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Hypertext Terminology

COMP3220 Web Infrastructure

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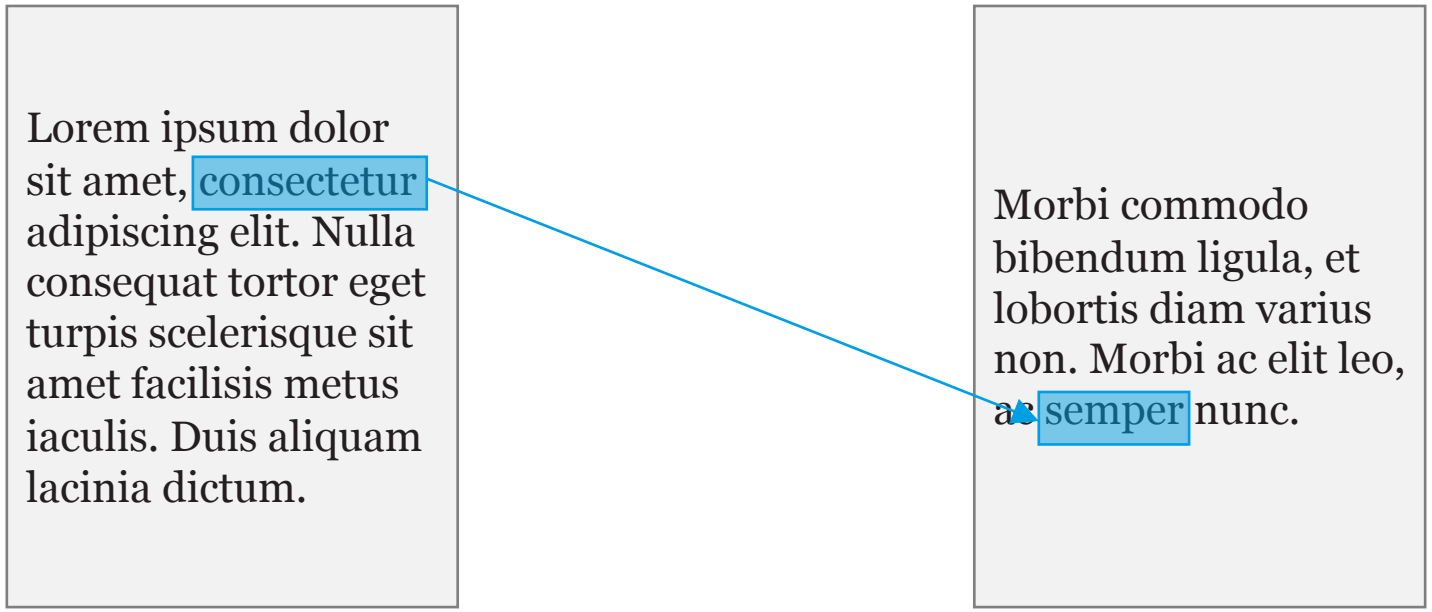
Nodes, Links, Anchors and Endpoints



Nodes, Links, Anchors and Endpoints

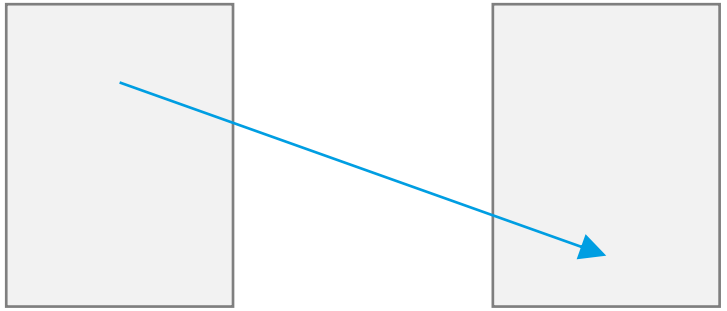
A node is a ‘chunk’ of information that corresponds to a natural ‘semantic unit’

- e.g. screen, page, frame, lexia…
- The act of chunking information is part of authoring process

Nodes, Links, Anchors and Endpoints

A link is an association between nodes

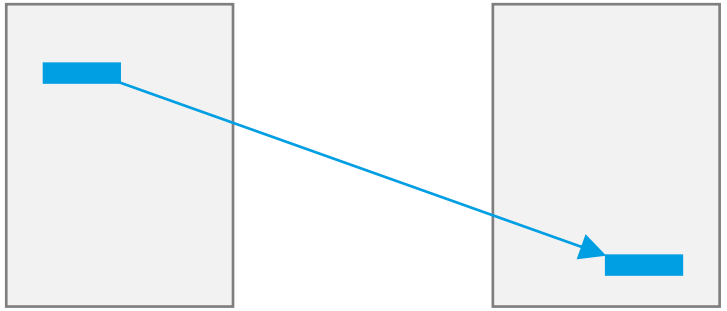
May be navigable



Nodes, Links, Anchors and Endpoints

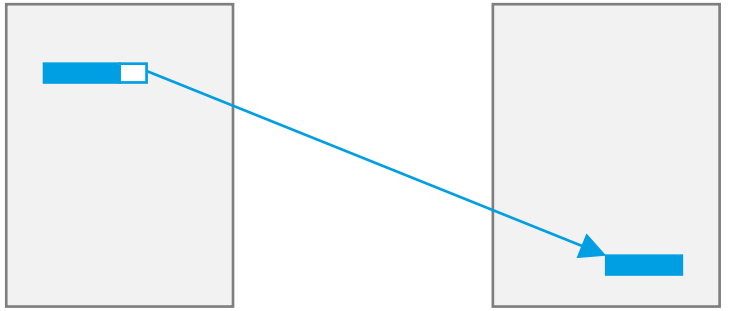
An anchor is the representation of a link on a node

- e.g. buttons, bolded text, “hotspots”, images …
- the whole node might be an anchor but should be able to designate a sub-region as a source or destination of a link



Nodes, Links, Anchors and Endpoints

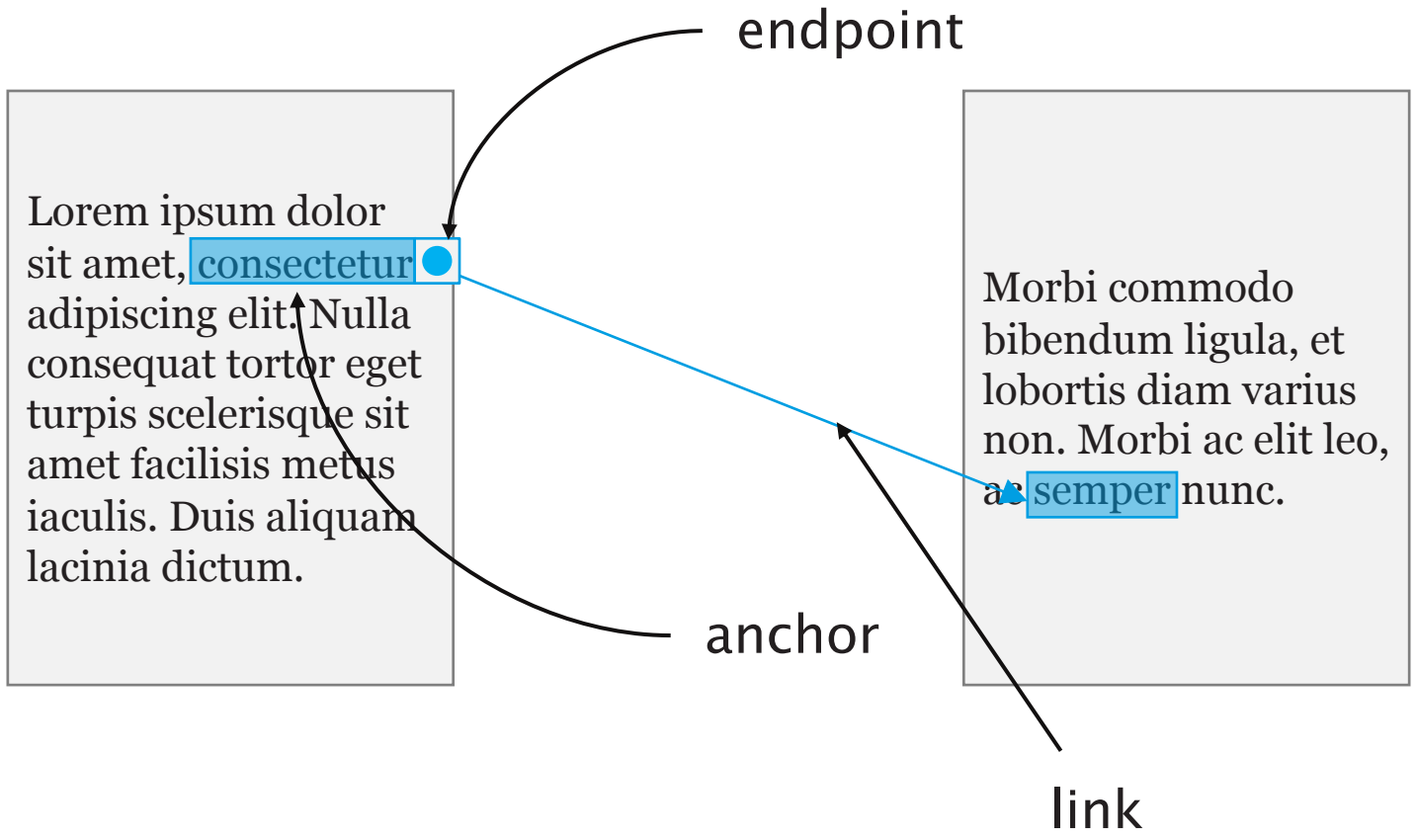
An endpoint is a component of a link that references an anchor on a node



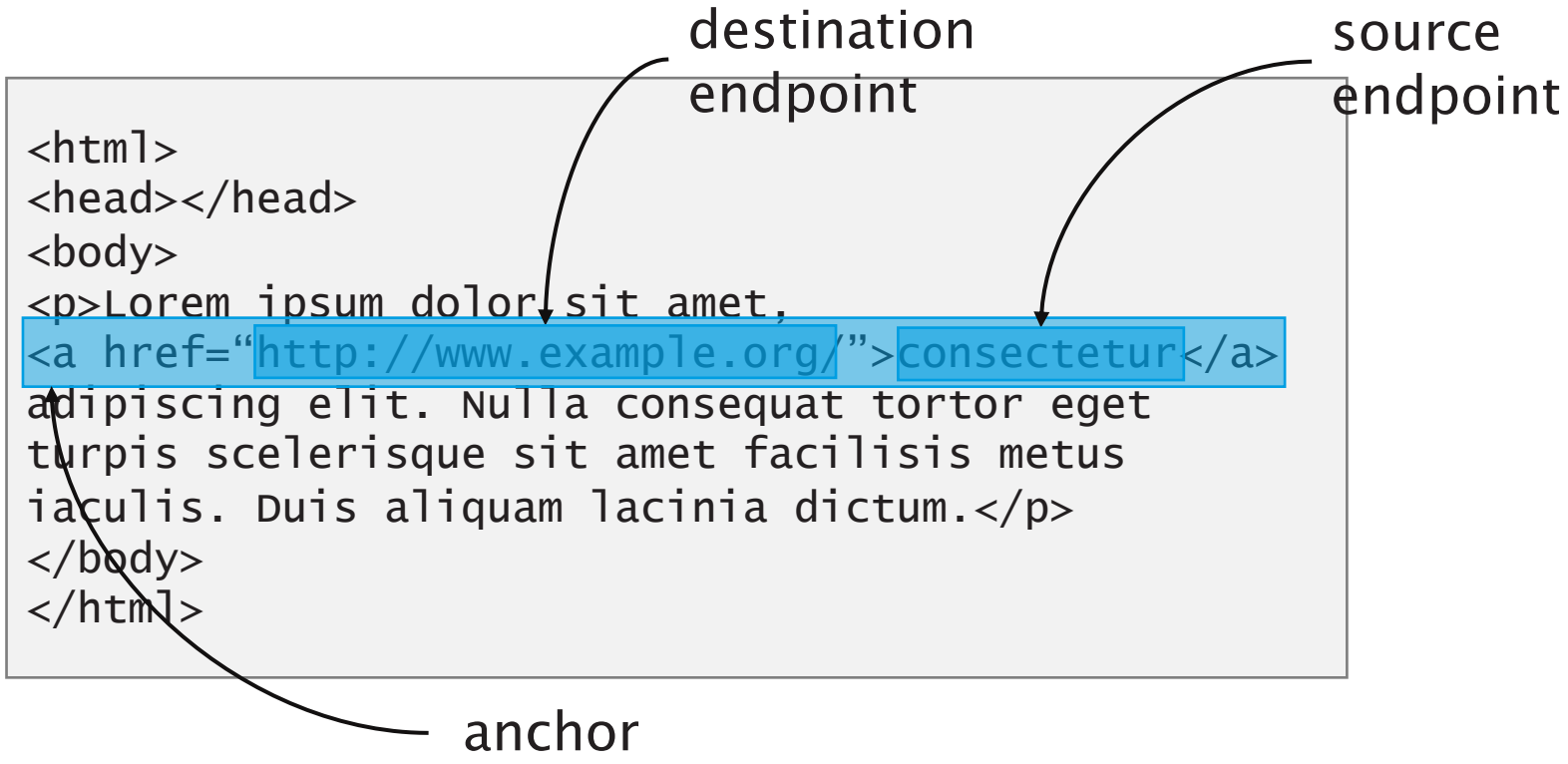
Links on the Web

- Links are part of the source node
  - <a href=“”>
  - Embedded links (c.f. first class links)
- Links can only be followed in the forward direction
- Links can only connect a pair of nodes
- Link anchors must be specified explicitly
- Links (usually) contain no additional information

Embedded Links



Embedded Links in HTML



Embedded vs. First class links

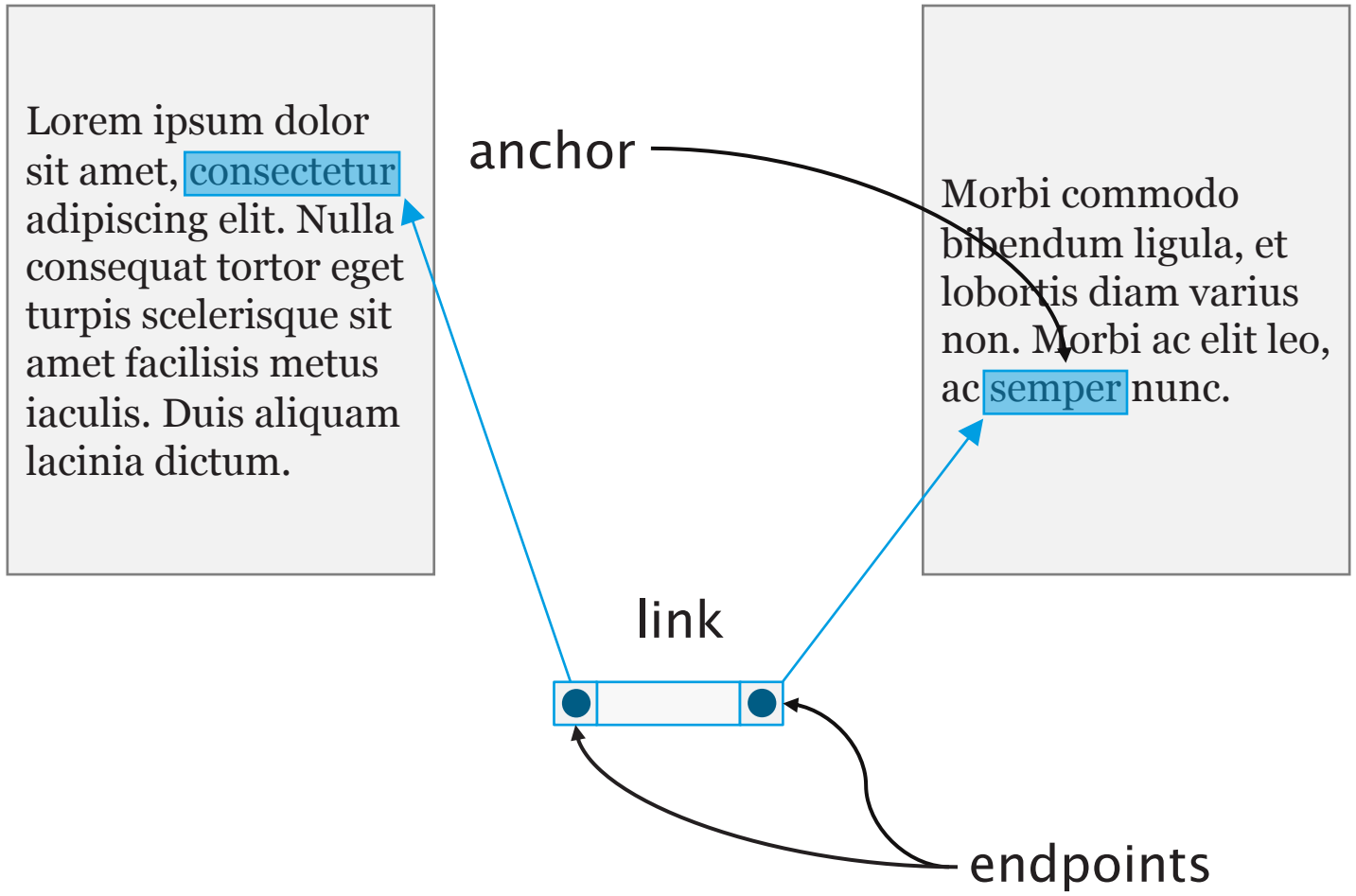
Links are embedded in web pages

- To create a link from a web page, the web page must be edited
- Only the owner of a web page may create/edit links within it

Separating links from nodes (first class links) allows richer linking:

- Multiple different link overlays (linkbases)
- Personalisation, task-orientation, etc

First Class Links



Bidirectional Links

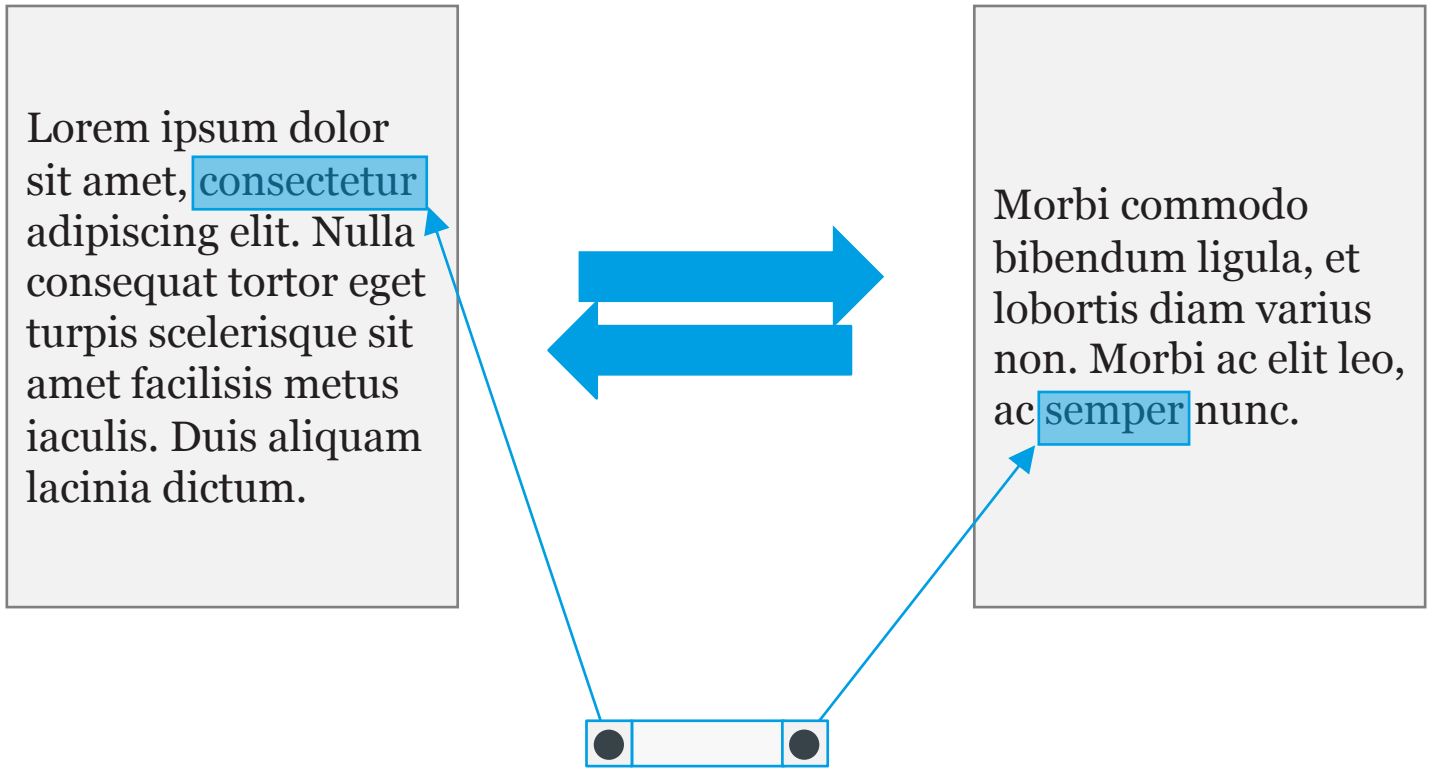
On the Web, not easy to see what links to a page

- Links are embedded, so can only be followed from the source document to the destination, not the other way
- Can use a global index such as Google, but this raises issues of scalability

With first class links:

- As easy to traverse links backwards as forwards
- Endpoints may be annotated as source/destination/bidirectional
- How do we find links that can be applied to a given document?

Bidirectional Links



N-ary Links

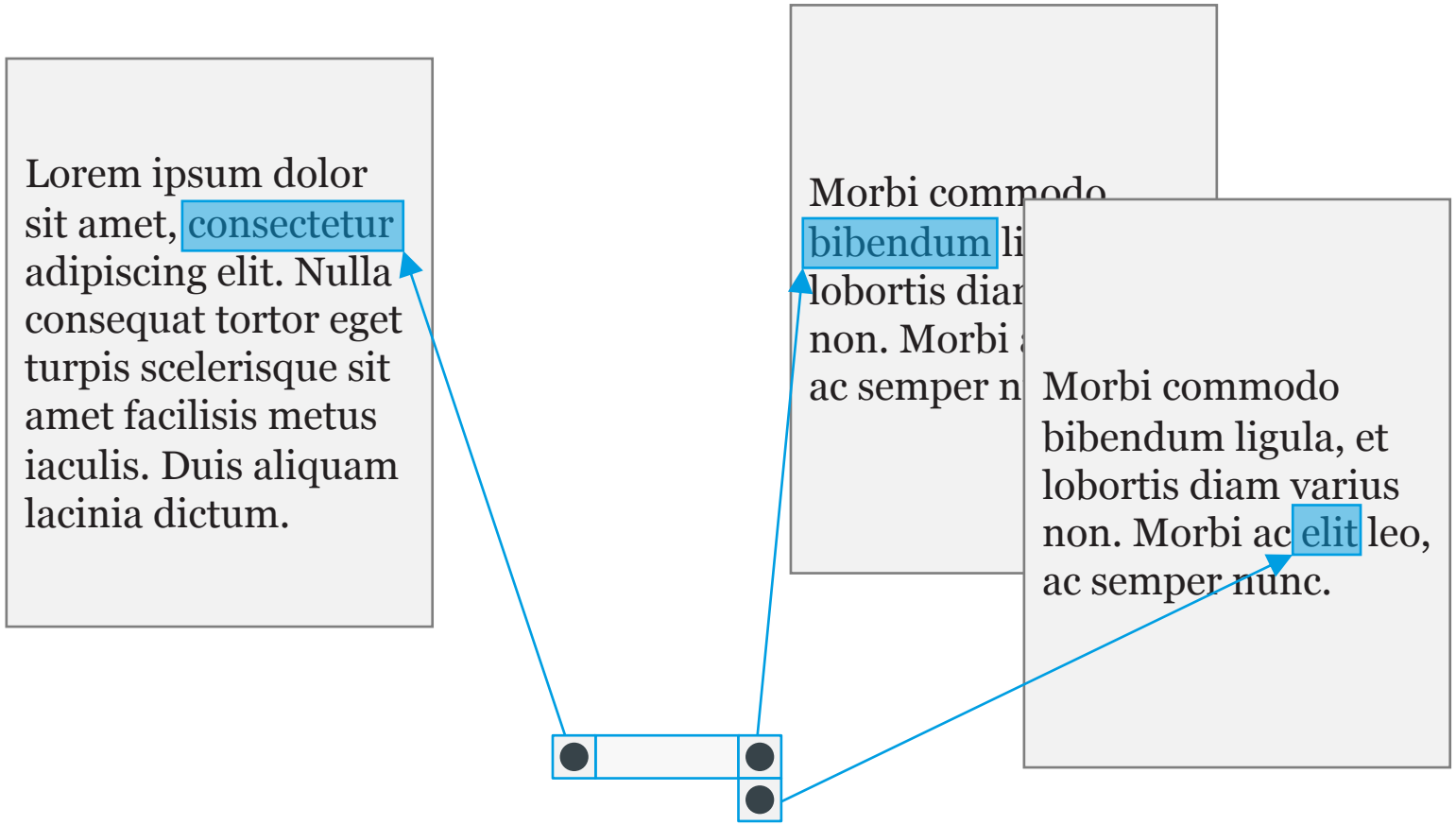
Web links connect only two documents together

- Only one href attribute allowed on an <a> tag

First class links can connect many nodes together

- Many sources
- Many destinations
- Many of both

N-ary Links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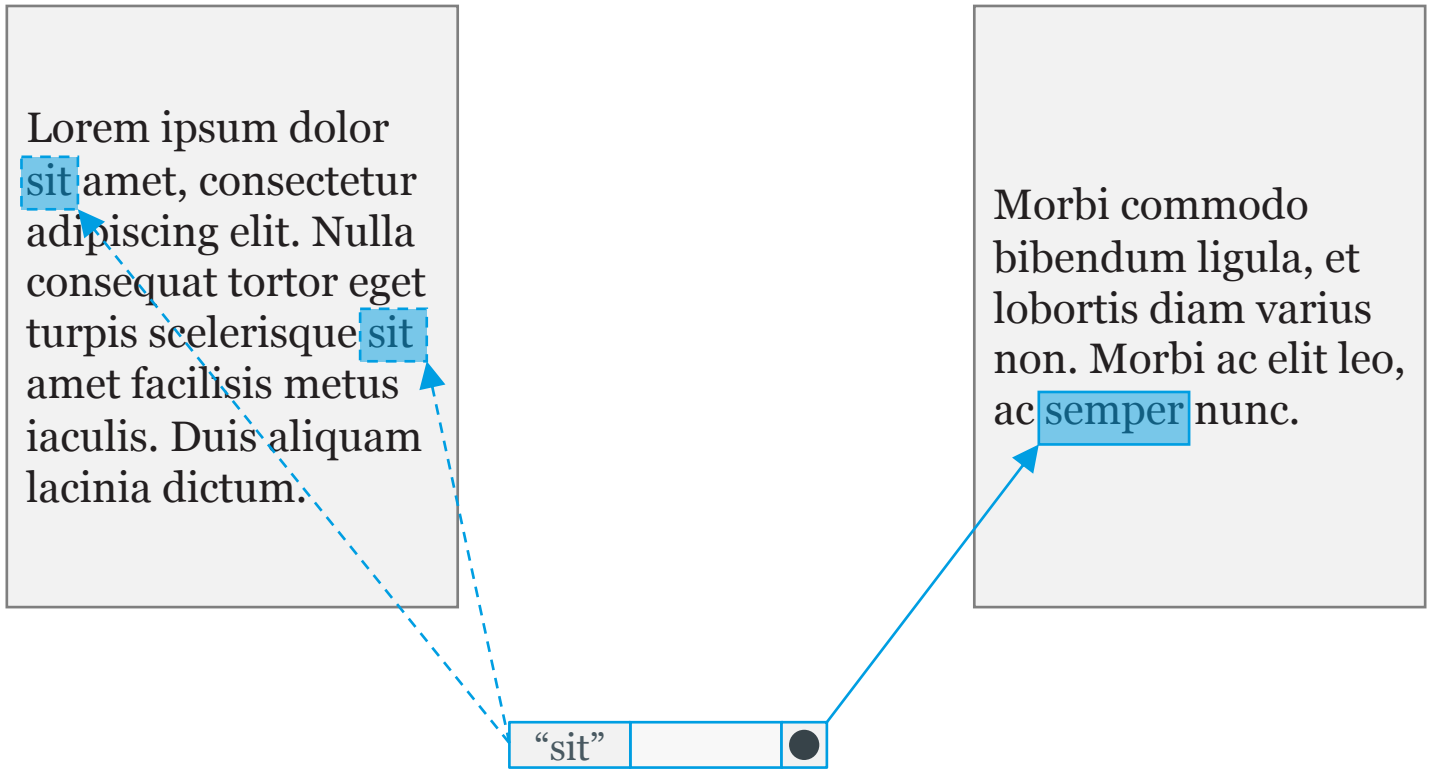
Generic (functional, dynamic) links

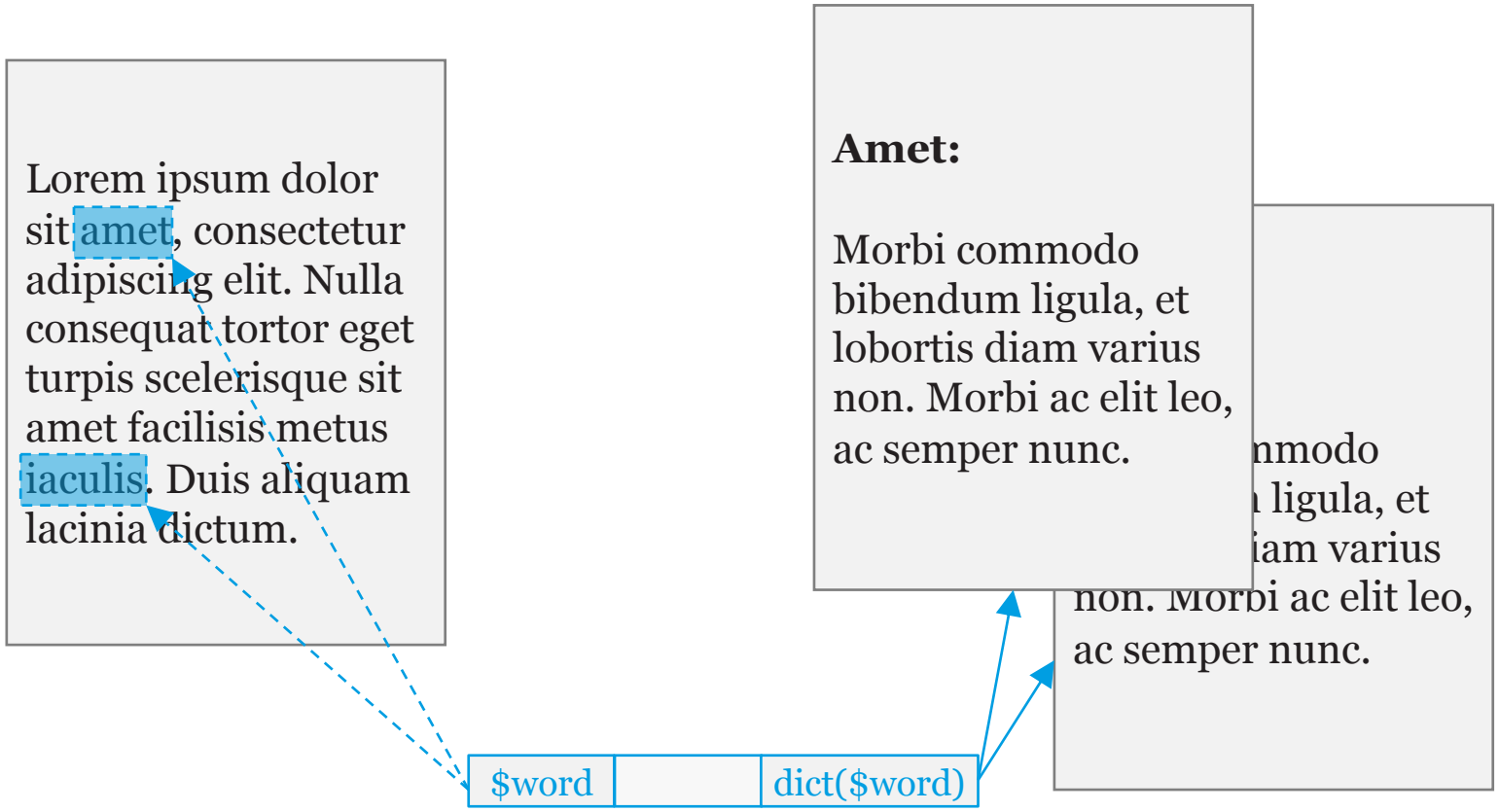
- Web links have explicitly specified anchors
  - Source anchor is the location in which the <a> is embedded
  - Destination anchor is given by the fragment identifier on the URI reference: http://example.org/index.html#foo

- Richer location specifiers (locspecs) in endpoints
  - Put a link on all occurrences of the word ‘hypertext’

Generic Links



Functional Links



Typed links

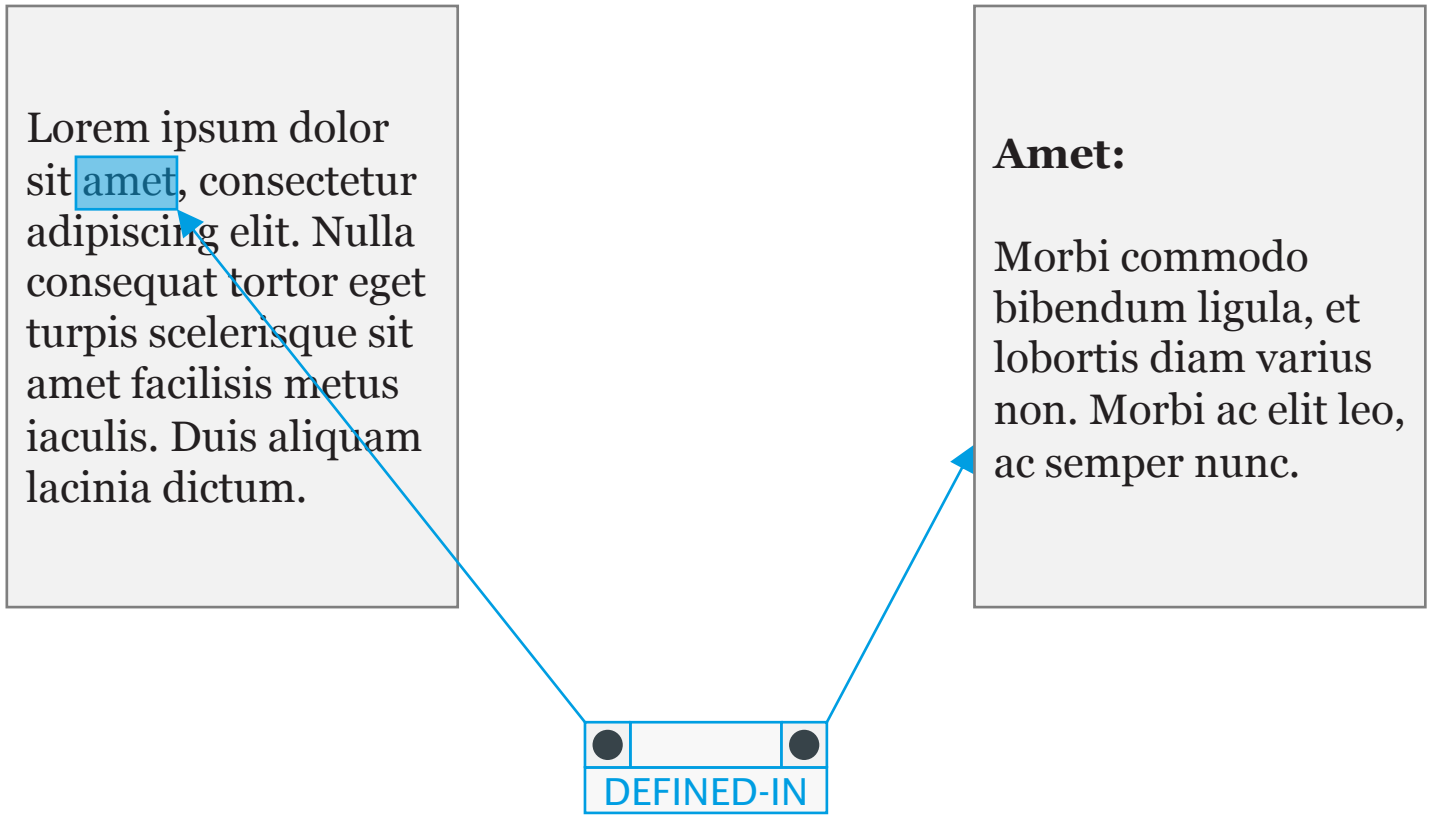
Web links may contain some additional information

- <a href="" rel="" rev="">
  - rel: the role of the relation from the source to the destination
  - rev: the role of the relation from the destination to the source (the reverse relation)
- In practice, most Web authors don't use rel/rev
- In practice, most Web browsers ignore rel/rev

Links are more than just navigation – underlying associative relationship

IANA (2020) *Link Relations*. Available at: https://www.iana.org/assignments/link-relations/link-relations.xhtml

Nodes, Links and Anchors



Summary

Hypertext is more than just the Web!

The Web has a fairly impoverished approach to links:

- No first class links
- No bidirectional links
- No n-ary links
- No generic links
- No functional links
- Link types are present, but rarely used

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Next Lecture:
Architecture of the World Wide Web