

THE DISCURSIVE ROLE OF HYPERLINKS ON SOCIAL MEDIA

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Abstract. The present paper investigates the different roles of hyperlinks on the social media platform X. While hyperlinks were recently defined as markers of information source or simple tools for information sharing, we present a corpus-based empirical study in French and English, which provides a more nuanced view on the functions of hyperlinks on X. We propose a new classification of hyperlink functions which includes source, illustration, referent anchor, jussive justification, humorous implicature, and prospeech gesture. Building on this new typology, we propose an empirical study on the optionality (whether it is main or a side discourse contribution) of the hyperlink, and we formalize our findings in gradual common ground theory framework. We argue that the optionality of a hyperlink does not depend on the type of content conveyed, nor on its type of relationships with the associated written speech, but rather on the type of epistemic profile of the future addressee reading the tweet.

Keywords: hyperlinks, social media, evidentiality, common ground, superlinguistics.

1. INTRODUCTION

Our analysis of the social media platform X reveals a striking empirical fact: the vast majority of tweets, both in English and in French, include at least one hyperlink. Most of these tweets have the following pattern:

- (1) It's crazy thick smoke outside. Not sure a family run is in our future this am.
<https://t.co/vZ3lfnSneb>².

This suggests that the inclusion of digital references is not a marginal feature on X. On the contrary, it appears to be systematic. Defined as conduits to external resources, e.g., news articles, videos, posts from other users, hyperlinks have drawn little interest in the fields of natural language processing (NLP), semantics, and superlinguistics. In this narrow literature, hyperlinks were defined as evidential markers, i.e., as indicators of the source of information presented in the associated text (see Boscaro, Giannakidou, Mari and Tinarrage 2024a,b, Boscaro, Giannakidou and Mari 2025) or as co-speech pointing gestures (see Kuhn and Lorin 2020, 2021).

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² The hyperlink destination is another user's tweet commenting a news media post.

While example (1) does illustrate a hyperlink acting as a reported evidential (for the notion of reported evidential, see a.o. Willett 1988, Aikenveld 2004), we argue that this evidential interpretation is not sufficient to capture the complexity of hyperlinks. Hyperlinks in online discourse serve a wider range of functions, which are shaped by the specific constraints of digital environments. In addition to marking sources, hyperlinks behave as discourse anchoring devices, e.g., disambiguating referents, establishing felicity conditions for jussive statements (such as orders, suggestions, see *infra*), and illustrating different types of entities introduced within the text. They also contribute to the discourse primarily by asserting information independent of the textual content associated with it.

Therefore, hyperlinks have two roles: (i) a discourse anchoring device, as they provide side contextual information that would otherwise remain implicit or ambiguous due to the asynchronous and multilogue nature of online discourse, and (ii) an assertive role, as they provide new foreground information, that stands apart from the tweet's textual content. Despite this distinction, we claim that, in both cases – by providing side contextual information or by asserting, thereby offering new information to the discourse – the information conveyed by the hyperlink is likely to be new and crucial for interpretation, particularly in preventing conversational breakdowns.

This paper addresses two central questions: What are the functions of hyperlinks in online interaction? What is their discursive status: do they contribute to the primary content, or act as side information?

We argue that the structural features of online interaction – asynchronicity, spatial decontextualization, multilogue, and the relative unfamiliarity between users – challenge previous accounts of hyperlinks. We suggest that hyperlinks function mostly as a discourse anchoring devices, as they anchor the text to contextual parameters. Indeed, they provide external information to clarify, justify, or extend the textual content. Furthermore, they can also sometimes assert independent propositions. We propose that the necessity or optionality (whether the addressee needs to click on it or not) of these anchoring hyperlinks does not depend on the aforementioned distinction, which appears to be too limited to encapsulate hyperlink discourse dynamics, but instead depends on the epistemic profile of the future addressee.

To address these questions, the paper is organized as follows. In Section 1, we review two recent studies on hyperlink analysis: (i) the evidential view, which treats hyperlinks as indicators of the source of the information conveyed in the text (an approach we supported in previous work, Boscaro, Giannakidou, Mari and Tinarrage 2024a,b, Boscaro, Giannakidou and Mari 2025), and (ii) the gestural view, which compares hyperlinks to deixis or pointing gestures as defended by Kuhn and Lorin 2020, 2021). In Section 2, we propose a more fine-grained account of hyperlink functions based on our corpus analysis of tweets concerning ecological crises in French and English. We introduce a descriptive classification of the uses of hyperlinks, followed by a statistical analysis. Finally, in Section 3, we turn to the discursive status of hyperlinks, situating our discussion within the superlinguistic literature. With the support of a questionnaire, we examine the optional status of hyperlinks in online discourse: are they required for interpretation, or are they supplementary? We argue for a gradual model of optionality, dependent on the epistemic profile of the future reader. In particular, we suggest that whether a hyperlink is treated as essential or optional hinges on the type of future addressee that might engage with the tweet, and for which we distinguish three potential epistemic profiles.

2. BACKGROUND: PREVIOUS ACCOUNTS OF HYPERLINKS

This section provides an overview of the limited but growing body of research that considers the hyperlink to be a linguistic object. While hyperlinks were initially studied in the field of Natural Language Processing (NLP) (see a.o., Conklin 1987, Nielsen 1990, Mihalcea and Csomai 2007) – primarily as digital tools for information sharing, they have more recently attracted attention in superlinguistic theories (see a.o., Kuhn and Lorin 2020, 2021) where they are defined either as an extralinguistic evidential marker or as a form of digital co-speech gesture.

2.1. Hyperlinks as extralinguistic evidential markers

In evidential studies, evidentiality refers to the marking of the source of information and of its type³. In evidential languages, such marking is obligatory and encoded grammatically. For example, in Cuzco Quechua, speakers must indicate whether a statement is based on a direct observation or an indirect report. The following example (from Garrett 2001: 14) illustrates a direct evidential:

- (2) Kho phyin-song
he go-[**dir** **past**]
'He left.' [eg. I saw him]

It has been acknowledged in this strand of research that evidential systems grammatically distinguish between *direct* source (firsthand information) and *indirect* source (secondhand or thirdhand information). Conversely, languages like English and French, classified as non-evidential, do not require the speaker to mark the source of information by grammatical means; they still allow for evidential strategies (Aikhenvald 2004, 2018) such as, e.g., reported speech, epistemic modals, perceptual verbs which can signal information source and type, without being grammatically mandatory. In non-evidential languages, an assertion in which the information source is not indicated (as in (3)) is as acceptable grammatically and pragmatically as the one where the information source is marked, as in (4):

- (3) Il pleut dehors (*It is raining outside*)
(4) Il pleut dehors, **je l'ai entendu** à la radio ce matin. (*It is raining outside, I heard it on the radio this morning*).

However, recent studies have argued that on social media platforms – particularly on X – the use of extralinguistic elements, such as, e.g., hyperlinks, images, videos, hashtags, and mentions @, introduces new evidential dynamics for non-evidential languages. Boscaro, Giannakidou, Mari and Tinarrage (2024a,b) observe that a majority of tweets

³ It would be impossible to cite the voluminous literature here. To mention just a few among many others: Chafe and Nichols 1986, Willett 1988, Nuys 2001a, 2001b, De Haan 1999, 2001, Garrett 2001, Faller 2002, Aikhenvald 2004, 2018, Squartini 2004, Matthewson *et al.* 2007, Speas 2008, Matthewson 2010, Murray 2010, 2017, Smirnova 2013, McCready 2015.

include at least one hyperlink that fulfills a role similar to that of an evidential (see *infra* for a detailed statistical analysis of the omnipresence of hyperlinks in our study, see Table 1). The authors analyze the role of hyperlinks in relation to the production of assertions and observe that hyperlinks act as a form of evidentiality, providing external justifications for the asserted proposition, whether drawn from firsthand data (e.g., a photo taken by the speaker as in (5)) or secondhand sources (e.g., a link to a news article, a shared picture as in (6)). This evidential behavior is echoed in other studies (Kuhn and Lorin 2020, 2021; Zahra *et al.*, 2020), which show that hyperlinks can relay reported eyewitness testimony.

- (5) Notre Dame en feu #feunotredame #notredame #paris pic.twitter.com/eSiCJ5WW6s
- (6) Effondrement d'un immeuble à Sanary-sur-Mer: le difficile travail des pompiers pour retrouver les disparus <https://t.co/GNBnPhB1yf>

However, while hyperlinks can function as an evidential marker, they are not confined to this role, and some other linguistic analyses add complexity to the role of hyperlinks. The next subsection introduces an alternative framework that expands their analytical scope to gesture.

2.2. Hyperlinks as digital gestures

Another line of research initiated by Kuhn and Lorin (2020, 2021) situates hyperlinks within the broader domain of superlinguistics (see a.o. Patel-Grosz *et al.* 2023) – the study of meaning that goes beyond traditional spoken or written language, incorporating gesture, pictures, or other multimodal resources akin to hyperlinks. Within this framework, Kuhn and Lorin (2020, 2021), but also in another analysis, Gawne (2021)⁴ treat hyperlinks as a type of co-speech gesture, and more specifically as digital analogues of pointing co-speech gestures. From this perspective, just as a speaker might point toward a referent while saying, “my neighbor has [a swimming pool]” (as in (7), extracted from Ebert 2024), by using a hyperlink, a speaker is redirecting the reader toward relevant content (as in (8), extracted from Kuhn and Lorin 2020).

- (7) Co-speech pointing gesture
My neighbor has [a swimming pool].
POINTING-to-pool
- (8) Scientists recently showed that regular cardiovascular exercise may improve mental health later in life.⁵

Hyperlinks, like gestures, can enrich the discourse without their conveyed content being explicitly asserted. They are treated by default as non-at-issue content-contributing information that is supplementary, backgrounded, and not relevant for the resolution of the

⁴ This reference is a blog post, <https://www.superlinguo.com/post/643129872157491200/the-linguistics-of-hyperlinks>, last consulted on June 17th 2025.

⁵ The hyperlink in this example redirects the reader to a blog article mentioning regular cardiovascular exercises that can be accomplished easily at home. Note that the hyperlinks analyzed by Kuhn and Lorin (2020, 2021) are different from the ones we analyze in our study.

Question under discussion, unless marked otherwise (on the non-at-issueness of gestures see Ebert and Ebert 2014, Schlenker 2018, Ebert 2024; on the non-at-issueness of pictures see Esipova 2021). The at-issue contribution generally introduces new, asserted, contextually unestablished information, while the non-at-issue contribution is silently integrated into the conversational context or reiterates some prior established content (Potts 2007, 2015, Tonhauser 2012, Simons *et al.* 2013, AnderBois *et al.* 2015, Murray 2017). It has been claimed however, that co-speech gestures and a hyperlink's discursive status can shift: when paired with a demonstrative, they may enter the foreground information, becoming central for the Question under discussion (QUD) (Ginzburg 1996, Roberts 2012) resolution (see Kuhn and Lorin 2020).

Moreover, Kuhn and Lorin (2020) propose that hyperlinks – akin to rhetorical discourse relations (Lascarides and Stone 2009) – can be classified according to how they interact with the surrounding text (see Table 1 below for the typology of relationships offered in Kuhn and Lorin 2020, 2021). The relationship between extralinguistic elements and their associated speech (oral speech or written speech) has been described in different ways within superlinguistics (for images see a.o., Nikolajeva and Scott 2013, Esipova 2021; for gestures see a.o., Ebert and Ebert 2014, Ebert 2024, Schlenker 2018; for hyperlinks see Kuhn and Lorin 2020).

We propose to classify the existing into three main types, according to whether the relationship between speech and its associated extralinguistic elements is: (i) *sylleptic* (when the two elements are independent of each other and their contribution to the discourse is dissociated. The conveyed contents may even be contradictory); (ii) *symmetrical* (when the two elements are redundant and convey identical propositional content, but using two different media), and (iii) *complementary* or reinforcing (when the two using have an interdependent relationship and mutually enrich each other. Both elements cannot be understood separately; one element – often the speech content – is foregrounded and the other – often the extralinguistic content – is backgrounded).

Table 1

A first taxonomy of hyperlinks (as found in Kuhn and Lorin 2020, 2021)

Relations	Definition
Identity	Identity between text of the hyperlink underlined and the hyperlink destination.
Definition	The text conveyed by hyperlinks is the definition of the text underlined.
Evidence	The destination of the hyperlink provides evidence (i.e., proof, justification) for the proposition conveyed by the underlined text.

In sum, both the evidential and gestural approaches recognize the non-trivial contribution of hyperlinks to online discourse. However, these studies do not account for the full range of hyperlink behavior observed in contemporary social media communication. The next section introduces our empirical corpus-based study, and a new typology designed to address this gap.

3. EMPIRICAL SURVEY: HYPERLINKS ON X

3.1. Dataset

Our empirical study is based on two corpora ecological crisis tweets, one in French and one in English. The French corpus, comprising over 19,000 tweets, was originally collected by Kozlowski *et al.* (2020) and subsequently expanded by Bourgon *et al.* (2022). It encompasses tweets concerning ecological crises (wildfires, hurricanes, tornadoes, etc.) that occurred in France between 2017 and 2022. The English corpus contains over 4,000 tweets collected by Zahra *et al.* (2020), focusing on two ecological events (one wildfire and one hurricane) in Canada and the United States in 2017. Both datasets include rich metadata such as the number of likes and retweets for each tweet, as well as user statistics (followers, followings, likes). For our analysis, we randomly selected a sample of 2,000 tweets (1,000 from each corpus), which had previously been annotated for speech act type, following the taxonomy proposed by Laurenti *et al.* (2022a,b). This typology includes four categories, which may be seen in Table 2 below.

Table 2

A classification of speech acts on social media platform X (Laurenti *et al.*, 2022a,b)

Assertions	Proposal to add a propositional content p to the common ground (akin to Stalnaker 1978, 2002).
Subjectives	Expressions of opinions, beliefs, preferences and evaluations. Offer to add p and evaluation on p to the common ground.
Jussives	Orders, wishes, and messages leading to action.
Interrogatives	Information-seeking questions.

3.2. First statistical survey: Hyperlinks distribution on X

We conducted a primary statistical survey to examine the overall distribution of hyperlinks across our corpora and their relationships with speech act annotations. This analysis revealed two main findings.

First, a substantial proportion of tweets in both corpora contained at least one hyperlink. This confirms our initial observation that hyperlinks are not marginal but integral to the structure of online discourse on the social media platform X. Second, we observe a strong correlation between speech acts and hyperlink distribution. A chi-square test (χ^2 , $p < 0.001$) revealed a significant dependence between the type of speech act and the presence of a hyperlink. Specifically, hyperlinks were strongly correlated with *assertions*, which is to be expected if hyperlinks serve an evidential function (see Table 3). We also observed a strong correlation with *subjective statements*, which is more surprising, since conveying evaluation and opinion allows speakers to avoid relying on a specific

information source, unlike standard bare *assertions*. However, we also observed a notable correlation with *jussive statements*, suggesting that hyperlinks fulfill additional roles beyond source marking.

Table 3
Chi² test on the French and English corpora

Speech acts	Hyperlinks	No hyperlinks
Assertion	1347.60	549.40
Subjective	497.98	203.02
Interrogative	72.46	29.54
Jussive	331.04	134.96

These results point toward a functional diversity in hyperlink usage that exceeds the traditional view of hyperlinks and corroborates the original claim that evidential and gestural accounts of hyperlinks do not fully capture hyperlink uses on X.

3.3. Hyperlink classification on social media

Building on classifications already proposed in superlinguistics for pictures, gestures, and, more recently, hyperlinks (see Table 1), we have developed our new classification of hyperlinks on social networks (see Table 4). This classification is non-exhaustive and accounts for the complexity of roles fulfilled by hyperlinks on social networks, which function at several levels of discourse (in relation to the felicity conditions of speech acts, the specification of indexical expressions, the illustration of an associated text, etc.). In this subsection, we describe our classification in detail and propose examples for each category.

Table 4
A classification of hyperlinks on X

Hyperlink functions	Description
Source	The destination of the hyperlink is the source of the information conveyed in the associated text.
Illustration	The destination of the hyperlink is an image that illustrates the associated text. It can be a focal illustration, a source illustration, or a generic illustration.
Referent anchor	The destination of the hyperlink is, e.g., a picture, a news media article, another user's post that specifies an otherwise unspecified referent introduced in the associated text through the use of a referential expression, e.g., demonstratives, definite descriptions.

Hyperlink functions	Description
Justification	The destination of the hyperlink is an image, an article, or a video that justifies an injunction/order.
Humorous implicature	The destination of the hyperlink provides a digital reference that seems contradictory to the text in the tweets, enhancing a humorous effect connected to a discourse implicature.
Prospech	The destination of the hyperlink behaves like a prospeech gesture and constitutes the main asserted content of the tweet.
Non readable	This category of hyperlinks has been elaborated for hyperlinks that are no longer available because the content has been deleted.
Other	When the destination of the hyperlink does not seem to fit in any of the previous categories.

3.3.1. Source

A hyperlink belongs to this category when the destination of the hyperlink is the source of the information conveyed in the associated text, as mentioned in section 2.1 (see Boscaro, Giannakidou, Mari and Tinarrage 2024a,b, Boscaro, Giannakidou and Mari 2025), where we identified hyperlinks as a form of evidence. Hyperlinks can indicate three types of information source: *direct* (as in (5)), *indirect* (as in (6)), *inference* evidence (for an analysis of inference as an evidential category see a.o. Willett 1988, Aikhenevald 2004, 2018), when the hyperlink constitutes the piece of visual evidence supporting the inference made in the associated text (see example (10)).

- (10) It looks like the roof is burning around Notre-Dame's spire. Hard to confirm from here. #NotreDame #feunotredame

3.3.2. Illustration

This category applies when the destination of the hyperlink is an image (a photograph, a drawing, GIF) that illustrates an element introduced in the text. We identify three types of illustration: *focal* (when the hyperlink illustrates an individual introduced within the associated text, such as Notre Dame in (12)), *generic* (when the hyperlink destination is a GIF illustrating a kind of event such as a road on fire, and is associated to text describing a specific event such as the California wildfire in (11)), *source* (when the picture associated to the text constitutes the piece of evidence for the associated textual content as in (5)).

- (11) Two more deaths reported in Sonoma County brings death toll to 17 as wildfires ravage Northern California...-reports <https://x.com/i/web/status/917947001718927361>
 (12) Notre Dame de Paris burning, it's not a place of worship burning, it's a place steeped in history #NotreDame pic.twitter.com/G6euuyIPKJ.

3.3.3. *Referent anchor*

This category applies to cases in which the destination of the hyperlink is, e.g., a picture, a news media article, another user's post, or a picture that specifies an otherwise unspecified referent introduced in the associated text through a referential expression, such as a demonstrative. In (13), the demonstrative "this" introduces a referent that remains ambiguous if we consider the tweet alone. By clicking on the hyperlink, the addressee can retrieve the referent, which is the (October 2017) California wildfire.

- (13) I can't even believe **this** is happening. What a nightmare. <https://t.co/NFIm9hyCKV>.

3.3.4. *Justification*

This category was created as result of the surprising correlation we observed in our corpus between jussive statements (see Table 3) and hyperlinks⁶. The hyperlink associated with the jussive cannot be accounted as a source (as *source* category above), and the textual content in most cases does not possess an underspecified referent (see example (14)). We consider that in these cases, the destination of the hyperlink associated with the text is an image, an article, or a video that justifies an injunction/order (see example (14), (15))⁷.

- (14) Be aware of the potential smelling smoke this morning across northern Iowa. #iawx <https://t.co/ApGgq8632o>
 (15) Keep DONATING!! <https://t.co/oUIGeY1zQD>

We consider that the justification of jussive statements can be either what motivated the speaker to produce such statements (such as a warning, see example (14)), or what allows the addressee to successfully undertake the task that they have been encouraged to do in the tweet (as in example (15)).

3.3.5. *Humorous implicature*

We consider, following Lascarides and Stone (2009), that even if two types of content conveyed within the same tweet seem to be unrelated (as in example (16)), in virtue of the coherence maxim (conversational participants are rational and cooperative, and their contribution must be interpreted as fulfilling a coherence structure) they convey a unified propositional content. In this category, the destination of the hyperlink provides a picture or a text that seems contradictory to the text in the tweets, enhancing a humorous effect connected to a discourse implicature that can later on be cancelled by the speaker or the addressee.

- (16) Au faite. Quoi de neuf à Marseille: https://twitter.com/i24NEWS_FR/status/1060453781475876864
 By the way. What's new in Marseille: https://twitter.com/i24NEWS_FR/status/1060453781475876864

⁶ The correlation between imperatives and evidentiality has already been widely analyzed in standard evidential literature (among other Aikenvaard 2010, Anderbois 2017). Nonetheless, we argue that in online discourse these analyses are too limited as it considers the evidential to be only some reported speech. In our framework, we consider hyperlink function to go beyond mere source marking when it is associated with jussive statement.

⁷ We intend to spell out this association. Imperatives have indeed been analyzed as being bound to context (Kaufmann 2011) and their production in asynchronous and delocalized communication raises questions.

3.3.6. *Prospeech*

Finally, if all the hyperlinks that we analyzed thus far seem to behave similarly to co-speech gestures (as already pointed out by Kuhn and Lorin 2020, 2021), we also observe that some hyperlinks seem to act as prospeech gestures by conveying information that is foregrounded and asserted. For an example of a prospeech gesture, see (17) (extracted from Ebert 2024).

- (17) Prospeech gesture
 My neighbor has a [].
 POINTING-TO-A-POOL

The destination of the hyperlink behaves like a prospeech gesture, and the element conveyed is part of the main asserted content (as in (18)).

- (18) I'll be tuning in to listen to <https://www.cbc.ca/radio>

3.3.6. *Other*

When the destination of the hyperlink does not seem to fit in any of the above-mentioned categories.

- (19) No thanks <https://t.co/5jQWxc8GkZ>.

The categories are neither exclusive nor exhaustive. In (19), the speaker is reacting to a news media (*The Associated Press*) post quoting the president of the United States. The content of the text is a direct reply to the content conveyed by the hyperlink.

3.4. Distribution of hyperlink categories

For the annotation process, two annotators were hired, both are students in linguistics (one MA student and one PhD student), and speak English and French fluently (achieving a Cohen kappa $\kappa = 0.7$). After some test runs of the annotation process ($\kappa = 0.5$ for the first 100 tweets annotated), the two annotators set up annotation guidelines.

We elaborated a statistical distribution survey of our classification of hyperlinks from the two corpora and found that both were extremely unbalanced, with a majority of tweets annotated falling under the Source category in both corpora. Nonetheless, we also found that in the English corpus, a significant part of annotated tweets had hyperlinks classified as referent-anchor, a category that was found to be relevant also in the French corpus (for a more detailed view on the statistical results, see Figure 1 and Figure 2). Our statistical findings reveal that even if a majority of hyperlinks can be analyzed as source marking, an important sample of these also fulfill additional functions.

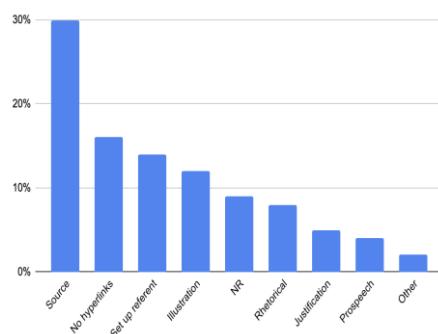
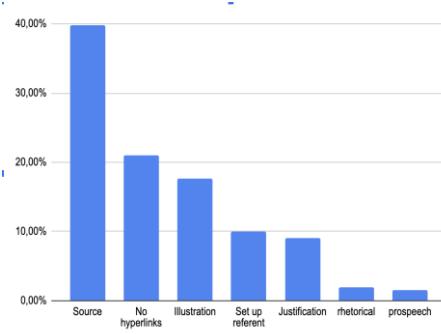


Fig. 1. Distribution of hyperlink types (EN).

Fig. 2. Distribution of hyperlink types (FR)⁸.

In the next section, we propose a first unified analysis of the discourse contribution of hyperlinks, by formalizing and describing its general discursive effects. We connect this to the new features of online discourse, e.g., asynchronicity, delocalization, communication from a multilogue to a mass audience. We propose that hyperlinks can convey both optional and necessary information; which of these functions it operates does not depend on the type of information conveyed, but on the amount of shared knowledge between the potential future addressee and the speaker posting the tweet. We consider that the optionality of the hyperlink is gradable depending on the epistemic profile of the future addressee.

4. DISCUSSION: OPTIONALITY AND HYPERLINK STATUS ON X

Our empirical survey on X reveals that hyperlinks fulfill different functions in online discourse. Concerning the interaction with written speech, a hyperlink might convey both *side information* (behaving as a co-speech gesture) but also *primary information* for QUD resolution when being asserted (behaving as a prospeech gesture). In superlinguistics, this distinction patterns with the standard between at-issue content (i.e., asserted content playing a primary role for QUD resolution) and non-at-issue content (i.e., side information that plays a secondary role for QUD resolution). At the discourse level, hyperlinks would therefore play a primary role in common ground augmentation only when conveying at-issue content (especially by behaving as a prospeech gesture), and a secondary role when conveying non-at-issue content (while behaving as a co-speech gesture). Furthermore, as hyperlinks seem to behave mostly as co-speech gestures (see Kuhn and Lorin 2020, 2021) while providing side information (see Table 4), in this framework we should analyze them as essentially having a backgrounded contribution to the discourse.

Nonetheless, we suggest that even if this distinction between at-issue and non-at-issue contributions is pertinent within our framework, we consider it too limited to capture the hyperlink discourse contributions and their role in a context of asynchronous, non-face-

⁸ Note that the “rhetorical” label corresponds to the humorous implicature category.

to-face, and multilogue communication. We propose that a better framework would distinguish between *optional* and *non-optional* hyperlinks, which can reflect the perceived need for a future addressee to click on them, thereby indicating the primary or secondary status of the information conveyed by the hyperlink from the future addressee's perspective. In this framework, due to the features of *X* and notably the one of context collapse (for this notion see a.o., Wesch 2009, Vitak 2012, Davis and Jurgenson 2014), some side information should be interpreted as necessary (i.e., non-optional).

In practice, it has been observed that users often treat hyperlinks as optional (e.g., Fang *et al.* 2021). We conducted an empirical study to analyze whether this claim would still be true in online interaction regardless of hyperlink type. In this framework, a hyperlink could convey new information for the addressee, no matter if it is presented as side information or as a part of the conversational context. These contextual elements are necessary (*not optional*) for future addressees, even though they are traditionally encompassed under the notions of side information and background knowledge in superlinguistics.

To test whether perceived optionality correlates with a hyperlink's function and the type of information it introduces, we conducted a questionnaire on Google Forms involving 20 participants (who were randomly selected as they respond to a post on an online forum) and 20 tweets, each accompanied by a hyperlink. We found that each hyperlink had different functions. We asked participants whether they clicked on the hyperlink, and they had two possible answers: "Yes" or "No". The tweets were about a recently unfolding political event,⁹ unfamiliar to all participants. This latter information was verified through a preliminary test question: "Do you know anything about the Bellatar scandal that happened today?". Additionally, accompanying the Google Form questionnaire, participants received a small paragraph explaining that they had to fully understand all the content that they would be given to read.

We found no significant correlation between the type of hyperlink and the likelihood of it being clicked (see Figure 3). Even hyperlinks classified as prospeech were mostly treated as optional. Additionally, we observed a decline in click rate over the course of the questionnaire (see Figure 4).

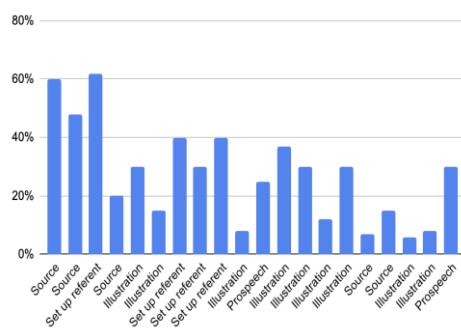


Fig. 3. Click distribution by hyperlink type.

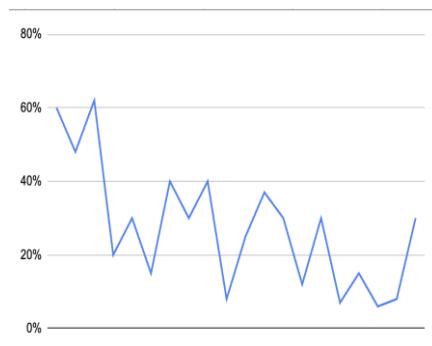


Fig. 4. Clicking evolution.

⁹ A political scandal involving the presence of the actor Yassine Bellatar in an official presidential picture, <https://www.20minutes.fr/arts-stars/culture/4118547-20241029-emmanuel-macron-maroc-yassine-bellatar-humoriste-pris-polemique>, last accessed on June 20th 2025.

Our findings suggest that users typically do not engage with hyperlinks, and that this is the case regardless of their discourse function (if they convey side information, behaving as co-speech gestures, or if they convey primary asserted content, behaving as prospeech gestures). Additionally, we also noted that there is no correlation between the willingness to click and the type of information conveyed by the hyperlink (i.e., hyperlink type, see Table 4 and Figure 3).

Crucially, we observed that participants were more willing to click on the hyperlinks at the beginning of the questionnaire (see Figure 4), particularly for hyperlinks categorized as referent-anchor and Source (see Figure 3). We consider that the beginning of the questionnaire would correspond to the initial stage of a conversation in online discourses. This suggests that, at least initially – due to context collapse and more broadly the different features of online conversations – future addressees are more likely to click on hyperlinks since they mostly provide discourse anchoring and essential side information that allow the addressee to avoid a conversational breakdown. Nonetheless, the more the future addressee is engaged in the QUD resolution by reading different tweets on the same topic shared by different speakers online, the more likely it is that hyperlinks appear as optional content for the addressee for QUD resolution.

We argue that hyperlink optionality and their discursive role must be modeled in relation to a notion of common ground – the presumed shared knowledge between a speaker and her addressee, due to previous acquaintance and interaction (see a.o. Stalnaker 2002, Farkas and Bruce 2010, Krifka 2015, Geurts 2018, 2019, 2024, Yalcin 2024). We suggest that this common ground is gradable according to the epistemic status of the future addressee that will read the tweet. A hyperlink has varying degrees of importance which depend on the type of addressee that will encounter it.

In this conversational setup, by default, there would be no *local common ground* is available. This type of common ground requires familiarity between the conversational participants, and only minimal *public common ground* (a body of information presumed to be shared between social media users, such as general knowledge, and widely popular (published) information related to the topic under discussion).

Hyperlinks in this initial stage of conversation, even when providing side and contextual information, would appear to be non-optional. In a further stage of conversation – which in our questionnaire corresponds to the sixth or seventh tweet read by our conversational participants – the future addressees possess *public common ground* (having read various messages on the same topic) and seem to consider the hyperlinks to be progressively more optional. Finally, in the final stage of the conversation – corresponding to the end of our questionnaire – the addressees possess a further extended *public common ground* and they stop clicking on hyperlinks as they consider them as totally optional, regardless of their type, and even if this hyperlink behaves as a prospeech gesture (see Figure 3).

We propose that these three stages of conversation can be modeled in a typology of addressee's epistemic profile:

1. **Targeted addressee:** A user explicitly addressed by the speaker, with whom both local common ground (built through prior exchanges) and public common ground are presumed. For such users, most hyperlinks are likely to be treated as optional.
2. **Lateral or passing addressee:** A user who follows the conversation without being explicitly involved, as she has access to a few samples of tweets on the same topic

and follows the speaker who posted the tweet. Similar to Schober and Clark's (1989) *overhearer*, this addressee has limited local common ground – as she is not directly engaged in the conversation with the speaker – but also limited public common ground (especially on this topic) and may treat most hyperlinks as non-optional.

3. **External addressee:** A user with no access to the conversation or thematic context, representing the majority of casual readers in online discourses (a reader that might have encountered these tweets randomly in her feed, or a reader that clicked on the “For you” or “Tendencies’ tweets” suggestions). For these users, no hyperlink, at the initial stage of the conversation, is truly optional if the goal is to fully interpret the tweet and avoid conversational breakdowns.

We consider that our survey captures the distinction between the two last epistemic profile types (lateral or external addressee). From this perspective, hyperlink optionality is less about the at-issue/non-at-issue dichotomy and more about the epistemic profile of the future reader. Contrary to classic assumptions, our findings show that whether or not hyperlink content is treated as optional depends not on its intrinsic status, but on the informational needs of the reader. Finally, this reconceptualization allows us to view optionality not as a stable property of the hyperlink itself, but rather as a dynamic feature indexed to the evolving structure of common ground and to the informational positioning of the addressee.

5. CONCLUSION

In this paper we study the discursive contribution of hyperlinks on the social media platform X. While hyperlinks have traditionally been analyzed as gestures or evidentials, contributing optionally to the discourse, we suggest that this optionality is gradual and depends on the profile of a future addressee reading the post on their feed.

We offer a new typology of hyperlinks in online discourses, revealing their complexity and their different types of contributions as sources, illustrations, referent anchors, jussive justifications, humorous implicatures, and prospeech. We suggest that analyzing them according to the standard distinction applied in the superlinguistic framework, between an at-issue/non-at-issue discourse contributions, is too limited. Indeed, the hyperlink discourse contribution and their optionality depends on the amount of shared knowledge between the speaker and her addressee, shared knowledge that is constantly redefined due to the asynchronous, non-face-to-face nature of online communication. Future addressees might consider a hyperlink optional if they possess sufficient background knowledge to interpret the tweet, whereas they might instead consider it essential to avoid a conversational breakdown if they do not possess any background knowledge on the topic debated online.

Our paper has four contributions: First, we provide a new classification of hyperlinks in online discourse. Second, we conduct a first statistical survey of the distribution of hyperlink types on social media and their correlation with speech act types. Third, we present the results of a first empirical survey on the optionality of hyperlinks in online discourses. Finally, we provide an analysis of the discourse contribution of hyperlinks and their optionality relative to the type of future addressee. We framed this discussion within the common ground framework.

REFERENCES

- Aikhenvald, A. Y., 2004, *Evidentiality*, Oxford, Oxford University Press.
- Aikhenvald, A. Y. (ed.), 2018, *The Oxford Handbook of Evidentiality*, Oxford, Oxford University Press.
- AnderBois, S., A. Brasoveanu, R. Henderson, 2015, “At-issue proposals and appositive impositions in discourse”, *Journal of Semantics*, 32, 1, 93–138.
- Boscaro, M., A. Giannakidou, and A. Mari, 2025, “Evidence type and trustworthiness: The view from social media”, in: S. Rodriguez Rosique, J.M. Antoli Martinez (eds), *The Grammar of Interaction. Epistemicity, Information Management and Discourse in Language*, Amsterdam, John Benjamins.
- Boscaro, M., A. Giannakidou, A. Mari, V. Tinarrage, 2024a, “Cooperative norms for assertions and conversational grounding in X”, in: *Conversational Grounding in the Era of LLMs Workshop Booklet*, 18–23. <https://articulab.hcii.cs.cmu.edu/wordpress/wp-content/uploads/2024/07/ESSLLI2024-Conversational-Grounding-workshop-booklet.pdf>
- Boscaro, M., A. Giannakidou, A. Mari, V. Tinarrage, 2024b, “Assertion, cooperativity and evidence on X”, in: *Proceedings of the 28th Workshop on the Semantics and Pragmatics of Dialogue. 11–12, 2024, Trento, Italy*. http://semodial.org/anthology/Z24-Boscaro_semdial_0040.pdf
- Bourgon, N., F. Benamara, A. Mari, V. Moriceau, G. Chevalier, L. Leygue, 2022, “Are sudden crises making me collapse? Measuring transfer learning performances on urgency detection”, in: R. Grace, H. Baharmand (eds.), *Proceedings of the 19th International Conference on Information Systems for Crisis Response and Management (ISCRAM 2022)*, Tarbes, 701–709. https://idl.isram.org/files/nilsbourgon/2022/2449_NilsBourgon_etal2022.pdf
- Chafe, W. L., J. Nichols (eds), 1986, *Evidentiality: The Linguistic Coding of Epistemology*, 20, Norwood, NJ, Ablex Publishing Corporation.
- Conklin, J., 1987, “Hypertext: An introduction and survey”, *Computer*, 20, 9, 17–41.
- Davis, J. L., N. Jurgenson, 2014, “Context collapse: Theorizing context collusions and collisions”, *Information, Communication & Society*, 17, 4, 476–485.
- Ebert, C., 2024, “Semantics of gesture”, *Annual Review of Linguistics*, 10, 1, 169–189.
- Ebert, C., C. Ebert, 2014, “Gestures, demonstratives, and the attributive/referential distinction”, presentation at *Semantics and Philosophy in Europe (SPE 7)*, Berlin, 28.
- Esipova, M., 2021, “On not-at-issueness in pictures”, *Glossa: A Journal of General Linguistics*, 6, 1, 83.
- Faller, M. T., 2002, *Semantics and Pragmatics of Evidentials in Cuzco Quechua*, PhD dissertation, Stanford University.
- Fang, Z., R. Costas, W. Tian, X. Wang, P. Wouters, 2021, “How is science clicked on Twitter? Click metrics for Bitly short links to scientific publications”, *Journal of the Association for Information Science and Technology*, 72, 7, 918–932.
- Farkas, D. F., K. B. Bruce, 2010, “On reacting to assertions and polar questions”, *Journal of Semantics*, 27, 1, 81–118.
- Garrett, E. J., 2001, *Evidentiality and Assertion in Tibetan*, PhD. Dissertation, University of California, Los Angeles.
- Gawne, L., 2021. *The linguistics of hyperlinks*. Superlinguo. <https://www.superlinguo.com/post/643129872157491200/the-linguistics-of-hyperlinks>. Last consulted on June 17th, 2025.
- Geurts, B., 2018, “Convention and common ground”, *Mind & Language*, 33, 2, 115–129.
- Geurts, B., 2019, “Communication as commitment sharing: Speech acts, implicatures, common ground”, *Theoretical Linguistics*, 45, 1–2, 1–30.
- Geurts, B., 2024, “Common ground in pragmatics”, in: E. N. Zalta, U. Nodelman (eds.), *Stanford Encyclopedia of Philosophy*, <https://plato.stanford.edu/archives/win2024/entries/common-ground-pragmatics>.

- Ginzburg, J., 1996, “Dynamics and the semantics of dialogue”, in: J. Seligman, D. Westerståhl (eds), *Logic, Language and Computation*, vol. 1, Stanford (Ca), CSLI, 221–237.
- De Haan, F., 1999, “Evidentiality and epistemic modality: Setting boundaries”, *Southwest Journal of Linguistics*, 18, 1, 83–101.
- De Haan, F., 2001, “The relation between modality and evidentiality”, *Linguistische Berichte*, 9, 1, 201–216.
- Kaufmann, M., 2011, *Interpreting Imperatives*, vol. 88, Dordrecht, Springer.
- Kozlowski, D., E. Lannelongue, F. Saudemont, F. Benamara, A. Mari, V. Moriceau, A. Boumadane, 2020, “A three-level classification of French tweets in ecological crises”, *Information Processing & Management*, 57, 5, 102284.
- Krifka, M., 2015, “Bias in commitment space semantics: Declarative questions, negated questions, and question tags”, *Semantics and Linguistic Theory*, 25, 328–345.
- Kuhn, J., L.-M. Lorin, 2020, “A superlinguistics of hyperlink ‘pointing’”, in: P.G. Grosz, L. Martí, H. Pearson, Y. Sudo, S. Zobel (eds), *Proceedings of Sinn und Bedeutung*, 25, 533–544. DOI: 10.18148/sub/2021.v25i0.952
- Kuhn, J., L.-M. Lorin, 2021, “Hyperlinkuistics”, unpublished draft, available at: <https://osf.io/bqr6f/>
- Lascarides, A., M. Stone, 2009, “Discourse coherence and gesture interpretation”, *Gesture*, 9, 2, 147–180.
- Laurenti, E., N. Bourgon, F. Benamara, A. Mari, V. Moriceau, C. Courgeon, 2022a, “Give me your intentions, I'll predict our actions: A two-level classification of speech acts for crisis management in social media”, in: N. Calzolari, F. Béchet, Ph. Blache, K. Choukri, C. Cieri, T. Declerck, S. Goggi, H. Isahara, B. Maegaard, J. Mariani, H. Mazo, J. Odijk, S. Piperidis (eds), *Proceedings of the 13th Conference on Language Resources and Evaluation (LREC 2022)*, Marseille, European Language Resources Association, 4333–4343.
- Laurenti, E., Bourgon, N., Benamara, F., Mari, A., Moriceau, V., Courgeon, C., 2022b, “Speech acts and communicative intentions for urgency detection”, in: V. Nastase, E. Pavlick, M. Taher Pilehvar, J. Camacho-Collados, A. Raganato (eds.), *Proceedings of the 11th Joint Conference on Lexical and Computational Semantics (SEM 2022)*, Seattle, Association for Computational Linguistics, 289–298.
- Matthewson, L., 2010, “Cross-linguistic variation in modality systems: The role of mood”, *Semantics and Pragmatics*, 3, 9–1.
- Matthewson, L., H. Davis, H. Rullmann, 2007, “Evidentials as epistemic modals: Evidence from St'át'imcets”, *Linguistic Variation Yearbook*, 7, 1, 201–254.
- McCready, E. S., 2015, *Reliability in Pragmatics*, vol. 4, Oxford, Oxford University Press.
- Mihalcea, R., A. Csomai, 2007, “Wikify! Linking documents to encyclopedic knowledge”, in: *Proceedings of the Sixteenth ACM Conference on Information and Knowledge Management*, New York, Association for Computing Machinery, 233–242. <https://doi.org/10.1145/1321440.1321475>
- Murray, S. E., 2010, *Evidentiality and the Structure of Speech Acts*, PhD. Dissertation, Rutgers University.
- Murray, S. E., 2017, *The Semantics of Evidentials*, vol. 9, Oxford, Oxford University Press.
- Nielsen, J., 1990, *Hypertext and Hypermedia*, San Diego, Academic Press Professional.
- Nikolajeva, M., C. Scott, 2013, *How Picture Books Work*, London, Routledge.
- Nuyts, J., 2001a, “Subjectivity as an evidential dimension in epistemic modal expressions”, *Journal of Pragmatics*, 33, 3, 383–400.
- Nuyts, J., 2001b, *Epistemic Modality, Language, and Conceptualization*, Amsterdam, John Benjamins.
- Patel-Grosz, P., S. Mascarenhas, E. Chemla, P. Schlenker, 2023, “Super Linguistics: An introduction”, *Linguistics and Philosophy*, 46, 4, 627–692.
- Potts, C., 2007, “The expressive dimension”, *Theoretical Linguistics*, 33, 2, 165–198.
- Potts, C., 2015, “Presupposition and implicature”, in: S. Lappin, C. Fox (eds), *The Handbook of Contemporary Semantic Theory*, Chichester, Wiley Blackwell, 168–202.

- Roberts, C., 2012, "Information structure: Towards an integrated formal theory of pragmatics", *Semantics and Pragmatics*, 5, 1–69. <https://doi.org/10.3765/sp.5.6>
- Schlenker, P., 2018, "Gesture projection and cosuppositions", *Linguistics and Philosophy*, 41, 3, 295–365.
- Schober, M. F., H. H. Clark, 1989, "Understanding by addressees and overhearers", *Cognitive Psychology*, 21, 2, 211–232.
- Simons, M., J. Tonhauser, D. Beaver, C. Roberts, 2010, "What projects and why", *Semantics and Linguistic Theory*, 20, 309–327.
- Smirnova, A., 2013, "Evidentiality in Bulgarian: Temporality, epistemic modality, and information source", *Journal of Semantics*, 30, 4, 479–532.
- Speas, P., 2008, "On the syntax and semantics of evidentials", *Language and Linguistics Compass*, 2, 5, 940–965.
- Stalnaker, R., 1978, "Assertion", in: P. Cole (ed.), *Syntax and Semantics 9: Pragmatics*, New York, Academic Press, 315–332.
- Stalnaker, R., 2002, "Common ground", *Linguistics and Philosophy*, 25, 5–6, 701–721.
- Squartini, M., 2004, "Disentangling evidentiality and epistemic modality in Romance", *Lingua*, 114, 7, 873–895.
- Tonhauser, J., 2012, "Diagnosing (not-) at-issue content", in: E. Bogal-Allbritten (ed.), *Proceedings of Semantics of Under-represented Languages of the Americas (SULA)*, Glsa Publications, 239–254.
- Vitak, J., 2012, "The impact of context collapse and privacy on social network site disclosures", *Journal of Broadcasting & Electronic Media*, 56, 4, 451–470.
- Wesch, M., 2009, "Youtube and you: Experiences of self-awareness in the context collapse of the recording webcam", *Explorations in Media Ecology*, 8, 2, 19–34.
- Willett, T., 1988, "A cross-linguistic survey of the grammaticalization of evidentiality", *Studies in Language*, 12, 1, 51–97.
- Yalcin, S., 2024, "Defining common ground", *Linguistics and Philosophy*, 47, 6, 1045–1070.
- Zahra, K., Imran, M., Ostermann, F. O., 2020, "Automatic identification of eyewitness messages on Twitter during disasters", *Information Processing & Management*, 57, 1, 102107, 1–15.

