
             60 MAKE FUNCTION
                                          0
                                         12 (__getitem__)
             62 STORE_NAME
318
             64 LOAD_CONST
                                         11 (<code object __reversed__ at 0x7f6cf32
                                         12 ('reversed.__reversed__')
             66 LOAD CONST
             68 MAKE_FUNCTION
                                         13 (__reversed__)
             70 STORE_NAME
```

```
320
             72 LOAD CONST
                                         13 (<code object __len__ at 0x7f6cf32a3660
                                         14 ('reversed.__len__')
             74 LOAD_CONST
                                          0
             76 MAKE_FUNCTION
                                         14 (__len__)
             78 STORE_NAME
                                         15 (<code object __repr__ at 0x7f6cf32a37)
322
             80 LOAD_CONST
                                         16 ('reversed.__repr__')
             82 LOAD_CONST
                                          0
             84 MAKE FUNCTION
             86 STORE_NAME
                                         15 (__repr__)
324
             88 LOAD_CONST
                                         17 (<code object __hash__ at 0x7f6cf32a37c
             90 LOAD_CONST
                                         18 ('reversed.__hash__')
             92 MAKE_FUNCTION
                                          0
                                         16 (_hash__)
             94 STORE_NAME
326
                                         19 (<code object __reduce__ at 0x7f6cf32a3
             96 LOAD CONST
                                         20 ('reversed. reduce ')
             98 LOAD_CONST
            100 MAKE_FUNCTION
                                          0
            102 STORE_NAME
                                         17 (__reduce__)
                                         21 (<code object __copy__ at 0x7f6cf32a392
328
            104 LOAD_CONST
                                         22 ('reversed.__copy__')
            106 LOAD_CONST
            108 MAKE_FUNCTION
                                          0
                                         18 (__copy__)
            110 STORE_NAME
330
            112 LOAD_CONST
                                         23 (<code object __eq_ at 0x7f6cf32a39d0)
            114 LOAD_CONST
                                         24 ('reversed.__eq__')
            116 MAKE_FUNCTION
                                         19 (__eq__)
            118 STORE_NAME
332
                                         25 (<code object __contains__ at 0x7f6cf32
            120 LOAD CONST
                                         26 ('reversed.__contains__')
            122 LOAD_CONST
            124 MAKE_FUNCTION
                                          0
            126 STORE_NAME
                                         20 (__contains__)
334
                                         27 (<code object count at 0x7f6cf32a3b30,
            128 LOAD_CONST
```

28 ('reversed.count')

130 LOAD_CONST

```
132 MAKE_FUNCTION
                                          0
            134 STORE NAME
                                         21 (count)
337
            136 LOAD_CONST
                                         29 (<code object index at 0x7f6cf32a3be0,
                                         30 ('reversed.index')
            138 LOAD_CONST
            140 MAKE_FUNCTION
                                          0
            142 STORE_NAME
                                         22 (index)
                                         31 (<code object __fmap__ at 0x7f6cf32a3cs
340
            144 LOAD_CONST
                                         32 ('reversed.__fmap__')
            146 LOAD_CONST
            148 MAKE_FUNCTION
                                          0
            150 STORE_NAME
                                         23 (__fmap__)
            152 LOAD_CONST
                                         33 (None)
            154 RETURN_VALUE
Disassembly of <code object __new__ at 0x7f6cf32a32f0, file "<dis>", line 304>:
305
                                          0 (_coconut)
              O LOAD_GLOBAL
                                          1 (isinstance)
              2 LOAD_METHOD
              4 LOAD_FAST
                                          1 (iterable)
                                          0 (_coconut)
              6 LOAD_GLOBAL
              8 LOAD ATTR
                                          2 (range)
                                          2
             10 CALL_METHOD
             12 POP_JUMP_IF_FALSE
                                         28
306
                                          1 (iterable)
             14 LOAD_FAST
             16 LOAD_CONST
                                          0 (None)
             18 LOAD_CONST
                                          0 (None)
                                          1 (-1)
             20 LOAD_CONST
             22 BUILD_SLICE
             24 BINARY_SUBSCR
             26 RETURN_VALUE
307
        >>
             28 LOAD_GLOBAL
                                          0 (_coconut)
             30 LOAD_METHOD
                                          3 (hasattr)
                                          1 (iterable)
             32 LOAD_FAST
                                          2 ('__reversed__')
             34 LOAD CONST
             36 CALL_METHOD
             38 POP_JUMP_IF_FALSE
                                         60
```

```
40 LOAD_GLOBAL
                                       0 (_coconut)
             42 LOAD METHOD
                                        1 (isinstance)
             44 LOAD_FAST
                                         1 (iterable)
             46 LOAD_GLOBAL
                                         0 (_coconut)
                                         4 (list)
             48 LOAD_ATTR
                                         0 (_coconut)
             50 LOAD_GLOBAL
             52 LOAD_ATTR
                                         5 (tuple)
             54 BUILD_TUPLE
                                         2
             56 CALL_METHOD
                                         2
             58 POP_JUMP_IF_FALSE
                                        72
308
             60 LOAD_GLOBAL
                                         0 (_coconut)
             62 LOAD_ATTR
                                          6 (object)
             64 LOAD_METHOD
                                         7 (__new__)
                                         0 (cls)
             66 LOAD_FAST
             68 CALL_METHOD
             70 RETURN_VALUE
309
        >>
             72 LOAD_GLOBAL
                                         0 (_coconut)
             74 LOAD_METHOD
                                        8 (reversed)
                                         1 (iterable)
             76 LOAD_FAST
             78 CALL_METHOD
             80 RETURN_VALUE
Disassembly of <code object \_init\_ at 0x7f6cf32a33a0, file "<dis>", line 310>:
311
              O LOAD_FAST
                                          1 (iterable)
              2 LOAD_FAST
                                          0 (self)
              4 STORE_ATTR
                                          0 (iter)
              6 LOAD_CONST
                                          0 (None)
              8 RETURN_VALUE
Disassembly of <code object __iter__ at 0x7f6cf32a3450, file "<dis>", line 312>:
313
              O LOAD_GLOBAL
                                         0 (_coconut)
              2 LOAD_METHOD
                                         1 (iter)
              4 LOAD_GLOBAL
                                         0 (_coconut)
              6 LOAD_METHOD
                                        2 (reversed)
              8 LOAD_FAST
                                         0 (self)
             10 LOAD_ATTR
                                         1 (iter)
```

```
12 CALL_METHOD
             14 CALL METHOD
                                           1
             16 RETURN_VALUE
Disassembly of <code object __getitem__ at 0x7f6cf32a35b0, file "<dis>", line 314
315
                                          0 (_coconut)
              O LOAD_GLOBAL
              2 LOAD_METHOD
                                          1 (isinstance)
              4 LOAD_FAST
                                          1 (index)
                                          0 (_coconut)
              6 LOAD_GLOBAL
              8 LOAD_ATTR
                                          2 (slice)
                                           2
             10 CALL_METHOD
             12 POP_JUMP_IF_FALSE
                                         94
316
             14 LOAD_GLOBAL
                                          3 (_coconut_igetitem)
                                           0 (self)
             16 LOAD_FAST
             18 LOAD_ATTR
                                          4 (iter)
             20 LOAD_GLOBAL
                                          0 (_coconut)
                                          2 (slice)
             22 LOAD_METHOD
             24 LOAD_FAST
                                          1 (index)
                                          5 (start)
             26 LOAD_ATTR
             28 LOAD CONST
                                          0 (None)
             30 COMPARE_OP
                                          9 (is not)
                                         46
             32 POP_JUMP_IF_FALSE
             34 LOAD_FAST
                                          1 (index)
                                           5 (start)
             36 LOAD_ATTR
                                           1 (1)
             38 LOAD_CONST
             40 BINARY_ADD
             42 UNARY_NEGATIVE
             44 JUMP_FORWARD
                                          2 (to 48)
             46 LOAD_CONST
                                          0 (None)
        >>
             48 LOAD_FAST
                                           1 (index)
             50 LOAD ATTR
                                           6 (stop)
             52 POP_JUMP_IF_FALSE
                                          66
             54 LOAD_FAST
                                           1 (index)
             56 LOAD_ATTR
                                           6 (stop)
                                           1 (1)
             58 LOAD CONST
             60 BINARY_ADD
             62 UNARY_NEGATIVE
```

```
0 (None)
        >>
            66 LOAD CONST
            68 LOAD_FAST
                                        1 (index)
        >>
                                        7 (step)
             70 LOAD_ATTR
                                        0 (None)
             72 LOAD_CONST
             74 COMPARE_OP
                                         9 (is not)
            76 POP_JUMP_IF_FALSE
                                        84
                                         1 (index)
             78 LOAD_FAST
                                         7 (step)
             80 LOAD_ATTR
             82 JUMP_FORWARD
                                         2 (to 86)
                                         1 (1)
        >>
            84 LOAD_CONST
            86 UNARY_NEGATIVE
             88 CALL_METHOD
                                         3
             90 CALL_FUNCTION
             92 RETURN_VALUE
317
       >> 94 LOAD_GLOBAL
                                         3 (_coconut_igetitem)
            96 LOAD_FAST
                                         0 (self)
                                         4 (iter)
             98 LOAD_ATTR
            100 LOAD_FAST
                                        1 (index)
            102 LOAD CONST
                                         1 (1)
            104 BINARY_ADD
            106 UNARY_NEGATIVE
            108 CALL_FUNCTION
                                         2
            110 RETURN_VALUE
Disassembly of <code object __reversed__ at 0x7f6cf32a3500, file "<dis>", line 318
319
                                         0 (self)
              O LOAD_FAST
              2 LOAD_ATTR
                                         0 (iter)
              4 RETURN_VALUE
Disassembly of <code object __len__ at 0x7f6cf32a3660, file "<dis>", line 320>:
321
                                         0 (_coconut)
              O LOAD_GLOBAL
              2 LOAD_METHOD
                                         1 (len)
              4 LOAD_FAST
                                         0 (self)
              6 LOAD ATTR
                                         2 (iter)
              8 CALL_METHOD
             10 RETURN_VALUE
```

2 (to 68)

64 JUMP_FORWARD

```
Disassembly of <code object __repr__ at 0x7f6cf32a3710, file "<dis>", line 322>:
                                         1 ('reversed(%r)')
              O LOAD_CONST
              2 LOAD_FAST
                                         0 (self)
              4 LOAD_ATTR
                                         0 (iter)
              6 BUILD_TUPLE
              8 BINARY_MODULO
             10 RETURN_VALUE
Disassembly of <code object __hash__ at 0x7f6cf32a37c0, file "<dis>", line 324>:
325
              O LOAD_GLOBAL
                                         0 (_coconut)
              2 LOAD_METHOD
                                         1 (hash)
              4 LOAD_FAST
                                         0 (self)
              6 LOAD_ATTR
                                         2 (iter)
              8 CALL_METHOD
                                          1
             10 UNARY_NEGATIVE
             12 RETURN_VALUE
Disassembly of <code object __reduce__ at 0x7f6cf32a3870, file "<dis>", line 326>
327
              O LOAD_FAST
                                          0 (self)
              2 LOAD_ATTR
                                         0 (__class__)
              4 LOAD_FAST
                                         0 (self)
              6 LOAD_ATTR
                                         1 (iter)
              8 BUILD_TUPLE
                                         1
             10 BUILD_TUPLE
             12 RETURN_VALUE
Disassembly of <code object __copy__ at 0x7f6cf32a3920, file "<dis>", line 328>:
329
              O LOAD_FAST
                                          0 (self)
              2 LOAD_METHOD
                                          0 (__class__)
              4 LOAD_GLOBAL
                                         1 (_coconut)
              6 LOAD ATTR
                                         2 (copy)
                                         2 (copy)
              8 LOAD_METHOD
             10 LOAD_FAST
                                         0 (self)
             12 LOAD_ATTR
                                         3 (iter)
             14 CALL METHOD
                                         1
             16 CALL_METHOD
             18 RETURN_VALUE
```

```
Disassembly of <code object __eq_ at 0x7f6cf32a39d0, file "<dis>", line 330>:
331
              O LOAD_GLOBAL
                                         0 (isinstance)
              2 LOAD_FAST
                                          1 (other)
              4 LOAD_FAST
                                          0 (self)
              6 LOAD_ATTR
                                         1 (__class__)
              8 CALL_FUNCTION
             10 JUMP_IF_FALSE_OR_POP
                                         22
                                         0 (self)
             12 LOAD FAST
                                         2 (iter)
             14 LOAD ATTR
                                         1 (other)
             16 LOAD_FAST
                                         2 (iter)
             18 LOAD_ATTR
             20 COMPARE_OP
                                         2 (==)
        >>
             22 RETURN_VALUE
Disassembly of <code object __contains__ at 0x7f6cf32a3a80, file "<dis>", line 332
333
              O LOAD_FAST
                                         1 (elem)
              2 LOAD_FAST
                                         0 (self)
              4 LOAD_ATTR
                                         0 (iter)
              6 COMPARE_OP
                                          6 (in)
              8 RETURN VALUE
Disassembly of <code object count at 0x7f6cf32a3b30, file "<dis>", line 334>:
336
              O LOAD_FAST
                                          0 (self)
                                         0 (iter)
              2 LOAD_ATTR
              4 LOAD_METHOD
                                         1 (count)
              6 LOAD_FAST
                                          1 (elem)
              8 CALL_METHOD
                                          1
             10 RETURN_VALUE
Disassembly of <code object index at 0x7f6cf32a3be0, file "<dis>", line 337>:
                                         0 (_coconut)
339
              O LOAD GLOBAL
                                          1 (len)
              2 LOAD_METHOD
              4 LOAD_FAST
                                         0 (self)
              6 LOAD_ATTR
                                         2 (iter)
              8 CALL METHOD
                                         1
             10 LOAD_FAST
                                         0 (self)
             12 LOAD_ATTR
                                         2 (iter)
```

```
14 LOAD_METHOD
                                        3 (index)
             16 LOAD FAST
                                         1 (elem)
             18 CALL_METHOD
             20 BINARY_SUBTRACT
             22 LOAD_CONST
                                          1 (1)
             24 BINARY SUBTRACT
             26 RETURN_VALUE
Disassembly of <code object __fmap__ at 0x7f6cf32a3c90, file "<dis>", line 340>:
341
              O LOAD FAST
                                          0 (self)
                                         0 (__class__)
              2 LOAD_METHOD
              4 LOAD_GLOBAL
                                         1 (_coconut_map)
              6 LOAD FAST
                                         1 (func)
              8 LOAD_FAST
                                         0 (self)
             10 LOAD_ATTR
                                         2 (iter)
             12 CALL_FUNCTION
             14 CALL METHOD
                                         1
             16 RETURN_VALUE
Disassembly of <code object map at 0x7f6cf32a6920, file "<dis>", line 342>:
342
              O LOAD_NAME
                                         0 ( name )
                                         1 (__module__)
              2 STORE_NAME
              4 LOAD_CONST
                                         0 ('map')
              6 STORE_NAME
                                         2 (__qualname__)
343
              8 LOAD CONST
                                         1 (('func', 'iters'))
                                         3 (__slots__)
             10 STORE_NAME
344
             12 LOAD_NAME
                                         4 (hasattr)
             14 LOAD_NAME
                                         5 (_coconut)
             16 LOAD_ATTR
                                        6 (map)
             18 LOAD CONST
                                         2 ('__doc__')
             20 CALL_FUNCTION
             22 POP_JUMP_IF_FALSE
                                        32
                                         5 (coconut)
345
             24 LOAD NAME
                                          6 (map)
             26 LOAD_ATTR
                                         7 (__doc__)
             28 LOAD_ATTR
```

```
7 (__doc__)
             30 STORE_NAME
346
        >>
             32 LOAD_CONST
                                          3 (<code object __new__ at 0x7f6cf32a3df0
                                          4 ('map.__new__')
             34 LOAD_CONST
             36 MAKE_FUNCTION
                                          0
                                          8 (__new__)
             38 STORE_NAME
351
             40 LOAD_CONST
                                          5 (<code object __getitem__ at 0x7f6cf32a
                                          6 ('map.__getitem__')
             42 LOAD CONST
             44 MAKE FUNCTION
             46 STORE_NAME
                                          9 (__getitem__)
355
                                          7 (<code object __reversed__ at 0x7f6cf32
             48 LOAD_CONST
             50 LOAD_CONST
                                          8 ('map.__reversed__')
             52 MAKE_FUNCTION
             54 STORE_NAME
                                         10 (__reversed__)
357
                                          9 (<code object __len__ at 0x7f6cf32a63a6
             56 LOAD_CONST
                                         10 ('map.__len__')
             58 LOAD_CONST
             60 MAKE_FUNCTION
                                          0
             62 STORE NAME
                                         11 (__len__)
                                         11 (<code object __repr__ at 0x7f6cf32a650
359
             64 LOAD_CONST
                                         12 ('map.__repr__')
             66 LOAD_CONST
                                          0
             68 MAKE_FUNCTION
             70 STORE_NAME
                                         12 (__repr__)
361
                                         13 (<code object __reduce__ at 0x7f6cf32a6
             72 LOAD_CONST
             74 LOAD_CONST
                                         14 ('map.__reduce__')
                                          0
             76 MAKE_FUNCTION
                                         13 (__reduce__)
             78 STORE_NAME
                                         15 (<code object __reduce_ex__ at 0x7f6cf3
363
             80 LOAD_CONST
             82 LOAD_CONST
                                         16 ('map.__reduce_ex__')
             84 MAKE_FUNCTION
                                          0
             86 STORE NAME
                                         14 ( reduce ex )
365
             88 LOAD_CONST
                                         17 (<code object __copy__ at 0x7f6cf32a67)
```

```
90 LOAD_CONST
                                         18 ('map.__copy__')
             92 MAKE FUNCTION
                                         0
                                         15 (__copy__)
             94 STORE_NAME
                                         19 (<code object __fmap__ at 0x7f6cf32a67c
367
             96 LOAD_CONST
                                         20 ('map.__fmap__')
             98 LOAD_CONST
                                         0
            100 MAKE_FUNCTION
            102 STORE_NAME
                                         16 (__fmap__)
            104 LOAD_CONST
                                         21 (None)
            106 RETURN_VALUE
Disassembly of <code object __new__ at 0x7f6cf32a3df0, file "<dis>", line 346>:
347
              O LOAD_GLOBAL
                                         0 (_coconut)
              2 LOAD_ATTR
                                          1 (map)
                                         2 (__new__)
              4 LOAD_ATTR
              6 LOAD_FAST
                                          0 (cls)
              8 LOAD FAST
                                         1 (function)
             10 BUILD_TUPLE
                                          2 (iterables)
             12 LOAD_FAST
             14 BUILD_TUPLE_UNPACK_WITH_CALL
             16 CALL_FUNCTION_EX
             18 STORE_FAST
                                         3 (new_map)
348
             20 LOAD_FAST
                                         1 (function)
                                         3 (new_map)
             22 LOAD_FAST
             24 STORE_ATTR
                                         3 (func)
349
                                         2 (iterables)
             26 LOAD_FAST
             28 LOAD_FAST
                                         3 (new_map)
             30 STORE_ATTR
                                         4 (iters)
350
                                          3 (new_map)
             32 LOAD_FAST
             34 RETURN_VALUE
Disassembly of <code object __getitem__ at 0x7f6cf32a60e0, file "<dis>", line 3512
352
              O LOAD_GLOBAL
                                         0 (_coconut)
              2 LOAD_METHOD
                                         1 (isinstance)
              4 LOAD_DEREF
                                         0 (index)
```

```
6 LOAD_GLOBAL
                                          0 (_coconut)
                                          2 (slice)
              8 LOAD ATTR
                                          2
             10 CALL_METHOD
             12 POP_JUMP_IF_FALSE
                                         48
353
                                          0 (self)
             14 LOAD_FAST
                                          3 (__class__)
             16 LOAD_ATTR
             18 LOAD_FAST
                                          0 (self)
                                          4 (func)
             20 LOAD_ATTR
             22 BUILD TUPLE
                                          1
             24 LOAD_CLOSURE
                                          0 (index)
             26 BUILD_TUPLE
                                          1
             28 LOAD_CONST
                                          1 (<code object <genexpr> at 0x7f6cf32a3t
                                          2 ('map.__getitem__.<locals>.<genexpr>')
             30 LOAD_CONST
                                          8 (closure)
             32 MAKE_FUNCTION
             34 LOAD_FAST
                                          0 (self)
                                          5 (iters)
             36 LOAD ATTR
             38 GET_ITER
             40 CALL_FUNCTION
             42 BUILD_TUPLE_UNPACK_WITH_CALL
                                                  2
             44 CALL_FUNCTION_EX
             46 RETURN_VALUE
354
        >>
             48 LOAD_FAST
                                          0 (self)
             50 LOAD_ATTR
                                          4 (func)
             52 LOAD_CLOSURE
                                          0 (index)
             54 BUILD_TUPLE
                                          1
                                          3 (<code object <genexpr> at 0x7f6cf32a60
             56 LOAD_CONST
                                          2 ('map.__getitem__.<locals>.<genexpr>')
             58 LOAD_CONST
                                          8 (closure)
             60 MAKE_FUNCTION
                                          0 (self)
             62 LOAD_FAST
             64 LOAD_ATTR
                                          5 (iters)
             66 GET_ITER
             68 CALL_FUNCTION
                                          1
             70 CALL_FUNCTION_EX
             72 RETURN_VALUE
```

Disassembly of <code object <genexpr> at 0x7f6cf32a3f50, file "<dis>", line 353>:

```
353
              O LOAD_FAST
                                          0 (.0)
        >>
              2 FOR ITER
                                         16 (to 20)
              4 STORE_FAST
                                          1 (i)
              6 LOAD_GLOBAL
                                          0 (_coconut_igetitem)
                                          1 (i)
              8 LOAD_FAST
             10 LOAD_DEREF
                                          0 (index)
                                          2
             12 CALL_FUNCTION
             14 YIELD_VALUE
             16 POP_TOP
             18 JUMP_ABSOLUTE
                                          2
        >>
             20 LOAD_CONST
                                          0 (None)
             22 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf32a6030, file "<dis>", line 354>:
              O LOAD_FAST
                                          0 (.0)
354
        >>
              2 FOR_ITER
                                         16 (to 20)
              4 STORE_FAST
                                          1 (i)
                                          0 (_coconut_igetitem)
              6 LOAD_GLOBAL
              8 LOAD_FAST
                                          1 (i)
             10 LOAD_DEREF
                                          0 (index)
             12 CALL FUNCTION
                                          2
             14 YIELD_VALUE
             16 POP_TOP
             18 JUMP_ABSOLUTE
             20 LOAD_CONST
                                          0 (None)
        >>
             22 RETURN_VALUE
Disassembly of <code object __reversed__ at 0x7f6cf32a6240, file "<dis>", line 358
356
              O LOAD_FAST
                                          0 (self)
              2 LOAD_ATTR
                                          0 (__class__)
                                          0 (self)
              4 LOAD_FAST
              6 LOAD ATTR
                                          1 (func)
              8 BUILD_TUPLE
                                          1
                                          1 (<code object <genexpr> at 0x7f6cf32a63
             10 LOAD_CONST
                                          2 ('map.__reversed__.<locals>.<genexpr>')
             12 LOAD_CONST
             14 MAKE_FUNCTION
                                          0
                                          0 (self)
             16 LOAD_FAST
             18 LOAD_ATTR
                                          2 (iters)
```

```
20 GET_ITER
             22 CALL FUNCTION
             {\tt 24~BUILD\_TUPLE\_UNPACK\_WITH\_CALL}
             26 CALL_FUNCTION_EX
             28 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf32a6190, file "<dis>", line 356>:
              O LOAD_FAST
356
                                          0(.0)
        >>
              2 FOR_ITER
                                         14 (to 18)
              4 STORE_FAST
                                          1 (i)
              6 LOAD_GLOBAL
                                          0 (_coconut_reversed)
              8 LOAD_FAST
                                          1 (i)
             10 CALL_FUNCTION
                                          1
             12 YIELD_VALUE
             14 POP_TOP
             16 JUMP_ABSOLUTE
        >>
             18 LOAD_CONST
                                          0 (None)
             20 RETURN_VALUE
Disassembly of <code object _{-}len_{-} at 0x7f6cf32a63a0, file "<dis>", line 357>:
358
                                          0 (_coconut)
              O LOAD_GLOBAL
              2 LOAD_METHOD
                                          1 (min)
                                          1 (<code object <genexpr> at 0x7f6cf32a62
              4 LOAD_CONST
                                          2 ('map.__len__.<locals>.<genexpr>')
              6 LOAD_CONST
              8 MAKE_FUNCTION
             10 LOAD_FAST
                                          0 (self)
             12 LOAD_ATTR
                                          2 (iters)
             14 GET_ITER
             16 CALL_FUNCTION
             18 CALL_METHOD
                                          1
             20 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf32a62f0, file "<dis>", line 358>:
358
              O LOAD_FAST
                                          0 (.0)
        >>
              2 FOR_ITER
                                         16 (to 20)
              4 STORE_FAST
                                         1 (i)
              6 LOAD_GLOBAL
                                          0 (_coconut)
              8 LOAD_METHOD
                                          1 (len)
```

```
1 (i)
             10 LOAD_FAST
             12 CALL METHOD
                                          1
             14 YIELD_VALUE
             16 POP_TOP
             18 JUMP_ABSOLUTE
             20 LOAD_CONST
                                          0 (None)
        >>
             22 RETURN_VALUE
Disassembly of <code object __repr__ at 0x7f6cf32a6500, file "<dis>", line 359>:
                                          1 ('map(%r, %s)')
360
              O LOAD CONST
              2 LOAD_FAST
                                          0 (self)
              4 LOAD_ATTR
                                          0 (func)
              6 LOAD_CONST
                                          2 (', ')
              8 LOAD_METHOD
                                          1 (join)
             10 LOAD_CONST
                                          3 (<code object <genexpr> at 0x7f6cf32a64
                                          4 ('map.__repr__.<locals>.<genexpr>')
             12 LOAD_CONST
             14 MAKE FUNCTION
                                          0
                                          0 (self)
             16 LOAD_FAST
             18 LOAD_ATTR
                                          2 (iters)
             20 GET_ITER
             22 CALL FUNCTION
                                          1
             24 CALL_METHOD
                                          1
             26 BUILD_TUPLE
                                          2
             28 BINARY_MODULO
             30 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf32a6450, file "<dis>", line 360>:
360
              O LOAD_FAST
                                          0 (.0)
              2 FOR_ITER
        >>
                                         16 (to 20)
              4 STORE_FAST
                                          1 (i)
              6 LOAD_GLOBAL
                                          0 (_coconut)
              8 LOAD METHOD
                                          1 (repr)
                                          1 (i)
             10 LOAD_FAST
             12 CALL_METHOD
                                          1
             14 YIELD_VALUE
             16 POP TOP
             18 JUMP_ABSOLUTE
        >>
             20 LOAD_CONST
                                          0 (None)
```

```
Disassembly of <code object __reduce__ at 0x7f6cf32a65b0, file "<dis>", line 361>
                                          0 (self)
362
              O LOAD_FAST
                                          0 (__class__)
              2 LOAD_ATTR
              4 LOAD_FAST
                                          0 (self)
              6 LOAD_ATTR
                                          1 (func)
              8 BUILD_TUPLE
                                          1
                                         0 (self)
             10 LOAD_FAST
             12 LOAD_ATTR
                                          2 (iters)
             14 BINARY_ADD
             16 BUILD_TUPLE
             18 RETURN_VALUE
Disassembly of <code object __reduce_ex__ at 0x7f6cf32a6660, file "<dis>", line 36
                                         0 (self)
364
              O LOAD_FAST
              2 LOAD_METHOD
                                          0 (__reduce__)
              4 CALL_METHOD
              6 RETURN_VALUE
Disassembly of <code object \_copy\_ at 0x7f6cf32a6710, file "<dis>", line 365>:
366
              O LOAD_FAST
                                          0 (self)
              2 LOAD_ATTR
                                          0 (__class__)
              4 LOAD_FAST
                                          0 (self)
              6 LOAD_ATTR
                                          1 (func)
              8 BUILD_TUPLE
                                          1
             10 LOAD_GLOBAL
                                         2 (_coconut)
                                        3 (map)
             12 LOAD_METHOD
             14 LOAD_GLOBAL
                                         2 (_coconut)
                                         4 (copy)
             16 LOAD_ATTR
                                         4 (copy)
             18 LOAD_ATTR
             20 LOAD_FAST
                                          0 (self)
                                          5 (iters)
             22 LOAD_ATTR
             24 CALL_METHOD
             26 BUILD_TUPLE_UNPACK_WITH_CALL
             28 CALL_FUNCTION_EX
             30 RETURN_VALUE
```

```
Disassembly of <code object __fmap__ at 0x7f6cf32a67c0, file "<dis>", line 367>:
368
              O LOAD FAST
                                          0 (self)
                                          0 (__class__)
              2 LOAD_ATTR
              4 LOAD_GLOBAL
                                          1 (_coconut_forward_compose)
                                          0 (self)
              6 LOAD_FAST
                                          2 (func)
              8 LOAD_ATTR
             10 LOAD_FAST
                                          1 (func)
             12 CALL_FUNCTION
                                          2
             14 BUILD_TUPLE
                                          1
             16 LOAD_FAST
                                          0 (self)
             18 LOAD_ATTR
                                          3 (iters)
             20 BUILD_TUPLE_UNPACK_WITH_CALL
             22 CALL_FUNCTION_EX
             24 RETURN_VALUE
Disassembly of <code object parallel_map at 0x7f6cf32a6be0, file "<dis>", line 369
369
                                          0 (__name__)
              O LOAD NAME
                                          1 (__module__)
              2 STORE_NAME
                                          0 ('parallel_map')
              4 LOAD_CONST
              6 STORE_NAME
                                          2 (__qualname__)
370
              8 LOAD_CONST
                                          1 ('Multi-process implementation of map u
                                          3 (__doc__)
             10 STORE_NAME
372
                                          2 (())
             12 LOAD_CONST
             14 STORE_NAME
                                          4 (__slots__)
                                          3 (<code object __iter__ at 0x7f6cf32a687
373
             16 LOAD_CONST
                                          4 ('parallel_map.__iter__')
             18 LOAD_CONST
                                          0
             20 MAKE_FUNCTION
                                          5 (__iter__)
             22 STORE_NAME
377
                                          5 (<code object __repr__ at 0x7f6cf32a6b3
             24 LOAD_CONST
                                          6 ('parallel_map.__repr__')
             26 LOAD_CONST
             28 MAKE_FUNCTION
             30 STORE NAME
                                          6 (__repr__)
                                          7 (None)
             32 LOAD_CONST
             34 RETURN_VALUE
```

```
Disassembly of <code object __iter__ at 0x7f6cf32a6870, file "<dis>", line 373>:
374
              O LOAD_CONST
                                          1 (0)
              2 LOAD_CONST
                                          2 (('ProcessPoolExecutor',))
              4 IMPORT_NAME
                                          0 (concurrent.futures)
              6 IMPORT_FROM
                                          1 (ProcessPoolExecutor)
              8 STORE_FAST
                                          1 (ProcessPoolExecutor)
             10 POP_TOP
375
             12 LOAD_FAST
                                          1 (ProcessPoolExecutor)
             14 CALL_FUNCTION
                                          0
             16 SETUP_WITH
                                         46 (to 64)
             18 STORE_FAST
                                          2 (executor)
376
                                          2 (_coconut)
             20 LOAD_GLOBAL
             22 LOAD_METHOD
                                         3 (iter)
             24 LOAD GLOBAL
                                         2 (_coconut)
             26 LOAD_METHOD
                                         4 (list)
             28 LOAD_FAST
                                         2 (executor)
             30 LOAD_ATTR
                                         5 (map)
             32 LOAD FAST
                                          0 (self)
                                          6 (func)
             34 LOAD_ATTR
             36 BUILD_TUPLE
                                          1
             38 LOAD_FAST
                                          0 (self)
             40 LOAD ATTR
                                          7 (iters)
             42 BUILD_TUPLE_UNPACK_WITH_CALL
             44 CALL_FUNCTION_EX
             46 CALL_METHOD
                                          1
             48 CALL_METHOD
             50 POP_BLOCK
             52 ROT_TWO
             54 BEGIN_FINALLY
             56 WITH_CLEANUP_START
             58 WITH_CLEANUP_FINISH
             60 POP_FINALLY
                                          0
             62 RETURN VALUE
        >>
             64 WITH_CLEANUP_START
             66 WITH_CLEANUP_FINISH
```

```
2 LOAD_GLOBAL
                                         0 (_coconut_map)
              4 LOAD_METHOD
                                         1 (__repr__)
                                         0 (self)
              6 LOAD_FAST
              8 CALL_METHOD
             10 BINARY_ADD
             12 RETURN_VALUE
Disassembly of <code object concurrent_map at 0x7f6cf32a6df0, file "<dis>", line 3
                                         0 (__name__)
379
              O LOAD_NAME
                                         1 (__module__)
              2 STORE_NAME
                                         0 ('concurrent_map')
              4 LOAD CONST
                                         2 (_qualname__)
              6 STORE NAME
380
              8 LOAD_CONST
                                         1 ('Multi-thread implementation of map us
                                         3 (__doc__)
             10 STORE_NAME
                                         2 (())
381
             12 LOAD_CONST
                                         4 (__slots__)
             14 STORE_NAME
382
                                         3 (<code object __iter__ at 0x7f6cf32a6c9
             16 LOAD_CONST
             18 LOAD_CONST
                                         4 ('concurrent_map.__iter__')
             20 MAKE_FUNCTION
             22 STORE_NAME
                                         5 (__iter__)
387
                                         5 (<code object __repr__ at 0x7f6cf32a6d4
             24 LOAD_CONST
                                         6 ('concurrent_map.__repr__')
             26 LOAD CONST
             28 MAKE_FUNCTION
                                         0
             30 STORE_NAME
                                         6 (_repr__)
                                         7 (None)
             32 LOAD_CONST
             34 RETURN VALUE
Disassembly of <code object __iter__ at 0x7f6cf32a6c90, file "<dis>", line 382>:
```

0 (None)

1 ('parallel_')

Disassembly of <code object __repr__ at 0x7f6cf32a6b30, file "<dis>", line 377>:

68 END_FINALLY

O LOAD_CONST

70 LOAD_CONST72 RETURN_VALUE

378

```
1 (0)
383
              O LOAD_CONST
                                           2 (('ThreadPoolExecutor',))
              2 LOAD CONST
                                           0 (concurrent.futures)
              4 IMPORT_NAME
                                           1 (ThreadPoolExecutor)
              6 IMPORT_FROM
                                           1 (ThreadPoolExecutor)
              8 STORE_FAST
             10 POP_TOP
384
             12 LOAD_CONST
                                           1 (0)
                                           3 (('cpu_count',))
             14 LOAD CONST
             16 IMPORT NAME
                                          2 (multiprocessing)
             18 IMPORT_FROM
                                           3 (cpu_count)
             20 STORE_FAST
                                           2 (cpu_count)
             22 POP_TOP
385
             24 LOAD_FAST
                                           1 (ThreadPoolExecutor)
             26 LOAD_FAST
                                           2 (cpu_count)
                                           0
             28 CALL FUNCTION
                                           4 (5)
             30 LOAD_CONST
             32 BINARY_MULTIPLY
                                           1
             34 CALL_FUNCTION
                                         46 (to 84)
             36 SETUP_WITH
             38 STORE_FAST
                                          3 (executor)
386
             40 LOAD_GLOBAL
                                           4 (_coconut)
                                          5 (iter)
             42 LOAD_METHOD
             44 LOAD GLOBAL
                                          4 (coconut)
             46 LOAD_METHOD
                                          6 (list)
             48 LOAD_FAST
                                           3 (executor)
             50 LOAD_ATTR
                                          7 (map)
                                           0 (self)
             52 LOAD_FAST
             54 LOAD_ATTR
                                          8 (func)
             56 BUILD TUPLE
                                           1
                                           0 (self)
             58 LOAD_FAST
             60 LOAD ATTR
                                           9 (iters)
             62 BUILD_TUPLE_UNPACK_WITH_CALL
             64 CALL FUNCTION EX
                                           1
             66 CALL_METHOD
             68 CALL_METHOD
                                           1
```

```
70 POP_BLOCK
             72 ROT TWO
             74 BEGIN_FINALLY
             76 WITH_CLEANUP_START
             78 WITH_CLEANUP_FINISH
             80 POP_FINALLY
                                          0
             82 RETURN_VALUE
        >>
             84 WITH_CLEANUP_START
             86 WITH_CLEANUP_FINISH
             88 END FINALLY
             90 LOAD_CONST
                                         0 (None)
             92 RETURN_VALUE
Disassembly of <code object __repr__ at 0x7f6cf32a6d40, file "<dis>", line 387>:
              O LOAD_CONST
                                          1 ('concurrent_')
388
                                         0 (_coconut_map)
              2 LOAD_GLOBAL
                                        1 (__repr__)
              4 LOAD METHOD
                                         0 (self)
              6 LOAD_FAST
              8 CALL_METHOD
                                          1
             10 BINARY_ADD
             12 RETURN VALUE
Disassembly of <code object filter at 0x7f6cf32ab3a0, file "<dis>", line 389>:
                                         0 (__name__)
389
              O LOAD_NAME
                                         1 (__module__)
              2 STORE NAME
                                         0 ('filter')
              4 LOAD CONST
              6 STORE_NAME
                                         2 (__qualname__)
390
              8 LOAD_CONST
                                         1 (('func', 'iter'))
             10 STORE_NAME
                                         3 (__slots__)
391
             12 LOAD NAME
                                         4 (hasattr)
                                         5 (_coconut)
             14 LOAD_NAME
             16 LOAD_ATTR
                                        6 (filter)
                                         2 ('__doc__')
             18 LOAD_CONST
             20 CALL FUNCTION
                                         2
             22 POP_JUMP_IF_FALSE
                                        32
```

```
6 (filter)
             26 LOAD ATTR
             28 LOAD_ATTR
                                          7 (__doc__)
                                          7 (__doc__)
             30 STORE_NAME
393
        >>
                                          3 (<code object __new__ at 0x7f6cf32a6ea(
             32 LOAD_CONST
                                          4 ('filter.__new__')
             34 LOAD_CONST
             36 MAKE_FUNCTION
                                          0
                                          8 (__new__)
             38 STORE_NAME
398
             40 LOAD_CONST
                                          5 (<code object __reversed__ at 0x7f6cf32
             42 LOAD_CONST
                                          6 ('filter.__reversed__')
             44 MAKE_FUNCTION
             46 STORE_NAME
                                          9 (_reversed__)
400
             48 LOAD_CONST
                                          7 (<code object __repr__ at 0x7f6cf32ab03
                                          8 ('filter. repr ')
             50 LOAD CONST
             52 MAKE_FUNCTION
             54 STORE_NAME
                                         10 (__repr__)
402
             56 LOAD_CONST
                                          9 (<code object __reduce__ at 0x7f6cf32al
                                         10 ('filter.__reduce__')
             58 LOAD_CONST
                                          0
             60 MAKE_FUNCTION
                                         11 (__reduce__)
             62 STORE_NAME
404
                                         11 (<code object __reduce_ex__ at 0x7f6cf3
             64 LOAD_CONST
             66 LOAD_CONST
                                         12 ('filter.__reduce_ex__')
             68 MAKE_FUNCTION
                                          0
             70 STORE_NAME
                                         12 (__reduce_ex__)
406
             72 LOAD_CONST
                                         13 (<code object __copy__ at 0x7f6cf32ab24
             74 LOAD_CONST
                                         14 ('filter.__copy__')
                                          0
             76 MAKE_FUNCTION
             78 STORE_NAME
                                         13 (__copy__)
408
                                         15 (<code object __fmap__ at 0x7f6cf32ab2t
             80 LOAD CONST
                                         16 ('filter.__fmap__')
             82 LOAD_CONST
             84 MAKE_FUNCTION
                                          0
```

5 (_coconut)

392

24 LOAD_NAME

```
14 (__fmap__)
             86 STORE_NAME
             88 LOAD CONST
                                        17 (None)
             90 RETURN_VALUE
Disassembly of <code object __new__ at 0x7f6cf32a6ea0, file "<dis>", line 393>:
394
             O LOAD_GLOBAL
                                         0 (_coconut)
                                         1 (filter)
              2 LOAD_ATTR
              4 LOAD_METHOD
                                         2 (__new__)
                                         0 (cls)
              6 LOAD_FAST
             8 LOAD_FAST
                                         1 (function)
             10 LOAD_FAST
                                         2 (iterable)
             12 CALL_METHOD
                                         3
             14 STORE_FAST
                                         3 (new_filter)
395
             16 LOAD_FAST
                                        1 (function)
             18 LOAD_FAST
                                         3 (new_filter)
             20 STORE_ATTR
                                         3 (func)
396
             22 LOAD_FAST
                                         2 (iterable)
             24 LOAD_FAST
                                        3 (new_filter)
                                         4 (iter)
             26 STORE ATTR
397
             28 LOAD_FAST
                                         3 (new_filter)
             30 RETURN_VALUE
Disassembly of <code object __reversed__ at 0x7f6cf32a6f50, file "<dis>", line 398
399
              O LOAD_FAST
                                         0 (self)
                                         0 (__class__)
              2 LOAD_METHOD
              4 LOAD_FAST
                                         0 (self)
                                         1 (func)
              6 LOAD_ATTR
             8 LOAD_GLOBAL
                                         2 (_coconut_reversed)
             10 LOAD_FAST
                                         0 (self)
                                         3 (iter)
             12 LOAD_ATTR
             14 CALL_FUNCTION
                                         1
             16 CALL_METHOD
                                         2
             18 RETURN VALUE
```

Disassembly of <code object __repr__ at 0x7f6cf32ab030, file "<dis>", line 400>:

```
401
              O LOAD_CONST
                                        1 ('filter(%r, %r)')
              2 LOAD FAST
                                          0 (self)
              4 LOAD_ATTR
                                          0 (func)
              6 LOAD_FAST
                                          0 (self)
              8 LOAD_ATTR
                                          1 (iter)
             10 BUILD_TUPLE
             12 BINARY_MODULO
             14 RETURN_VALUE
Disassembly of <code object __reduce__ at 0x7f6cf32ab0e0, file "<dis>", line 402>
403
              O LOAD_FAST
                                          0 (self)
                                          0 (__class__)
              2 LOAD_ATTR
              4 LOAD_FAST
                                          0 (self)
                                          1 (func)
              6 LOAD_ATTR
                                          0 (self)
              8 LOAD_FAST
                                          2 (iter)
             10 LOAD_ATTR
             12 BUILD_TUPLE
                                          2
             14 BUILD_TUPLE
             16 RETURN_VALUE
Disassembly of <code object __reduce_ex__ at 0x7f6cf32ab190, file "<dis>", line 40
405
                                         0 (self)
              O LOAD_FAST
                                          0 (__reduce__)
              2 LOAD_METHOD
              4 CALL_METHOD
              6 RETURN_VALUE
Disassembly of <code object __copy__ at 0x7f6cf32ab240, file "<dis>", line 406>:
407
              O LOAD_FAST
                                          0 (self)
              2 LOAD_METHOD
                                          0 (__class__)
                                          0 (self)
              4 LOAD_FAST
              6 LOAD_ATTR
                                         1 (func)
              8 LOAD_GLOBAL
                                          2 (_coconut)
             10 LOAD_ATTR
                                          3 (copy)
             12 LOAD_METHOD
                                          3 (copy)
             14 LOAD_FAST
                                          0 (self)
                                         4 (iter)
             16 LOAD ATTR
             18 CALL_METHOD
             20 CALL_METHOD
                                          2
```

```
Disassembly of <code object __fmap__ at 0x7f6cf32ab2f0, file "<dis>", line 408>:
409
              O LOAD_GLOBAL
                                          0 (_coconut_map)
                                          1 (func)
              2 LOAD_FAST
              4 LOAD_FAST
                                          0 (self)
                                          2
              6 CALL_FUNCTION
              8 RETURN_VALUE
Disassembly of <code object zip at 0x7f6cf32abea0, file "<dis>", line 410>:
                                          0 (__name__)
410
              O LOAD_NAME
                                          1 (__module__)
              2 STORE_NAME
              4 LOAD_CONST
                                          0 ('zip')
              6 STORE_NAME
                                          2 (__qualname__)
411
              8 LOAD_CONST
                                         1 (('iters',))
                                          3 (__slots__)
             10 STORE_NAME
412
             12 LOAD_NAME
                                          4 (hasattr)
             14 LOAD_NAME
                                         5 (_coconut)
             16 LOAD ATTR
                                         6 (zip)
                                          2 ('__doc__')
             18 LOAD_CONST
             20 CALL_FUNCTION
                                          2
             22 POP_JUMP_IF_FALSE
                                         32
413
                                          5 (_coconut)
             24 LOAD_NAME
                                          6 (zip)
             26 LOAD_ATTR
                                          7 (__doc__)
             28 LOAD_ATTR
                                          7 (__doc__)
             30 STORE_NAME
                                          3 (<code object __new__ at 0x7f6cf32ab450
414
        >>
             32 LOAD_CONST
             34 LOAD_CONST
                                          4 ('zip.__new__')
             36 MAKE_FUNCTION
                                          0
                                          8 (__new__)
             38 STORE_NAME
418
             40 LOAD CONST
                                          5 (<code object __getitem__ at 0x7f6cf32a
                                          6 ('zip.__getitem__')
             42 LOAD_CONST
             44 MAKE_FUNCTION
```

```
46 STORE_NAME
                                          9 (__getitem__)
422
             48 LOAD_CONST
                                          7 (<code object __reversed__ at 0x7f6cf32
                                          8 ('zip.__reversed__')
             50 LOAD_CONST
             52 MAKE_FUNCTION
                                          0
             54 STORE_NAME
                                         10 (__reversed__)
                                          9 (<code object __len__ at 0x7f6cf32ab920
424
             56 LOAD_CONST
                                         10 ('zip.__len__')
             58 LOAD CONST
             60 MAKE FUNCTION
                                          0
             62 STORE_NAME
                                         11 (__len__)
426
                                         11 (<code object __repr__ at 0x7f6cf32aba8
             64 LOAD_CONST
             66 LOAD_CONST
                                         12 ('zip.__repr__')
             68 MAKE_FUNCTION
                                          0
             70 STORE_NAME
                                         12 (__repr__)
428
             72 LOAD_CONST
                                         13 (<code object __reduce__ at 0x7f6cf32al
             74 LOAD_CONST
                                         14 ('zip.__reduce__')
                                          0
             76 MAKE_FUNCTION
             78 STORE NAME
                                         13 ( reduce )
430
             80 LOAD_CONST
                                         15 (<code object __reduce_ex__ at 0x7f6cf3
             82 LOAD_CONST
                                         16 ('zip.__reduce_ex__')
             84 MAKE FUNCTION
                                          0
             86 STORE_NAME
                                         14 (__reduce_ex__)
                                         17 (<code object __copy__ at 0x7f6cf32abc9
432
             88 LOAD_CONST
             90 LOAD_CONST
                                         18 ('zip.__copy__')
                                          0
             92 MAKE_FUNCTION
             94 STORE_NAME
                                         15 (__copy__)
434
                                         19 (<code object __fmap__ at 0x7f6cf32abd4
             96 LOAD_CONST
                                         20 ('zip.__fmap__')
             98 LOAD_CONST
            100 MAKE_FUNCTION
                                          0
                                         16 (__fmap__)
            102 STORE NAME
                                         21 (None)
            104 LOAD_CONST
```

```
Disassembly of <code object __new__ at 0x7f6cf32ab450, file "<dis>", line 414>:
                                          0 (_coconut)
415
              O LOAD_GLOBAL
                                          1 (zip)
              2 LOAD_ATTR
                                          2 (__new__)
              4 LOAD_ATTR
              6 LOAD_FAST
                                          0 (cls)
              8 BUILD_TUPLE
                                          1
             10 LOAD_FAST
                                          1 (iterables)
             12 BUILD_TUPLE_UNPACK_WITH_CALL
                                                  2
             14 CALL_FUNCTION_EX
             16 STORE_FAST
                                          2 (new_zip)
416
                                          1 (iterables)
             18 LOAD_FAST
             20 LOAD_FAST
                                          2 (new_zip)
             22 STORE_ATTR
                                          3 (iters)
417
                                          2 (new_zip)
             24 LOAD FAST
             26 RETURN_VALUE
Disassembly of <code object __getitem__ at 0x7f6cf32ab660, file "<dis>", line 418
419
              O LOAD GLOBAL
                                          0 (coconut)
                                          1 (isinstance)
              2 LOAD_METHOD
                                          0 (index)
              4 LOAD_DEREF
              6 LOAD_GLOBAL
                                          0 (_coconut)
              8 LOAD_ATTR
                                          2 (slice)
             10 CALL METHOD
                                          2
             12 POP_JUMP_IF_FALSE
                                         40
420
             14 LOAD_FAST
                                          0 (self)
                                          3 (__class__)
             16 LOAD_ATTR
                                          0 (index)
             18 LOAD_CLOSURE
             20 BUILD_TUPLE
                                          1 (<code object <genexpr> at 0x7f6cf32ab
             22 LOAD_CONST
                                          2 ('zip.__getitem__.<locals>.<genexpr>')
             24 LOAD_CONST
             26 MAKE_FUNCTION
                                          8 (closure)
                                          0 (self)
             28 LOAD FAST
             30 LOAD_ATTR
                                          4 (iters)
             32 GET_ITER
```

```
34 CALL_FUNCTION
             36 CALL FUNCTION EX
             38 RETURN_VALUE
421
                                         0 (_coconut)
        >>
             40 LOAD_GLOBAL
             42 LOAD_METHOD
                                         5 (tuple)
                                         0 (index)
             44 LOAD_CLOSURE
             46 BUILD_TUPLE
                                          1
             48 LOAD_CONST
                                         3 (<code object <genexpr> at 0x7f6cf32ab
                                         2 ('zip.__getitem__.<locals>.<genexpr>')
             50 LOAD_CONST
                                         8 (closure)
             52 MAKE_FUNCTION
                                         0 (self)
             54 LOAD_FAST
             56 LOAD_ATTR
                                         4 (iters)
             58 GET_ITER
             60 CALL_FUNCTION
             62 CALL_METHOD
             64 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf32ab500, file "<dis>", line 420>:
420
              O LOAD_FAST
                                          0 (.0)
        >>
              2 FOR_ITER
                                         16 (to 20)
              4 STORE_FAST
                                         1 (i)
              6 LOAD_GLOBAL
                                         0 (_coconut_igetitem)
              8 LOAD_FAST
                                         1 (i)
             10 LOAD_DEREF
                                         0 (index)
             12 CALL_FUNCTION
                                         2
             14 YIELD_VALUE
             16 POP_TOP
             18 JUMP_ABSOLUTE
             20 LOAD_CONST
                                         0 (None)
        >>
             22 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf32ab5b0, file "<dis>", line 421>:
421
              O LOAD_FAST
                                         0 (.0)
              2 FOR_ITER
                                        16 (to 20)
              4 STORE_FAST
                                        1 (i)
              6 LOAD_GLOBAL
                                         0 (_coconut_igetitem)
              8 LOAD_FAST
                                         1 (i)
```

```
10 LOAD_DEREF
                                         0 (index)
             12 CALL FUNCTION
                                         2
             14 YIELD_VALUE
             16 POP_TOP
             18 JUMP_ABSOLUTE
             20 LOAD_CONST
                                         0 (None)
        >>
             22 RETURN_VALUE
Disassembly of <code object __reversed__ at 0x7f6cf32ab7c0, file "<dis>", line 422
423
              O LOAD FAST
                                         0 (self)
                                         0 (__class__)
              2 LOAD_ATTR
                                         1 (<code object <genexpr> at 0x7f6cf32ab7
              4 LOAD_CONST
              6 LOAD_CONST
                                         2 ('zip.__reversed__.<locals>.<genexpr>')
              8 MAKE_FUNCTION
                                         0
                                         0 (self)
             10 LOAD_FAST
                                         1 (iters)
             12 LOAD_ATTR
             14 GET_ITER
             16 CALL_FUNCTION
             18 CALL_FUNCTION_EX
                                         0
             20 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf32ab710, file "<dis>", line 423>:
423
                                         0 (.0)
              O LOAD_FAST
              2 FOR_ITER
        >>
                                         14 (to 18)
              4 STORE_FAST
                                         1 (i)
              6 LOAD_GLOBAL
                                         0 (_coconut_reversed)
              8 LOAD_FAST
                                         1 (i)
             10 CALL_FUNCTION
                                          1
             12 YIELD_VALUE
             14 POP_TOP
             16 JUMP_ABSOLUTE
        >>
             18 LOAD_CONST
                                         0 (None)
             20 RETURN_VALUE
Disassembly of <code object __len__ at 0x7f6cf32ab920, file "<dis>", line 424>:
425
              O LOAD GLOBAL
                                         0 (_coconut)
              2 LOAD_METHOD
                                         1 (min)
                                          1 (<code object <genexpr> at 0x7f6cf32ab8
              4 LOAD_CONST
```

```
8 MAKE FUNCTION
             10 LOAD_FAST
                                          0 (self)
                                          2 (iters)
             12 LOAD_ATTR
             14 GET_ITER
             16 CALL_FUNCTION
             18 CALL_METHOD
                                          1
             20 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf32ab870, file "<dis>", line 425>:
425
              O LOAD_FAST
                                          0(.0)
        >>
              2 FOR_ITER
                                         16 (to 20)
              4 STORE_FAST
                                          1 (i)
              6 LOAD_GLOBAL
                                          0 (_coconut)
                                          1 (len)
              8 LOAD_METHOD
             10 LOAD_FAST
                                          1 (i)
             12 CALL METHOD
                                          1
             14 YIELD_VALUE
             16 POP_TOP
             18 JUMP_ABSOLUTE
                                          2
        >>
             20 LOAD CONST
                                          0 (None)
             22 RETURN_VALUE
Disassembly of <code object __repr__ at 0x7f6cf32aba80, file "<dis>", line 426>:
427
              O LOAD_CONST
                                          1 ('zip(%s)')
              2 LOAD_CONST
                                          2 (', ')
              4 LOAD_METHOD
                                          0 (join)
                                          3 (<code object <genexpr> at 0x7f6cf32abs
              6 LOAD_CONST
                                          4 ('zip.__repr__.<locals>.<genexpr>')
              8 LOAD_CONST
             10 MAKE_FUNCTION
                                          0
                                          0 (self)
             12 LOAD_FAST
             14 LOAD_ATTR
                                          1 (iters)
             16 GET_ITER
             18 CALL_FUNCTION
                                          1
             20 CALL_METHOD
                                          1
             22 BUILD TUPLE
                                          1
             24 BINARY_MODULO
             26 RETURN_VALUE
```

2 ('zip.__len__.<locals>.<genexpr>')

6 LOAD_CONST

```
Disassembly of <code object <genexpr> at 0x7f6cf32ab9d0, file "<dis>", line 427>:
427
              O LOAD_FAST
                                          0 (.0)
        >>
              2 FOR_ITER
                                         16 (to 20)
              4 STORE_FAST
                                          1 (i)
              6 LOAD_GLOBAL
                                          0 (_coconut)
              8 LOAD_METHOD
                                         1 (repr)
             10 LOAD_FAST
                                          1 (i)
                                          1
             12 CALL_METHOD
             14 YIELD_VALUE
             16 POP_TOP
             18 JUMP_ABSOLUTE
        >>
             20 LOAD_CONST
                                          0 (None)
             22 RETURN_VALUE
Disassembly of <code object __reduce__ at 0x7f6cf32abb30, file "<dis>", line 428>
429
                                          0 (self)
              O LOAD FAST
                                          0 (__class__)
              2 LOAD_ATTR
                                          0 (self)
              4 LOAD_FAST
              6 LOAD_ATTR
                                         1 (iters)
              8 BUILD TUPLE
                                          2
             10 RETURN_VALUE
Disassembly of <code object __reduce_ex__ at 0x7f6cf32abbe0, file "<dis>", line 43
431
              O LOAD_FAST
                                          0 (self)
              2 LOAD_METHOD
                                          0 (__reduce__)
              4 CALL_METHOD
              6 RETURN_VALUE
Disassembly of <code object __copy__ at 0x7f6cf32abc90, file "<dis>", line 432>:
433
              O LOAD_FAST
                                          0 (self)
              2 LOAD_ATTR
                                          0 (__class__)
                                          1 (_coconut)
              4 LOAD_GLOBAL
              6 LOAD_METHOD
                                          2 (map)
              8 LOAD_GLOBAL
                                         1 (_coconut)
                                          3 (copy)
             10 LOAD ATTR
             12 LOAD_ATTR
                                          3 (copy)
             14 LOAD_FAST
                                          0 (self)
```

```
4 (iters)
             16 LOAD_ATTR
             18 CALL METHOD
                                          2
             20 CALL_FUNCTION_EX
                                          0
             22 RETURN_VALUE
Disassembly of <code object __fmap__ at 0x7f6cf32abd40, file "<dis>", line 434>:
435
              O LOAD_GLOBAL
                                          0 (_coconut_map)
              2 LOAD_FAST
                                          1 (func)
              4 LOAD_FAST
                                          0 (self)
              6 CALL_FUNCTION
              8 RETURN_VALUE
Disassembly of <code object enumerate at 0x7f6cf32ac660, file "<dis>", line 436>:
436
              O LOAD_NAME
                                         0 (__name__)
                                         1 (__module__)
              2 STORE_NAME
                                         0 ('enumerate')
              4 LOAD_CONST
                                          2 (__qualname__)
              6 STORE_NAME
                                         1 (('iter', 'start'))
437
              8 LOAD_CONST
             10 STORE_NAME
                                         3 (__slots__)
438
             12 LOAD_NAME
                                         4 (hasattr)
             14 LOAD_NAME
                                        5 (_coconut)
             16 LOAD_ATTR
                                        6 (enumerate)
                                         2 ('__doc__')
             18 LOAD_CONST
             20 CALL_FUNCTION
             22 POP_JUMP_IF_FALSE
                                         32
439
             24 LOAD_NAME
                                          5 (_coconut)
             26 LOAD_ATTR
                                          6 (enumerate)
                                         7 (__doc__)
             28 LOAD_ATTR
             30 STORE_NAME
                                         7 (__doc__)
440
        >>
             32 LOAD_CONST
                                         21 ((0,))
             34 LOAD_CONST
                                         4 (<code object __new__ at 0x7f6cf32abdf0
                                         5 ('enumerate.__new__')
             36 LOAD_CONST
             38 MAKE_FUNCTION
                                         1 (defaults)
                                         8 (__new__)
             40 STORE_NAME
```

```
445
             42 LOAD CONST
                                          6 (<code object __getitem__ at 0x7f6cf32a
                                          7 ('enumerate.__getitem__')
             44 LOAD_CONST
                                          0
             46 MAKE_FUNCTION
             48 STORE_NAME
                                          9 (__getitem__)
449
             50 LOAD_CONST
                                          8 (<code object __len__ at 0x7f6cf32ac0e(
                                          9 ('enumerate.__len__')
             52 LOAD_CONST
             54 MAKE FUNCTION
                                          0
             56 STORE_NAME
                                         10 (__len__)
451
             58 LOAD_CONST
                                         10 (<code object __repr__ at 0x7f6cf32ac24
                                         11 ('enumerate.__repr__')
             60 LOAD_CONST
             62 MAKE_FUNCTION
                                          0
                                         11 (__repr__)
             64 STORE_NAME
453
                                         12 (<code object __reduce__ at 0x7f6cf32ac
             66 LOAD CONST
                                         13 ('enumerate. reduce ')
             68 LOAD_CONST
             70 MAKE_FUNCTION
                                          0
             72 STORE_NAME
                                         12 (__reduce__)
                                         14 (<code object __reduce_ex__ at 0x7f6cf3
455
             74 LOAD_CONST
                                         15 ('enumerate.__reduce_ex__')
             76 LOAD_CONST
             78 MAKE_FUNCTION
                                          0
                                         13 (__reduce_ex__)
             80 STORE_NAME
457
             82 LOAD_CONST
                                         16 (<code object __copy__ at 0x7f6cf32ac4
                                         17 ('enumerate.__copy__')
             84 LOAD_CONST
             86 MAKE_FUNCTION
             88 STORE_NAME
                                         14 (__copy__)
459
                                         18 (<code object __fmap__ at 0x7f6cf32ac50
             90 LOAD CONST
                                         19 ('enumerate.__fmap__')
             92 LOAD_CONST
             94 MAKE_FUNCTION
                                          0
             96 STORE_NAME
                                         15 (__fmap__)
                                         20 (None)
             98 LOAD CONST
```

```
Disassembly of <code object __new__ at 0x7f6cf32abdf0, file "<dis>", line 440>:
441
              O LOAD GLOBAL
                                          0 (coconut)
              2 LOAD_ATTR
                                          1 (enumerate)
                                          2 (__new__)
              4 LOAD_METHOD
              6 LOAD_FAST
                                          0 (cls)
              8 LOAD_FAST
                                          1 (iterable)
             10 LOAD_FAST
                                          2 (start)
             12 CALL_METHOD
                                          3
             14 STORE_FAST
                                          3 (new_enumerate)
442
             16 LOAD_FAST
                                          1 (iterable)
             18 LOAD_FAST
                                          3 (new_enumerate)
             20 STORE_ATTR
                                          3 (iter)
443
             22 LOAD_FAST
                                          2 (start)
             24 LOAD_FAST
                                          3 (new_enumerate)
                                          4 (start)
             26 STORE_ATTR
444
             28 LOAD_FAST
                                          3 (new_enumerate)
             30 RETURN_VALUE
Disassembly of <code object __getitem__ at 0x7f6cf32ac190, file "<dis>", line 445
446
              O LOAD_GLOBAL
                                          0 (_coconut)
              2 LOAD_METHOD
                                          1 (isinstance)
              4 LOAD_FAST
                                          1 (index)
                                          0 (_coconut)
              6 LOAD_GLOBAL
              8 LOAD_ATTR
                                          2 (slice)
                                          2
             10 CALL_METHOD
             12 POP_JUMP_IF_FALSE
                                         82
447
             14 LOAD_FAST
                                          0 (self)
                                          3 (__class__)
             16 LOAD_METHOD
                                          4 (_coconut_igetitem)
             18 LOAD_GLOBAL
             20 LOAD_FAST
                                          0 (self)
             22 LOAD_ATTR
                                          5 (iter)
             24 LOAD FAST
                                          1 (index)
             26 CALL_FUNCTION
             28 LOAD_FAST
                                          0 (self)
```

```
6 (start)
             30 LOAD_ATTR
             32 LOAD FAST
                                           1 (index)
                                           6 (start)
             34 LOAD_ATTR
             36 LOAD_CONST
                                           0 (None)
             38 COMPARE_OP
                                           8 (is)
             40 POP_JUMP_IF_FALSE
                                          46
             42 LOAD CONST
                                           1 (0)
             44 JUMP_FORWARD
                                          30 (to 76)
        >>
             46 LOAD FAST
                                           1 (index)
             48 LOAD ATTR
                                           6 (start)
             50 LOAD_CONST
                                           1 (0)
             52 COMPARE_OP
                                           5 (>=)
             54 POP_JUMP_IF_FALSE
                                          62
             56 LOAD_FAST
                                           1 (index)
             58 LOAD_ATTR
                                           6 (start)
             60 JUMP_FORWARD
                                          14 (to 76)
        >>
             62 LOAD GLOBAL
                                           7 (len)
             64 LOAD_FAST
                                           0 (self)
             66 LOAD_ATTR
                                           5 (iter)
             68 CALL_FUNCTION
                                           1
                                           1 (index)
             70 LOAD_FAST
                                           6 (start)
             72 LOAD_ATTR
             74 BINARY_ADD
        >>
             76 BINARY_ADD
             78 CALL METHOD
                                           2
             80 RETURN VALUE
448
                                           0 (self)
        >>
             82 LOAD_FAST
             84 LOAD_ATTR
                                           6 (start)
             86 LOAD_FAST
                                           1 (index)
             88 BINARY_ADD
             90 LOAD GLOBAL
                                           4 (_coconut_igetitem)
                                           0 (self)
             92 LOAD_FAST
             94 LOAD_ATTR
                                           5 (iter)
             96 LOAD_FAST
                                           1 (index)
             98 CALL FUNCTION
                                           2
            100 BUILD_TUPLE
            102 RETURN_VALUE
```

```
Disassembly of <code object len at 0x7f6cf32ac0e0, file "<dis>", line 449>:
450
                                         0 (_coconut)
              O LOAD_GLOBAL
              2 LOAD_METHOD
                                         1 (len)
                                         0 (self)
              4 LOAD_FAST
              6 LOAD_ATTR
                                         2 (iter)
              8 CALL_METHOD
                                          1
             10 RETURN_VALUE
Disassembly of <code object __repr__ at 0x7f6cf32ac240, file "<dis>", line 451>:
452
                                          1 ('enumerate(%r, %r)')
              O LOAD_CONST
              2 LOAD_FAST
                                         0 (self)
              4 LOAD ATTR
                                         0 (iter)
              6 LOAD_FAST
                                         0 (self)
                                         1 (start)
              8 LOAD_ATTR
             10 BUILD_TUPLE
             12 BINARY MODULO
             14 RETURN_VALUE
Disassembly of <code object __reduce__ at 0x7f6cf32ac2f0, file "<dis>", line 453>
454
              O LOAD_FAST
                                         0 (self)
                                         0 (__class__)
              2 LOAD_ATTR
              4 LOAD_FAST
                                         0 (self)
              6 LOAD_ATTR
                                         1 (iter)
              8 LOAD_FAST
                                         0 (self)
             10 LOAD_ATTR
                                         2 (start)
             12 BUILD_TUPLE
                                         2
                                         2
             14 BUILD_TUPLE
             16 RETURN_VALUE
Disassembly of <code object __reduce_ex__ at 0x7f6cf32ac3a0, file "<dis>", line 45
              O LOAD_FAST
456
                                         0 (self)
              2 LOAD_METHOD
                                         0 (__reduce__)
              4 CALL_METHOD
                                          0
              6 RETURN_VALUE
Disassembly of <code object __copy__ at 0x7f6cf32ac450, file "<dis>", line 457>:
458
              O LOAD_FAST
                                         0 (self)
```

```
2 LOAD_METHOD
                                          0 (__class__)
              4 LOAD GLOBAL
                                          1 (coconut)
              6 LOAD_ATTR
                                          2 (copy)
                                          2 (copy)
              8 LOAD_METHOD
             10 LOAD_FAST
                                          0 (self)
             12 LOAD_ATTR
                                          3 (iter)
             14 CALL_METHOD
                                          1
             16 LOAD_FAST
                                          0 (self)
                                          4 (start)
             18 LOAD_ATTR
             20 CALL_METHOD
             22 RETURN_VALUE
Disassembly of <code object __fmap__ at 0x7f6cf32ac500, file "<dis>", line 459>:
460
              O LOAD_GLOBAL
                                          0 (_coconut_map)
                                          1 (func)
              2 LOAD_FAST
                                          0 (self)
              4 LOAD_FAST
                                          2
              6 CALL FUNCTION
              8 RETURN_VALUE
Disassembly of <code object count at 0x7f6cf32b1190, file "<dis>", line 461>:
                                          0 (__name__)
461
              O LOAD NAME
                                          1 (__module__)
              2 STORE_NAME
              4 LOAD_CONST
                                          0 ('count')
              6 STORE_NAME
                                          2 (__qualname__)
462
                                          1 ('count(start, step) returns an infinit
              8 LOAD CONST
             10 STORE_NAME
                                          3 (__doc__)
464
             12 LOAD_CONST
                                          2 (('start', 'step'))
             14 STORE_NAME
                                          4 (__slots__)
465
                                         32 ((0, 1))
             16 LOAD_CONST
                                          5 (<code object __init__ at 0x7f6cf32ac5)
             18 LOAD_CONST
                                          6 ('count.__init__')
             20 LOAD_CONST
             22 MAKE_FUNCTION
                                          1 (defaults)
             24 STORE_NAME
                                          5 (__init__)
                                          7 (<code object __iter__ at 0x7f6cf32ac87
468
             26 LOAD_CONST
```

```
28 LOAD_CONST
                                          8 ('count.__iter__')
             30 MAKE FUNCTION
             32 STORE_NAME
                                          6 (__iter__)
473
             34 LOAD_CONST
                                          9 (<code object __contains__ at 0x7f6cf32
                                         10 ('count.__contains__')
             36 LOAD_CONST
             38 MAKE_FUNCTION
             40 STORE_NAME
                                          7 (__contains__)
479
                                         11 (<code object __getitem__ at 0x7f6cf32a
             42 LOAD_CONST
             44 LOAD_CONST
                                         12 ('count.__getitem__')
             46 MAKE_FUNCTION
             48 STORE_NAME
                                          8 (__getitem__)
494
             50 LOAD_CONST
                                         13 (<code object count at 0x7f6cf32aca80,
                                         14 ('count.count')
             52 LOAD_CONST
                                          0
             54 MAKE FUNCTION
             56 STORE_NAME
                                          9 (count)
499
                                         15 (<code object index at 0x7f6cf32acb30,
             58 LOAD_CONST
             60 LOAD_CONST
                                         16 ('count.index')
             62 MAKE_FUNCTION
                                          0
             64 STORE_NAME
                                         10 (index)
504
                                         17 (<code object __reversed__ at 0x7f6cf32
             66 LOAD_CONST
             68 LOAD_CONST
                                         18 ('count.__reversed__')
             70 MAKE_FUNCTION
                                          0
             72 STORE_NAME
                                         11 (__reversed__)
                                         19 (<code object __repr__ at 0x7f6cf32accs
508
             74 LOAD_CONST
                                         20 ('count.__repr__')
             76 LOAD_CONST
             78 MAKE FUNCTION
                                          0
             80 STORE_NAME
                                         12 (__repr__)
                                         21 (<code object __hash__ at 0x7f6cf32acd4
510
             82 LOAD_CONST
             84 LOAD CONST
                                         22 ('count. hash ')
             86 MAKE_FUNCTION
```

13 (__hash__)

88 STORE_NAME

```
24 ('count.__reduce__')
             92 LOAD_CONST
             94 MAKE_FUNCTION
                                         0
                                         14 (__reduce__)
             96 STORE_NAME
514
             98 LOAD_CONST
                                         25 (<code object __copy__ at 0x7f6cf32acea
                                         26 ('count.__copy__')
            100 LOAD_CONST
            102 MAKE FUNCTION
                                         0
            104 STORE_NAME
                                         15 (__copy__)
                                        27 (<code object __eq_ at 0x7f6cf32acf50
516
            106 LOAD_CONST
                                         28 ('count.__eq__')
            108 LOAD_CONST
            110 MAKE_FUNCTION
                                         0
            112 STORE_NAME
                                         16 (__eq__)
518
                                         29 (<code object __fmap__ at 0x7f6cf32b103
            114 LOAD CONST
                                         30 ('count. fmap ')
            116 LOAD_CONST
            118 MAKE_FUNCTION
                                         0
                                         17 (__fmap__)
            120 STORE_NAME
            122 LOAD CONST
                                         31 (None)
            124 RETURN_VALUE
Disassembly of <code object __init__ at 0x7f6cf32ac5b0, file "<dis>", line 465>:
466
              O LOAD_FAST
                                          1 (start)
              2 LOAD FAST
                                          0 (self)
              4 STORE_ATTR
                                          0 (start)
467
              6 LOAD_FAST
                                         2 (step)
              8 LOAD_FAST
                                         0 (self)
             10 STORE_ATTR
                                         1 (step)
             12 LOAD CONST
                                         0 (None)
             14 RETURN_VALUE
Disassembly of <code object __iter__ at 0x7f6cf32ac870, file "<dis>", line 468>:
470
        >>
              O LOAD FAST
                                          0 (self)
              2 LOAD_ATTR
                                          0 (start)
              4 YIELD_VALUE
```

23 (<code object __reduce__ at 0x7f6cf32ac

512

90 LOAD CONST

```
6 POP_TOP
471
              8 LOAD_FAST
                                         0 (self)
             10 LOAD_ATTR
                                          1 (step)
             12 POP_JUMP_IF_FALSE
472
                                          0 (self)
             14 LOAD_FAST
             16 DUP_TOP
             18 LOAD_ATTR
                                          0 (start)
             20 LOAD_FAST
                                          0 (self)
             22 LOAD_ATTR
                                          1 (step)
             24 INPLACE_ADD
             26 ROT_TWO
             28 STORE_ATTR
                                          0 (start)
             30 JUMP_ABSOLUTE
             32 LOAD_CONST
                                          0 (None)
             34 RETURN_VALUE
Disassembly of <code object __contains__ at 0x7f6cf32ac920, file "<dis>", line 473
474
              O LOAD_FAST
                                        0 (self)
              2 LOAD ATTR
                                         0 (step)
              4 POP_JUMP_IF_TRUE
                                         16
475
              6 LOAD_FAST
                                         1 (elem)
              8 LOAD_FAST
                                          0 (self)
             10 LOAD_ATTR
                                         1 (start)
             12 COMPARE_OP
                                          2 (==)
             14 RETURN_VALUE
476
       >>
             16 LOAD_FAST
                                         1 (elem)
             18 LOAD_FAST
                                        0 (self)
             20 LOAD_ATTR
                                         1 (start)
             22 COMPARE_OP
                                         0 (<)
             24 POP_JUMP_IF_FALSE
                                         30
477
             26 LOAD CONST
                                          1 (False)
             28 RETURN_VALUE
```

```
478
        >>
             30 LOAD_FAST
                                          1 (elem)
             32 LOAD FAST
                                          0 (self)
             34 LOAD_ATTR
                                          1 (start)
             36 BINARY_SUBTRACT
                                          0 (self)
             38 LOAD_FAST
                                          0 (step)
             40 LOAD_ATTR
             42 BINARY_MODULO
             44 LOAD_CONST
                                          2 (0)
                                          2 (==)
             46 COMPARE_OP
             48 RETURN_VALUE
Disassembly of <code object __getitem__ at 0x7f6cf32ac9d0, file "<dis>", line 479
480
              O LOAD_GLOBAL
                                          0 (_coconut)
              2 LOAD_METHOD
                                          1 (isinstance)
              4 LOAD_FAST
                                          1 (index)
              6 LOAD_GLOBAL
                                          0 (_coconut)
              8 LOAD ATTR
                                          2 (slice)
             10 CALL_METHOD
             12 EXTENDED_ARG
                                          1
             14 POP_JUMP_IF_FALSE
                                        278
             16 LOAD FAST
                                          1 (index)
                                          3 (start)
             18 LOAD_ATTR
             20 LOAD_CONST
                                          0 (None)
             22 COMPARE_OP
                                          8 (is)
             24 POP_JUMP_IF_TRUE
                                         38
             26 LOAD_FAST
                                          1 (index)
             28 LOAD_ATTR
                                          3 (start)
             30 LOAD_CONST
                                          1 (0)
             32 COMPARE_OP
                                          5 (>=)
             34 EXTENDED_ARG
                                          1
                                        278
             36 POP_JUMP_IF_FALSE
        >>
             38 LOAD_FAST
                                          1 (index)
             40 LOAD_ATTR
                                          4 (stop)
             42 LOAD_CONST
                                          0 (None)
             44 COMPARE_OP
                                          8 (is)
             46 POP_JUMP_IF_TRUE
                                         60
             48 LOAD_FAST
                                          1 (index)
             50 LOAD_ATTR
                                          4 (stop)
```

```
1 (0)
             52 LOAD_CONST
             54 COMPARE OP
                                          5 (>=)
             56 EXTENDED ARG
                                          1
             58 POP_JUMP_IF_FALSE
                                        278
481
    >>
             60 LOAD FAST
                                          0 (self)
             62 LOAD_ATTR
                                          3 (start)
             64 LOAD_FAST
                                          0 (self)
             66 LOAD ATTR
                                          5 (step)
             68 ROT TWO
             70 STORE_FAST
                                          2 (new_start)
             72 STORE_FAST
                                          3 (new_step)
482
             74 LOAD_FAST
                                          0 (self)
             76 LOAD ATTR
                                          5 (step)
             78 POP_JUMP_IF_FALSE
                                        106
             80 LOAD FAST
                                          1 (index)
             82 LOAD_ATTR
                                          3 (start)
             84 LOAD_CONST
                                          0 (None)
             86 COMPARE OP
                                          9 (is not)
             88 POP_JUMP_IF_FALSE
                                        106
483
             90 LOAD_FAST
                                          2 (new_start)
             92 LOAD_FAST
                                          0 (self)
             94 LOAD ATTR
                                          5 (step)
             96 LOAD_FAST
                                          1 (index)
             98 LOAD_ATTR
                                          3 (start)
            100 BINARY_MULTIPLY
            102 INPLACE_ADD
            104 STORE_FAST
                                          2 (new_start)
484
        >> 106 LOAD FAST
                                          0 (self)
            108 LOAD_ATTR
                                          5 (step)
            110 POP_JUMP_IF_FALSE
                                        132
            112 LOAD_FAST
                                          1 (index)
            114 LOAD ATTR
                                          5 (step)
            116 LOAD_CONST
                                          0 (None)
            118 COMPARE_OP
                                          9 (is not)
```

```
120 POP_JUMP_IF_FALSE
                                         132
485
            122 LOAD_FAST
                                           3 (new_step)
            124 LOAD_FAST
                                           1 (index)
            126 LOAD_ATTR
                                           5 (step)
            128 INPLACE MULTIPLY
            130 STORE FAST
                                           3 (new step)
486
        >>
            132 LOAD FAST
                                           1 (index)
            134 LOAD ATTR
                                           4 (stop)
            136 LOAD_CONST
                                          0 (None)
            138 COMPARE_OP
                                          8 (is)
            140 POP_JUMP_IF_FALSE
                                        154
487
            142 LOAD FAST
                                           0 (self)
            144 LOAD_METHOD
                                           6 (__class__)
                                           2 (new start)
            146 LOAD FAST
                                           3 (new step)
            148 LOAD_FAST
            150 CALL_METHOD
                                           2
            152 RETURN_VALUE
488
        >> 154 LOAD_FAST
                                           0 (self)
            156 LOAD_ATTR
                                           5 (step)
            158 POP_JUMP_IF_FALSE
                                        220
            160 LOAD GLOBAL
                                           0 (coconut)
            162 LOAD_METHOD
                                           1 (isinstance)
            164 LOAD_FAST
                                           0 (self)
            166 LOAD_ATTR
                                           3 (start)
            168 LOAD_GLOBAL
                                           0 (_coconut)
                                           7 (int)
            170 LOAD_ATTR
                                           2
            172 CALL_METHOD
            174 POP JUMP IF FALSE
                                        220
                                           0 (coconut)
            176 LOAD_GLOBAL
            178 LOAD METHOD
                                           1 (isinstance)
            180 LOAD_FAST
                                           0 (self)
            182 LOAD ATTR
                                           5 (step)
                                           0 (_coconut)
            184 LOAD_GLOBAL
            186 LOAD_ATTR
                                           7 (int)
```

```
188 CALL_METHOD
                                           2
            190 POP JUMP IF FALSE
                                         220
489
            192 LOAD_GLOBAL
                                           0 (_coconut)
            194 LOAD_METHOD
                                           8 (range)
            196 LOAD FAST
                                           2 (new start)
            198 LOAD FAST
                                          0 (self)
            200 LOAD_ATTR
                                           3 (start)
                                           0 (self)
            202 LOAD FAST
            204 LOAD ATTR
                                           5 (step)
            206 LOAD_FAST
                                           1 (index)
            208 LOAD_ATTR
                                           4 (stop)
            210 BINARY MULTIPLY
            212 BINARY_ADD
            214 LOAD FAST
                                           3 (new_step)
            216 CALL_METHOD
            218 RETURN VALUE
490
            220 LOAD_GLOBAL
                                           9 (_coconut_map)
            222 LOAD_FAST
                                           0 (self)
            224 LOAD_ATTR
                                          10 ( getitem )
            226 LOAD_GLOBAL
                                          0 (_coconut)
            228 LOAD_METHOD
                                          8 (range)
            230 LOAD_FAST
                                           1 (index)
            232 LOAD ATTR
                                           3 (start)
            234 LOAD CONST
                                           0 (None)
            236 COMPARE_OP
                                           9 (is not)
            238 POP_JUMP_IF_FALSE
                                         246
            240 LOAD_FAST
                                           1 (index)
                                           3 (start)
            242 LOAD ATTR
                                           2 (to 248)
            244 JUMP_FORWARD
            246 LOAD CONST
                                           1 (0)
            248 LOAD_FAST
                                           1 (index)
            250 LOAD ATTR
                                           4 (stop)
            252 LOAD_FAST
                                           1 (index)
            254 LOAD ATTR
                                           5 (step)
            256 LOAD_CONST
                                           0 (None)
            258 COMPARE_OP
                                          9 (is not)
```

```
260 EXTENDED_ARG
                                          1
            262 POP JUMP IF FALSE
                                        270
            264 LOAD_FAST
                                          1 (index)
                                          5 (step)
            266 LOAD_ATTR
                                          2 (to 272)
            268 JUMP_FORWARD
        >> 270 LOAD CONST
                                          2 (1)
        >> 272 CALL_METHOD
                                          3
            274 CALL_FUNCTION
                                          2
            276 RETURN_VALUE
491
        >>
            278 LOAD_FAST
                                          1 (index)
            280 LOAD_CONST
                                          1 (0)
            282 COMPARE OP
                                          0 (<)
            284 EXTENDED_ARG
                                          1
            286 POP_JUMP_IF_FALSE
                                        298
492
            288 LOAD GLOBAL
                                          0 (coconut)
            290 LOAD_METHOD
                                         11 (IndexError)
            292 LOAD_CONST
                                          3 ('count indices must be positive')
            294 CALL_METHOD
                                          1
            296 RAISE_VARARGS
                                          1
493
        >> 298 LOAD_FAST
                                          0 (self)
            300 LOAD_ATTR
                                          5 (step)
            302 EXTENDED ARG
                                          1
            304 POP_JUMP_IF_FALSE
                                        322
            306 LOAD_FAST
                                          0 (self)
            308 LOAD_ATTR
                                          3 (start)
            310 LOAD_FAST
                                          0 (self)
            312 LOAD_ATTR
                                          5 (step)
                                          1 (index)
            314 LOAD_FAST
            316 BINARY MULTIPLY
            318 BINARY_ADD
            320 RETURN_VALUE
            322 LOAD_FAST
                                          0 (self)
            324 LOAD ATTR
                                          3 (start)
            326 RETURN_VALUE
```

```
Disassembly of <code object count at 0x7f6cf32aca80, file "<dis>", line 494>:
496
              O LOAD FAST
                                          0 (self)
              2 LOAD ATTR
                                          0 (step)
              4 POP_JUMP_IF_TRUE
                                         30
497
              6 LOAD FAST
                                          1 (elem)
              8 LOAD_FAST
                                          0 (self)
             10 LOAD_ATTR
                                          1 (start)
                                          2 (==)
             12 COMPARE OP
             14 POP_JUMP_IF_FALSE
                                         26
             16 LOAD_GLOBAL
                                          2 (_coconut)
             18 LOAD_METHOD
                                          3 (float)
             20 LOAD CONST
                                          1 ('inf')
             22 CALL_METHOD
             24 RETURN VALUE
                                          2(0)
        >>
             26 LOAD_CONST
             28 RETURN VALUE
498
        >>
             30 LOAD_GLOBAL
                                          4 (int)
             32 LOAD_FAST
                                          1 (elem)
                                          0 (self)
             34 LOAD_FAST
             36 COMPARE_OP
                                          6 (in)
             38 CALL_FUNCTION
                                          1
             40 RETURN_VALUE
Disassembly of <code object index at 0x7f6cf32acb30, file "<dis>", line 499>:
501
              O LOAD_FAST
                                          1 (elem)
                                          0 (self)
              2 LOAD_FAST
              4 COMPARE OP
                                          7 (not in)
              6 POP JUMP IF FALSE
                                         38
502
              8 LOAD GLOBAL
                                          0 (coconut)
                                          1 (ValueError)
             10 LOAD_METHOD
             12 LOAD GLOBAL
                                          0 (coconut)
             14 LOAD_METHOD
                                          2 (repr)
             16 LOAD FAST
                                          1 (elem)
             18 CALL_METHOD
                                          1 (' not in ')
             20 LOAD_CONST
```

```
22 BINARY_ADD
                                         0 (coconut)
             24 LOAD GLOBAL
                                         2 (repr)
             26 LOAD_METHOD
                                         0 (self)
             28 LOAD_FAST
             30 CALL_METHOD
             32 BINARY_ADD
             34 CALL_METHOD
                                          1
             36 RAISE_VARARGS
                                          1
503 >>
             38 LOAD_FAST
                                          0 (self)
             40 LOAD_ATTR
                                          3 (step)
             42 POP_JUMP_IF_FALSE
                                         60
             44 LOAD_FAST
                                         1 (elem)
             46 LOAD_FAST
                                          0 (self)
                                          4 (start)
             48 LOAD_ATTR
             50 BINARY_SUBTRACT
             52 LOAD_FAST
                                          0 (self)
                                          3 (step)
             54 LOAD_ATTR
             56 BINARY_FLOOR_DIVIDE
             58 RETURN_VALUE
                                          2 (0)
        >>
             60 LOAD_CONST
             62 RETURN_VALUE
Disassembly of <code object __reversed__ at 0x7f6cf32acbe0, file "<dis>", line 504
505
              O LOAD_FAST
                                         0 (self)
              2 LOAD ATTR
                                         0 (step)
              4 POP_JUMP_IF_TRUE
                                         10
506
              6 LOAD_FAST
                                          0 (self)
              8 RETURN_VALUE
507
        >>
             10 LOAD_GLOBAL
                                         1 (_coconut)
                                         2 (TypeError)
             12 LOAD_METHOD
             14 LOAD_GLOBAL
                                         3 (repr)
             16 LOAD_FAST
                                         0 (self)
             18 CALL FUNCTION
                                          1
                                         1 (' object is not reversible')
             20 LOAD_CONST
             22 BINARY_ADD
```

```
24 CALL_METHOD
                                        1
             26 RAISE VARARGS
                                         1
             28 LOAD_CONST
                                         0 (None)
             30 RETURN_VALUE
Disassembly of <code object __repr__ at 0x7f6cf32acc90, file "<dis>", line 508>:
509
                                          1 ('count(%r, %r)')
              O LOAD_CONST
              2 LOAD_FAST
                                         0 (self)
              4 LOAD_ATTR
                                         0 (start)
              6 LOAD FAST
                                         0 (self)
              8 LOAD_ATTR
                                         1 (step)
             10 BUILD_TUPLE
             12 BINARY_MODULO
             14 RETURN_VALUE
Disassembly of <code object __hash__ at 0x7f6cf32acd40, file "<dis>", line 510>:
511
              O LOAD GLOBAL
                                         0 (_coconut)
              2 LOAD_METHOD
                                         1 (hash)
              4 LOAD_FAST
                                         0 (self)
              6 LOAD_ATTR
                                         2 (start)
                                         0 (self)
              8 LOAD_FAST
             10 LOAD_ATTR
                                         3 (step)
             12 BUILD_TUPLE
                                         2
             14 CALL_METHOD
                                         1
             16 RETURN_VALUE
Disassembly of <code object __reduce__ at 0x7f6cf32acdf0, file "<dis>", line 512>
513
                                         0 (self)
              O LOAD_FAST
              2 LOAD_ATTR
                                         0 (__class__)
              4 LOAD_FAST
                                         0 (self)
                                         1 (start)
              6 LOAD_ATTR
              8 LOAD FAST
                                         0 (self)
             10 LOAD_ATTR
                                         2 (step)
             12 BUILD_TUPLE
                                         2
             14 BUILD_TUPLE
                                         2
             16 RETURN VALUE
```

Disassembly of <code object __copy__ at 0x7f6cf32acea0, file "<dis>", line 514>:

```
0 (self)
515
              O LOAD_FAST
                                          0 ( class )
              2 LOAD METHOD
                                          0 (self)
              4 LOAD_FAST
              6 LOAD_ATTR
                                         1 (start)
              8 LOAD_FAST
                                          0 (self)
             10 LOAD_ATTR
                                          2 (step)
             12 CALL_METHOD
             14 RETURN_VALUE
Disassembly of <code object __eq_ at 0x7f6cf32acf50, file "<dis>", line 516>:
517
              O LOAD_GLOBAL
                                          0 (isinstance)
              2 LOAD_FAST
                                          1 (other)
              4 LOAD_FAST
                                          0 (self)
              6 LOAD_ATTR
                                          1 (__class__)
              8 CALL_FUNCTION
                                          2
             10 JUMP_IF_FALSE_OR_POP
             12 LOAD FAST
                                          0 (self)
             14 LOAD_ATTR
                                          2 (start)
             16 LOAD_FAST
                                          1 (other)
             18 LOAD_ATTR
                                          2 (start)
                                          2 (==)
             20 COMPARE_OP
             22 JUMP_IF_FALSE_OR_POP
                                         34
             24 LOAD_FAST
                                          0 (self)
             26 LOAD_ATTR
                                         3 (step)
             28 LOAD_FAST
                                        1 (other)
             30 LOAD_ATTR
                                         3 (step)
             32 COMPARE_OP
                                          2 (==)
             34 RETURN_VALUE
        >>
Disassembly of <code object __fmap__ at 0x7f6cf32b1030, file "<dis>", line 518>:
519
                                          0 (_coconut_map)
              O LOAD_GLOBAL
              2 LOAD FAST
                                          1 (func)
                                          0 (self)
              4 LOAD_FAST
              6 CALL_FUNCTION
                                          2
              8 RETURN_VALUE
Disassembly of <code object groupsof at 0x7f6cf32b1660, file "<dis>", line 520>:
                                          0 (__name__)
520
              O LOAD_NAME
```

```
2 STORE_NAME
                                          1 (__module__)
              4 LOAD CONST
                                          0 ('groupsof')
                                          2 (__qualname__)
              6 STORE_NAME
521
              8 LOAD_CONST
                                          1 ('groupsof(n, iterable) splits iterable
                                          3 (__doc__)
             10 STORE_NAME
523
             12 LOAD_CONST
                                          2 (('group_size', 'iter'))
                                          4 (__slots__)
             14 STORE_NAME
                                          3 (<code object __init__ at 0x7f6cf32b10e
524
             16 LOAD_CONST
                                          4 ('groupsof.__init__')
             18 LOAD_CONST
             20 MAKE_FUNCTION
                                          5 (__init__)
             22 STORE_NAME
532
             24 LOAD_CONST
                                          5 (<code object __iter__ at 0x7f6cf32b12t
                                          6 ('groupsof.__iter__')
             26 LOAD CONST
             28 MAKE_FUNCTION
             30 STORE_NAME
                                          6 (__iter__)
                                          7 (<code object __len__ at 0x7f6cf32b1240
545
             32 LOAD CONST
                                          8 ('groupsof.__len__')
             34 LOAD_CONST
                                          0
             36 MAKE_FUNCTION
                                          7 (__len__)
             38 STORE_NAME
                                          9 (<code object __repr__ at 0x7f6cf32b13a
547
             40 LOAD_CONST
                                         10 ('groupsof.__repr__')
             42 LOAD_CONST
             44 MAKE_FUNCTION
                                          0
             46 STORE_NAME
                                          8 (__repr__)
                                         11 (<code object __reduce__ at 0x7f6cf32b3
549
             48 LOAD_CONST
             50 LOAD_CONST
                                         12 ('groupsof.__reduce__')
                                          0
             52 MAKE_FUNCTION
             54 STORE_NAME
                                          9 ( reduce )
551
                                         13 (<code object __copy__ at 0x7f6cf32b150
             56 LOAD CONST
                                         14 ('groupsof.__copy__')
             58 LOAD_CONST
             60 MAKE_FUNCTION
                                          0
```

```
10 (__copy__)
             62 STORE_NAME
                                         15 (<code object _{\rm _{map}_{\rm _{}}} at 0x7f6cf32b15H
553
             64 LOAD_CONST
                                         16 ('groupsof.__fmap__')
             66 LOAD_CONST
             68 MAKE_FUNCTION
                                          0
             70 STORE_NAME
                                         11 (__fmap__)
             72 LOAD_CONST
                                         17 (None)
             74 RETURN_VALUE
Disassembly of <code object __init__ at 0x7f6cf32b10e0, file "<dis>", line 524>:
525
              O LOAD_FAST
                                          2 (iterable)
              2 LOAD_FAST
                                          0 (self)
              4 STORE_ATTR
                                          0 (iter)
526
              6 SETUP_FINALLY
                                         16 (to 24)
527
             8 LOAD_GLOBAL
                                          1 (_coconut)
             10 LOAD_METHOD
                                          2 (int)
             12 LOAD_FAST
                                          1 (n)
             14 CALL_METHOD
                                          1
             16 LOAD_FAST
                                          0 (self)
             18 STORE_ATTR
                                          3 (group_size)
             20 POP_BLOCK
                                         38 (to 62)
             22 JUMP_FORWARD
528
      >>
             24 DUP_TOP
             26 LOAD_GLOBAL
                                         1 (_coconut)
                                         4 (ValueError)
             28 LOAD_ATTR
             30 COMPARE_OP
                                         10 (exception match)
             32 POP_JUMP_IF_FALSE
                                         60
             34 POP_TOP
             36 POP_TOP
             38 POP_TOP
529
             40 LOAD_GLOBAL
                                          1 (_coconut)
                                          5 (TypeError)
             42 LOAD METHOD
                                          1 ('group size must be an int; not %r')
             44 LOAD_CONST
             46 LOAD_FAST
                                          1 (n)
```

```
48 BUILD_TUPLE
             50 BINARY MODULO
             52 CALL_METHOD
                                          1
             54 RAISE_VARARGS
                                          1
             56 POP_EXCEPT
             58 JUMP_FORWARD
                                          2 (to 62)
             60 END_FINALLY
        >>
530
             62 LOAD_FAST
        >>
                                          0 (self)
             64 LOAD_ATTR
                                          3 (group_size)
             66 LOAD_CONST
                                          2 (0)
             68 COMPARE_OP
                                          1 (<=)
             70 POP_JUMP_IF_FALSE
                                         90
531
             72 LOAD_GLOBAL
                                          1 (_coconut)
             74 LOAD_METHOD
                                          4 (ValueError)
                                          3 ('group size must be > 0; not %r')
             76 LOAD CONST
                                          0 (self)
             78 LOAD_FAST
                                          3 (group_size)
             80 LOAD_ATTR
             82 BUILD_TUPLE
                                          1
             84 BINARY_MODULO
             86 CALL_METHOD
                                          1
             88 RAISE_VARARGS
                                          1
                                          0 (None)
        >>
             90 LOAD_CONST
             92 RETURN_VALUE
Disassembly of <code object \_iter\_ at 0x7f6cf32b12f0, file "<dis>", line 532>:
533
                                          0 (_coconut)
              O LOAD_GLOBAL
                                          1 (iter)
              2 LOAD_METHOD
              4 LOAD_FAST
                                          0 (self)
              6 LOAD_ATTR
                                          1 (iter)
              8 CALL METHOD
             10 STORE_FAST
                                          1 (iterator)
534
             12 LOAD_CONST
                                          1 (True)
                                          2 (loop)
             14 STORE_FAST
                                          2 (loop)
535
        >>
             16 LOAD_FAST
```

		18 POP_J	UMP_IF_FALSE	114	
536		20 BUILD 22 STORE	_	0	(group)
537		24 LOAD_			(_coconut)
001		26 LOAD_			(range)
		28 LOAD_			(self)
		30 LOAD			(group size)
		32 CALL		1	0 12 7
		34 GET_I			
	>>	36 FOR_I	TER	58	(to 96)
		38 STORE	_FAST	4	(_)
538		40 SETUP	_FINALLY	20	(to 62)
539		42 LOAD	FAST	3	(group)
		44 LOAD			(append)
		46 LOAD_			(_coconut)
		48 LOAD_			_ (next)
		50 LOAD_	FAST	1	(iterator)
		52 CALL_	METHOD	1	
		54 CALL_	METHOD	1	
		56 POP_T	0P		
		58 POP_B	LOCK		
		60 JUMP_	ABSOLUTE	36	
540	>>	62 DUP_T	0P		
		64 LOAD_	GLOBAL		(_coconut)
		66 LOAD_	ATTR		(StopIteration)
		68 COMPA	_		(exception match)
		_	UMP_IF_FALSE	92	
		72 POP_T			
		74 POP_T			
		76 POP_T	UP		
541		78 LOAD	CONST	2	(False)
		80 STORE			(loop)

```
542
             82 POP EXCEPT
             84 POP_TOP
             86 JUMP_ABSOLUTE
                                         96
             88 POP_EXCEPT
             90 JUMP_ABSOLUTE
                                         36
        >>
             92 END_FINALLY
             94 JUMP_ABSOLUTE
                                         36
543
        >> 96 LOAD FAST
                                          3 (group)
             98 POP_JUMP_IF_FALSE
                                         16
544
            100 LOAD_GLOBAL
                                          0 (_coconut)
            102 LOAD_METHOD
                                          7 (tuple)
            104 LOAD_FAST
                                          3 (group)
            106 CALL_METHOD
            108 YIELD_VALUE
            110 POP_TOP
            112 JUMP_ABSOLUTE
                                         16
        >> 114 LOAD_CONST
                                          0 (None)
            116 RETURN_VALUE
Disassembly of <code object _{-}len_{-} at 0x7f6cf32b1240, file "<dis>", line 545>:
546
              O LOAD_GLOBAL
                                          0 (_coconut)
              2 LOAD_METHOD
                                          1 (len)
              4 LOAD_FAST
                                          0 (self)
              6 LOAD_ATTR
                                          2 (iter)
              8 CALL_METHOD
                                          1
             10 RETURN_VALUE
Disassembly of <code object __repr__ at 0x7f6cf32b13a0, file "<dis>", line 547>:
548
              O LOAD_CONST
                                          1 ('groupsof(%r)')
              2 LOAD_FAST
                                          0 (self)
              4 LOAD_ATTR
                                          0 (iter)
              6 BUILD_TUPLE
              8 BINARY MODULO
             10 RETURN_VALUE
```

```
550
                                            O LOAD FAST
                                                                                                                                 0 (self)
                                                                                                                                 0 (__class__)
                                            2 LOAD_ATTR
                                            4 LOAD_FAST
                                                                                                                                 0 (self)
                                                                                                                                 1 (group_size)
                                            6 LOAD_ATTR
                                           8 LOAD_FAST
                                                                                                                                 0 (self)
                                                                                                                               2 (iter)
                                         10 LOAD_ATTR
                                         12 BUILD_TUPLE
                                                                                                                                 2
                                                                                                                                 2
                                         14 BUILD_TUPLE
                                         16 RETURN_VALUE
Disassembly of <code object __copy__ at 0x7f6cf32b1500, file "<dis>", line 551>:
552
                                            O LOAD_FAST
                                                                                                                                 0 (self)
                                            2 LOAD_METHOD
                                                                                                                                 0 (__class__)
                                                                                                                                 0 (self)
                                            4 LOAD_FAST
                                            6 LOAD_ATTR
                                                                                                                                 1 (group_size)
                                           8 LOAD_GLOBAL
                                                                                                                                 2 (_coconut)
                                         10 LOAD_ATTR
                                                                                                                              3 (copy)
                                         12 LOAD_METHOD
                                                                                                                               3 (copy)
                                         14 LOAD_FAST
                                                                                                                              0 (self)
                                         16 LOAD_ATTR
                                                                                                                              4 (iter)
                                         18 CALL_METHOD
                                                                                                                                 2
                                         20 CALL_METHOD
                                         22 RETURN_VALUE
Disassembly of <code object \__{fmap}_{-} at 0x7f6cf32b15b0, file "<dis>", line 553>:
554
                                            O LOAD_GLOBAL
                                                                                                                                 0 (_coconut_map)
                                                                                                                                 1 (func)
                                            2 LOAD_FAST
                                            4 LOAD_FAST
                                                                                                                                 0 (self)
                                                                                                                                 2
                                            6 CALL_FUNCTION
                                            8 RETURN_VALUE
Disassembly of <code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>", land the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>", land the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>", land the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>", land the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>", land the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>", land the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>", land the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>", land the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>", land the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>", land the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code object recursive_iterator at 0x7f6cf32b1a80, file "<dis>| (and the code
555
                                            O LOAD_NAME
                                                                                                                              0 (__name__)
                                                                                                                              1 (__module__)
                                            2 STORE_NAME
                                                                                                                              0 ('recursive_iterator')
                                            4 LOAD CONST
                                                                                                                                 2 (_qualname__)
                                            6 STORE_NAME
```

Disassembly of <code object __reduce__ at 0x7f6cf32b1450, file "<dis>", line 549>

```
556
              8 LOAD_CONST
                                          1 ('Decorator that optimizes a function to
             10 STORE NAME
                                          3 ( doc )
                                          2 (('func', 'tee_store', 'backup_tee_store')
557
             12 LOAD_CONST
             14 STORE_NAME
                                          4 (__slots__)
                                          3 (<code object __init__ at 0x7f6cf32b17:
558
             16 LOAD_CONST
                                          4 ('recursive_iterator.__init__')
             18 LOAD_CONST
             20 MAKE_FUNCTION
                                          0
             22 STORE_NAME
                                          5 (__init__)
                                          5 (<code object __call__ at 0x7f6cf32b17c
562
             24 LOAD_CONST
             26 LOAD_CONST
                                          6 ('recursive_iterator.__call__')
             28 MAKE_FUNCTION
                                          0
                                          6 (__call__)
             30 STORE_NAME
                                          7 (<code object __repr__ at 0x7f6cf32b187
588
             32 LOAD_CONST
                                          8 ('recursive_iterator.__repr__')
             34 LOAD_CONST
             36 MAKE_FUNCTION
             38 STORE_NAME
                                          7 (__repr__)
                                          9 (<code object __reduce__ at 0x7f6cf32b2
590
             40 LOAD_CONST
                                         10 ('recursive_iterator.__reduce__')
             42 LOAD_CONST
             44 MAKE_FUNCTION
                                          0
             46 STORE_NAME
                                          8 (__reduce__)
592
             48 LOAD_CONST
                                         14 ((None,))
                                         12 (<code object __get__ at 0x7f6cf32b19d0
             50 LOAD_CONST
                                         13 ('recursive_iterator.__get__')
             52 LOAD_CONST
             54 MAKE_FUNCTION
                                          1 (defaults)
             56 STORE_NAME
                                          9 (__get__)
             58 LOAD_CONST
                                         11 (None)
             60 RETURN_VALUE
Disassembly of <code object __init__ at 0x7f6cf32b1710, file "<dis>", line 558>:
559
                                          1 (func)
              O LOAD FAST
              2 LOAD_FAST
                                          0 (self)
```

0 (func)

4 STORE_ATTR

```
560
              6 BUILD MAP
                                          0
              8 LOAD_FAST
                                          0 (self)
             10 STORE_ATTR
                                          1 (tee_store)
561
             12 BUILD_LIST
             14 LOAD_FAST
                                          0 (self)
             16 STORE_ATTR
                                          2 (backup_tee_store)
             18 LOAD CONST
                                          0 (None)
             20 RETURN_VALUE
Disassembly of <code object __call__ at 0x7f6cf32b17c0, file "<dis>", line 562>:
563
              O LOAD_FAST
                                          1 (args)
              2 LOAD_GLOBAL
                                          0 (_coconut)
              4 LOAD_METHOD
                                          1 (frozenset)
                                          2 (kwargs)
              6 LOAD_FAST
              8 CALL METHOD
                                          1
             10 BUILD_TUPLE
             12 STORE_FAST
                                          3 (key)
564
             14 LOAD CONST
                                          1 (False)
             16 STORE_FAST
                                          4 (use_backup)
565
             18 SETUP_FINALLY
                                         12 (to 32)
566
             20 LOAD_GLOBAL
                                          2 (hash)
             22 LOAD_FAST
                                          3 (key)
             24 CALL_FUNCTION
             26 POP_TOP
             28 POP BLOCK
                                         68 (to 100)
             30 JUMP_FORWARD
567
      >>
             32 DUP_TOP
             34 LOAD_GLOBAL
                                          0 (_coconut)
             36 LOAD_ATTR
                                          3 (Exception)
             38 COMPARE OP
                                         10 (exception match)
             40 POP_JUMP_IF_FALSE
                                         98
             42 POP_TOP
```

```
44 POP_TOP
             46 POP TOP
568
             48 SETUP_FINALLY
                                         18 (to 68)
569
             50 LOAD_GLOBAL
                                         0 (coconut)
             52 LOAD_ATTR
                                          4 (pickle)
                                         5 (dumps)
             54 LOAD_METHOD
             56 LOAD FAST
                                         3 (key)
                                         2 (-1)
             58 LOAD_CONST
                                          2
             60 CALL_METHOD
                                          3 (key)
             62 STORE_FAST
             64 POP BLOCK
             66 JUMP_FORWARD
                                         26 (to 94)
570 >>
             68 DUP_TOP
                                         0 (coconut)
             70 LOAD GLOBAL
             72 LOAD_ATTR
                                          3 (Exception)
             74 COMPARE_OP
                                         10 (exception match)
             76 POP_JUMP_IF_FALSE
                                         92
             78 POP_TOP
             80 POP TOP
             82 POP_TOP
571
             84 LOAD_CONST
                                         3 (True)
             86 STORE FAST
                                         4 (use_backup)
             88 POP_EXCEPT
                                          2 (to 94)
             90 JUMP_FORWARD
             92 END_FINALLY
        >>
        >>
             94 POP EXCEPT
                                          2 (to 100)
             96 JUMP_FORWARD
        >>
             98 END_FINALLY
572
        >>
            100 LOAD FAST
                                         4 (use_backup)
            102 POP_JUMP_IF_FALSE
573
            104 LOAD_GLOBAL
                                          0 (_coconut)
            106 LOAD_METHOD
                                          6 (enumerate)
```

```
0 (self)
            108 LOAD_FAST
            110 LOAD ATTR
                                          7 (backup tee store)
            112 CALL_METHOD
            114 GET_ITER
        >> 116 FOR_ITER
                                         34 (to 152)
            118 UNPACK_SEQUENCE
                                          2
            120 STORE_FAST
                                          5 (i)
            122 UNPACK_SEQUENCE
                                          2
            124 STORE_FAST
                                          6 (k)
                                          7 (v)
            126 STORE_FAST
574
            128 LOAD_FAST
                                          6 (k)
            130 LOAD FAST
                                          3 (key)
            132 COMPARE_OP
                                          2 (==)
            134 POP_JUMP_IF_FALSE
                                        116
                                          7 (v)
575
            136 LOAD FAST
                                          5 (i)
            138 LOAD FAST
            140 ROT_TWO
            142 STORE_FAST
                                          8 (to_tee)
            144 STORE_FAST
                                          9 (store_pos)
576
            146 POP_TOP
            148 JUMP_ABSOLUTE
                                        168
            150 JUMP_ABSOLUTE
                                        116
578
        >> 152 LOAD_FAST
                                          0 (self)
                                          8 (func)
            154 LOAD_ATTR
            156 LOAD_FAST
                                          1 (args)
            158 LOAD FAST
                                          2 (kwargs)
            160 CALL_FUNCTION_EX
            162 STORE_FAST
                                          8 (to_tee)
579
            164 LOAD CONST
                                          0 (None)
            166 STORE_FAST
                                          9 (store_pos)
580
        >> 168 LOAD_GLOBAL
                                          9 (_coconut_tee)
            170 LOAD_FAST
                                          8 (to_tee)
```

```
172 CALL_FUNCTION
                                          1
            174 UNPACK SEQUENCE
                                          2
            176 STORE FAST
                                         10 (to_store)
            178 STORE_FAST
                                         11 (to_return)
581
            180 LOAD FAST
                                          9 (store_pos)
            182 LOAD CONST
                                          0 (None)
            184 COMPARE_OP
                                          8 (is)
            186 POP JUMP IF FALSE
                                        206
582
            188 LOAD_FAST
                                          0 (self)
            190 LOAD_ATTR
                                          7 (backup_tee_store)
            192 LOAD METHOD
                                         10 (append)
            194 LOAD_FAST
                                          3 (key)
            196 LOAD_FAST
                                         10 (to_store)
            198 BUILD_LIST
                                          2
            200 CALL METHOD
                                          1
            202 POP TOP
            204 JUMP_FORWARD
                                         14 (to 220)
584
        >> 206 LOAD FAST
                                         10 (to_store)
            208 LOAD_FAST
                                          0 (self)
                                          7 (backup_tee_store)
            210 LOAD_ATTR
            212 LOAD_FAST
                                          9 (store_pos)
            214 BINARY SUBSCR
            216 LOAD CONST
                                          4 (1)
            218 STORE_SUBSCR
                                         38 (to 260)
        >> 220 JUMP_FORWARD
                                          9 (_coconut_tee)
586
        >> 222 LOAD GLOBAL
            224 LOAD_FAST
                                          0 (self)
            226 LOAD ATTR
                                         11 (tee_store)
            228 LOAD_METHOD
                                         12 (get)
            230 LOAD FAST
                                          3 (key)
            232 CALL_METHOD
                                          1
            234 JUMP IF TRUE OR POP
                                        246
            236 LOAD_FAST
                                          0 (self)
            238 LOAD_ATTR
                                          8 (func)
```

```
240 LOAD_FAST
                                       1 (args)
            242 LOAD FAST
                                        2 (kwargs)
            244 CALL_FUNCTION_EX
       >> 246 CALL_FUNCTION
                                        1
            248 UNPACK_SEQUENCE
                                        2
                                     0 (self)
11 (tee_store)
            250 LOAD_FAST
            252 LOAD_ATTR
            254 LOAD_FAST
                                        3 (key)
            256 STORE_SUBSCR
            258 STORE_FAST
                                       11 (to_return)
587
       >> 260 LOAD_FAST
                                       11 (to_return)
            262 RETURN_VALUE
Disassembly of <code object __repr__ at 0x7f6cf32b1870, file "<dis>", line 588>:
             O LOAD_CONST
                                         1 ('@recursive_iterator(')
             2 LOAD GLOBAL
                                        0 (coconut)
             4 LOAD_METHOD
                                        1 (repr)
                                        0 (self)
             6 LOAD_FAST
             8 LOAD_ATTR
                                        2 (func)
            10 CALL_METHOD
                                        1
            12 BINARY_ADD
            14 LOAD_CONST
                                        2 (')')
            16 BINARY_ADD
            18 RETURN_VALUE
Disassembly of <code object __reduce__ at 0x7f6cf32b1920, file "<dis>", line 590>
591
                                        0 (self)
             O LOAD_FAST
                                        0 (__class__)
             2 LOAD_ATTR
             4 LOAD_FAST
                                        0 (self)
                                        1 (func)
             6 LOAD_ATTR
             8 BUILD TUPLE
                                        1
            10 BUILD_TUPLE
             12 RETURN_VALUE
Disassembly of <code object __get__ at 0x7f6cf32b19d0, file "<dis>", line 592>:
             O LOAD_GLOBAL
593
                                     0 (_coconut)
                                        1 (functools)
             2 LOAD_ATTR
```

```
4 LOAD_METHOD
                                          2 (partial)
              6 LOAD FAST
                                          0 (self)
              8 LOAD_FAST
                                          1 (obj)
             10 CALL_METHOD
                                          2
             12 RETURN_VALUE
Disassembly of <code object _coconut_FunctionMatchErrorContext at 0x7f6cf32b1df0,
                                          0 (__name__)
594
              O LOAD_NAME
                                          1 (__module__)
              2 STORE_NAME
                                          0 ('_coconut_FunctionMatchErrorContext')
              4 LOAD CONST
              6 STORE_NAME
                                          2 (__qualname__)
595
                                          1 (('exc_class', 'taken'))
              8 LOAD_CONST
             10 STORE_NAME
                                          3 (__slots__)
596
             12 LOAD_NAME
                                          4 (_coconut)
                                          5 (threading)
             14 LOAD_ATTR
                                          6 (local)
             16 LOAD_METHOD
             18 CALL_METHOD
             20 STORE_NAME
                                          7 (threadlocal_var)
597
             22 LOAD_CONST
                                          2 (<code object __init__ at 0x7f6cf32b1b3
             24 LOAD_CONST
                                          3 ('_coconut_FunctionMatchErrorContext.__
             26 MAKE_FUNCTION
                                          0
                                          8 (__init__)
             28 STORE_NAME
600
             30 LOAD_CONST
                                          4 (<code object __enter__ at 0x7f6cf32b1
                                          5 ('_coconut_FunctionMatchErrorContext.__
             32 LOAD_CONST
             34 MAKE_FUNCTION
                                          9 (__enter__)
             36 STORE_NAME
605
                                          6 (<code object __exit__ at 0x7f6cf32b1c9
             38 LOAD_CONST
                                          7 ('_coconut_FunctionMatchErrorContext.__
             40 LOAD_CONST
             42 MAKE_FUNCTION
                                          0
             44 STORE_NAME
                                         10 (__exit__)
607
                                         11 (classmethod)
             46 LOAD_NAME
```

```
608
             48 LOAD_CONST
                                         8 (<code object get at 0x7f6cf32b1d40, fr
                                         9 ('coconut FunctionMatchErrorContext.ge
             50 LOAD CONST
             52 MAKE_FUNCTION
             54 CALL_FUNCTION
                                         1
             56 STORE_NAME
                                         12 (get)
             58 LOAD_CONST
                                         10 (None)
             60 RETURN_VALUE
Disassembly of <code object \_init\_ at 0x7f6cf32b1b30, file "<dis>", line 597>:
598
              O LOAD_FAST
                                          1 (exc_class)
              2 LOAD_FAST
                                          0 (self)
              4 STORE_ATTR
                                          0 (exc_class)
599
              6 LOAD_CONST
                                         1 (False)
              8 LOAD_FAST
                                         0 (self)
             10 STORE_ATTR
                                         1 (taken)
             12 LOAD_CONST
                                         0 (None)
             14 RETURN_VALUE
Disassembly of <code object \_enter\_ at 0x7f6cf32b1be0, file "<dis>", line 600>:
              O SETUP_FINALLY
                                         18 (to 20)
601
                                         0 (self)
602
              2 LOAD_FAST
              4 LOAD_ATTR
                                         0 (threadlocal_var)
              6 LOAD_ATTR
                                         1 (contexts)
              8 LOAD_METHOD
                                         2 (append)
             10 LOAD_FAST
                                         0 (self)
             12 CALL_METHOD
                                          1
             14 POP_TOP
             16 POP_BLOCK
                                         32 (to 52)
             18 JUMP_FORWARD
603
        >>
             20 DUP_TOP
             22 LOAD_GLOBAL
                                         3 (_coconut)
             24 LOAD_ATTR
                                         4 (AttributeError)
             26 COMPARE OP
                                         10 (exception match)
             28 POP_JUMP_IF_FALSE
                                         50
             30 POP_TOP
```

```
32 POP_TOP
             34 POP TOP
604
             36 LOAD_FAST
                                         0 (self)
             38 BUILD_LIST
                                         1
             40 LOAD_FAST
                                         0 (self)
             42 LOAD_ATTR
                                         0 (threadlocal_var)
             44 STORE_ATTR
                                         1 (contexts)
             46 POP_EXCEPT
             48 JUMP_FORWARD
                                         2 (to 52)
        >> 50 END_FINALLY
             52 LOAD_CONST
                                         0 (None)
        >>
             54 RETURN_VALUE
Disassembly of <code object \_exit\_ at 0x7f6cf32b1c90, file "<dis>", line 605>:
                                          0 (self)
606
              O LOAD_FAST
              2 LOAD ATTR
                                         0 (threadlocal_var)
              4 LOAD_ATTR
                                         1 (contexts)
              6 LOAD_METHOD
                                         2 (pop)
              8 CALL_METHOD
                                          0
             10 POP_TOP
             12 LOAD_CONST
                                         0 (None)
             14 RETURN_VALUE
Disassembly of <code object get at 0x7f6cf32b1d40, file "<dis>", line 607>:
609
              O SETUP FINALLY
                                        16 (to 18)
610
                                         0 (cls)
              2 LOAD_FAST
                                         0 (threadlocal_var)
              4 LOAD_ATTR
                                         1 (contexts)
              6 LOAD_ATTR
                                         1 (-1)
              8 LOAD_CONST
             10 BINARY_SUBSCR
             12 STORE_FAST
                                         1 (ctx)
             14 POP_BLOCK
             16 JUMP_FORWARD
                                        32 (to 50)
611
      >>
             18 DUP_TOP
             20 LOAD_GLOBAL
                                         2 (_coconut)
```

```
22 LOAD_ATTR
                                        3 (AttributeError)
                                        2 (_coconut)
             24 LOAD_GLOBAL
                                         4 (IndexError)
             26 LOAD_ATTR
             28 BUILD_TUPLE
                                         2
             30 COMPARE_OP
                                        10 (exception match)
             32 POP_JUMP_IF_FALSE
                                        48
             34 POP_TOP
             36 POP_TOP
             38 POP_TOP
612
             40 LOAD_GLOBAL
                                         5 (_coconut_MatchError)
             42 ROT_FOUR
             44 POP_EXCEPT
             46 RETURN_VALUE
        >>
             48 END_FINALLY
613
        >> 50 LOAD_FAST
                                        1 (ctx)
             52 LOAD_ATTR
                                         6 (taken)
             54 POP_JUMP_IF_TRUE
                                        68
614
             56 LOAD_CONST
                                         2 (True)
             58 LOAD_FAST
                                         1 (ctx)
             60 STORE_ATTR
                                         6 (taken)
615
             62 LOAD_FAST
                                         1 (ctx)
                                         7 (exc_class)
             64 LOAD_ATTR
             66 RETURN_VALUE
616
        >>
             68 LOAD_GLOBAL
                                         5 (_coconut_MatchError)
             70 RETURN_VALUE
Disassembly of <code object _coconut_base_pattern_func at 0x7f6cf32c13a0, file "<
                                         0 (__name__)
618
              O LOAD_NAME
                                         1 (__module__)
              2 STORE_NAME
                                         0 ('_coconut_base_pattern_func')
              4 LOAD_CONST
                                         2 (__qualname__)
              6 STORE_NAME
                                          1 (('FunctionMatchError', '__doc__', 'pat
619
              8 LOAD_CONST
```

```
3 (__slots__)
             10 STORE_NAME
620
             12 LOAD_CONST
                                          2 (True)
             14 STORE_NAME
                                          4 (_coconut_is_match)
621
                                          3 (<code object __init__ at 0x7f6cf32b1ea
             16 LOAD_CONST
                                          4 ('_coconut_base_pattern_func.__init__')
             18 LOAD_CONST
             20 MAKE_FUNCTION
                                          5 (__init__)
             22 STORE_NAME
627
             24 LOAD_CONST
                                          5 (<code object add at 0x7f6cf32b1f50, f:
             26 LOAD_CONST
                                          6 ('_coconut_base_pattern_func.add')
             28 MAKE_FUNCTION
             30 STORE_NAME
                                          6 (add)
633
             32 LOAD_CONST
                                          7 (<code object __call__ at 0x7f6cf32c10e
                                          8 ('_coconut_base_pattern_func.__call__')
             34 LOAD CONST
             36 MAKE_FUNCTION
                                          7 (__call__)
             38 STORE_NAME
641
             40 LOAD_CONST
                                          9 (<code object _coconut_tco_func at 0x7
                                         10 ('_coconut_base_pattern_func._coconut_t
             42 LOAD_CONST
                                          0
             44 MAKE_FUNCTION
             46 STORE_NAME
                                          8 (_coconut_tco_func)
649
                                         11 (<code object __repr__ at 0x7f6cf32c103
             48 LOAD_CONST
             50 LOAD_CONST
                                         12 ('_coconut_base_pattern_func.__repr__')
             52 MAKE_FUNCTION
                                          0
             54 STORE_NAME
                                          9 (__repr__)
651
             56 LOAD_CONST
                                         13 (<code object __reduce__ at 0x7f6cf32c2
                                         14 ('_coconut_base_pattern_func.__reduce_
             58 LOAD_CONST
             60 MAKE_FUNCTION
                                          0
             62 STORE_NAME
                                         10 (__reduce__)
653
                                         18 ((None,))
             64 LOAD CONST
                                         16 (<code object __get__ at 0x7f6cf32c12f0
             66 LOAD_CONST
```

17 ('_coconut_base_pattern_func.__get__')

68 LOAD_CONST

```
1 (defaults)
             70 MAKE_FUNCTION
                                       11 (__get__)
             72 STORE NAME
             74 LOAD_CONST
                                        15 (None)
             76 RETURN_VALUE
Disassembly of <code object __init__ at 0x7f6cf32b1ea0, file "<dis>", line 621>:
622
              O LOAD_GLOBAL
                                         0 (_coconut)
                                         1 (type)
              2 LOAD_METHOD
              4 LOAD_GLOBAL
                                         2 (_coconut_str)
                                         1 ('MatchError')
              6 LOAD_CONST
              8 CALL_FUNCTION
             10 LOAD_GLOBAL
                                         3 (_coconut_MatchError)
             12 BUILD_TUPLE
             14 BUILD_MAP
             16 CALL_METHOD
                                         3
                                         0 (self)
             18 LOAD_FAST
             20 STORE_ATTR
                                         4 (FunctionMatchError)
623
             22 LOAD_CONST
                                         0 (None)
             24 LOAD_FAST
                                         0 (self)
                                         5 (__doc__)
             26 STORE ATTR
624
             28 BUILD_LIST
             30 LOAD_FAST
                                         0 (self)
             32 STORE_ATTR
                                         6 (patterns)
625
             34 LOAD_FAST
                                         1 (funcs)
             36 GET_ITER
        >>
             38 FOR_ITER
                                        14 (to 54)
             40 STORE_FAST
                                         2 (func)
626
             42 LOAD FAST
                                         0 (self)
                                         7 (add)
             44 LOAD_METHOD
             46 LOAD_FAST
                                         2 (func)
             48 CALL_METHOD
             50 POP TOP
             52 JUMP_ABSOLUTE
                                        38
                                        0 (None)
        >>
            54 LOAD_CONST
```

56 RETURN_VALUE

```
Disassembly of <code object add at 0x7f6cf32b1f50, file "<dis>", line 627>:
628
              O LOAD_GLOBAL
                                          0 (_coconut)
                                          1 (getattr)
              2 LOAD_METHOD
              4 LOAD_FAST
                                          1 (func)
                                          1 ('__doc__')
              6 LOAD_CONST
              8 LOAD_CONST
                                          0 (None)
                                          3
             10 CALL METHOD
             12 JUMP_IF_TRUE_OR_POP
                                         18
             14 LOAD_FAST
                                          0 (self)
                                          2 (__doc__)
             16 LOAD_ATTR
        >>
             18 LOAD FAST
                                          0 (self)
             20 STORE_ATTR
                                          2 (__doc__)
629
             22 LOAD_GLOBAL
                                          0 (_coconut)
             24 LOAD METHOD
                                          3 (isinstance)
             26 LOAD_FAST
                                          1 (func)
                                          4 (_coconut_base_pattern_func)
             28 LOAD_GLOBAL
             30 CALL_METHOD
                                          2
             32 POP_JUMP_IF_FALSE
                                         52
630
             34 LOAD_FAST
                                          0 (self)
             36 DUP_TOP
             38 LOAD ATTR
                                          5 (patterns)
             40 LOAD FAST
                                          1 (func)
             42 LOAD_ATTR
                                          5 (patterns)
             44 INPLACE_ADD
             46 ROT_TWO
                                         5 (patterns)
             48 STORE ATTR
                                         12 (to 64)
             50 JUMP_FORWARD
632
        >>
                                          0 (self)
             52 LOAD_FAST
             54 LOAD_ATTR
                                          5 (patterns)
             56 LOAD_METHOD
                                          6 (append)
             58 LOAD FAST
                                          1 (func)
             60 CALL_METHOD
             62 POP_TOP
```

```
66 RETURN VALUE
Disassembly of <code object \_call\_ at 0x7f6cf32c10e0, file "<dis>", line 633>:
634
              O LOAD_FAST
                                          0 (self)
              2 LOAD_ATTR
                                         0 (patterns)
                                         0 (None)
              4 LOAD_CONST
              6 LOAD_CONST
                                         1 (-1)
                                         2
              8 BUILD_SLICE
             10 BINARY_SUBSCR
             12 GET_ITER
                                        78 (to 94)
             14 FOR_ITER
             16 STORE_FAST
                                         3 (func)
635
             18 SETUP_FINALLY
                                        50 (to 70)
                                         1 (_coconut_FunctionMatchErrorContext)
636
             20 LOAD_GLOBAL
             22 LOAD_FAST
                                         0 (self)
             24 LOAD_ATTR
                                          2 (FunctionMatchError)
             26 CALL_FUNCTION
                                         1
             28 SETUP_WITH
                                        30 (to 60)
             30 POP_TOP
                                         3 (func)
637
             32 LOAD_FAST
                                        1 (args)
             34 LOAD_FAST
             36 LOAD_FAST
                                         2 (kwargs)
             38 CALL_FUNCTION_EX
                                          1
             40 POP_BLOCK
             42 ROT_TWO
             44 BEGIN_FINALLY
             46 WITH_CLEANUP_START
             48 WITH_CLEANUP_FINISH
             50 POP_FINALLY
                                          0
             52 POP_BLOCK
             54 ROT_TWO
             56 POP TOP
             58 RETURN_VALUE
             60 WITH_CLEANUP_START
        >>
```

0 (None)

>>

64 LOAD_CONST

```
62 WITH_CLEANUP_FINISH
             64 END FINALLY
             66 POP_BLOCK
             68 JUMP_ABSOLUTE
                                         14
638
        >>
             70 DUP_TOP
             72 LOAD_FAST
                                          0 (self)
                                          2 (FunctionMatchError)
             74 LOAD_ATTR
             76 COMPARE_OP
                                         10 (exception match)
             78 POP_JUMP_IF_FALSE
                                         90
             80 POP_TOP
             82 POP_TOP
             84 POP_TOP
             86 POP_EXCEPT
639
             88 JUMP_ABSOLUTE
                                         14
        >>
             90 END_FINALLY
             92 JUMP_ABSOLUTE
                                         14
640
        >>
             94 LOAD_FAST
                                          0 (self)
                                          0 (patterns)
             96 LOAD ATTR
                                          1 (-1)
             98 LOAD_CONST
            100 BINARY_SUBSCR
                                          1 (args)
            102 LOAD_FAST
                                          2 (kwargs)
            104 LOAD_FAST
            106 CALL_FUNCTION_EX
            108 RETURN_VALUE
Disassembly of <code object _coconut_tco_func at 0x7f6cf32c1190, file "<dis>", lin
642
              O LOAD_FAST
                                          0 (self)
                                          0 (patterns)
              2 LOAD_ATTR
              4 LOAD_CONST
                                          0 (None)
                                          1 (-1)
              6 LOAD_CONST
              8 BUILD_SLICE
                                          2
             10 BINARY_SUBSCR
             12 GET_ITER
        >>
                                         78 (to 94)
             14 FOR_ITER
                                          3 (func)
             16 STORE_FAST
```

```
643
                                         50 (to 70)
             18 SETUP FINALLY
644
             20 LOAD_GLOBAL
                                          1 (_coconut_FunctionMatchErrorContext)
             22 LOAD_FAST
                                          0 (self)
             24 LOAD_ATTR
                                          2 (FunctionMatchError)
             26 CALL_FUNCTION
                                         30 (to 60)
             28 SETUP_WITH
             30 POP_TOP
645
             32 LOAD_FAST
                                          3 (func)
                                          1 (args)
             34 LOAD_FAST
             36 LOAD_FAST
                                          2 (kwargs)
             38 CALL_FUNCTION_EX
             40 POP_BLOCK
             42 ROT_TWO
             44 BEGIN FINALLY
             46 WITH_CLEANUP_START
             48 WITH_CLEANUP_FINISH
             50 POP_FINALLY
                                          0
             52 POP_BLOCK
             54 ROT_TWO
             56 POP_TOP
             58 RETURN_VALUE
        >>
             60 WITH_CLEANUP_START
             62 WITH_CLEANUP_FINISH
             64 END_FINALLY
             66 POP_BLOCK
             68 JUMP_ABSOLUTE
                                         14
646
        >>
             70 DUP_TOP
             72 LOAD_FAST
                                          0 (self)
             74 LOAD_ATTR
                                          2 (FunctionMatchError)
             76 COMPARE_OP
                                         10 (exception match)
             78 POP_JUMP_IF_FALSE
                                         90
             80 POP TOP
             82 POP_TOP
             84 POP_TOP
```

```
647
             86 POP EXCEPT
             88 JUMP_ABSOLUTE
                                         14
        >>
             90 END_FINALLY
             92 JUMP_ABSOLUTE
                                         14
648
        >> 94 LOAD_GLOBAL
                                          3 (_coconut_tail_call)
             96 LOAD_FAST
                                          0 (self)
                                          0 (patterns)
             98 LOAD_ATTR
            100 LOAD_CONST
                                          1 (-1)
            102 BINARY_SUBSCR
            104 BUILD_TUPLE
                                          1 (args)
            106 LOAD_FAST
            108 BUILD_TUPLE_UNPACK_WITH_CALL
            110 LOAD_FAST
                                          2 (kwargs)
            112 CALL_FUNCTION_EX
            114 RETURN_VALUE
Disassembly of <code object __repr__ at 0x7f6cf32c1030, file "<dis>", line 649>:
650
              O LOAD_CONST
                                          1 ('addpattern(')
              2 LOAD_GLOBAL
                                          0 (_coconut)
                                          1 (repr)
              4 LOAD_METHOD
                                          0 (self)
              6 LOAD_FAST
                                          2 (patterns)
              8 LOAD_ATTR
             10 LOAD_CONST
                                          2 (0)
             12 BINARY_SUBSCR
             14 CALL_METHOD
                                          1
             16 BINARY_ADD
                                          3 (')(*')
             18 LOAD_CONST
             20 BINARY_ADD
             22 LOAD_GLOBAL
                                          0 (_coconut)
             24 LOAD_METHOD
                                          1 (repr)
                                          0 (self)
             26 LOAD_FAST
             28 LOAD_ATTR
                                          2 (patterns)
             30 LOAD_CONST
                                          4 (1)
             32 LOAD CONST
                                          0 (None)
             34 BUILD_SLICE
             36 BINARY_SUBSCR
```

```
38 CALL_METHOD
             40 BINARY ADD
                                          5 (')')
             42 LOAD_CONST
             44 BINARY_ADD
             46 RETURN_VALUE
Disassembly of <code object __reduce__ at 0x7f6cf32c1240, file "<dis>", line 651>
              O LOAD_FAST
                                          0 (self)
652
                                          0 (__class__)
              2 LOAD_ATTR
                                          1 (_coconut)
              4 LOAD_GLOBAL
                                          2 (tuple)
              6 LOAD_METHOD
                                         0 (self)
              8 LOAD_FAST
             10 LOAD_ATTR
                                         3 (patterns)
             12 CALL_METHOD
                                          1
             14 BUILD_TUPLE
                                          2
             16 RETURN_VALUE
Disassembly of <code object \__{get} at 0x7f6cf32c12f0, file "<dis>", line 653>:
              O LOAD_FAST
654
                                          1 (obj)
              2 LOAD_CONST
                                          0 (None)
              4 COMPARE_OP
                                          8 (is)
              6 POP_JUMP_IF_FALSE
                                         12
655
              8 LOAD_FAST
                                          0 (self)
             10 RETURN_VALUE
656
        >>
             12 LOAD_GLOBAL
                                         0 (_coconut)
             14 LOAD_ATTR
                                         1 (functools)
                                         2 (partial)
             16 LOAD_METHOD
                                          0 (self)
             18 LOAD_FAST
             20 LOAD_FAST
                                          1 (obj)
             22 CALL_METHOD
                                          2
             24 RETURN_VALUE
Disassembly of <code object _coconut_mark_as_match at 0x7f6cf32c1450, file "<dis>'
658
                                          1 (True)
              O LOAD_CONST
                                          0 (base_func)
              2 LOAD_FAST
```

0 (_coconut_is_match)

4 STORE_ATTR

```
659
              6 LOAD FAST
                                          0 (base func)
              8 RETURN_VALUE
Disassembly of <code object addpattern at 0x7f6cf32c1500, file "<dis>", line 660>
663
              O LOAD_FAST
                                          1 (kwargs)
              2 LOAD_METHOD
                                          0 (pop)
              4 LOAD_CONST
                                          1 ('allow_any_func')
                                          2 (False)
              6 LOAD_CONST
                                          2
              8 CALL_METHOD
                                          2 (allow_any_func)
             10 STORE_FAST
664
                                          2 (allow_any_func)
             12 LOAD_FAST
             14 POP_JUMP_IF_TRUE
                                         60
             16 LOAD_GLOBAL
                                          1 (_coconut)
             18 LOAD_METHOD
                                          2 (getattr)
                                          0 (base_func)
             20 LOAD_FAST
                                          3 ('_coconut_is_match')
             22 LOAD_CONST
             24 LOAD_CONST
                                          2 (False)
             26 CALL_METHOD
                                          3
             28 POP_JUMP_IF_TRUE
                                         60
665
             30 LOAD_GLOBAL
                                          1 (_coconut)
             32 LOAD_ATTR
                                          3 (warnings)
             34 LOAD_ATTR
                                          4 (warn)
             36 LOAD_CONST
                                          4 ('Possible misuse of addpattern with no
             38 LOAD_GLOBAL
                                          1 (_coconut)
             40 LOAD_METHOD
                                          5 (repr)
                                          0 (base_func)
             42 LOAD_FAST
             44 CALL_METHOD
                                          1
             46 BINARY_ADD
                                          5 (' (pass allow_any_func=True to dismiss
             48 LOAD_CONST
             50 BINARY_ADD
             52 LOAD_CONST
                                          6 (2)
             54 LOAD_CONST
                                          7 (('stacklevel',))
                                          2
             56 CALL_FUNCTION_KW
             58 POP_TOP
```

```
60 LOAD_FAST
                                          1 (kwargs)
             62 POP_JUMP_IF_FALSE
                                         84
667
             64 LOAD_GLOBAL
                                          1 (_coconut)
             66 LOAD_METHOD
                                          6 (TypeError)
             68 LOAD_CONST
                                          8 ('addpattern() got unexpected keyword a
             70 LOAD_GLOBAL
                                          1 (_coconut)
                                          5 (repr)
             72 LOAD_METHOD
             74 LOAD_FAST
                                          1 (kwargs)
             76 CALL_METHOD
             78 BINARY_ADD
             80 CALL_METHOD
                                          1
             82 RAISE_VARARGS
                                          1
668
        >>
             84 LOAD_GLOBAL
                                          1 (_coconut)
             86 LOAD_ATTR
                                          7 (functools)
                                          8 (partial)
             88 LOAD_METHOD
                                          9 (_coconut_base_pattern_func)
             90 LOAD_GLOBAL
             92 LOAD_FAST
                                          0 (base_func)
             94 CALL_METHOD
                                          2
             96 RETURN_VALUE
Disassembly of <code object _coconut_partial at 0x7f6cf32c1d40, file "<dis>", line
                                          0 (__name__)
670
              O LOAD_NAME
                                          1 (__module__)
              2 STORE_NAME
                                          0 ('_coconut_partial')
              4 LOAD_CONST
              6 STORE_NAME
                                          2 (__qualname__)
671
                                          1 (('func', '_argdict', '_arglen', '_star
              8 LOAD_CONST
                                          3 (__slots__)
             10 STORE_NAME
                                          4 (hasattr)
672
             12 LOAD_NAME
             14 LOAD_NAME
                                          5 (_coconut)
             16 LOAD_ATTR
                                          6 (functools)
             18 LOAD_ATTR
                                          7 (partial)
                                          2 ('__doc__')
             20 LOAD_CONST
             22 CALL_FUNCTION
             24 POP_JUMP_IF_FALSE
                                         36
```

666

>>

```
673
             26 LOAD NAME
                                          5 (coconut)
             28 LOAD_ATTR
                                          6 (functools)
                                          7 (partial)
             30 LOAD_ATTR
                                          8 (__doc__)
             32 LOAD_ATTR
                                          8 (__doc__)
             34 STORE_NAME
674
        >>
             36 LOAD_CONST
                                          3 (<code object __init__ at 0x7f6cf32c15)
                                          4 ('_coconut_partial.__init__')
             38 LOAD CONST
             40 MAKE FUNCTION
                                          9 (__init__)
             42 STORE_NAME
                                          5 (<code object __reduce__ at 0x7f6cf32cf
680
             44 LOAD_CONST
             46 LOAD_CONST
                                          6 ('_coconut_partial.__reduce__')
             48 MAKE_FUNCTION
             50 STORE_NAME
                                         10 (__reduce__)
                                          7 (<code object __setstate__ at 0x7f6cf32
682
             52 LOAD_CONST
                                          8 ('_coconut_partial.__setstate__')
             54 LOAD_CONST
             56 MAKE_FUNCTION
                                          0
             58 STORE NAME
                                         11 ( setstate )
                                         12 (property)
684
             60 LOAD_NAME
685
                                          9 (<code object args at 0x7f6cf32c1870, t
             62 LOAD_CONST
             64 LOAD CONST
                                         10 ('_coconut_partial.args')
             66 MAKE_FUNCTION
                                          0
             68 CALL_FUNCTION
                                          1
             70 STORE_NAME
                                         13 (args)
                                         11 (<code object __call__ at 0x7f6cf32c192
687
             72 LOAD_CONST
             74 LOAD_CONST
                                         12 ('_coconut_partial.__call__')
                                          0
             76 MAKE_FUNCTION
             78 STORE_NAME
                                         14 (__call__)
                                         13 (<code object __repr__ at 0x7f6cf32c1a8
702
             80 LOAD CONST
                                         14 ('_coconut_partial.__repr__')
             82 LOAD_CONST
             84 MAKE_FUNCTION
                                          0
```

```
86 STORE_NAME
                                       15 (__repr__)
             88 LOAD_CONST
                                         15 (None)
             90 RETURN_VALUE
Disassembly of <code object \_init\_ at 0x7f6cf32c15b0, file "<dis>", line 674>:
675
              O LOAD_FAST
                                          1 (func)
              2 LOAD_FAST
                                          0 (self)
              4 STORE_ATTR
                                          0 (func)
676
              6 LOAD_FAST
                                          2 (argdict)
              8 LOAD_FAST
                                          0 (self)
                                          1 (_argdict)
             10 STORE_ATTR
677
             12 LOAD_FAST
                                          3 (arglen)
             14 LOAD_FAST
                                          0 (self)
             16 STORE_ATTR
                                          2 (_arglen)
             18 LOAD_FAST
                                          4 (args)
678
                                          0 (self)
             20 LOAD_FAST
                                          3 (_stargs)
             22 STORE_ATTR
679
                                          5 (kwargs)
             24 LOAD_FAST
             26 LOAD_FAST
                                          0 (self)
                                          4 (keywords)
             28 STORE_ATTR
                                          0 (None)
             30 LOAD_CONST
             32 RETURN_VALUE
Disassembly of <code object __reduce__ at 0x7f6cf32c1660, file "<dis>", line 680>
681
              O LOAD_FAST
                                          0 (self)
              2 LOAD_ATTR
                                          0 (__class__)
                                          0 (self)
              4 LOAD_FAST
              6 LOAD_ATTR
                                          1 (func)
              8 LOAD_FAST
                                          0 (self)
                                          2 (_argdict)
             10 LOAD_ATTR
             12 LOAD_FAST
                                          0 (self)
             14 LOAD_ATTR
                                          3 (_arglen)
             16 BUILD_TUPLE
             18 LOAD_FAST
                                          0 (self)
```

```
20 LOAD_ATTR
                                          4 (_stargs)
             22 BINARY ADD
             24 LOAD_FAST
                                          0 (self)
             26 LOAD_ATTR
                                          5 (keywords)
             28 BUILD_TUPLE
                                          3
             30 RETURN_VALUE
Disassembly of <code object __setstate__ at 0x7f6cf32c1710, file "<dis>", line 682
              O LOAD_FAST
683
                                         1 (keywords)
                                          0 (self)
              2 LOAD_FAST
                                          0 (keywords)
              4 STORE_ATTR
              6 LOAD_CONST
                                          0 (None)
              8 RETURN_VALUE
Disassembly of <code object args at 0x7f6cf32c1870, file "<dis>", line 684>:
686
              O LOAD_GLOBAL
                                         0 (_coconut)
                                          1 (tuple)
              2 LOAD_METHOD
              4 LOAD_CLOSURE
                                          0 (self)
              6 BUILD_TUPLE
              8 LOAD_CONST
                                          1 (<code object <genexpr> at 0x7f6cf32c17
                                          2 ('_coconut_partial.args.<locals>.<general
             10 LOAD CONST
                                          8 (closure)
             12 MAKE_FUNCTION
                                          0 (_coconut)
             14 LOAD_GLOBAL
                                          2 (range)
             16 LOAD_METHOD
                                          0 (self)
             18 LOAD_DEREF
                                          3 (_arglen)
             20 LOAD_ATTR
             22 CALL_METHOD
                                          1
             24 GET_ITER
             26 CALL_FUNCTION
                                          1
             28 CALL_METHOD
                                          1
             30 LOAD_DEREF
                                          0 (self)
             32 LOAD_ATTR
                                          4 (_stargs)
             34 BINARY_ADD
             36 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf32c17c0, file "<dis>", line 686>:
686
              O LOAD_FAST
                                          0 (.0)
```

18 (to 22)

2 FOR_ITER

>>

```
1 (i)
              4 STORE_FAST
              6 LOAD DEREF
                                          0 (self)
              8 LOAD_ATTR
                                          0 (_argdict)
             10 LOAD_METHOD
                                          1 (get)
                                          1 (i)
             12 LOAD_FAST
             14 CALL_METHOD
             16 YIELD_VALUE
             18 POP_TOP
             20 JUMP_ABSOLUTE
                                          2
        >>
             22 LOAD CONST
                                          0 (None)
             24 RETURN_VALUE
Disassembly of <code object __call__ at 0x7f6cf32c1920, file "<dis>", line 687>:
688
              O BUILD_LIST
                                          0
              2 STORE_FAST
                                          3 (callargs)
689
                                          1 (0)
              4 LOAD CONST
                                          4 (argind)
              6 STORE_FAST
690
              8 LOAD_GLOBAL
                                          0 (_coconut)
             10 LOAD METHOD
                                          1 (range)
             12 LOAD_FAST
                                          0 (self)
             14 LOAD_ATTR
                                          2 (_arglen)
             16 CALL_METHOD
             18 GET_ITER
        >>
             20 FOR ITER
                                       118 (to 140)
             22 STORE_FAST
                                          5 (i)
691
             24 LOAD_FAST
                                          5 (i)
             26 LOAD_FAST
                                          0 (self)
             28 LOAD_ATTR
                                          3 (_argdict)
             30 COMPARE OP
                                          6 (in)
             32 POP_JUMP_IF_FALSE
                                         52
692
             34 LOAD_FAST
                                          3 (callargs)
                                          4 (append)
             36 LOAD METHOD
             38 LOAD_FAST
                                          0 (self)
             40 LOAD_ATTR
                                          3 (_argdict)
```

```
5 (i)
             42 LOAD_FAST
             44 BINARY SUBSCR
             46 CALL_METHOD
             48 POP_TOP
             50 JUMP_ABSOLUTE
                                         20
693
        >>
             52 LOAD_FAST
                                          4 (argind)
             54 LOAD_GLOBAL
                                          0 (_coconut)
                                          5 (len)
             56 LOAD METHOD
             58 LOAD_FAST
                                          1 (args)
             60 CALL_METHOD
                                          1
             62 COMPARE_OP
                                          5 (>=)
             64 POP_JUMP_IF_FALSE
                                        116
694
             66 LOAD_GLOBAL
                                          0 (_coconut)
             68 LOAD_METHOD
                                          6 (TypeError)
             70 LOAD CONST
                                          2 ('expected at least ')
             72 LOAD_GLOBAL
                                          0 (coconut)
             74 LOAD_METHOD
                                          7 (str)
             76 LOAD_FAST
                                          0 (self)
             78 LOAD_ATTR
                                          2 (arglen)
             80 LOAD_GLOBAL
                                          0 (_coconut)
                                          5 (len)
             82 LOAD_METHOD
             84 LOAD_FAST
                                          0 (self)
             86 LOAD_ATTR
                                          3 (_argdict)
             88 CALL METHOD
             90 BINARY_SUBTRACT
             92 CALL_METHOD
                                          1
             94 BINARY_ADD
                                          3 ('argument(s) to ')
             96 LOAD_CONST
             98 BINARY_ADD
            100 LOAD GLOBAL
                                          0 (_coconut)
                                          8 (repr)
            102 LOAD_METHOD
            104 LOAD_FAST
                                          0 (self)
            106 CALL_METHOD
            108 BINARY ADD
            110 CALL_METHOD
                                          1
            112 RAISE_VARARGS
                                          1
```

		114 JUMP_ABSOLUTE	20	
696	>>	116 LOAD_FAST	3	(callargs)
		118 LOAD_METHOD		(append)
		120 LOAD_FAST	1	(args)
		122 LOAD_FAST	4	(argind)
		124 BINARY_SUBSCR		
		126 CALL_METHOD	1	
		128 POP_TOP		
697		130 LOAD_FAST	4	(argind)
		132 LOAD_CONST	4	(1)
		134 INPLACE_ADD		
		136 STORE_FAST		(argind)
		138 JUMP_ABSOLUTE	20	
698	>>	140 LOAD_FAST	3	(callargs)
		142 LOAD_FAST		(self)
		144 LOAD_ATTR	9	(_stargs)
		146 INPLACE_ADD		
		148 STORE_FAST	3	(callargs)
699		150 LOAD_FAST	3	(callargs)
		152 LOAD_FAST	1	(args)
		154 LOAD_FAST		(argind)
		156 LOAD_CONST	0	(None)
		158 BUILD_SLICE	2	
		160 BINARY_SUBSCR		
		162 INPLACE_ADD		()
		164 STORE_FAST	3	(callargs)
700		166 LOAD_FAST	2	(kwargs)
		168 LOAD_METHOD	10	(update)
		170 LOAD_FAST	0	(self)
		172 LOAD_ATTR	11	(keywords)
		174 CALL_METHOD	1	
		176 POP_TOP		

```
701
            178 LOAD_FAST
                                          0 (self)
                                          12 (func)
            180 LOAD ATTR
                                          3 (callargs)
            182 LOAD_FAST
            184 LOAD_FAST
                                           2 (kwargs)
            186 CALL_FUNCTION_EX
                                           1
            188 RETURN_VALUE
Disassembly of <code object \_repr\_ at 0x7f6cf32c1a80, file "<dis>", line 702>:
703
              O BUILD LIST
                                           0
              2 STORE_FAST
                                           1 (args)
704
              4 LOAD_GLOBAL
                                           0 (_coconut)
              6 LOAD_METHOD
                                           1 (range)
              8 LOAD_FAST
                                          0 (self)
                                           2 (_arglen)
             10 LOAD_ATTR
             12 CALL_METHOD
             14 GET ITER
        >>
             16 FOR_ITER
                                          48 (to 66)
             18 STORE_FAST
                                          2 (i)
705
                                          2 (i)
             20 LOAD FAST
             22 LOAD_FAST
                                          0 (self)
             24 LOAD_ATTR
                                          3 (_argdict)
             26 COMPARE_OP
                                          6 (in)
             28 POP_JUMP_IF_FALSE
                                          54
706
             30 LOAD_FAST
                                           1 (args)
                                          4 (append)
             32 LOAD_METHOD
                                          0 (_coconut)
             34 LOAD_GLOBAL
                                          5 (repr)
             36 LOAD_METHOD
                                          0 (self)
             38 LOAD_FAST
             40 LOAD_ATTR
                                           3 (_argdict)
                                           2 (i)
             42 LOAD_FAST
             44 BINARY_SUBSCR
             46 CALL_METHOD
                                           1
             48 CALL METHOD
                                           1
             50 POP_TOP
             52 JUMP_ABSOLUTE
                                          16
```

```
708
                                          1 (args)
        >> 54 LOAD FAST
                                          4 (append)
             56 LOAD_METHOD
             58 LOAD_CONST
                                          1 ('?')
             60 CALL_METHOD
                                          1
             62 POP_TOP
             64 JUMP_ABSOLUTE
                                         16
709
        >>
                                          0 (self)
             66 LOAD FAST
             68 LOAD ATTR
                                          6 (_stargs)
             70 GET_ITER
                                         20 (to 94)
             72 FOR_ITER
             74 STORE_FAST
                                          3 (arg)
710
             76 LOAD_FAST
                                          1 (args)
             78 LOAD_METHOD
                                          4 (append)
             80 LOAD GLOBAL
                                          0 (coconut)
             82 LOAD_METHOD
                                          5 (repr)
             84 LOAD_FAST
                                          3 (arg)
             86 CALL_METHOD
                                          1
             88 CALL_METHOD
                                          1
             90 POP_TOP
             92 JUMP_ABSOLUTE
                                         72
711
    >> 94 LOAD_GLOBAL
                                          0 (coconut)
             96 LOAD_METHOD
                                          5 (repr)
             98 LOAD_FAST
                                          0 (self)
                                          7 (func)
            100 LOAD_ATTR
            102 CALL_METHOD
                                          2 ('$(')
            104 LOAD CONST
            106 BINARY_ADD
                                          3 (', ')
            108 LOAD CONST
                                          8 (join)
            110 LOAD_METHOD
            112 LOAD_FAST
                                          1 (args)
            114 CALL_METHOD
            116 BINARY ADD
                                          4 (')')
            118 LOAD_CONST
            120 BINARY_ADD
```

122 RETURN_VALUE

```
Disassembly of <code object consume at 0x7f6cf32c1df0, file "<dis>", line 712>:
714
              O LOAD_GLOBAL
                                          0 (_coconut)
                                          1 (collections)
              2 LOAD_ATTR
              4 LOAD_ATTR
                                          2 (deque)
              6 LOAD_FAST
                                          0 (iterable)
              8 LOAD_FAST
                                          1 (keep_last)
             10 LOAD_CONST
                                          1 (('maxlen',))
             12 CALL_FUNCTION_KW
             14 RETURN_VALUE
Disassembly of <code object starmap at 0x7f6cf32c25b0, file "<dis>", line 715>:
                                          0 (__name__)
715
              O LOAD_NAME
                                          1 (__module__)
              2 STORE_NAME
                                          0 ('starmap')
              4 LOAD_CONST
              6 STORE_NAME
                                          2 (__qualname__)
                                          1 (('func', 'iter'))
716
              8 LOAD_CONST
             10 STORE_NAME
                                          3 (__slots__)
717
                                          4 (hasattr)
             12 LOAD_NAME
             14 LOAD_NAME
                                          5 (_coconut)
             16 LOAD_ATTR
                                          6 (itertools)
             18 LOAD_ATTR
                                          7 (starmap)
                                          2 ('__doc__')
             20 LOAD CONST
             22 CALL_FUNCTION
                                          2
             24 POP_JUMP_IF_FALSE
                                         36
718
             26 LOAD_NAME
                                          5 (coconut)
             28 LOAD_ATTR
                                          6 (itertools)
             30 LOAD ATTR
                                          7 (starmap)
                                          8 (__doc__)
             32 LOAD_ATTR
                                          8 (__doc__)
             34 STORE_NAME
                                          3 (<code object __new__ at 0x7f6cf32c1ea(
719
       >>
             36 LOAD CONST
                                          4 ('starmap.__new__')
             38 LOAD_CONST
             40 MAKE_FUNCTION
```

```
9 (__new__)
             42 STORE_NAME
724
                                          5 (<code object __getitem__ at 0x7f6cf32d
             44 LOAD_CONST
                                          6 ('starmap.__getitem__')
             46 LOAD_CONST
             48 MAKE_FUNCTION
                                          0
                                         10 (__getitem__)
             50 STORE_NAME
728
             52 LOAD_CONST
                                          7 (<code object __reversed__ at 0x7f6cf32
                                          8 ('starmap.__reversed__')
             54 LOAD CONST
             56 MAKE FUNCTION
             58 STORE_NAME
                                         11 (__reversed__)
730
                                          9 (<code object __len__ at 0x7f6cf32c20e0
             60 LOAD_CONST
                                         10 ('starmap.__len__')
             62 LOAD_CONST
                                          0
             64 MAKE_FUNCTION
             66 STORE_NAME
                                         12 (__len__)
732
                                         11 (<code object __repr__ at 0x7f6cf32c219
             68 LOAD_CONST
             70 LOAD_CONST
                                         12 ('starmap.__repr__')
             72 MAKE_FUNCTION
                                          0
             74 STORE_NAME
                                         13 (__repr__)
734
                                         13 (<code object __reduce__ at 0x7f6cf32c2
             76 LOAD_CONST
             78 LOAD_CONST
                                         14 ('starmap.__reduce__')
             80 MAKE_FUNCTION
                                          0
             82 STORE_NAME
                                         14 ( reduce )
736
                                         15 (<code object __reduce_ex__ at 0x7f6cf3
             84 LOAD_CONST
                                         16 ('starmap.__reduce_ex__')
             86 LOAD_CONST
                                          0
             88 MAKE_FUNCTION
             90 STORE_NAME
                                         15 (__reduce_ex__)
738
             92 LOAD_CONST
                                         17 (<code object __copy__ at 0x7f6cf32c23a
                                         18 ('starmap.__copy__')
             94 LOAD_CONST
             96 MAKE_FUNCTION
                                          0
             98 STORE NAME
                                         16 (__copy__)
                                         19 (<code object __fmap__ at 0x7f6cf32c248
740
            100 LOAD_CONST
```

```
102 LOAD_CONST
                                         20 ('starmap.__fmap__')
            104 MAKE FUNCTION
                                          0
                                         17 (__fmap__)
            106 STORE_NAME
            108 LOAD_CONST
                                         21 (None)
            110 RETURN_VALUE
Disassembly of <code object __new__ at 0x7f6cf32c1ea0, file "<dis>", line 719>:
720
              O LOAD_GLOBAL
                                          0 (_coconut)
                                          1 (itertools)
              2 LOAD_ATTR
              4 LOAD ATTR
                                          2 (starmap)
                                          3 (__new__)
              6 LOAD_METHOD
              8 LOAD_FAST
                                          0 (cls)
                                          1 (function)
             10 LOAD_FAST
             12 LOAD_FAST
                                          2 (iterable)
                                          3
             14 CALL_METHOD
             16 STORE_FAST
                                          3 (new_map)
721
                                          1 (function)
             18 LOAD_FAST
             20 LOAD_FAST
                                          3 (new_map)
             22 STORE_ATTR
                                          4 (func)
722
             24 LOAD_FAST
                                          2 (iterable)
             26 LOAD_FAST
                                          3 (new_map)
             28 STORE_ATTR
                                          5 (iter)
723
             30 LOAD_FAST
                                          3 (new map)
             32 RETURN_VALUE
Disassembly of <code object __getitem__ at 0x7f6cf32c1f50, file "<dis>", line 724
725
              O LOAD_GLOBAL
                                          0 (coconut)
              2 LOAD_METHOD
                                         1 (isinstance)
                                          1 (index)
              4 LOAD FAST
              6 LOAD_GLOBAL
                                          0 (_coconut)
              8 LOAD_ATTR
                                          2 (slice)
             10 CALL_METHOD
                                          2
             12 POP_JUMP_IF_FALSE
                                         36
726
             14 LOAD_FAST
                                          0 (self)
```

```
18 LOAD FAST
                                         0 (self)
             20 LOAD_ATTR
                                         4 (func)
             22 LOAD_GLOBAL
                                        5 (_coconut_igetitem)
                                         0 (self)
             24 LOAD_FAST
                                         6 (iter)
             26 LOAD_ATTR
             28 LOAD_FAST
                                         1 (index)
             30 CALL_FUNCTION
                                         2
             32 CALL_METHOD
             34 RETURN_VALUE
727 >> 36 LOAD_FAST
                                         0 (self)
             38 LOAD_ATTR
                                        4 (func)
             40 LOAD_GLOBAL
                                       5 (_coconut_igetitem)
                                        0 (self)
             42 LOAD_FAST
                                        6 (iter)
             44 LOAD_ATTR
             46 LOAD_FAST
                                       1 (index)
             48 CALL_FUNCTION
             50 CALL_FUNCTION_EX
                                         0
             52 RETURN_VALUE
Disassembly of <code object __reversed__ at 0x7f6cf32c2030, file "<dis>", line 728
729
              O LOAD_FAST
                                        0 (self)
              2 LOAD_ATTR
                                         0 (__class__)
              4 LOAD_FAST
                                        0 (self)
                                        1 (func)
              6 LOAD_ATTR
              8 BUILD_TUPLE
                                       2 (_coconut_reversed)
             10 LOAD_GLOBAL
             12 LOAD_FAST
                                        0 (self)
                                         3 (iter)
             14 LOAD_ATTR
             16 CALL_FUNCTION
             18 BUILD_TUPLE_UNPACK_WITH_CALL
             20 CALL_FUNCTION_EX
             22 RETURN_VALUE
Disassembly of <code object __len__ at 0x7f6cf32c20e0, file "<dis>", line 730>:
              O LOAD_GLOBAL
731
                                         0 (_coconut)
              2 LOAD_METHOD
                                         1 (len)
```

3 (__class__)

16 LOAD_METHOD

```
0 (self)
              4 LOAD_FAST
              6 LOAD ATTR
                                         2 (iter)
              8 CALL_METHOD
             10 RETURN_VALUE
Disassembly of <code object __repr__ at 0x7f6cf32c2190, file "<dis>", line 732>:
733
                                          1 ('starmap(%r, %r)')
              O LOAD_CONST
              2 LOAD_FAST
                                         0 (self)
              4 LOAD_ATTR
                                         0 (func)
              6 LOAD_FAST
                                         0 (self)
              8 LOAD_ATTR
                                         1 (iter)
             10 BUILD_TUPLE
             12 BINARY_MODULO
             14 RETURN_VALUE
Disassembly of <code object __reduce__ at 0x7f6cf32c2240, file "<dis>", line 734>
735
                                          0 (self)
              O LOAD_FAST
                                         0 (__class__)
              2 LOAD_ATTR
              4 LOAD_FAST
                                         0 (self)
              6 LOAD_ATTR
                                         1 (func)
                                         0 (self)
              8 LOAD_FAST
             10 LOAD_ATTR
                                         2 (iter)
             12 BUILD_TUPLE
                                         2
             14 BUILD_TUPLE
                                         2
             16 RETURN_VALUE
Disassembly of <code object __reduce_ex__ at 0x7f6cf32c22f0, file "<dis>", line 73
737
                                         0 (self)
              O LOAD_FAST
                                         0 (__reduce__)
              2 LOAD_METHOD
              4 CALL_METHOD
              6 RETURN_VALUE
Disassembly of <code object \_copy\_ at 0x7f6cf32c23a0, file "<dis>", line 738>:
739
              O LOAD_FAST
                                         0 (self)
              2 LOAD_METHOD
                                         0 (__class__)
                                         0 (self)
              4 LOAD_FAST
              6 LOAD_ATTR
                                         1 (func)
              8 LOAD_GLOBAL
                                         2 (_coconut)
```

```
10 LOAD_ATTR
                                        3 (copy)
                                          3 (copy)
             12 LOAD METHOD
             14 LOAD_FAST
                                         0 (self)
             16 LOAD_ATTR
                                         4 (iter)
             18 CALL_METHOD
                                          1
             20 CALL_METHOD
             22 RETURN_VALUE
Disassembly of <code object __fmap__ at 0x7f6cf32c2450, file "<dis>", line 740>:
741
              O LOAD FAST
                                          0 (self)
                                          0 (__class__)
              2 LOAD_METHOD
                                          1 (_coconut_forward_compose)
              4 LOAD_GLOBAL
              6 LOAD_FAST
                                          0 (self)
              8 LOAD_ATTR
                                          2 (func)
                                          1 (func)
             10 LOAD_FAST
             12 CALL_FUNCTION
                                          0 (self)
             14 LOAD_FAST
                                          3 (iter)
             16 LOAD_ATTR
             18 CALL_METHOD
                                          2
             20 RETURN_VALUE
Disassembly of <code object makedata at 0x7f6cf32c2500, file "<dis>", line 742>:
744
              O LOAD_GLOBAL
                                          0 (_coconut)
              2 LOAD_METHOD
                                          1 (hasattr)
              4 LOAD_FAST
                                          0 (data_type)
              6 LOAD_CONST
                                          1 ('_make')
              8 CALL_METHOD
                                          2
             10 POP_JUMP_IF_FALSE
                                         36
             12 LOAD_GLOBAL
                                          0 (_coconut)
             14 LOAD_METHOD
                                          2 (issubclass)
             16 LOAD_FAST
                                          0 (data_type)
             18 LOAD_GLOBAL
                                          0 (_coconut)
                                          3 (tuple)
             20 LOAD_ATTR
             22 CALL_METHOD
                                          2
             24 POP_JUMP_IF_FALSE
                                         36
745
             26 LOAD_FAST
                                          0 (data_type)
             28 LOAD_METHOD
                                          4 (_make)
```

```
30 LOAD_FAST
                                           1 (args)
             32 CALL METHOD
             34 RETURN_VALUE
746
        >>
                                           0 (_coconut)
             36 LOAD_GLOBAL
             38 LOAD_METHOD
                                           2 (issubclass)
             40 LOAD_FAST
                                           0 (data_type)
             42 LOAD_GLOBAL
                                           0 (_coconut)
                                           5 (map)
             44 LOAD ATTR
             46 LOAD_GLOBAL
                                           0 (_coconut)
             48 LOAD_ATTR
                                           6 (range)
             50 LOAD_GLOBAL
                                           0 (_coconut)
                                           7 (abc)
             52 LOAD_ATTR
             54 LOAD_ATTR
                                           8 (Iterator)
             56 BUILD_TUPLE
                                           3
                                           2
             58 CALL_METHOD
             60 POP_JUMP_IF_FALSE
                                          66
747
             62 LOAD_FAST
                                           1 (args)
             64 RETURN_VALUE
748
        >>
                                           0 (_coconut)
             66 LOAD_GLOBAL
             68 LOAD_METHOD
                                           2 (issubclass)
             70 LOAD_FAST
                                           0 (data_type)
             72 LOAD_GLOBAL
                                           0 (_coconut)
             74 LOAD_ATTR
                                           9 (str)
             76 CALL_METHOD
                                           2
             78 POP_JUMP_IF_FALSE
                                          90
749
                                           2 ('')
             80 LOAD_CONST
             82 LOAD_METHOD
                                          10 (join)
             84 LOAD FAST
                                           1 (args)
             86 CALL_METHOD
             88 RETURN_VALUE
750
        >>
             90 LOAD FAST
                                           0 (data type)
             92 LOAD_FAST
                                           1 (args)
             94 CALL_FUNCTION
                                           1
```

96 RETURN_VALUE

```
Disassembly of <code object fmap at 0x7f6cf32c2710, file "<dis>", line 751>:
754
              O LOAD_GLOBAL
                                         0 (_coconut)
              2 LOAD_METHOD
                                         1 (hasattr)
              4 LOAD_FAST
                                         1 (obj)
                                         1 ('__fmap__')
              6 LOAD CONST
              8 CALL_METHOD
                                          2
             10 POP_JUMP_IF_FALSE
                                        22
755
             12 LOAD_FAST
                                          1 (obj)
                                          2 (__fmap__)
             14 LOAD_METHOD
             16 LOAD_FAST
                                          0 (func)
             18 CALL_METHOD
             20 RETURN_VALUE
756
       >>
             22 LOAD FAST
                                         1 (obj)
                                         3 (__class__)
             24 LOAD_ATTR
                                        4 (__module__)
             26 LOAD_ATTR
             28 LOAD_CONST
                                        2 ('numpy')
             30 COMPARE_OP
                                         2 (==)
             32 POP_JUMP_IF_FALSE
                                        58
             34 LOAD_CONST
                                         3 (0)
757
             36 LOAD CONST
                                         4 (('vectorize',))
             38 IMPORT NAME
                                         5 (numpy)
             40 IMPORT_FROM
                                         6 (vectorize)
                                         2 (vectorize)
             42 STORE_FAST
             44 POP_TOP
758
                                         2 (vectorize)
             46 LOAD_FAST
             48 LOAD FAST
                                         0 (func)
             50 CALL_FUNCTION
                                          1
             52 LOAD FAST
                                          1 (obj)
             54 CALL_FUNCTION
             56 RETURN VALUE
759
      >> 58 LOAD_GLOBAL
                                         7 (_coconut_makedata)
```

```
62 LOAD ATTR
                                          3 ( class )
             64 BUILD_TUPLE
                                          1
             66 LOAD_GLOBAL
                                          0 (_coconut)
             68 LOAD_METHOD
                                          8 (isinstance)
                                          1 (obj)
             70 LOAD FAST
             72 LOAD_GLOBAL
                                          0 (coconut)
             74 LOAD_ATTR
                                          9 (abc)
             76 LOAD ATTR
                                         10 (Mapping)
             78 CALL METHOD
                                          2
             80 POP_JUMP_IF_FALSE
                                         96
             82 LOAD_GLOBAL
                                         11 (_coconut_starmap)
             84 LOAD FAST
                                          0 (func)
             86 LOAD_FAST
                                          1 (obj)
                                         12 (items)
             88 LOAD_METHOD
             90 CALL_METHOD
                                          0
                                          2
             92 CALL FUNCTION
             94 JUMP_FORWARD
                                          8 (to 104)
        >>
             96 LOAD_GLOBAL
                                        13 (_coconut_map)
             98 LOAD_FAST
                                          0 (func)
            100 LOAD_FAST
                                          1 (obj)
            102 CALL_FUNCTION
            104 BUILD_TUPLE_UNPACK_WITH_CALL
                                                  2
            106 CALL_FUNCTION_EX
            108 RETURN_VALUE
Disassembly of <code object memoize at 0x7f6cf32c2660, file "<dis>", line 760>:
763
              O LOAD_GLOBAL
                                          0 (_coconut)
              2 LOAD_ATTR
                                          1 (functools)
                                          2 (lru cache)
              4 LOAD_ATTR
              6 LOAD_FAST
                                          0 (maxsize)
              8 BUILD TUPLE
                                          1
                                          1 (args)
             10 LOAD_FAST
             12 BUILD_TUPLE_UNPACK_WITH_CALL
             14 LOAD_FAST
                                          2 (kwargs)
             16 CALL FUNCTION EX
                                          1
             18 RETURN_VALUE
```

1 (obj)

60 LOAD_FAST

```
Disassembly of <code object sieve at 0x7f6cf32c2c90, file "<dis>", line 768>:
              O LOAD CONST
771
                                          1 (False)
              2 STORE_FAST
                                          2 (_coconut_match_check)
                                          0 (_coconut_get_function_match_error)
772
              4 LOAD_GLOBAL
              6 CALL FUNCTION
              8 STORE FAST
                                          3 ( coconut FunctionMatchError)
773
                                          1 (coconut)
             10 LOAD GLOBAL
             12 LOAD_METHOD
                                          2 (len)
             14 LOAD_FAST
                                          0 (_coconut_match_to_args)
             16 CALL_METHOD
                                          1
             18 LOAD CONST
                                          2 (1)
             20 COMPARE_OP
                                          2 (==)
             22 POP_JUMP_IF_FALSE
                                       112
             24 LOAD_GLOBAL
                                          1 (_coconut)
             26 LOAD METHOD
                                          3 (isinstance)
                                          0 (_coconut_match_to_args)
             28 LOAD_FAST
             30 LOAD_CONST
                                          3 (0)
             32 BINARY_SUBSCR
             34 LOAD_GLOBAL
                                          1 (_coconut)
                                          4 (abc)
             36 LOAD_ATTR
                                          5 (Iterable)
             38 LOAD_ATTR
             40 CALL_METHOD
                                          2
             42 POP_JUMP_IF_FALSE
                                        112
774
             44 LOAD_GLOBAL
                                          1 (_coconut)
             46 LOAD_METHOD
                                          6 (iter)
             48 LOAD_FAST
                                          0 (_coconut_match_to_args)
             50 LOAD CONST
                                          3 (0)
             52 BINARY_SUBSCR
             54 CALL METHOD
                                          1
                                          0 (numbers)
             56 STORE_DEREF
775
             58 LOAD_GLOBAL
                                          1 (_coconut)
                                          7 (tuple)
             60 LOAD METHOD
                                          8 (_coconut_igetitem)
             62 LOAD_GLOBAL
                                          0 (numbers)
             64 LOAD_DEREF
```

```
66 LOAD_GLOBAL
                                          1 (_coconut)
                                          9 (slice)
             68 LOAD METHOD
             70 LOAD_CONST
                                          0 (None)
             72 LOAD_CONST
                                          2 (1)
                                          2
             74 CALL_METHOD
                                          2
             76 CALL_FUNCTION
                                          1
             78 CALL_METHOD
                                          4 (_coconut_match_temp_0)
             80 STORE_FAST
776
                                          1 (_coconut)
             82 LOAD_GLOBAL
             84 LOAD_METHOD
                                          2 (len)
             86 LOAD_FAST
                                          4 (_coconut_match_temp_0)
             88 CALL_METHOD
             90 LOAD_CONST
                                          2 (1)
                                          2 (==)
             92 COMPARE_OP
             94 POP_JUMP_IF_FALSE
                                        112
             96 LOAD_FAST
                                          1 (_coconut_match_to_kwargs)
             98 POP_JUMP_IF_TRUE
                                        112
777
            100 LOAD_FAST
                                          4 (_coconut_match_temp_0)
                                          3 (0)
            102 LOAD_CONST
            104 BINARY_SUBSCR
            106 STORE_DEREF
                                          1 (p)
778
            108 LOAD_CONST
                                          4 (True)
            110 STORE_FAST
                                          2 (_coconut_match_check)
779
        >> 112 LOAD_FAST
                                          2 (_coconut_match_check)
            114 POP_JUMP_IF_TRUE
                                        184
780
            116 LOAD_GLOBAL
                                          1 (_coconut)
            118 LOAD_METHOD
                                         10 (repr)
                                          0 (_coconut_match_to_args)
            120 LOAD_FAST
            122 CALL_METHOD
            124 STORE_FAST
                                          5 (_coconut_match_val_repr)
781
                                          3 (_coconut_FunctionMatchError)
            126 LOAD_FAST
                                          5 ("pattern-matching failed for 'def siev
            128 LOAD_CONST
```

```
130 LOAD_GLOBAL
                                          1 (_coconut)
            132 LOAD METHOD
                                          2 (len)
                                          5 (_coconut_match_val_repr)
            134 LOAD_FAST
            136 CALL_METHOD
            138 LOAD_CONST
                                          6 (500)
            140 COMPARE OP
                                          1 (<=)
            142 POP_JUMP_IF_FALSE
                                       148
            144 LOAD_FAST
                                          5 (_coconut_match_val_repr)
            146 JUMP_FORWARD
                                         14 (to 162)
        >> 148 LOAD_FAST
                                          5 (_coconut_match_val_repr)
            150 LOAD_CONST
                                          0 (None)
                                          6 (500)
            152 LOAD_CONST
            154 BUILD_SLICE
                                          2
            156 BINARY_SUBSCR
                                          7 ('...')
            158 LOAD_CONST
            160 BINARY_ADD
        >> 162 BINARY ADD
            164 CALL_FUNCTION
            166 STORE_FAST
                                          6 (_coconut_match_err)
782
                                          8 ('def sieve( (|p|) :: numbers ) =')
            168 LOAD_CONST
                                          6 (_coconut_match_err)
            170 LOAD_FAST
            172 STORE_ATTR
                                         11 (pattern)
783
            174 LOAD_FAST
                                          0 (_coconut_match_to_args)
            176 LOAD_FAST
                                         6 (_coconut_match_err)
            178 STORE_ATTR
                                         12 (value)
784
            180 LOAD_FAST
                                          6 (_coconut_match_err)
            182 RAISE_VARARGS
                                          1
786
        >> 184 LOAD_GLOBAL
                                         13 (_coconut_tail_call)
                                         1 (_coconut)
            186 LOAD_GLOBAL
            188 LOAD_ATTR
                                         14 (itertools)
            190 LOAD_ATTR
                                         15 (chain)
            192 LOAD ATTR
                                         16 (from_iterable)
            194 LOAD_CONST
                                         9 (<code object <genexpr> at 0x7f6cf32c27
                                         10 ('sieve. <locals > . < genexpr > ')
            196 LOAD_CONST
```

```
204 LOAD_CONST
                                         11 (<code object <lambda> at 0x7f6cf32c292
                                         12 ('sieve. <locals > . < lambda > ')
            206 LOAD_CONST
                                          8 (closure)
            208 MAKE_FUNCTION
            210 LOAD_CLOSURE
                                          0 (numbers)
            212 LOAD_CLOSURE
                                          1 (p)
                                          2
            214 BUILD_TUPLE
            216 LOAD_CONST
                                         13 (<code object <lambda> at 0x7f6cf32c2a8
                                         12 ('sieve. <locals > . < lambda > ')
            218 LOAD_CONST
                                          8 (closure)
            220 MAKE_FUNCTION
                                          2
            222 BUILD_TUPLE
            224 GET_ITER
            226 CALL_FUNCTION
                                           1
            228 CALL_FUNCTION
                                           2
            230 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf32c27c0, file "<dis>", line 786>:
786
              O LOAD_FAST
                                          0(.0)
        >>
              2 FOR_ITER
                                         12 (to 16)
              4 STORE_FAST
                                           1 (_coconut_func)
                                           1 (_coconut_func)
              6 LOAD_FAST
              8 CALL_FUNCTION
                                           0
             10 YIELD_VALUE
             12 POP_TOP
             14 JUMP_ABSOLUTE
                                           0 (None)
        >>
             16 LOAD_CONST
             18 RETURN_VALUE
Disassembly of <code object <lambda> at 0x7f6cf32c2920, file "<dis>", line 786>:
                                           1 (<code object <genexpr> at 0x7f6cf32c27
786
              O LOAD_CONST
                                           2 ('sieve.<locals>.<lambda>.<locals>.<ger
              2 LOAD_CONST
              4 MAKE_FUNCTION
                                          0
              6 LOAD_CLOSURE
                                          0 (p)
              8 BUILD_TUPLE
                                           1
                                          3 (<code object <lambda> at 0x7f6cf32c287
             10 LOAD_CONST
                                          4 ('sieve.<locals>.<lambda>.<locals>.<lar
             12 LOAD_CONST
```

0

1

1 (p)

198 MAKE_FUNCTION

200 LOAD CLOSURE

202 BUILD_TUPLE

```
14 MAKE_FUNCTION
                                         8 (closure)
             16 BUILD TUPLE
             18 GET_ITER
             20 CALL_FUNCTION
                                          1
             22 RETURN_VALUE
Disassembly of <code object <genexpr> at 0x7f6cf32c27c0, file "<dis>", line 786>:
              O LOAD_FAST
786
                                          0 (.0)
        >>
              2 FOR_ITER
                                        12 (to 16)
              4 STORE_FAST
                                         1 (_coconut_func)
                                          1 (_coconut_func)
              6 LOAD_FAST
              8 CALL_FUNCTION
             10 YIELD_VALUE
             12 POP_TOP
             14 JUMP_ABSOLUTE
             16 LOAD_CONST
                                         0 (None)
             18 RETURN_VALUE
Disassembly of <code object <lambda> at 0x7f6cf32c2870, file "<dis>", line 786>:
              O LOAD_DEREF
786
                                          0 (p)
              2 RETURN_VALUE
Disassembly of <code object <lambda> at 0x7f6cf32c2a80, file "<dis>", line 786>:
786
                                         0 (sieve)
              O LOAD_GLOBAL
                                         1 (filter)
              2 LOAD_GLOBAL
              4 LOAD_CLOSURE
                                         1 (p)
              6 BUILD_TUPLE
                                         1 (<code object <lambda> at 0x7f6cf32c29d
              8 LOAD_CONST
                                         2 ('sieve.<locals>.<lambda>.<locals>.<lar
             10 LOAD_CONST
                                         8 (closure)
             12 MAKE_FUNCTION
                                         0 (numbers)
             14 LOAD_DEREF
             16 CALL_FUNCTION
                                         2
             18 CALL_FUNCTION
             20 RETURN_VALUE
Disassembly of <code object <lambda> at 0x7f6cf32c29d0, file "<dis>", line 786>:
786
              O LOAD_FAST
                                         0 (n)
```

0 (p)

2 LOAD_DEREF

4 BINARY_MODULO

6 LOAD_CONST 1 (0) 8 COMPARE_OP 3 (!=)

10 RETURN_VALUE

Disassembly of <code object <lambda> at 0x7f6cf32c2d40, file "<dis>", line 789>:

789 0 LOAD_FAST 0 (p)

6 RETURN_VALUE