XDI Graph Patterns

OASIS XDI TC Submission
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2011-03-24

This document contains illustrations of eight basic XDI graph patterns:

1. **Primary and secondary addresses**: properties used to assert multiple addresses for the same node in the graph.
2. **Simple properties**: properties that accept only a single literal value.
3. **Complex properties**: properties that may accept multiple literal values as well as describe typing and ordering of those values.
4. **Simple subjects**: subjects that may contain only instances of themselves and metadata describing those instances.
5. **Complex subjects**: subjects that may contain all of the above.
6. **Social graphs**: relationships between XDI authorities.
7. **Link contracts:** subgraphs used for XDI authorization.
8. **Messages:** XDI documents used in the XDI protocol.

It also illustrates how versioning may be applied to any branch of the graph.

Note: this document uses the XDI metagraph symbols as documented in the XDI Graph Model 2011-02-09.

Notation

Root context node: Represents the root context of an XDI graph

Context node: Represents an XDI subject

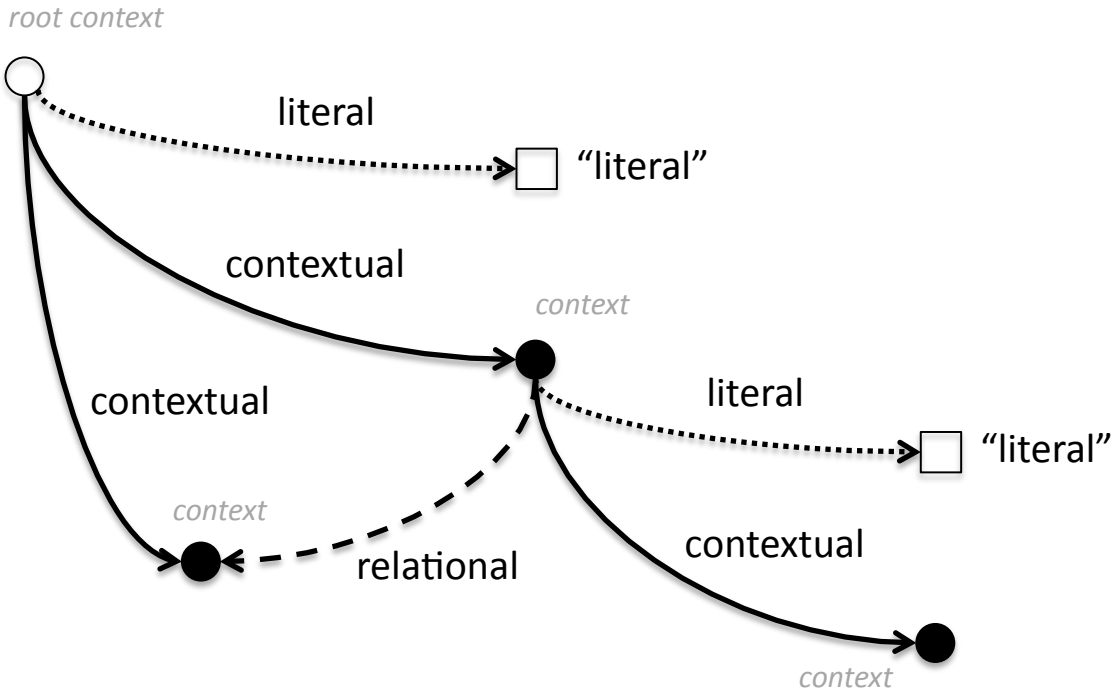
Literal node: Represents a literal XDI object

Contextual arc: Uniquely identifies a context node

Literal arc: Uniquely identifies a literal node

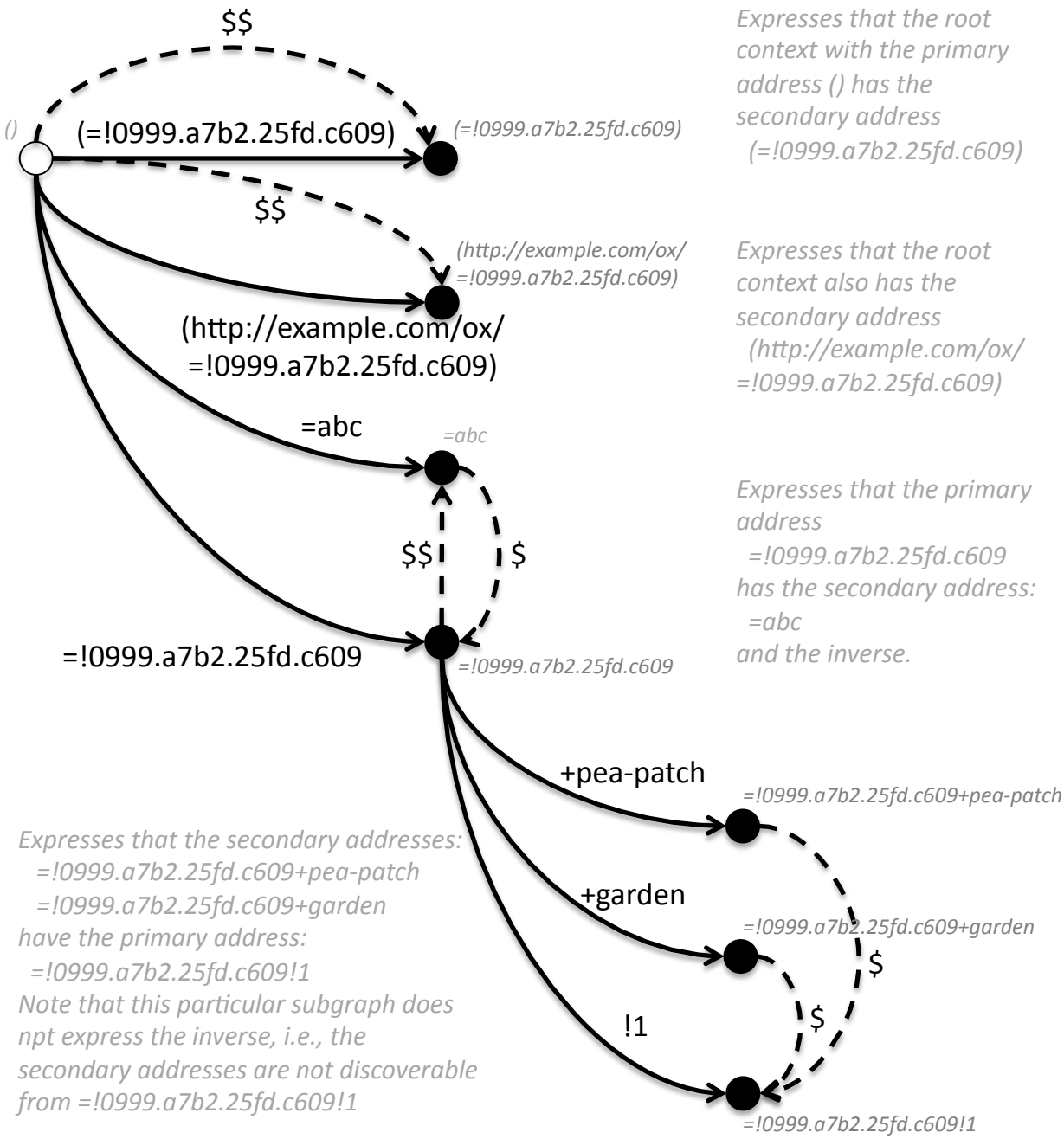
Relational arc: Non-uniquely links nodes

Example



Primary and Secondary Addresses

Every XDI context node has exactly one primary address. It may have zero-to-n secondary addresses – different XRIs that identify the same logical node. The relational arc from a secondary address to a primary address is expressed using the metagraph symbol $. The inverse relational arc from a primary address to a secondary address is expressed with $$.



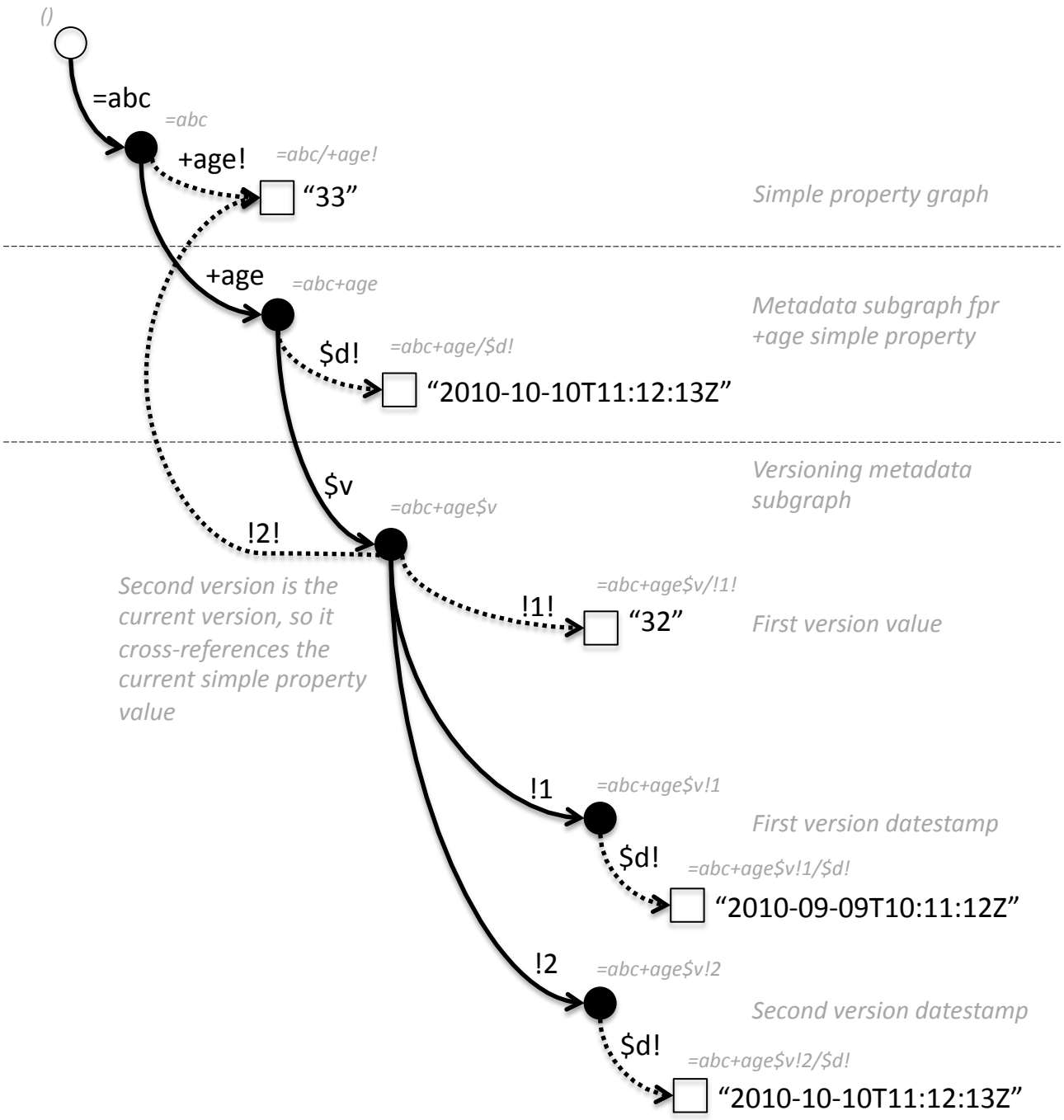
Expresses that the root context with the primary address () has the secondary address (=!0999.a7b2.25fd.c609)

Expresses that the root context also has the secondary address (http://example.com/ox/ =!0999.a7b2.25fd.c609)

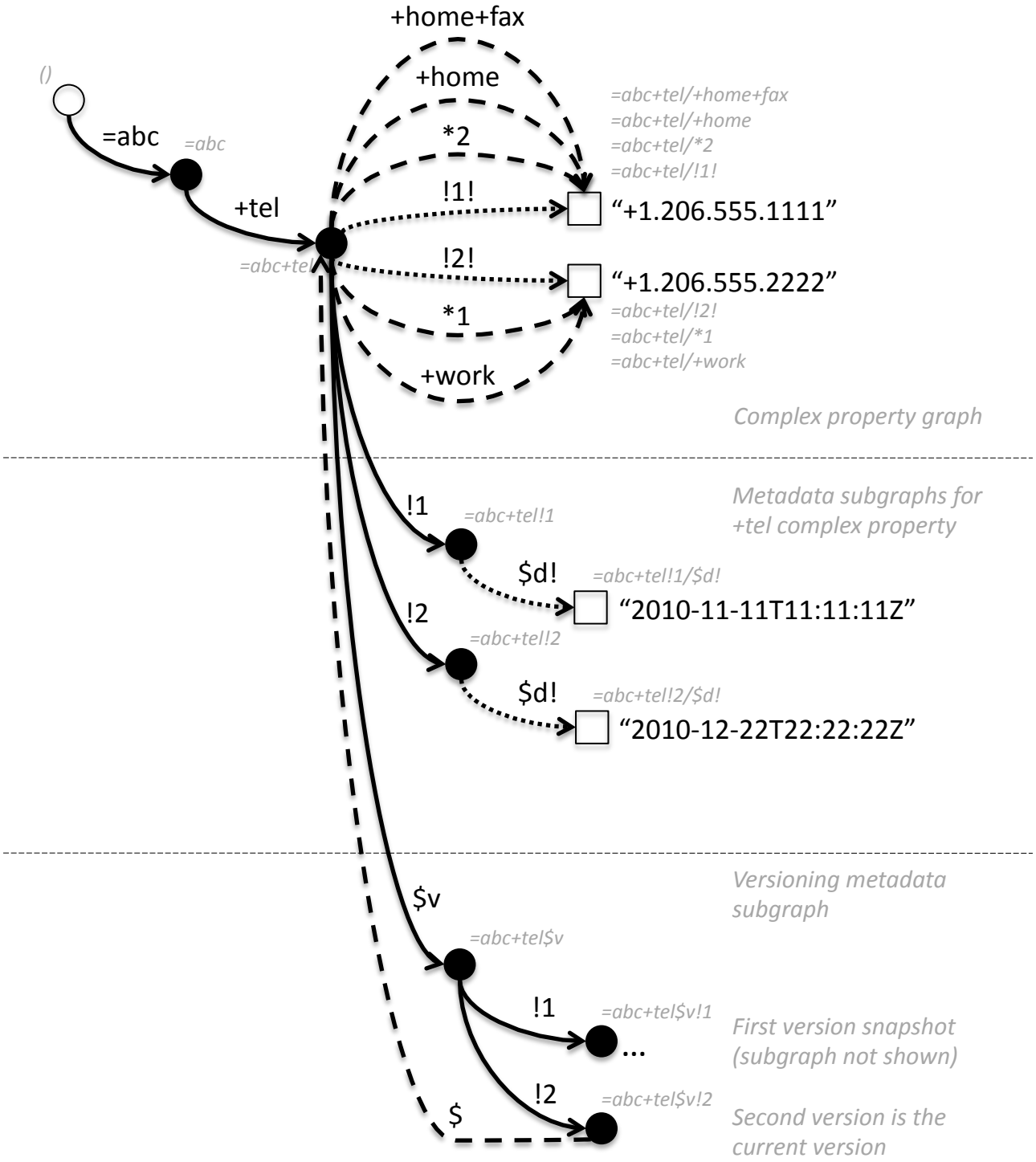
Expresses that the primary address =!0999.a7b2.25fd.c609 has the secondary address: =abc and the inverse.

Expresses that the secondary addresses: =!0999.a7b2.25fd.c609+pea-patch =!0999.a7b2.25fd.c609+garden have the primary address: =!0999.a7b2.25fd.c609!1 Note that this particular subgraph does npt express the inverse, i.e., the secondary addresses are not discoverable from =!0999.a7b2.25fd.c609!1

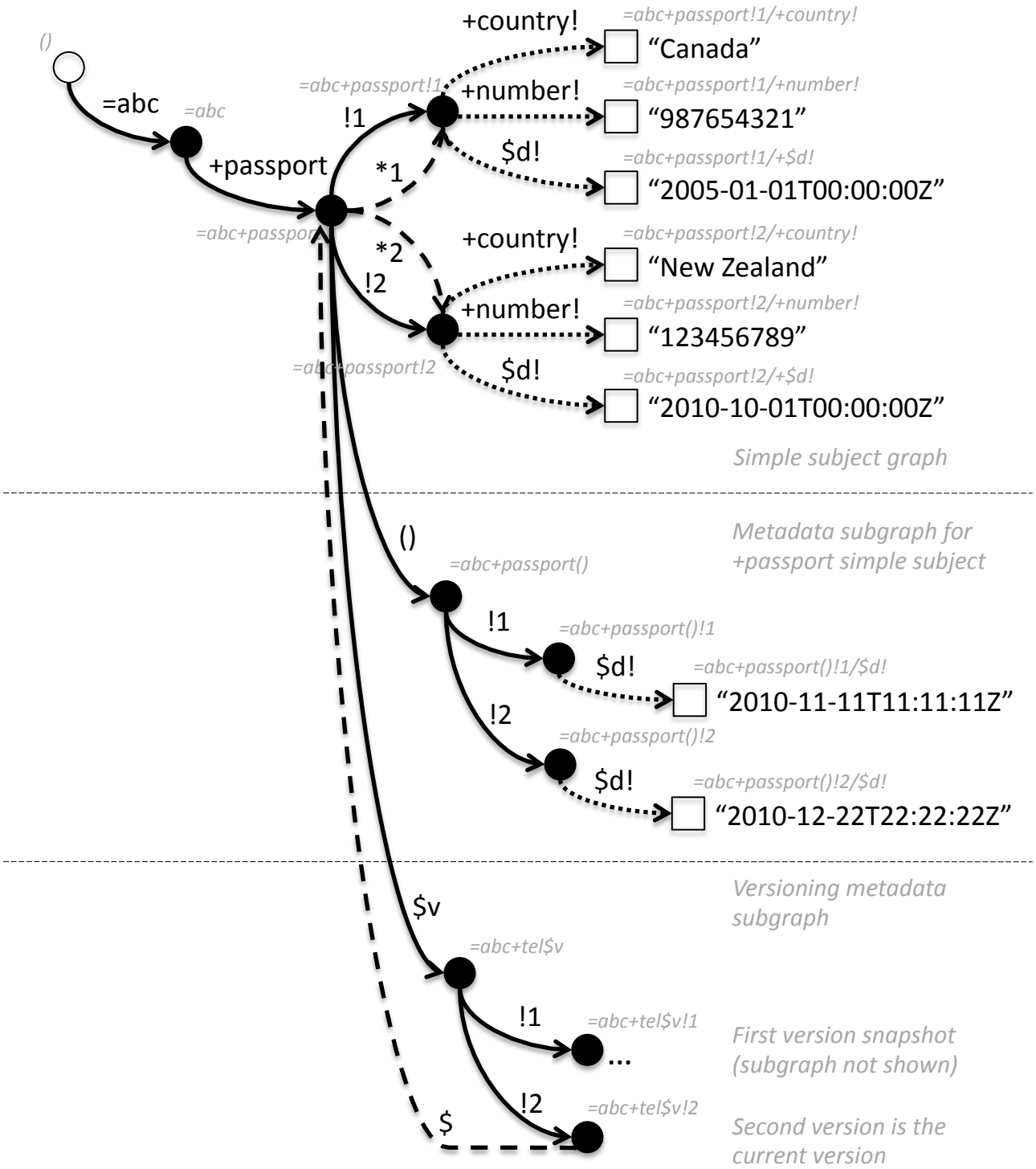
Simple properties



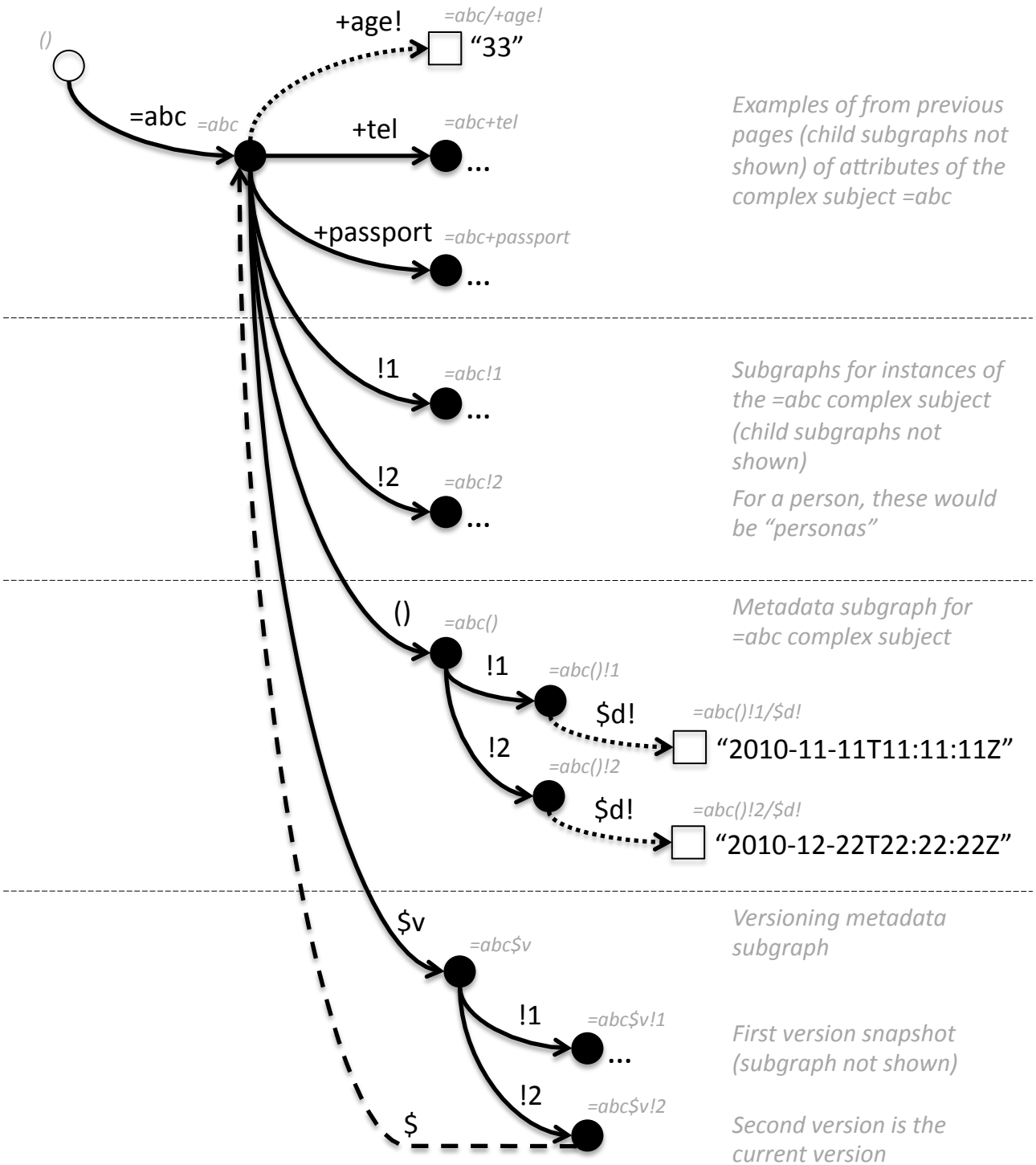
Complex properties



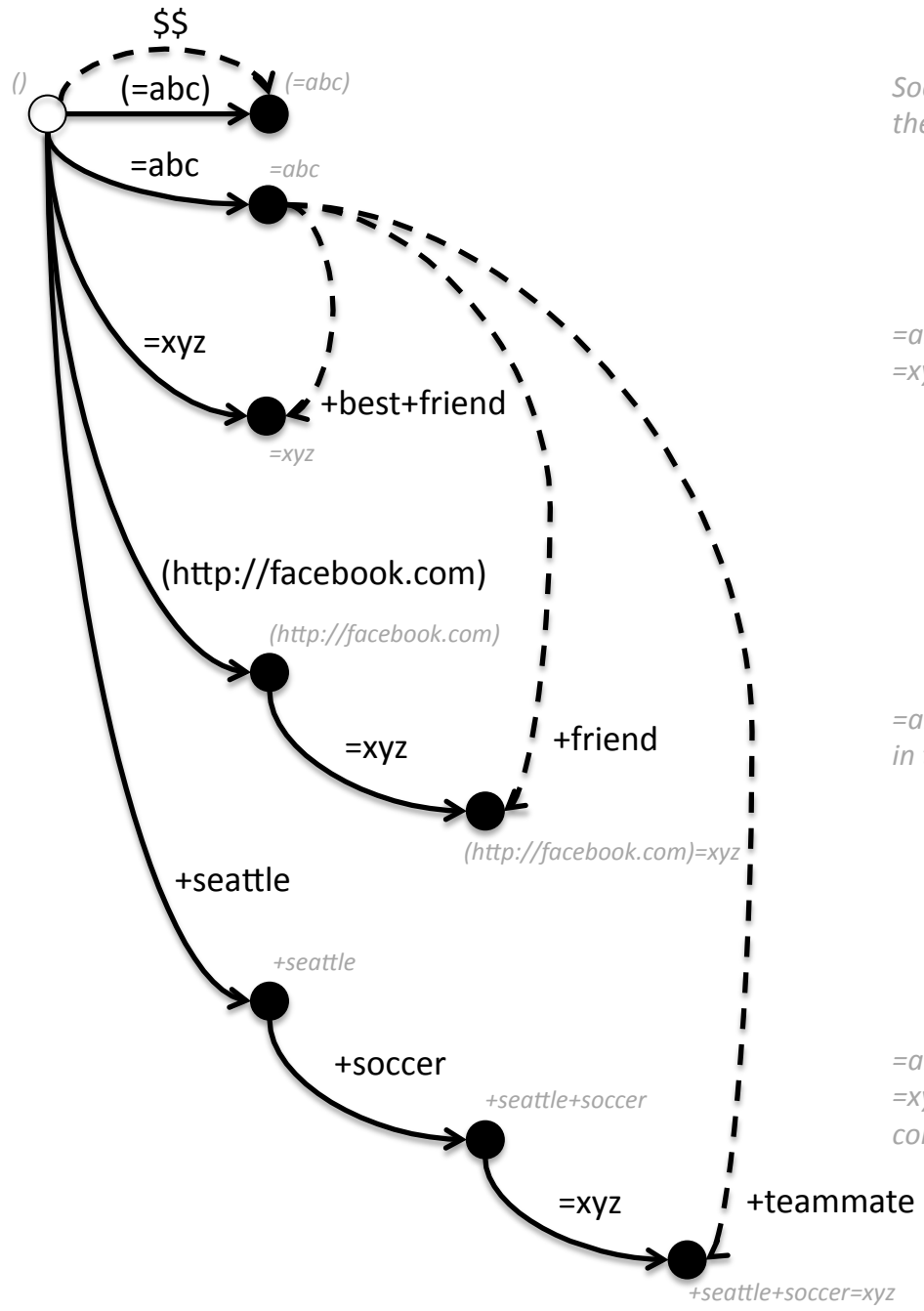
Simple subjects



Complex subjects



Social graphs



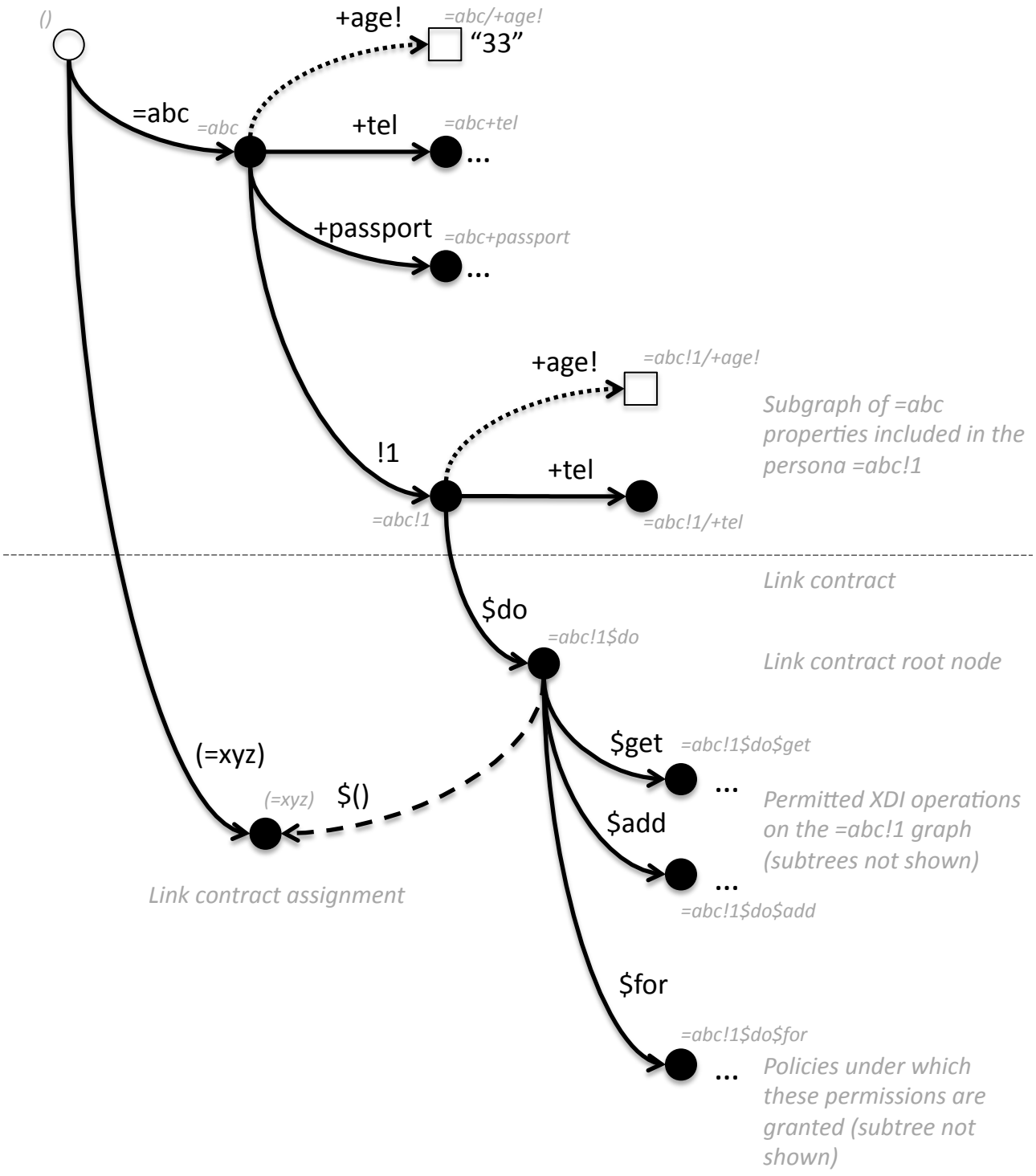
Social graph expressed at the (=abc) endpoint

=abc is best friends with =xyz

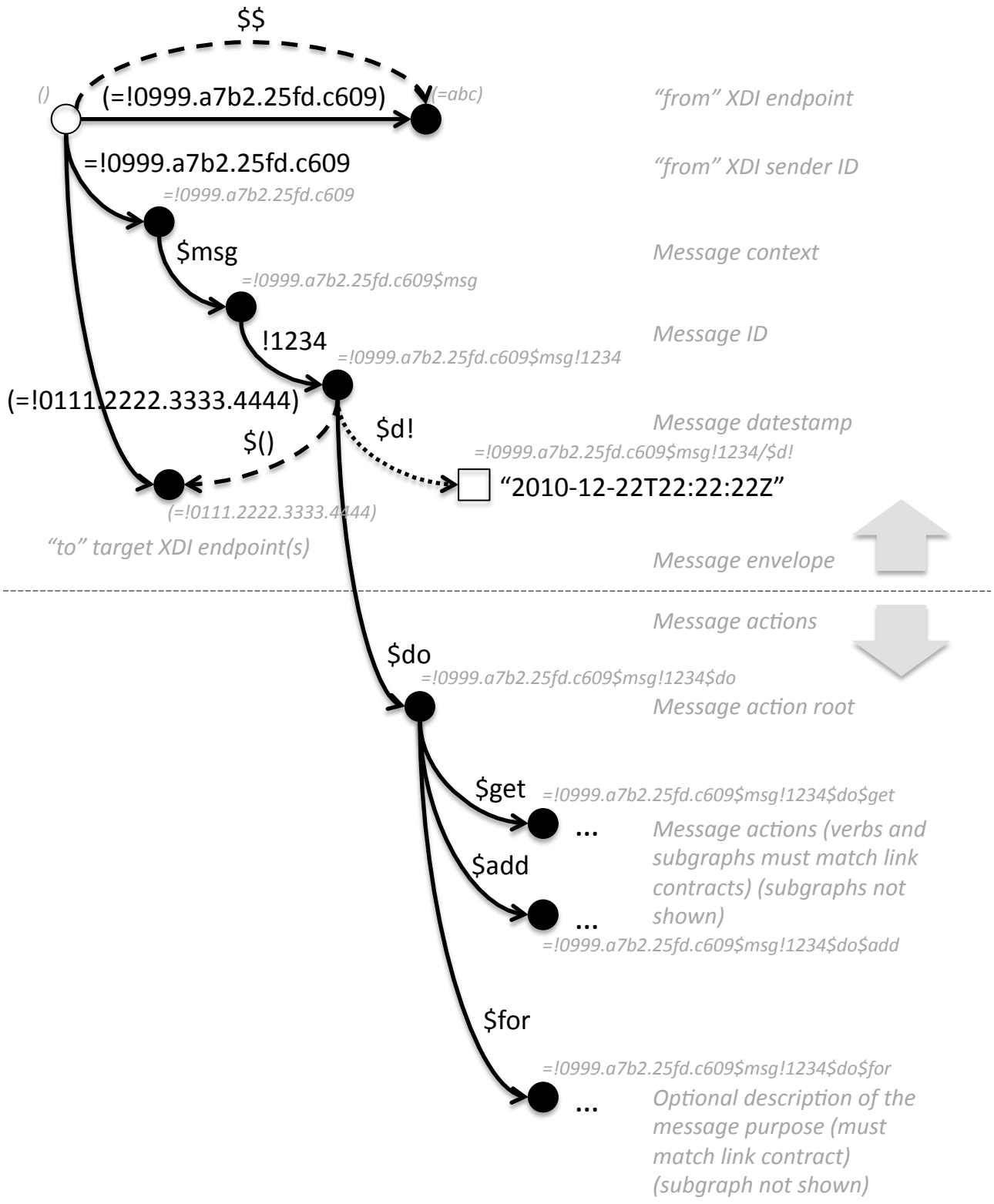
=abc is friends with =xyz in the Facebook context

=abc is a teammate of =xyz in a Seattle soccer context

Link contracts



Messages


$$
()
(=!0999.a7b2.25fd.c609)
(=abc)
"from" XDI endpoint
=!0999.a7b2.25fd.c609
"from" XDI sender ID
=!0999.a7b2.25fd.c609
$msg
Message context
=!0999.a7b2.25fd.c609$msg
!1234
Message ID
=!0999.a7b2.25fd.c609$msg!1234
(=!0111.2222.3333.4444)
$()
$d!
Message datestamp
=!0999.a7b2.25fd.c609$msg!1234/$d!
"2010-12-22T22:22:22Z"
(=!0111.2222.3333.4444)
"to" target XDI endpoint(s)
Message envelope
Message actions
$do
=!0999.a7b2.25fd.c609$msg!1234$do
Message action root
$get
=!0999.a7b2.25fd.c609$msg!1234$do$get
...
Message actions (verbs and subgraphs must match link contracts) (subgraphs not shown)
$add
...
=!0999.a7b2.25fd.c609$msg!1234$do$add
$for
=!0999.a7b2.25fd.c609$msg!1234$do$for
...
Optional description of the message purpose (must match link contract) (subgraph not shown)