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# `prefix_graph`#
Implements directed graphs to sort and manipulate packages within a prefix.
Object inheritance:
![Inheritance diagram of PrefixGraph,
GeneralGraph](../../../_images/inheritance-2aaa14d4e0bc04c308ddc8c19954daa409b79738.png
)
## Classes#
`PrefixGraph` | A directed graph structure used for sorting packages (prefix_records) in prefixes and
---|---
`GeneralGraph` | Compared with PrefixGraph, this class takes in more than one record of a given
name,
```

* [`cli`](../../conda_env/cli/index.html)

_class _PrefixGraph(_records_ , _specs =()_)#

A directed graph structure used for sorting packages (prefix_records) in prefixes and manipulating packages within prefixes (e.g. removing and pruning).

The terminology used for edge direction is "parents" and "children" rather than "successors" and "predecessors". The parent nodes of a record are those records in the graph that match the record's "depends" field. E.g. NodeA depends on NodeB, then NodeA is a child of NodeB, and NodeB is a parent of NodeA. Nodes can have zero parents, or more than two parents.

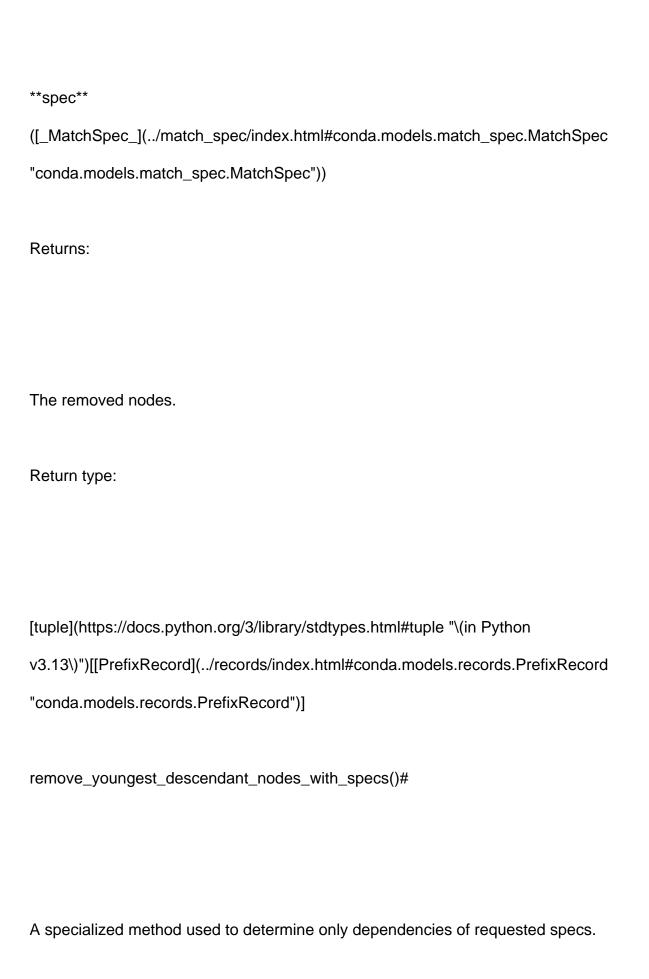
Most public methods mutate the graph.

_property _records#

remove_spec(_spec_)#

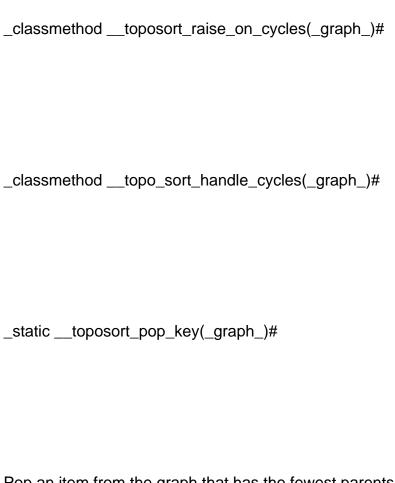
Remove all matching nodes, and any associated child nodes.

Parameters:



Returns:	
The removed nodes.	
The removed hodes.	
Return type:	
[tuple](https://docs.python.org/3/library/stdtypes.html#tuple "	(in Python
v3.13\)")[[PrefixRecord](/records/index.html#conda.models.	records.PrefixRecord
"conda.models.records.PrefixRecord")]	
prune()#	
Drung book all pookeges until all shild nodes are enghared b	v o opeo
Prune back all packages until all child nodes are anchored by	y a spec.
Returns:	
The pruned nodes.	
The pruned nodes.	





Pop an item from the graph that has the fewest parents. In the case of a tie, use the node with the alphabetically-first package name.

_static __toposort_prepare_graph(_graph_)#

_class _GeneralGraph(_records_ , _specs =()_)#

Bases: `PrefixGraph`

Compared with PrefixGraph, this class takes in more than one record of a given name, and operates on that graph from the higher view across any matching dependencies. It is not a Prefix thing, but more like a "graph of all possible candidates" thing, and is used for unsatisfiability analysis

breadth_first_search_by_name(_root_spec_ , _target_spec_)#

Return shorted path from root_spec to spec_name

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 - * `PrefixGraph.records`
 - * `PrefixGraph.remove_spec()`
 - * `PrefixGraph.remove_youngest_descendant_nodes_with_specs()`
 - * `PrefixGraph.prune()`
 - * `PrefixGraph.get_node_by_name()`
 - * `PrefixGraph.all_descendants()`
 - * `PrefixGraph.all_ancestors()`
 - * `PrefixGraph._remove_node()`
 - * `PrefixGraph._toposort()`
 - * `PrefixGraph._toposort_raise_on_cycles()`
 - * `PrefixGraph._topo_sort_handle_cycles()`
 - * `PrefixGraph._toposort_pop_key()`

