The role of cognition and relevance in new digital narratives

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1. Relevance-oriented human cognition: Inference, effects, effort

Cyberpragmatics (Yus 2001, 2010, 2011a, 2013a) is a theoretical framework grounded in cognitive pragmatics (and specifically relevance theory) that aims to provide a cognitive explanation of how information is exchanged, processed and communicated on the Net, with special emphasis on the role of screen interfaces in the eventual relevance of virtual communication. Cyberpragmatics follows Sperber & Wilson’s (1995) relevance theory in assuming that human cognition is relevance-oriented, that is, it is geared to the maximisation of all the inputs that it processes. Since we cannot possibly pay attention to – let alone consciously process – all the barrage of information that reaches our minds from the outside world, humans have developed a cognitive heuristic that makes it possible to filter out what seems to be irrelevant and to focus only on what is bound to provide some informational reward to the individual. Crucially, many relevant interpretive outcomes depend on the combination of new in-coming information (from an utterance, an image, a video, a nonverbal behaviour, etc.) and already available (or highly accessible) information (e.g. contextual information) to yield new relevant conclusions, to the extent that these interpretive outcomes are only possible from this combination, and not from either of the sources (new and available information) taken separately. This is what happens with the relevant conclusion (3), which is only obtainable from combining (1) and (2) (Yus 2011a: 11-12), since there is nothing in the visual input that leads to that conclusion (3):
(1) New information (visual input):
A yellow Mercedes is parked near our Department.

(2) Information already available (from encyclopaedic knowledge):
   a. Professor Smith, who supervises my thesis, owns a yellow Mercedes.
   b. Professor Smith usually takes the bus to the university.
   c. Only when he intends to stay at university till late in the evening does he drive his car to university (since there are no late buses returning to where he lives).

(3) (Relevant) conclusion (inferred by combining (1) and (2)):
This evening I will be able to discuss with him at length how my thesis is progressing.

The cognitive tendency to the maximisation of relevance also guides the choice of utterances (the coding phase) and the choice of interpretations (the inferring phase) in verbal communication, both of which are guided by the following two conditions of relevance (Sperber and Wilson 1995: 265-266):

Condition a. An assumption is relevant to an individual to the extent that the positive cognitive effects achieved when it is optimally processed are large.

Condition b. An assumption is relevant to an individual to the extent that the effort required to achieve these positive cognitive effects is small.

Therefore, both when we select an utterance to communicate our thoughts (coding) and when we select an interpretation that probably matches the speaker's thoughts (inferring), we assess potential utterances/interpretations according to the best balance of conditions (a-b) above. An example of relevance-driven coding is provided in (4):

(4) Tom: Would you like a hamburger?
           b. I am a vegetarian.

In (4), Ann has many possible utterances to choose from as an answer to Tom's question; (a-b) are two of them. The first one is
a direct, straightforward answer that demands little processing effort, while the second is more demanding, since Tom has to access (from encyclopaedic knowledge) the information that vegetarians do not eat meat and derive – as an implicature – that Ann does not want the hamburger. However, even if more costly in cognitive resources, answer (b) is much more relevant than (a), because the extra mental effort is compensated for by an offset of interest (cognitive effects), in this case being given not only the refusal but also the reason for it.

The inferring phase (selecting interpretations) is also subject to relevance criteria. Again, and in a similar fashion to example (1-3) above, a crucial inferential strategy when obtaining interpretations is the combination of in-coming information from a coded stimulus (the utterance) and available contextual information to yield a relevant conclusion (an interpretation) only obtainable from this combination of sources of information. This is clearly illustrated in the conclusion (7), which can only be derived by combining Mary’s utterance in (5) and the contextual information to which Tom has access in (6):

(5) New information (verbal input by Mary):
Tom: Did you enjoy the film?
Mary: John was also at the cinema.

(6) Information already available (from encyclopaedic knowledge):
  a. Mary has just got divorced.
  b. Her ex is called John.
  c. She and her ex can’t stand each other.
  d. Whenever they meet they argue a lot.
  e. She ends up depressed every time she meets her ex.

(7) (Relevant) conclusion (inferred by combining (5) and (6)):
Mary didn’t enjoy the film.

Another example of inferring is provided in (8-9), this time illustrating a relevance-driven (but eventually incorrect) choice of an interpretation:
(8) John: Now, tell me, how's your girlfriend?
Mike: She's no longer my girlfriend.
John: Oh! I am really sorry... I really thought you got on very well with each other.
Mike: No! I mean... She is now my wife! We got married last month.
John: Oh! I see... Congratulations! I had no idea!

(9) a. His girlfriend has died.
   b. They have split up.
   c. They are now married.

In this particular dialogue, there is an incorrect choice of an interpretation for “she is no longer my girlfriend.” This utterance has a number of possible interpretations, all of them compatible with what Mike has coded, among them the ones listed in (9). Obviously, not all of these interpretations are equally likely to be selected as “the intended” interpretation, since they provide different balances of interest (cognitive effects) and mental effort, and John, following a relevance-oriented interpretive path, is certain to select the most relevant one in this context, which appears to be (9b). This interpretation ends up being incorrect, but John is not to blame for picking up this interpretation, since it is the most relevant and accessible one in this scenario (the most typical reason why a woman stops being a girlfriend is splitting up). It is Mike’s incorrect coding of his thoughts that led to a misunderstanding. Obviously, there is no guarantee that (9b) will invariably be the most relevant interpretation across all possible communicative contexts. Imagine, for instance, that part of the mutual information shared by John and Mike includes the fact that Mike’s girlfriend is suffering from terminal cancer. In this new scenario, (9a) will stand out as a more likely interpretation than (9b).

What about the interpretation of written (or typed) texts such as narratives? In theory, nothing changes in terms of what inferential strategies are followed in their interpretation. The human mind also looks for relevant interpretations of the narrative input, normally in a cumulative way, so that the chunk of text
which has already been processed becomes a preliminary context upon which new text is processed (Lemke 2002: 305). RT predicts a single heuristic for interpreting utterances and narratives, regardless of their format: a mutual parallel adjustment of explicit interpretations, the derivation of implicated conclusions, and accessing as much contextual information as necessary to obtain a relevant interpretive outcome. Hearers do not wait until the whole utterance or text is coded to determine its explicit and implicated interpretations, and readers do not wait until a whole paragraph has been read in order to obtain an interpretation. Instead, they identify the words of the initial stretch of the utterance (so-called logical form), access contextual information, extract explicit interpretations and derive implicatures from this stretch of the utterance, and then move on to the next chunk. Readers of narratives also apply inferential strategies to a stretch of discourse, whose interpretation then becomes a preliminary context for the interpretation of subsequent stretches. Although this is invariably applied to all kinds of narrative, several qualities of these narratives may have an important impact on the outcome of processing and eventual relevance of the interpretation (see below).

As in verbal face-to-face communication, there is no guarantee that each new textual input will add positively to the eventual relevance of the text being processed. Besides, as claimed in Yus (2011a: 63-65), specifically on the Internet it is possible to find surprising balances of cognitive effects and mental effort when the information is processed. As can be seen in Table 1, there are many possible combinations (and with different degrees in each case) of effects, effort and resulting relevance. In general, relevant outcomes of textual input occur when the processing of the content enlarges or combines positively with the user's cognitive environment (according to relevance theory, people construct different concepts and representations of the world, just as their personal experiences are different. This array of information is called "cognitive environment"). These eight cases are clearly applicable to the act of interpreting narratives on the Net.
Table 1. Possible combinations of cognitive effects, mental effort and resulting relevance.

<table>
<thead>
<tr>
<th>Case</th>
<th>Positive cognitive effects</th>
<th>Mental effort demanded</th>
<th>Eventual relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>High number</td>
<td>High</td>
<td>Positive to the user</td>
</tr>
<tr>
<td>2</td>
<td>High number</td>
<td>High</td>
<td>Negative to the user</td>
</tr>
<tr>
<td>3</td>
<td>High number</td>
<td>Low</td>
<td>Positive to the user</td>
</tr>
<tr>
<td>4</td>
<td>High number</td>
<td>Low</td>
<td>Negative to the user</td>
</tr>
<tr>
<td>5</td>
<td>Low number</td>
<td>High</td>
<td>Positive to the user</td>
</tr>
<tr>
<td>6</td>
<td>Low number</td>
<td>High</td>
<td>Negative to the user</td>
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<tr>
<td>7</td>
<td>Low number</td>
<td>Low</td>
<td>Positive to the user</td>
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<tr>
<td>8</td>
<td>Low number</td>
<td>Low</td>
<td>Negative to the user</td>
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- **Case 1. High number of cognitive effects, high mental effort, with positive relevance.** Sometimes the user who reads a piece of narrative will be willing to devote substantial cognitive resources in order to obtain the expected relevance of its content. Even if sometimes the reward is deferred and only found at the end of a long and complicated narrative, some users will readily devote substantial mental effort to that interpretive task.

- **Case 2. High number of cognitive effects, high mental effort, with negative relevance.** If the user spends a lot of effort in processing the content of the narrative with no offset in cognitive effects (for example because it does not combine effectively with the user's cognitive environment), the resulting relevance will be negative.

- **Case 3. High number of cognitive effects, low mental effort, with positive relevance.** This is a prototypical case as predicted by relevance theory: high number of effects when processing the narrative in exchange for little effort leading to positive relevance to the user.

- **Case 4. High number of cognitive effects, low mental effort, with negative relevance.** This case occurs when the user easily processes a lot of the information contained in the narrative but this information does not interact fruitfully with the user's cognitive environment.

- **Case 5. Low number of cognitive effects, high mental effort, with positive relevance.** By contrast, this case is difficult to explain
in relevance-theoretic terms, since it is not easy to find situations in which difficult-to-process information within a narrative yields few cognitive effects and, paradoxically, ends up being relevant to the user.

Case 6. **Low number of cognitive effects, low mental effort, with positive relevance.** This case is covered by relevance theory, this time as a typical example of irrelevance: many cognitive resources are devoted to processing the content of a narrative that eventually ends up not producing enough cognitive effects for the user.

Case 7. **Low number of cognitive effects, low mental effort, with positive relevance.** This is one of the most intriguing cases in web content processing. Apparently, no user should be willing to process information of a narrative if it demands little mental effort but, at the same time, yields few or no cognitive effects. However, this combination is surprisingly very frequent on the Net. It is the case of pages whose content is utterly uninteresting but also demands no processing effort, which we can label as “boring,” but which arouse the interest of thousands of users. An explanation lies in the possible mediation of what in the next section will be labelled “contextual constraints,” namely non-propositional effects (e.g. feelings, emotions, sensations, aesthetic experiences) that are triggered from interpreting the content of the narrative but are not directly tied to that content. These constraints are typically generated in a medium in which communication and interaction are mediated by interfaces and interlocutors lack physical co-presence.

Case 8. **Low number of cognitive effects, low mental effort, with negative relevance.** Finally, this case can also be found in the processing of narrative content. Although the mental effort demanded is low, the offset in cognitive effects is also low, and therefore the eventual outcome is irrelevant.

2. **Contextual constraints**

Many specialists are puzzled at the interest that certain utterly useless sites arouse, at the fact that these sites are accessed very frequently and users spend a lot of time interacting within the irrelevant pages (examples include a web page where we could see a
Cheddar cheese rotting – at http://cheddarvision.tv/, now closed, and another page where we can see hens moving about in a farm – at www.hencam.co.uk). The explanation for this phenomenon lies in the fact that these specialists are uselessly obsessed with *maximal* relevance, that is, with a maximum of (supposedly interesting) information that a user can obtain from a credited source, when in fact users are more interested in *optimal* relevance, i.e. with the cognitive satisfaction that engaging in and through these sites provides and which, very often, is not centred upon purely informational relevance, but focused on cognitively rewarding non-propositional qualities such as emotions, feelings, sensations and aesthetic effects that are triggered by propositional content but not found therein. These non-propositional effects make a difference in terms of willingness to engage with the interface, to devote cognitive resources to the processing of information stored there and to build up some form of fidelity with the interface.

In Yus (2011b: 70), the myriad of forms of cognitive satisfaction that offset the effort involved in processing the information, including feelings, emotions, empathy, phatic connotations, feeling of being in control of how the interface is used and arranged (*usability*), community membership, socialisation, and mutual awareness of one’s and other people’s presence in a group or network, among others, were called *cognitive rewards*. In a similar fashion, non-propositional qualities which act negatively upon the user's eventual satisfaction (lack of usability or lack of familiarity with the interface, for instance), were called *environmental constraints*. More recently, though (Yus 2013b, 2014), a more unitary terminology has been proposed: *contextual constraints*, which can be added to the interest of the information and thus be positive to the eventual relevance of the information being processed (*positive contextual constraints*) or can be added to the processing effort and hence reduce the likelihood of eventual relevance (*negative contextual constraints*).

The main idea underlying the concept of *positive contextual constraint* is that, on many occasions, the success of an interface (and the narratives uploaded there) lies in its capability to generate these positive effects beyond the objective relevance of the
information contained within the site. Take, for instance, mobile applications (apps) for tourism (Yus 2014). Why are mobile users so fond of certain apps while they dismiss many others which, paradoxically, offer similar information on flights, hotels, etc.? Indeed, the information is supposed to be available to all apps, and the reader merely expects this information to combine fruitfully with his/her travel needs (hotels, flights, etc.). The users’ fondness towards certain apps is related, rather, to the capacity of these apps to generate positive contextual constraints that increase the eventual relevance by adding non-propositional effects to the ones generated by the content accessed through these apps. Specifically (and apart from interface usability, which is obviously the major constraint for eventual satisfaction when using these small mobile phone screens), these are the contextual constraints that aid in making mobile phone apps for tourism more attractive:

1. Feeling of community membership. The app fosters the feeling of membership to a group of travellers. It offers a space for exchanging ideas (forum) and communal interaction. It includes the possibility to share content in the user’s own social networking sites (Facebook, Instagram…). It offers advantages (fidelity coupons) for travellers who frequently use the app. In certain apps, one has to register and become part of the community.

2. From the community to the user. Suggestions by the community to a specific user. User-specific offers from the members using the app. Comments and advice from a series of experts. Automatic notifications from the app.

3. From the user to the community. Comments by the user end up registered in the app. Users upload content (photos, maps, etc.) to be shared by the community (within the trend of “user-generated content”). Users provide other users with suggestions for visits or activities on a specific location. Others propose improvements in the app.

4. Blurring of physical-virtual divide. Vivid impact of the app on the current physical activity of the user. Options of augmented reality that create a layer of information (suggestions for restaurants, shops, etc.) on top of the physical area surrounding the user. Advice and suggestions to the users depending on where
they are located (via GPS information). Maps guiding the travellers in the city.

5. **Individuation.** Possibility to generate itineraries and travel guides in a highly personalized way. Feeling of individuation when being offered content by the *app*. The *app* learns about the user's likes, preferences, opinions, so that it can offer more fine-grained proposals for touristic enjoyment. Forms for highly personalized searches within the *app*.

6. **Interactivity.** Possibility to engage in dyadic interactions between users within the *app*. Possibility to chat with the makers of the *app*. Existence of fora for exchanging ideas, opinions, and suggestions. Travel blogs with bi-directional comments on entries.

The main hypothesis underlying this research (Yus 2014), was that *apps* offering the best relevant information, in an environment where menus and screens are easy to master (usability), and offering as many positive contextual constraints (1-6 above) as possible, should be the ones generating more fidelity and reiterative use by travellers who resort to mobile *apps* to manage their touristic activities.

### 3. New interfaces entail unpredictable contextual constraints

The main objective of this article is to introduce this new element, the *contextual constraint*, in the traditional relevance-theoretic “effects versus effort” formula for the interpretation of new digital narratives, an element which may alter the expectations of new advances in the traditional author-narrative-reader communicative schema (and interfaces to sustain this kind of narrative) when transferred to the new capabilities of the Net. Indeed, sites for Internet communication and interaction are constantly evolving, offering new capabilities and dynamic interfaces that aim to make the use of these sites more attractive and enjoyable. However, as has already been pointed out, not all of these advances are welcome by all users. What appears to be a positive environmental constraint for some users may be detrimental in terms of relevance for other users who, for instance, find their interaction with or
within the site more tiring and discouraging after the interface has been subject to certain changes in its design or in the range of options it used to offer.

An additional element to be accounted for, correctly pointed out by one referee of this article, is the actual semiotic qualities of the different narratives that are found on the Net. Although from an RT approach all narratives are processed in a similar cumulative way that takes chunks of narrative text as a preliminary context upon which subsequent chunks are processed, different types of narrative will demand different lines of processing and parallel amounts of effects-effort depending on aspects such as usability, reader involvement or demands for mutuality. Blog entries, for instance, are arranged with the most recent post first, and this arrangement clearly affects this cumulative picture of processing according to RT, since readers often have to backtrack to previous entries in order to seek the necessary background knowledge that allows for optimal comprehension of the most recent post, especially in the “diary” kind of blog.

Elements that may also alter inferential strategies in new narratives include the (un)predictability of links to click on, the role of pictures and their processing in the eventual overall interpretation (these pictures may work as ‘anchorages’ of the accompanying text and vice versa), or the extent to which the roles of author and reader are fixed or not, with an impact on the cognitive resources that have to be devoted to an eventual satisfactory outcome of the narrative (Friedrich 2007). Besides, certain narratives entail some form of social identity shaping and community bonding (e.g. blogs, see Luzón 2013), especially those which are multi-authored or demand from readers the aid and advice of a community of users to move effectively through the unpredictable narrative threads, whereas other new narratives hardly entail social identity issues.

An example of how positive and negative contextual constraints may be generated in the use of the same interface is the evolution of instant messaging from a text-based (e.g. Messenger) to a face-to-face enabled interface (e.g. Skype). Both versions will generate positive and negative contextual constraints to different users with variations depending on their familiarity with new interfaces:
Messenger offers, in theory, positive constraints such as more control over how much information is revealed. Users also have more time to plan their messages. Besides, there are options for some creativity in their messages (e.g. text deformation and graphic emoticons, see Yus 2005, forthcoming a), a kind of innovative text which has a potential to generate a sense of belonging and group identity. On the other hand, Messenger may also produce negative constraints to some users. For example, several users will be disappointed to see that their feelings and emotions can only be conveyed through text deformation and emoticons. Furthermore, the absence of relevant contextual information, typical of text-based communication, may generate unwanted interpretations of the utterances. Other users will be frustrated to see how their messages disappear from the top of the screen (so-called scroll factor), or to discover that the server sends messages in strict order of arrival, which may not fit the desired turn-taking order in the dyadic conversation.

Skype is a more advanced interface which incorporates the interlocutors’ image and voice to Internet-mediated conversations. As such, it should be more relevant to all users, given its increased accessibility to contextual information, but in reality it is not always the case. Skype offers undeniable positive constraints, such as the “contextual saturation” that we are offered from watching the interlocutor’s face and hearing his/her voice. However, for some users, this interface reveals too much contextual information (especially for those users who are not satisfied with their physical look and prefer to mask it through text-based communication), and prevents their control over how much information can be provided and what information should be left unnoticed. Specifically for users with low self-esteem, Skype creates uneasiness, since oral verbal communication hinders the planning or control over which utterance is produced and what is the most appropriate accompanying nonverbal behaviour. For this kind of user, Skype generates negative constraints that make the use of this interface little satisfactory.

Another example of evolution in interfaces is the Internet newsgroup (now almost extinct), which has been replaced with the modern message board. Again, both versions offer positive and
negative constraints to a variety of users. Some users will miss
the tree structure of conversations within the newsgroup, which
makes it easier to follow the threads thus saving cognitive effort
(Arendholz 2010), and the same applies to the multiplicity of top-
ics, also valued by some users while distracting and confusing ac-
cording for others. Besides, certain users do not mind spending
cognitive resources in getting up to date on what is being dealt
with within the conversation of the newsgroup, but others find the
challenge highly discouraging. On the contrary, the new message
boards do not seem to restrict interaction to those who are fully
aware of the topic under discussion, and it is easy to find someone
with the same tastes as ours, which produces positive effects. This
causes a certain sense of community and belonging in very delim-
itated group fora.

4. Constraint-centred advances in new digital narrative
interfaces

The contextual constraints 1-6 (plus usability) listed above for mo-
bile apps are meant to be positive in the sense that they make
the interaction with the interface more relevant by adding positive
non-propositional feelings, emotions, sensations, etc. Additionally,
in theory a positive development of new digital narratives is the
fact that they offer a “potential of online storytelling for enhanced
interactivity and for multiple modes of user involvement that can
decisively shape a story” (Georgakopoulou 2013: 700). In this
sense, Ryan (2011: 37-59) proposes an onion-like schema of types
of interactivity in these innovative narratives: (a) Peripheral inter-
activity (interactivity affects neither the story itself, nor the order of
its presentation). (b) Interactivity affecting narrative (the develop-
ment of the story is still fully predetermined, but the presentation
to the user is highly variable due to the hypertextual architecture
of the story). This type fits Yus's (2010: 42) conceptualisation of
links as mere “promises of eventual cognitive satisfaction,” since
“the words themselves have no evident informational value, and
the relationship between the words that anchor the links and the
text that comes to the screen is treated as a puzzle to be solved by

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the reader” (Yus: 42; see also Pajares Tosca 2000). (c) Interactivity creating variations in a predefined story (the user plays the role of a member of the plot, and is granted some freedom of action, but the purpose for the user is to progress along a fixed storyline, the system remaining in control of the narrative trajectory). (d) Real-time story generation (stories are not predetermined but generated on the fly from data that comes partly from the system and in part from the user. Every run of the program should result in a different story, and the program should therefore be re-playable). (e) Meta-interactivity (the reader re-writes the plot completely for other users to go through the story differently).

However, not all advances in these interfaces, even if these are meant to make the user’s experience more active, fruitful and pleasant, end up being positive to all users. In reality, only advanced users who are capable of obtaining all the reward from these advances will be pleased to see evolutions in these interfaces and to be granted a more active role in these new digital narratives. Many other users will, instead, feel disappointed to see that the old interface that they mastered so well has changed and information is no longer easy to access or process, or to notice that their effortless passive role of readers has been turned into non-stop decisions on what thread to choose for the storyline. Therefore, a continuum of users can be established that react differently to certain advances in interfaces that are originally meant to provide all users with more quantity and quality of positive contextual constraints. As I will argue below, the same applies to changes and advances both in the interfaces for new digital narratives, and in the alterations of the traditional author-text-reader pattern for communication through digital narratives. Two examples of new forms of narrative will briefly be commented upon below in terms of contextual constraints.

Firstly, a very dynamic form of Internet narrative concerns the commentaries of live sport events (Jucker 2010). In theory, positive constraints would include the dialogic impression of synchronous contact with the user who is narrating what is happening in the sports event (e.g. a football match). Moreover, the typically informal use of language, including text deformation and emoticon use,
generates a feeling of closeness and affiliation between the commentator and the user, thus diluting the feeling that these are comments “for everyone,” and also fostered by certain techniques of intersubjectivity. Additionally, users are allowed to send comments to the site, which enhances a certain feeling of community membership. Finally, we can underline the fact that these comments are not ephemeral but remain on the screen (normally in a smaller font size when replaced by a more recent comment) at least as long as the match is taking place, so that the user can trace what has happened previously in the match. On the negative constraints side, we can point out that there are substantial gaps between the time when something worth commenting upon takes place and the moment when the user actually receives the comment on the screen, which can be really disappointing if the user is watching the match on television at the same time.

Secondly, an evolved form of narrative is the blog, especially, the “diary type” (as opposed to the “filter type,” see Yus 2007a, 2007b), in which users narrate different events of their lives. Among the positive constraints, we can stress the fact that blogs have a very identifiable design for easy access to information. Entries are also well archived by category and time. Crucially, blogs allow for some kind of interaction with the author. And finally, blogs generate cumulative knowledge and sense of mutuality for the “privileged reader,” who is also given the choice to read which entries and in which order (Eisenlauer and Hoffmann 2010). On the possible negative constraints, the very same positive constraint just cited, namely the cumulative knowledge generated by the entries may not be accessible to the casual reader, who will be frustrated to discover that the blog author takes certain supposedly mutual information for granted in subsequent entries, thus leaving this casual reader puzzled. In addition, entries usually have tags and links within the entrance being read, which can generate extra mental effort, since some users prefer the traditional unidirectional flow of reading and not the link-mediated choice of a reading path. As Skains (2010: 105-106) underlines, readers who are accustomed to unexpected options and increased reader-participation are more likely to engage in and respond positively to digital narratives; in
contrast, outer-directed readers expect more author-provided cues, previous experiences, or established techniques and conventions to comprehend and enjoy narratives.

5. New media alterations in traditional communication through narratives

There is a traditional picture of literary communication (including narratives) that involves a single author who writes a text to be interpreted by a number of readers. There has been some inclusion of participants and terminology in the narrative act of communication, proposing that a narrative is “a transaction involving a real author, an implied author, a narrator, a narrative, an implied reader, and a real reader” (Ryan 2006: 97), together with terminological proposals such as the dichotomy of “homodiegetic” and “heterodiegetic” points of view in the narrative (à la Genette). But basically, readers of traditional narratives have a very clear picture of what kind of communication is taking place: a clear-cut author-narration-reader flow of information.

However, as was commented upon in Yus (2002), even though this schema is clearly identifiable, there has been a lot of scholarly discussion on where exactly the meaning of a printed narrative (or indeed any piece of literature) is located. Specialists argue that this meaning lies (a) only the author’s intended interpretation of the text (intentio auctoris), or (b) the ‘objective’ meaning of the text itself (intentio operis), or (c) the reader’s personal interpretation of it (intentio lectoris).

Concerning intentio auctoris, since authors are usually not present at the time of reading, many analysts have rejected the possibility of accounting for the author’s intention in writing the text (e.g. Barthes’s 1977 ‘death of the author’). Nevertheless, the role of the author is very clear within cognitive pragmatics: the author’s responsibility is to judge what contextual assumptions are manifest to the hypothetical (i.e. implied) reader and code his/her thoughts in such a way that it leads to the intended interpretation in a relevant way. The author’s intentionality is important, assuming the role of communicator who “intends some particular
thought and the addressee [i.e. the implied reader] is interested in what that thought is. The interpretive processes that the addressee employs are designed to establish the speaker's [or author's] intentions” (Pilkington 2000: 66). To sum up, if we focus on the intentio auctoris, we understand it as an encouragement of a certain kind of pragmatic processing of the text, leading to a certain kind of qualitative response. This is because authors have a certain kind of complex thought, linked to certain qualitative properties that they wish to communicate. Whether the reader is able to recover this thought and attached qualitative properties depends on the reader's cognitive accessibility to contextual information, so different in every reader that many of them will probably differ in their interpretations of the same text.

Concerning intentio operis, some authors (such as (post)structuralists and formalists) claimed that texts are trustworthy as stable sources of meaning. Literature was seen as a number of textual patterns which could be discovered through objective analysis. This cannot be accepted from the cognitive pragmatics point of view which underlies cyberpragmatics, according to which texts are interesting insofar as they encourage certain kinds of pragmatic processing. And it cannot be accepted by cyberpragmatics either, whose main interest lies in the decisions that users make when facing the processing of non-unidirectional link-mediated chunks of text. The narrative, whether printed or digital, is a public representation which (more closely or more loosely) resembles (complex) thoughts of the author's, or which may be offered for the reader's sole interpretive responsibility; but in either case there is a substantial gap between what is coded (the narrative) and what is meant (by the author) or interpreted (by the reader).

Consequently, concerning intentio lectoris, we get closer to what is underlined in cognitive pragmatics and relevance theory (and cyberpragmatics): the existence of a heterogeneous variety of readers with different ways of facing the narrative text. Since not everybody is equipped with the same background information to use as contextual assumptions in the process of interpretation, there has to be a continuum of readings ranging from the notorious one by an expert (e.g. a literary critic) to the ordinary reader.
who reads for pleasure and will probably not be able to access all the subtleties of the text.

What new digital narratives have produced is a radical reinterpretation of this traditional “author-narrative-reader” schema. This reinterpretation will suit some users (accustomed to more dynamic forms of reading, who like to be participants in the act of narration and take full responsibility of interpretive or plot decisions) while discouraging others (who prefer a more traditional way of reading narratives). Nowadays, with the rise and ubiquity of the Internet, what we rather have is: [1] new authors (collective creation, hybridization with readers-writers, etc.)... [2] ...who produce new forms of narratives (audio-visual, multimodal narratives, link-mediated choices for the flow of narrative, etc.)... [3]... through new interfaces (new verbal-visual designs, multimodality, interfaces aiming at usability)... [4] ...directed at a new kind of reader (an active, dynamic reader who often contributes to the authorship of the narrative)... [5] ...who comes up with a typology of interpretations (the author's intended interpretation – if any – is diluted and the choice of interpretations is mainly the reader's responsibility). These points [1-5] will be commented upon in more detail below.

1. New authors. The makers of new narratives do not expect a specific interpretation of their stories, nor do they expect that readers will invariably follow certain links in a certain order. Besides, their presence in the story – as narrators – is weaker and less visible, as if only making information manifest was their sole task in this written mode of communication. Something similar was studied in Yus (forthcoming b) concerning authorial textual markers of interpersonality in academic online discourses. It was concluded in the research that, as the authors lose much of their authority in stressing which information is worth looking at and can no longer foresee which readers will access their texts and in which order (or which level of mutuality exists between the readers and the author), the quality and quantity of these markers tends to decrease accordingly. Indeed, since the Internet has brought about alterations in the roles of both authors and readers (and also in context accessibility), a new kind of non-linear reading is favoured in which the reader takes
more responsibility in his/her eventual satisfaction and in which the author's role is devoid of the authority that is found in traditional printed academic discourse(s). As academic texts evolve from mere reproductions into adaptations and, especially, into native texts that exploit all the potential of the Net, the presence, frequency and roles of interpersonality markers tend to differ more and more from their offline printed counterparts (ibid.: 207).

Readers are very active in this kind of digital narrative, to the extent that they even become co-participants in the authorship. This has a “diluting effect” in terms of what specific interpretation – if any – underlies the act of creation of a new digital narrative, a typical quality of social media. In latest narratives, the so-called “narrative paradox” (Louchart and Aylett 2004) seems to have been resolved. This paradox concerns the fight between the author attempting to control the direction and structure of the narrative, and the reader aiming at freedom to choose, demanding autonomy to act and react without authorial constraints. Nowadays, new digital narratives are produced without a strict intended reading path and readers take this autonomy for granted.

2. Who produce new forms of narrative. The traditional cumulative flow of information in which new information from the narrative is coherently added and becomes a preliminary context for subsequent processing of information collapses completely with new kinds of plot and reader involvement that, as has been already stressed several times throughout this paper, will appeal certain users (native Internet users, keen on innovative forms of narrative) while but will dissuade others (older users accustomed to a traditional flow of narrative information). An example is the proposal of new digital narrative plots proposed in Ryan (2001): (a) The complete graph (each node is linked to all other nodes; total freedom of navigation; impossible to guarantee consistent narrative because any node can be added to any other node with no relationship). (b) The network (it is the typical pattern of hypertext literature; reader movements are neither totally free nor limited to a single interpretive path; the narrative continuity is guaranteed only between a node and the next, or between nodes of the same story line). (c)
The tree (it limits the reader choices, its path is controlled by the narrative structure; once you have chosen a path, there is usually no turning back, but then the consistency between nodes is guaranteed). (d) The vector with side branches (a default chronological history, but the link structure allows the user to take small trips outside this main story to other points of interest). (e) The maze (typical of computer adventure games; the user tries to find a coherent development of the story from beginning to end, but there are different ways and not all guide users in the right direction). (f) The flow chart (it is the best structure to reconcile the narrative with interactivity: the horizontal progression corresponds to the chronological progression, while vertical branches reflect the options available to the user; the system provides a route but the user is free to connect multiple stages). (g) The hidden story (there are two narrative levels: below is the fixed, linear story, developed temporary events that must be rebuilt; above there are timeless elective alternatives for the user; a narrative is generated based on user choices in their attempt to reconstruct the underlying story). (h) The braided plot (a sequence of events experienced by a group of users, but each user lives these events from a personal perspective and interprets a different story; one can switch windows within a general narrative full of possible alternative paths). (i) Action space, epic wandering, and story-world (there are independent arguments that the user can choose from; by choosing one plot, the system generates a closed user story in the form of a semi-autonomous episode with a mostly passive role for the user).

3. Through new interfaces. The narrative itself undergoes major alterations in this new online scenario. On the one hand, narratives are no longer strictly text-based, but are complemented with images, video, links, animated graphs, multimodal compositions, etc. Traditional textual narratives have turned into transmedial narratives (Ryan 2013). Therefore, the source of meaning often lies in the combination of information provided by different types of media involving interpretive choices by the user. Besides, it is also very important to consider how the interfaces are designed for usability, with menus, screens and links that should lead readers
in the right or desired direction (or should make it easier for the reader to take any direction he/she wants) without an increase in mental effort generated by the use of the interface.

4. **Aimed at a new kind of reader.** Today’s Internet user is no longer a passive addressee of delimited and unchangeable texts. Rather, these readers are active, participatory, co-creators of narratives and willing to take full responsibility for which links they click on, in which order, and for which coherence they apply to the subsequent nodes they access after having decided on the links to click on (Storrer 2002). This constant choice of links to click on and the need to find inter-link coherence reduce the user’s attention that is available for text comprehension, which may be another possible case of negative contextual constraint, an effect which is often labelled *cognitive overhead* in hypertext research (Conklin 1987). Bell’s (2011: 65) distinction between *informational hypertext* and *literary hypertext* also focuses on this cognitive effort devoted to working out their relevance and cohesion:

In the first one, structural clarity is usually part of the design; the linked term(s) are suggestive of what the reader will find at the destination screen. In the second one, the linked term does not necessarily indicate where the link will lead. Readers often have to decipher between link and content after the link has been followed. (Bell 2011: 65)

In any case, the typical reader of today’s social media is described in Alexander and Levine (2008):

User-generated content is a key element of Web 2.0 and can often enter into these stories. A reader can add content into story platforms directly: editing a wiki page, commenting on a post, replying in a Twitter feed, posting a video response in YouTube. Those interactions fold into the experience of the overall story from the perspective of subsequent readers. Web 2.0 stories tend to be accretions over time, imbricated layers of content on top of an original core. (Alexander and Levine 2008: 47)

However, there is a danger in providing users with so much freedom to choose alternative paths in the story, thus taking full responsibility for which direction the plot takes: the danger of los-
ing the narrative coherence altogether. For instance, George Lucas (in Parkin 2014: 18) was dismissive of the ability of gaming to have the same impact in fiction as cinema and literature: “Telling a story is a complicated process. You’re leading the audience along. You are showing them things. Giving them insights. It’s a complicated construct and very carefully put together. If you just let everybody go in and do whatever they want, then it’s not a story any more. It’s simply a game.”

In Yus (2013b), a typology of author-reader relationships for new digital narratives was proposed (see Figure 1). The classification was not meant to be exhaustive but illustrative:

a) The author develops a narrative for a single reader (continuous line) or several users (dotted lines) with full control over its development. The links lead to discourses tied together, but with no other options to choose from, i.e. the reader must necessarily click on a specific link to continue the story.
b) The author creates a narrative that allows for a high degree of user interactivity with a reader (continuous lines) or several users (dotted lines) and allows readers to make decisions on the interpretive path (e.g. clicks on different links). The comments and suggestions by these readers generate additional interpretations of the original text that other readers may (or may not) interpret as a discursive whole, as an indissoluble part of the original text. As Thomas (2011: 208) correctly stresses, nowadays “users are familiar with the idea of web pages being constantly refreshed and revised, and increasingly expect to be able to comment on and even revise content found online.” In certain forms of modern digital narrative, such as the ones found in today’s computer games, the design of the different paths for the user to choose from is a challenge for authors and designers of story plots. As Naomi Alderman, a young British novelist who has also written videogame scripts for Penguin and the BBC describes (in Parkin 2014: 18), linear storylines make you feel strong. You can control what you are doing and you know you can provide a satisfying experience for the player. With non-linear fiction you have many more variables, it feels exciting and the player can become highly engaged, but is challenging to make each branch as satisfying as the others.

c) The readers act on the narrative to such an extent that their contribution becomes an inseparable part of the original narrative. Authorship is diluted and the reader assumes the author’s competence. A good example of this new role is the users’ capability to actually embed content in YouTube videos, and this content becomes inherently tied to the initial video.

d) A user starts a narrative discourse. Another user continues the development of the narrative. A third one continues the story. There is a risk in this type of narrative structure, which often leads to a degree of inconsistency between different linked discourses/linked, and also with respect to the overall plot of the discourse as a whole.

e) The authorship of the narrative is collective, with multiple users generating storylines that overlap and hybridize to generate parallel but linked narratives. Readers also intervene in the dis-
course by generating comments, proposing alternative ways of reading, fora, etc.
f) The authorship of the narrative is collective, with multiple users generating storylines that overlap and hybridize to generate a single final narrative. Readers interpret the discourse as a collectivity, acting on it and generating options of contextualization and additional readings not included in the original piece of discourse.

5. **Who come up with a typology of interpretations.** In this scenario of new narratives in which the traditional roles of author and reader are diluted and in which there are so many options to click on, there is no prediction of what information will be more relevant to the actual reader or hearer, or even what the exact (i.e. intended) interpretation might be. It all depends on the actual context of interpretation, unique in every situation. Different readers with different backgrounds and context accessibility will deliver radically different interpretations of the same narrative.

6. **Concluding remarks**

New digital narratives offer a myriad of new options for readers beyond the traditional linear layout of the story. As such, these narratives involve new balances of interest (cognitive effects) and mental effort resulting in varied forms of (ir)relevance. The notion of **contextual constraint**, which concerns non-propositional feelings, emotions or sensations, alters the purely informational notion of relevance and allows for a typology of resulting degrees of relevance depending on how these constraints turn out positive or negative to specific users. Users who are accustomed to a linear arrangement of the narrative, completely controlled by the author, and resembling the one found in printed texts, will be discouraged by the new dynamic forms of narrative that technology now allows for, with negative contextual constraints added to the basic relevance formula. By contrast, users who are used to being active protagonists of the narrative plot by clicking on different plot options and even co-authoring the narrative itself, will be discouraged by
the traditional linear arrangement of the narrative. Not all the advances in new digital narratives will suit every user, and positive or negative contextual constraints will be generated for any type of user depending on their background familiarity with the interfaces and how challenging these interfaces are in terms of mental effort.

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