

Legitimate Navigation Links

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ABSTRACT

Authoring systems and Web browsers that do not recognize ownership and legitimacy are ill-adapted to support online social activity. But with proper design, they could allow site owners to permit links or not, to restrict them to certain areas, to negotiate bi-directional links, to allow entry or not, and generally, to create the higher level information structures of the original hypertext vision at a community level.

Legitimacy

The traditional goal of hypertext links has been to allow the flexible creation and traversal of document content relationships. However in multi-user settings like the Web, even good faith participants may conflict—one person’s “logical” link may annoy another, and offend a third. Social communities traditionally resolve such internal conflicts by implementing *legitimacy*—a public view of what actions are “fair” or “right”. Software that mediates social interaction must support legitimacy to be trusted, accepted and productive [3]. If this includes Web browsers and hypermedia authoring systems, the issue of link design changes from what *can* be done to what *should* be done. Legitimacy analysis specifies this in terms of *who owns what in the information system* and here we consider this for dual-endpoint navigation links.

Navigation Links

To a programmer, a link connects a screen control (or anchor), in a document (or node), to a resource (another node). It is a logical relationship between anchors (or nodes), but the link action also changes what the user sees, i.e., their view. In the physical world, a view change implies:

1. the observer has moved; or
2. something else has moved, or both.

Users can thus interpret links as changing:

1. the observer’s position (the link moves us to another place);
2. the observer’s orientation (the link points us to another part of the same place); or
3. the place (the link moves objects into this place).

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Move-to Links

Clicking a move-to link “moves” the user to a new “place” in cyberspace (a new URL), which changes his or her view. Lest this be thought just an illusion, in the physical world our sense of movement is equally deduced from sense data. The visual effect of turning us around in a room is the same as were the room to turn around us. We only know which is which if we move ourselves. If *people own themselves*, this implies a choice of self-action that others should not take away, e.g., kidnapping denies this right. The same principle applies in virtual social settings. Links should not move users without their permission because the program does not own their persona—they do. For example, if a user clicks a link anchor to go to a Web site and a pop-up window takes them to another site, the user’s online persona has in effect been hijacked. Not surprisingly, users generally do not like such pop-up windows, and tend to close them immediately.

The Transport Contract

Hypertext link traversal on the Web from the user perspective is travel from one location to another. This is not a physical analogy, but the user’s cyberspace reality. A link is a *social agreement* between the “transporter” (link owner) and the “transported”. The World Wide Web is an information “transport system” of amazing power to move people almost instantly across a vast global information store. But if activating a link is like getting on a train, we would expect to be not forced onto it; to know about the transportation company and the journey, including where it was going and how long it will take; and to be able to catch a train back. Failure to satisfy these basic social contractual requirements seems to summarize user problems with Web links—they act without choice (pop-up windows), they can lead anywhere or nowhere (broken links), little information is available about them (lack of semantic types and other metadata), they can take “forever” (long download times), and they sometimes confuse the Web browser’s back button. Imagine a transit company that took you to locations but not back, or if a plane to Hawaii suddenly went to Alaska. While tourists (and readers of hypertext fiction) may like “magical mystery tours”, most travelers don’t. A move-to link should activate only by positive user action, provide metadata such as who owns it and where it goes, have travel time limits, and always allow “back” trips. Accountability for this requires the link owner be stated. If the owner is not given, this accountability could rise to higher levels, to the document owner, the site owner, or the IP owner. Good sites already ask users to report “bad links” to the site owner—this same procedure could be formalized.

Owners Rights

Accountability also gives link owners rights. For example they could choose to whom links are visible, and for whom they will work (cf. requiring a visa to travel). Hypertext researchers believe

in “readers as authors”, but can anyone legitimately add a link to a node (document or site)? Since adding a link changes the node, only the node owner has the right to do this. Owners may delegate this right (to add links) to other users, but they cannot transfer it (without losing ownership). If the node was jointly and severally owned by all parties, what if one “owner” decided to delete it? If it was conjointly owned, presumably every owner would have to approve any link addition. Current software neither recognizes ownership rights issues, nor provides support for managing them, like delegation.

Incoming Links

Links within a same owner’s node or hypertext web are different from links where source and destination owners differ. In the latter case, should a destination owner be able to know about and reject incoming links? Consider private property owners. They cannot prevent a road that gives access to their property, but can bar entry. To allow this a site’s home page could be a “front door”, to which links are always valid, but through which site entry can be checked (or the “door” could be left open). A site owner may have no right to know of links *to* their site’s entry point, but links *into* their site should be by permission. Hence while home page access should be generally available, internal content may be password protected.

Bi-directional Links (BDLs)

A BDL could be viewed as two opposite one-way links whose source and end-points converge. That one site owner’s link end point is also the other’s start point suggests *joint ownership*. One way to manage BDL creation is for one node owner to *propose* both anchor locations, and their link marker representations (text and/or graphics). A BDL proposal implies the right to view the source of an incoming link (one may dislike the referent or its context). The other party could approve (creating the BDL), propose changes, or reject it. A jointly owned BDL could only be changed if both parties agreed, so common link information must either be replicated at both sites, or stored in an external link base. BDLs would imply that node owners “vouch” for the link’s underlying relationship, and that links much less likely would be invalid.

Include Links

With include links, the user is not transported, rather the environment changes as content is pulled into the current node. This is seen as bringing something into the current view or place. A programming analogy is the difference between transferring control to another program and an “include” that brings code from elsewhere into the current program. In an include link, the user’s location remains the same, and the location owner does not change. Hence the virtual representation of place—the screen—should retain a place context, and include links should change only a section of the view. As the user does not move, there is no need to ask his or her permission, so a site could use timed links or mouse-overs to activate include links that bring information into view, e.g. help information. But *the owner of the added information must permit its display in that context*. A local online newspaper should not be able to, say, insert New York Times articles into a frame on its site by setting browsers to “pull” data

from parts of the Times’ Web site. Naturally the Times (and the reporter) would object. Current browsers allow this (though copyright laws do not). But more importantly, they do not offer an electronic way to allow owners to declare information public and permit inclusion, e.g. online streaming stock market quotes. The right to approve inclusion of information one owns implies the right to know of any inclusion. For example, Nelson argues that transclusion links (which are similar to include links) should provide a means to see the original sources and context in which the source was authored [2].

Hypertext and Legitimacy

To assume many users should be able to overlay links and annotations to other people’s sites assumes unrealistically that no-one will do so with malice, and people will all agree on what is “good”. Social reality tells us otherwise. Should anyone be able to annotate my Web site with link graffiti, or make it a source of links to places I do not endorse? This is not legitimate, whether they add links to my site, or take information from my site through include links—unless I permit it. The logic of rights is unrelated to semantics; it is the logic of shared ownership. It does not force documents or nodes to be private any more than it forces them to be public. It means the node owner—usually its creator—should have the *choice* to give links rights to the public, to selected people, or not at all, just as one may give copy rights or software use rights (freeware). Browsers and authoring systems that do not recognize ownership and legitimacy are ill-adapted to support online social interaction. But with proper design, they could allow site owners to permit links or not, to restrict them to certain areas, to negotiate bi-directional links, to allow entry or not, and generally, to create the higher-level information structures of the original hypertext vision. Legitimate design would also support the natural rights of the “travelling public”, to which we all belong. To achieve this, the original vision of hypertext must be expanded for virtual community application, to include social requirements such as legitimacy.

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