

Newspaper headlines and relevance: Ad hoc concepts in ad hoc contexts

Elly Ifantidou *

University of Athens, School of Philosophy, Faculty of English Studies, Panepistimioupoli Zographou, GR-157 84 Athens, Greece

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Abstract

This paper addresses the issue of newspaper-headline interpretation by questioning standard assumptions on how headlines are designed on the basis of largely prescriptive pragmatic guidelines or norms. The main questions examined are firstly, whether ‘appropriate headlines’ from the writer’s perspective converge with ‘effective headlines’ from the reader’s perspective, and secondly, whether there is a pragmatic heuristic which can explain in psychologically plausible terms the way headlines are selected and interpreted by newspaper readers. Drawing on 137 readers’ reaction to a selection of UK/US newspaper headlines and on a corpus of 1310 reader-selected headlines, it is shown that headline readers tend to disregard standard norms such as length, clarity, and information as long as headlines rivet their attention in terms of creative style regardless of underdetermined semantic meaning. Using the framework of Relevance Theory (Sperber and Wilson, 1986/95; Wilson and Sperber, 2004; Wilson and Carston, 2007; Sperber and Wilson, 2008), it is suggested that readers select headlines guided by expectations of relevance and interpret headlines by creating occasion-specific *ad hoc concepts* and *ad hoc contexts* in an overall attempt to optimally ration *processing effort* with *cognitive effects*.

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1. Introduction

In journalism and desktop publishing textbooks, headlines are viewed as a riveting short-cut to the contents of newspapers (Bowles and Borden, 2000; Ellis, 2001; Saxena, 2006). This means that, in principle, headlines seek to perform two functions:

- (a) summarize and
 - (b) attract attention to
- the full-text newspaper article.

Fundamental though it may seem to be, their function to summarize has been questioned by showing that headlines do not accurately represent the articles they introduce (see Althaus et al., 2001 on political news reports; Andrew, 2007 on election news reports). It has also been shown that they do not improve readers’ comprehension (León, 1997) nor do

* Permanent address: 23 Thrakis Street, 171 21 N. Smyrni, Athens, Greece. Tel.: +30 210 9348374; fax: +30 210 9348374.

E-mail address: ifelly@enl.uoa.gr.

they include substantial information (Smith, 1999). In the above cases, it was concluded that headlines make a loose, inadequate or misleading substitute for full-text news reports in a number of ways: by directing the reader's attention to an aspect of the story, by highlighting the topic in a non-objective, yet intriguing way, by oversimplifying the full-text content, while consistently masking other 'relevant' information. Precisely because headlines consistently underrepresent, or overrepresent, and hence misrepresent, news stories, readers' previous knowledge and sophisticated reading strategies are claimed to be critical in retrieving the explicit or implicit meaning conveyed (León, 1997:101–102; Althaus et al., 2001:715).

If headlines lack in informative value with respect to the article introduced, their function to attract attention may be more promising as a goal to fulfil. So far, which headline features appeal to *readers* has been ignored for the sake of criteria *writers* draw on in order to create 'appropriate' headlines. To this end, mastery of headline writing is claimed to ensue from a number of guidelines that headline writers should follow. Directives along the lines of 'use simple, short, concrete and appropriate words', 'avoid auxiliary verbs', 'do not use articles', 'use verbs', 'use verbs correctly', and surprisingly, '*do not imply meanings*' (author's emphasis) are a few of the twenty five rules suggested by Saxena (2006:169–196). 'Creativity' and 'imagination' are properties mentioned for headline writers to pursue (Saxena, 2006:17), but respective techniques or linguistic features are not given. Such lists of specific rules indicate the mechanical, restrictive and occasionally, uninspiring approach to headline construction. Whether readers' perspective on 'effective' headlines and reading habits converge with the writers' conception of headline design remains an uninvestigated issue too.

Linguistic analyses have not escaped identifying regularities (Bell, 1991:185–190) in creating 'appropriate' headlines based on 'professional *intuitions*, shared by news editors' (Dor, 2003:708–716). Dor's taxonomy epitomizes the copy-editing practice in terms of the following properties:

- [1] be as short as possible
- [2] be clear, easy to understand, and unambiguous
- [3] be interesting
- [4] contain new information
- [5] *not* presuppose information unknown to the readers
- [6] include names and concepts with high 'news value' for the readers
- [7] *not* contain names and concepts with low 'news value' for the readers
- [8] 'connect' the story to previously known facts and events
- [9] 'connect the story' to prior expectations and assumptions
- [10] 'frame' the story in an appropriate fashion

(Dor, 2003:708–716)

A number of questions arise in using appropriacy lists such as the above. Is there a single overarching property? Property [3] seems *prima facie* to be general and central enough in the sense that the rest either explain it, e.g. [4], [6], or must be violated in order to preserve it, e.g. [2], [5]. Alternatively, should 'good' headlines be designed so as to meet *all* properties? If so, is there a hierarchy in terms of prioritizing suggested properties? For example, is 'short length' [1] and 'clarity' [2] considered to be more important than '(raising) interest' [3] and '(connecting the story to) prior assumptions or expectations' [9]? If so, is there any empirical evidence on the reader's part to support such a hierarchy?

Building an account of newspaper headlines on copy-editors' views is bound to produce a prescriptive account, not a description of readers' expectations or preferences which could contribute firstly, to a realistic definition of 'effective' headlines, and secondly, to a plausible explanation of how headlines are interpreted. In fact, it is not clear whether "the maximal number of the above conditions" (Dor, 2003:716) can be met without producing self-contradictory types of headline. Examples (1–13) are used to show that Dor's properties (with the exception of 3) can be questioned as to whether they can safely give rise to effective headlines from the reader's point of view.

Assuming that property [3] is the more central feature the rest should seek to fulfil, a number of observations can be made. Interesting headlines may be due to 'new' information conveyed, but interesting headlines may be semantically underdetermined to the extent that no information is conveyed, due to vague concepts, as in (1) or (2), or due to purposeful syntactic or lexical ambiguity, as in (3) and (4), respectively.

- (1) An unending search for perfect thrills
The New York Times, 12/06/2004
- (2) The smell of corruption, the scent of truth
The Guardian, 21/02/2002
- (3) Race hate link alleged in dog attack murder trial
The Guardian, 21/02/2006
- (4) New Orleans is awash in mental health problems
Herald Tribune, 22/06/2006

A headline can be interesting regardless of length (property [1]), or information conveyed (properties [4]–[8]): quoting/hearsay headlines may sacrifice short length¹ at the expense of specific information, as in headlines (5) and (6), whereas question headlines raise issues by not presupposing any new information or not containing any ‘high-value’ names or concepts, as in headline (7).

- (5) As oil prices soar, OPEC members say it’s ‘not our fault’
The New York Times, 12/06/2004
- (6) ‘I was just putting on my tiara when the lights failed’
The Daily Telegraph, 21/02/2002
- (7) Whose finger on the export trigger?
The Guardian, 21/02/2002

In more detail, a wide range of affirmative headlines may be intriguing by violating rather than complying with properties [1–10]. Headlines may contain semantically underdetermined information by being vague and obscure in various degrees: (1) and (2) allow for an indefinite number of interpretations, with (2) slightly narrowing the range of possible interpretations to a ‘corruption’ related story, with hardly any factual information conveyed in both cases.

Headline writers often violate property [2] ‘be clear, easy to understand, and unambiguous’ to create memorable headlines by being purposely ambiguous, and hence less clear and less easy to understand. This is the case in headline (3), where syntactic ambiguity (*link*: verb/noun?) and two complex noun phrases (*race hate link*, *dog attack murder trial*) raise the processing effort on the reader’s part, and in headline (4), where the ambiguous lexical item ‘awash’ triggers the twofold interpretation ‘covered with water’ or ‘containing a large amount of’. Similarly, the condition that only known information must be presupposed – property [5] – does not have to necessarily hold either. Headline (8) presupposes some familiarity with *Amedeo Modigliani’s* elongated *portraits*, (9) presupposes knowledge of *opium cultivation in Afghanistan in the past and prior expectations of banning it*, (10) presupposes that explorers have been after *El Dorado for quite some time*, and (11) presupposes the prior expectation that animals can *not* be happy.

- (8) The faces of Modigliani: Plane geometry personalized
The New York Times, 5/06/2004
- (9) Flourishing again, Afghanistan’s deadly – and lucrative – crop
The Guardian, 21/02/2002
- (10) Explorers still seek El Dorado in peaks of Peru
The New York Times, 12/06/2004
- (11) Animals can be happy too
The Guardian, 29/05/2006

The amount of presupposed information retrievable by individual readers is bound to vary, but even in the case of limited or no presupposed information, headlines (8, 9, 10, 11) can be, for a number of reasons, attention-getting or intriguing. Properties [1] ‘be as short as possible’, and [6] ‘include names and concepts with high ‘news value’ for the readers’, are also neither necessary nor sufficient conditions for interesting headlines. Lengthy headlines may be interesting due to topic raised, e.g. headlines (8, 9, 10), whereas high ‘news value’ names may appeal to restricted readerships, e.g. headlines (12, 13).

¹ ‘Short headline’ (<5–6 words) and ‘long headline’ (>9–10 words) are defined based on statistical analysis of readers’ corpus (see section 5.1).

- (12) Jockey Fallon charged over fraud probe
Daily Mirror, 3/07/2006
- (13) Why can't Paris Hilton find her Mr Right?
Daily Mirror, 3/07/2006

The above observations suggest that rule-based headlines may be self-contradictory (e.g. clash between properties [4] and [8], overlap between properties [5] and [8]), or not necessarily reader-effective. As Dor (2003:707) points out, editors themselves are reluctant to provide a definition for the 'right' type of headline but they can straightforwardly pick out the 'preferred' headline from a set of alternative ones. This editing reservation might suggest slackening of specific norms, principles or properties, and shifting emphasis on readers' reaction to what is appealing instead. Despite the claim that "each of these properties is reducible to a relevance-oriented strategy", Dor preserves the [10] relevance-optimizing paths in the following way:

"Headlines can optimize relevance by requiring the *minimal amount of processing effort* – by being short, clear, unambiguous and easy to read. Headlines can optimize relevance by carrying the *maximal amount of contextual effects* – by being interesting and new. Headlines can optimize relevance by making sure the readers construct the *right context for interpretation*, and by making sure that their content is compatible with that context – by avoiding unknown presuppositions, by containing names and concepts with a high 'news value', by avoiding names and concepts with low 'news value', by connecting the story to previously known facts and prior expectations, and by framing the story in the proper fashion. As we have seen, headlines do not meet these criteria all at once. The art of headline production consists of formulating the headline which meets the maximal number of the above conditions, thus providing the reader with the optimal ratio between contextual effect and processing effort." (Dor, 2003:716)

Effective headlines may indeed aim at triggering the reader's optimal ratio between contextual effect and processing effort albeit not through the paths specified by Dor. It may just be the case that readers do not consider 'clear' and 'unambiguous', or (any) 'short' headlines interesting. It may be the case that 'easy to read' headlines devoid of 'unknown presuppositions' are not intriguing enough. Moreover, it is not clear how readers construct the 'right context for interpretation' in the case of linguistic fragments outside a discourse context. And it is not obvious how headline writers can "make sure that their (headlines') content is compatible with the context", when fragmented or no context for interpretation is provided?

Apart from reconsidering the role of properties in 'appropriate' headline-construction, this account also casts doubt on the role of headline as "... textual negotiator between the *story* (author's emphasis) and its readers" (Dor, 2003:698). As already suggested, recent work supports the view that headlines are better seen in terms of autonomous texts rather than (faithful) representations of the story they introduce and that unless one reads the actual news report, s/he receives a distorted or incomplete account of the story (León, 1997; Smith, 1999; Althaus et al., 2001; Andrew, 2007). Genuinely interested newspaper readers can refer to the related article and retrieve the story's meaning, but in numerous cases this may not be possible, or desirable. Headlines are purposely read for the sake of a quick and loose news update, are skimmed in morning TV front-page press overviews, are daily browsed in newsstands, are studied in academic courses on media or language genres as self-contained linguistic units. In these cases, headlines are intended as autonomous meaningful constructions and are (or should be) designed to be interpreted as such (see also Bell, 1991; Jucker, 1996). Dor's observation that readers mostly scan headlines rather than read the accompanying stories (Dor, 2003:696–697, 718, 720) reinforces the 'autonomous-text' view of headline interpretation adopted in this work.

Reading headlines as self-contained texts can have a twofold pragmatic effect. Firstly, headlines may receive 'distorted' interpretations, because unless the full-story is also read, there is always the risk of retrieving a 'wrong' interpretation. Secondly, headlines may not be strictly read for their newsworthiness, but for a rough approximation to information, because unless the accompanying news report is consulted, accurate newsworthy information cannot be safely obtained.

In this respect, the perspective adopted in this work shifts emphasis from 'property-driven' and 'mediating' (between story and reader) headlines, on reader-effective headlines and on the role of inference in headline interpretation. As will be shown, the two are closely related, since a realistic definition of reader-effective headlines is one where inference has a key-role to play. This study uses the readers' intuitive reaction to pre-selected headlines and the readers' own corpus of headlines to provide (a) a descriptive account of 'effective' headlines from the readers' point of view, and (b) an explanatory account of the highly inferential process required for headline interpretation.

Using the relevance-theoretic unitary approach to lexical pragmatics (Wilson and Carston, 2007), headlines are analysed as fragmented meanings requiring construction of occasion-specific senses, or *ad hoc concepts*, in *ad hoc contexts* created by drawing on encoded concepts and pragmatic expectations or principles.

2. Headlines and inference

The dilemma that largely informs headline design draws on a clash between ‘clarity + information’ and ‘brevity + vagueness + curiosity’ (see also Reah, 1998; Kronrod and Engel, 2001). Decisions as to whether information is to be explicated, as in summarizing or quoting headlines, or inferentially retrieved, as in creative (i.e. figurative, ambiguous, humorous,² inter-textual, rhetorical, rhyming, punning) headlines, often run parallel to a number of related issues. ‘Clear + informative’ headlines, on the one hand, and ‘intriguing + uninformative’ headlines, on the other, may be suited to address different topics (hard news vs. light/entertaining stories), different newspaper styles (broadsheet vs. tabloid) and different readership preferences (information vs. curiosity arousal). Granting the reduced semantic value of headlines, what has been largely overlooked in the literature is the highly inferential process readers have to engage in to retrieve fully propositional meanings expressed by semantically underdetermined headlines, regardless of topic, style, or reader preferences. Far from addressing the issue of pragmatic inference in headline interpretation, ambiguity and implicit meaning have been viewed as ‘confusing’ and ‘problem’ raising (Reah, 1998:13) or as ‘misleading’ (Saxena, 2006:174), or as too effortful processes overridden by syntactic parsing (Perfetti et al., 1987:706).

The present work views headlines as a type of linguistically *underdetermined* meaning, where the linguistically encoded meaning may underdetermine (not fully determine) the proposition a writer expresses by a particular linguistic string (see Carston, 2002). Semantic underdeterminacies may include:

- (a) multiple encodings (i.e. ambiguities)
 - (e.g. scope ambiguity: *Everyone isn't hungry* [not everyone is hungry] or [no one is hungry])
- (b) missing constituents
 - (e.g. *He is too young*. [for what?])
- (c) unspecified scope of elements
 - (e.g. *That is difficult* [relative to whose abilities?])
- (d) underspecificity or weakness of encoded conceptual content
 - (e.g. *Ann wants to meet a bachelor* [BACHELOR*³ narrowed to a particular subset: heterosexual, youngish, interested in marriage, etc.]
- (e) overspecificity or narrowness of encoded conceptual content
 - e.g. *Her face is oblong* [loosening of OBLONG TO ROUGHLY OBLONG]
- (f) indexical references (*uncommon in headline constructions*)
 - (from Carston, 2002:28)

Disambiguating, adding conceptual material or adjusting linguistically encoded concepts (as illustrated in (a)–(f)) are enrichment processes frequently carried out in particular discourse contexts (see Wilson and Carston, 2007). Unlike ordinary cases of pragmatically fine-tuning the meanings of words in context, headlines are different in the sense that contextual information may be rudimentary, i.e. elliptical or underspecified, as in (14–16):

- (14) Students – and poverty *The Guardian*, 21/02/2002
[with respect to what? → tuition fees, living expenses, medical insurance, study materials/equipment, travel]
- (15) Angola's golden goals *The Observer*, 15/06/2006
[in which domain? → sports, politics, business, investment, socio-cultural]
- (16) Around the Globe in 17 min *The Observer*, 15/04/2006
[literal interpretation, or metaphorical extension?]

² On ambiguous headlines as a source of humour, see Chiara (2004).

³ The starred notation marks concepts not encoded in the language but components of the “thought (meaning) that the speaker wants to communicate which may not be encodable at all in the language (or would require a lengthy and, at best approximate, paraphrase)” (Carston, 2006).

or unspecified, as in (1, 2) repeated below, where any context could serve a number of plausible interpretations.

- (1) An unending search for perfect thrills
The New York Times, 12/06/2004
- (2) The smell of corruption, the scent of truth
The Guardian, 21/02/2002

An account of how headlines are interpreted in the absence of a discourse context should provide answers to the following related questions:

- (a) Does failure to retrieve the story meaning lead to a breakdown in communication, or to misinterpretation, and hence to ineffective headlines from the reader's perspective?
- (b) Is there a comprehension heuristic to account for the fact that readers derive a warranted conclusion about the headline meaning based on rudimentary contextual information?

The results of this work suggest that headlines are effective once an *occasion-specific* sense is recovered, even if the retrieved interpretation is *not* the one developed in the full story-article. Such headlines purposely allow readers a greater latitude for pragmatic inference, especially in the case of topics on the entertaining side.⁴ In cases where the headline writer wants to make sure that a specific interpretation is retrieved, s/he will use an explicit linguistic construction yielding a partly encoded, partly pragmatically inferred, yet more predictable interpretation. Examples include quoting headlines, e.g. (6) *'I was just putting on my tiara when the lights failed'*, headline-summaries, e.g. (8) *The faces of Modigliani: Plane geometry personalized*, or a combination of the two, e.g. (5) *As oil prices soar, OPEC members say 'it's not our fault'*. In fact, the participants who volunteered their views for the purposes of this work, expressed a clear preference for headlines which are open to more than one interpretation and seemed to reject the explicitly informative type. How the key-role of inference in headline interpretation can be addressed in the relevance-theoretic framework is discussed next.

3. Relevance, headlines and inference

Recent work in relevance theory (Wilson and Carston, 2007) has proposed a radical version of a unified approach to lexical pragmatics, and to how “the meanings of words are frequently pragmatically adjusted and fine-tuned in context, so that their contribution to the proposition expressed is different from their lexically encoded sense” (Wilson and Carston, 2007, Abstract). In this fully *inferential* account, not only the meanings of individual words or phrases but a number of phenomena are treated as varieties of a single pragmatic process of lexical adjustment involving either lexical *narrowing* or *broadening*. Literal use, approximation, hyperbole, metaphor are handled in terms of “a continuum of cases . . . with no clear cut-off points between them” (Wilson and Carston, 2007:231) with degrees of narrowing or broadening incurring greater or smaller departures from the encoded meanings. For example, in ‘Johnny Depp is *happy*’, the writer might be understood as conveying that Johnny Depp feels *RELIEVED** for completing *Pirates of the Caribbean 3*, that he is *SATISFIED** with positive critiques in the press, or that he is *THRILLED** with winning the Oscar for leading actor in the *Libertine*. Each interpretation is narrower than the encoded sense in different degrees and in different directions. On a literal interpretation, the writer would be understood as making the ‘low value’ or dull claim that Johnny Depp is in *GOOD MOOD* but lexical narrowing yields a more ‘plausible, informative or relevant interpretation’ on which the writer is understood as conveying the degree and circumstances of Johnny Depp’s happiness.

Alternatively, words are used to convey a more general sense than the encoded one, with their linguistically specified denotation expanded to include different degrees of broadenings. For example, in ‘His *square* face did not move’, the word ‘square’ might be intended either literally (*SQUARE*, as in ‘true, right-angled robot’s face’) or as an *approximation* (*SQUARE**), to convey an interpretation of Michael Douglas’ square-like, blank look in *The Instinct*. *Hyperbole* is treated as incurring an extra degree of broadening, and a greater departure from the encoded meaning. In ‘You will *never* finish your homework’, a parent might hyperbolically suggest that as a result of the *SLOWLY** studying habits of her son, he will be late

⁴ Whether there is a correlation between explicit/informative headlines and ‘hard’ news (e.g. physical disasters, medical developments, fires, wars, accidents, politics), on the one hand, and between fully-inferential/non-informative headlines and ‘entertaining’ stories (e.g. art, lifestyle, sports, celebrity interviews, fashion) on the other, is an assumption open to investigation.

for bed. In the relevance-theoretic account, *metaphor* is handled as an extreme variety of broadening, involving yet a greater departure from the encoded meaning. For example, in appropriate circumstances, the headline ‘*Fossilized public insurance law*’ may be used to metaphorically convey the writer’s criticism of the INFLEXIBLE*, outdated policy proposed by the current government—which is a radical development of the encoded meaning of the word ‘ANIMAL/PLANT FOSSILS’ (for more varieties of broadening, see Wilson and Carston, 2007). Noteworthy is the substantial departure from the traditional literal-figurative distinction: on the relevance-theoretic unitary account of lexical pragmatics, different types of literal and figurative meaning are not distinct natural kinds but cases-on-a-continuum involving exactly the same inferential interpretive mechanism with no clear cut-off between strictly literal use, approximation/loose use, hyperbole, metaphor/figurative meaning (Wilson and Carston, 2007:231).

Headline interpretation involves similar lexical adjustment processes of concept narrowing or broadening, only that contextual information is often impoverished enough for readers to have to rely on a combination of encoded meaning and background knowledge, assumptions and interests to retrieve a plausible and relevant interpretation. How in the absence of a discourse context readers derive warranted conclusions about headline meanings is an issue hardly raised, let alone addressed in the relevant literature. In the framework of relevance theory, I will show how readers use a comprehension heuristic to derive a warranted conclusion of the headline meaning based on rudimentary contextual information (section 5.2). The latter is more obvious in the case of non-informative, creative types of headline which, as shown by the results of this work, readers seem to largely prefer (section 5.1). Next, the basic tenets of relevance theory are introduced.

Relevance theory (Sperber and Wilson, 1986/95; Carston, 2002; Wilson and Sperber, 2004) considers utterance interpretation, and lexical narrowing and broadening in particular, as a cognitive process guided by expectations of relevance. ‘Relevance’ is generally characterized as a property of inputs – external stimuli (sights, sounds, utterances) or internal representations (thoughts, memories, assumptions) – to cognitive processes. An input becomes relevant when it links with available contextual assumptions to bear different types of *positive cognitive effect* – it may combine inferentially with existing assumptions to yield new conclusions (true *contextual implications*), it may contribute new evidence that confirms existing assumptions (*warranted strengthenings*), or it may contradict and eliminate already known information (*revisions of existing assumptions*). For the purposes of headline interpretation, the most common type of cognitive effect is a contextual implication which is deducible from input and context together, where context may be fragmentary or unspecified. In these cases, readers create ad hoc contexts and build occasion-specific senses (or ad hoc concepts) based on interaction between encoded meanings and background assumptions or interests. In this way, they retrieve a plausible and relevant interpretation, albeit not necessarily the interpretation developed in the accompanying article.

For Sperber and Wilson, relevance is a delicate balancing act between cognitive effects and processing effort: the greater the ratio of effects to effort, the greater the relevance of an input. Under this definition of relevance, for humans to aim at maximizing relevance (as stated in the *Cognitive Principle of Relevance*) is to aim at retrieving as many positive cognitive effects as possible for as little processing effort as possible (see Wilson and Sperber, 2004). Any act of ostensive communication (e.g. an utterance, or for present purposes, a newspaper headline) raises expectations of relevance in its addressees (as stated in the *Communicative Principle of Relevance*), and is processed under the *Presumption of optimal relevance* (below) in interaction with more occasion-specific expectations about the direction in which the relevance of the utterance is to be sought.

Presumption of optimal relevance

- (a) The utterance is relevant enough to be worth processing.
- (b) It is the most relevant one compatible with the communicator’s abilities and preferences.

The key to relevance-theoretic pragmatic processing is that addressees use the sentence/linguistic meaning produced by the communicator as a clue to her intentions, and derive a warranted conclusion about the communicator’s meaning following the heuristic below:

Relevance-guided comprehension heuristic

- (a) Follow a path of least effort in constructing an interpretation of the utterance (in resolving ambiguities, referential indeterminacies, in going beyond linguistic meaning, in supplying contextual assumptions, computing implicatures, etc.).
- (b) Stop when your expectation of relevance is satisfied (or abandoned).

The above heuristic determines the on-line interpretive procedure followed by the addressee in the sense of choosing the most accessible interpretation, unless – granting the available evidence – it may seem unlikely to prompt an overall interpretation that satisfies his expectation of relevance. Essentially,

“... the fact that an interpretation is highly accessible gives it an initial degree of plausibility. A hearer using this heuristic will stop at the first overall interpretation that satisfies his expectation of relevance: this is the best hypothesis about the speaker’s meaning given the evidence available to him.” (Wilson and Carston, 2007:246)

This model of pragmatic processing carries over to cases of lexical adjustment in constructing both the proposition expressed and any contextual implications or implicatures conveyed by newspaper headlines. However, whether inference as an interpreting tool affects readers’ headline preferences remains an open question. To assess the role of inference, and the significance of a range of semantic and pragmatic features in shaping readers’ perception of ‘interesting’ headlines, the following experiment has been administered. As a first step towards providing a realistic definition of ‘reader-effective’ headlines, the features of ‘interesting’ headlines are evaluated using the readers’ selection of ‘interesting’ headlines and respective features (section 5.1). As a second step towards providing a realistic definition of ‘reader-cost-effective’ headlines, the inferential lexical adjustment process readers engage in to retrieve a plausible interpretation of headlines (1), (4), (34) (Appendix) is described and explained in the framework of Relevance theory (section 5.2).

4. Experimental evidence

4.1. Rationale

To provide a plausible definition of ‘effective’ headlines, University of Athens undergraduates evaluated headlines selected from UK/US newspapers addressing both ‘hard’ news (e.g. analytical reports on political, economic, social issues) and light stories (entertainment, fashion, arts, sports). The 36 headlines used (see Appendix) were drawn from both broadsheet and tabloid newspapers (*The Guardian, The New York Times, The Independent, The Observer, The Daily Telegraph, Herald Tribune, Daily Mail, Daily Mirror, The Sun*) but the issue of which type preferred headlines come from falls outside the scope of the current study. Similarly, the distinction between ‘international’ vs. ‘locally situated’ topics is not strictly speaking relevant, since non-national newspapers were exclusively used, and as a consequence, ‘international’ topics were exclusively addressed to the Greek subject-readers used in this study. However, the influence of the two variables (i.e. international, domestic) was statistically analyzed in terms of data from two reader-profile variables, i.e. interests and prior knowledge (Table 3, C and D).

The headlines appeared in 22 newspaper issues dated 2006, in 1 dated 2005, in 5 dated 2004, and in 8 dated 2002 (see Appendix). Experiments were conducted in 2006 and 2007. The 36 headlines have been selected on two grounds: (a) as being vague and semantically underdetermined, i.e. not explicitly linked to specified referents or spatiotemporal context, and (b) as being clear and specific, explicitly linked to specified referents or spatiotemporal context. To reduce time lapse effects, headlines under (b) were purposely selected so that story-protagonists, or spatiotemporal context, sustained newsworthiness beyond the strictly ‘currently newsworthy state of affairs’, as in the case of Amedeo Modigliani, the Afghanistan war, OPEC/oil prices, Israel/Palestine conflict, David Beckham, Paris Hilton, Kate Moss, Tony Blair, the Queen of England. In the case of (a) un(der)specified and non-local meanings, time lapse is harder to interfere with *a priori* harder-to-retrieve ‘correct’ interpretations. Newspaper titles were purposely not revealed to avoid biased answers and the possibility of accessing the headlines or the accompanying news reports.

Subjects’ forced responses to close-ended questions on pre-selected headlines have been evaluated against a corpus of reader-selected headlines for inconsistencies with stated preferences. To provide an empirical justification for the pragmatic process of *ad hoc concept* construction in headline interpretation, subject-readers were asked to enrich the meaning of 7 words in the context of the host headlines without accessing the accompanying news reports.

4.2. Participants

159 undergraduate students (mean age 20.27, min = 17, max = 39, S.D. = 3.419) of English language and literature (78/1st semester students, 81/7th semester students, Fall 2006 and 2007) in the English Department, University of Athens, attending the author’s courses in Academic discourse and Semantic theory, participated in this study for extra

credit cumulative on their course grade. Of these, male respondents (7.5%) and native speakers (1.9%) were excluded from statistical analysis as exceptional cases. Similarly, respondents >24 years of age were excluded from statistical analysis as extreme cases (outliers). As a consequence, statistical analyses were performed on 137 readers (mean age 19.53, min = 17, max = 24, S.D = 1.641). Twenty judges (members of staff) with expertise in (Theoretical/Applied) Linguistics and (British/American) Literature assessed the 36 headlines in terms of informativeness and creativity.

4.3. Method and design

Results were obtained by assessing three types of data: (a) the judges' evaluation of the 36 headlines selected by the author (see Appendix), (b) the participants' evaluation of the same 36 headlines, and (c) the 137 participants' self-collected corpus of a total of 1310 'interesting' headlines. Headlines by 6 readers were excluded from analysis for deviating from the requested number of 10 headlines per reader and the requested number of 1 feature per headline.

Data under (a) required judges' validation of each one of the 36 headlines (see Appendix) as either (A) informative but not creative, or (B) creative but not informative, or (C) both creative and informative, or (D) neither creative nor informative. 'Creative' was defined as "humorous, playful, witty, punning, (employing) figurative language, rhyming, (drawing on) intertextuality, (drawing on) implicatures (rather than explicit meaning), (employing) literary style". Data under (b) required the readers'

1. rating each headline in terms of *degree of interest* on a 1-to-5 interval scale where: 1 = 'very interested', 2 = 'moderately interested', 3 = 'undecided', 4 = 'moderately not interested', 5 = 'not interested' (Question 1⁵)
2. rating *headline length* on a 5-level scale of word-count where: short = 1–2, 3–4, 5–6, 7–8, 9–10 words, and long = 4–6, 7–8, 9–10, 11–12, 13–14 words (Q2)
3. identifying features for *most interesting* headlines (Q3)
4. identifying features for *least interesting* headlines (Q4)
5. identifying headlines wishing to read the accompanying articles of, and justification (Q5)⁶
6. defining interesting headlines as either 'informative', or 'creative + imaginative', or 'both' (Q7)
7. interpreting the meaning of specific words in the context of the headlines these originally appeared in (Q8).

Data under (c) required participants'

8. selection of 10 (per reader) 'interesting' headlines (Q6)
9. specifying one feature per 'interesting' headline justifying the reader's choice (Q6)

For assessing 'most interesting' headlines in terms of defining features, a close-ended list of the following headline features was provided for readers to tick (Q3):

- a. type of vocabulary (figurative, colloquial, witty, humorous, familiar/unfamiliar, playful)
- b. length (long, short)
- c. type of information (new, old, updated)
- d. familiar topic
- e. background knowledge, assumptions and expectations
- f. clear, unambiguous, specific information, hence easier to understand, informative, non-creative
- g. ambiguous, vague, general information, hence open-to-more-than-one-interpretations, imaginative, intriguing, creative
- h. informative, hence allowing skipping article reading
- i. non-informative, hence inviting article reading

The same process was followed for the 'least interesting' headlines. To confirm results obtained from close-ended questions on features of 'most interesting' and 'least interesting' headlines, subjects were asked to collect any ten

⁵ Hereafter 'Q1, Q2', etc.

⁶ Data under Q5 and Q7 was excluded from analysis as superfluous for the purposes and length of the current work.

headlines that riveted their attention without consulting the accompanying articles (Q6). For each preferred headline, readers had to provide one feature (from the close-ended list in Q3) that determined their choice.

In the last part of the questionnaire (Q8), subjects had to construe the meanings of seven words in headlines (17–23) already considered under Q1:

- (17) Kate's back in therapy
- (18) The faces of Modigliani: Plane geometry personalized
- (19) Flourishing again, Afghanistan's deadly – and lucrative – crop
- (20) The smell of corruption, the scent of truth
- (21) Students – and poverty
- (22) Animals can be happy too
- (23) Tearful Captain Becks bows out

Readers were asked to provide (in one sentence) their own understanding of the underlined words in the context of the newspaper headline these originally appeared in. It was specifically pointed out that there is no 'correct' definition (in the sense of a dictionary meaning) in all seven cases. Instead, instructions emphasized the need to speculate and use their background knowledge and assumptions, their expectations (from reading the press) and their imagination in order to provide their own enrichment of the concepts in the particular headline-context they occurred in. To illustrate, subjects were presented with the following artificial examples⁷:

- (a) *His square face didn't move*
 - 1. true, right-angled square face of a robot
 - 2. square-like shape that Michael Douglas' face has
 - 3.
- (b) *Johnny is happy*
Johnny Depp feels
 - 1. peace of mind, due to completing *Pirates of the Caribbean 3*
 - 2. satisfaction, due to positive critiques in the press
 - 3. joyous exhilaration, due to winning the Oscar for leading actor in the *Libertine*
 - 4.

In this part, the *range* of interpretations received are examined, for these can indicate how natural and spontaneous *ad hoc concept* construction in headline reading can be. Worth considering may also be the readers' failure to identify the meaning developed in the main body of the article, and how this may support the 'autonomous-text' view of headline writing. Headlines (17), (18), (19) are used as exemplary cases.

Of the 36 headlines (see Appendix), statistical analysis was performed on data from 4 headlines that were validated by the judges as the most typical of the four categories. These were shown to be (24) *More than 30 dead in Spanish Metro crash*: (A) informative but not creative (frequency 20/20-valid percent 100%), (21) *Banana drama*: (B) creative but not informative (frequency 13/20-valid percent 65%), (12) *'The gloves are off' as Israel retaliates*: (C) creative and informative (frequency 14/20-valid percent 70%), and (27) *Wayne: I'll split him in two*: (D) noncreative and noninformative (frequency 11/20-valid percent 55%).⁸

27 variables (Table 1) were used to check whether they affected the probability of readers' answers as to their preference for each type of headline-category A, B, C and D.

Regression analysis has been used for being able to demonstrate the dependence of, and causal effect from, the explanatory variables to the response variables. In this respect, regression analysis can predict a relationship between two (or more variables), rather than simply describe it, as in the case of correlations. Specifically, ordinal logistic regression was performed to check the variables' (Table 1) influence on answers to the questions set (response variables are ordinal categorical variables). The explanatory variable (age) is scale or interval, whereas the remaining

⁷ Examples adapted from Carston (2006).

⁸ For each headline-category (A, B, C, D), several headlines with the greatest percentages were shown to be equal in terms of statistical significance, and as a consequence, ultimate selection of one headline per category cannot be resolved by χ^2 .

Table 1
Variables assessed.

Age
Prior knowledge
Lifestyle-social
Politics
Environment
Travel
Education
Arts
Sports
International
Domestic
Expectations
Information
Quick news overview
Leisure/entertainment
Interests
Lifestyle-social
Politics
Environment
Travel
Education
Arts
Sports
International
Domestic
Figurative vocabulary
Non-creative
Creative
Non-informative
Informative

explanatory variables are binary categorical variables. Variables that were shown not to affect the probability of headline preference at the 5% level of significance are excluded from the results presented here. Logit is used as link function, unless otherwise stated. To perform ordinal regression with SPSS, the null hypothesis of parallel lines must not be rejected at the 5% level of significance for an appropriate link function. No link function was found for the variables ‘prior-knowledge: travel’ (analysis of non-informative/non-creative headline), ‘non-informative’ (analysis of informative/non-creative headline), and ‘prior knowledge: politics’ (analysis of creative/non-informative headline).

McNemar tests were used to assess the equality of correlated percentages by measuring change among those percentages in which change actually occurred. The difference between paired percentages was measured in terms of two dichotomous dependent variables (yes–no attitude items). Specifically, McNemar tests were used to check whether the percentages of readers who consider ‘familiarity with topic’ and ‘background knowledge’ as features of interesting headlines are equal to the percentages of readers who consider ‘familiarity with topic’ and ‘background knowledge’ as features of non-interesting headlines. Similarly, the significance of the difference between the percentage of readers who consider ‘short’ as a feature of interesting headlines was equal to the percentage of readers who consider ‘long’ as a feature of ‘interesting headlines was assessed. McNemar tests were also used to assess the significance of the difference between preferred types of vocabulary (figurative, familiar, humorous, playful, witty, shocking, colloquial, unfamiliar). To evaluate the readers’ corpus of 1310 ‘interesting’ headlines, McNemar tests were used to assess the significance of the difference between preferred features of ‘interesting’ headlines (vocabulary, length, type of information, familiar topic, background knowledge, creative, non-creative, informative, non-informative), between preferred types of vocabulary (figurative, familiar, humorous, playful, witty, shocking, colloquial, unfamiliar), and between preferred lengths (short, long). Frequencies in respondents’ intuitive estimation of number of words for long and short headlines were examined to define ‘long’ and ‘short’ headlines based on the readers’ preferences.

5. Results and discussion

5.1. Reader-effective headlines

In order to be able to perform ordinal regression analysis, the null hypothesis of parallel lines must not be rejected at the 5% level of significance for each variable, as for ‘creative’ (significance = .141) and ‘non-creative’ (significance = .707) in the analysis of informative/noncreative headlines. At the 5% significance level the regression coefficient has to be zero variant, as for ‘creative’ (significance = .000 < .05) and ‘non-creative’ (significance = .000 < .05) (see Table 2A). Because ‘creative’ has a negative value (–.768), it is concluded that creative headlines reduce the probability of readers answering ‘very interested’ in informative/noncreative headlines (Table 2A). Because ‘non-creative’ has a positive value (1.393), it is concluded that non-creative headlines increase the probability of readers answering ‘very interested’ in informative/noncreative headlines (Table 2A).

Results from running ordinal regression analysis on informative/noncreative headlines (Table 2A) show that readers prefer *non-creative* and *informative* headlines. By contrast, results from running ordinal regression analysis on creative/noninformative headlines (Table 2B) and on noncreative/noninformative headlines (Table 2C), show that readers prefer *creative* and *non-informative* headlines.

Specifically, with respect to informative vs. non-informative headlines, a higher probability to prefer non-informative headlines was observed since this was a statistically significant finding yielded by two variables, i.e. ‘non-informative’ (increased probability to be interested) and ‘informative’ (decreased probability to be interested) in the case of two types of headline (Table 2B and C). ‘Informative’ yielded a statistically significant finding (increased probability to be interested) in the case of one type of headline (Table 2A), albeit with no significant confirming finding registered for ‘noninformative’ (i.e. decreased probability to be interested). With respect to creative vs. noncreative headlines, readers’ preferences are quite puzzling, since ‘non-creative’ was shown to be preferred in two statistically significant findings (‘creative’, ‘noncreative’, Table 2A) and ‘creative’ was also shown to be preferred in two statistically significant findings (‘creative’, ‘figurative’, Table 2B).

To clarify readers’ actual preferences for creative vs. non-creative headlines, and their preferences for informative vs. non-informative headlines as obtained from the analysis of the closed-ended feature-list, the readers’ corpus of 1310 ‘interesting’ headlines was assessed in terms of the features readers identified as determining their open selection of interesting headlines. ‘Vocabulary’, ‘type of information’ and ‘creativity’ were shown to be the features readers mostly use in selecting their own interesting headlines, whereas ‘information’, ‘lack of creativity’ and ‘length’ the features that are the least likely to influence their choice of ‘interesting’ headlines. More specifically, readers seem to select headlines relative to the type of information conveyed (2nd significant feature), but less so relative to their \pm informative content (4th and 7th significant features). The fact that ‘creative’ (3rd significant feature) headlines are interesting headlines is further reinforced by the fact that ‘non-creative’ (8th preferred feature) headlines are

Table 2

Effect of variables ‘creative, noncreative, informative, noninformative, figurative vocabulary’ on types of headline ‘informative/noncreative (A), creative/noninformative (B) and noncreative/noninformative (C)’.

Variable	Regression coefficient	Significance $p < .05$	Probability to answer ‘very interested’: increased ↗ and decreased ↘
(A) Informative/noncreative			
Creative	–.768	.000	↘
Noncreative	1.393	.000	↗
Informative	.882	.013	↗
(B) Creative/noninformative headline			
Creative	1.081	.001	↗
Noninformative	1.010	.000	↗
Informative	–.854	.006	↘
Figurative vocabulary	.557	.017	↗
(C) Noncreative/noninformative			
Noninformative	.708	.024	↗
Informative	–1.044	.001	↘

unlikely to appeal to readers. Interestingly, ‘length’ (9th significant feature) is shown to be the least considered feature in selecting interesting headlines. The order of preference sketched above may suggest that readers prioritize headline characteristics in a way that questions standard assumptions about priority of ‘length’ and ‘information’ in headline theory and practice.

Percentages were examined for in-between variation at the 5% level of significance by McNemar tests. According to the null hypothesis, the readers’ percentage using, for example, criterion 1.vocabulary (29.8%), is equal to the readers’ percentage using criterion 2.type of information (14.5%). If significance is $<.05$, criterion 1.vocabulary is used by a larger percentage of readers in relation to the one it is compared to, i.e. criterion 2.type of information.

With reference to the general headline features examined in this study, Chi-square tests showed that ‘vocabulary’ was the determining feature in preferred headlines since it was selected by more readers than ‘type of information’ (significance = $.000 < .05$). Interestingly, ‘type of information’ was selected by more readers than ‘non-informative’ as features of interesting headlines (significance = $.001 < .05$), suggesting that interest in the type of information communicated by headlines does not presuppose interest in \pm informative content. The reduced concern with the informative value of headlines is further reinforced by the fact that ‘non-informative’ was selected by more readers than ‘informative’ (significance = $.027 < .05$).

In the hierarchy vocabulary $>$ type of information $>$ creative $>$ non-informative $>$ familiar topic observed in the readers’ corpus of headlines, ‘creative’ headlines were equally preferred with ‘noninformative’ headlines (significance = $.123 > .05$), and equally preferred with headlines raising ‘familiar topics’ (significance = $.064 > .05$). This correlational finding strengthens the readers’ interest in the type of information conveyed by headlines as registered in their preference for familiar topics addressed, it strengthens their interest in creative style, and it also strengthens their lack of interest in informative content. Both ‘familiar topic’ and ‘background knowledge’ were rated as more significant features of interesting headlines than ‘noncreative’ (significance = $.000 < .05$), whereas ‘noncreative’ and ‘length’ were considered as equally (in)significant headline features (significance = $.338 > .05$). Nonetheless, ‘short’ was used as a criterion for ‘interesting’ headlines by a greater percentage of readers (67.3%) compared to those who used ‘long’ as a criterion (32.7%) (significance = $.021 < .05$).

With reference to types of vocabulary readers used as criteria in selecting their own ‘interesting’ headlines, the prevailing preference for ‘figurative’ language confirms the increased interest in creative headlines. Chi-square tests showed that ‘figurative’ was preferred by more readers compared to ‘playful’ (significance = $.000 < .05$). ‘Playful’ was equally preferred with ‘witty’ (significance = $.338 > .05$), ‘shocking’ (significance = $.290 > .05$), ‘familiar’ (significance = $.172 > .05$) and ‘humorous’ vocabulary (significance = $.172 > .05$). The latter were all preferred by a greater percentage of readers compared to ‘colloquial (playful*colloquial/significance = $.000 < .05$, familiar*colloquial/significance = $.000 < .05$, witty*colloquial/significance = $.000 < .05$, humorous*colloquial/significance = $.001 < .05$). Lastly, colloquial vocabulary was equally low in the readers’ preferences with unfamiliar vocabulary (significance = $1.000 > .05$).

Worth mentioning is the fact that this order of preference observed in the readers’ corpus largely agrees with the order of preference registered in the close-ended selection of features as criteria of interesting headlines, namely figurative 76.6% $>$ familiar 74.5% $>$ humorous 59.9% $>$ playful 58.4% $>$ witty 52.2% $>$ shocking 49.6% $>$ colloquial 42.3% $>$ unfamiliar 16.1% (Q3). Figurative and other types of creative language are consistently the most appealing lexical types, whereas colloquial and unfamiliar types of vocabulary are the least appealing lexical types. Readers’ responses in the close-ended selection of features as criteria of interesting headlines also revealed the prevailing significance of ‘figurative’ compared to all other types of vocabulary, with the exception of ‘familiar’ (figurative*familiar/significance = $.766 > .05$). Finally, in the close-ended feature-list of interesting headlines, ‘short length’ was selected by a greater percentage of readers (56.2%) than ‘long length’ (23.4%) (significance = $.000 < .05$).

Readers participating in this study were also asked to specify the length of ‘short’ and ‘long’ headlines on a 5-level scale of word count. It was shown that they consider ‘short’ the headlines which involve fewer than 5–6 words, and ‘long’ the headlines which involve more than 9–10 words (Figs. 1 and 2). A question that remains to be answered is whether the headlines readers actually select as ‘interesting’ fall under their definition of ‘short’ which, granting the low significance of ‘length’, seems to be the preferred type of length.

To examine the effect of readers’ prior knowledge, expectations and interests on the 4 types of headline (A, B, C, D), ordinal regression analysis for each one of 21 reader-profile variables (see Table 1: prior knowledge, expectations, interests) was performed.

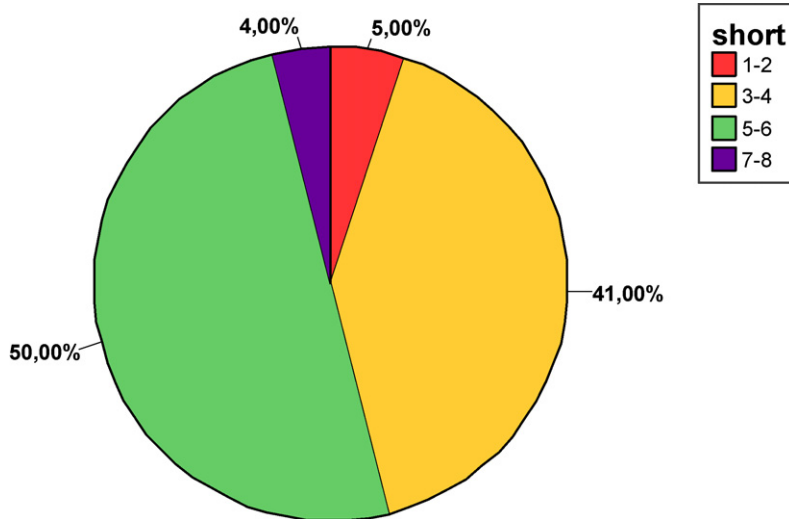


Fig. 1. Frequencies in reader-definition of 'short headline' by word number.

As observed in Table 3, noninformative (Table 3B and D) headlines are primarily preferred by readers with prior knowledge or interests in lifestyle/social topics, whereas informative headlines (Table 3A and C) are largely preferred by readers with prior knowledge or interests in environment, travel, politics and international topics. The fact that readers do not seem to be interested in informative headlines on sports can be explained by the female sample used in this study, and the fact that readers do not seem to be interested in informative headlines on lifestyle/social issues can be explained by the fact that lifestyle/social reports are generally browsed not for their informational value, as for relaxation purposes. Interestingly, more serious topics in the domains of international news and politics are preferred when information is provided in creative style (Table 3C). Sensitized readers to environmental or travel topics seem to prefer informative headlines regardless of creative style (Table 3A and D), possibly because extracting hard-core information is of prior concern when reading on environment or travel.

The significant findings on 'familiar topic' and 'background knowledge' ($p < .05$) as features of 'very interesting' headlines (Table 4) suggest that readers must be guided by considerations of relevance in their choice of

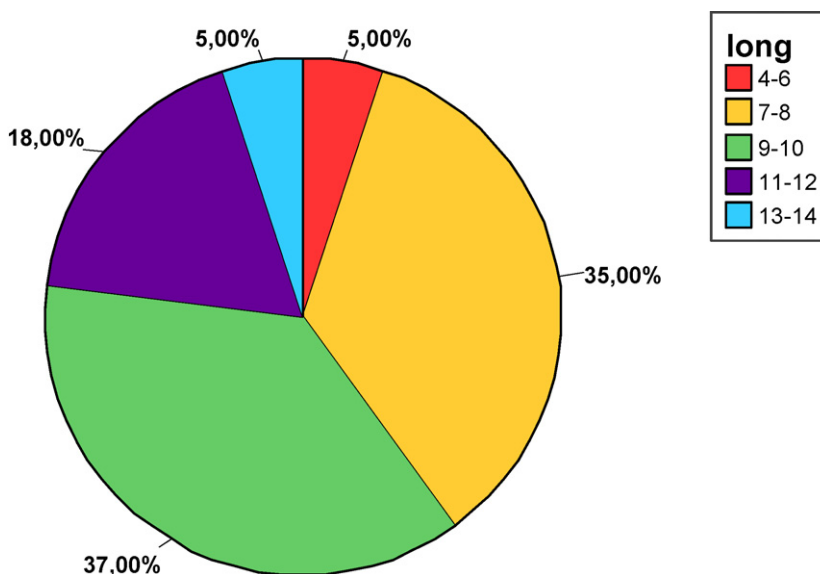


Fig. 2. Frequencies in reader-definition of 'long headline' by word number.

Table 3

Effect of reader-profile variables ‘prior knowledge, expectations, interests’ on types of headline ‘informative/noncreative (A), creative/non-informative (B), creative/informative (C) and noncreative/noninformative (D)’.

Variable	Regression coefficient	Significance $p < .05$	Probability to answer ‘very interested’: increased ↗ and decreased ↘
(A) Informative/noncreative			
Prior knowledge: environment	1.156	.038	↗
Interests: environment	.982	.042	↗
Interests: travel	1.059	.032	↗
(B) Creative/noninformative			
Prior knowledge: lifestyle/social	1.057	.007	↗
Interests: lifestyle/social	.937	.035	↗
(C) Creative/informative			
Prior knowledge: politics	2.099	.000	↗
Prior knowledge: international	1.215	.021	↗
Prior knowledge: lifestyle/social	−.994	.011	↘
Prior knowledge: environment	−1.000	.015	↘
Interests: politics	1.097	.020	↗
Interests: lifestyle/social	−1.129	.012	↘
Interests: travel	−.883	.023	↘
Interests: international	.913	.019	↗
Interests: domestic	−1.031	.042	↘
(D) Noncreative/noninformative			
Prior knowledge: lifestyle/social	.879	.023	↗
Prior knowledge: education	.771	.035	↗
Prior knowledge: sports	1.408	.020	↗
Prior knowledge: international	−1.488	.006	↘
Interests: lifestyle/social	1.025	.011	↗
Interests: sports	1.000	.044	↗

‘interesting’ headlines. The significant findings on the readers’ preference for creative and informationally underdetermined headlines which employ figurative language suggest that this must be a largely inferential process. How familiar topic and background knowledge, prior knowledge and interests guide readers into a relevance-driven interpretation process, and how preference for creative style and figurative language triggers a highly inferential interpretation process are discussed in the next section.

5.2. Headlines, *ad hoc* concepts and *ad hoc* contexts

Vague or not-fully-informative – creative or figurative headlines being a few of a vast array of semantically underdetermined headlines – prompt readers to construct *ad hoc concepts* in *ad hoc contexts*. An insight into this natural and spontaneous lexical adjustment process of concept broadening and narrowing can be obtained by examining the range of interpretations readers retrieve when asked to provide their own understanding for three encoded concepts under Q8.

Multiple interpretations ranged from general and vague dictionary types of meaning to highly specific and individualized narrowed concepts. In each case, readers described an occasion-specific concept and an occasion-specific context, i.e. assigned reference to referring expressions, created a spatio-temporal context, or a political and

Table 4

‘Familiar topic’ and ‘background knowledge’ across ‘most interesting headlines’ vs. ‘least interesting headlines’ (crosstabulations).

Familiar topic/most interesting headline = 66.4%	Familiar topic/least interesting headline = 15.3%	Exact two-sided significance (McNemar test) = .000
Background knowledge/most interesting headline = 78.1%	Background knowledge/least interesting headline = 19.0%	Exact two-sided significance (McNemar test) = .000

socio-cultural setting, and narrowed or strengthened the concept in a relevant, plausible and informative way albeit in vastly underdetermined discourse contexts. To illustrate, consider how the nouns ‘therapy’, ‘faces’, ‘crop’ have been understood in their host newspaper headlines.

For the concept encoded by ‘therapy’, different types of therapy were specified: DRUG TREATMENT, AROMATHERAPY, CHEMOTHERAPY, ACUPUNCTURE, PSYCHOTHERAPY, SPORTS INJURY TREATMENT, and two referents (Kate Moss, Kate Winslet) have been identified in addition to specifying the type of therapy. A minority (27,7%) identified the interpretation presented in the accompanying full-text report, i.e. (24a).

- (24) Kate’s back in *therapy*
- a. Kate Moss in drug therapy
 - b. Kate Moss in psychological treatment
 - c. Kate Winslet in psychotherapy
 - d. Kate Winslet is starring in a film called “therapy”
 - e. Kate Winslet in diet programme
 - f. Kate X is treating a physical or mental illness
 - g. Kate is treating her back after an accident
 - h. drug addicts program
 - i. Hollywood actress with serious health problem seeing an acupuncturist
 - j. injured athlete resumes therapy sessions
 - k. aromatherapy
 - l. chemotherapy

Increasingly narrower interpretations (24l → 24a) suggest that headline readers using the relevance-theoretic comprehension heuristic narrow the encoded concept THERAPY just so far as is required to satisfy their expectations of relevance and no further. Given their background assumptions and interests (e.g. interest in top-model Kate Moss, or familiarity with film star Kate Winslet feature stories), readers choose narrowings that cost them relatively little effort and provide them with a plausible and relevant interpretation (e.g. anti-drug therapy for Kate Moss, or weight reduction program for Kate Winslet, respectively).

A similar process of lexical adjustment but in the opposite direction applies to cases of concept broadening. Consider the different interpretations received for the word ‘faces’ in (25):

- (25) The *faces* of Modigliani: Plane geometry personalized
- a. linear geometry and plain shapes in portraits by Amedeo Modigliani
 - b. aspects of Modigliani’s personality, a complicated personality, different talents or abilities of or views on Modigliani, e.g. unconventional behaviour, impudence and rudeness
 - c. imprints of Modigliani’s face
 - d. video game levels

The encoded meaning of the concept FACES points either to a literal (FRONT PART OF HEAD), or a broader, metaphorical (APPEARANCE OF ASPECT OF PERSONALITY) interpretation. A reader using the relevance-theoretic comprehension heuristic broadens the encoded concept FACE just so far as is required to satisfy his expectation of relevance and no further. Given their background assumptions and interests (e.g. degree of familiarity with Modigliani’s work), readers have chosen a broadening that cost them little processing effort and provided them with a plausible and relevant interpretation – i.e. (a) and (b). Interestingly, readers were shown to retrieve the article’s (literal) meaning in (25a) (48.7%) on a par with the metaphorical expansion in (25b) (46.3%), which suggests that there is no clear dividing line (in terms of cognitive effort) between ‘literal/full-text article’ and ‘non-literal’ interpretations readers may warrant as relevant.

However, (25) would be, as Wilson and Carston observe (2007:235–236), a fairly conventional metaphor

“... interpreted along fairly well-established lines (costing relatively little processing effort and yielding relatively limited and predictable effects). Novel metaphors allow more latitude in interpretation, and may allow for a greater effort of memory or imagination, yielding richer rewards ...”

In headline (26), metaphorical (26a–e) and literal (26f and g) interpretations of ‘crop’ were retrieved by re-adjusting the term drawing on familiar Middle-Eastern assumptions about weapons, oil, western interference, food supplies, post-war reform. The metaphorical expansions of the concept CROP include non-natural products which share the encyclopaedic property of yielding profits – profitable post-war reform enterprise, western profitable post-war reform enterprise, profiting oil, profiting weapons in 26(a–e). Interestingly, the metaphor in 26(a) is not a ‘conventional’ one, albeit it was the one readers commonly retrieved (42.8%).

- (26) Flourishing again, Afghanistan’s deadly – and lucrative – *crop*
- a. post-war reform of socio-economic infra-structure
 - b. a profitable product
 - c. western world’s benefits from rebuilding Afghanistan
 - d. weapon industry
 - e. oil industry
 - f. food plantations/supplies
 - g. opium plantations

The variety of metaphorical broadenings retrieved for (26) support the view that this is a relatively ‘novel’ metaphor, compared to the ‘conventional’ metaphor in (25) where only one metaphorical broadening was retrieved. Greater processing effort in (26) on the readers’ part is offset by richer, extended and less predictable effects, as illustrated by the subjects’ interpretations in 26(a–e). Following Wilson and Carston (2007), let us next consider in more detail how the inferential lexical adjustment process works.

The encoded meaning of the sentence in (26) contains the concept CROP, which activates a range of logical properties – e.g. PLANTS HARVESTED FOR USE and/OR PROFIT. The decoded concept CROP also activates a range of weakly or strongly entertained encyclopaedic properties of different subsets of crop (wheat crop, barley crop, beans crop, potatoes crop, and so on) and different yields of crop (big crop, fine crop, poor crop, failing crop, flourishing crop, and so on) enabling a number of relevant inferences to be drawn. For example, the proposition that Afghanistan has a ‘flourishing’, ‘lucrative’, ‘deadly’ crop, if processed in a context containing the assumption that opium is a widely grown crop in Afghanistan, yields the explicit meaning that Afghanistan is profiting from opium crops. The same proposition, if processed in a context containing the assumption that war-devastated Afghanistan is a profiting field for western investment, yields the explicit meaning that west is profiting from war-wrecked Afghanistan. A range of plausible encyclopaedic properties of (flourishing) crops are provided in (27):

- (27) Encyclopaedic properties of (FLOURISHING) CROP
- PRODUCED BY FARMERS
 - WEATHER-BOUND
 - LOCALLY GROWN
 - NOURISHING
 - PROFITABLE, etc.

The stereotypical crop is a flourishing crop, hence, the above encyclopaedic properties of stereotypical category members are likely to be highly accessible as a result of frequent use and are bound to be strongly activated by use of the word ‘crop’. In the context of newspaper sections on international affairs, however, properties relating to grain, fruit or vegetable farming, affected by seasons and places, bearing nutritional value, and so on, are unlikely to be activated and would be, in the circumstances, least accessible for use in deriving the explicit meaning of (26), or any contextual implications. Using the relevance-theoretic comprehension heuristic, readers would therefore test further tentative interpretive hypotheses costing a greater processing effort of memory or imagination in supplying contextual assumptions such as those in (28):

- (28) NON-NATURAL PRODUCTS ARE CROPPED (e.g. INDUSTRIAL CROP, INVESTMENT CROP, LITERARY CROP, etc.)
- CROPS ARE PROFITABLE
 - CROPS MAY BE HARMFUL
 - OPIUM IS A PROFITABLE AND HARMFUL CROP
 - POST-WAR INVESTMENT IS PROFITABLE, etc.

On accessing the contextual assumptions in (28), the reader's tentative hypotheses about contextual assumptions, explicature(s) (and contextual implications) will be warranted as an overall interpretation which satisfies the reader's expectations of relevance. Having found an interpretation which satisfies her expectations of relevance, the reader should stop. In the case of (26), subject-readers stopped once the interpretations in (29) were retrieved:

- (29) WAR-DEVASTATED AFGHANISTAN IS A PROFITING FIELD FOR WESTERN INVESTMENT
 AFGHANISTAN PROFITS FROM (SOME) CROP X (e.g. FOOD)
 AFGHANISTAN PROFITS FROM OPIUM CROPS

In the relevance-theoretic account, then, headline interpretation is a case of lexical adjustment processed by inferentially modifying tentative hypotheses about contextual assumptions, explicatures and contextual implications so as to yield an overall interpretation that satisfies the reader's expectations of relevance. Unspecified or fragmented discourse contexts make headline interpretation a *radical* inferential lexical adjustment process compared to ordinary cases of utterance interpretation. Ad hoc concept construction is often the only route to headline interpretation, especially for the 'creative' or 'non-informative' headlines where figurative or punning language or vastly underdetermined linguistic meaning purposely leaves room for a variety of interpretations. Readers' overwhelming preference for figurative language and creative style should not be too surprising in the relevance-theoretic *unitary* approach to literal-loose-hyperbolic-metaphorical utterances. Literalness is not the norm, may not be easier to process and requires the same inferential procedure in order to be interpreted compared to metaphor. Metaphor and other figurative uses are not deviations from the norm, nor more effortful to process and require the same inferential procedure in order to be interpreted compared to literal utterances. As Sperber and Wilson have shown (2008), the boundaries between the two are not clear-cut while effort in interpreting literal vs. metaphorical utterances is relative to accessible appropriate background knowledge rather than to a distinctive theoretical notion or a category-specific mechanism. This is why it makes little (if any) difference to the hearer if 'magician' is used literally (*someone who performs magic tricks to amuse an audience*) in (30) or metaphorically (*someone who achieves extraordinary things*) in (31).

- (30) *Peter*: For Billy's birthday party, it would be nice to have some kind of show.
Mary: Archie is a magician. Let's ask him.
 (31) *Peter*: I've had this bad back for a while, but nobody has been able to help.
Mary: My chiropractor is a magician. You should go and see her.
 (Sperber and Wilson, 2008:95-98)

In fact, as Sperber and Wilson (2008:95-98) observe,

"... some people may have only a single encoded sense for "magician": *someone with supernatural powers who performs magic*. They would still have no difficulty arriving at an appropriate interpretation of (7)[30] by extending the category of "real" magicians to include make-believe ones. For other people, the metaphorical sense may have become lexicalized, so that "magician" now has the additional encoded sense *someone who achieves extraordinary things*. They would obviously have no trouble arriving at an appropriate interpretation of (29)[31]. Mary did not intend her utterance to be understood literally in (7)[30] and metaphorically in (29)[31]; her communicative intentions – like those of all speakers – are about content and propositional attitude, not rhetorical classification."

As shown by the analysis of (24), (25), (26), headline readers create occasion-specific senses in occasion-specific contexts using the headline string as a clue to the full-text article meaning. On the view developed here headlines are types of creative uses of autonomous linguistic units and are interpreted as such by the readers participating in this study. The relevance-theoretic comprehension heuristic enables them to derive a warranted conclusion about the headline meaning which, irrespective of whether it complies with the meaning developed in the accompanying news report, suffices to make it an 'effective' headline. In other words, successful headline interpretation is commonly achieved through a wide range of weak implicatures which are retrieved as true or probably true. In this way, headlines may achieve relevance despite the fact that the writer is not able to anticipate, and may not even be concerned with anticipating, which of a wide array of weak implications will be considered and accepted by the readership as true, or probably true (on weak implicatures and poetic effects, see Sperber and Wilson, 2008:100-103).

6. Conclusions

The empirical evidence presented in this work supports a highly inferential account of headline interpretation as developed by the relevance-theoretic unitary approach to lexical pragmatics (Wilson and Carston, 2007; Sperber and Wilson, 2008). A close examination of the interpretations received from the headline readers participating in this study clearly suggests that ad hoc concept construction in ad hoc contexts is a routine procedure spontaneously activated in cases of headline interpretation. Elliptical semantic content and fragmented or vastly underspecified discourse context in the case of headlines call for a *radical* inferential lexical adjustment process in order for addressees to retrieve the proposition expressed, additional explicatures or any contextual implications conveyed. ‘Creative’ and ‘non-informative’ types of headline (i.e. figurative, ambiguous, humorous, inter-textual, rhetorical, rhyming, punning) provide an excellent test-bed for the radical lexical pragmatic enrichment process relying on *ad hoc concept in ad hoc context* construction as the only interpretive process yielding an overall interpretation that satisfies the reader’s expectations of relevance. As shown by the results of this work, retrieved interpretations are not only occasion-specific but varied, rich, unpredictable, or non-intended *positive cognitive effects*. Nevertheless, the occasional mismatch between ‘retrieved interpretation’ and ‘article meaning’ does not seem to affect the effectiveness of the headlines assessed by the subject-readers participating in this study. Which reinforces the view developed here that headlines are better examined – and perhaps designed – as autonomous texts, rather than as mirror-images of the stories they, traditionally, introduce.

Standard assumptions on rich, explicit informational content, or short length as significant strengthening properties, and ambiguity, implicit meaning, as significant weakening properties of the headline’s appeal towards readerships are questioned by the findings of this experimental work. Subject-readers were shown to be guided by considerations of relevance – i.e. familiar topics endorsed by existing background assumptions – rather than informative value, unambiguous meaning, or short length. In fact, the more elliptical the semantic content, and the more creative the style, the greater the range of explicatures and implicatures communicated, and, surprisingly, the more riveting the headlines seem to get. Noteworthy is the finding on the fine-grained distinction readers seem to draw between ‘type of information’ and ‘±informational content’. Statistical analysis showed that readers are interested in the *type of information* conveyed by means of headlines, in the sense that readers wish headlines to address ‘familiar’ topics which relate to their ‘background knowledge’ and to their ‘interests’ in specific domains, albeit not necessarily by means of fully-informative headlines. In other words, readers seem to value headlines for what they are, i.e. underinformative, creative, yet autonomous texts. In this respect, the results of this work confirm previous findings on the role of headlines as attention-getting devices rather than as information-providing tools (see Introduction; León, 1997:101–102; Althaus et al., 2001:715). Worth mentioning is also the finding on the reduced significance of length (3.7%) in the readers’ corpus, which is not too surprising granting the fact that in the closed-ended list, (short/long) length also appears to be less significant than a number of features stated to affect the readers’ preferences (i.e. background knowledge 78.1% > figurative 76.6% > familiar vocabulary 74.5% > familiar topic 66.4% > humorous 59.9% > playful 58.4% > short 56.2% > witty 52.2% > shocking 49.6% > colloquial 42.3% > long 23.4% > unfamiliar 16.1%).

A number of limitations may be seen as constraining the force of the current results. The non-native and young reader sample imposes a number of limitations in assessing the features of ‘interesting’ headlines. Younger readers may lack the background knowledge, or interest, to assess genuine political, ideological or socio-cultural implications of headlines such as 1, 8, 11, 14 (Appendix). Similarly, the female reader-sample is expected to be driven away by football or horse racing topics, as in headlines 25, 26, 29, 30, 31, 32, 36 (Appendix). Prioritization of ‘familiar vocabulary’ (74.5%) as the second most important feature of interesting headlines can be possibly considered as a corollary of the readers’ use of English as a second language. In terms of methodology, the experimental procedure in Q8 can be modified by using headlines from newspapers strictly concurrent with experimental dates, by requesting more than one possible interpretations (instead of one) and the readers’ rating of the relative plausibility of retrieved interpretations, and by timing subjects’ retrieval of the first or most plausible interpretation. In this way, further insights into the interpreting procedure in terms of processing effort, plausibility, and relevance of retrieved interpretations could be obtained.

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Appendix

- (1) The faces of Modigliani: Plane geometry personalized
The New York Times, 5/06/2004
- (2) An unending search for perfect thrills
The New York Times, 12/06/2004
- (3) Is the water truly kosher in New York?
The New York Times, 12/06/2004
- (4) Flourishing again, Afghanistan’s deadly – and lucrative – crop
The Guardian, 21/02/2002
- (5) The smell of corruption, the scent of truth
The Guardian, 21/02/2002
- (6) Whose finger on the export trigger?
The Guardian, 21/02/2002
- (7) Students – and poverty
The Guardian, 21/02/2002
- (8) As oil prices soar, OPEC members say it’s ‘not our fault’
The New York Times, 12/06/2004
- (9) Explorers still seek El Dorado in peaks of Peru
The New York Times, 12/06/2004
- (10) Wife was ‘gunned down for sake of a Rolex watch’
The Guardian, 21/02/2002
- (11) Public-sector staff need higher pay, admits Blair
The Independent, 21/06/2002
- (12) ‘The gloves are off’ as Israel retaliates
The Daily Telegraph, 21/02/2002
- (13) ‘I was just putting on my tiara when the lights failed’
The Daily Telegraph, 21/02/2002
- (14) Angola’s golden goals
The Observer, 15/06/2006
- (15) Britain’s grape expectations
The Observer, 15/06/2006
- (16) Race hate link alleged in dog attack murder trial
The Guardian, 21/02/2006
- (17) Around the globe in 17 min
The Observer, 15/04/2006
- (18) Darwin letter goes on sale
The Guardian, 16/02/2006
- (19) Face to faith
The Guardian, 17/09/2005
- (20) Animals can be happy too
The Guardian, 29/05/2006
- (21) Banana drama
The Guardian, 21/05/2006
- (22) New Orleans is awash in mental health problems
Herald Tribune, 22/06/2006

- (23) Queen's jockey charged with conspiracy to commit fraud
Daily Mail, 3/07/2006
- (24) More than 30 dead in Spanish Metro crash
Daily Mail, 3/07/2006
- (25) Tearful Captain Becks bows out
Daily Mail, 3/07/2006
- (26) No way Beck
The Sun, 3/07/2006
- (27) Wayne: I'll split him in two
The Sun, 3/07/2006
- (28) Over 30 killed in train accident
The Sun, 3/07/2006
- (29) Fallon charged in race-fix probe
The Sun, 3/07/2006
- (30) Rood mist
Daily Mirror, 3/07/2006
- (31) Becks: My dream has ended
Daily Mirror, 3/07/2006
- (32) Jockey Fallon charged over fraud probe
Daily Mirror, 3/07/2006
- (33) 30 dead in tube train crash
Daily Mirror, 3/07/2006
- (34) Kate's back in therapy
Daily Mirror, 3/07/2006
- (35) Why can't Paris Hilton find her Mr Right?
Daily Mirror, 3/07/2006
- (36) Ronaldo: Roo and I are friends.
Daily Mirror, 3/07/2006

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Elly Ifantidou is Assistant Professor of Linguistics in the Faculty of English Studies, University of Athens. Her research interests are in pragmatics, semantics, cognitive and linguistic development, academic discourse. Her publications include *Evidentials and Relevance* (2001) and articles in edited volumes, and journals such as *Journal of Pragmatics*, *Pragmatics and Cognition*, *Pragmatics*.