Anticipatory Narrative Construal

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Abstract

Across the spectrum of human communication, from situational common-sense to complex culture-bound literary expression, anticipation is ubiquitous. Implicit or explicit, it occurs in propositional attitudes such as an agent's belief, or his ascribing a belief. This affects the making sense of a narrative (or of narrativized experiences or situational patterns), as well as the handing down of a narrative, for example as a cultural practice (watching a film or reading a novel, and the expectations involved according to the genre), or in literary hermeneutics, when the narrative in the text is reimagined and retold. Anticipation in beliefs may be ascribed sincerely or humorously; in turn, making sense of a humorous text involves the ascription of beliefs and attitudes, e.g., to make sense of a pose which (mockingly or conventionally) interprets an event or a situation by invoking anticipation. This paper discusses an array of contexts where this takes place.

Keywords: narratives, anticipation in common-sense situational patterns, literary studies, genre-bound narrative devices, presaging in explanation or mock-explanation.

1 Common Sense, Situations, and What we Make of Them

Cognitive science and likewise narrative understanding within computational linguistics have proposed such structures that by the 1980s have become commonplace in those disciplines, and which account for standard situational patterns by which a goal or a final state is hypothesized, based on which a current state is estimated. Whereas this is a powerful tool for accounting for the pragmatics of routine social interactions, there is a wide repertoire of culture-laden or perhaps fairly "universal" devices or motifs or other items in the literary tradition (and in the culturally competent experiential luggage of individuals) which includes striking examples of resorting to anticipation as explicitly stated in order to convey a message.

About ten years ago, as I was giving a lesson in a postgraduate course in Computational Linguistics I was teaching at a department of linguistics (there were more faculty members than postgraduates in the audience), I had finished the first hour and, after a few minutes of lighter discussion, was about to start the second hour with a new topic (tabular, finite-state methods of morphological analysis and generation). I was stopped in my tracks, as we all turned to following the flight of a panic-stricken bird who had come in through a window, and was spending some time before it found its way out, again through a window. I walked to the nearest window-glass, and knocking over it as though I was visiting an array by columns, stated that had it been a bee, it may well have tried to test the glass "case by case" the way I was doing, seeking an opening. Then I walked back to the desk, and stated the theme of the next hour of lesson: tabular methods. A professor from the back of the classroom asked jokingly: had you been in agreement with that bird? Whereas we can formalize this kind of situation, I suggest that more startlingly awkward situations occur in literature, where intertextual dependency on previously extant texts, as well as expectations about future reading situations, play an important part in shaping a given text.

One of the examples in this paper (see Sec. 5) is drawn from scriptural exegesis, a domain in which, in chains of tradition across the ages and in different cultures and faiths, Scripture and related dependent (e.g., gap-filling) narratives have been subjected according to an evolving (and bifurcating) set of genre-bound conventions as quite well observable at least from late antiquity, and one important aspect of which were, for example, medieval sacred representations. The example

discussed is concerned with three alternative interpretations of an episode, in which a character's behaviour was explained out by either invoking the episode's circumstances, or, then, by invoking prescience: either about the characters' biography, or about readers' reactions. The narrative has a man character kiss a maiden and then weep. Why weep? (a) he prophetically foresaw that even though they would be eventually married, they wouldn't be buried at the same site; (b) he prophetically foresaw that posterity would judge harshly his kissing in public a maiden he had never met before. Such examples sound like jokes, yet I claim that not only they can be usefully formalized, but what is awkward in them may well shed light on ordinary phenomena from everyday life pragmatics. The anticipatory formal framework is handy for incorporation within models trying to account for that.

Try to visualize some crime event, in which the perpetrator plans and executes the crime by figuring out how to fool the detectives' later efforts to reconstruct what happened and who did it. In the last decade, legal research into legal narratives (especially, cases that go to court) has witnessed a debate concerning the so-called *anchored narratives* (Wagenaar et al., 1993; Jackson, 1996; see also pp. 95–98 in Twining, 1999). Another formal approach to narrative structure in the evaluation of criminal evidence makes use of Wigmorean diagrams, possibly along with statistical calculations (for all of the controversiality of forensic statistics); see for example Kadane and Schum (1996), an acclaimed painstaking formal analysis of the Sacco and Vanzetti evidence. Malsch and Nijboer's (1999) *Complex Cases* is a paper collection on criminal justice in the Netherlands; one particularly challenging individual case which is examined there is several chapters is the so-called Ballpoint Case, in which a defendant's conviction, later overturned, was based on an allegedly self-incriminating reported statements on a death case in his family not having been accidental, as rather he had committed it himself by shooting a ballpoint into an eye of the victim by means of a small crossbow. A forensic expert had eventually proved that this simply couldn't be physically true. Astrid Dingley's chapter (1999) developed a Wigmorean analysis for the Ballpoint Case.

From the 1970s, there has been much research in artificial intelligence on common-sense reasoning about narrated events situated in the context of social interactions. *Scripts* (Dyer al., 1987) are the better known formal structures that spring to one's mind in connection with this. Let it suffice here to mention such a classic in automated understanding of and question-answering about multi-paragraph narratives as Dyer (1983), possibly along with the discussion of five earlier programmes in Schank Riesbeck (1981). By now, such analyses sometimes resort to models neural computations, the latter's application in computational linguistics being the subject of Sharkey (1992), whose Ch. 11—by Lee, Flowers and Dyer—describes DYNASTY, "a symbolic/connectionist hybrid script-based story processing system... which incorporates DSR [i.e., distributed semantic representation] learning and 6 script related processing modules. Each module communicates through a global dictionary where DSRs are stored" (Lee et al. in Sharkey, p. 215). In one of her papers, linguist and pragmatician Anna Wierzbicka (1994) has applied scripts to cultural-bound emotional responses in social contexts; her paper appeared as a chapter in Kitayama and Markus (1994), on which see my own review essay (1997a). In the study literary genres as well as in narratives from international folklore, *story grammars* are a well researched formalism, which, it has been argued, is not as adequate as script-based analysis to for AI modelling of narratives from realistic contexts. See Frisch and Perlis (1981) and Garnham (1983). When you, *qua* reader, read fiction of a given genre, you may expect there would be a happy end to the plot, because this is what is supposed to happen in fiction of that particular genre. The reader's genre-bound expectation of a happy end in *narrated time* may be fulfilled earlier or later in the reader's sequential reading of the physical book (say, a romantic novel), according to how the narration is organized. The narration may even start with the happy end, the previous events then appearing by way of flashbacks. This, however, is the position of the happy end in the *narration time*.

2 Examples of Anticipation in Different Kinds of Human Behaviour: The Anxious Individual, and the Anxious Society

In situational patterns where a script is known to unfold inflexibly, e.g., in relation to a degenerative illness such as dementia, it rationally makes sense that an attitude anticipating future states is adopted on the part of characters involved. Such is the case of anticipatory grief as a psychological phenomenon accompanying terminal care for a relative (Rando, 1986; Sweeting, 1991). Again in psychology, an anxious stutterer stutters more; stuttering has been described (by Wendell Johnson, 1958) as an anticipatory struggle reaction, whereas nowadays the fluency disorder literature rather speaks of an anticipatory panic response (which affects an array of different behaviours as well). The development of this notion is clarified by the following quotation from an intervention by Ken St. Louis (1999), a prominent scholar in stuttering and cluttering research (1981, 1995), in an online forum in that discipline:

> [The] thesis that stress plays a role in stuttering even when the speaker is unaware of it is very similar to some of Bloodstein's writing about expectancy. He, as [researchers in the discipline nowadays] no doubt know, postulates that stuttering is an anticipatory avoidance reaction which could be triggered by anything that makes the person believe that speech is difficult. This was a more generic version compared to Wendell Johnson's view of stuttering as reaction to others' reactions to essentially normal disfluency. In any case, when the research on anticipation (or expectancy) did not show that stutterers could identify every single stutter in advance (i.e., anticipate them), Bloodstein hypothesized that expectancy (which could almost be viewed as latent anxiety) occurred at a "low level of consciousness".

Mentioning this here is of interest, because of amenability of such definitions to an AI representation in terms of agents' epistemic states and action, even though subliminal states should be distinguished from overt epistemic states. Switching now from the individual level to collective attitudes, note that law is an appropriate reflection of society and its culture. Expectation finds an expression in law: the discharge of contract, when involving breach of contract, may be by either actual breach or by 'anticipatory breach' (Tiplady, 1973; Mustill, 1990; *Conveyancer...*, 1991). Otherwise known as the 'repudiation' of the contract by the contractor, 'anticipatory breach' occurs when a contractor clearly indicates that it cannot or will not perform what the contract requires that contractor to perform. One form of anticipatory repudiation is filing for bankrupcy. Another one is job abandonment, which also can be construed to be an intention of nonperformance, even though the intent must be clear and unequivocal for anticipatory breach to be claimed. Yet another, more straightforward form of contract anticipatory repudiation is a letter in which the contractor states an intention of nonperformance. Situational common-sense (such as investigated by AI, while still being problematic in its subarea, AI for Law) is clearly involved in a legal reasoning perspective of construing contract nonperformance as being a future state, based on some current action or situation which points to contact repudiation having to be applied to the current state. In legal scholarship, and in particular in Anglo-American evidence theory. common-sense is known by names such as 'background generalizations', 'common-sense generalizations', and 'general experience', as well as 'implicit generalizations' (Twining, 1999).

3 Setting Out to Analyse a Sample Text: Dating a Context, and the Indexicality of 'Future'

The word 'future' is indexical, like 'yesterday' and 'tomorrow'; it has to be interpreted against the backdrop of the reference time of the context, which may or may not be the same as the time of the utterance. In this section, an example of reasoning on relative time is discussed informally. In the short compass of this paper I shall refrain from providing a formal representation in terms of temporal logic; it would be fairly standard, and the present team's work in the domain can be

found in: Knight, Nissan and Ma (1999), Ma, Knight and Nissan (1999), Knight and Ma (1992, 1993, 1994, 1997), Ma and Knight (1994, 1996), Ma, Knight and Petridis (1995), Knight, Peng and Ma (1998). Other approaches to time or space have been dealt with in: Martino and Nissan (1998), Nissan (1995, 1997b, 1998), Farook and Nissan (1998).

"*Magnesium.* It's still the metal of the future." This quotation, here in translation from the Hebrew, consists of the header and first sentence of a section from a newspaper report which right now I cannot identify. During a stay at a different campus, I paid a visit to a friend at an archive of contemporary history; referring me to another person, he scribbled a telephone number on a piece of paper he then handed me, having written on the back of part of a photocopy on which only the bottom of the lettering of part the headline of the article is visible, with a few incomplete columns of text. The content is on the mineral resources on the Dead Sea. The text starts thus: "It's now three years the potash [mining] plant at Sodom is standing still and forlorn". (Background knowledge enables the reader even nowadays to realise that place was south of the 1948 ceasefire line, the other plant laying instead to the north and being no longer accessible.)

The second paragraph gives one more temporal cue: it describes the state of abandonment at the Sodom plant, after the northern site had been destroyed in warfare in May 1948. With this information, I can tentatively date the newspaper issue as having appeared around 1951. Yet, when did the operations as managed by the potash company actually stop? In the third column, one can read: "The date of dismissal of the miners and clerks had been set to May the 15th, 1948, this being Bevin's 'chaos' deadline. In those very days, when every member of the public was exceedingly distressed, and there was no way to transfer the dismissed workers from the Dead Sea to the interior, the Company declared the dismissal, let alone discharging itself of paying them compensation to this very day". Such information helps to determine that works had stopped at Sodom not after May, and possibly earlier.

Being now able to position the publication of the newspaper report along the time axis, we are better equipped to interpret that indexical term, 'future', in: "*Magnesium.* It's still the metal of the future." Whether that statement can still be endorsed, is another matter, and has to take into account the present state (in the year 2000) of potash and potassium in the international market. Yet, whatever the truth-value ascribed to the proposition in the context of the year 2000, the word 'future' has a different referent (while not a different denotatum) with respect to the occurrence of the word in the proposition as expressed in the text from the 1951 newspaper.

4   Skipping Time in Fiction

The future has different ways of appearing in a narrated story in literature, or then in the mode of narration. Flashback has the frame story located in the future. A stylistic device in fiction—or even in the retelling of real events—may consist of the inclusion in the narration of presaging (especially symbolic) signals to the reader, regardless of whether some character in the story also has a premonition; the acquaintance expected of the readers in general with the conventions of the genre is an enablement for the confident application of the convention in the work at hand. An utopia may be totally timed somewhere in an imagined future. And then, there is time travel in fiction; Paul Nahin has recently published a bulky volume in literary studies devoted to time machines (Nahin, 1999); see also: Lem (1976), Penley (1990).

The protagonist leaping forward in time because of an inordinately long sleep is one way of visiting the future; it's best remembered in Western culture in association with the story *Rip van Winkle* (1819) by Washington Irving (1783–1859), which had also been told, in 1866, by Henry Llewellyn Williams, and was later reworked by several authors; yet the motif occurs as early as in antiquity, e.g., in the late antique Jewish tradition about a Jerusalemite wonder-worker, Ḥōnī ha-Me'aggēl (Honi the Circle-Drawer), who having awakened several generations after his own, finds himself unable to cope and is relieved to die. In *Sleeper,* the 1973 comedy film directed (and partly written) by Woody Allen, "Miles Monroe (Allen) enters the hospital in 1973 for a minor ulcer operation only to wake up 200 years later after being defrosted. As Miles tries to

adjust to his new environment, he is re-programmed, de-programmed, chased by Big Brother-like police, and falls for Luna, an underground poet" (from a blurb of the movie). The motif of the character being encased in ice is also found in Vladimir Maiakovskii's comedy of 1928, *The Bedbug*. The protagonist, Prisypkin, repudiates his working-class background (and fiancée) to marry an upmarket hairdresser's daughter. He is the only person to survive a fire at the wedding, in the frosty water jets of the firefighters. Fifty years later on, defrosted and revived in an aseptic brave new world, he joins at the zoo the other surviving parasite, a bedbug he found on his neck.

The leap forward of such characters impinges on how they perceive the far future into which they unwittingly leap, but it doesn't actually affect the state of the world in the past, for all of their initial still (mis)perceiving themselves as belonging there, and of their coping with the new situations with a context of thinking geared to the past they left. Something tragically similar happened to the survivors of the post-WWI lethargic encephalitis epidemic who awoke for a while from their coma, as old people, from the the the 1970s on — a story that was told by physician Oliver Sacks in *Awakenings* (1990). In narrative terms, presaging is in some relation to such leaps forward, even though in the previous examples the characters cannot go back to their own times. Different narratives may transport the protagonist into the future and then bring him back, or, then, the trip into the future is a mental one. There is an ancient Jewish legend about Moses wondering about the calligraphic flourishes of the Law he was handed; in response, he is lifted into a classroom where the Adrianic-era sage, Rabbi 'Aqībā, is giving a lesson. Moses is at a loss as he does not understand the lesson and the exchanges between the teacher and the pupils, but is relieved or consoled to hear that all the teachings he had listened to are grounded in Moses' Law. (On the Hebrew folktale through the ages, see Yassif (1994). On the character of Honi, see Daube (1975).)

Likewise, time-travel to the past as being a narrative genre is both very different and somewhat related to the narrative device of flashback, and to the cognitive task of recollecting one's memories. On the latter topic, a few references are in order. In the Erlbaum journal *Journal of Narrative and Life History.* Elliot G. Mischler proposed (1995), With a special interest in life-story interviews, a new (rather general) narrative typology. On narrating the Self, see also Charlotte Linde's book (1993). Strategies such as self-distancing, splitting the protagonist from the narrator even as the first person is used (pp. 147–149), are applied also in storytelling about the Self in spoken interviews. Alan Parry's "A universe of stories" (1991) adopts a psychological and literary approach to story-telling about the Self, re-storying one's experiences, and story-connecting, i.e., connecting to each other's stories (e.g., individual stories of spouses, continuing as a couple's story). The approach to life narratives in Hatch and Wisniewski (1995) is in the framework of narrative enquiry, i.e., "a subset of qualitative research [in the social sciences] in which stories are used to describe human action". Langness and Frank's (1981) is an anthropological approach to biography; Bertaux (1981) is in the social sciences. On autobiographical memories, see Barsalou (1988).

Let us go back to the time-travel genre. Michael Cooperson's paper "Remembering the Future" (1998) starts by tracing its rise ("stories in which a character travels physically from one historical period to another" (p. 171)) in the United States and Britain in the 1880s and 1890s. "In the West, the pioneering works of time-travel literature arose from a seemingly millenarian anxiety about the future of societies threatened by proletarian discontent" (p. 171). Trips to the future include Edward Bellamy's *Looking Backward* (1888), William Morris' *News from Nowhere* (1890), and H.G. Wells' *The Time Machine* (1894)—on the latter, see Patrick Parrinder's study (1995)—whereas in Mark Twain's *A Connecticut Yankee* (1889), a small-time industrialist is sent back to Arthurian England. In turn, the title of Mark Twain's novel provides the model after which the main title of Bud Foote's book (1991) was patterned. It's a study of travel to the past in science fiction. We'll come back to it, with the help of Freeman's review of it (1991). Cooperson's own concern is, of all things, with Arabic time-travel literature: "The time-travel genre in Arabic is as old as its English-language counterpart" (p. 171). "In Arabic literature, time-travel narratives first emerge in Egypt as a literary response to perceived discontinuities in historical time" (p. 172), starting with "al-Muwayliḥī's *Ḥadīth 'Īsā ibn Hishām, aw fatra min al-zamān (A Period of Time)*";

this "episodic work appeared in serial form beginning in 1898, and was published as a book in 1907" (p. 172). The story has a dignitary of old "resurrected in the author's present" (p. 172); predictably, he is at pains coping with the differences (of customs, institutions, even linguistic usage) between his own Mamlūk world and late nineteenth-century Egypt. His misadventures include his being

> bewildered by the new meanings of words (for example, he understands the term "shahāda" in its classical sense of "martyrdom", instead of the modern "university degree", and cannot understand how the public prosecutor can have a *shahāda* and still be alive [...])" (p. 173).

Among historians of science, 'Whiggery' and 'Whiggish' denote a present-minded attitude towards the development of science, "a tendency to judge all past scientific activities by standards set by currently prevailing theories" (Stachel, 1987: p. 60), and awareness of this pitfalls of such an attitude dovetails with 'social constructionism': a cultural-relativist approach that judges the scientific achievements of past generations of investigators against their own background, instead of with present-day afterwit. Ironically, the derogatory connotation of 'Whiggery' and 'Whiggish' does not display much sympathy towards historians of science whose attitudes, determined by their times, now turn out to be out of line with the present-day mainstream of their discipline.

Afterwit, or rather the perspective of a later age, is apparently what motivated Fern Lane in titling her M.A. dissertation (1994) at the University of Birmingham Shakespeare Institute: *Back to the Future: Renaissance Historiography in Shakespeare's Richard III, Richard II and King John.* The present-day scholar is interpreting the reflection in Shakespeare's plays of historiography of a past age (about, of course, an even older period), by bringing in her up-to-date vision to understanding how Renaissance historiography worked, or worked its way into the plays. the main title, *Back to the Future,* is patterned after the title of the movie series, which apparently was the model for the titles of so many other current books on quite disparate subjects: from asthma (Kummer and Magnussen, 1995) and tuberculosis (McAdam and Porter, 1994), to continuing education policies in Britain (Harris-Worthington, 1987), to a paper collection on Lebanon's economic recent past and future plans (Eken and Helbling, 1999), and more, as you can ascertain by searching the `copac.ac.uk` bibliographic database. *Back to the Future* occurs much earlier on as well. *Looking back to tomorrow* also occurs (Williams, 1985). Here and there, a pun on 'back' occurs, by which 'turning one's back' stands for renounced observability: *Backs to the Future: U.S. Government Policy Toward Environmentally Critical Technology* (Heaton et al., 1992), or 'back' is either a noun and stands for vulnerability, or, then likely, is an adverb of location (the future will be: more of the old medicine): *The Future's Back: Nuclear Rivalry, Deterrence Theory, and Crisis Stability after the Cold War* (Harvey, 1997). At the time I am writing, a new, unrelated film, *Frequency,* is being advertised through posters at bus stops. A sequence of "What if" questions propose a scenario of going back to the past and fixing things before they even happen: "What if you could reach back in time? What if you could change the past? What if it changed everything?". The poster was quoting a comparison from the *New York Times: "Back to the Future* meets *Sixth Sense".* A quick search on the Web retrieved this plot, which is of interest here if only because a present-day character who reaches back into the past, at first into the past context's observability space and next into its reachability space, in the perspective of the past context itself is intruding into the unfolding of its own events, deliberately bringing about a major modification:

> Picture this: John Sullivan, a lonely cop, playing with Dear Dead Dad's ham radio set manages to contact him, not in the Great Beyond, but 30 years in the past. Strange "sunspot activity" (do you smell convenient plot device?) has somehow connected the past and present radios together. Overjoyed, John reacquaints himself with Frank, and everything's hunky-dory until they accidentally change history, and Mom gets murdered. So now, father and son must work together, trading information between past and present to change everything back.

In contrast, finding out about decision-making by imagining or simulating future scenarios is commonplace. A cat or fox fleeing your back-garden as soon as you go through the motions of going to

open the glass door, after displaying imperturbability when they had just seen you stand behind the glass, is an example of understanding a threat by considering a likely event in the immediate future. General's simulated war games are another, though less immediately contextual, way of considering the future: by working out the details of an enactment of a future scenario, lessons can be drawn for present plans. Spatial metaphor standing for time is also fairly common.

A research paper in police administration was titled: "Future Amalgamations of Police Forces in England and Wales: One Step Forwards, Two Steps Back?" (Aydin and Kavgaci, 1996). Robert Freeman reviewed (1995) Bud Foote's already mentioned *The Connecticut Yankee in the Twentieth Century* (1991). In a framework chapter, "Time Travel", Foote "discusses four ways out of the present: to the future, to the past, to Paratime and to great Time" (Freeman, p. 171). Foote, and Freeman following suite, make much of the space metaphor for time, especially in relation to *The Yankee*'s author, Mark Twain (Freeman, p. 172):

> So, why in America? "Americans have a peculiar tendency to identify past, present and future time with location," Foote finds and, "as one travels to the past in space, one can generate the idea of doing so in time" ([Foote, p.] 171). Moreover, "America is to Europe as child is to parent, and as the present is to the past [...]" (172). [...] Most importantly, at leadt in Foote's book, why Mark Twain? First, Foote suggests, "Mark Twain was ideally situated, midway in two past-future geographic continua, to give utterance to such a concept" (171). Perhaps more importantly, "Twain was one of only two American authors who come readily to mind who have been riverboat pilots" (177). Foote argues that "not only did Twain grow up on the river, but he was of the first generation to whom it was a matter of course that one might sail up the river as well as down it" (178): ["...] If we may now become explicit about the identification of the River with time, not only is the past still there [just as one may have seen the river, a thousand miles ago, being still there], but it is mutable. Indeed, if the past is the Upper Mississippi, it is, as Twain makes plain in *Life on the Mississippi,* forever*more* mutable["] ([Foote, p.] 179).

5   Prescience, Type of Discourse, and the Conventions of a Genre

It's part of one's life experience, as well as of general common sense, that time is irreversible, at least for everyday purposes. Exceptions, however, are admitted sometimes in conceptions of reality as accepted in given cultures. Philosopher of science Gerben J. Stavenga's "Cognition, Irreversibility and the Direction of Time" (1995) argues that there only are four qualitatively different relations possible, in physics, "between instrument and object, each linked with one crucial aspect of the acquisition of knowledge" (p. 109). On same page (p. 109):

> The analysis concentrates on the fourth relation (instrument and object most closely connected) and the concomitant basic aspect of cognition: information recording, which appears to be crucial at a fundamental level of reality. It is argued that at this level it is precisely the inevitable irreversibility, due to this aspect of cognition, which must be the origin of time and its direction.

Stavenga touches upon classical physics (CP), relativity theory (RT), quantum theory (QT):

> As pointed out, CP, RT and QT each in a different way has important consequences for the measurement of time, and therefore the concept of time is stamped by these theories. At the same time, a striking feature of these theories is that their basic laws are invariant under time-reversal. They are all time-symmetric. Of course, in the area of these theories we may encounter irreversible processes, but this irreversibility is not due to the laws of the theories but only to initial or boundary conditions. So one can say that there we have an apparent (and not intrinsic) arrow of time because the irreversibility is not lawlike but *de facto* (p. 116).

> It is in the unique recording process only that time manifests itself. Therefore I conclude also from this point of view, that the irreversibility due to the one unrepeatable recording process

must be the foundation of time as such. So, the origin of time and its direction must lie in this and only this basic aspect of cognition, and not in the other aspects of cognition which are pivotal in CP, RT and QT [...] Again, these theories reveal important aspects of time and time measurement, but not the most fundamental aspect, time's arrow (p. 118).

If exceptions to the irreversibility of science can be envisaged in the case of modern subatomic physics, this is clearly the case of such cultural attitudes, sometimes bound to a textual genre or to a type of discourse, whose view of the world admits prescience. With prescience, it's as though an item of observed information reaches backwards from a future moment. In this limited mode, time must be reversible for something, after all, if you admit prescience. Prescience on the part of a character is a kind of leap, in either the narrated story, or—if it's an interpretation that ascribes prescience—in its hermeneutics. This leap is also, perhaps, conceivable in terms of hypertextual links, within a category of links associated with temporal concepts.

In the rest of this section, I exemplify two kinds of prescience, ascribed within texts from the rabbinic traditions to Jacob in two different interpretations of the verse *(Genesis* 29,11) that has him kiss Rachel and weep, on their first meeting. The gloss to this verse in the Rashi commentary provides two explanations for Jacob's weeping. One of these involves no prescience at all: it must have been because he was carrying nothing, whereas Abraham's servant fetching a bride for Isaac had come to the same family carrying presents. The alternative account, in the same gloss, of Jacob's weeping, is that he had on the spot a premonition, to the effect they were not to share the same grave. (Indeed, tradition has it that the couples of Patriarchs buried in the Cave of Machpela are Abraham and Sarah, Isaac and Rebeccah, and Jacob and Leah. Rachel, who had died during a travel, was buried near Bethlehem.) Here is, instead, the other, very different kind of prescience.

The Hassidic Rebbe Abraham Mordecai of Gur (quoted in Grinberg (1965, p. 264)) proposed this interpretation: "Jacob wept as he knew that such people would come forth, who would explain it in an unseemly way." That is, not outlooking shepherds, but rather future readers, who out of frivolous or self-righteous motives, would comment on the kiss scene. The Rebbe of Gur's comment is clearly his own rebuke, though an obliquous one, of possible readings: a rebuke he makes either as a witness, or out of his expectations of fellow-humans. His rhetoric device to express this rebuke calls upon duties, emotion, and sacred authority ("Jacob wept because of *you")*. It enshrines the rebuke in a detail of the plot: it's much more than just reading it into the primary text (here, Scripture). Indeed, as ascribed by the Rebbe of Gur's reading (which we in turn can read as half-serious or deadpan serious), this self-consciousness on the part of the character *(qua* reader-scrutinized character) is direct: it doesn't reside in a diegetic (i.e., narrator's) filter in the primary text. Thus, however motivated in terms of the indirect speech act (cf. Searle, 1975) as intended on the hearer or reader, this statement of the Rebbe of Gur makes for a supplementary reading which is as transgressive on the conventions of narration as, in a sense, a filmic narration where a character jumps out of the screen. Or, then (I saw that one) as a cartoon strip in which a character, pursued by a rhino (or was it a bull?), flees out of the cartoon by climbing on the vertical gap separating the last cartoon from the previous cartoon. The rhino inside the last cartoon looks as startled (or am I reading this into a recollected image?) as the reader of the strip is supposed (and wished) to be by the strip's author. The Rebbe of Gur's reading is transgressive, in a way. Not that 'transgressive' to him was anything else than evil. Rather, our present use of 'transgressive' complies with a current convention in the lit-crit genre, about there being a positive connotation associated with the term and concept. He certainly proposed the reading we have been discussing, for the very reason he deemed it *not* to be transgressive in respect of orthopraxy. In terms of speech acts, the perlocutionary effect is to prevent transgression in the form of unseemly comments. What his reading is transgressive on, is noncommutativeness: the latter, in particular (and in this, the point is somehow different than for the cartoon's rhino), in respect of the noncommutative relation which holds that the character is not to the reader as the reader is to the character. ("The reader" *qua* reader is intended, as opposed to, say, group affiliation, or as per a more particular extant construction, *qua* Israel[ite] = Jacob.) It's a noncommutativeness which, in a sense, holds more

forcefully than the one that holds that the past is not to the future as the future is to the past. Indeed, counterexamples to the latter are not as unequivocally transgressive, in cultural settings we are frequently faced with in everyday life: possible worlds that admit sporadic prescience more "usually" occur in prominent compartments (or the heritage) of cultures we belong to. It's the case of religion (belief in prophecy), as well as of consensual constructions (conceding one's aunt's premonitions). Asymmetries are, of course, pervasive. And they condition the likelihood of certain readings (or more generally, informational items) to startle us.

6 Presaging as a Mock-Explanation

Trials to etymologize by way of providing an explanation were a generally popular device in the Middle Ages and earlier on. For example, Ernst Robert Curtius (1886–1956) titled a chapter "Etymology as a Form of Thinking", in his *Europäische Literatur und lateinisches Mittelalter* (1954). Nowadays etymologizing may turn up in informal discourse by way of a stylistic device of mock-explanation. (As to attempts—which takes themselves seriously—at etymology by lay people, these abound, for all of the frowning, Pavlovian-like reaction of contempt or derision, and occasional exasperated fulminations on the part of professional linguists.) Take this passage from a report on a trip to the Norfolk coast, that appeared in a local newspaper from South East London *(News Shopper,* 26 April 2000, p. 46); a pub was found to be aptly named:

> We wandered down to the front and found a pub called Ark Royal. Whoever built this standalone boozer is obviously forward-thinking enough to worry about the sea flooding, as the pub is raised several feet from ground level.

This is not the same kind of mocking pose as when the following was averred *(Full Circle,* 1971), which rather fits in the "I told you so" pattern, because of the old lore about the moon being made of cheese:

> Scientists trying to determine what the moon is made of got some answers when the first astronauts returned with rock and soil samples. But then all their calculations were thrown off by the seismographic instruments left on the moon's surface. Those instruments reported that shock waves traveled through the moon at an astonishingly slower rate than they do through the earth. Puzzled, scientists tested a wide variety of materials, searching for one that yielded a rate similar to the moon's. One that did: aged provolone cheese.

Prescience apart, prefiguring may also pertain to the interpretation of unfolding events, whether or not this involves agents' intentionality. Suppose agent A believes that the weather conditions observed over the recent several years, in relation to older data, prefigure future major climatic events. Or, then, suppose agent A holds a belief according to which model M forecasts plans or goals in agent B's future behaviour. Now, let B carry out an action, α, which arouses A's suspicion; A may be confirmed in the view that M is valid, and believe that α is either subservient to some plan of B as envisaged in M, or even *prefigures* some action β of a bigger import, and which features prominently in M. By the way, wrong belief confirmation has been represented in artificial intelligence research in terms of faulty planning, in research on humour carried out by a team directed by Michael Dyer in the 1980s at UCLA. See Dyer et al. (1986, 1999).

7 Allusions — in the Eye of a Commentator

In the already mentioned *Europäische Literatur und lateinisches Mittelalter,* Ernst Robert Curtius (1954; on p. 450 in the 1995 Italian edition) makes the following example of medieval misunderstandings of classical texts. The classical text, in Latin, is taken from Lucan's poem *Bellum civile* (also known as the *Pharsalia,* in ten books and never completed). The passage is in adulation of Emperor Nero, of all people. Lucan's verse addresses Nero, by describing to him his future apotheosis at the end of his glorious life. The sky will welcome him with joy, and he will be given the option to take on the role of any of the gods as he, Nero, pleases. Where is Nero to sit? So weighty his presence is going to be, that to keep the sky balanced, Nero's position will have to be on the central axis. Curtius cited vv. 53–59 from Book 1:

Sed neque in arctoo sedem tibi legeris orbe[1]
Nec polus aversi calidus qua vergitur austri,
Unde tuam videas obliquo sidere Romam.[2]
Aetheris immensi partem si presseris unam,
Sentiet axis onus. Librati pondera coeli
Orbe tene medio; pars aetheris illa sereni[3]
Tota vacet, nullaeque obstent a Caesare nubes.[4]

Yet it's not where the [Great] Bear is, that you should choose to reside.[1] Neither [should you opt for] the opposite zone, where the hot southern pole turns, Lest you should stare at your Rome with an slanted star.[2] Should you press [by sitting there] on [just] one part of the immense aether, The axis would feel the weight. The balance of the sky Keep by [choosing] an intermediate orbit; that part of the clear aether[3] be entirely empty, neither let there be any clouds interposed in front of Caesar.[4]

From these most impressive circumstances and details of Nero's foretold, putative afterlife, one is to realize how glorious the living Nero is, or is purported to be according to what Lucan is writing in Nero's life. Curtius is concerned with a medieval commentary to Lucan, the *Commenta Bernensia* as edited by Hermann Usener (1869). Usener was all too aware of the howlers of this commentary, as he felt compelled to apologize in the preface (p. vii): *cur non degustandum sed ingurgitandum in hanc sentinam censuerim* ("as I deemed it necessary not to just have a taste, but rather gulp down [water] from this bilge"; cited by Curtius, *ibid.*). Yet, Curtius points out, it's such inclusiveness on the part of Usener which provides us with the opportunity to find something interesting for understanding medieval misinterpretations. Here are the glosses from the *Commenta Bernensia* (I have inserted numeric superscript in both the Latin verse and its translation above, to put in evidence the correspondence with the glosses, which in the following also carry numbers):

1	*quoniam unum pedem grandem habuit Nero vel quoniam obesus fuit.*	Because Nero was club-footed (had a larger foot), or then because he was obese.
2	*quoniam strabus Nero fuit.*	Because Nero was squint-eyed.
3	*adlusit ad herniam eius.*	It was alluding to his hernia.
4	*ut placidus sis, sed adlusit ad calvitiem.*	So that you may be comfortable; yet, it was alluding to his baldness.

Curtius points out that the physical deformity which the commentator ascribes to Nero—and which, he claims, is alluded to by Lucan's verse—corresponds to Nero's moral monstrosity. (By the way, such a tradition is found in the Jewish homiletic literature, which ascribes a monstruous body to the wicked Nebuchadnezzar.)

Let us introduce the following notation for, respectively, the agents involved, and their time:

A and t_A for Lucan as he was writing in honour of Nero;
B and t_B for Nero as he listens to Lucan's text;
C and t_C for Nero's apotheosis, forecasted by Lucan's text;
D and t_D for the medieval commentator in the *Commenta Bernensia;*
E and t_E for Usener's 1869 edition of the *Commenta Bernensia;*
F and t_F for the 1954 edition of Curtius' book;
G and t_G for our present discussion.

D believes that D can find references to Nero's somatic properties (perhaps known to him from a separate, legendary tradition) as possessed by Nero at time T_A, when the textual source A is originated, and this according to A's description of how Nero will be at T_C as per the allusions (a kind of perlocutionary act: the indirect effect, in terms of speech act theory) that D (wrongly) ascribes to A. Anticipation is in that Nero's present state at t_A and t_B —in Lucan's flattery— can be taken to be illustrated by inference in relation to Nero's foretold future state at t_C (inaccurately foretold, even in the sense that Rome was to deny Nero the standard official apotheosis od deceased emperors, replaced with the *damnatio memoriae* after the coup that eventually deposed him). Anticipation in D's glosses is in that at t_D, source D (or agent D) purports to be able to reconstruct what to him must have been Nero's despicable state at t_A and t_B (which was the present state when the poem was being written and first published), based on things that D is actually overreading in Lucan's depiction of Nero at t_C as conceived by D. On a model of nested beliefs from artificial intelligence, see Ballim and Wilks (1991). That this physical characterization of Nero by D is unwarranted (including its being unwarranted by A), and that D is misascribing to A this belief, the relative communicational intention, and its perlocutionary expression in A's text, is something that F (as cited here, i.e., in G) ascribes to E, on the strength of an assumption about what a modern Western scholar would believe, along with an application to a detail (the textual crux under discussion) of the generally stated complaint stated by E in E's preface.

Lucan—Nero's friend and a nephew of Seneca, Nero's tutor—by the time he was writing the rest of the *Pharsalia* was no longer Nero's admirer, which was reflected in the replacement of the dedication and in the republican ideological orientation of the later book in that unfinished work. Having taken part in Piso's failed plot against Nero, and notwithstanding his trying to save himself by informing about other plotters, Lucan was doomed; ordered to take his own life, he complied, at 26, cutting his veins in the bath and reciting meanwhile his verse. This evolution of what is to us here an agent, Lucan, over five years (60 to 65 C.E.), has us distinguish between A at T_A or t_B and the later Lucan, whose own demise preceded Nero's. t_A was in the year 59 or 60, whereas t_C is the variable for the time of Nero's death and apotheosis (A doesn't tell Nero, say: "You'll live 64 years from now and then die"), and the time of Nero's actual death is not suited by t_C as the foretold scenario was no longer relevant. Even Lucan had outlived the pose, or then the belief in the unlikely event he had ever believed his proclaimed forecast.

One must bear in mind that the very attitudes to forecasting vary, from culture to culture. For example, take astrology. There is little reason nevertheless to conceive of Lucan's flattering view of Nero's apotheosis as being on the same basis as a horoscope would have been in the Roman world (with the according expected credibility within the contextual culture). Mark Riley (1987) set out to reconstruct the approach of Ptolemy (otherwise known as a geographer and astronomer) within Graeco-Roman astrology. "Although Ptolemy was respected as a pathfinder and a careful researcher, and although his *Tetrabiblos,* virtually the Bible of astrology, was copied, commented on, paraphrased, abridged, and translated into many languages, we have but little evidence to suggest the nature of his personal commitment to astrology as a practical system of forecasting" *ibid.,* p. 235). Whereas "the ancient writers on astrology were not scientists under any reasonable definition and had no trouble mixing what [Riley] called the scientific and the mythical strands of astrology[,] Ptolemy, on the other hand, treated the scientific strand systematically, while simply using the mythical. This uneasy combination of physical and geometrical principles with mythical attributes is also visible in a brief work [of 1601] of Johannes Kepler, perhaps the last astronomer of note who was also a devotee of astrology" (Riley, 1988, p. 82). Back to Graeco-Roman antiquity, "[t]he *Anthologies* of Vettius Valens, the notebooks of a practicing astrologer, show no distinction between a star's physical nature and its mythical attributes: hot, cold, wet, dry, fierce, hostile, kindly, elegant, all are jumbled indiscriminately together. Only in the theoreticians of the art, in Ptolemy and Kepler, do we find the two strands treated separately" *(ibid.,* p. 84). Lucan's approach to forecasting is literary, not astrological. Yet, the two things do not exclude each other: "Mathematicians, geometers, and others in what we would call (anachronistically) the

scientific specialties were almost certainly considered part of the literary world—or more precisely, as possible participants in literary discussion" (Riley, 1987, p. 251). "I [Riley] would suggest that an astronomer [...] or an astrologer would likewise be admitted to the circle of sophistic participants. Even if we cannot prove this assertion, we can see that the astrologers enthusiastically attacked their rivals very much as the sophists did" *(ibid.)*. And here Riley makes a distinction which for our purposes is useful: between the credibility of a methodology and the credibility of a practitioner: "The astrologers abused others and cast a religious aura on their own work, not to defend astrology or to prove its value—they were attacking their fellows, not unbelieving outsiders—but to gain a livelihood. They are attempting to elevate themselves in the eyes of their students and the public. [...] Now Ptolemy is not entirely immune to the pleaures of attacking his colleagues; he is however more restrained", *(ibid.)*, criticising yet not vilifying, a theorist, not a competing practitioner. This brings into the discussion motives behind credibility and the strategies and tactics to seek it.

Another point I would like to raise is that Lucan's forecast of Nero's afterlife is reinterpreted by the medieval commentator as being a very different narrative from the one that we, with Curtius, understand in Lucan's text, yet this different narrative is expressed in Lucan's exact wording. This is a particular case of the general situation where narratives (in folklore, in literary traditions, and in sacred traditions) are retold in various forms. In Nissan et al. (1996), I defined a notation for such handing down; it was preceded by an example of a narrative being retold not only in a different culture, but also in different media:

> The transition of traditions is not just across cultures, but also across genres and media, which involves the respective conventions resulting in "baggage" from one source (such as medium-induced incidents) being possibly carried over to the next version, possibly supported by another medium. Here is an example. Yvonne Friedman (1983) discusses the identification of sculptures (from before 1130) on the façade of the cathedral in Poitiers, Notre-Dame-la-Grande, with Biblical characters (unrelated in the Bible itself). Like previous authors, she finds a parallel with the *dramatis personae* of a religious play, *Ordo Prophetarum*, but not with the sermon of Quodvultdeus, from which the play is known to be derived. Therefore, it must have been the play that provided the inspiration for the sculptures. Friedman deals with the interplay of popular Medieval Western culture —as reflected in the theater of holy representations— and the texts of erudite theological polemists, in the particular perspective of anti-Jewish controversies in the 12th century. The *Tractatus adversus Judaeorum inveteratam duritiem* by Petrus Venerabilis quotes from prophets and other Biblical characters, and introduces them before the respective quotation, the way *dramatis personae* would be called onstage in the religious plays of its times and culture. Theater, in turn, derived elements not just from texts, but also from local coeval mores, and a reflection of this can be seen in sculpture as inspired by theater *(ibid.: 187)*:
>
> > The well-known motif that has Adam and Eve chased from Paradise, was plastically represented in a peculiar way, in the church of Notre Dame du Port in Clermont Ferrand. The sculpted image depicting Adam as he kicks Eve in the butt and pulls her hair, describes not the account given in the Bible, but rather the dramatization in the play *Jeu d'Adam*.
>
> It bears witness to the possible pitfalls, due to cross-medial contamination, of what otherwise is an indicator of how much the reception of a text, e.g., a Biblical narrative, owes to the social and mentality patterns of the culture in which that reception takes place. The contrast of cross-medial information and knowledge in hypermedia is thus compounded, in view of the trans-medial nature that handing down may take (significantly, 'handing down' or 'moving on' being the etymological sense of 'tradition' and 'translation').

The notation I defined *(ibid.)* is as follows:

> Here is a possible notation. Let p be a path, a sequence, an ordered set of transitions t of a core item, x, of information (e.g., an occurrence of a motif), from source (or 'text') u as supported by medium m, to source v as supported by medium n. We symbolize this instance

of transition as $_u^m t(x)_v^n$ and have this act as a function symbol $T_i \equiv {}_u^m t(x)_v^n$ that then we employ in: $X_{i+1} = T_i(X_i)$. Now, if we are to consider the inverse function, T_i^{-1}, then in general we should not take it for granted that $X_i = T_i^{-1}(X_{i+1})$, but rather assume, to be on the safe side, that $X_i' = T_i^{-1}(X_{i+1})$, where $X_i' = X_i$ may hold in particular cases. This is due to the fact that x is just a core of information, and that sources may supplement it in ways partly influenced by the "genius" of the particular medium (e.g., because of traditional repertoires of style and genre as associated with that medium, in given cultures or clusters of related cultures).

Let one instance of the path be $p = {}_u^m t_1(x)_v^n t_2(x)_w^o \ldots$, that is:

$$p = \{\, T_1,\ T_2,\ \ldots \,\} \equiv \{\, {}_u^m t_1(x)_v^n,\ {}_v^n t_2(x)_w^o,\ \ldots \,\}.$$

This reflects the trans-source and trans-media handing down of x. More generally, we can conceive of a network, with path ramifications and coalescence. An example of this is the depiction of Adam and Eve we quoted Friedman as relating about.

8 Recapitulating Remark

Anticipation is ubiquitous, in narrativized accounts of real-life experience as well as in literary texts. It permeates human communication in manyfold aspects. Expectation may be implicit or subliminal, explicit or a veiled cue in a text, a perceived omen, or then a later understanding of an event or a report as though some agent possessed a belief anticipating future events. As seen in this paper, beliefs in which the ascription is embedded of prescient beliefs may be sincere, or, then, jocular. Scholars acribe subliminal anticipation to a stutterer in order to explain the condition, whereas law explicitly contemplates (before it happens) how to deal with standard situations where anticipatory breach of contract can be configured.

And, of course, there is planned human action. Whether it is how a basketball team is planning a match by evaluating its own and its opponents' assets and anticipating which the opposing team is likely to adopt based on this —the BASKETBALL expert system outputs this kind of advice (Nissan et al., 1992)— or, then, how a criminal is counterplanning in order to fool the detectives future plans to discover or capture him. Or, then again, how business people or economists producing and acting upon forecasts in quite decent circumstances.

In this paper I devoted special attention to phenomena involving anticipation in communication, such as in rhetoric, or literary style, or even an entire literary genre (time travel). Part II of this paper is devoted to a formal analysis of one element in a fairly complex narrative reworking combined literary traditions. Ascription to a historical character of knowledge about the future is involved, in mock-explanation of how it came to pass that America was not named after Columbus.

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254

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