In search of cognitively relevant Internet banners

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Abstract (E): Relevance theory (Sperber & Wilson, 1986/95) claims that human beings are biologically geared to obtaining the most relevant information from incoming stimuli. The main claim of this essay is that Internet users also carry out this cognitive task when evaluating the relevance of the banners that they come across while surfing the net. All the banners are processed against the users' (highly personal) background context of beliefs, expectations, interest, etc., but on paper we can hypothesise that banners which are connected with the users' current task at hand are more likely to be clicked on, while other, unconnected banners are bound to be dismissed and be left unprocessed.

Abstract (F): La théorie de la pertinence (Sperber & Wilson, 1986/95) postule que les hommes sont biologiquement équipés pour sélection dans les stimuli l'information la plus pertinente. Cet essai tente de démontrer que les utilisateurs d'Internet ne procèdent pas autrement face aux « banners » (messages publicitaires surimposés à l'écran) qu'ils rencontrent en surfant. Tous ces « banners » sont évalués à la lumière du profil personnel de chaque utilisateur, avec ses croyances, attentes, intérêts, etc. Cependant on peut émettre l'hypothèse théorique que les « banners » qui se rattachent à ce que l'utilisateur est en train de faire ou de chercher en ce moment, ont plus de chances d'être retenus, alors que dans d'autres cas l'utilisateur ne ressent pas le besoin de cliquer sur le nouveau message pour avoir plus d'information.

keywords: relevance theory, cognitive pragmatics, web advertising, banners, internet

1. Introduction: Mind-reading, coded stimuli, inference and human evolution

Human beings share with animals an instinctive ability to try and make sense of the information which reaches them from the surrounding world, an ability which has had a direct impact on their survival. For instance, in prehistoric times, it was of utmost importance for our ancestors to determine whether the waving grass nearby was caused by a dangerous predator, by a suitable prey, or simply by the wind.

Besides, and unlike other animals, human beings are uniquely equipped with two evolutionary tools which have helped them to turn into the most advanced species in the world. On the one hand, the so-called theory of mind, that is, the human ability to mind-read other people's thoughts, attitudes and intentions; and, on the other hand, the existence of shared coded stimuli (e.g. languages) which help communicators to provide their addressees with evidence of the thoughts which they intend to communicate. These stimuli can be oral (e.g. utterances in face-to-face communication), written (e.g. a novel) or visual (e.g. a traffic sign), with a
wide range of possible combinations of the three.

On the Internet these coded stimuli can be found in the millions of verbal-visual Web pages, e-mails, distribution lists, and newsletters, among others, which are read daily by millions of users. And of course we can also consider Internet banners to be coded stimuli. By banners we obviously refer to the verbal, visual, or verbal-visual rectangles of “netvertising” which can be found on many Web pages nowadays. These banners are also coded pieces of evidence of the advertiser’s underlying messages and intentions.

The theory of mind seems to be a prerequisite for language evolution (Reboul, 2004), and appears to have evolved in parallel with the increasing complexity of human socialisation and relationships. According to Sperber (2004), mind-reading developed beyond the attribution of physical action goals to the attribution of mental states. This made it possible, according to him, (1) for individuals to intend to influence others’ mental states; (2) for individuals to realise that others were attempting to influence their mental states; (3) for these attempts at influencing others to be performed overtly as a form of (at least apparently) helping behaviour; and (4) for such attempts at benevolent influence to be recognised and accepted.

The existence of a code and the mind-reading ability makes it possible for humans to infer the communicator’s meaning and to attribute other people’s mental states. Normally, public representations such as oral utterances and written texts are only incomplete schematic pieces of evidence of the underlying intended interpretations and parallel intentions, attitudes and emotions, and this coded evidence has to be enriched inferentially. In everyday interactions, people extract much richer meanings than the ones simply (i.e. literally) coded by the utterances which other people direct at them, most of the times without even noticing, a task which is undertaken by the human inferential ability. Examples of enriched intended meanings in hypothetical contexts are supplied in parts (b) of the examples below, which provide a more plausible interpretation than the ones actually uttered in parts (a) of the examples:

(1)
   a. Mechanic: "It will take some time to repair the car".
   b. It will take longer than it usually takes to repair your car.

(2)
   a. Customer: "This steak is raw".
   b. This steak is undercooked.

(3)
   a. She put it there.
   b. Mary put the book on Internet banners which she was reading on the bedroom table.

(4)
   a. The table is too wide.
   b. The table is too wide to play table tennis on it.

Internet banners also have to be decoded and inferentially enriched in order to reach an adequate interpretation of their meanings and intended effects. Often, lack of space in the small rectangles forces advertisers to provide only schematic pieces of evidence of the real underlying message which they want to communicate, and which can only be properly understood with the aid of inference. An example is provided in (5a) below, with a contextually re-written version in
a. Special offer, 3X2 in milk shakes. Free delivery over $70.

b. We are currently running a special offer in milk shakes: if you buy three bottles at our chain of supermarkets you will only pay for two of them. Besides, we are offering free delivery of the product if the purchase of milk shakes is over $70.

The human inferential ability to extract fully contextualised interpretations of quite fragmentary utterances relies on an underlying parallel ability to interpret human behaviour as intentionally produced, and not as merely exuded, as it were, from people's bodies. The advantage of coded stimuli, compared to nonverbal behaviour, is that, when overtly communicated, they immediately make manifest the underlying intention to communicate some information, thus setting the hearer's inferential activity in motion.

In this sense, Internet banners can be considered public representations, with a combination of text and image, which are intentionally placed in a Web page in order to obtain a certain interpretation of their intended meaning and also to encourage the Internet user to click on it and, hopefully, buy the product advertised elsewhere on another Web page.

2. Relevance and comprehension

When human beings undertake the task of interpreting other people's stimuli (utterances, texts, nonverbal behaviour, etc.), they rely on a powerful cognitive principle: the fact that an intentionally (i.e. "ostensively" in relevance-theoretic terms) communicated stimulus automatically generates expectations of its eventual relevance, a cognitive principle proposed by Sperber and Wilson in their relevance theory (Sperber and Wilson, 1986; a general review of the theory can be found in Yus, 1998). According to Wilson and Sperber (2002: 254), "as a result of constant selection pressure towards increasing efficiency, the human cognitive system has developed in such a way that our perceptual mechanisms tend automatically to pick out potentially relevant stimuli, our memory retrieval mechanisms tend automatically to activate potentially relevant assumptions, and our inferential mechanisms tend spontaneously to process them in the most productive way". One of the problems which advertisers face in the use of banners is, precisely, that there are too many stimuli on the Internet competing for the users' attention, millions of Web pages that the users can access, and no guarantee that the users will direct their cognitive resources towards the processing of the banner and engage in the subsequent purchase of the product advertised.

The number of stimuli to which the audience can pay attention is amazingly high. This is why the human mind has evolved in such a way that potentially non-relevant stimuli are only processed at a pre-conscious level and cannot be recalled afterwards, while truly relevant stimuli stand out and are processed in a fully conscious way. For example, after walking along Oxford Street in London, on one typical shopping day, most of us will be unable to remember the faces of the people we came across, but will surely remember a handful of them who, for whatever reason, stood out from the crowd. This is also applicable to banner advertising and to advertising in general. For instance, Myers (1998) writes about how two researchers found a trader's selling technique extremely relevant in the competitive context of a street market:

They found themselves in a small market town in the north of England joining the crowd around a market trader selling toys consisting of a motorbike for a Barbie or Sindy doll with a little baby already on the back. The market trader attracts a crowd, apparently fascinated and horrified by the way he insults his
assistant; then he displays his product, threatens to take it away, keeps them laughing, and keeps them watching, building up to the sale with a skilful patter. His routine draws on the weather, the time of day, the space around his table in the market, the expressions of people in the crowd, the assistant, references to common knowledge, all carefully timed, gauging the crowd's reaction at the moment. And, to the initial surprise of the sociologists Clark and Pinch, it works; by the end of the performance the people in the crowd push forward with money in their hands.

Myers (ibid.) acknowledges that this market-place may seem centuries away from the technologies involved in Internet advertising, but the basic principles are also there: the trader manages to do what the advertisers expect their advertisements on the Web to do: to stand out from competing advertising, to use rich visual and verbal discourses, in real time, with constant feedback from potential customers.

To sum up, the search for relevance is one of the most inherent properties of human cognition which is applied to the interpretation of a wide array of coded stimuli. At an early age we develop the ability to use expectations of relevance in our daily interaction with other people. Specifically, children learn to attribute mental states to other people, to attribute communicators an underlying intention, and to distinguish intentionally produced stimuli from unintentionally exuded information in the surrounding world.

Internet banners are clearly on the intentional, ostensive side, since they are meant to call the Internet user's attention towards the underlying intention to communicate some information, including the information on the advantages of buying the product associated to the banner, or of performing whatever action is suggested. Hence, in order to be effective, advertisers have to create expectations of relevance in the users, otherwise these users will not click on the banner, let alone buy the product advertised or do the intended action suggested in the banner.

When is a stimulus relevant? And, as a coded stimulus, when is an Internet banner relevant? In a nutshell, according to Wilson and Sperber (2004) relevance is a potential property not only of utterances and other observable phenomena such as utterances, written texts, pictures or Internet banners, but also of thoughts and memories. Indeed, any stimulus or internal representation which provides an input to cognitive processes may be relevant to an individual at some time. To be relevant involves some interest to the receiver in the context in which the stimulus is being processed. This is important to understand why Internet banners end up being effective or not. Basically, there are several ways in which new in-coming information (from an utterance, from a picture, from an Internet banner, from the speaker's nonverbal behaviour, etc.) can be relevant:

Firstly, a stimulus can be relevant when it combines with old information producing new, updated information in the speaker's mind which is only deducible from a combination of the new information provided by the stimulus and the addressee's background information (i.e. the addressee's "context"), and not from these taken separately. Wilson and Sperber (2004) provide the following example: on seeing a train arriving, a man might look at his watch, access his knowledge of the train timetable, and derive the conclusion that his train is late. There is a relevant combination of the man's old, background information (his knowledge of the timetable) and new in-coming information (the time of arrival of the train) leading to a new, updated conclusion (the train is late). In cases like this the so-called contextual implications are generated, the most important type of interest ("cognitive effect" in relevance-theoretic terms) achieved by processing a stimulus in a context. In the example, the man's inferential activity may continue to extract relevant conclusions from the newly processed stimulus, for instance, contextual implications on the disastrous consequences of arriving late at work, etc.

New information can also be relevant when it leads to a strengthening, a revision or an abandonment of previous assumptions. Following the same example by the authors, the sight of the man's train arriving late might confirm his belief that the
train service in the area where he lives is deteriorating, or make him alter his plans to do some other activity which he had planned to do on the way to work.

According to relevance theory (Sperber and Wilson, 1986), relevance should be understood as a comparative notion. Some information is more relevant than other information in the same context. In fact, what makes a stimulus worth selecting from the vast array of competing stimuli available to the person at a specific moment is not just that it is relevant, but that it is more relevant than any alternative stimulus available at that moment. The mind follows a criterion of cost/benefit when it selects a stimulus and engages in its processing: to consider interpretive hypotheses in order of accessibility (following a path of least effort) and stop when it arrives at an interpretation which satisfies the expectations of relevance raised by the stimulus itself. Relevance, then, is a matter of balance between the interest that the stimulus might provide (in terms of "cognitive effects") and the mental effort that obtaining this interest demands.

Curiously enough, the formula for linguistic communication predicts the highest relevance of a stimulus when the interest is high and the mental effort involved is low. But on the Internet users are often willing to make a substantial effort to resolve or carry out tasks especially designed by advertisers to attract the users' attention. Interactivity with the brand seems to get a higher level of attention, despite the increased effort which it demands. For example, in Carter (2004) it is stated that requiring the consumer to make more of an effort to participate means that once they do make that effort they become more deeply involved with the brand. Neil Hughston, who works in a digital marketing agency, adds, specifically on car brands, that "there has been a creative step change in how car brands now use the net. Formerly it was seen as little more than an extension of brochures. Now, though, there is a clear acknowledgement of the value in giving consumers total control over whether and how they engage with the brand and better understanding of how to achieve both".

Overall, though, the mind can make comparisons between stimuli based on interest and effort and select the one which provides the highest interest in exchange for the least effort. Returning to Wilson and Sperber's (2004) example, the sight of his train arriving one minute late may make little difference to the man's representation of the world, while the sight of it arriving half an hour late may lead to a radical rearrangement of his day, and the relevance of the two stimuli will vary.

3. Relevance and Internet banners

Banners are placed in Web pages with the overt intention that the Internet user identifies the advertiser's intended information, either a simple wish to the get users' click on the banner, or their eventual purchase of a product. In doing that, advertisers exploit a universal feature of human cognition: the search for and maximisation of relevance which is biologically rooted in all human beings. Logically, this universal cognitive tendency to maximise relevance makes it possible, at least to some extent, for advertisers to predict and manipulate the mental states of Internet users. Knowing the users' tendency to pick out the most relevant stimuli in the specific context of a certain Web page which they have just accessed, and their tendency to process these stimuli in search of a maximisation of relevance, the advertisers may be able to produce a banner which is likely to attract the users' attention, to prompt the retrieval of certain contextual assumptions regarding the product advertised (advantages, price, comparisons with other similar products...) and to point towards an intended favourable conclusion about the product advertised.

Needless to say, banners are already a very common element of Internet Web pages. These rectangles placed on the pages or popping-up on them are an unavoidable feature of the World Wide Web (and now also of many advertisements inside e-mails. Advertisers have seen in the World Wide Web a new means to reach Internet users with the aid of these small rectangles. Myers (1998) lists the
The main reasons why the web fascinates advertisers:

1. **The audience is distributed in space**. Banners can be accessed by anybody regardless of their geographical location. However, the fact that the users who access a Web page are geographically scattered does not mean that advertising on the web cannot target homogeneous and/or personalised groups of people. As Tejera Cruz (2002) correctly points out, the web has a discriminative power which allows advertisers to aim at a small, well-defined group of people with similar characteristics, instead of targeting whole populations, as can be seen in other media such as television.

2. **The audience is distributed in time**. Banners can be accessed by the user at any time of the day, and not in specific time slots provided by TV broadcasts.

3. **Hypertext encourages a web-like set of connections**. While print advertisements are discursively related to the content around them, and broadcast advertisements are seen in a break inside another programme (e.g. films), a Web page can be placed in all sorts of new contexts, without constraints of the traditional linear way of reading, both in time and space.

4. **Space and time are cheap**. While advertisers buy expensive space or time in other media, there are no constraints in the total space or time available on the Internet.

5. Finally, **the Web provides information about users as it provides information to users**.

The question is, why would anyone be interested in clicking on a specific banner? In the jargon of media studies, what uses and gratifications are involved? And in the jargon of relevance theory, to what extent does the banner offer expectations of relevance which will possibly lead to a strengthening, erasing, rearrangement, or combination with the user's background knowledge?

The current state of banner advertising shows that they are not clicked on as often as advertisers would like. Taking into account the fact that the number of clicks obtained is the typical way of measuring the effectiveness of banners, advertisers complain that the number of click-throughs is very small (on the debate on whether click-throughs is or not an effective way of measuring the effectiveness of the banner, see Murphie and Forrest, 1996; Rosen 2000; Johnston, 2001).

The result is, predictably, that new original forms of "netvertising" have been devised in order to draw the users' attention beyond the apparently tedious banner. Nowadays traditional banners share web space with other, more innovative ways of advertising the product. One of these ways is already becoming familiar: the pop-up (where a new window literally pops up in front of the Web page which the user has just accessed), interstitials (an ad that appears between two pages), and superstitials (where suddenly the page starts screaming at you for a few seconds). These new formats are intended to compensate for the lack of interest that traditional banners seem to arouse, that is, they are intended to solve the drawback of users becoming too familiar with the banners and eventually stopping noticing them. But, as Bains (2002) acknowledges, banners were bad, but at least they didn't get completely in the way of what the user was doing. Advertisers had to try to come up with some kind of advertising idea. Now it's just the same old stuff flying around the screen. All it seems to be saying is: "Look at me I'm flying"! He concludes: "I don't know about you, but I'm worn out already".

This negative feeling has a clear explanation in relevance-theoretic terms: the banners can no longer compete for the user's attention and have a difficult task when trying to obtain the subsequent processing of the ad. For reasons that will be
explained in more detail below, they do not offer an adequate balance between the interest (that the product advertised might provide) and the effort (required to leave the page currently accessed and go to a different page altogether which has nothing to do with the current context of interpretation), and have become so familiar (especially concerning their position on the page) that they no longer strengthen, revise or lead to an abandonment of the user's background knowledge on the format and quality of Web pages.

4. Why are some Internet banners irrelevant?

Paradoxically, traditional banners, that is, those rectangles of different sizes which are placed on the Web pages, are nowadays considered a much safer way of obtaining the user's interest than the new advertising formats, which annoy the users and lead to irritation, rather than to click-throughs. Specifically, pop-up advertisements, which appear in front of the users preventing them from reading the page they had chosen to read from among the millions of available Web pages, are utterly irritating and hence totally irrelevant to the users and counter-productive to the advertisers. Besides, several programs, some of them freeware (for example the Google bar) make it possible to stop these pop-up advertisements altogether. Developments in the band width are not going to make "netvertising" more attractive. For instance, Carter (2004) distrusts up-coming new advertising formats for the Web: "Now there is new madness coming over from the US where already advertisers are promised the chance to place a 30-second ad between two pages in the belief that a tevisual experience online is the best use of rich media. If consumers thought pop-ups were bad, what on earth will they think of that?".

As in any other advertising format, banners on the Internet have to find a point of balance between their ability to draw the users' attention and the level of interference with the users' current task. Normally, all advertisements are intrusive and interfere with what the target audience is doing (advertisements in between pages of magazines, inserted in films, etc.). But advertisements cannot be as intrusive as to lead to a negative reaction in the audience, for example having to cope with so many TV advertisements that they eventually take longer than the film where they are inserted. And there are important differences between traditional advertisements and Internet banners, some of which have a direct impact on the estimation of relevance made by the Internet user. Piper Jaffray (cited in Fernández, 2001) stresses the fact that in traditional media it is easier to assess the balance between the attractiveness of the advertisements and their level of interference, because the audience has more control over these ads (they can turn down the volume of the radio, change the TV channel, turn the page of the magazine...). On the Internet, the content of the Web page and the advertising banners share the space on the screen, and banners compete for the user's attention, an attention which was not primarily intended to focus on the banner (and of course the user did not intend to leave the current Web page and go wherever clicking on the banner will lead, either). In Hansell's (2001b) words, "because television watching is largely passive, with commercials that interrupt the programming, it has proved to be very effective for building awareness of products and selling people things they did not even know they wanted. But on the Internet, users tend to focus on one task at a time and so are harder to distract -particularly by small and lifeless advertising formats that are not nearly as compelling as a 30-second TV commercial".

This is why new techniques are required to make them more attractive and less interfering (see Bruner and Kumar, 2000). The key lies in contextualising the information provided by the banner so that it encourages the user to click on the banner. In other words, they have to be made relevant by getting them to interact fruitfully with the user's current context of interpretation and overall background knowledge, the kind of information which is accessed by the user in his/her everyday inferential activity. This possibility will be dealt with in the next heading.
5. Aiming at relevant Internet banners

If we want Internet banners to be truly relevant, they have to be designed so as to stop being unrelated to the current context of interpretation in which the user is engaged. In other words: they have to guarantee that they are going to modify the user's background knowledge and default expectations in a relevant way, and a subset of this knowledge is the one just acquired in the processing of the web page where the banner is located.

Of course, changes in the visual-verbal design of the banners may indeed play a role in the higher or lower level of attention paid by the users (see 6 below). Besides, some strategies can be devised to measure the amount and quality of users’ exposure to Internet banners so as to control their interference. For instance, Cho et al. (2001) tested some hypotheses concerning exposure to Internet banners, among them the following two which were confirmed:

H1: A higher degree of forced exposure in a banner ad will yield a higher level of advertising perception.
H2: Higher degrees of forced exposure in the banner ad will yield a higher click-through rate.

However, unlike other media such as television advertising, where advertisements are also intrusive and unrelated to the audience's current context of interpretation (of a film, for instance) but target millions of viewers, a handful of which may find the advertisement relevant after all, on the Web there is no guarantee that hundreds or millions of users will pay attention to the banner, let alone click on it, and new formulas have to be designed to make banners relevant to the specific interpretive contexts and inferential tasks in which the users are engaged, for example trying to personalise the target audiences as much as possible. The need of personalisation in Web advertising is strengthened by the fact that Internet users use very different computers with varying types of hardware/software (monitor, hard disk...) and especially different degrees of processing power (processor, RAM memory...) and therefore the same banner will be received differently by the users, even in its visual qualities. For example, some of the users with low-power computers will blame the banners for how slowly the Web page appears on the screen, while others will have no difficulty in seeing all the verbal-visual elements of the page instantly (see Hummel, 1997). Similarly, the complexity of the Web page has a different impact on the users depending on their expertise. As Bruner and Kumar (2000) point out, "as people become familiar with the web they are likely to grow accustomed to its complexities. Web pages that appear complicated to naive surfers are probably not as confusing to those with more web experience. Familiarity with the medium may help a person to block out competing stimuli and concentrate on a focal stimulus (e.g., a commercial)".

In my opinion, an optimal relevance of banners can be achieved either with the aid of Internet search engines (e.g. Google) or by placing the banners in areas of the Web where they interact in a relevant way with the information which the users have willingly tried to access in the Web (more on this below). If the information contained or advertised in the banners interacts fruitfully with the users' background knowledge or current context of interpretation, they are likely to click on the banner more often than in other typical placements of banners, for instance on Web pages of online newspapers with little or no relevant connections to the content of the article or the user’s current interests when accessing the newspaper story.

As pointed out above, there are several ways in which a stimulus (e.g. an utterance, a written text, a banner...) can be relevant to the addressee in a specific context: by strengthening previous assumptions, by contradicting and leading to the erasure of previous assumptions, or by combining with previous assumptions to
yield new updated information not deducible from either the previous assumptions or the stimulus taken separately, but from the union of both. Wilson (1994) illustrates these forms of relevance as follows: consider how the information in (7), given in tonight's weather forecast, might be relevant to a person:

(7) It will rain in Paris tomorrow.

Suppose that the person is going to Paris tomorrow, and already suspected that it was going to rain. Then (7) will achieve relevance by strengthening, or confirming, this background or previous assumption. Suppose, instead, that the person is going to Paris tomorrow and was expecting it to be fine. Then, if this person trusts the weather forecast, (7) will achieve relevance by contradicting and eliminating that previous assumption. Finally, suppose that the person is going to Paris tomorrow and has already decided to pack a raincoat just in case the forecast is for rain. Then (7) will achieve relevance by combining with this existing assumption to yield the conclusion (i.e. "the contextual implication" in relevance-theoretic terms) that it is necessary to pack the raincoat. All three types of contextual effect contribute to the relevance of (7), and the more contextual effects it achieves, the more relevant it will be.

Probably, one of the best ways to achieve relevance for Internet banners is to place them on Web pages which are thematically close to the content of the banner or the product which is advertised. For instance, a reader of *The New York Review of Books* who has found the review of a book particularly interesting, will also pay attention to a banner leading him/her to the exact location of Amazon.com or BarnesandNoble.com where the book under review can be purchased. These banners, which take the users to the specific place where they can buy the product and which are placed in a context in which this information is highly relevant are bound to get more click-throughs than banners offering general qualities of the company advertised or banners placed in contexts which are not thematically close.

This contextualised version of the Internet banner is, no doubt, an optimal way of strengthening, of contradicting plus erasing assumptions, or of combining new information and previous information in a relevant way. Several authors have stressed this essential feature of Internet banners which we aim at explaining in cognitive, relevance-theoretic terms. For example, Hansell (2001b) gets very close to our cognitive approach to banners when he states that "the Internet is most useful for communicating with people who are already interested in learning more about a product". Hansell mentions the example of car business, where most shoppers now use the Web to look up features and compare prices. But the car companies are also learning that they take a different approach to that used in their television campaigns.

Therefore, in Web searches for information, the users are likely to engage in an unconscious cost/benefit inferential procedure to assess to what extent the new incoming information offered by the banners strengthens their previous assumptions and adds new assumptions to the ones already stored in their minds, as in (8), contradicts and leads to an erasure of their previous assumptions, as in (9), or combines with previous assumptions to yield new, more updated conclusions, as in (10). In all these cases the banners are likely to be clicked on by the users:

(8) A user who is dissatisfied with the speed of his Internet browser is liable to stop using a connection via modem and change to a broadband connection. He believes that broadband will be faster and let him handle all sorts of information, including high-quality photographs and video sequences. On the Web page where he normally checks his e-mails through a web mail program, he sees a banner which advertises broadband connections of up to one megabyte per minute and at a reasonable cost. Knowing that the current speed of his connection is 56 k-bytes per second, this banner will achieve relevance by strengthening his previous assumption that broadband is faster, and he will probably contract the services of the company advertised.
(9) A Spanish Internet user wants to travel to Amsterdam for a week and she believes that the only way to travel there is by plane or by car, although she loves ships. She enters one of the online magazines specializing in information on tourist resorts and finds a banner leading to a company offering low-price tickets for sea journeys to Amsterdam from Bilbao, in the north of Spain. The banner will achieve relevance by contradicting and then eliminating the user's previous assumption, and therefore she is likely to click on the banner and buy the ticket.

(10) An Internet user with a low budget for buying a car remembers that some friend of his told him once that there were brand new cars on sale for less than six thousand euros. He is reading a piece of news on cars in his favourite online newspaper and comes across banner leading to a section of an online magazine in which there is an article comparing a number of low-price cars. He clicks on it and discovers that two out of the five cars tested are under six thousand euros, and one of them also has air conditioning and power steering. This banner is relevant in the current context (willingness to buy a car) and this expectation of relevance is confirmed: on the one hand, the user strengthens his previous assumption that there were cars under six thousand euros. Moreover, and crucially, the new information about these cars is combined with the user's previous intention to buy a low-price car, leading to the implication that the one with air conditioning and power steering is the one which he should buy. As a side effect, his satisfaction with this article on cars may lead, in the future, to a subscription to the online magazine.

This relevance-oriented technique of banner advertising differs significantly from traditional TV advertising. While the latter targets the audience even before they had thought about buying the product, the former provides relevant information to people already willing to improve their knowledge in relevant ways. Joyce Fierens, a director of interactive marketing for a famous brand of cars, pointed in the same direction when he said that with television ads you are trying to get people's attention even before they are thinking about buying a new car. What the Web does best is provide shopping tools and access to information in a very targeted way (quoted in Hansell, 2001b).

But, in my opinion, an even better way to achieve that level of relevance is to make use of Internet search engines (e.g. Google) which exploit the possibility of attaching banners to content-related keywords typed by the user when searching for information. This is an optimal way of offering the user the Internet banners which are more likely to strengthen and/or contradict previous assumptions, on the one hand, or to combine with pre-existing assumptions to yield relevant conclusions, all of them leading probably to a click on the banner.

In an interesting study, Dou et al. (2001) tested whether attaching content-related banners in searches through these engines are relevant to the user. The authors propose a spectrum of possible banner match scenarios from the user's perspective, each of them representing a different level of "smartness". When these five different types of matches are placed on a continuum for keyword-activated banners, then the authors define 'exact matches' as very smart, 'upward or downward partial matches' as smart, 'relevant matches' as marginally smart, and 'irrelevant' banners as not smart at all.

Then Dou et al. (ibid.) proposed several research hypotheses concerning the relationship between web searches and banner content (see also Shamdasani et al., 2001 for a related study), and all of them were confirmed by the research:

H1: As search keywords become narrower, exact banner matches will be fewer (it should be more difficult for search engines to produce exact matches when the keywords become too specific).

H2: As keywords become narrower, more upward partial matches are likely (if a search engine cannot produce exact banner matches it is likely to produce banners
that are as relevant as possible by attempting to match at least one of the keywords that the user typed. Usually, this means displaying the banner for a popular ‘broad’ keyword).

H3: As keywords become narrower, fewer downward partial matches are likely.

H4: Natural language search engines will behave in a way similar to other search engines by producing keyword banners as search keywords become narrower.

H5: Top e-commerce keywords are likely to generate more exact matches, and non-top terms are likely to generate more irrelevant matches.

6. Designing for relevance

So far qualities such as the location of the banner inside the World Wide Web has been stressed as one key feature which can make banners more relevant and thus lead to an increased number of click-throughs. But nothing has been said about the actual design of the banner and the role that it can play in the eventual attention that the users pay to it and their decision to leave the Web page which they had chosen to access and click on the banner to go elsewhere. Although the main claim of this paper is that banners have to be cognitively relevant to the user’s current context of interpretation, the design and placement of the banners may also play a role in its eventual efficiency.

On paper, some qualities of the banner and the area of the Web page where it is placed are bound to be more effective. Alaman (2003) lists a number of qualities that can result in an increased number of click-throughs on the banner:

1. Posting banners on pages with related content. In my opinion, this is one of the most effective ways of generating cognitively relevant banners, as claimed above. Placing banners in content-related Web pages, for example after a specific search in Google, is bound to interact effectively with the current cognitive interest of the user.

2. Advertising particular products or services rather than publicizing the site generally. Again, there is a cognitive justification for this quality. Specific pieces of information may interact more effectively with the information currently held by the user than general information which does not connect with this previous information in any specific way.

3. Linking the banner ad to the particular part of the web site rather than the home page.

4. Putting banners at the top of the page. In my opinion, this quality is not relevant at all, since the tendency to put the banner systematically in this position inevitably leads to a "banner-placement stereotype" and the users will eventually stop paying attention to this area of the Web page, and hence will end up missing these banners when they are engaged in the different task that led them to the Web page in the first place. As Johnston (2001) humorously writes: "Wallpaper. That's how some see the banner ad, alone and floating at the top of a web page above some -hopefully more interesting- content. It flicks through the mind of the Internet user, pleading to be clicked and yet, on average, only 0.3% of us will do so. And so the banner ad tries harder. It pretends to be something else, a game, a warning, a search engine, anything but a banner ad. And who can blame it? The most common advertising medium on the Internet, the billboard of the superhighway, remains unclicked".

Several experiments have attempted to prove empirically this cognitive uselessness of placing the banners always in the same position and also whether users pay
attention to them regardless of their position. For example, Pagendarn and Schaumburg (2001) report experiments which confirm what Benway (1998) labelled *banner blindness*. The informants were asked to locate some specific information on a Web page, a piece of information which could be found faster if the informants clicked on the banner instead of looking for the information elsewhere. In the first experiment the informants found more difficulty in finding the information when it was accessible through the banner than when it was accessible through classical hypertextual links. In other words, the informants overlooked the information when it had to be accessed through the banners.

In the second experiment, some characteristics of the banners (e.g. their position on the Web page, their colours, having animation or not...) were varied. It was found that more than 75% of the subjects were unable to recognize the banners that could have been relevant for the search task. However, design and positioning of the banners did not have a significant effect on the informant's recognition of the banner. In addition, 80% of the subjects reported that they had not even noticed the banners. Therefore, a possible reason for the low rate of click-throughs is related to the non-perception of banners. From our cognitive point of view, the explanation lies in the fact that there is a cognitive loss of relevance in systematically finding the same type of banners on the same part of the web pages when the user is engaged in a completely different task. As a result, the users end up acquiring a cognitive tendency to avoid them altogether, since the users intuitively feel that whatever information is found there, it is not going to be relevant for their current interests.

Another study was carried out by Benway and Lane (1998). They tried to find out whether novice users could find information moving from the main home page to a lower-level page on computer training courses. The informants were asked to find information about Internet courses. The Web page contained a seemingly highly-salient banner with a red edge and the words "New! Internet Courses" in bold and with a distinctive typeface.

The informants did not have any difficulty moving from the home page to the page containing this banner but, to the authors' surprise, then they scrolled past this banner and went on to select a small link labelled "courses" from a menu at the bottom of the page. But the relevant information was not located there, and the participants were forced to give up on the task. When they were referred back to the earlier page and shown the banner-style link, most informants were surprised to have missed it. Benway and Lane concluded that "people searching for specific information on the Web tend to ignore large, colourful items that are clearly distinguished from other items on the page. Ironically, they miss the very items the page designers want them to see and that would in fact help them reach their goal". In relevance-theoretic terms, the informants intuitively predicted that the information contained in the banners had little relationship to the task at hand, as is usually the case with most banners on the Web, and therefore avoided the information which they did not expect to interact in any relevant way with the current context of interpretation focussed on the search for a specific item. The informants' background mental schema on the standard quality of banners in connection with the surrounding discourse of the Web blocked any subsequent processing of the banner, an inferential activity which was bound to end up irrelevant. This is confirmed by two of the conclusions of the aforementioned experiment by Benway and Lane (1998). They acknowledged that the banners in the study resembled advertisements, and it is possible that the informants have learned to ignore advertisements when searching for information on the Web. A second possibility is that informants are used to finding information through typical (blue, underlined) linked text. Perhaps if the banners had resembled linked text they would have been less likely to be ignored.

Other studies mentioned in Pagendarn and Schaumburg (2001) and also in Bayles (2000) provide apparently contradictory results, with informants paying more than one second to look at the banner. But in reality there is no contradiction: even if informants did realise that the banner was on the Web page, that is, even if the informants were not *banner blind* after all, a cognitively deeper layer of attention is
required to decide that the eventually relevant information has to be accessed through the banner and then decide to click on it.

A possible solution to this cognitive dismissal of banners when repeatedly placed in the same position is a variation in the design of the banner. Fernández (2001) mentions one possible format: the 160 by 600 pixel banner, colloquially called skyscraper, which not only attracts the users' attention with its unusual long and thin vertical shape, but takes advantage of the fact that most texts do not fit on the computer screen (see Sandoval Martín, 2000). These banners are so long that they accompany the user, as it were, while he or she is reading the text beside it. The user is then forced to look at the banner at the different stages of reading and, if contextually relevant (i.e., the banner is placed on a suitable Web page that fits in with the user's current search for relevance), the banner will probably get an increased number of click-throughs.

Let us return to Alaman's (2003) list of qualities that can result in an increased number of click-throughs on the banner:

5. Using simple rather than complicated messages.
6. Getting visitors' curiosity without being too obscure.
7. Specifically stating “click here”.
8. Keeping banner ad size small so that the page does not take too long to load.

Users with a narrow-band Internet connection (e.g. via modem) will be annoyed to find out that the reason why the Web page takes so long to appear on the screen is that it is filled with banners. However, nowadays this common-sense idea of "higher complexity-lesser relevance" is not followed by advertisers and designers of Web pages. As Hansell (2001a) correctly points out, as even the biggest Internet sites struggle with a sharp decline in ad revenue, sites are letting their remaining advertisers occupy a much larger portion of their pages, as well as create advertisements that move, make a noise and otherwise do whatever it takes to attract attention. Big advertisers have long complained that the oblong spaces they have been able to buy on Internet sites are too small to tell a persuasive story. But most sites were afraid that bigger and bolder advertisements would irritate their users. Now that sites have plenty of users and fewer advertisers, their priorities are shifting quickly. This is clearly counter-intuitive. Hansell (ibid.) acknowledges that the very tactics that are effective in diverting people's attention from the information which they wanted to get in the first place will inevitably annoy some of them: "A sudden burst of sound from an otherwise demure Web site is not only a shock, but also a potential embarrassment to someone sneaking in a little personal surfing time while ostensibly working in an office cubicle. And all the graphics and other information required for these new ads can make the opening of Web pages infuriatingly slow".

On paper, then, the verbal-visual design of some banners stands out on the Web page, especially when the colours are bright, the slogan is shocking or some animation is activated when the Web page is accessed, although a different issue is whether the users will be more willing to click on them just as a consequence of the innovative design.

Several tests have been undertaken in order to determine the role that the design of the banners plays in their eventual efficiency. In Pagendarm and Schaumburg (2001) several surveys are cited. One of them was made by COBUS with 1178 German Internet users and showed that banners with an appealing design do attract the users' attention. Nearly half the respondents reported that they looked at advertising banners if they were well designed (which does not mean that these banners interact in a relevant manner with these users' current context of interpretation). Only a third of the respondents said that they ignored these well-designed banners.

Despite this empirical evidence, from a relevance-theoretic point of view the role that the design of the banner plays seems to be subservient to the overall cost/benefit search for relevance in which the user is normally engaged when deciding to pay attention to a particular Web page, to focus on some area of the Web page, or to leave the Web page altogether after clicking on the banner.
Nevertheless, a possible way to make the design of banners more relevant is to get the users' involvement by challenging them to improve their background knowledge by taking their own responsibility in extracting the necessary cognitive effects. This can be achieved if the user is asked to resolve some inferential or metadiscursive puzzle contained in the banner. For instance, resolving incongruities can be used in order to draw the users' attention and get click-throughs simply because human beings are biologically geared towards resolving the incongruities that they come across in the surrounding world.

For example, banners can contain a text (e.g. a slogan) that plays with the normal relevance-oriented search for a first interpretation which offers the highest reward in exchange for the least mental effort. In relevance theory, four statements summarise how comprehension proceeds when the addressee is looking for a relevant interpretation (Wilson, 1994: 44): (a) the decoded meaning of the sentence is compatible with a number of different interpretations in the same context; (b) these interpretations are graded in terms of accessibility; (c) hearers rely on a powerful criterion when selecting the most appropriate interpretation; and (d) this criterion makes it possible to select one interpretation among the range of possible interpretations, to the extent that when a first interpretation is considered a candidate to match the intended interpretation, the hearer will stop at this point.

These statements help us understand how the accessibility to a suitable context can be controlled and some interpretations of the same utterance can be made more prominent for different purposes, among them for drawing the user's attention to an apparently puzzling interpretation of the banner. For example, take (11) below:

(11)

a. How is your girlfriend?

b. She's no longer my girlfriend.

c. [They have split up].

d. [They are now married].

e. [His girlfriend has died].

In this short dialogue (11a-b), a logical interpretation of the answer such as (11c) is much more accessible than other alternative interpretations such as (11d-e), although any of (11c-e) are, on paper, possible. Of course, in normal circumstances, the hearer is expected to select (11c) as the intended interpretation of (11b) and never take into consideration the possibility that (11d-e) are intended. Crucially, this layering in the likelihood of interpretations of the same utterance in a specific context can be exploited in order to obtain some relevant effects. For example, in the film Four Weddings and a Funeral (Mike Newell, 1994), the continuation of this dialogue leads to a misunderstanding (see Yus, 1999), but it is no doubt the speaker's fault, not the hearer's, since the speaker should have been aware of how salient interpretation (11c) is, compared to (11d):

(12)

A. So, John, how's that, how's that gorgeous girlfriend of yours?

B. She's no longer my girlfriend.

A. Oh dear. Still, I wouldn't get too gloomy about it. Rumour has it she never stopped bonking old Toby de Lisle just in case you didn't work out.

B. She's now my wife!

A. Excellent! Excellent! Congratulations!

(...)

A. Any kids or anything, John?
Here, the speaker is unintentionally favouring the "split-up interpretation" which is much more accessible than the "now-wife interpretation" which is eventually the right one.

Humorists also play with this layering of interpretations of the same utterance and with the fact that the audience is inevitably geared towards selecting a first interpretation which offers the best balance of interest (cognitive effects) and mental effort. For instance, in Yus (2003) it is claimed that one of the key humorous strategies in jokes lies in a manipulation of the accessibility to certain interpretations which are then invalidated, producing a humorous incongruity (in other words, a "cognitive dissonance"). In short, the humorist builds up an utterance whose initial part has a first accessible interpretation in terms of the balance of interest and (mental) effort. Once the speaker manages to fool the hearer into selecting that accessible interpretation, the humorist knows that other possible interpretations will not be taken into account. Then, the speaker creates an incongruity with the subsequent stretch of discourse, an incongruity that has to be resolved by the surprised audience. The answer lies in a covert, more unlikely interpretation, compatible with the whole text (but not with the initial part). Since the hearer stops the interpretive process at the first interpretation which offers an optimal balance of interest and effort, this latent interpretation is not taken into consideration until the speaker humorously foregrounds it. In these cases, the humorist's play on on-going assumptions arising from already processed information is crucial. The humorous intention focuses on the context that is built up in the processing of the (eventually correct) covert interpretation against the already processed (accessible) interpretation of the initial part of the text. An example is provided below (Yus, ibid.: 1310):

(13) "Things don't look good. The only chance is a brain transplant. This is an experimental procedure. It might work, but the bad news is that brains are very expensive, and you will have to pay the costs yourselves". "Well, how much does a brain cost?" asked the relatives. "For a male brain, $500,000. For a female brain, $200,000". The patient's daughter was unsatisfied and asked, "Why the difference in price between male brains and female brains?" "A standard pricing practice," said the head of the team. "Women's brains have to be marked down because they have actually been used".

Overt accessible interpretation in the initial part: Women are less intelligent than men.
Covert unlikely interpretation fitting the whole joke: Women are more intelligent than men.

Advertisers have also exploited this multiplicity of meanings of the same text in a specific context and played with the audience's inherent search for relevance and for resolution of incongruities. The basic aim here is to get the audience to pay attention to the ad while engaged in resolving the incongruity (see Tanaka, 1994). One typical example is the advertisers' play on the ambiguity of sentences or words with the aid of visual information. In a nutshell, the advertisers know that one interpretation of the text of the ad is more likely to be selected as the intended one but, with the aid of the visual context of the ad, a second, more unlikely interpretation is placed at the same level of interpretive likelihood as the initial one, and this leveling generates an incongruity in the processing of the text. This incongruity is likely to draw the audience's attention to resolve it and lead to their conscious assessment of this duality of interpretations. The ultimate aim of the advertisers is to make the audience pay attention to the ad in a time like today's, where people are bombarded with a barrage of advertisements. Some examples are provided below:
This meta-discursive exploitation of relevance may lead to an increased interest in the banner, but in my opinion the ulterior clicking on it depends more on how relevant the banner is in the overall context of the users' navigation on the Internet. Placing banners on Web pages which the users have accessed for a purpose and whose information leads to an effective strengthening of, revision of, or combination with the user's background knowledge and intentions, are bound to be most effective in relevance-theoretic terms, and will surely make users be more willing to click on them.

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