

# The Co-link Project: collaborative writing of multidirectional links

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## ABSTRACT

After reviewing issues about the politics of links and open hypertext systems, Co-link project is introduced (<http://www.co-link.org>). Its capability of allowing the collaborative writing of multidirectional links is described and its possible impact on education and research is suggested.

## Keywords

Co-link, collective writing, link creation, multidirectional link

## INTRODUCTION

Links are considered the “primary navigational means of the Web” [8, p. 736] and the essence of hypertextual technology [5]. Hyperlinks have been accused, however, to be disaggregating, as commented by Johnson [3]. The supporters of print, according to Bolter [1, p.43], understand that “letting the reader choose links only gives the illusion of control, which is really withheld from the reader. If authors prescribe links, they deny the reader the choice of making her own associations.” Talbott [11] will even compare the link to a remote control, and Web surfing to television zapping. Far from this concerns (many of them radically nostalgic), Johnson [3] understands that the link is the first meaningful punctuation form to emerge after centuries.

At first, however, one must recall that there are two basic types of links: associative and structural. The former are “clickable words embedded in continuous text” [8, p. 736], connecting that text to other information, inside the same page or in different sites. The structural links, on the other hand, are not embedded in paragraphs, but present in

exposed locations, being used to indicate navigational structures. It can be said that the latter has faced stylistic and functional progress (animation, sounds, flying menus can be attached to them with Macromedia Flash, Javascript, etc.). On the other hand, associative links on the Web are still (with rare exceptions) **unidirectional vectors**, and link creation remains normally on the hands of who has access to the server, to the code and knows HTML (or any other more sophisticated language).

Although much has been said about the collaboration and new technologies have been created to open more possibilities through hypertext systems and associative links, many barriers are still present, limiting the interactants’ intervention and edition. Because of this, the associative and creative personal reading does not reflect upon the text itself. Acknowledging such a gap and considering previous criticisms and projects and their limitations in potential hypertexts<sup>1</sup> [9], this paper proposes a new concept and aims to present a technological implementation that may facilitate the **collective writing of hypertexts** [9], [10].

The Co-link technology, which will be here introduced, is not yet a full-featured online text editor, even though it

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<sup>1</sup> According to a hypertext typology previously developed (Primo, 2002), concerning its openness for collective writing, **potential hypertext** refers to those documents which all potential trails and actions are already predicted by the author of the site. The interactant is not allowed to change anything and the hypertext remains the same after he leaves. The **collage hypertext** permits the creation of a collective hypertext, but one single person (or a committee of organizers) connect the parts created individually. That is, the participants don’t interact nor work together. On the other hand, in **cooperative hypertexts** all interactants invent the text together. Their interaction has a recursive impact on their relationship, affecting the product itself.

allows collaborative writing. However, at this phase of the project, all efforts have been centered in the development of the concept of collaborative creation of multidirectional links (a new feature that may also be included in other existing Web collaborative editors).

## OPEN HYPERTEXTS AND THE POLITICS OF LINKS

The possibility of the collective creation of links is a political issue. However, since the Web's first years, mechanisms have been developed to prevent the interference of Web surfers. On the other hand, Landow [5], in his discussion on the politics of access, has suggested two questions that are particularly important for this paper: **Who can make links? Who decides what is linked?**

Actually, Johnson-Eilola [4] states that even though the Web is normally described as a collaborative hypertext, the majority of Web sites treat hypertext in a very conservative way. Johnson [3], unsatisfied with the obedient persecuting of links, asks for the possibility of any Web surfer to create his own personal associative trails. Johnson's remark is inspired by the pioneer Memex proposal, published by Vannevar Bush in 1945<sup>2</sup>. In his exposition—a fundamental root in hypertext discussions—Bush did not only think of the possibility of creating personal paths connecting information, but also considered the possibility of sharing those trails with friends. Actually, the sharing of links to related readings is a central concern of the Co-links project that will be here described.

Normally, Web surfers follow links created by other people (the programmers of the visited sites). Landow [5], based on contemporary critical theory, has brilliantly argued that no reading is ever the same. Specifically on the Web, surfers create their own reading paths by choosing which lexias they want to read (or not), by clicking on certain links. It could be said that with this behavior surfers *write* their own reading. But how can a person share with others the connections he made? A list of bookmarks could be published in the Web. But if he doesn't know HTML nor has a blog? Another alternative would be sending that list through e-mail or ICQ. However, those links would still be separated from the initial text that motivated that specific search for related information. As a result, that list could result in an aggregation of links without a context. But, could those links be suggested within the text read on the Web (even if it was published by a different person)? Could those links

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<sup>2</sup><http://www.theatlantic.com/unbound/flashbks/computer/bushf.htm>

be created and shared by any Web surfer, converting that document in a departure to other associated readings, found on the Web by different collaborators?

In the late 1990s some projects start to pursue technologies that could permit editorial intervention in Web pages created by other people. Actually, many of those technologies have been motivated by e-commerce strategies. In 1999, the Third Voice software release promoted a passionate debate, as the plug-in allowed anyone to post annotations (like "Post-it" notes) within any Web page. Many Webmasters reacted negatively to "Web graffiti"<sup>3</sup>, that permitted the inclusion of flames and spam inside the pages of their sites. Two years later, Third Voice ended its services as the company did not reach sufficient users and advertisers. Among other initiatives of including links to others' sites, it is relevant to mention another technology that interested not only the media, but also the research community. Microsoft's Smart Tags is a technology that was never incorporated to their browser Internet Explorer. Thought of as an open hypermedia linking system, dynamically turning certain words in a site into hyperlinks to related information and products, the static text of a Web page could be "personalized at read time" [2]. Hughes and Carr [2] understand that Smart Tags is a significant development for the open hypermedia development, delivering "new hypermedia functionality to millions of desktops across the world for the first time since the development of the Web". However, Microsoft declined releasing the technology with Windows XP after heavy media and competitors criticism on the company's control over the content that Smart Tags would add. Still, there are some attempts that dynamically insert new links in third party Web pages that direct visitors to advertiser's hot sites, such as eZula's TopText<sup>4</sup>.

Web annotation, however, has received special attention from the World Wide Web Consortium. The Annotea project<sup>5</sup> has been working on new ways of enhancing collaboration through Web annotations and bookmarks, based on metadata and Semantic Web standards. By using a plug-in (such as Anozilla<sup>6</sup> for Mozilla) or W3C's browser Amaya, Web surfers may read and write external remarks that are stored in an annotation server. That is, the original document is not edited. Even though Annotea works differently from Third Voice, it also permits that site visitors read and write commentaries (on a side panel) that

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<sup>3</sup><http://www.wired.com/news/politics/0,1283,20101,00.htm>  
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<sup>4</sup> <http://www.ezula.com/Advertisers/Advertisers.asp>

<sup>5</sup> <http://www.w3.org/2001/Annotea/>

<sup>6</sup> <http://annozilla.mozdev.org/>

are associated to a third party Web page, even without the author's authorization.

With a different objective, Wiki<sup>7</sup> systems aim to foster collaboration and the editing of pages online. Participants—who do not need to install any plug-in nor use a specific browser—may write and change any Wiki text, even if they don't know HTML. Hence, nobody owns any text within the Wiki system: they belong to the community. Interestingly, a link may be created to a page that yet doesn't exist—the system automatically creates that empty page and asks visitors to add content to it.

This brief review aimed to show some of the efforts in creating open hypertext systems that permit the addition of new links (not planned by the programmer) and to allow people not just to visit Web pages, but also to interfere in the page (with the original author's agreement<sup>8</sup>). This paper wants to describe the Co-link project, which also has those objectives, and attempts to: a) permit any participant (not a content provider, like in Smart Tags) to create new links inside texts previously published within the system (not in a side panel, like in Annotea); b) foster cooperation between Web surfers (who do not need to know HTML) and the sharing of trails among associated readings; allow the free inclusion of multiple destinations (co-links) to a same link; c) assure that participants will not need to install any new software or plug-in, and that the system will work with common browsers.

### CO-LINKS: THE COLLABORATIVE WRITING OF MULTIDIRECTIONAL LINKS

Co-links system (<http://www.co-link.org>), conceived by Alex Primo and programmed by Ricardo Araújo<sup>9</sup>, was developed to allow any interactant to create, change and delete new associative links in a pre-existing text and/or add new destinations to a link already available (creating, thus, a multidirectional link). Actually, other projects [6][7] have worked with "multi-headed links" (one to many). Co-links has a different implementation and is focused on the collective creation of links within a document, creating shared contextualized paths.

Co-links system, in its present form, works with a MySQL database through a PHP interface. It can thus be used with any server that supports those technologies. The interaction with Web surfers occurs through HTML and

<sup>7</sup> <http://c2.com/cgi/wiki>

<sup>8</sup> The text needs to be created and stored in a server with Co-link technology installed.

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Javascript. In short, the process works as follows. Initially, a text is added to the database. The text's links may be edited through two interaction modes: "visualization" and "inclusion of links". While using the "inclusion of links" mode—that is accessed after the "include new link" option is selected—, one may choose a word to turn it into a new link. The conversion of a word into a link happens just after it is clicked and the participant includes an initial co-link. If more than one person tries to turn the same word into a link, the systems chooses one of the requests and, transparently, permits the participants to add their own co-links. In the "visualization" mode, the text is rendered as a common HTML document. The special tags created by the system are converted to common HTML tags, associated to javascript code that triggers the opening of a menu. This menu calls the database in order to retrieve and show the co-links associated to that tag. From this menu it is possible to follow a co-link, add new co-links or edit available co-links.

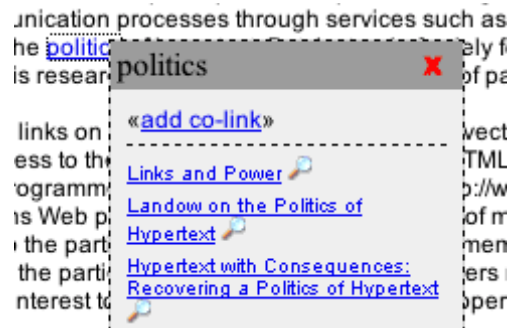


Figure 1: Co-links menu

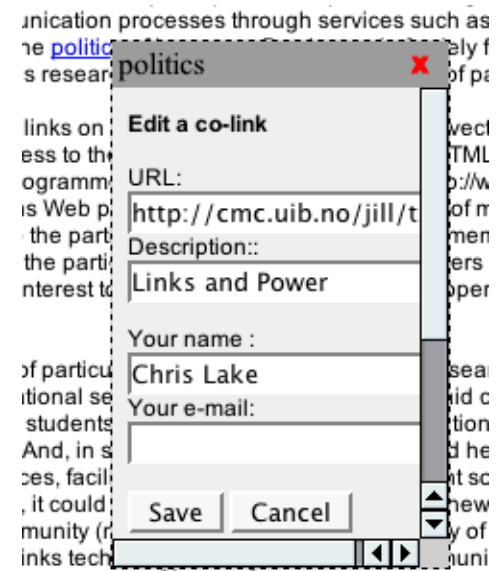


Figure 2: Editing a co-link

The process of creating a new link adds special tags to that word and updates the code while it is saved in the database. These tags are written in this format: `<link id="identification"> word </link>`,

“identification” being a unique number generated by the PHP system. Co-links have individual entries in the database and are related to the identification tags of the links they are associated with. Each co-link is saved with information (name and e-mail) about the person that created it, a brief description about that destination, and data about the date and hour of the co-links creation and last modification.

In the visualization mode, after a link is clicked, a small menu opens at the side of that word with a list of directions (co-links) and an option to add a new co-link. Thus, clicking on a link does not discharge the automatic loading of a specified page. Instead, a menu of one or more associated readings is presented to the interactant, multiplying the navigational possibilities. While traditional links are still configured as unidirectional vectors, they can now become multidirectional with co-links technology. In other words, many directions can be chosen from the same link.

If the user clicks “add new co-link” option, in the co-links menu, the interactant is prompted to inform a URL, its description, his name and e-mail address. After these information are saved, the new destination inserted will be shown as an option in the co-links menu (at the end of the list), the next time the same link is selected. The name and e-mail of that collaborator can be known by clicking on the magnifying glass icon, beside the co-link description. Clicking the same icon, one can edit all the available information or even delete a co-link (this last option could be useful to eliminate co-links that are understood as not being contextualized, pertinent or that are offensive).

#### **POSSIBLE IMPACTS OF THE ADOPTION OF CO-LINKS TECHNOLOGY**

The co-links technology could contribute for what Landow [5] calls the blurring of the frontier between reader and writer in Web. The author’s power would be shared with the page visitors, as an invitation to collaboration. Taking this for granted, and considering Johnson’s [3] argument that hypertext follows a centrifugal path — pushing readers away—, it could be now pointed that co-links technology could stimulate a **centripetal movement**, attracting the collective inclusion of new pointers.

It is supposed that this system could be of particular interest to educational and research projects and to the so-called virtual communities. In educational settings co-links could be used to aid cooperative processes called by Johnson-Eilola [4] as “writing with fragments”. This methodology could contribute to stimulate students to research and register information found on Web — thus promoting group activity and collective writing. And, in scientific processes, co-links could help research groups to produce a document with various digital references, facilitating the organization of relevant sources.

Furthermore, when the final draft is published on the Web, it could be opened to the public include new references, motivating the continuation of the study among that community (maintaining, however, the integrity of the article published elsewhere). Moreover, a future inclusion of co-links technology in blogs and virtual community sites, for example, could benefit other groups as new suggestions of trails on their shared interests were offered by their peers. This could call for even more participation of those group members (which already happen in commentary windows in blogs).

#### **CONCLUSIONS AND FUTURE WORK**

After a reflection about the politics of links, this paper introduced the Co-link technology. This system aims to allow any Web surfer to create, modify and remove new links, possibly turning a word of the text into a multidirectional link. With the adoption of this technology, a hypertext may record the creative and associative links made by the visitors during their reading. Co-link technology could thus contribute for the social construction of knowledge and the production of a collective digital memory.

Finally, it is important to report that this technology is being tested by two groups of students of Communications in Brazil: the first group, established at UFRGS in Porto Alegre/RS, is coordinated by Dr. Alex Primo, and the second one is coordinated by professor Raquel Recuero, in UCPel, Pelotas/RS. Both groups are writing a single document on cyberculture, using a blog, a Wiki document and a discussion list. In the last phase of this project, students will create links and co-links to other related pages on the Web. The objective is to check how co-links technology can be used in educational and research settings. The results of this experiment will be reported in the near future

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